UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO

FACULTAD DE INGENIERÍA

DISEÑO ESTRUCTURAL DE UN RACK DE ACERO ESTRUCTURAL PARA PLANTAS INDUSTRIALES

TESIS

QUE PARA OBTENER EL TÍTULO DE:

INGENIERO CIVIL

P R E S E N T A :

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DIRECTOR DE TESIS:

M. I. MIGUEL ANGEL RODRIGUEZ

Ciudad Universitaria, Cd. Mx., 2019

DEDICATORIA:

Esta tesis se las dedico con todo mi amor y cariño a mis hijos Ricardo Josué, Ulises Yael y Paulina Yareli por ser la fuente de motivación e inspiración para poder superarme día a día. Esperando que este trabajo también sea una fuente de inspiración para ellos para lograr sus metas y objetivos.

También se la dedico con mucho amor a mi madre y mis hermanos, por ser las personas que más me apoyaron y motivaron para este logro.

AGRADECIMIENTOS:

Ante todo, agradezco a Dios por darme salud, porque gracias a ello he podido lograr este objetivo en mi vida.

Gracias a mi madre y mis hermanos por su apoyo incondicional, por su motivación para lograr esta meta.

Gracias a mis hijos por ser parte de mi vida y ser una fuente de motivación para el logro de este objetivo.

Gracias a mi director de tesis y los sinodales por su enorme apoyo.

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Gracias a todos.

Introducción:

Una de las estructuras que se encuentra presente en la mayoría de las plantas industriales son los soportes de tuberías o soportes de instalaciones eléctrica llamado comúnmente Rack de Tuberías o Rack de charolas eléctricas y de instrumentación, esta estructura es una sucesión de marcos de acero estructural restringidos longitudinalmente por vigas o trabes, y se caracterizan por tener una gran longitud y su sección transversal puede ser constante o variable dependiendo de las necesidades de cada proyecto, su elevación puede variar de acuerdo al número de "camas" necesarias para el proyecto. Su principal función es brindar soporte durante su trayectoria a tuberías y/o charolas eléctricas y/o charolas de instrumentación, en algunos casos pueden soportar equipos como aroenfriadores o tanques, en la siguiente imagen se muestra la forma clásica de un Rack de Tuberías, de acero estructural con sección transversal constante.

Forma clásica de la estructura de un Rack de Tuberías de Acero.

La falla de una estructura de este tipo puede causar grandes daños tanto económicos, como ambientales o de pérdidas humanas, por lo que estas estructuras se deben diseñar a conciencia considerando todas las fuerzas y combinaciones de estas, que incluyan todas las condiciones que afectan su estabilidad.

La presente tesis ofrece una guía para el Ingeniero Civil de Diseño Estructural, al describir una metodología para el análisis, diseño y construcción de un Rack para transporte de Tuberías y/o charolas eléctricas y de instrumentación, utilizado en instalaciones industriales.

Con este fin en el capítulo 1 se comienza por dar una descripción general y particular del proyecto, así como de la estructura y su cimentación, aportando datos tales como:

- Ubicación geográfica
- Alcance del proyecto de esta tesis
- Geometría de la estructura

En el capítulo 2 se determinan los criterios de diseño como son: los materiales de construcción, se da una descripción de las cargas que actuaran en la estructura y se determinan los reglamentos y la normatividad para el análisis y diseño de la estructura,

En el capítulo 3 se determina toda la información necesaria para el modelo estructural mediante un software para análisis y diseño estructural (Staad Pro). Se calculan y se indican todas las fuerzas estáticas y dinámicas que actúan sobre el modelo estructural, se describen también las combinaciones necesarias de acuerdo a reglamento para la revisión de los estados límite de servicio, de los estados límite de falla y el diseño de los elementos tanto de la superestructura, como de su subestructura (cimentación).

En el capítulo 4 se realiza el análisis para la obtención de los periodos de la estructura y se revisa que se cumplan con los cortantes basales.

Habiéndose realizado el análisis en el capítulo 5 se hace la revisión de los estados límites de servicio, de los estados límite de falla, así como el diseño final de los miembros, se recurre a los resultados arrojados del modelo analítico de la estructura y parte de la cimentación (trabes de liga) mediante el software Staad Pro; en él se manejan las cargas, combinaciones de carga y resistencia de materiales, basados en los manuales y códigos mencionados en el capítulo 2 tanto nacionales como internacionales.

En el capítulo 6 se realiza el diseño de la subestructura (cimentación).

En el capítulo 7 se presenta el procedimiento constructivo en este tipo de estructuras donde con: detalles y croquis se logra mostrar los pasos y beneficios del método constructivo adoptado.

En el capítulo 8 se dan las conclusiones de este proyecto.

1.0 Antecedentes

1.1. Localización del proyecto.

Se pretende conformar un proyecto denominado "Central Ciclo Combinado " 171 CC AGUA PRIETA II (con campo solar)" fase 1, se construirá en el sitio denominado El Ejido Agua Prieta que se localiza al oeste-suroeste de la ciudad de Agua Prieta, Sonora, aproximadamente a 7.4 km del centro de la ciudad de Agua Prieta y a 3.6 km al noroeste de la cabecera norte de la aeropista municipal la (Calera), que está ubicado en las coordenadas latitud norte 31º 15´ 59.09" y longitud oeste 109º 35´ 25.53", y cuenta con una altura de 1198.50 msnm. En la Imagen 1.1 se indica la ubicación geográfica del proyecto.

Imagen 1.1 Ubicación geográfica del proyecto "Central Ciclo Combinado " 171 CC AGUA PRIETA II (con campo solar)" fase 1,
(Fuente: www.Maps.com)

El proyecto es el diseño y construcción (EPC) de una planta de ciclo combinado, la cual consta de varios equipos y estructuras, entre las cuales se encuentra como una de las principales por su magnitud el Rack de Tuberías y charolas eléctricas cuyo diseño motiva la presente tesis.

El Rack de Tuberías estará compuesto por cuatro módulos: Rack tren 1 y 2 (Norte y Sur), Rack Principal, Rack de Aeroenfriador y Rack de servicios. Para esta tesis solo se desarrollará el análisis y diseño del Rack Principal Norte-Sur. La estructura para este Rack será a base de marcos de acero, se instalará una plataforma para mantenimiento y control de válvulas de las tuberías. Estructuralmente, el rack se diseñará con marcos rígidos de acero en la dirección transversal y con marcos de acero contraventeados longitudinalmente. Para la cuestión de diseño y montaje se considerará lo siguiente: las conexiones o uniones hechas en taller serán soldadas, mientras que las que se realicen en campo serán atornilladas para los marcos longitudinales y conexiones soldadas en campo para los marcos transversales. La cimentación de este rack se resolverá con zapatas aisladas y de ser necesario de acuerdo con el diseño, también se utilizarían trabes de liga.

En la planta de arreglo general que se muestra en la Imagen 1.2 podemos apreciar la distribución de algunos de los diferentes equipos del proyecto además se indica la ubicación que tiene el Rack dentro de la planta.

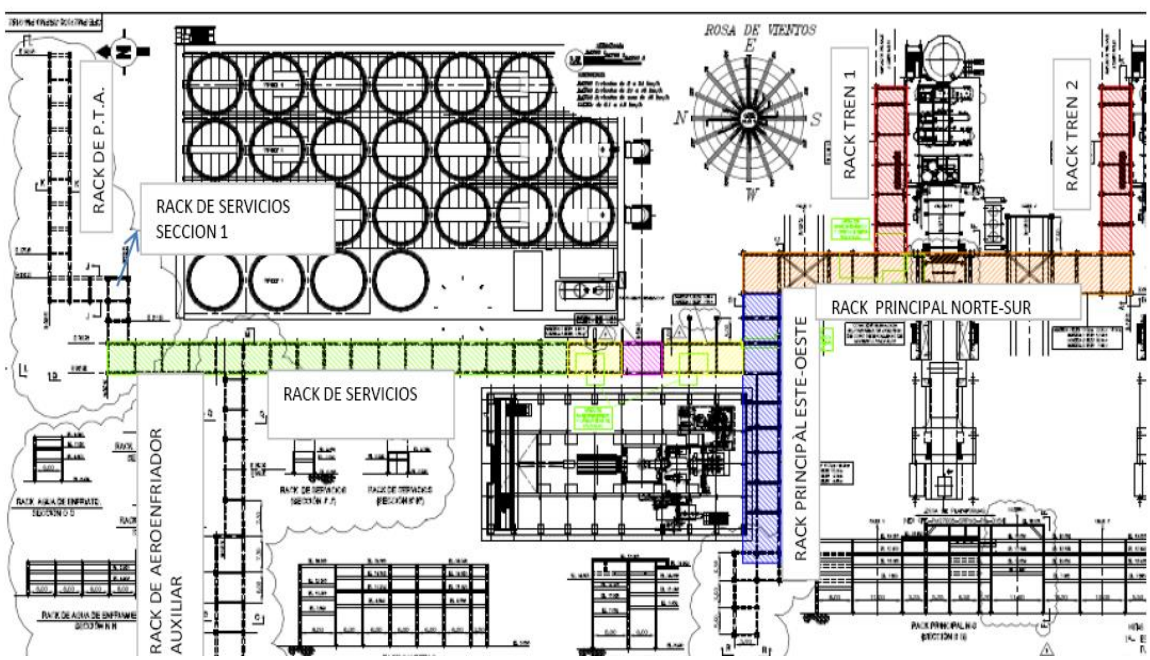


Imagen 1.2 Planta de arregló general del proyecto, se indica la ubicación del Rack de Tuberías.
(Fuente: Plano de proyecto CFE-PM27005-SRPM3-PM-0152 Rev. 0)

1.2. Alcances del proyecto.

El diseño estructural del Rack de Tuberías se lleva acabo contemplando las fuerzas: gravitacionales, por cambios de temperatura, sísmicas, de viento y de tuberías en operación, estas últimas son proporcionadas por un estudio previo de flexibilidad realizado por la disciplina de tuberías.

Como parte del análisis, se revisa los estados límite de falla y de servicio comparativamente con los valores permisibles establecidos para cada caso.

Para el análisis y diseño de la estructura, se realiza un modelo tridimensional utilizando el programa “STAAD-PRO”, dicho modelo consta de barras o miembros conectados entre sí y que representan los diferentes elementos estructurales como vigas y columnas, en este modelo se especifican los materiales, sus apoyos, secciones, condiciones y combinaciones de carga.

Es importante mencionar que la definición de la geometría en cuanto a elevaciones y dimensiones que tendrá el Rack de Tuberías se hace mediante una conciliación con las diferentes disciplinas que participan en el proyecto.

1.3. Descripción de la estructura.

El tipo de cimentación se determina de acuerdo a la capacidad del terreno, la cual es dada por el estudio de mecánica de suelos del proyecto (se indican los datos de esto último en el diseño de la cimentación).

La cimentación para este rack de tuberías será superficial y estará formada por zapatas aisladas y trabes de liga de concreto reforzado tanto en el sentido transversal como en el longitudinal.

Por otro lado Estructuralmente, el rack se diseñará con marcos rígidos de acero en la dirección transversal y con marcos de acero contraventeados longitudinalmente. Las conexiones o uniones hechas en taller serán soldadas mientras que las que se realicen en campo serán atornilladas para los marcos longitudinales y conexiones soldadas en campo para los marcos transversales.

Un aspecto adicional de mucha importancia para el diseño de la estructura del rack es el hecho de que no podrán utilizarse secciones cerradas o tubulares ni tampoco perfiles de pared delgada como el caso de los laminados en frio, por lo que se utilizarán para los marcos secciones abiertas tipo “IR”. Lo anterior es debido a los altos índices de corrosión, lo cual con secciones cerradas se agravan mayormente.

En planta el Rack de Tuberías tiene un de ancho de 8 m y una longitud total de 86 m que se divide como se muestran en la siguiente imagen 1.3.

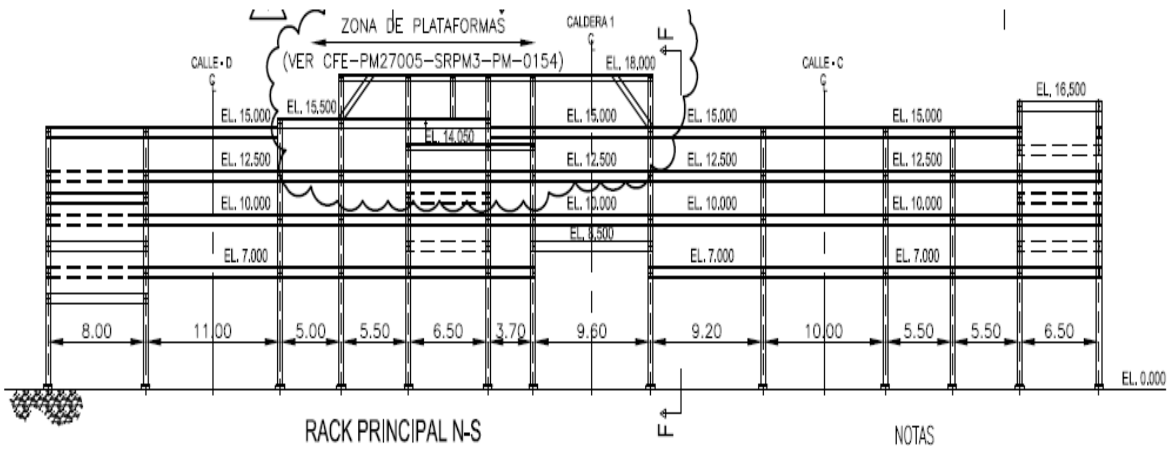


Imagen 1.3 Dimensiones en elevación del Rack de Tuberías.
(Fuente: Plano de proyecto CFE-PM27005-SRPM3-PM-0152 Rev. 0)

En la elevación de la Imagen 1.3 se observa que el Rack tiene una altura máxima de 18 m y está compuesto de hasta 5 niveles “camas” sobre las cuales se apoyan tuberías, válvulas, cableado eléctrico y de instrumentación.

2.0 Criterios de diseño y análisis estructural.

2.1 Propiedades mecánicas de los materiales.

A continuación, se describen los diferentes materiales que constituyen los elementos estructurales con sus respectivas resistencias.

a) Concreto para elementos en contacto con el suelo con una resistencia mínima a la compresión (zapatas, dados y trabes de liga).

$f'c = 250\ Kg/cm^2 = 24.5\ Mpa$

b) Acero de refuerzo (varillas corrugadas, Grado 60, Norma ASTM-A615) con límite de fluencia.

$Fy = 4200\ Kg/cm^2 = 412\ MPa$

c) Acero Estructural (para placas, perfiles y redondos, Norma ASTM-A36) con un límite de fluencia.

$Fy = 2530\ Kg/cm^2 = 248.193\ MPa$

d) Tornillos Estructurales para conexiones principales Norma ASTM-A325.

e) Tornillos para conexiones secundarias Norma ASTM-307.

f) Soldadura Electrodos tipo E70XX de acuerdo con la Norma AWS-A51.

g) Rellenos para cimentaciones según Estudio de Mecánica de Suelos.

2.2 Análisis de cargas muertas y cargas especificadas.

Carga muerta (D)

Las cargas muertas incluyen el peso específico de los materiales de construcción que constituyen el Rack de Tuberías, además de plataformas, equipos y materiales que estén de forma permanente sobre la estructura.

En la carga muerta se considera el peso propio de la estructura, teniendo en cuenta que la densidad para el acero estructural es de 7.83 ton/m^3 y para el concreto reforzado es de 2.4 ton/m^3.

El peso de la estructura es generado por el programa “STAAD PRO” a través del comando "selfweight".

Para las plataformas además del peso propio de los elementos, se considera rejilla Irving IS-05 4.8x25.4 con un peso de 35,2 kg/m = 0,345 KN/m

Cargas Vivas (L)

ELEMENTO	Lmax(KN/m^2)	L acc(KN/m^2)
Plataformas y pasillos de operación	4.905	2.453

Carga por Tuberías

Para el diseño de las estructuras que soportan rutas de tuberías de alta presión como el Rack de Tuberías que se está analizando en esta tesis, la carga estará de acuerdo a la concentración y peso de los tubos llenos de agua y a las válvulas que se tengan, siendo proporcionadas por la disciplina de tuberías. La carga de tuberías se define como la carga del tubo mismo, con sus accesorios y contenido, las cuales están divididas en tres categorías. Ver anexo A.

1) Tubería vacía (**Q1**)
2) Tubería en operación (**Q2**)
3) Tubería Llena de agua en prueba hidrostática (**Q3**)

Q1.- Deberá ser utilizada solo para la verificación de la estabilidad del equipo con carga de viento, para la revisión por sismo se usará Q2 para verificar la estabilidad.

Q2 y Q3. Deben combinarse con otras cargas como se especifica en el capítulo 3.5.

Carga por Charolas Eléctricas (CH)

Se deben tomar en cuenta el peso de charolas con cableado, su soportería y combinarse como se indica en capítulo 3.5.

Carga de Sismo (S)

La carga de sismo deberá estar de acuerdo a lo indicado en el "*Manual de Diseño de Obras Civiles de la CFE-2008" (MDOC. CFE DS 2008)*. Se usará el método dinámico de análisis modal espectral con espectro de respuesta, los parámetros sísmicos se describen en el Capítulo 3.3.

Además, se considera el espectro transparente que es proporcionado en el estudio de mecánica de suelos del proyecto.

Para evaluar las masas de la estructura se considerarán las siguientes cargas:

Carga muerta total (peso propio y válvulas, peso de los largueros, etc.)

Carga de Viento (V)

El diseño por viento será realizado de acuerdo al "*Manual de Diseño de Obras Civiles de la CFE-2008 Diseño por viento" (MDOC. CFE DV 2008)*.

Considerando una velocidad regional Vr = 155 km/hr (con un periodo de retorno Tr= 200 años a 1200 metros de altura SNM)

Categoría del terreno es tipo 2 (plano u ondulado con pocas obstrucciones)

Carga de Temperatura (T)

Las fuerzas térmicas actuantes sobre las estructuras y equipos debido a las restricciones de las tuberías calientes, deberán ser consideradas en el diseño tomando en cuenta su magnitud y dirección de acuerdo al reporte análisis hecho a las tuberías.

2.3 Códigos, normas y referencias aplicables.

Los códigos y normas empleados para el diseño son los contenidos en los siguientes manuales y reglamentos.

a) Parámetros y criterios para Sismo, Manual de Diseño de Obras Civiles de la CFE-2008 *(MDOC. CFE DS 2008).*

b) Parámetros y criterios para Viento. Manual de Diseño de Obras Civiles de la CFE-2008 *(MDOC. CFE DV 2008).*

c) Características del Cemento Normas ASTMC-150 Normas ASTMC-150

d) Características del Acero de Refuerzo Normas ASTM-A615

e) Diseño de Estructuras de Concreto Manual del ACI-318-08

f) Diseño de Estructura de Acero Manual AISC –LRFD, 3ª Ed.

3.0 Procesamiento de información para el análisis estructural.

3.1 Estructuración (Modelo estructural).

Para el análisis y diseño de la estructura, se realiza un modelo tridimensional utilizando el programa “STAAD-PRO”, dicho modelo consta de barras o miembros conectados entre sí que representan a las diferentes vigas, trabes de liga, contra vientos, largueros y columnas, en este modelo se especifican los materiales, sus apoyos, secciones y las diferentes condiciones y combinaciones de carga. Es importante hacer notar que las trabes de liga y los dados de apoyo forman parte de la cimentación.

De acuerdo a las dimensiones en planta y elevación de la estructura para el Rack de Tuberías se genera el modelo tridimensional, en las imágenes 3.1 a 3.7 se muestra la conformación del modelo analítico compuesto de nodos y barras.

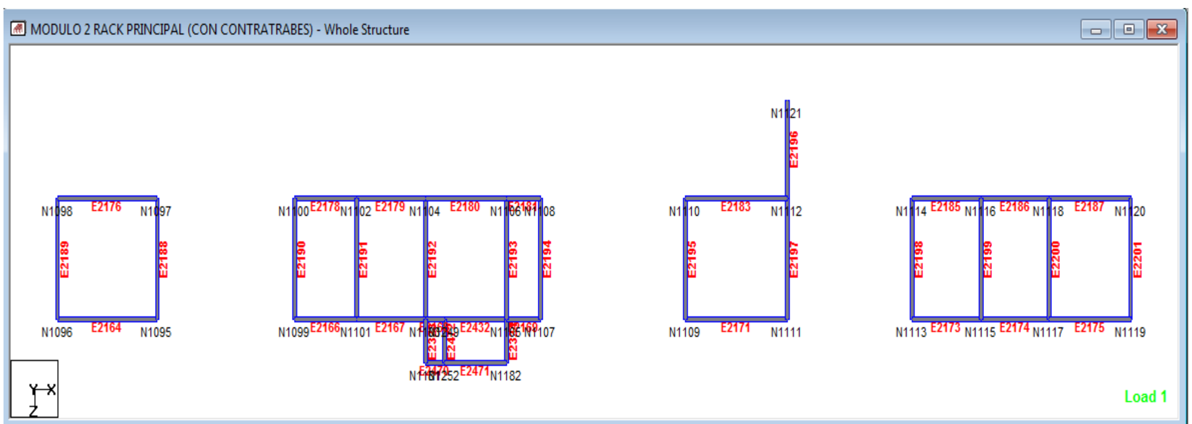


Imagen 3.1 Modelo analítico planta de cimentación

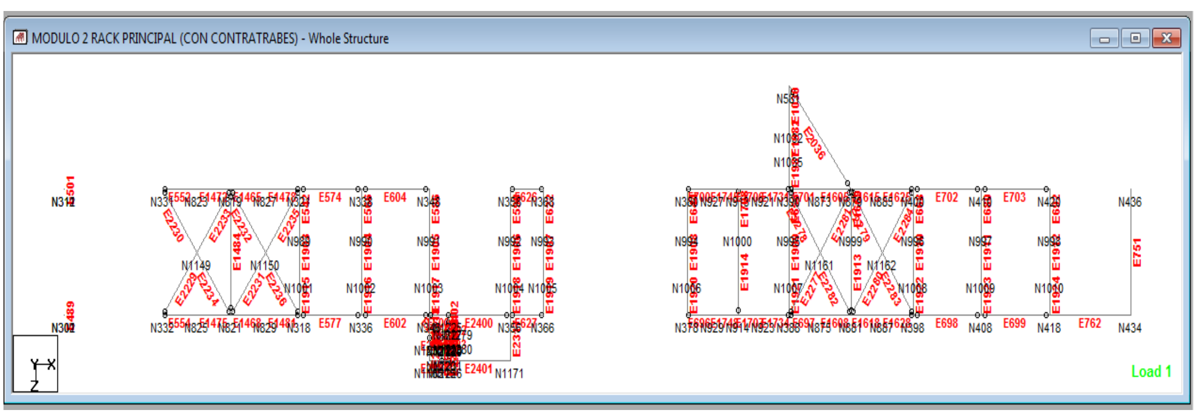


Imagen 3.2 Modelo analítico planta estructural nivel 7.00

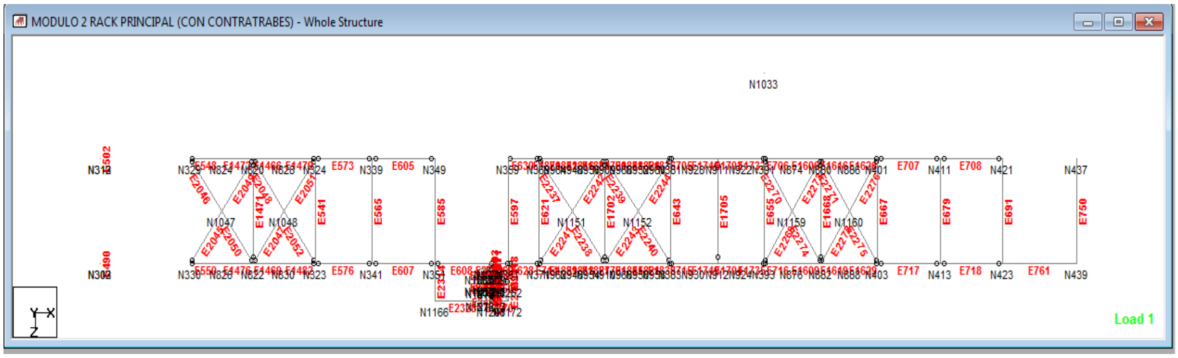


Imagen 3.3 Modelo analítico planta estructural nivel 10.00

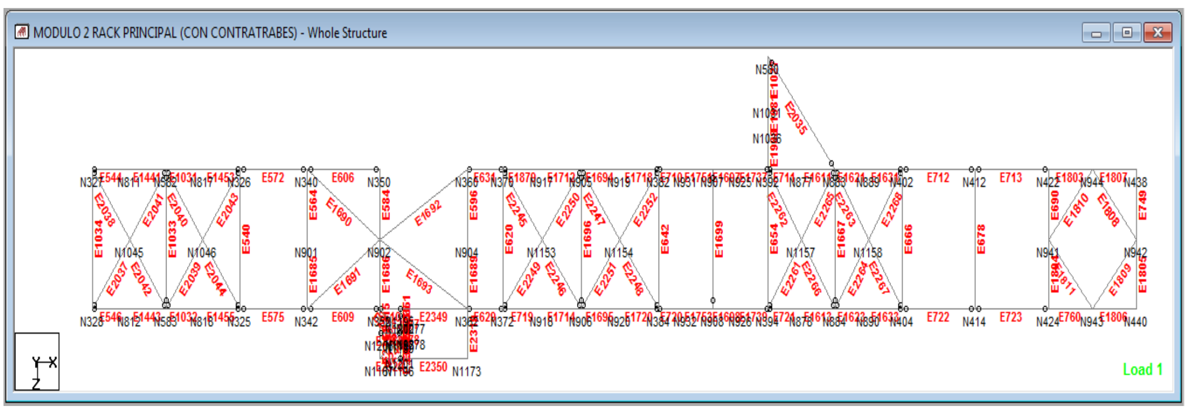


Imagen 3.4 Modelo analítico planta estructural nivel 12.50

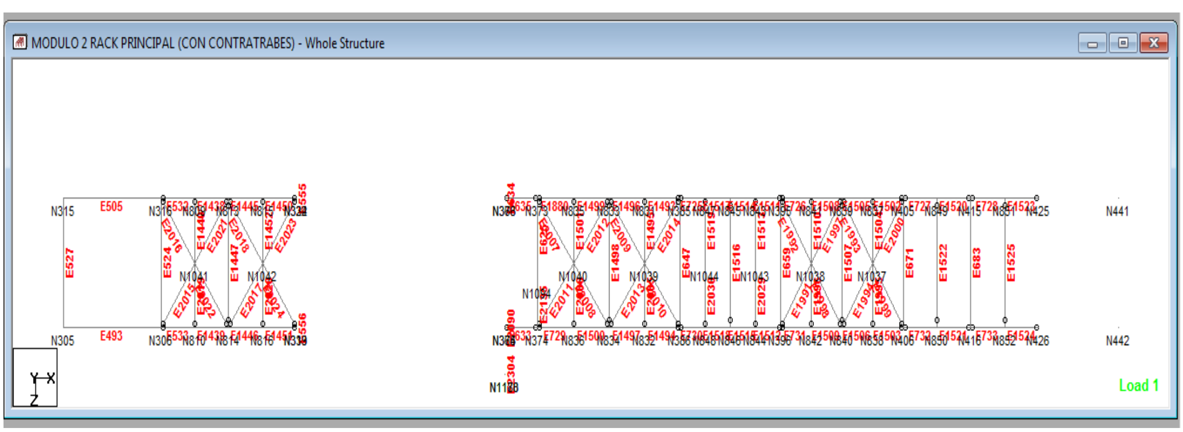


Imagen 3.5 Modelo analítico planta estructural nivel 15.00

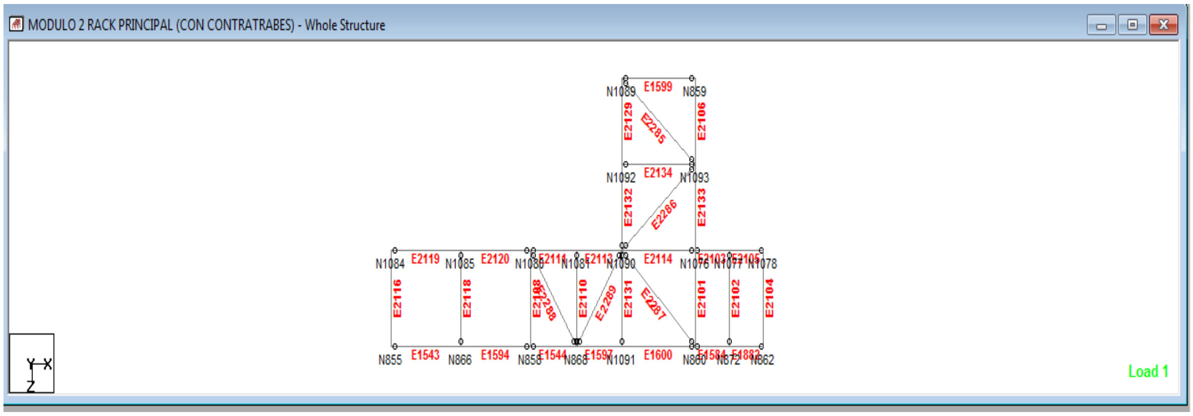


Imagen 3.6 Modelo analítico planta estructural nivel 18.00

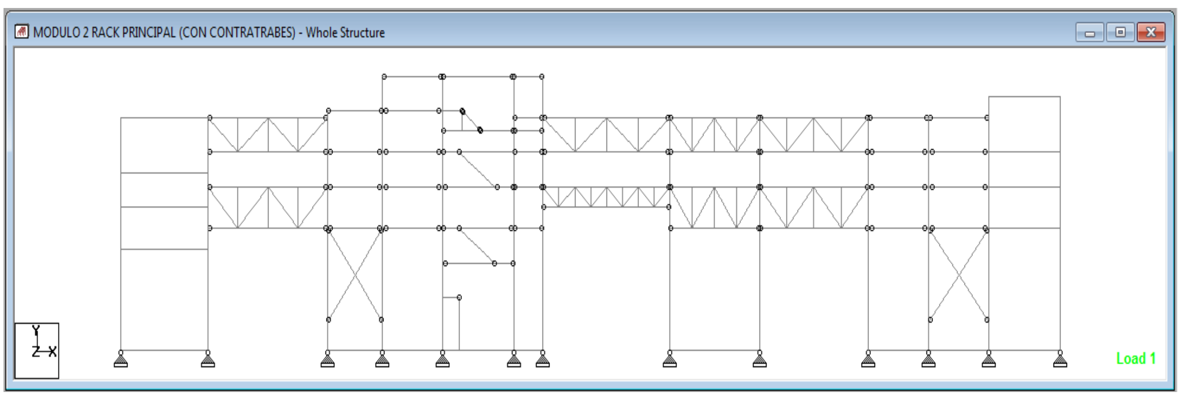


Imagen 3.7 Modelo analítico elevación longitudinal

Una vez generados los elementos barra se procede a generar cada una de las secciones para columnas, vigas y largueros.

Con lo anterior se definen las secciones en el programa como se puede ver en la Imagen 3.6.

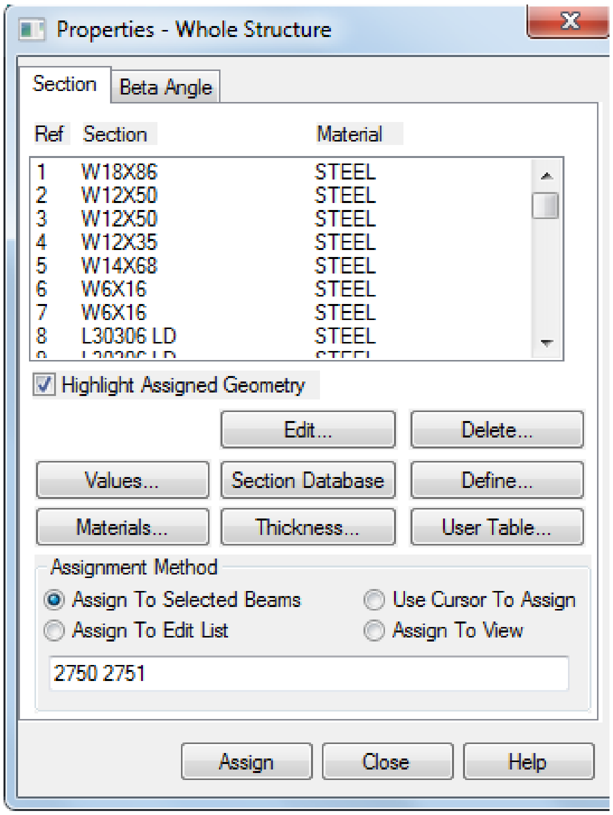


Imagen 3.6 Definición de secciones con sus respectivos materiales en el modelo analítico.

Para el diseño del Rack de Tuberías que motiva esta tesis las secciones quedan de la siguiente forma:

TABLA DE PERFILES

MARCA	PERFIL	PESO k/m	d	bf	tf	tw
C–7	IR.–457	128.10	467	281	19.56	12.19
C–7A	IR.–457	144.30	472	283	22.09	13.59
C–7B	IR.–305	59.81	303	203	13.1	7.5
C–8	IR.–254	44.8	266	148	13.0	7.6
C–9	IR.–305	74.40	310	205	16.3	9.4
C–9A	IR.–305	52.2	318	167	13.2	7.6
C–10	IR.–203	31.2	210	134	10.2	6.4
T–16	IR.–305	74.40	310	205	16.3	9.4
T–30	IR.–305	79.00	306	254	14.6	8.8
T–13	IR.–356	101.3	357	255	18.3	10.5
T–32	IR.–305	74.40	310	205	16.3	9.5
T–19	IR.–305	52.2	318	167	13.2	7.6
T–20	IR.–203	31.2	210	134	10.2	6.4
T–21	IR.–254	44.8	266	148	13.0	7.6
T–22	IR.–305	59.8	303	203	13.1	7.5
T–23	IR.–305	59.8	303	203	13.1	7.5
T–24	IR.–305	96.7	308	305	15.4	9.9
T–25	IR.–203	35.9	201	165	10.2	6.2
CH–4	IR.–203	31.2	210	134	10.2	6.4
CV–5	IR.–254	44.8	266	148	13.0	7.6
CV–6	IR.–203	312	210	134	10.2	6.4
CV–6A	2LI.–102x10	29.16				
CH–6	IR.–305	44.5	313	166	11.2	6.6
CH–7	2LI.–76x10	21.44				

ARMADURAS AR–2, AL AR–6, AR–8, y AR–9

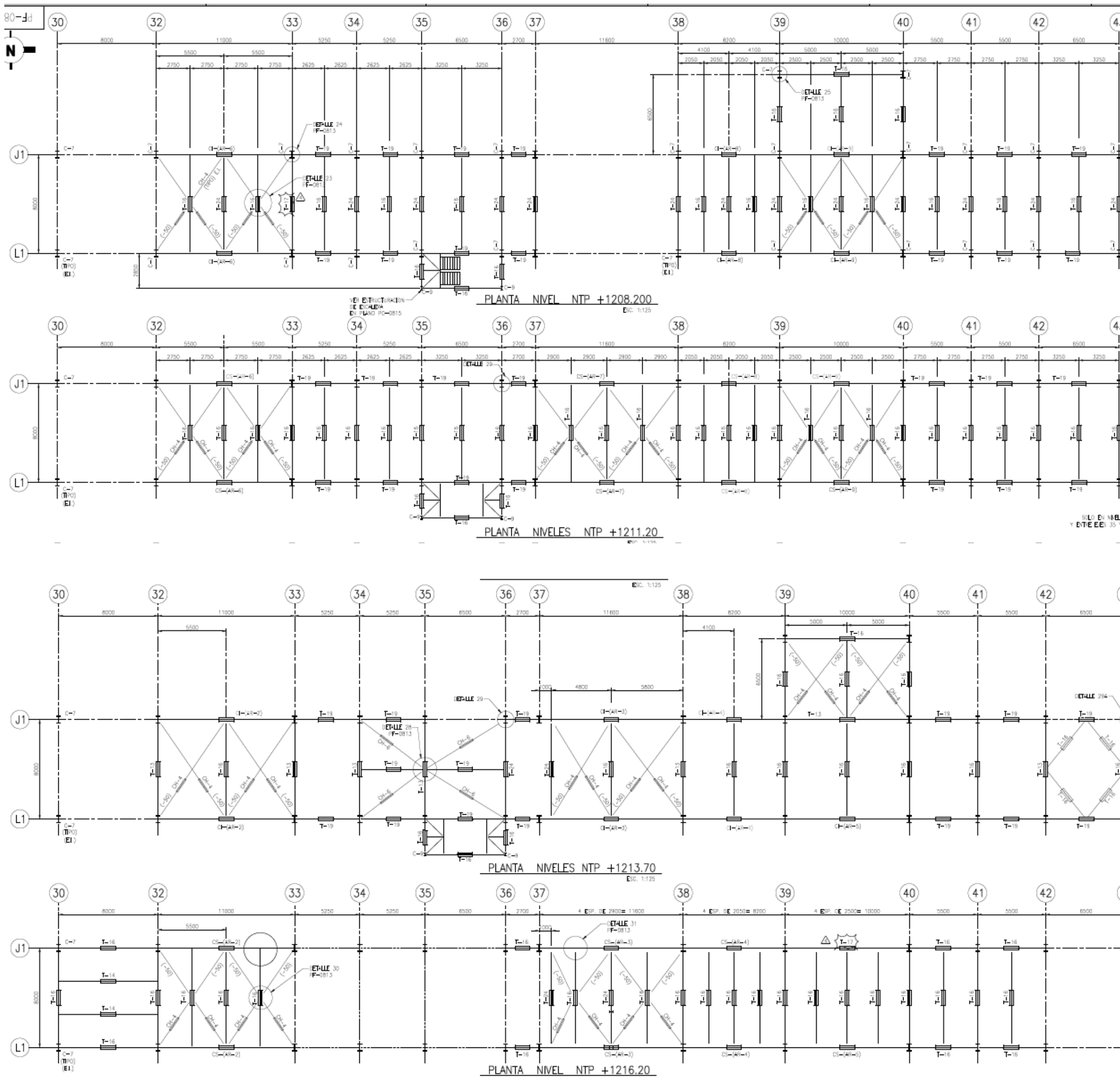
MARCA	PERFIL	PESO k/m	d	bf	tf	tw
C.S.	IR.–305	74.4	310	205	16.3	9.4
C.I.	IR.–305	74.4	310	205	16.3	9.4
D	2LI.–76x10	21.44				
M	IR.–152	24	160	102	10.3	6.6

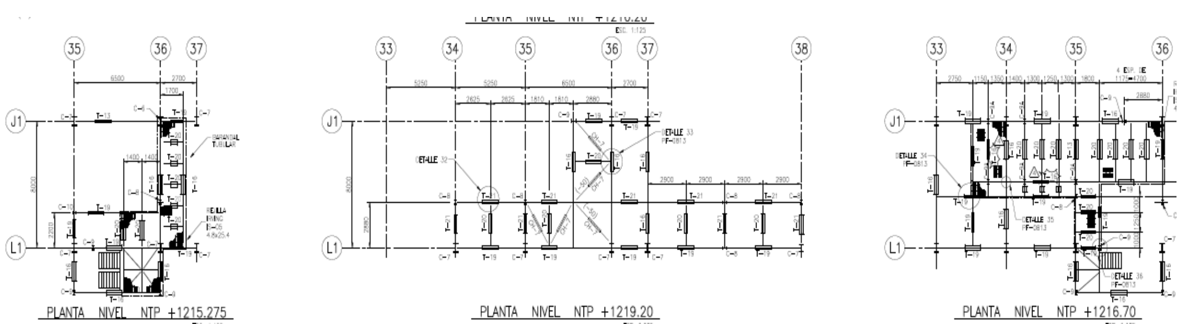
AR–7

MARCA	PERFIL	PESO k/m	d	bf	tf	tw
C.S.	IR.–305	52.2	318	167	132	7.6
C.I.	IR.–305	52.2	318	167	132	7.6
D	LI.–64x10	11.16				
M	IR.–152	24	160	102	10.3	6.6

NOMENCLATURA

C.S.	CUERDA SUPERIOR
C.I.	CUERDA INFERIOR
AR	ARMADURA
PB	PLACA BASE
D	DIAGONAL
M	MONTANTE
NPT	NIVEL PISO TERMINADO
NTP	NIVEL TOPE DE PERFIL
NDE	NIVEL DESPLANTE DE ESTRUCTURA
C	COLUMNA
T	TRABE
CH	CONTRAVENTEO HORIZONTAL


PLANTA NIVEL NTP +1208.200
PLANTA NIVELES NTP +1211.20
PLANTA NIVELES NTP +1213.70
PLANTA NIVEL NTP +1216.20


PLANTA NIVEL NTP +1215.275
PLANTA NIVEL NTP +1219.20
PLANTA NIVEL NTP +1216.70

Se procede a asignar a cada elemento barra su sección correspondiente la Imagen 3.7 muestra el resultado de este proceso.

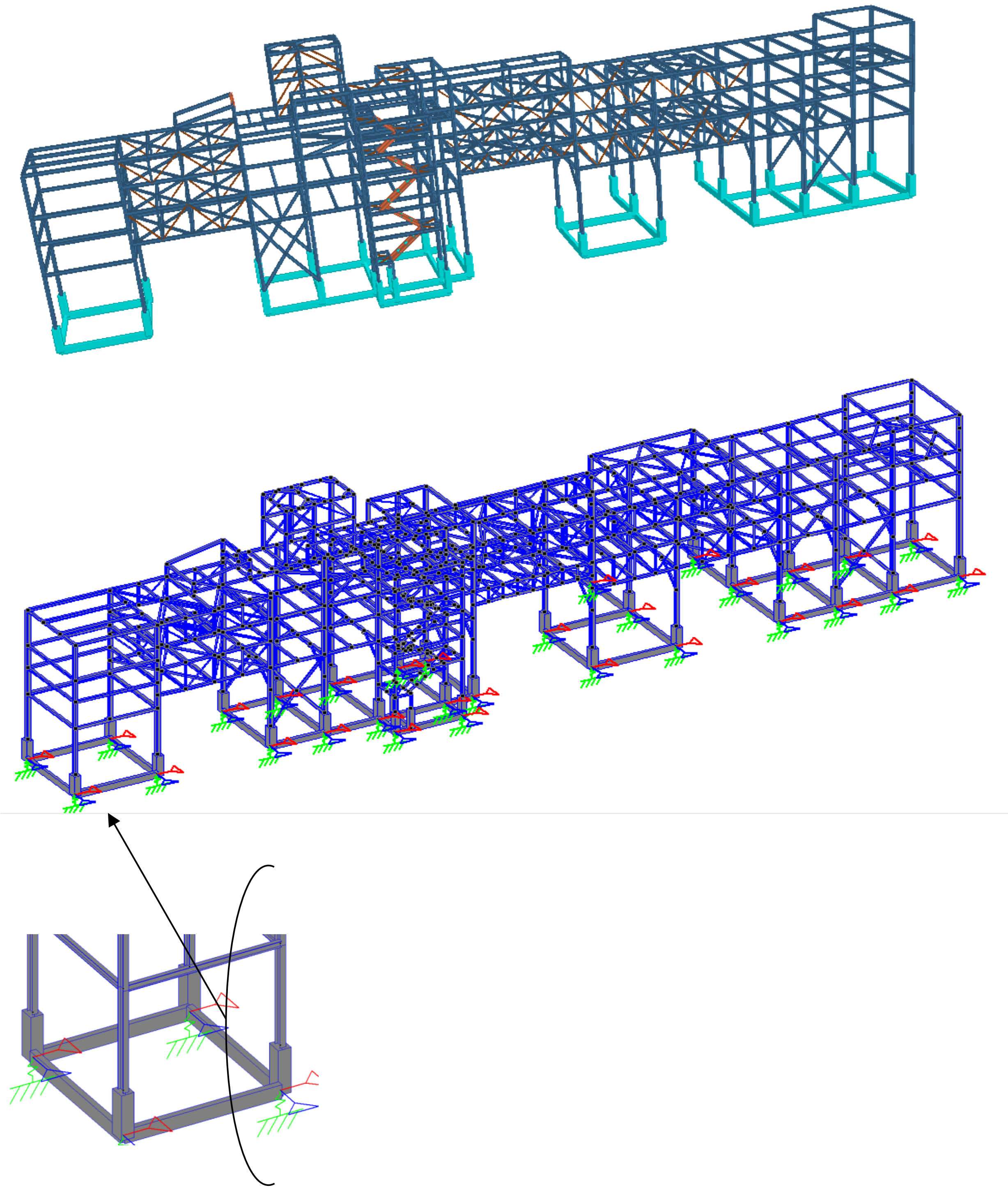


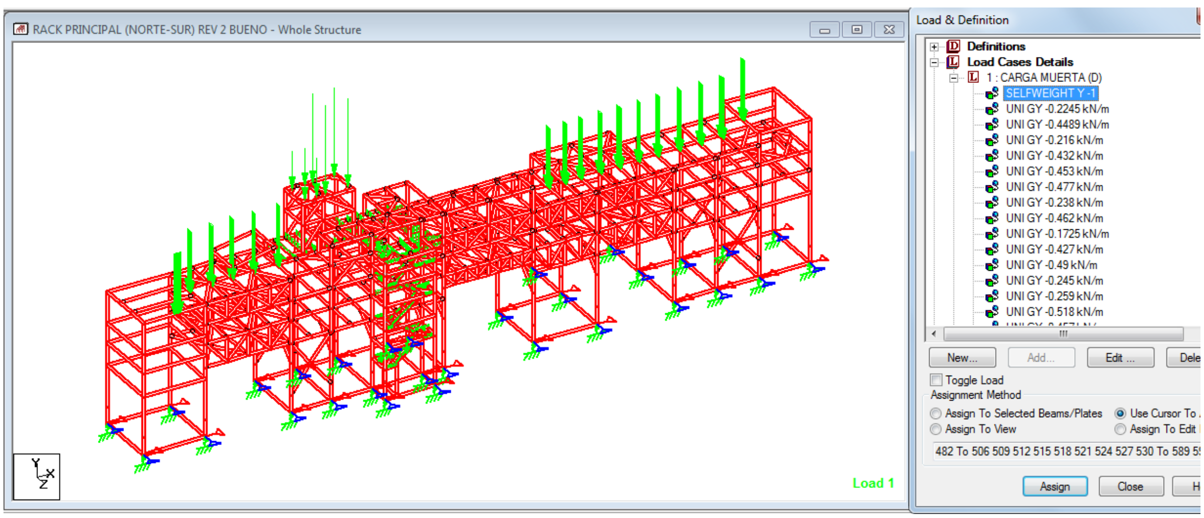
Imagen 3.7 Perspectiva del modelo con las secciones y materiales asignados a cada elemento

3.2. Obtención de fuerzas gravitacionales.

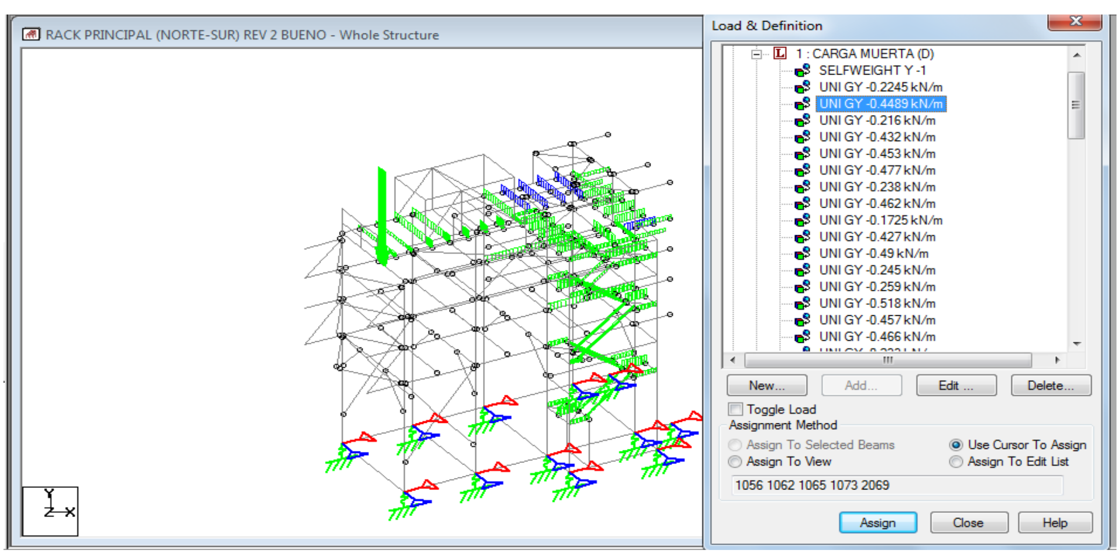
• Carga muerta de la estructura

Se considera el peso propio de la estructura, el programa STAAD.Pro lo considera directamente, la densidad para el acero estructural es de 7.85 ton/m^3 y para el concreto reforzado es de 2.4 ton/m^3.

En el modelo analítico se aplica el peso de la estructura con el comando “selfweight".

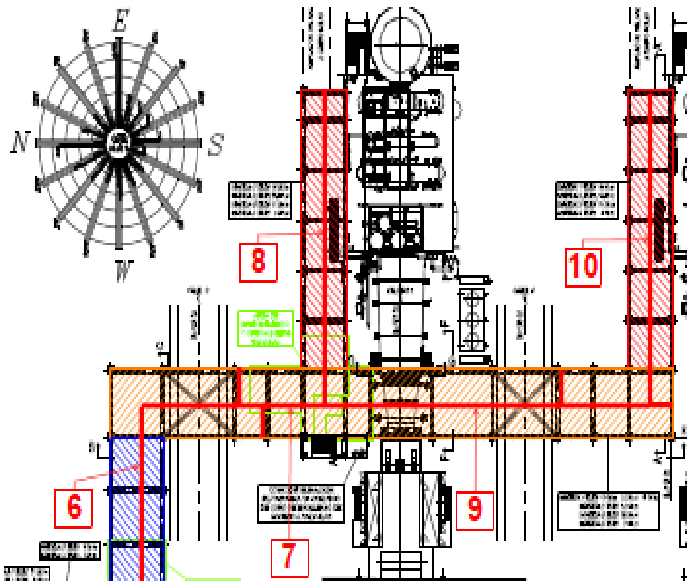


Para las plataformas además del peso propio de los elementos, se considera rejilla Irving IS-05 4.8x25.4 con un peso de 35,2 kg/m = 0,345 KN/m



• **Carga por charolas de cableado de instrumentación y eléctrico**

Se considera por información eléctrica e instrumentación que se colocan sobre el Rack de Tuberías Principal Norte-Sur 7 camas de charolas para cableado a lo largo de sus 86 m de longitud y se ubican en el nivel 11.20m, cinco charolas sobre el eje "A" y cinco charolas más sobre el eje "B" con el acomodo mostrado en la Imagen 3.9

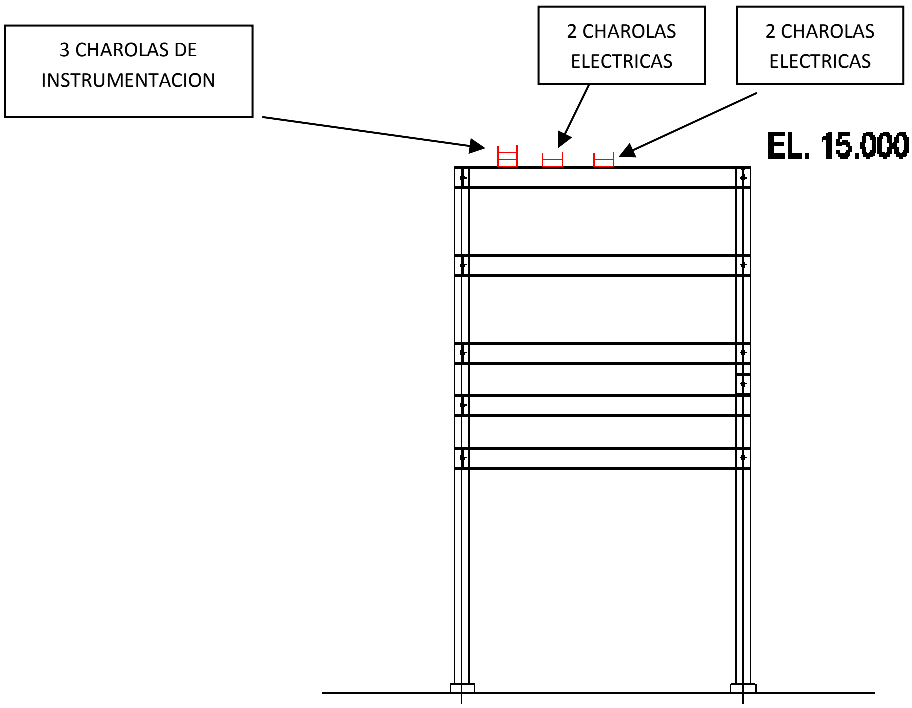


No.DE REF.	CANTIDAD DE CHAROLAS
1.-	3 ELECTRICAS 2 INSTRUMENTOS
2.-	4 ELECTRICAS 2 INSTRUMENTOS
3.-	6 ELECTRICAS 2 INSTRUMENTOS
4.-	8 ELECTRICAS 2 INSTRUMENTOS
5.-	13 ELECTRICAS 4 INSTRUMENTOS
6.-	6 ELECTRICAS 2 INSTRUMENTOS
7.-	5 ELECTRICAS 2 INSTRUMENTOS
8.-	3 ELECTRICAS 2 INSTRUMENTOS
9.-	4 ELECTRICAS 2 INSTRUMENTOS
10.-	3 ELECTRICAS 2 INSTRUMENTOS
11.-	15 ELECTRICAS
12.-	2 ELECTRICAS
13.-	1 ELECTRICA

Imagen 3.9 Acomodo de charolas sobre el Rack de Tuberías
(Fuente: Plano de proyecto CFE-PM27005-SRPM3-PM-0152 Rev. 0)

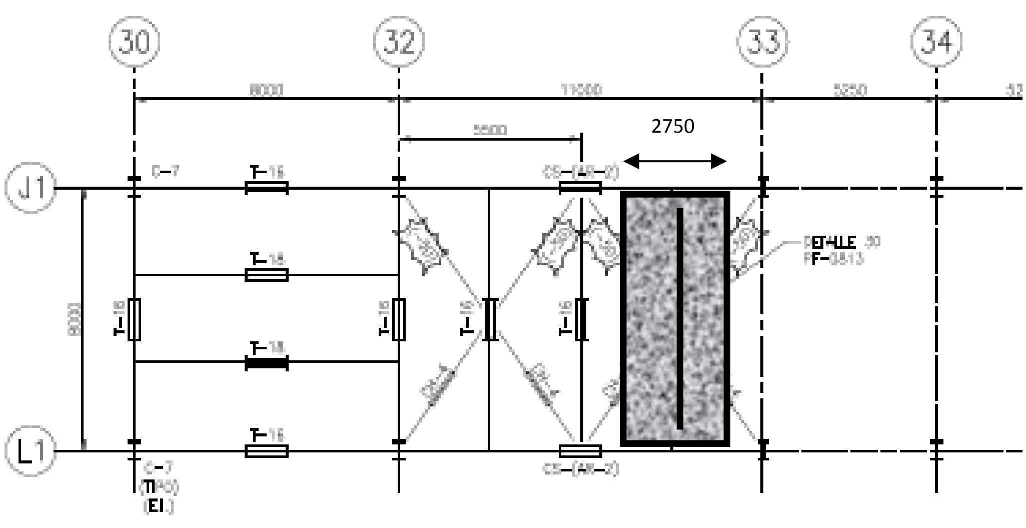
El peso de cada una de estas charolas con su correspondiente soporte es de 120 kg/m para charolas eléctricas y de 130 kg/m para charolas de instrumentación.

Calculando el siguiente arreglo:



Se colocan soportes intermedios entre los marcos:

Ejemplo:



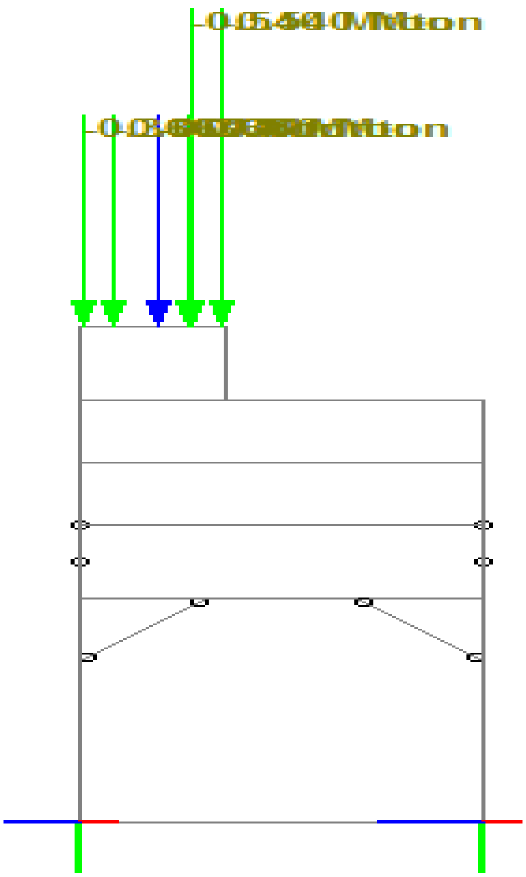
<u>*Imagen 3.10 Aplicación de cargas por charolas, las cargas son aplicadas en marcos principales y en largueros intermedios del Nivel +11.20*</u>

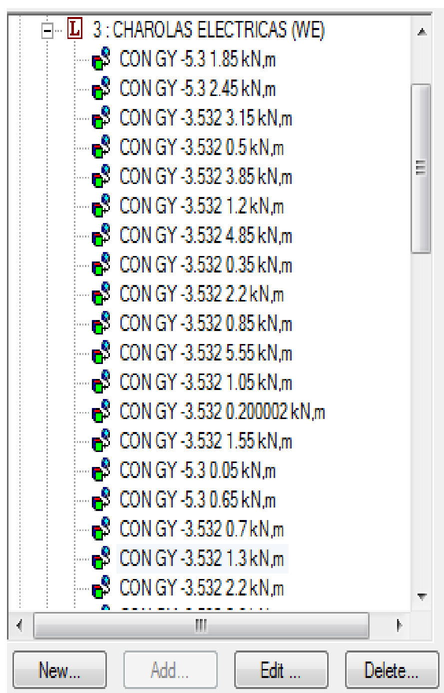
Considerando el arreglo anterior se tiene lo siguiente:

$W = (W_{CH} \text{ x No de charolas x Long.}) / \text{No de apoyo del soporte}$

W = (120 x 2 x 2.75) / 2 = 330 kg = 3.237 KN por soporte.

De esta forma se calculan todas las cargas puntuales.





- **Cargas por tuberías válvulas y equipos**

Como se ha mencionado la disciplina de tuberías proporciona las cargas que actúan sobre la estructura del Rack considerando el peso propio de las tuberías y equipos que se apoyen, estas cargas son reacciones en los puntos indicados en el anexo de cargas de tuberías.

Ver cargas por flexible en documento No. CFE-PM27005-SRPM3-CC-101 "CARGAS SOBRE RACK DE TUBERIAS PARA OBRA CIVIL" Rev. A2 el cual se anexa a esta tesis.

Para tuberías frías se consideran las cargas que se muestran en el siguiente plano:

- CARGAS DE TUBERIAS SOBRE RACK PRINCIPAL Y RACK TREN 1 Y 2 Rev. 0   VER ANEXOS

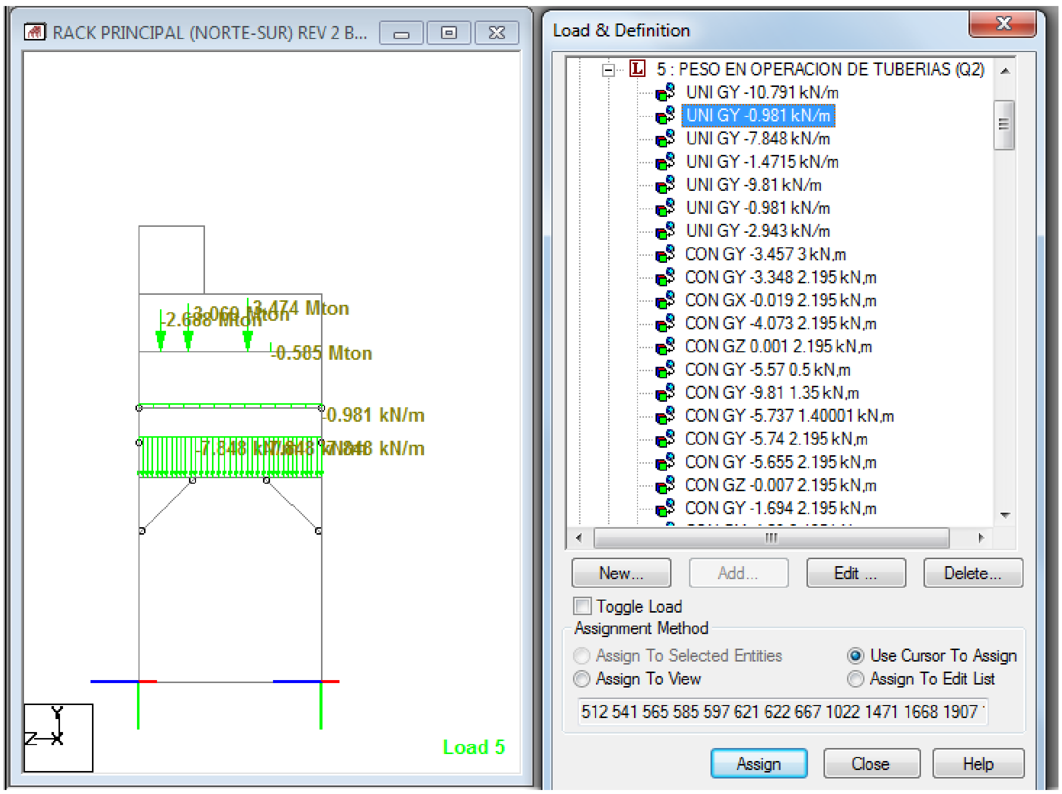
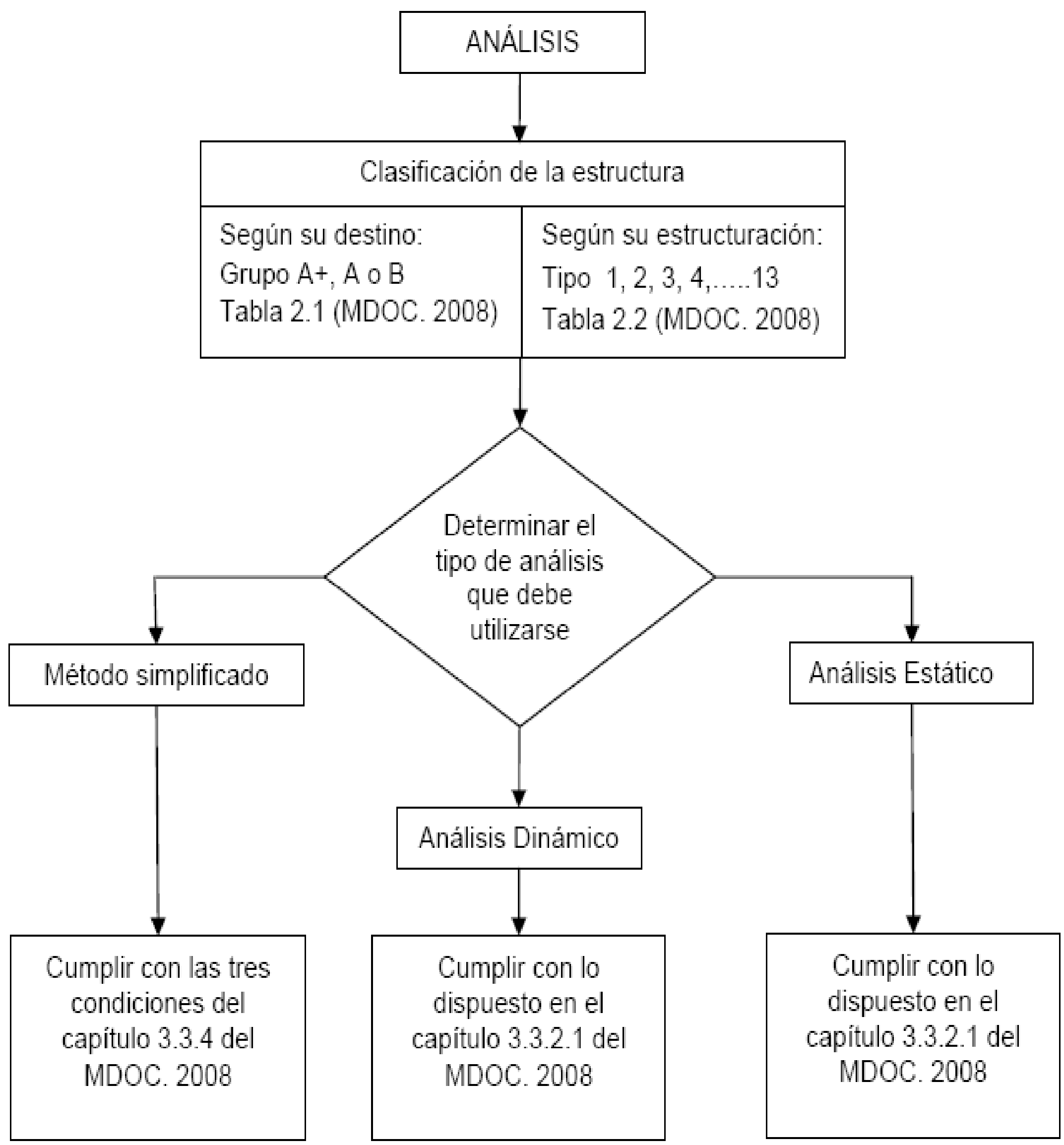


Imagen 3.12 Aplicación en el modelo estructural de fuerzas por tuberías

3.3. Obtención de fuerzas sísmicas.

Para la obtención de fuerzas sísmicas se procede de acuerdo al siguiente diagrama de flujo que indica la ruta a seguir para determinar el tipo de análisis a utilizar, basado en el *MDOC CFE DS 2008.*



• **Clasificación de la estructura**

Con base a la clasificación indicada en la Tabla 6 extraída del *MDOC CFE DS 2008* se puede determinar que el Rack de Tuberías que se está analizando, se encuentra dentro del grupo A, ya que el proyecto en general se trata de una planta de generación de energía.

GRUPO	DESCRIPCIÓN
A+	Las estructuras de "gran importancia", o del Grupo A+, son estructuras en que se requiere un grado de seguridad extrema. Su falla es inadmisible porque, si se presenta, conduciría a la pérdida de miles de vidas humanas, a un grave daño ecológico, económico o social, o bien, impediría el desarrollo nacional o cambiaría el rumbo del país. Son estructuras de importancia extrema, como las grandes presas y las plantas nucleares.
A	Estructuras en que se requiere un grado de seguridad alto. Construcciones cuya falla estructural causaría la pérdida de un número elevado de vidas o pérdidas económicas o culturales de magnitud intensa o excepcionalmente alta, o que constituyan un peligro significativo por contener sustancias tóxicas o inflamables, así como construcciones cuyo funcionamiento sea esencial a raíz de un sismo. Tal es el caso de puentes principales, sistemas de abastecimiento de agua potable, subestaciones eléctricas, centrales telefónicas, estaciones de bomberos, archivos y registros públicos, monumentos, museos, hospitales, escuelas, estadios, templos, terminales de trasporte, salas de espectáculos y hoteles que tengan áreas de reunión que pueden alojar un número elevado de personas, gasolineras, depósitos de sustancias inflamables o tóxicas y locales que alojen equipo especialmente costoso. Se incluyen también todas aquellas estructuras de plantas de generación de energía eléctrica cuya falla por movimiento sísmico pondría en peligro la operación de la planta, así como las estructuras para la transmisión y distribución de energía eléctrica.
B	Estructuras en que se requiere un grado de seguridad convencional. Construcciones cuya falla estructural ocasionaría pérdidas moderadas o pondría en peligro otras construcciones de este grupo o del grupo A, tales como naves industriales, locales comerciales, estructuras comunes destinadas a vivienda u oficinas, salas de espectáculos, hoteles, depósitos y estructuras urbanas o industriales no incluidas en el grupo A, así como muros de retención, bodegas ordinarias y bardas. También se incluyen todas aquellas estructuras de plantas de generación de energía eléctrica que en caso de fallar por temblor no paralizarían el funcionamiento de la planta.

Tabla 6 Clasificación de las estructuras según su importancia de acuerdo al MDOC CFE DS 2008

Por otro lado, se clasifican las estructuras de acuerdo a su estructuración, en el capítulo *3.2.3 CLASIFICACIÓN DE CONSTRUCCIONES SEGÚN SU ESTRUCTURACIÓN del MDOC CFE DS 2008* se enumeran los 13 tipos de estructura que deben considerarse para el diseño sísmico. En este caso la estructura del Rack de Tuberías está dentro del Tipo 1, como se indica en la Imagen 3.13

TIPO 1	Estructuras de edificios: Estructuras comunes tales como edificios urbanos, naves industriales típicas, salas de espectáculos y estructuras semejantes, en que las fuerzas laterales se resisten en cada nivel por marcos continuos contraventeados o no, por diafragmas o muros o por la combinación de estos.

Imagen 3.13 Extracto de la Clasificación de las estructuras según su estructuración (estructuras tipo 1) MDOC CFE DS 2008

- **Elección del tipo de análisis**

Para la obtención de fuerzas sísmicas se debe determinar en primera instancia el tipo de análisis que se emplea, considerando que se puede recurrir a tres tipos:

a) Método simplificado

b) Análisis estático

c) Análisis dinámico

De acuerdo al MDOC CFE DS 2008, para la utilización del método simplificado es necesario cumplir con tres condiciones que se describen en el capítulo *3.3.4 MÉTODO SIMPLIFICADO,* para el caso de la estructura del Rack de Tuberías en cuestión no se cumple con la primera condición establecida es decir que:

“1. En cada planta, al menos el 75% de las cargas verticales estarán soportadas por muros ligados entre sí mediante losas monolíticas u otros sistemas de piso suficientemente resistentes y rígidos al corte.”

Por lo que este método queda descartado, ya que el Rack de Tuberías no cuenta con muros ni losas monolíticas que soporten las cargas verticales.

El método estático, descrito en la sección 3.3.5 *MDOC CFE DS 2008*, es aplicable a edificios regulares cuya altura sea menor o igual que 30 m y estructuras irregulares con altura no mayor de 20 m. Para que una estructura se considere regular, debe cumplir las condiciones descritas en la sección 3.3.2, en caso contrario, se considerará irregular al no cumplir con algunas de las condiciones indicadas en la sección 3.3.2 del MDOC CFE DS 2008 como se puede ver a continuación:

1) La distribución en planta de masas, muros y otros elementos resistentes, es sensiblemente simétrica con respecto a dos ejes ortogonales. Estos elementos son sensiblemente paralelos a los ejes ortogonales principales del edificio.

Ok cumple.

2) La relación entre la altura y la dimensión menor de la base no es mayor que 2.5.

Ok cumple ya que 8 / 15.50 = 0.516

3) La relación entre largo y ancho de la base no excede de 2.5.

No cumple ya que 86 / 8 =10.75

4) En planta no se tienen entrantes ni salientes cuya dimensión exceda 20% de la dimensión de la planta medida paralelamente a la dirección en que se considera la entrante o saliente.

No cumple

5) En cada nivel se tiene un sistema de techo o piso rígido y resistente.

No cumple

6) No se tienen aberturas en los sistemas de techo o piso cuya dimensión exceda 20% de la dimensión de la planta medida paralelamente a la dirección en que se considera la abertura. Las áreas huecas no ocasionan asimetrías significativas ni difieren en posición de un piso a otro y el área total de aberturas no excede, en ningún nivel, 20% del área de la planta.

No cumple

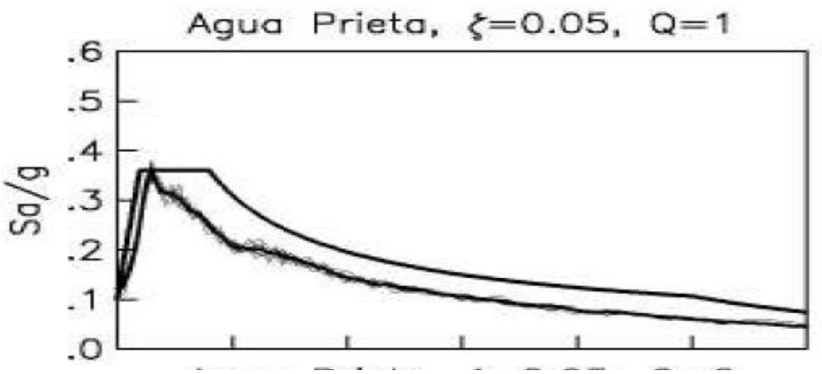
La estructura del Rack de Tuberías es irregular y el método estático tampoco es aplicable, por lo que se emplea el método dinámico de análisis modal espectral con espectro de respuesta.

• **Obtención de espectro sísmico transparente**

Para el análisis sísmico se utilizará el Espectro de Diseño que proporciono el Estudio CFE-PM27005-SRJC-IN-0010 "ESPECTRO DE DISEÑO SISMICO", que corresponde a la zona donde se localizará la Central de Ciclo Combinado en Agua Prieta Sonora. Se aplicará en sus tres direcciones, considerando la masa de la estructura y las fuerzas gravitacionales como son las cargas muertas por rejilla y las cargas vivas máximas e instantáneas definidas anteriormente. El análisis se hará de acuerdo al MDOC CFE DS 2008.

Parámetros para el espectro reducido de diseño "Estructuras tipo 1 (Rack)"

0.1	*g*	
0.36	*g*	*Aceleración de la meseta*
0.1	*s*	*Límite inferior de la meseta*
0.4	*s*	*Límite superior de la meseta*
2.5	*s*	*Periodo de inicio de la rama descendente en que los desplazamientos tienden al desp. del terreno*
1		*Relación de amortiguamiento*
2		*Factor de comportamiento sísmico*
Q		*Factor reductor por ductilidad*
2		*Factor de sobrerresistencia*
0.667		*Factor que controla la caída de la tercera rama*
1		*Parametro que controla la caída espectral para Te >=Te*
0.7		*Factor correctivo por irregularidad (Capitulo 3.3.2.4)*
0.8		*Factor por redundancia (Capitulo 3.3.1.4) para dirección transversal del rack*
1		*Factor por redundancia (Capitulo 3.3.1.4) para dirección transversal del rack*



Los efectos en la respuesta tales como desplazamientos y elementos mecánicos, se combinarán empleando la raíz cuadrada de la suma de los cuadrados de los efectos en las tres direcciones ortogonales:

$$S = \sqrt{S_x^2 + S_y^2 + S_z^2} \qquad (3.27)$$

El espectro presentado es un espectro transparente por reflejar la totalidad del peligro sísmico. Habrá que tomar en cuenta el tipo de estructura, la importancia estructural y para el estado límite de colapso, las reducciones por ductilidad y sobre resistencia para obtención del espectro de diseño en las direcciones X (longitudinal), Y (vertical) y Z (transversal), a continuación, se especifican los parámetros para la construcción del espectro de diseño para las dos direcciones de análisis X, Y y Z utilizados en el diseño del Rack de Tuberías.

Espectro reducido de diseño con 5% de amortiguamiento para dirección transversal (Z)

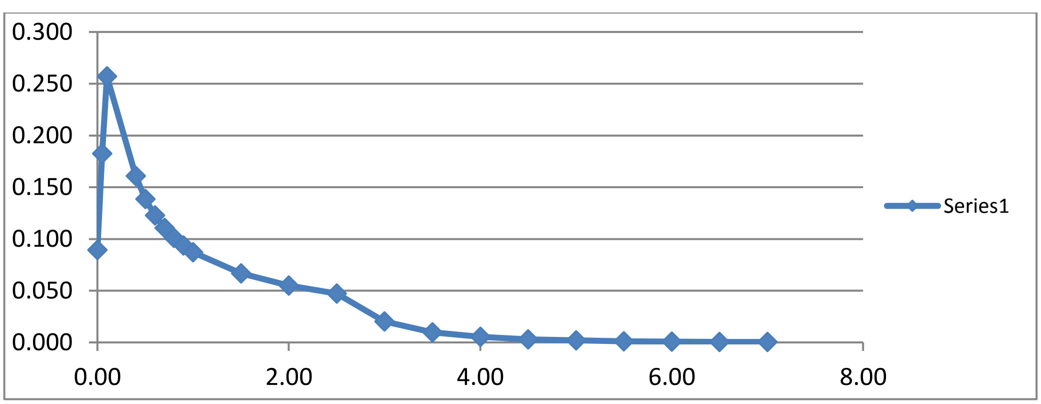
Te (s)	a	P	Q'	R	ρ	Te (s)	a'
0.00	0.100		0.70	2.00	0.8	0.00	0.089
0.05	0.230		0.79	2.00	0.8	0.05	0.183
0.10	0.360		0.88	2.00	0.8	0.10	0.257
0.40	0.360	1.000	1.40	2.00	0.8	0.40	0.161
0.50	0.310	1.000	1.40	2.00	0.8	0.50	0.138
0.60	0.275	1.000	1.40	2.00	0.8	0.60	0.123
0.70	0.248	1.000	1.40	2.00	0.8	0.70	0.111
0.80	0.227	1.000	1.40	2.00	0.8	0.80	0.101
0.90	0.210	1.000	1.40	2.00	0.8	0.90	0.094
1.00	0.195	1.000	1.40	2.00	0.8	1.00	0.087
1.50	0.149	1.000	1.40	2.00	0.8	1.50	0.067
2.00	0.123	1.000	1.40	2.00	0.8	2.00	0.055
2.50	0.106	1.000	1.40	2.00	0.8	2.50	0.047
3.00	0.045	1.000	1.40	2.00	0.8	3.00	0.020
3.50	0.022	1.000	1.40	2.00	0.8	3.50	0.010
4.00	0.012	1.000	1.40	2.00	0.8	4.00	0.005
4.50	0.007	1.000	1.40	2.00	0.8	4.50	0.003
5.00	0.004	1.000	1.40	2.00	0.8	5.00	0.002
5.50	0.003	1.000	1.40	2.00	0.8	5.50	0.001
6.00	0.002	1.000	1.40	2.00	0.8	6.00	0.001
6.50	0.001	1.000	1.40	2.00	0.8	6.50	0.001
7.00	0.001	1.000	1.40	2.00	0.8	7.00	0.000

$$\boxed{Q'=1+(Q-1)\sqrt{\frac{\beta}{k}\frac{T_e}{T_b}}}$$ si Te<Tb

$$\boxed{Q'=1+(Q-1)\sqrt{\frac{\beta p}{k}}}$$ si Te>Tb

$$\boxed{p=k+(1-k)\left(\frac{T_b}{T_e}\right)^2}$$ para Te>Tb

$$\boxed{R=R_0+0.5\left(1-\sqrt{\frac{T_e}{T_a}}\right)}$$ si Te<=Ta



ESPECTRO REDUCIDO DE DISEÑO PARA 5% DE AMORTIGUAMIENTO
ESTRUCTURAS TIPO 1 (RACK) **Q=2, R=2**

Espectro reducido de diseño con 5% de amortiguamiento para dirección transversal (X)

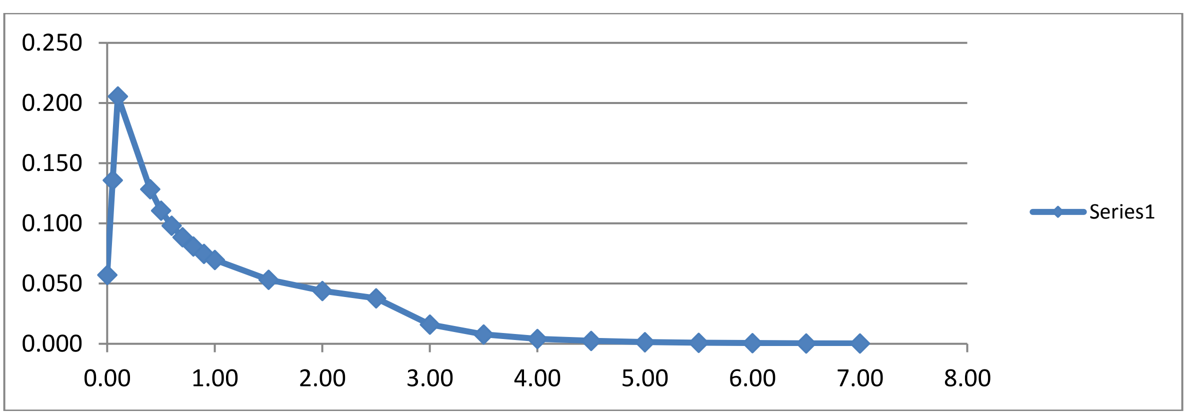
Te (s)	a	p	Q'	R	ρ	Te (s)	a'
0.00	0.100		0.70	2.50	1.0	0.00	0.057
0.05	0.230		0.79	2.15	1.0	0.05	0.136
0.10	0.360		0.88	2.00	1.0	0.10	0.206
0.40	0.360	1.000	1.40	2.00	1.0	0.40	0.129
0.50	0.310	1.000	1.40	2.00	1.0	0.50	0.111
0.60	0.275	1.000	1.40	2.00	1.0	0.60	0.098
0.70	0.248	1.000	1.40	2.00	1.0	0.70	0.089
0.80	0.227	1.000	1.40	2.00	1.0	0.80	0.081
0.90	0.210	1.000	1.40	2.00	1.0	0.90	0.075
1.00	0.195	1.000	1.40	2.00	1.0	1.00	0.070
1.50	0.149	1.000	1.40	2.00	1.0	1.50	0.053
2.00	0.123	1.000	1.40	2.00	1.0	2.00	0.044
2.50	0.106	1.000	1.40	2.00	1.0	2.50	0.038
3.00	0.045	1.000	1.40	2.00	1.0	3.00	0.016
3.50	0.022	1.000	1.40	2.00	1.0	3.50	0.008
4.00	0.012	1.000	1.40	2.00	1.0	4.00	0.004
4.50	0.007	1.000	1.40	2.00	1.0	4.50	0.002
5.00	0.004	1.000	1.40	2.00	1.0	5.00	0.001
5.50	0.003	1.000	1.40	2.00	1.0	5.50	0.001
6.00	0.002	1.000	1.40	2.00	1.0	6.00	0.001
6.50	0.001	1.000	1.40	2.00	1.0	6.50	0.000
7.00	0.001	1.000	1.40	2.00	1.0	7.00	0.000

$$\boxed{Q'=1+(Q-1)\sqrt{\frac{\beta}{k}\frac{T_e}{T_b}}}$$ si Te<Tb

$$\boxed{Q'=1+(Q-1)\sqrt{\frac{\beta p}{k}}}$$ si Te>Tb

$$\boxed{p=k+(1-k)\left(\frac{T_b}{T_e}\right)^2}$$ para Te>Tb

$$\boxed{R=R_0+0.5\left(1-\sqrt{\frac{T_e}{T_a}}\right)}$$ si Te<=Ta



ESPECTRO REDUCIDO DE DISEÑO PARA 5% DE AMORTIGUAMIENTO
ESTRUCTURAS TIPO 1 (RACK) **Q=2, R=2**

El componente vertical se tomará como $1.4(0.05/T_v)^{2/3}$ de la componente horizontal mayor para $T_v \geq 0.05s$ y 1.4 para $T_v < 0.05s$, donde T_v es el periodo fundamental estimado de la estructura en la dirección vertical. La acción de la componente vertical podrá despreciarse para estructuras desplantadas en suelos blandos y localizados a más de 80 km de una falla activa.

Para nuestro caso:

Tv = 0.27821 seg. (ver obtención del periodo en el capítulo 4)

Por lo tanto: Factor = 0.45

Espectro reducido de diseño con 5% de amortiguamiento para dirección vertical (Y)

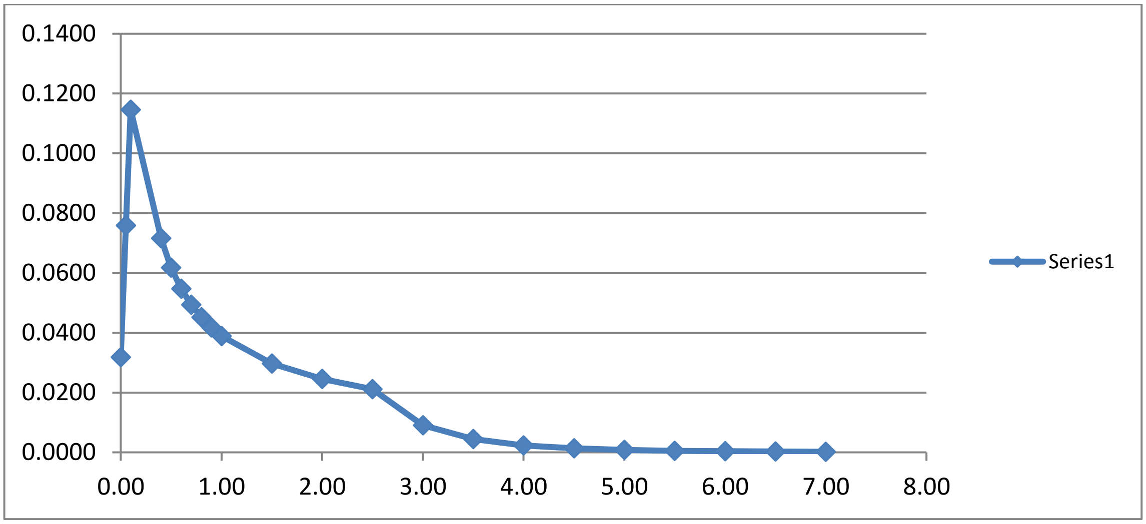
Te (s)	a	p	Q'	R	ρ	Te (s)	a'	a'
0.00	0.100		0.70	2.50	0.8	0.00	0.071	0.0318
0.05	0.230		0.79	2.15	0.8	0.05	0.170	0.0758
0.10	0.360		0.88	2.00	0.8	0.10	0.257	0.1146
0.40	0.360	1.000	1.40	2.00	0.8	0.40	0.161	0.0717
0.50	0.310	1.000	1.40	2.00	0.8	0.50	0.138	0.0618
0.60	0.275	1.000	1.40	2.00	0.8	0.60	0.123	0.0547
0.70	0.248	1.000	1.40	2.00	0.8	0.70	0.111	0.0493
0.80	0.227	1.000	1.40	2.00	0.8	0.80	0.101	0.0451
0.90	0.210	1.000	1.40	2.00	0.8	0.90	0.094	0.0417
1.00	0.195	1.000	1.40	2.00	0.8	1.00	0.087	0.0389
1.50	0.149	1.000	1.40	2.00	0.8	1.50	0.067	0.0297
2.00	0.123	1.000	1.40	2.00	0.8	2.00	0.055	0.0245
2.50	0.106	1.000	1.40	2.00	0.8	2.50	0.047	0.0211
3.00	0.045	1.000	1.40	2.00	0.8	3.00	0.020	0.0090
3.50	0.022	1.000	1.40	2.00	0.8	3.50	0.010	0.0044
4.00	0.012	1.000	1.40	2.00	0.8	4.00	0.005	0.0024
4.50	0.007	1.000	1.40	2.00	0.8	4.50	0.003	0.0014
5.00	0.004	1.000	1.40	2.00	0.8	5.00	0.002	0.0008
5.50	0.003	1.000	1.40	2.00	0.8	5.50	0.001	0.0005
6.00	0.002	1.000	1.40	2.00	0.8	6.00	0.001	0.0004
6.50	0.001	1.000	1.40	2.00	0.8	6.50	0.001	0.0002
7.00	0.001	1.000	1.40	2.00	0.8	7.00	0.000	0.0002

$$\boxed{Q' = 1 + (Q-1)\sqrt{\frac{\beta}{k}\frac{T_e}{T_b}}}$$ si Te<Tb

$$\boxed{Q' = 1 + (Q-1)\sqrt{\frac{\beta p}{k}}}$$ si Te>Tb

$$\boxed{p = k + (1-k)\left(\frac{T_b}{T_e}\right)^2}$$ para Te>Tb

$$\boxed{R = R_0 + 0.5\left(1 - \sqrt{\frac{T_e}{T_a}}\right)}$$ si Te<=Ta



Los espectros son incorporados al modelo en sus respectivas direcciones las Imágenes 3.16 y 3.17 muestran el resultado de este proceso.

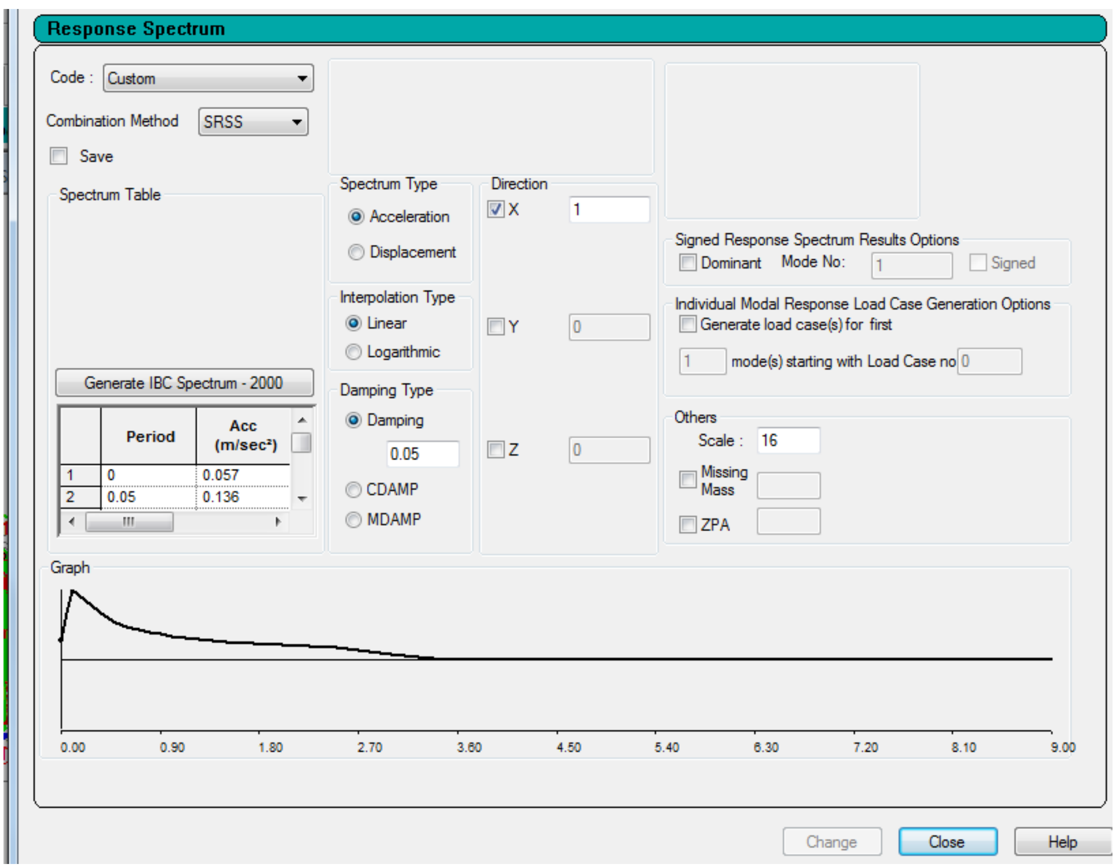


Imagen 3.16 Aplicación al modelo analítico del espectro sísmico en dirección X (Sx)

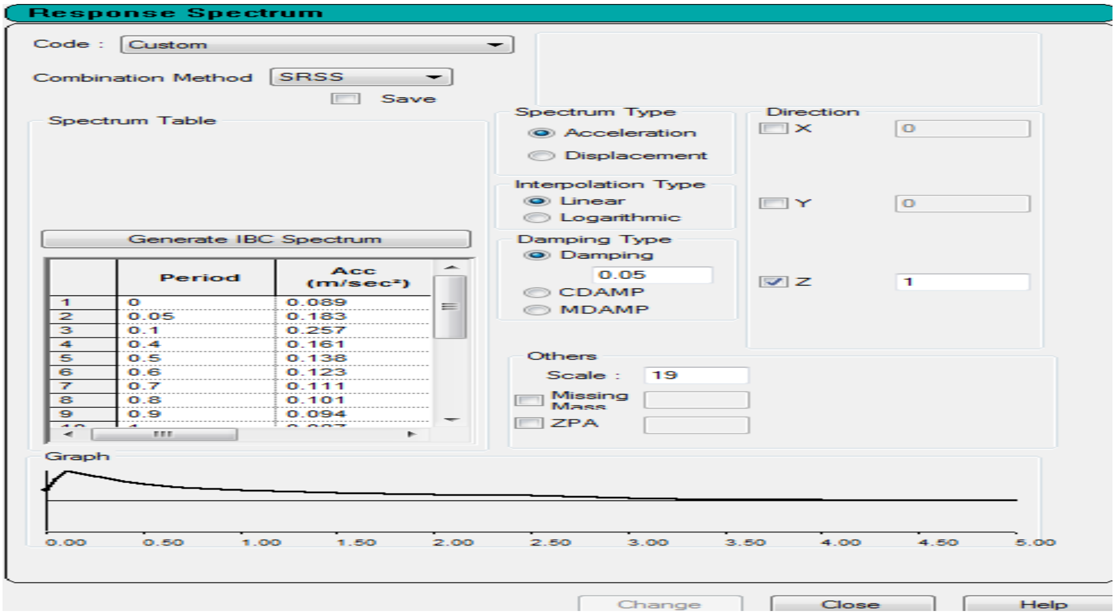


Imagen 3.17 Aplicación al modelo analítico del espectro sísmico en dirección Z (Sz)

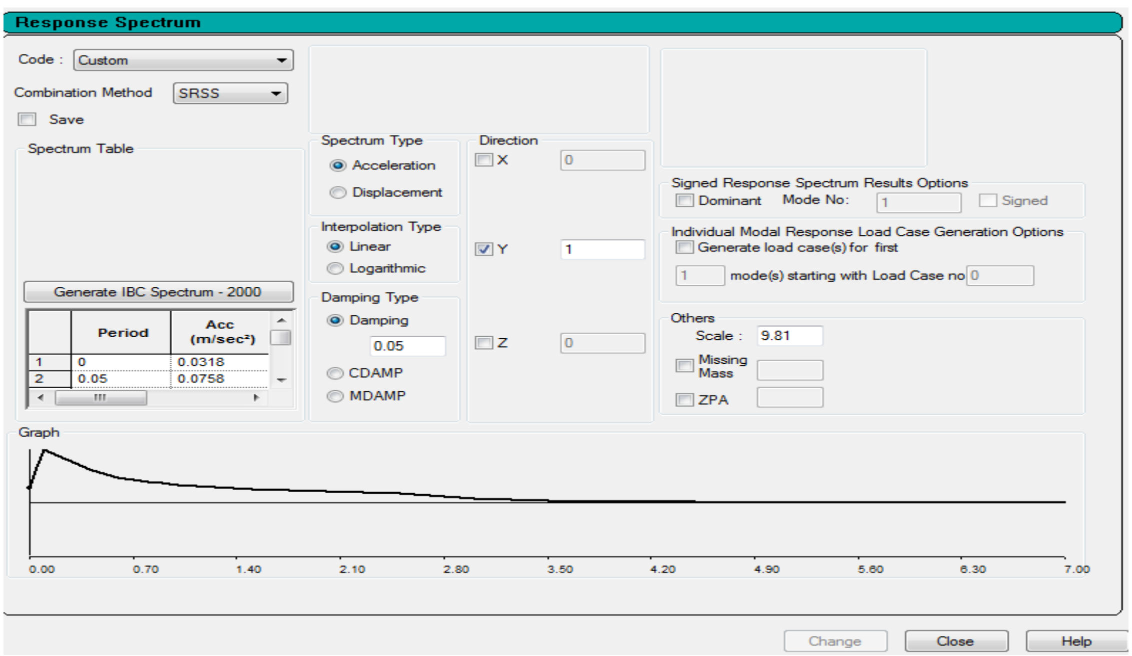


Imagen 3.18 Aplicación al modelo analítico del espectro sísmico en dirección Y (Sy)

De igual forma que para las fuerzas estáticas existen fuerzas sísmicas transmitidas por tuberías a la estructura del Rack los casos de carga se indican en el anexo correspondiente de la presente tesis.

3.4. Obtención de fuerzas por viento.

Para la obtención de fuerzas por viento se procede de acuerdo al diagrama de flujo mostrado en la Imagen 3.18 y contenido en el *MDOC CFE DV 2008.*

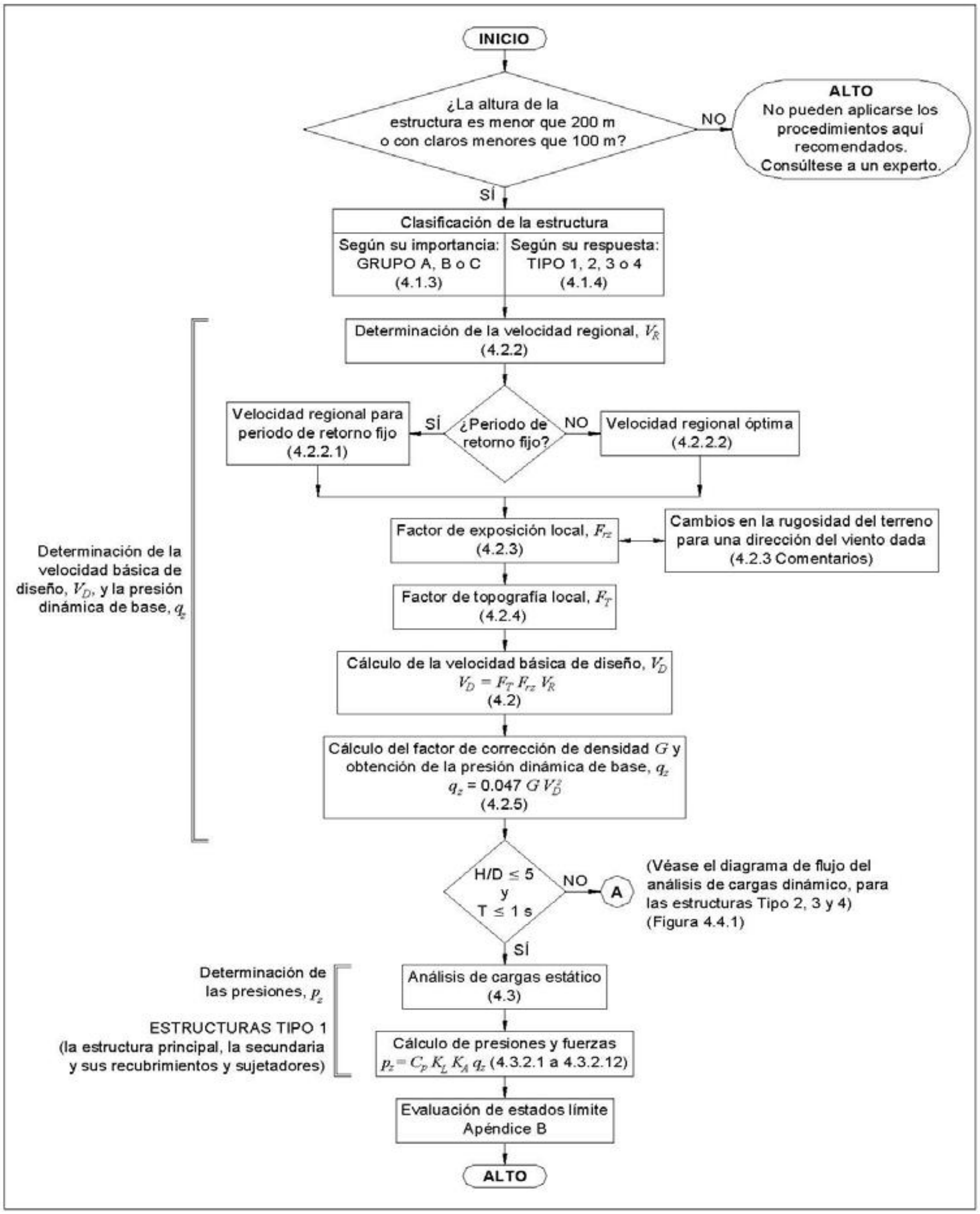


Imagen 3.18 Diagrama de flujo para la obtención de fuerzas por viento.

Los parámetros que se utilizan para el análisis por viento se definen a continuación:

Altitud = **1200** m.s.n.m.

Estructura según su importancia Grupo: **A** Importancia (pág. 1.4.4)

Estructura según su respuesta al Viento Tipo: **2** Respuesta (pág. 1.4.7)

Estructura según su tamaño Clase: **A** Tamaño (Tabla I.2) (pág. 1.4.14)

Categoría del terreno según su rugosidad Categoría: Rugosidad (Tabla I.1) (pág. 1.4.13)

Temperatura media anual **T = 16.9 ° C** (Ver criterios y bases de diseño civil)

Velocidad Regional del Viento, para un periodo de retorno, Tr = 200 años, para estructura del grupo A

VR = 155 km/h

Velocidad Diseño:	VD = FT Fa VR		(Pág. 1.4.12)
Factor de Topografía:	F_T =	1.00	(Tabla I.5)
Factor de Exposición:	Fα=	1.00	Fα=FcFrz
	Fα=	1.07	
Factor de Tamaño:	Fc=	1.00	(Pág. 1.4.19)
Factor de Rug. y Altura:	$F_{rz} = c$		si $z \leq 10$
	$F_{rz} = c\left(\frac{z}{10}\right)^{\alpha}$		si $10 < z < \delta$
	$F_{rz} = c\left(\frac{\delta}{10}\right)^{\alpha}$		si $z \geq \delta$

Z >	**10.00**	**m**	
c =	**1.0**		
α =	**0.128**		
δ =	**315.0**		Tabla 4,2,3 (Pág. 4,2,1,11)
Frz =	1.000	Para Z < 10 m.	
Frz =	1.066	Para Z =	16.5 m

V_D =	$\boxed{\textbf{155.00}}$	**km/h**	Para Z < 10 m.
V_D =	$\boxed{\textbf{165.26}}$	**km/h**	Para Z = 16,50 m.

(pag 4,2,1,15)

G = 0.392 Ω /(273 +T) = **0.89** (Factor de correcccion por altura y temperatura)

659.00 **mmHg** Presión Barométrica

qz =	$\boxed{\textbf{102.76}}$	**kg/m2**	Para Z < 10 m.
qz =	$\boxed{\textbf{116.82}}$	**kg/m2**	Para Z = 16,50 m.

- **Tipo de análisis**

Se aplica el método de análisis estático por viento, donde la fuerza por viento se calcula como la suma de las fuerzas que actúan sobre cada uno de los miembros tomando en cuenta lo especificado en el capítulo 4.3.2.10 del *MDOC CFE DV 2008*. En este caso se considera como una estructura con columnas y vigas abiertas para formar un marco plano de celosía; cada una de estas partes podrá analizarse por separado, a continuación, lo establecido en el capítulo 4.3.2.10 del manual mencionado:

4.3.2.10 Fuerzas en miembros individuales**.** *La fuerza que el viento ejerce sobre elementos individuales expuestos directamente al flujo del viento, tales como perfiles estructurales, cuya relación de esbeltez (L_e/b) sea mayor o igual que 8, se calcula con las ecuaciones en la dirección del flujo del viento:"*

$$F_a = K_i\, K_{re}\, C_a\, b\, L_e\, q_z \qquad (4.3.14)$$

En la dirección de los ejes del elemento:

$$F_x = K_i\, K_{re}\, C_{Fx}\, b_y\, q_z \qquad (4.3.15.a)$$

$$F_y = K_i\, K_{re}\, C_{Fy}\, b_x\, q_z \qquad (4.3.15.b)$$

En donde:

L_e es la longitud del elemento, en m,

b el ancho del elemento, normal al flujo del viento, en m,

b_x el ancho del elemento, en la dirección x, en m,

b_y el ancho del elemento, en la dirección y, en m,

F_a la fuerza de arrastre sobre el elemento en la dirección del viento.

F_x, F_y las fuerzas de arrastre, sobre el elemento en la dirección de los ejes x y y, respectivamente (véanse las Figuras A.1, A.2 y la Tabla A.3 del Apéndice A),

K_i el factor que toma en cuenta el ángulo de inclinación del eje del miembro con respecto a la dirección del viento, adimensional:

$Ki = 1.0$ cuando el viento actúa perpendicularmente al miembro,

$Ki = sen^2\theta_m$ para miembros con formas cilíndricas,

$Ki = sen\theta_m$ para miembros prismáticos con aristas agudas, es decir, aquéllos con una relación b/r mayor que 16,

θ_m el ángulo entre la dirección del viento y el eje longitudinal del miembro, en grados,

r el radio de las esquinas de la sección transversal de un elemento prismático, en m,

K_{re} el factor de corrección por relación de esbeltez para miembros individuales (Tabla A.4 del Apéndice A), adimensional,

C_a el coeficiente de arrastre para un miembro en la dirección del flujo del viento, adimensional (véanse las Tablas A.1 y A.2 del Apéndice A),

C_{Fx}, C_{Fy} los coeficientes de arrastre para un miembro en la dirección de los ejes x y y, respectivamente, adimensionales (véanse las Figuras A.1, A.2 y la Tabla A.3 del Apéndice A), y q_z la presión dinámica de base del viento, de acuerdo con lo especificado en el inciso 4.2.5 y para una altura z igual a la altura en la que se encuentra el punto medio de la longitud del elemento.

Obtención de Fuerza de Arrastre *Fa*

$\boldsymbol{F_a = K_i\ K_{re}\ C_a\ b\ q_z}$

Dónde:

K_i = 1 viento perpendicular al miembro

K_{re}= 0.8 Con L_e/b>14

C_{ax}= 1.60 coef. Arrastre sobre almas vigas W

C_{ax}= 1.9 coef. Arrastre sobre patín vigas W

A_z= área del elemento

q_z= 116.82 kg/m^2

VIENTO LONGITUDINAL (X)

Fuerza de viento en sentido longitudinal del rack

elemento	A frontal (m^2)	longitud (m)	A solida (m^2)	Ca	Fa (kg/m)	Fa (KN/m)
W18X86	0.467	30.00	14.01	1.6	69.83	0.69
W12X50	0.313	32.00	10.02	1.6	46.80	0.46

$$\phi = \frac{Asolidatotal}{Aencerrada} =$$ 0.2 24.026

Fuerza de viento en marcos subsecuentes del rack

separación / ancho= 0.8

elemento	A frontal (m^2)	ϕ	Ke		Fa (kg/m)	Fa (KN/m)
W18X86	0.467	0.20	0.8		55.86	0.55
W12X50	0.313	0.20	0.8		37.44	0.37

VIENTO TRANSVERSAL (Z)

Fuerza de viento en sentido transversal del rack

elemento	A frontal (m^2)	longitud (m)	A solida (m^2)	Ca	Fa (kg/m)	Fa (KN/m)
W18X86	0.281	215.50	60.56	1.9	49.89	0.49
W12X50	0.313	312.20	97.72	1.6	55.58	0.55
W12X50	0.313	57.00	17.84	1.6	55.58	0.55

176.1151

$$\phi = \frac{Asolidatotal}{Aencerrada} = 0.13$$

Fuerza de viento en marcos subsecuentes del rack
separación / ancho= 0.9

elemento	A frontal (m^2)	ϕ	Ke		Fa (kg/m)	Fa (KN/m)
W18x89	0.281	0.13	0.9		44.91	0.44
W12x50	0.313	0.13	0.9		50.02	0.49
W12x50	0.313	0.13	0.9		50.02	0.49

3.5. Combinación de fuerzas

De acuerdo al ACI-318-08 y AISC LRFD 3ª Ed. las combinaciones de carga que se usan para el diseño estructural son las especificadas por el ASCE 7-02 para elementos estructurales de Concreto y Acero.

También debe considerarse lo indicado en el *MDOC CFE DS 2008* donde se establece que:

"Los efectos en la respuesta, tales como desplazamientos y elementos mecánicos, se combinarán empleando la raíz cuadrada de la suma de los cuadrados de los efectos en las tres direcciones ortogonales:

$$S = \sqrt{S_x^2 + S_y^2 + S_z^2}$$

En seguida se definen los casos de carga primaria como sigue:

CONDICIONES BASICAS (Estas no actúan de manera independiente)

1.-	______ D	Carga muerta
2.-	______ L	Carga viva
3.-	______ CH	Carga de charolas electricas
4.-	______ T	Carga Termica
5.-	______ Q2	Carga por tuberias en Operación
6.-	______ Q3	Carga hidraulica en tuberias
7.-	______ Ex	Sismo dirección "X"
8.-	______ Ez	Sismo dirección "Z"
9.-	______ Ey	Sismo dirección "Y"
10.-	______ Wx	Viento dirección "X" , Paralelo a las Generatrices
11.-	______ Wz	Viento dirección "Z" , Normal a las Generatrices

COMBINACIONES PARA CARGA DE SERVICIOS

LOAD COMB 20 (D + CH + Q2) 1.0
LOAD COMB 21 (D + CH + Q3) 1.0
LOAD COMB 22 (D + CH + Q2 + L + T) 1.0
LOAD COMB SRSS 23 (D + CH + Q2 + Lo +SISMO) 1.0
LOAD COMB SRSS 24 (D + CH + Q2 + Lo -SISMO) 1.0
LOAD COMB 25 (D + CH + Q2 + WX) 1.0
LOAD COMB 26 (D + CH + Q2 - WX) 1.0
LOAD COMB 27 (D + CH + Q2 + WZ) 1.0
LOAD COMB 28 (D + CH + Q2 - WZ) 1.0

COMBINACIONES PARA DISEÑO DE CONCRETO

LOAD COMB 30 (D + CH + Q2) 1.4
LOAD COMB 31 (D + CH + Q3) 1.4
LOAD COMB 32 1.2 D + 1.2 CH + 1.2 Q2 + 1.6 L + 1.6 T
LOAD COMB SRSS 33 1.2(D + CH + Q2) + Lo + 1.4 SISMO
LOAD COMB SRSS 34 1.2(D + CH + Q2) + Lo - 1.4 SISMO
LOAD COMB 35 1.2 (D + CH + Q2) + L + 1.3 WX
LOAD COMB 36 1.2 (D + CH + Q2)+ L - 1.3 WX
LOAD COMB 37 1.2 (D + CH + Q2) + L + 1.3 WZ
LOAD COMB 38 1.2 (D + CH + Q2)+ L - 1.3 WZ

COMBINACIONES PARA DISEÑO DE ACERO

LOAD COMB 40 (D + CH + Q2) 1.4
LOAD COMB 41 (D + CH + Q3) 1.4
LOAD COMB 42 1.2 D + 1.2 CH + 1.2 Q2 + 1.6 L + 1.6 T
LOAD COMB SRSS 43 1.2(D + CH + Q2) + Lo + 1.5 SISMO
LOAD COMB SRSS 44 1.2(D + CH + Q2) + Lo - 1.5 SISMO
LOAD COMB 45 1.2 (D + CH + Q2) + L + 1.3 WX
LOAD COMB 46 1.2 (D + CH + Q2)+ L - 1.3 WX
LOAD COMB 47 1.2 (D + CH + Q2) + L + 1.3 WZ
LOAD COMB 48 1.2 (D + CH + Q2)+ L - 1.3 WZ

4.0 Análisis estructural (resultados) mediante software comercial.

Antes de proceder con la revisión de desplazamientos y el diseño de los miembros del Rack de Tuberías es indispensable hacer una revisión por cortante basal de la estructura, de acuerdo a lo indicado en el capítulo 3*.3.6.3 Revisión por cortante basal* del *MDOC CFE DS 2008,* a continuación, se incorpora un fragmento del capítulo mencionado.

3.3.6.3 Revisión por cortante basal

Si con el método de análisis dinámico que se haya aplicado se encuentra que, en la dirección que se considera, la relación V/W es menor que 0.8a(β)/Q´Rρ ó 0.8a(β)Acd/Q´Rρ para estructuras con comportamiento histerético degradante ubicadas en suelos blandos, según sea el caso, se incrementarán todas las fuerzas de diseño y los desplazamientos laterales correspondientes en una proporción tal que V/W iguale a este valor.

Esta condición implica que la fuerza cortante basal de diseño no puede ser menor que 80% de la que suministraría un análisis estático tomando en cuenta el periodo fundamental de la estructura. Sin embargo, en ningún caso el cortante será menor que a_0W_{tot}*, donde* a_0 *es la aceleración máxima del terreno normalizada con la aceleración de la gravedad, (ecuación 1.13 de la sección 3.1) y* W_{tot} *es el peso total de la construcción."*

Del modelo se obtuvo un peso propio total W_{tot} =759.738 ton que se utiliza para la revisión por cortante basal, junto con los resultados obtenidos de periodo estructural y cortante dinámico de la corrida del modelo estructural.

Node	L/C	Force-X Mton	Force-Y Mton	Force-Z Mton	Moment-X MTon-m	Moment-Y MTon-m	Moment-Z MTon-m
1095	1	-0.060	16.831	-0.335	0.000	0.000	0.000
	2	0.007	2.148	0.019	0.000	0.000	0.000
	3	0.057	4.146	-0.017	0.000	0.000	0.000
	4	0.044	0.107	1.040	0.000	0.008	0.000
	5	0.349	19.860	0.164	0.000	0.000	0.000
1096	1	0.316	12.329	-0.345	0.000	-0.001	0.000
	2	0.007	0.655	0.008	0.000	0.000	0.000
	3	0.060	2.646	0.006	0.000	-0.001	0.000
	4	0.087	4.430	0.338	0.000	-0.001	0.000
	5	0.221	9.332	0.011	0.000	0.000	0.000
1097	1	-0.040	17.187	0.403	0.000	0.000	0.000
	2	0.019	1.912	0.019	0.000	0.000	0.000
	3	0.093	3.496	-0.017	0.000	0.000	0.000
	4	-0.175	-1.322	1.039	0.000	0.008	0.000
	5	0.298	17.986	0.099	0.000	0.000	0.000

Node	L/C	Force-X Mton	Force-Y Mton	Force-Z Mton	Moment-X MTon-m	Moment-Y MTon-m	Moment-Z MTon-m
1098	1	0.338	12.120	0.373	0.000	-0.001	0.000
	2	0.021	0.135	0.008	0.000	0.000	0.000
	3	0.093	0.866	0.007	0.000	-0.001	0.000
	4	-0.180	-0.386	0.338	0.000	-0.001	0.000
	5	0.186	9.056	0.012	0.000	0.000	0.000
1099	1	0.076	16.233	-0.385	0.000	0.000	0.000
	2	-0.275	3.076	-0.030	0.000	0.000	0.000
	3	-0.003	3.973	0.032	0.000	0.000	0.000
	4	-0.170	2.478	-0.539	0.000	0.013	0.000
	5	-0.788	12.566	-0.580	0.000	0.000	0.000
1100	1	0.521	17.553	0.351	0.000	0.000	0.000
	2	0.300	3.714	-0.021	0.000	0.000	0.000
	3	-0.032	3.163	0.043	0.000	0.000	0.000
	4	0.023	1.258	-0.536	0.000	0.013	0.000
	5	-0.193	12.699	0.506	0.000	0.000	0.000
1101	1	-0.699	15.669	-0.173	0.000	0.000	0.000
	2	0.884	3.733	-0.007	0.000	0.000	0.000
	3	-0.191	3.433	0.143	0.000	0.000	0.000
	4	1.427	-2.262	1.321	0.000	0.013	0.000
	5	-2.151	11.497	0.043	0.000	0.001	0.000
1102	1	-0.075	17.331	0.550	0.000	0.000	0.000
	2	0.794	4.664	0.011	0.000	0.000	0.000
	3	-0.056	2.420	0.154	0.000	0.000	0.000
	4	-0.595	5.301	1.319	0.000	0.013	0.000
	5	0.118	12.742	1.200	0.000	0.001	0.000
1103	1	0.115	16.985	-0.524	0.000	-0.008	0.000
	2	0.475	11.390	0.016	0.000	0.308	0.000
	3	-0.011	3.247	-0.091	0.000	0.055	0.000
	4	0.219	1.114	1.164	0.000	-0.021	0.000
	5	-0.363	9.462	-0.899	0.000	0.141	0.000
1104	1	0.033	18.831	0.593	0.000	0.000	0.000
	2	0.077	9.179	0.380	0.000	0.001	0.000
	3	0.045	3.028	0.149	0.000	0.000	0.000
	4	-0.031	6.316	0.773	0.000	0.015	0.000
	5	0.028	18.446	0.590	0.000	0.000	0.000
1105	1	-0.131	14.940	-0.378	0.000	-0.003	0.000
	2	-0.419	9.454	-0.042	0.000	-0.061	0.000
	3	0.064	3.436	-0.127	0.000	-0.012	0.000
	4	0.547	1.463	0.328	0.000	0.017	0.000
	5	0.105	7.976	-0.668	0.000	-0.029	0.000

Node	L/C	Force-X Mton	Force-Y Mton	Force-Z Mton	Moment-X MTon-m	Moment-Y MTon-m	Moment-Z MTon-m
1106	1	-0.043	16.911	0.614	0.000	0.000	0.000
	2	-0.150	9.045	0.209	0.000	-0.001	0.000
	3	-0.016	4.155	0.098	0.000	0.000	0.000
	4	-0.349	2.009	0.643	0.000	0.015	0.000
	5	-0.065	15.287	0.801	0.000	0.000	0.000
1107	1	0.009	15.703	-0.425	0.000	-0.002	0.000
	2	-0.226	3.880	-0.005	0.000	-0.003	0.000
	3	0.051	4.603	-0.032	0.000	0.000	0.000
	4	0.393	11.287	-4.122	0.000	0.020	0.000
	5	0.097	12.722	-0.028	0.000	-0.003	0.000
1108	1	-0.060	15.637	0.319	0.000	0.002	0.000
	2	-0.201	3.647	0.007	0.000	0.001	0.000
	3	-0.051	2.420	-0.012	0.000	0.000	0.000
	4	-0.500	-10.867	-4.099	0.000	0.023	0.000
	5	-0.173	13.182	0.103	0.000	0.008	0.000
1109	1	0.120	19.325	-0.314	0.000	0.000	0.000
	2	0.005	1.648	-0.002	0.000	0.000	0.000
	3	-0.019	5.818	0.015	0.000	-0.001	0.000
	4	-0.099	12.105	-5.944	0.000	0.013	0.000
	5	0.014	16.641	-0.512	0.000	0.001	0.000
1110	1	0.113	18.271	0.419	0.000	0.000	0.000
	2	-0.009	1.398	0.000	0.000	0.000	0.000
	3	0.006	3.755	0.028	0.000	-0.001	0.000
	4	0.066	-13.227	-5.946	0.000	0.013	0.000
	5	-0.008	17.640	0.355	0.000	0.001	0.000
1111	1	-0.113	19.217	-0.765	0.000	0.000	0.000
	2	-0.010	2.102	-0.035	0.000	0.000	0.000
	3	-0.010	5.064	-0.172	0.000	-0.001	0.000
	4	-0.059	0.428	3.515	0.000	0.014	0.000
	5	-0.011	15.047	-1.165	0.000	0.001	0.000
1112	1	-0.113	17.595	0.217	0.000	0.000	0.000
	2	-0.020	1.344	0.016	0.000	0.000	0.000
	3	0.013	3.839	0.010	0.000	0.000	0.000
	4	0.035	-4.387	4.430	0.000	0.013	0.000
	5	-0.022	16.537	0.604	0.000	0.000	0.000
1113	1	-0.036	17.082	-0.754	0.000	0.000	0.000
	2	-0.042	2.186	-0.052	0.000	0.000	0.000
	3	-0.034	3.874	-0.177	0.000	0.000	0.000
	4	0.231	-3.150	0.721	0.000	0.015	0.000
	5	-0.071	13.582	-0.801	0.000	0.002	0.000

Node	L/C	Force-X Mton	Force-Y Mton	Force-Z Mton	Moment-X MTon-m	Moment-Y MTon-m	Moment-Z MTon-m
1114	1	-0.011	15.464	0.037	0.000	0.000	0.000
	2	-0.036	1.359	-0.011	0.000	0.000	0.000
	3	0.010	3.257	-0.005	0.000	0.000	0.000
	4	-0.103	-0.114	1.366	0.000	0.013	0.000
	5	-0.057	10.079	0.369	0.000	0.001	0.000
1115	1	-0.111	14.156	-0.355	0.000	0.000	0.000
	2	-0.286	0.977	-0.001	0.000	0.000	0.000
	3	-0.141	2.035	-0.004	0.000	0.000	0.000
	4	0.618	3.720	-0.336	0.000	0.014	0.000
	5	0.738	9.377	-0.416	0.000	0.002	0.000
1116	1	0.087	14.098	0.355	0.000	0.000	0.000
	2	-0.258	0.692	0.001	0.000	0.000	0.000
	3	0.276	3.160	0.004	0.000	0.000	0.000
	4	-1.394	-1.682	-0.329	0.000	0.014	0.000
	5	1.529	9.662	0.416	0.000	0.002	0.000
1117	1	-0.085	14.019	-0.354	0.000	0.000	0.000
	2	-0.328	1.519	0.004	0.000	0.000	0.000
	3	-0.172	1.712	0.000	0.000	0.000	0.000
	4	-0.157	-2.350	0.008	0.000	0.013	0.000
	5	-0.022	9.534	-0.346	0.000	0.001	0.000
1118	1	-0.027	14.055	0.364	0.000	0.000	0.000
	2	-0.330	1.344	0.008	0.000	0.000	0.000
	3	-0.025	2.746	0.006	0.000	0.000	0.000
	4	-1.077	2.022	0.005	0.000	0.014	0.000
	5	0.618	11.380	0.503	0.000	0.002	0.000
1119	1	-0.128	11.039	-0.293	0.000	0.000	0.000
	2	-0.049	0.285	-0.006	0.000	0.000	0.000
	3	-0.028	0.197	-0.003	0.000	0.000	0.000
	4	0.200	0.232	-0.362	0.000	0.013	0.000
	5	-0.160	2.074	-0.065	0.000	0.000	0.000
1120	1	-0.076	11.485	0.284	0.000	0.000	0.000
	2	-0.033	0.278	-0.006	0.000	0.000	0.000
	3	-0.009	1.562	-0.003	0.000	0.000	0.000
	4	-0.074	2.641	-0.362	0.000	0.014	0.000
	5	-0.089	7.583	-0.092	0.000	0.001	0.000
1121	1	-0.020	10.259	0.743	0.000	-0.002	0.000
	2	0.000	0.225	0.050	0.000	-0.001	0.000
	3	0.001	0.823	0.175	0.000	0.000	0.000
	4	0.000	7.556	1.215	0.000	0.007	0.000
	5	-0.003	7.386	0.725	0.000	-0.001	0.000

Node	L/C	Force-X Mton	Force-Y Mton	Force-Z Mton	Moment-X MTon-m	Moment-Y MTon-m	Moment-Z MTon-m
1181	1	0.257	14.173	-0.488	0.000	-0.002	0.000
	2	0.248	10.169	-0.420	0.000	0.296	0.000
	3	0.019	2.324	-0.245	0.000	0.055	0.000
	4	0.685	-1.955	0.552	0.000	-0.036	0.000
	5	-0.127	5.331	-0.859	0.000	0.145	0.000
1182	1	-0.169	12.057	-0.256	0.000	-0.001	0.000
	2	-0.160	8.334	-0.149	0.000	-0.060	0.000
	3	0.011	2.324	-0.133	0.000	-0.012	0.000
	4	0.363	-0.639	-0.105	0.000	0.010	0.000
	5	-0.045	3.894	-0.420	0.000	-0.030	0.000
1298	1	0.011	9.392	0.523	0.000	-0.002	0.000
	2	-0.004	0.204	0.032	0.000	-0.001	0.000
	3	0.001	0.701	0.169	0.000	0.000	0.000
	4	-0.034	2.912	0.867	0.000	0.008	0.000
	5	0.001	2.746	0.257	0.000	-0.003	0.000

Sumando cada una de las combinaciones:

COMBINACIÓN	FACTOR	CARGA
1.- CARGA MUERTA	1.0	455.944 ton
2.- CARGA VIVA	0.5	50.347 ton
3.- CARGA DE CH ELECTR.	1.0	88.224 ton
4.- CARGA TERMICA	1.0	25.037 ton
5.- CARGA POR TUBERIAS	1.0	341.307 ton

TOTAL = 759.738 ton.

• Revisión por cortante basal

De la tabla de participación de masa mostrada en la Imagen 4.1 se determina el modo fundamental de la estructura y el cortante basal dinámico en dirección X.

	MASS PARTICIPATION FACTORS IN PERCENT						BASE SHEAR IN KN		
MODE	X	Y	Z	SUMM-X	SUMM-Y	SUMM-Z	X	Y	Z
1	0.11	0.01	56.79	0.106	0.011	56.795	0.90	0.00	0.00
2	0.02	0.00	8.41	0.129	0.014	65.210	0.20	0.00	0.00
3	1.57	0.03	0.27	1.698	0.046	65.481	14.82	0.00	0.00
4	78.39	0.00	0.49	80.083	0.050	65.966	759.07	0.00	0.00
5	7.79	0.00	11.31	87.873	0.052	77.274	76.62	0.00	0.00
6	0.00	0.03	4.41	87.874	0.080	81.682	0.00	0.00	0.00
7	0.35	0.00	0.22	88.224	0.080	81.906	3.80	0.00	0.00
8	0.56	0.00	2.05	88.786	0.080	83.952	6.50	0.00	0.00
9	0.01	0.00	0.04	88.792	0.085	83.988	0.07	0.00	0.00
10	0.00	0.00	0.66	88.795	0.088	84.644	0.04	0.00	0.00
190	0.01	0.00	0.00	93.497	99.106	95.233	0.23	0.00	0.00
191	0.00	0.00	0.00	93.500	99.111	95.233	0.08	0.00	0.00
192	0.03	0.02	0.00	93.530	99.134	95.234	0.83	0.00	0.00
193	0.01	0.00	0.00	93.537	99.134	95.234	0.21	0.00	0.00
194	0.00	0.00	0.00	93.538	99.134	95.234	0.01	0.00	0.00
195	0.00	0.00	0.00	93.538	99.134	95.234	0.00	0.00	0.00
196	0.00	0.00	0.00	93.538	99.134	95.236	0.01	0.00	0.00
197	0.02	0.01	0.00	93.557	99.148	95.241	0.53	0.00	0.00
198	0.00	0.02	0.02	93.560	99.165	95.260	0.08	0.00	0.00
199	0.00	0.00	0.00	93.561	99.169	95.262	0.02	0.00	0.00
200	0.02	0.01	0.00	93.577	99.182	95.263	0.43	0.00	0.00
				TOTAL SRSS SHEAR			763.35	0.00	0.00
				TOTAL 10PCT SHEAR			851.30	0.00	0.00
				TOTAL ABS SHEAR			958.31	0.00	0.00

Imagen 4.1 Tabla de participación de masa y cortante dinámico en dirección X resultado de la corrida del modelo estructural

De lo anterior se establece que en el cuarto modo se tiene un porcentaje de participación de masa del 78.39% por lo que este es el modo fundamental de la estructura en la dirección X, mientras que el cortante basal dinámico es de 763.35 KN como se indica en rojo en la Imagen 4.1.

De igual forma procedemos a obtener estos valores para la dirección Z

Obtención de modo fundamental y cortante basal dinámico en dirección Z.

	MASS PARTICIPATION FACTORS IN PERCENT						BASE SHEAR IN KN		
MODE	X	Y	Z	SUMM-X	SUMM-Y	SUMM-Z	X	Y	Z
1	0.11	0.01	56.79	0.106	0.011	56.795	0.00	0.00	718.97
2	0.02	0.00	8.41	0.129	0.014	65.210	0.00	0.00	109.87
3	1.57	0.03	0.27	1.698	0.046	65.481	0.00	0.00	3.78
4	78.39	0.00	0.49	80.083	0.050	65.966	0.00	0.00	6.96
5	7.79	0.00	11.31	87.873	0.052	77.274	0.00	0.00	164.90
6	0.00	0.03	4.41	87.874	0.080	81.682	0.00	0.00	66.23
7	0.35	0.00	0.22	88.224	0.080	81.906	0.00	0.00	3.63
8	0.56	0.00	2.05	88.786	0.080	83.952	0.00	0.00	35.20
9	0.01	0.00	0.04	88.792	0.085	83.988	0.00	0.00	0.65
10	0.00	0.00	0.66	88.795	0.088	84.644	0.00	0.00	12.01
190	0.01	0.00	0.00	93.497	99.106	95.233	0.00	0.00	0.01
191	0.00	0.00	0.00	93.500	99.111	95.233	0.00	0.00	0.00
192	0.03	0.02	0.00	93.530	99.134	95.234	0.00	0.00	0.03
193	0.01	0.00	0.00	93.537	99.134	95.234	0.00	0.00	0.00
194	0.00	0.00	0.00	93.538	99.134	95.234	0.00	0.00	0.00
195	0.00	0.00	0.00	93.538	99.134	95.234	0.00	0.00	0.00
196	0.00	0.00	0.00	93.538	99.134	95.236	0.00	0.00	0.10
197	0.02	0.01	0.00	93.557	99.148	95.241	0.00	0.00	0.19
198	0.00	0.02	0.02	93.560	99.165	95.260	0.00	0.00	0.80
199	0.00	0.00	0.00	93.561	99.169	95.262	0.00	0.00	0.08
200	0.02	0.01	0.00	93.577	99.182	95.263	0.00	0.00	0.02
				TOTAL SRSS		SHEAR	0.00	0.00	752.86
				TOTAL 10PCT		SHEAR	0.00	0.00	872.49
				TOTAL ABS		SHEAR	0.00	0.00	1438.02

Imagen 4.2 Tabla de participación de masa y cortante dinámico en dirección Z resultado de la corrida del modelo estructural

Para la dirección Z se tiene que en el modo 1 la participación de masa es la mayor con 56.79% y un cortante basal dinámico de 752.86 KN como se indica en la Imagen 4.2.

Obtención de modo fundamental y cortante basal dinámico en dirección Y.

	MASS PARTICIPATION FACTORS IN PERCENT						BASE SHEAR IN KN		
MODE	X	Y	Z	SUMM-X	SUMM-Y	SUMM-Z	X	Y	Z
1	0.11	0.01	56.79	0.106	0.011	56.795	0.00	0.04	0.00
2	0.02	0.00	8.41	0.129	0.014	65.210	0.00	0.01	0.00
3	1.57	0.03	0.27	1.698	0.046	65.481	0.00	0.12	0.00
4	78.39	0.00	0.49	80.083	0.050	65.966	0.00	0.02	0.00
5	7.79	0.00	11.31	87.873	0.052	77.274	0.00	0.01	0.00
6	0.00	0.03	4.41	87.874	0.080	81.682	0.00	0.11	0.00
7	0.35	0.00	0.22	88.224	0.080	81.906	0.00	0.00	0.00
8	0.56	0.00	2.05	88.786	0.080	83.952	0.00	0.00	0.00
9	0.01	0.00	0.04	88.792	0.085	83.988	0.00	0.02	0.00
10	0.00	0.00	0.66	88.795	0.088	84.644	0.00	0.01	0.00
11	0.03	0.01	0.24	88.822	0.093	84.882	0.00	0.03	0.00
12	0.00	0.00	0.00	88.822	0.093	84.882	0.00	0.00	0.00
13	0.00	0.00	0.00	88.822	0.093	84.882	0.00	0.00	0.00
14	0.57	0.00	0.00	89.397	0.093	84.882	0.00	0.00	0.00
15	0.00	0.03	1.31	89.397	0.118	86.190	0.00	0.14	0.00
16	0.01	0.09	2.07	89.405	0.207	88.258	0.00	0.54	0.00
17	0.01	0.00	0.02	89.412	0.208	88.279	0.00	0.00	0.00
18	0.58	0.00	0.04	89.990	0.211	88.320	0.00	0.02	0.00
19	0.69	0.00	0.03	90.678	0.212	88.354	0.00	0.01	0.00
20	0.03	0.01	0.00	90.711	0.221	88.355	0.00	0.06	0.00
21	0.01	0.00	0.02	90.719	0.221	88.373	0.00	0.00	0.00
22	0.24	0.00	0.01	90.959	0.223	88.381	0.00	0.01	0.00
23	0.27	0.00	0.00	91.225	0.223	88.381	0.00	0.00	0.00
24	0.00	0.08	0.47	91.228	0.304	88.850	0.00	0.57	0.00
25	0.01	0.00	0.00	91.239	0.305	88.853	0.00	0.01	0.00
26	0.06	0.07	0.00	91.294	0.372	88.853	0.00	0.50	0.00
27	0.04	0.03	0.01	91.332	0.398	88.858	0.00	0.19	0.00
28	0.07	0.00	0.00	91.404	0.398	88.860	0.00	0.00	0.00
29	0.00	0.19	0.39	91.408	0.586	89.246	0.00	1.49	0.00
30	0.00	0.14	0.00	91.408	0.731	89.249	0.00	1.16	0.00
31	0.01	0.05	0.00	91.415	0.777	89.250	0.00	0.37	0.00
32	0.00	0.18	0.00	91.417	0.957	89.251	0.00	1.46	0.00
33	0.00	0.05	0.00	91.418	1.005	89.251	0.00	0.39	0.00
34	0.00	0.06	0.03	91.418	1.064	89.281	0.00	0.48	0.00
35	0.02	16.03	0.02	91.441	17.094	89.299	0.00	131.77	0.00
36	0.00	0.02	0.00	91.443	17.116	89.299	0.00	0.17	0.00
37	0.00	0.03	0.00	91.443	17.148	89.299	0.00	0.27	0.00
38	0.00	6.63	0.05	91.446	23.776	89.352	0.00	55.04	0.00
39	0.00	0.00	0.16	91.446	23.776	89.509	0.00	0.00	0.00
40	0.00	0.00	0.00	91.446	23.776	89.509	0.00	0.00	0.00
41	0.00	0.24	0.06	91.447	24.019	89.573	0.00	2.03	0.00
42	0.00	0.67	0.27	91.450	24.686	89.844	0.00	5.60	0.00
43	0.00	0.04	0.02	91.453	24.725	89.863	0.00	0.33	0.00
44	0.00	0.00	0.00	91.456	24.726	89.864	0.00	0.01	0.00
45	0.00	0.01	0.02	91.456	24.739	89.884	0.00	0.11	0.00
46	0.00	0.00	0.00	91.456	24.739	89.884	0.00	0.01	0.00
47	0.00	0.00	0.00	91.456	24.739	89.884	0.00	0.00	0.00
48	0.03	0.56	0.00	91.483	25.295	89.887	0.00	4.75	0.00
49	0.00	0.21	0.01	91.483	25.505	89.900	0.00	1.81	0.00
50	0.00	0.01	0.24	91.484	25.519	90.136	0.00	0.12	0.00
51	0.04	19.57	0.00	91.519	45.088	90.137	0.00	170.50	0.00
190	0.01	0.00	0.00	93.497	99.106	95.233	0.00	0.00	0.00

MODE	X	Y	Z	SUMM-X	SUMM-Y	SUMM-Z	X	Y	Z
191	0.00	0.00	0.00	93.500	99.111	95.233	0.00	0.05	0.00
192	0.03	0.02	0.00	93.530	99.134	95.234	0.00	0.26	0.00
193	0.01	0.00	0.00	93.537	99.134	95.234	0.00	0.00	0.00
194	0.00	0.00	0.00	93.538	99.134	95.234	0.00	0.00	0.00
195	0.00	0.00	0.00	93.538	99.134	95.234	0.00	0.00	0.00
196	0.00	0.00	0.00	93.538	99.134	95.236	0.00	0.00	0.00
197	0.02	0.01	0.00	93.557	99.148	95.241	0.00	0.15	0.00
198	0.00	0.02	0.02	93.560	99.165	95.260	0.00	0.19	0.00
199	0.00	0.00	0.00	93.561	99.169	95.262	0.00	0.04	0.00
200	0.02	0.01	0.00	93.577	99.182	95.263	0.00	0.15	0.00
					TOTAL SRSS SHEAR		0.00	281.34	0.00
					TOTAL 10PCT SHEAR		0.00	461.20	0.00
					TOTAL ABS SHEAR		0.00	892.82	0.00

Imagen 4.3 Tabla de participación de masa y cortante dinámico en dirección Y resultado de la corrida del modelo estructural

Para la dirección Y se tiene que en el modo 51 la participación de masa es la mayor con 19.57% y un cortante basal dinámico de 281.34 KN como se indica en la Imagen 4.3.

Conocidos los modos fundamentales de la estructura podemos determinar el periodo fundamental de la estructura en las dos direcciones X y Z, en la tabla de la Imagen 4.4 generada en la corrida del modelo estructural tenemos que:

CALCULATED FREQUENCIES FOR LOAD CASE 7

) MODE	FREQUENCY(CYCLES/SEC)	PERIOD(SEC
1	0.828	1.20774
2	0.873	1.14592
3	0.993	1.00755
4	1.031	0.97037
5	1.055	0.94785
6	1.100	0.90884
7	1.253	0.79838
8	1.350	0.74088
9	1.459	0.68561
10	1.476	0.67768
11	1.554	0.64362
12	1.645	0.60778
13	1.646	0.60769
14	1.660	0.60245
15	1.695	0.59009
16	1.979	0.50540
17	2.064	0.48445
18	2.103	0.47545
19	2.126	0.47029
20	2.286	0.43754
21	2.375	0.42097
22	2.392	0.41799
23	2.487	0.40206
24	2.545	0.39300
25	2.633	0.37974
26	2.675	0.37383
27	2.746	0.36421
28	2.869	0.34855
29	2.973	0.33635
30	3.049	0.32800
31	3.070	0.32574
32	3.121	0.32038
33	3.148	0.31767
34	3.149	0.31756
35	3.175	0.31497
36	3.190	0.31344
37	3.210	0.31148
38	3.237	0.30894
39	3.252	0.30754
40	3.272	0.30566
41	3.297	0.30333
42	3.304	0.30270
43	3.327	0.30059
44	3.364	0.29725
45	3.385	0.29541
46	3.394	0.29462

MODE	FREQUENCY(CYCLES/SEC)	PERIOD(SEC
47	3.422	0.29221
48	3.440	0.29073
49	3.458	0.28917
50	3.548	0.28188
51	3.574	0.27981

Imagen 4.4 Frecuencias, periodos y participación de masa para los modos fundamentales

De acuerdo al MDOC CFE DS 2008 en su capítulo *3.3.6.3*

Revisión por cortante basal se debe cumplir que:

$0.8V_E \leq VD$ $a_0W_{tot} \leq VD$

Si no se cumple a la primera condición se deben incrementar las fuerzas sísmicas de forma que el cortante dinámico sea mayor, esto se logra multiplicando la aceleración de la gravedad por un factor que a continuación se obtiene.

$$\text{Factor} = \frac{80\ \%\ Vd}{Ve}$$

Este factor se multiplica por la gravedad:

Factor x 9.81 Este valor se usa en el modelo para encontrar el constante dinámico que cumpla.

Donde:

Coeficiente sísmico por dirección de acuerdo a su modo principal de vibración, ver sus espectros respectivos por dirección:

RACK	MODOS		PERIODOS Te (seg)		Coeficiente Sísmico		PESO (TON)
	X	Z	EN X	EN Z	EN X	EN Z	
PRINCIPAL NORTE-SUR	4	1	0.970	1.208	0.072	0.077	759.738

Datos obtenidos de cada una de las corridas

REVISION DEL CORTANTE ESTATICO CONTRA EL DINAMICO

Ve = Cortante estático = (Peso de la estructura + la carga viva + peso de tuberías en operación) por el coeficiente sísmico

Vd = Cortante dinámico obtenido de la corrida del staad.

RACK	CORTANTE ESTATICO		80 %CORTANTE ESTATICO		CORTANTE DINAMICO	
	Vex	Vez	0.8Vex	0.8Vez	Vdx	Vdz
PRINCIPAL NORTE-SUR	54.701	58.500	43.761	46.800	**77.814**	**76.744**

Se comprueba que 0.8 Ve < Vd

a_o x W = 0.1 x 759.738 = 75.974 ton < Vd en ambas direcciones

5.0 Diseño estructural.

5.1. Revisión por desplazamientos.

• Revisión de desplazamientos horizontales

De acuerdo a los resultados del modelo estructural las combinaciones de sismo son las que rigen la revisión por desplazamientos horizontales, la revisión se lleva acabo conforme a lo indicado en el capítulo *3.3.7.1 Desplazamientos horizontales por limitación de daños a elementos no estructurales (límite de servicio)* del MDOC CFE DS 2008 que indica:

"*Las diferencias entre los desplazamientos laterales de pisos consecutivos debidos a las fuerzas cortantes horizontales, calculadas con alguno de los métodos de análisis sísmico para las ordenadas espectrales reducidas (a(β)/Q´Rρ) que se describen en esta sección y multiplicadas por el factor Q´Rρ/Fser, no excederán a 0.002 veces las diferencias de elevaciones correspondientes.*"

Lo anterior se resume con la siguiente desigualdad.

$$\delta\left(\frac{Q'R\rho}{Fser}\right) \leq 0.002H$$

Dónde:

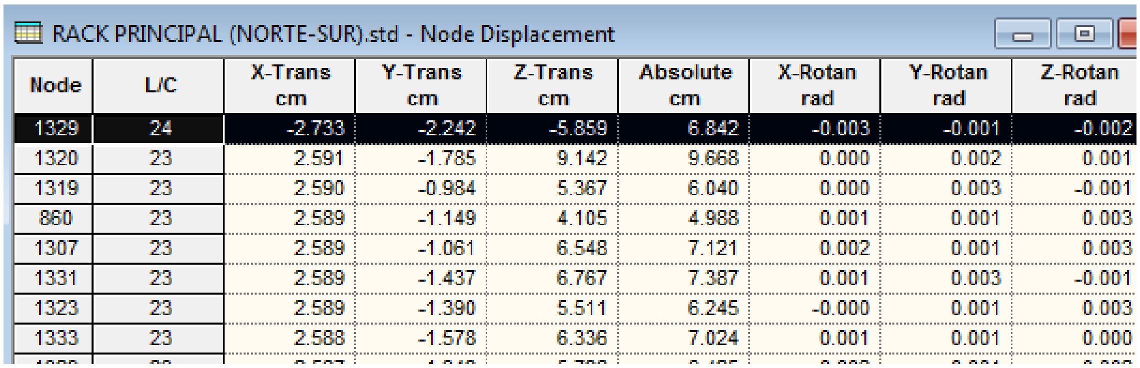
δ Desplazamiento lateral de pisos consecutivos debidos a las fuerzas cortantes horizontales en dirección X ó Z según corresponda.

Q´, R y ρ Se calcularán para el periodo fundamental de la estructura.

Fser También se calculará para el periodo fundamental de la estructura siguiendo las especificaciones que se proporcionan en las secciones de recomendaciones 3.1.6.7 y de comentarios 3.1.7.2. del MDOC CFE DS 2008.

H altura del entrepiso, en general 0.002H se considera el desplazamiento horizontal permisible.

El desplazamiento horizontal máximo obtenido del modelo analítico para el Rack de Tuberías en dirección X ocurre en el nodo 1329 con la combinación de carga 24 δx=2.731 cm indicado en la Imagen 5.1.


RACK PRINCIPAL (NORTE-SUR).std - Node Displacement

Node	L/C	X-Trans cm	Y-Trans cm	Z-Trans cm	Absolute cm	X-Rotan rad	Y-Rotan rad	Z-Rotan rad
1329	24	-2.733	-2.242	-5.859	6.842	-0.003	-0.001	-0.002
1320	23	2.591	-1.785	9.142	9.668	0.000	0.002	0.001
1319	23	2.590	-0.984	5.367	6.040	0.000	0.003	-0.001
860	23	2.589	-1.149	4.105	4.988	0.001	0.001	0.003
1307	23	2.589	-1.061	6.548	7.121	0.002	0.001	0.003
1331	23	2.589	-1.437	6.767	7.387	0.001	0.003	-0.001
1323	23	2.589	-1.390	5.511	6.245	-0.000	0.001	0.003
1333	23	2.588	-1.578	6.336	7.024	0.001	0.001	0.000

Imagen 5.1 Obtención del desplazamiento horizontal máximo en dirección X

Desplazamiento critico en dirección X rige carga de sismo, donde Q’ = 1.4, R=2 y ρ=1.0

Desplazamiento real = Δ x (Q’R ρ) / 5.5 = 1.39 cm

Desplazamiento máx = Δ máx. = 1.39 cm

Desplazamiento permisible = 0.012 H = 0.012 x 1500 = 18 cm

Δ perm. = 18.00 > 1.39 cm No hay problema por desplazamiento en X

El desplazamiento horizontal máximo en dirección Z ocurre en el nodo 306 con la combinación de carga 24 δ_Z=9.326 cm tal como se indica en la Imagen 5.2

RACK PRINCIPAL (NORTE-SUR).std - Node Displacement

Node	L/C	X-Trans cm	Y-Trans cm	Z-Trans cm	Absolute cm	X-Rotan rad	Y-Rotan rad	Z-Rotan rad
306	24	-2.314	-2.530	-9.326	9.936	-0.004	-0.003	0.000
1320	24	-2.815	-2.442	-9.323	10.040	-0.002	-0.002	-0.000
1318	24	-2.957	-2.364	-9.318	10.058	0.000	-0.002	-0.001
316	24	-2.799	-2.438	-9.312	10.025	-0.004	-0.003	-0.001
809	24	-2.808	-2.528	-9.171	9.919	-0.004	-0.001	-0.000
810	24	-2.322	-2.584	-9.171	9.807	-0.004	-0.001	-0.000
1041	24	-2.530	-3.328	-9.171	10.079	-0.002	-0.001	-0.000

Imagen 5.2 Obtención del desplazamiento horizontal máximo en dirección Z

Desplazamiento critico en dirección X rige carga de sismo, donde Q' = 1.4, R=2 y ρ=1.0

Desplazamiento real = Δ x (Q'R ρ) / 5.5 = 4.75 cm

Desplazamiento máx = Δ máx. = 4.75 cm

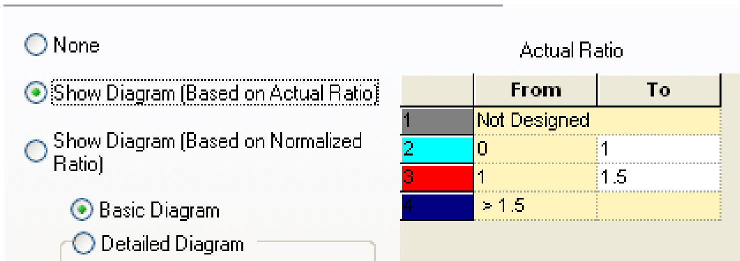
Desplazamiento permisible = 0.012 H = 0.012 x 1500 = 18 cm

Δ perm. = 18.00 > 4.75 cm No hay problema por desplazamiento en Z

Por lo que la estructura cumple con los desplazamientos horizontales permisibles.

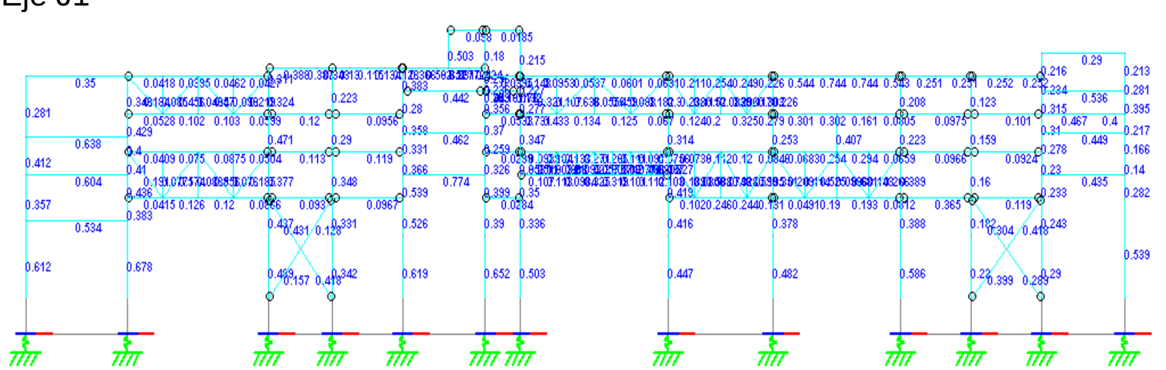
5.2. Diseño de la Estructura.

La revisión del diseño de los diferentes miembros de acero que conforman la estructura del Rack de Tuberías se hace mediante la revisión de la relación de esfuerzos que realiza el programa STAAD Pro en el modelo 3D.

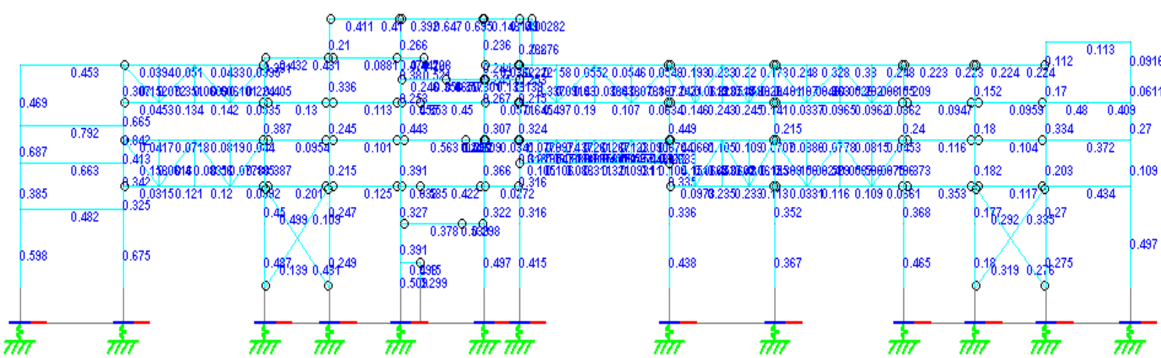


A continuación, se muestran los elementos con su relación de esfuerzos.

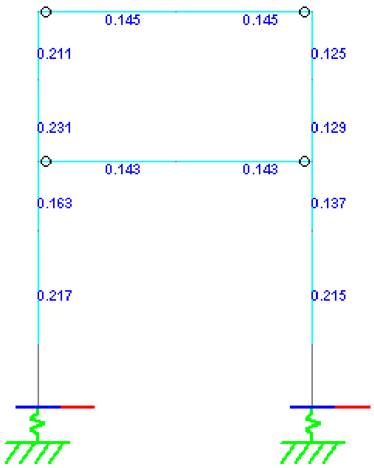
Eje J1



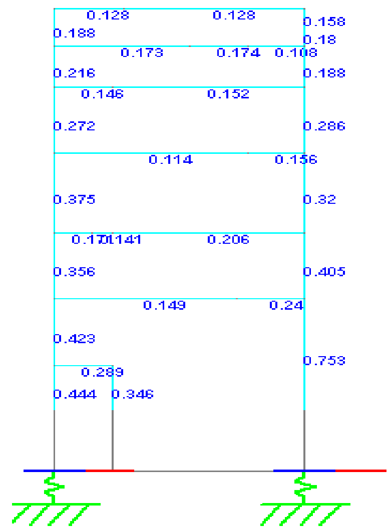
Eje L1



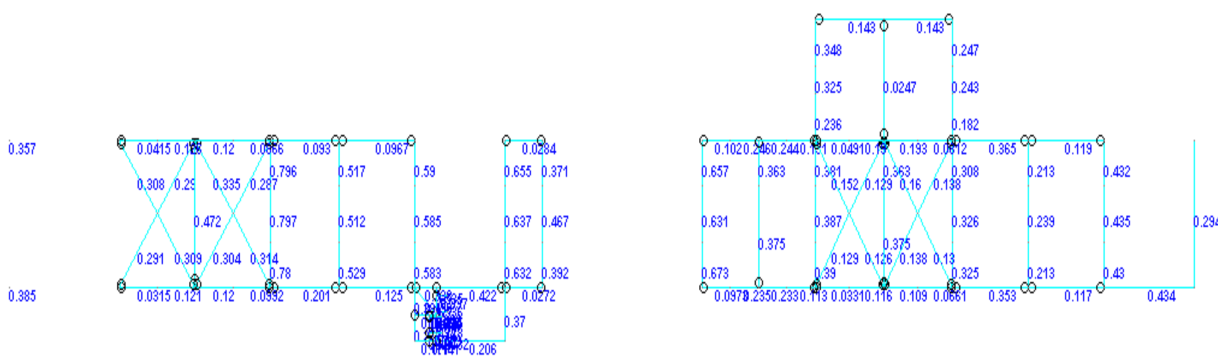
EJE G2



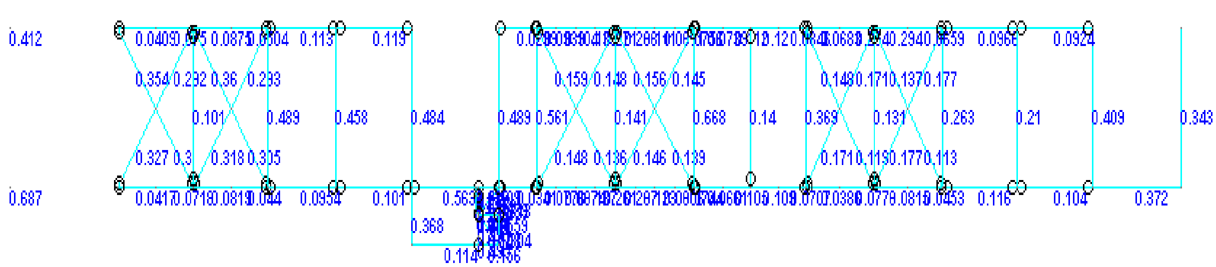
EJE L2



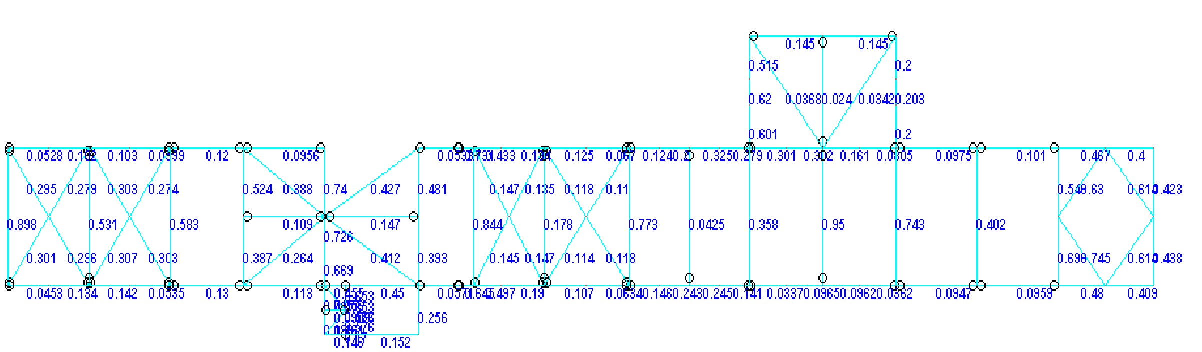
NIV +1208.20



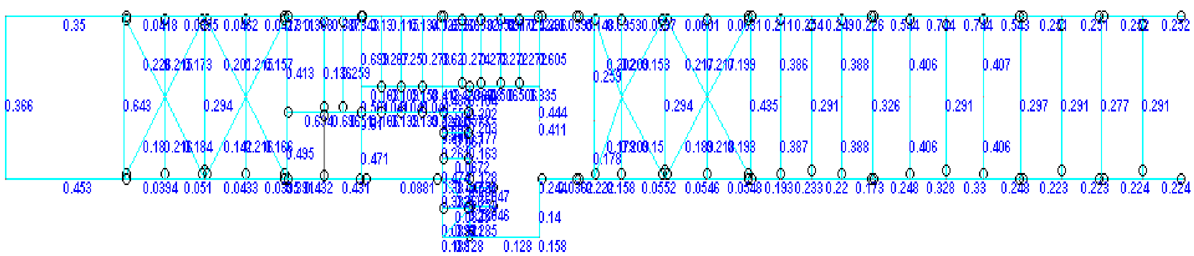
NIV +1211.20



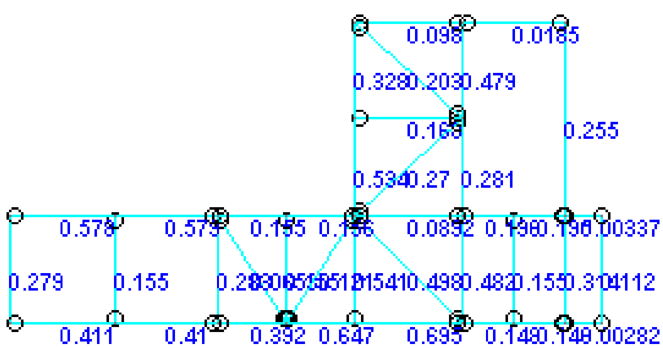
NIV +1213.70



NIV +1216.20



NIV +1218.20



Los resultados podrán revisarse también a detalle en la corrida de staad Correspondiente.

5.3. Diseño de conexiones principales.

Conexiones Tipo a momento en estructura principal

Conexión a momento CW12X40 TW 10X26

Units system: Metric
File name: C:\MXPC9040\III SENER\III\RACK DE TUBERIAS CIMENTACION PLANTA 1 DE 2\R1\conexiones\CONEXIONES EN RAM\conexiones CONEXION A MOMENTO C1 12X40 T1 10X26.cnx\

Steel connections

Detailed report

Connection name	:	**EEP_BCF_1PL_4B1**
Connection ID	:	**1**
Design code	:	**AISC 360-05 LRFD**

Family	:	Extended end plate (EEP)
Type	:	Beam - Column flange (BCF)

LOADS

Members	**Load**	**Type**	**V2**	**V3**	**M33**
M22	**Axial**				
[Ton]	**[Ton]**	**[Ton*m]**	**[Ton*m]**	**[Ton]**	
Right beam	1 - DL	Design	3.23	--	
5.50	--	1.68			

GEOMETRIC CONSIDERATIONS

Dimensions **References**	**Unit**	**Value**	**Min. value**	**Max. value**	**Sta.**
Extended end plate					
Vertical edge distance Sec. J3.5	[cm]	4.00	2.86	15.24	
Horizontal edge distance Sec. J3.5	[cm]	5.50	2.86	15.24	
Horizontal center-to-center spacing (gage) DG4 Sec. 2.4	[cm]	9.00	7.62	14.66	
Distance from centerline of bolt to nearer surface o... DG4 Sec. 2.1	[cm]	3.00	2.86	--	
Bolt diameter DG4 Sec. 1.1	[cm]	1.59	--	3.81	
Support					
Column flange thickness (w/o stiffeners) DG4 Eq. 3.20	[cm]	1.31	0.94	--	

Horizontal edge distance Sec. J3.5	[cm]	5.67	2.86	15.24
Extended end plate behavior				
Thick plate behavior for the end plate				
Thick plate behavior for the column flange				
<u>Transverse stiffeners</u>				
Width Sec. J10.8	[cm]	9.50	--	--
Thickness Sec. J10.8	[cm]	1.00	0.63	--
Weld size DG 13 Eq. 4.3-6	[1/16in]	5	3	--

DESIGN CHECK

Verification **References**	**Unit**	**Capacity**	**Demand**	**Ctrl EQ**	**Ratio**
<u>Extended end plate</u>					
Shear yielding DG4 Eq. 3.12	[Ton]	43.19	11.41	1 - DL0.26	
Shear rupture DG4 Eq. 3.13	[Ton]	46.94	11.41	1 - DL0.24	
Flexural yielding DG4 Eq. 3.10, Sec. 2.2.3	[Ton*m]	12.31	5.50	1 - DL0.45	
No prying bolt moment strength DG4 Eq. 3.7	[Ton*m]	8.48	5.50	1 - DL0.65	
Bolts shear Eq. J3-1	[Ton]	20.05	3.23	1 - DL0.16	
Connector bolt bearing Eq. J3-6	[Ton]	73.08	3.23	1 - DL0.04	
<u>Beam</u>					
Beam web weld capacity Eq. J2-4	[Ton]	27.85	11.23	1 - DL0.40	
Shear yielding Eq. J4-3	[Ton]	26.24	3.23	1 - DL0.12	
Flange weld capacity Eq. J2-4	[Ton]	57.59	22.81	1 - DL0.40	
<u>Support</u>					
Flexural yielding DG4 Eq. 3.20, Sec. 2.2.3	[Ton*m]	12.33	5.50	1 - DL0.45	
Support bolt bearing Eq. J3-6	[Ton]	60.51	3.23	1 - DL0.05	
Panel web shear Eq. J10-9	[Ton]	30.95	22.81	1 - DL0.74	
Local web yielding Sec. J10	[Ton]	57.52	22.81	1 - DL0.40	
<u>Transverse stiffeners</u>					
Yielding strength due to axial load Eq. D2-1	[Ton]	38.72	4.02	1 - DL0.10	

Compression strength Eq. J4-6	[Ton]	36.80	8.10	1 - DL0.22
Flange weld capacity Eq. J2-4	[Ton]	57.47	8.10	1 - DL0.14
Beam web weld capacity Eq. J2-4	[Ton]	59.72	8.10	1 - DL0.14

Critical strength ratio **0.74**

Conexión a momento CW18X86 TW12X50

Units system: Metric
File name: C:\MXPC9040\III SENER\III\RACK DE TUBERIAS CIMENTACION PLANTA 1 DE 2\racks\CONEXIONES RACK PRINCIPAL\CONEXION A MOMENTO C18X86 T12X50.cnx\

Steel connections

Detailed report

Connection name : EEP_BCF_1PL_4B1
Connection ID : 1
Design code : AISC 360-05 LRFD

Family : Extended end plate (EEP)
Type : Beam - Column flange (BCF)

LOADS

Members **M22**	**Load** **Axial**	**Type**	**V2**	**V3**	**M33**
[Ton]	**[Ton]**	**[Ton*m]**	**[Ton*m]**	**[Ton]**	
Right beam 20.30	1 - DL --	Design 2.04	4.23	--	

GEOMETRIC CONSIDERATIONS

Dimensions **References**	**Unit**	**Value**	**Min. value**	**Max. value**	**Sta.**
Extended end plate					
Vertical edge distance Sec. J3.5	[cm]	5.00	3.17	15.24	
Horizontal edge distance Sec. J3.5	[cm]	7.00	3.17	15.24	

Horizontal center-to-center spacing (gage) DG4 Sec. 2.4	[cm]	14.00	10.48	20.52	
Distance from centerline of bolt to nearer surface o... DG4 Sec. 2.1	[cm]	4.51	3.81	--	
Bolt diameter DG4 Sec. 1.1	[cm]	2.54	--	3.81	
<u>Support</u>					
Column flange thickness (w/o stiffeners) DG4 Eq. 3.20	[cm]	1.96	1.56	--	
Horizontal edge distance Sec. J3.5	[cm]	7.10	3.17	15.24	
Extended end plate behavior					
Thick plate behavior for the end plate					
Thick plate behavior for the column flange					
<u>Transverse stiffeners</u>					
Width Sec. J10.8	[cm]	12.50	--	--	
Thickness Sec. J10.8	[cm]	1.27	0.83	--	
Weld size DG 13 Eq. 4.3-6	[1/16in]	5	4	--	

DESIGN CHECK

Verification **References**	**Unit**	**Capacity**	**Demand**	**Ctrl EQ**	**Ratio**
<u>Extended end plate</u>					
Shear yielding DG4 Eq. 3.12	[Ton]	84.96	35.07	1 - DL0.41	
Shear rupture DG4 Eq. 3.13	[Ton]	90.78	35.07	1 - DL0.39	
Flexural yielding DG4 Eq. 3.10, Sec. 2.2.3	[Ton*m]	26.19	20.30	1 - DL0.77	
No prying bolt moment strength DG4 Eq. 3.7	[Ton*m]	25.43	20.30	1 - DL0.80	
Bolts shear Eq. J3-1	[Ton]	51.27	4.23	1 - DL0.08	
Connector bolt bearing Eq. J3-6	[Ton]	142.26	4.23	1 - DL0.03	
<u>Beam</u>					
Beam web weld capacity Eq. J2-4	[Ton]	31.32	17.98	1 - DL0.57	
Shear yielding Eq. J4-3	[Ton]	44.23	4.23	1 - DL0.10	
Flange weld capacity Eq. J2-4	[Ton]	80.84	70.14	1 - DL0.87	
<u>Support</u>					
Flexural yielding DG4 Eq. 3.20, Sec. 2.2.3	[Ton*m]	30.05	20.30	1 - DL0.68	

Support bolt bearing Eq. J3-6	[Ton]	145.85	4.23	1 - DL0.03
Panel web shear Eq. J10-9	[Ton]	77.88	70.14	1 - DL0.90
Local web yielding Sec. J10	[Ton]	131.37	70.14	1 - DL0.53
<u>Transverse stiffeners</u>				
Yielding strength due to axial load Eq. D2-1	[Ton]	57.63	10.70	1 - DL0.19
Compression strength Eq. J4-6	[Ton]	53.42	0.00	1 - DL0.00
Flange weld capacity Eq. J2-4	[Ton]	68.36	10.70	1 - DL0.16
Beam web weld capacity Eq. J2-4	[Ton]	89.89	10.70	1 - DL0.12

Critical strength ratio **0.90**

<u>Conexión a momento CW18X86 TW14X68</u>

Units system: Metric
File name: C:\MXPC9040\III SENER\III\RACK DE TUBERIAS CIMENTACION PLANTA 1 DE 2\racks\CONEXIONES RACK PRINCIPAL\CONEXION A MOMENTO C18X86 T14X68.cnx\

Steel connections

Detailed report

Connection name : EEP_BCF_1PL_4B1
Connection ID : 1
Design code : AISC 360-05 LRFD

Family : Extended end plate (EEP)
Type : Beam - Column flange (BCF)

LOADS

Members **M22** **[Ton]**	**Load** **Axial** **[Ton]**	**Type** **[Ton*m]**	**V2** **[Ton*m]**	**V3** **[Ton]**	**M33**
Right beam 25.46	1 - DL --	Design 3.71	20.41	--	

GEOMETRIC CONSIDERATIONS

Dimensions **References**	**Unit**	**Value**	**Min. value**	**Max. value**	**Sta.**
<u>Extended end plate</u>					
Vertical edge distance Sec. J3.5	[cm]	5.00	3.17	15.24	
Horizontal edge distance Sec. J3.5	[cm]	7.00	3.17	15.24	
Horizontal center-to-center spacing (gage) DG4 Sec. 2.4	[cm]	14.00	10.48	25.40	
Distance from centerline of bolt to nearer surface o... DG4 Sec. 2.1	[cm]	4.72	3.81	--	
Bolt diameter DG4 Sec. 1.1	[cm]	2.54	--	3.81	
<u>Support</u>					
Column flange thickness (w/o stiffeners) DG4 Eq. 3.20	[cm]	1.96	1.58	--	
Horizontal edge distance Sec. J3.5	[cm]	7.10	3.17	15.24	

Extended end plate behavior
Thick plate behavior for the end plate
Thick plate behavior for the column flange

<u>Transverse stiffeners</u>					
Width Sec. J10.8	[cm]	13.00	--	--	
Thickness Sec. J10.8	[cm]	1.27	0.87	--	
Weld size DG 13 Eq. 4.3-6	[1/16in]	4	4	--	

DESIGN CHECK

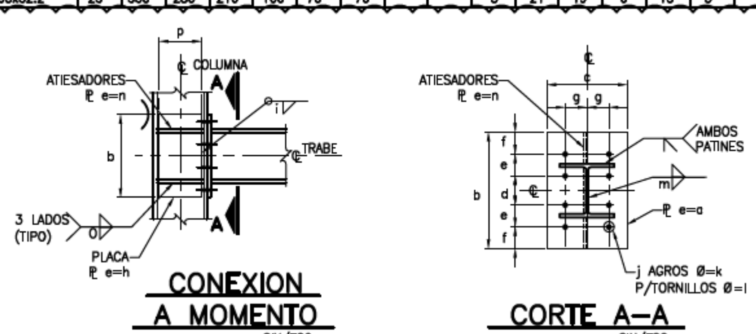
Verification **References**	**Unit**	**Capacity**	**Demand**	**Ctrl EQ**	**Ratio**
<u>Extended end plate</u>					
Shear yielding DG4 Eq. 3.12	[Ton]	97.20	38.67	1 - DL0.40	
Shear rupture DG4 Eq. 3.13	[Ton]	103.87	38.67	1 - DL0.37	
Flexural yielding DG4 Eq. 3.10, Sec. 2.2.3	[Ton*m]	38.60	25.46	1 - DL0.66	
No prying bolt moment strength DG4 Eq. 3.7	[Ton*m]	29.21	25.46	1 - DL0.87	
Bolts shear Eq. J3-1	[Ton]	51.27	20.41	1 - DL0.40	
Connector bolt bearing Eq. J3-6	[Ton]	162.77	20.41	1 - DL0.13	
<u>Beam</u>					
Beam web weld capacity Eq. J2-4	[Ton]	43.12	23.14	1 - DL0.54	

Shear yielding Eq. J4-3	[Ton]	56.92	20.41	1 - DL0.36
Flange weld capacity Eq. J2-4	[Ton]	119.49	77.34	1 - DL0.65
<u>Support</u>				
Flexural yielding DG4 Eq. 3.20, Sec. 2.2.3	[Ton*m]	33.75	25.46	1 - DL0.75
Support bolt bearing Eq. J3-6	[Ton]	145.85	20.41	1 - DL0.14
Panel web shear Eq. J10-9	[Ton]	77.88	77.34	1 - DL0.99
Local web yielding Sec. J10	[Ton]	136.86	77.34	1 - DL0.57
<u>Transverse stiffeners</u>				
Yielding strength due to axial load Eq. D2-1	[Ton]	60.52	17.46	1 - DL0.29
Compression strength Eq. J4-6	[Ton]	56.10	4.70	1 - DL0.08
Flange weld capacity Eq. J2-4	[Ton]	57.67	17.46	1 - DL0.30
Beam web weld capacity Eq. J2-4	[Ton]	71.91	17.46	1 - DL0.24

Critical strength ratio **0.99**

CONEXIONES A MOMENTO EN MARCOS PRINCIPALES

COLUMNA	TRABE	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	OBSERVACIONES
IR 305x59.80	IR 254x38.5	19	400	203	180	70	40	45			8	22	19	5	13	5		EJES DEL C AL K
IR 305x79	IR 254x49.2	22	400	254	140	90	40	70	25	5	8	25	22	5	16	5	213	EJES DEL 1 AL 6 Y EJE N
IR 356x110.4	IR 305x74.4	29	500	256	200	100	50	70			8	27	25	5	19	6		EJES DEL 5 AL 22
IR 457x144.30	IR 305x44.5	29	550	280	210	100	70	70			8	25	22	5	16	6		EJES DEL 23 AL 28
IR 457x144.30	IR 305x74.4	29	550	280	210	100	70	70			8	25	22	5	16	6		EJES DEL P1 AL S1 Y EJES DEL 23 AL 28
IR 457x128.10	IR 457x144.30	29	700	280	330	115	70	70			8	32	28	5	16	6		EJES J1 Y L1
IR 457x105.3	IR 305x74.4	25	500	205	195	100	52.5	70			8	21	19	5	16	6		EJES DEL M1 AL O
IR 457x128.10	IR 305x74.4	25	500	205	195	100	52.5	70			8	32	28	5	16	5	364	EJES DEL 32 AL 43
IR 457x144.30	IR 305x59.8	25	500	280	160	100	70	70			8	21	19	5	13	5		EJES DEL 32 AL 43
IR 457x128.10	IR 356x101.3	32	600	281	320	120	70	70	16	6	8	38	32	6	16	6		EJES DEL B1 AL J1
IR 457x144.30	IR 356x79.0	32	600	270	210	120	75	70			8	38	32	6	16	6		RACK DE ENFRIAMINETO
IR 457x144.30	IR 457x144.30	32	700	280	320	120	70	70			8	38	32	6	16	6		RACK DE ENFRIAMINETO
IR 610x285	IR 457x144.30	32	900	280	480	140	70	70			8	38	32	6	16	8		RACK DE ENFRIAMINETO
IR 457x128.10	IR 305x96.7	25	550	310	210	120	70	70	16	6	8	30	28	5	16	6		RACK DE ENFRIAMINETO N.–S.
IR 457x128.10	IR 305x52.2	25	550	280	210	100	70	70			8	21	19	6	13	5		RACK DE ENFRIAMINETO N.–S.



Conexiones tipo a cortante en estructura principal

Conexión a cortante CW18X86 TW12X35

Units system: Metric
File name: C:\MXPC9040\III SENER\III\RACK DE TUBERIAS CIMENTACION PLANTA 1 DE 2\R1\conexiones\CONEXIONES EN RAM\CONEXIONES RACK PRINCIPAL\CONEXION A CORTANTE C18X86 T12X35.cnx\

Steel connections

Detailed report

Connection name : DA_BCW_L 3x3x1/4_2B3/4
Connection ID : 1V
Design code : AISC 360-05 LRFD

Family : Angle(s) (CA)
Type : Beam - Column web (BCW)

LOADS

Members	Load	Type	V2	V3	M33	M22	Axial
			[Ton]	[Ton]	[Ton*m]	[Ton*m]	[Ton]
Beam	1V - DL	Design	13.96	--	--	--	2.22

GEOMETRIC CONSIDERATIONS

Dimensions	Unit	Value	Min. value	Max. value	Sta.	References
Angle						
Length	[cm]	23.00	13.79	27.58		p. 10-8
Thickness	[cm]	0.63	--	1.59		p. 10-9
Angle (Beam side)						
Weld size	[1/16in]	2	2	3		Sec. J2.2b
Angle (Support side)						
Vertical edge distance	[cm]	4.50	2.22	--		Tables J3.4, J3.5
Horizontal edge distance	[cm]	3.81	2.22	--		Tables J3.4, J3.5
Vertical center-to-center spacing (pitch)	[cm]	7.00	4.23	15.24		Sec. J3.5

<u>Beam</u>					
Beam web thickness p. 9-5	[cm]	0.76	0.54	--	
<u>Support</u>					
Horizontal edge distance Tables J3.4, J3.5	[cm]	3.81	2.22	--	

DESIGN CHECK

Verification References	Unit	Capacity	Demand	Ctrl EQ	Ratio
<u>Angle (Beam side)</u>					
Weld capacity p. 9-5	[Ton]	40.35	14.14	1V - DL0.35	
Shear yielding Eq. J4-3	[Ton]	44.36	13.96	1V - DL0.31	
<u>Angle (Support side)</u>					
Bolts shear Tables (7-1..14)	[Ton]	30.08	13.96	1V - DL0.46	
Bolt bearing under shear load Eq. J3-6	[Ton]	44.40	13.96	1V - DL0.31	
Shear yielding Eq. J4-3	[Ton]	44.36	13.96	1V - DL0.31	
Shear rupture Eq. J4-4	[Ton]	40.28	13.96	1V - DL0.35	
Block shear Eq. J4-5	[Ton]	37.86	13.96	1V - DL0.37	
Resulting tension capacity due prying action p. 9-10	[Ton]	5.76	2.22	1V - DL0.39	
<u>Beam</u>					
Shear yielding Eq. J4-3	[Ton]	36.74	13.96	1V - DL0.38	
Shear rupture Eq. J4-4	[Ton]	44.40	13.96	1V - DL0.31	
Tear out under axial load Eq. J4-5	[Ton]	71.24	2.22	1V - DL0.03	
<u>Support</u>					
Bolt bearing under shear load Eq. J3-6	[Ton]	85.24	13.96	1V - DL0.16	

Critical strength ratio **0.46**

Conexión a cortante CW18X86 TW12X50

Units system: Metric
File name: C:\MXPC9040\III SENER\III\RACK DE TUBERIAS CIMENTACION PLANTA 1 DE 2\R1\conexiones\CONEXIONES EN RAM\CONEXIONES RACK PRINCIPAL\CONEXION A CORTANTE C18X86 T12X50.cnx\

Steel connections

Detailed report

Connection name	:	**DA_BCW_L 3x3x1/4_2B3/4**
Connection ID	:	**1V**
Design code	:	**AISC 360-05 LRFD**

Family	:	Angle(s) (CA)
Type	:	Beam - Column web (BCW)

LOADS

Members	Load	Type	V2 [Ton]	V3 [Ton]	M33 [Ton*m]	M22 [Ton*m]	Axial [Ton]
Beam	1V - DL	Design	13.18	--	--	--	2.55

GEOMETRIC CONSIDERATIONS

Dimensions	Unit	Value	Min. value	Max. value	Sta.	References
<u>Angle</u>						
Length	[cm]	23.00	12.60	25.20		p. 10-8
Thickness	[cm]	0.95	--	1.59		p. 10-9
<u>Angle (Beam side)</u>						
Weld size	[1/16in]	3	3	5		Sec. J2.2b
<u>Angle (Support side)</u>						
Vertical edge distance	[cm]	4.50	2.22	--		Tables J3.4, J3.5
Horizontal edge distance	[cm]	3.81	2.22	--		Tables J3.4, J3.5
Vertical center-to-center spacing (pitch)	[cm]	7.00	4.23	22.86		Sec. J3.5
<u>Beam</u>						
Beam web thickness	[cm]	0.94	0.81	--		p. 9-5

<u>Support</u>				
Horizontal edge distance Tables J3.4, J3.5	[cm]	3.81	2.22	--

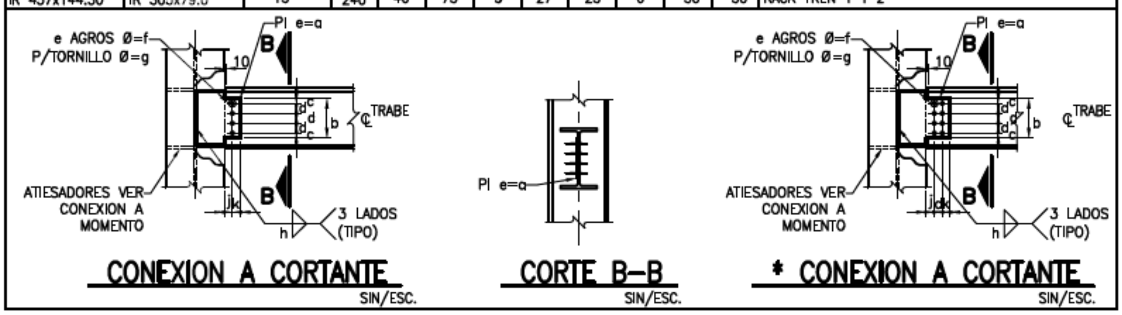
DESIGN CHECK

Verification References	Unit	Capacity	Demand	Ctrl EQ	Ratio
<u>Angle (Beam side)</u>					
Weld capacity p. 9-5	[Ton]	56.82	13.42	1V - DL	0.24
Shear yielding Eq. J4-3	[Ton]	66.54	13.18	1V - DL	0.20
<u>Angle (Support side)</u>					
Bolts shear Tables (7-1..14)	[Ton]	30.08	13.18	1V - DL	0.44
Bolt bearing under shear load Eq. J3-6	[Ton]	66.59	13.18	1V - DL	0.20
Shear yielding Eq. J4-3	[Ton]	66.54	13.18	1V - DL	0.20
Shear rupture Eq. J4-4	[Ton]	60.42	13.18	1V - DL	0.22
Block shear Eq. J4-5	[Ton]	56.79	13.18	1V - DL	0.23
Resulting tension capacity due prying action p. 9-10	[Ton]	26.74	2.55	1V - DL	0.10
<u>Beam</u>					
Shear yielding Eq. J4-3	[Ton]	44.23	13.18	1V - DL	0.30
Shear rupture Eq. J4-4	[Ton]	53.44	13.18	1V - DL	0.25
Tear out under axial load Eq. J4-5	[Ton]	82.42	2.55	1V - DL	0.03
<u>Support</u>					
Bolt bearing under shear load Eq. J3-6	[Ton]	85.24	13.18	1V - DL	0.15

Critical strength ratio **0.44**

CONEXIONES A CORTANTE EN MARCOS PRINCIPALES

COLUMNA	TRABE	a	b	c	d	e	f	g	h	j	k	OBSERVACIONES
IR 305x59.8	IR 254x38.5	13	200	50	50	3	18	16	6	50	50	EJES 1 Y 2 (NIV. 1204.700)
IR 305x79	IR 254x49.2	13	190	35	60	3	24	22	6	50	50	EJES L Y M
IR 356x110.40	IR 305x52.20	13	230	45	70	3	18	16	6	50	50	EJES Ñ, O, DEL 5 AL 22 (NIV. 1205.700)
IR 457x144.30	IR 305x44.5	13	230	45	70	3	24	22	6	50	50	EJES Ñ Y O DEL 5 AL 22 (AR-1)
IR 457x144.30	IR 305x74.4	13	230	45	70	3	21	19	6	50	50	EJES 35, 36, 42, Y 43, EJES Ñ Y O DEL 22 AL 30
IR 457x144.30	IR 305x59.8	13	240	40	75	3	27	25	6	50	50	EJES 35, 36, 42 Y 43 TREN 1 Y TREN 2)
IR 457x128.10	IR 305x74.4	13	230	45	70	3	24	22	6	50	50	EJES RACK PRINCIPAL ESTE-OESTE
IR 457x144.30	IR 457x144.30	13	250	50	75	4	27	25	6	50	50	RACK AEROENFRIADOR
IR 457x112.9	IR 305x74.4	13	230	45	70	3	24	22	6	50	50	RACK PRINCIPAL ESTE-OESTE DE 0 S1
* IR 457x144.30	IR 356x79.0	13	250	45	75	6	27	25	6	50	75	AEROENFRIADOR
IR 305x59.80	IR 305x52.20	13	230	45	70	3	18	16	6	50	50	EJES 1 Y 2 (NIV. 1206.200)
IR 356x110.40	IR 356x63.80	13	250	50	75	3	21	19	6	50	50	EJES Ñ Y O DE 5 AL 22 (NIV.1207.700)
IR 457x112.90	IR 356x110.40	13	250	50	75	3	21	19	6	50	50	EJES 31 Y 32 ENTRE O Y P1
IR 457x128.10	IR 457x96.70	13	370	65	80	4	27	25	6	50	75	RACK PRINCIPAL ESTE-OESTE N1 A O (30 Y 32)
IR 305x86.10	IR 356x101.30	13	280	60	80	3	27	25	6	50	75	RACK ELECTRICO, EJES 29, 31 Y 32
IR 457x128.10	IR 305x52.20	13	230	45	70	3	24	22	6	50	50	RACK PRINCIPAL N-S EJES J1 Y L1
IR 457x128.10	IR 305x74.40	13	230	40	75	3	27	25	6	50	75	RACK PRINCIPAL N-S
IR 254x44.80	IR 254x44.8	13	200	50	50	3	18	16	6	50	50	RACK PRINCIPAL N-S
IR 457x144.30	IR 305x79.0	13	240	40	75	3	27	25	6	50	50	RACK TREN 1 Y 2



Conexiones criticas

Detalle 23

Units system: Metric
File name: C:\MXPC9040\III SENER\III\RACK DE TUBERIAS CIMENTACION PLANTA 1 DE 2\R1\conexiones\CONEXIONES EN RAM\CONEXIONES RACK PRINCIPAL\CONWXION DE DIAGONALES HORIZONTALES 8X18 Y 12X30.cnx\

Steel connections

Detailed report

Connection name	:	**SP_BG_1/4PL_2B3/4**
Connection ID	:	**2V**
Design code	:	**AISC 360-05 LRFD**

Family	:	Single plate (SP)
Type	:	Beam - Girder (BG)

LOADS

Members	Load	Type	V2 [Ton]	V3 [Ton]	M33 [Ton*m]	M22 [Ton*m]	Axial [Ton]
Beam	2V - DL	Design	--	--	--	--	6.83

GEOMETRIC CONSIDERATIONS

Dimensions	Unit	Value	Min. value	Max. value	Sta.	References
Shear plate						
Length	[cm]	14.00	8.74	16.08		p. 10-49
Vertical edge distance	[cm]	4.00	3.17	--		Tables J3.4, J3.5
Horizontal edge distance	[cm]	5.00	3.81	--		p. 10-102
Vertical center-to-center spacing (pitch)	[cm]	6.00	5.08	14.02		Sec. J3.5
Beam						
Thickness	[cm]	0.58	--	1.11		p. 10-102
Vertical edge distance	[cm]	6.08	3.17	--		Tables J3.4, J3.5

Horizontal edge distance p. 10-102	[cm]	6.64	3.81	--
Support				
Weld size Sec. J2.2b	[1/16in]	6	6	7

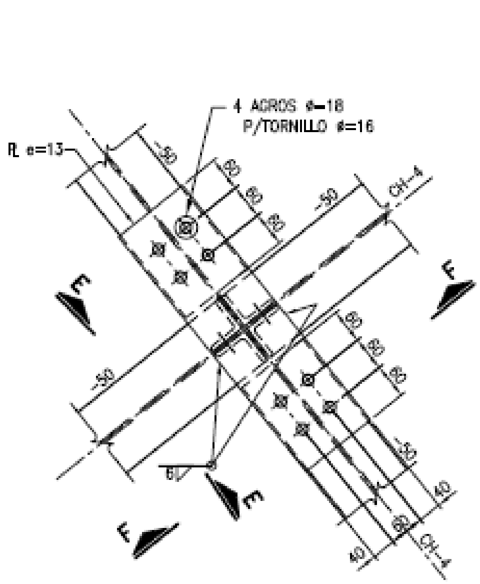
DESIGN CHECK

Verification **References**	**Unit**	**Capacity**	**Demand**	**Ctrl EQ**	**Ratio**
Shear plate					
Bolts shear Tables (7-1..14)	[Ton]	14.44	6.83	2V - DL	0.47
Bolt bearing under shear load HSS Manual Eq. 4-4	[Ton]	31.59	0.00	2V - DL	0.00
Shear yielding Eq. J4-3	[Ton]	27.00	0.00	2V - DL	0.00
Shear rupture Eq. J4-4	[Ton]	22.27	0.00	2V - DL	0.00
Block shear Eq. J4-5	[Ton]	29.57	0.00	2V - DL	0.00
Bolt bearing under axial load HSS Manual Eq. 4-4	[Ton]	35.52	6.83	2V - DL	0.19
Yielding strength due to axial load Eq. J4-1	[Ton]	40.50	6.83	2V - DL	0.17
Rupture due to axial load Eq. J4-2	[Ton]	37.11	6.83	2V - DL	0.18
Tear out under axial load Eq. J4-5	[Ton]	29.14	6.83	2V - DL	0.23
Plate (support side)					
Weld capacity p. 9-5	[Ton]	62.65	6.83	2V - DL	0.11
Beam					
Bolt bearing under shear load HSS Manual Eq. 4-4	[Ton]	16.34	0.00	2V - DL	0.00
Shear yielding Eq. J4-3	[Ton]	15.68	0.00	2V - DL	0.00
Shear rupture Eq. J4-4	[Ton]	14.18	0.00	2V - DL	0.00
Flexural yielding	[Ton]	10.10	0.00	2V - DL	0.00
Local web buckling p. 9-7	[Ton]	10.10	0.00	2V - DL	0.00
Block shear Eq. J4-5	[Ton]	17.91	0.00	2V - DL	0.00
Flexural rupture p. 9-6	[Ton]	13.56	0.00	2V - DL	0.00
Bolt bearing under axial load Eq. J3-6	[Ton]	16.34	6.83	2V - DL	0.42
Yielding strength due to axial load Eq. J4-1	[Ton]	23.52	6.83	2V - DL	0.29

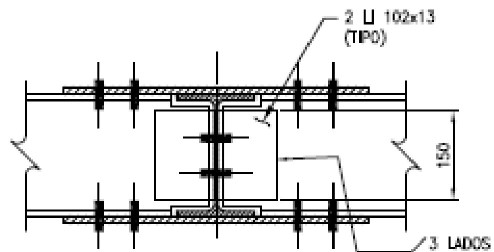
Rupture due to axial load Eq. J4-2	[Ton]	23.64	6.83 2V - DL0.29
Tear out under axial load Eq. J4-5	[Ton]	15.58	6.83 2V - DL0.44

Support

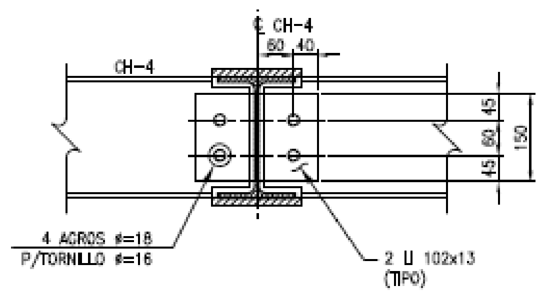
Critical strength ratio **0.47**



DETALLE 23
PF-0806 SIN/ESC.



CORTE E – E
SIN/ESC.



CORTE F – F
SIN/ESC.

Detalle 24

Units system: Metric
File name: C:\MXPC9040\III SENER\III\RACK DE TUBERIAS CIMENTACION PLANTA 1 DE 2\R1\conexiones\CONEXIONES EN RAM\CONEXIONES RACK PRINCIPAL\CONWXION DE DIAGONALES HORIZONTALES 8X18 Y 12X30.cnx\

Steel connections

Detailed report

Connection name	**:**	**SP_BG_1/4PL_2B3/4**
Connection ID	**:**	**2V**
Design code	**:**	**AISC 360-05 LRFD**

Family	:	Single plate (SP)
Type	:	Beam - Girder (BG)

LOADS

Members	**Load**	**Type**	**V2**	**V3**	**M33**	**M22**	**Axial**
			[Ton]	**[Ton]**	**[Ton*m]**	**[Ton*m]**	**[Ton]**
Beam	2V - DL	Design	--	--	--	--	6.83

GEOMETRIC CONSIDERATIONS

Dimensions	**Unit**	**Value**	**Min. value**	**Max. value**	**Sta.**	**References**
Shear plate						
Length	[cm]	14.00	8.74	16.08		p. 10-49
Vertical edge distance	[cm]	4.00	3.17	--		Tables J3.4, J3.5
Horizontal edge distance	[cm]	5.00	3.81	--		p. 10-102
Vertical center-to-center spacing (pitch)	[cm]	6.00	5.08	14.02		Sec. J3.5
Beam						
Thickness	[cm]	0.58	--	1.11		p. 10-102
Vertical edge distance	[cm]	6.08	3.17	--		Tables J3.4, J3.5
Horizontal edge distance	[cm]	6.64	3.81	--		p. 10-102
Support						

Weld size Sec. J2.2b	[1/16in]	6	6	7

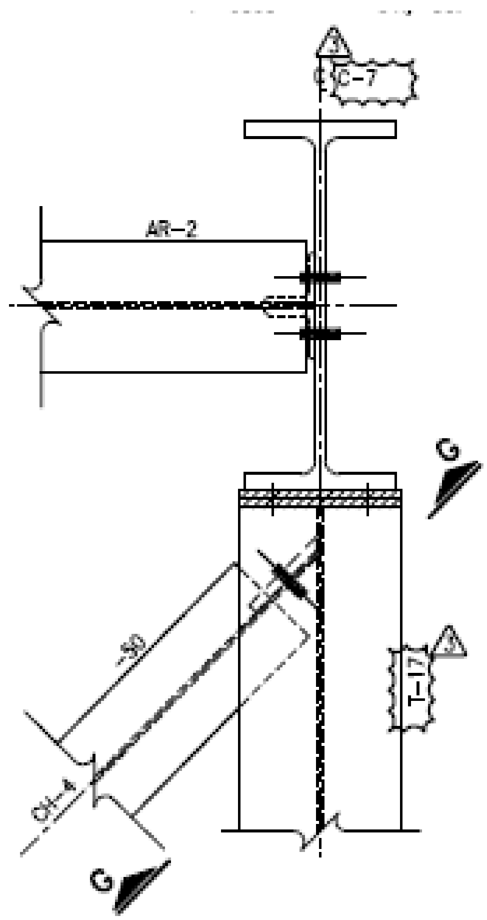
DESIGN CHECK

Verification **References**	**Unit**	**Capacity**	**Demand**	**Ctrl EQ**	**Ratio**
<u>Shear plate</u>					
Bolts shear Tables (7-1..14)	[Ton]	14.44	6.83	2V - DL0.47	
Bolt bearing under shear load HSS Manual Eq. 4-4	[Ton]	31.59	0.00	2V - DL0.00	
Shear yielding Eq. J4-3	[Ton]	27.00	0.00	2V - DL0.00	
Shear rupture Eq. J4-4	[Ton]	22.27	0.00	2V - DL0.00	
Block shear Eq. J4-5	[Ton]	29.57	0.00	2V - DL0.00	
Bolt bearing under axial load HSS Manual Eq. 4-4	[Ton]	35.52	6.83	2V - DL0.19	
Yielding strength due to axial load Eq. J4-1	[Ton]	40.50	6.83	2V - DL0.17	
Rupture due to axial load Eq. J4-2	[Ton]	37.11	6.83	2V - DL0.18	
Tear out under axial load Eq. J4-5	[Ton]	29.14	6.83	2V - DL0.23	
<u>Plate (support side)</u>					
Weld capacity p. 9-5	[Ton]	62.65	6.83	2V - DL0.11	
<u>Beam</u>					
Bolt bearing under shear load HSS Manual Eq. 4-4	[Ton]	16.34	0.00	2V - DL0.00	
Shear yielding Eq. J4-3	[Ton]	15.68	0.00	2V - DL0.00	
Shear rupture Eq. J4-4	[Ton]	14.18	0.00	2V - DL0.00	
Flexural yielding	[Ton]	10.10	0.00	2V - DL	0.00
Local web buckling p. 9-7	[Ton]	10.10	0.00	2V - DL0.00	
Block shear Eq. J4-5	[Ton]	17.91	0.00	2V - DL0.00	
Flexural rupture p. 9-6	[Ton]	13.56	0.00	2V - DL0.00	
Bolt bearing under axial load Eq. J3-6	[Ton]	16.34	6.83	2V - DL0.42	
Yielding strength due to axial load Eq. J4-1	[Ton]	23.52	6.83	2V - DL0.29	
Rupture due to axial load Eq. J4-2	[Ton]	23.64	6.83	2V - DL0.29	

Tear out under axial load Eq. J4-5	[Ton]	15.58	6.83	2V - DL0.44

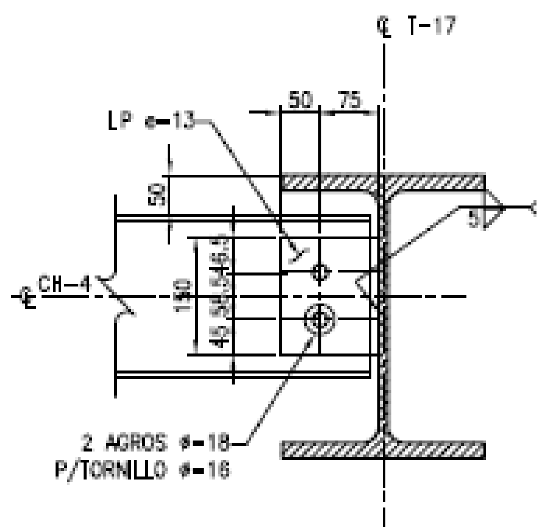
Support

Critical strength ratio **0.47**



DETALLE 24

PF-0806 SIN/ESC.



CORTE G – G

SIN/ESC.

Detalle 43

Units system: Metric
File name: C:\MXPC9040\III SENER\III\RACK DE TUBERIAS CIMENTACION PLANTA 1 DE 2\R1\conexiones\CONEXIONES EN RAM\CONEXIONES RACK PRINCIPAL\CONEXION DE DIAGONALES X 10X30.cnx\

Steel connections

Detailed report

Connection name : (VXB)
Connection ID : 1
Design code : AISC 360-05 LRFD

Family : Gusset (GP)
Type : Vertical X braces (VXB)

LOADS

Members	Load	Type	V2	V3	M33	M22	Axial
			[Ton]	[Ton]	[Ton*m]	[Ton*m]	[Ton]
Braces1	1 - eq	Design	--	--	--	--	31.20
Braces2	1 - eq	Design	--	--	--	--	31.20
Braces3	1 - eq	Design	--	--	--	--	-31.20
Braces4	1 - eq	Design	--	--	--	--	-31.20

Interface between Gusset - Upper right brace

Connection: Splice plate

GEOMETRIC CONSIDERATIONS

Dimensions	Unit	Value	Min. value	Max. value	Sta.	References
Splice plate						
Transverse edge distance	[cm]	5.00	2.86	--		Tables J3.4, J3.5
Longitudinal edge distance	[cm]	5.00	2.86	--		Tables J3.4, J3.5
Longitudinal center-to-center spacing (pitch)	[cm]	7.50	5.93	30.48		Sec. J3.5

Transverse center-to-center spacing (gage) Sec. J3.5	[cm]	7.50	5.93	30.48	

Gusset

DESIGN CHECK

Verification **References**	**Unit**	**Capacity**	**Demand**	**Ctrl EQ**	**Ratio**
Splice plate					
Bolts shear Tables (7-1..14)	[Ton]	58.88	31.20	1 - eq0.53	
Yielding strength due to axial load Eq. J4-1	[Ton]	50.63	31.20	1 - eq0.62	
Rupture due to axial load Eq. J4-2	[Ton]	48.24	31.20	1 - eq0.65	
Bolt bearing under axial load Eq. J3-6	[Ton]	118.38	31.20	1 - eq0.26	
Outside block shear Eq. J4-5	[Ton]	86.83	31.20	1 - eq0.36	
Inside block shear Eq. J4-5	[Ton]	77.12	31.20	1 - eq0.40	
Brace					
Bock shear rupture at brace flange Eq. J4-5	[Ton]	46.27	31.20	1 - eq0.67	
Bolt bearing under axial load Eq. J3-6	[Ton]	71.03	31.20	1 - eq0.44	
Gusset					
Block shear on gusset Eq. J4-5	[Ton]	77.12	31.20	1 - eq0.40	
Bolt bearing under axial load Eq. J3-6	[Ton]	118.38	31.20	1 - eq0.26	

Critical strength ratio **0.67**

Checks for gusset and brace

REQUIRED RESISTANCE OF BRACED CONNECTIONS

Requirement	**Unit**	**Value**

GEOMETRIC CONSIDERATIONS

Dimensions **References**	**Unit**	**Value**	**Min. value**	**Max. value**	**Sta.**

Reinforcement plate

DESIGN CHECK

Verification **References**	**Unit**	**Capacity**	**Demand**	**Ctrl EQ**	**Ratio**

Brace					
Yielding strength due to axial load Eq. J4-1	[Ton]	129.92	31.20	1 - eq	0.24
Rupture due to axial load Eq. J4-2	[Ton]	135.11	31.20	1 - eq	0.23
Gusset					
Tension yielding on the Whitmore section Eq. J4-1	[Ton]	71.81	31.20	1 - eq	0.43

Critical strength ratio **0.43**

Interface between Gusset - Upper left brace

Connection: Splice plate

GEOMETRIC CONSIDERATIONS

Dimensions References	Unit	Value	Min. value	Max. value	Sta.
Splice plate					
Transverse edge distance Tables J3.4, J3.5	[cm]	5.00	2.86	--	
Longitudinal edge distance Tables J3.4, J3.5	[cm]	5.00	2.86	--	
Longitudinal center-to-center spacing (pitch) Sec. J3.5	[cm]	7.50	5.93	30.48	
Transverse center-to-center spacing (gage) Sec. J3.5	[cm]	7.50	5.93	30.48	
Gusset					

DESIGN CHECK

Verification References	Unit	Capacity	Demand	Ctrl EQ	Ratio
Splice plate					
Bolts shear Tables (7-1..14)	[Ton]	58.88	31.20	1 - eq	0.53
Yielding strength due to axial load Eq. J4-1	[Ton]	50.63	31.20	1 - eq	0.62
Rupture due to axial load Eq. J4-2	[Ton]	48.24	31.20	1 - eq	0.65
Bolt bearing under axial load Eq. J3-6	[Ton]	118.38	31.20	1 - eq	0.26
Outside block shear Eq. J4-5	[Ton]	86.83	31.20	1 - eq	0.36
Inside block shear Eq. J4-5	[Ton]	77.12	31.20	1 - eq	0.40
Brace					

Bock shear rupture at brace flange Eq. J4-5	[Ton]	46.27	31.20	1 - eq	0.67
Bolt bearing under axial load Eq. J3-6	[Ton]	71.03	31.20	1 - eq	0.44
Gusset					
Block shear on gusset Eq. J4-5	[Ton]	77.12	31.20	1 - eq	0.40
Bolt bearing under axial load Eq. J3-6	[Ton]	118.38	31.20	1 - eq	0.26

Critical strength ratio **0.67**

Checks for gusset and brace

REQUIRED RESISTANCE OF BRACED CONNECTIONS

Requirement	Unit	Value

GEOMETRIC CONSIDERATIONS

Dimensions References	Unit	Value	Min. value	Max. value	Sta.
Reinforcement plate					

DESIGN CHECK

Verification References	Unit	Capacity	Demand	Ctrl EQ	Ratio
Brace					
Yielding strength due to axial load Eq. J4-1	[Ton]	129.92	31.20	1 - eq	0.24
Rupture due to axial load Eq. J4-2	[Ton]	135.11	31.20	1 - eq	0.23
Gusset					
Tension yielding on the Whitmore section Eq. J4-1	[Ton]	71.81	31.20	1 - eq	0.43

Critical strength ratio **0.43**

Interface between Gusset - Lower left brace

Connection: Splice plate

GEOMETRIC CONSIDERATIONS

Dimensions References	Unit	Value	Min. value	Max. value	Sta.
Splice plate					
Transverse edge distance Tables J3.4, J3.5	[cm]	5.00	2.86	--	

Longitudinal edge distance Tables J3.4, J3.5	[cm]	5.00	2.86	--	
Longitudinal center-to-center spacing (pitch) Sec. J3.5	[cm]	7.50	5.93	30.48	
Transverse center-to-center spacing (gage) Sec. J3.5	[cm]	7.50	5.93	30.48	
<u>Gusset</u>					

DESIGN CHECK

Verification References	Unit	Capacity	Demand	Ctrl EQ	Ratio
<u>Splice plate</u>					
Bolts shear Tables (7-1..14)	[Ton]	58.88	31.20	1 - eq	0.53
Bolt bearing under axial load Eq. J3-6	[Ton]	118.38	31.20	1 - eq	0.26
<u>Brace</u>					
Bolt bearing under axial load Eq. J3-6	[Ton]	71.03	31.20	1 - eq	0.44
<u>Gusset</u>					
Bolt bearing under axial load Eq. J3-6	[Ton]	118.38	31.20	1 - eq	0.26

Critical strength ratio **0.53**

<u>Checks for gusset and brace</u>

REQUIRED RESISTANCE OF BRACED CONNECTIONS

Requirement	Unit	Value

GEOMETRIC CONSIDERATIONS

Dimensions References	Unit	Value	Min. value	Max. value	Sta.
<u>Reinforcement plate</u>					

DESIGN CHECK

Verification References	Unit	Capacity	Demand	Ctrl EQ	Ratio
<u>Gusset</u>					
Buckling on the Whitmore section Eq. E3-1	[Ton]	54.19	31.20	1 - eq	0.58

Critical strength ratio **0.58**

<u>Interface between Gusset - Lower right brace</u>

Connection: Splice plate

GEOMETRIC CONSIDERATIONS

Dimensions References	Unit	Value	Min. value	Max. value	Sta.
Splice plate					
Transverse edge distance Tables J3.4, J3.5	[cm]	5.00	2.86	--	
Longitudinal edge distance Tables J3.4, J3.5	[cm]	5.00	2.86	--	
Longitudinal center-to-center spacing (pitch) Sec. J3.5	[cm]	7.50	5.93	30.48	
Transverse center-to-center spacing (gage) Sec. J3.5	[cm]	7.50	5.93	30.48	
Gusset					

DESIGN CHECK

Verification References	Unit	Capacity	Demand	Ctrl EQ	Ratio
Splice plate					
Bolts shear Tables (7-1..14)	[Ton]	58.88	31.20	1 - eq	0.53
Bolt bearing under axial load Eq. J3-6	[Ton]	118.38	31.20	1 - eq	0.26
Brace					
Bolt bearing under axial load Eq. J3-6	[Ton]	40.25	31.20	1 - eq	0.78
Gusset					
Bolt bearing under axial load Eq. J3-6	[Ton]	118.38	31.20	1 - eq	0.26

Critical strength ratio **0.78**

Checks for gusset and brace

REQUIRED RESISTANCE OF BRACED CONNECTIONS

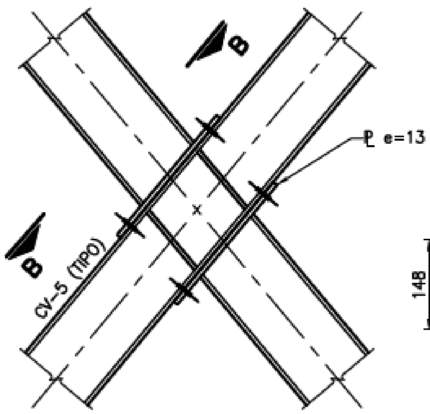
Requirement	Unit	Value

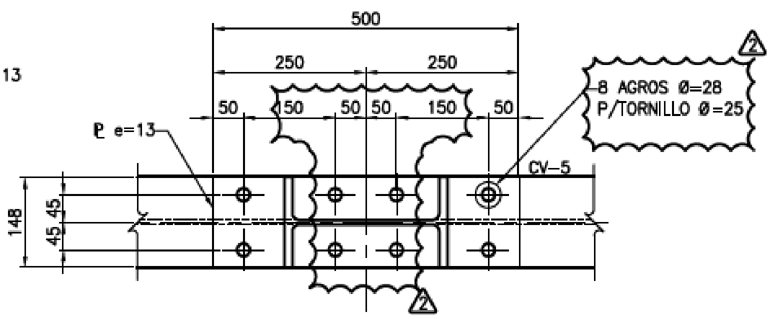
GEOMETRIC CONSIDERATIONS

Dimensions References	Unit	Value	Min. value	Max. value	Sta.
Reinforcement plate					

DESIGN CHECK

Verification References	Unit	Capacity	Demand	Ctrl EQ	Ratio
<u>Gusset</u>					
Buckling on the Whitmore section Eq. E3-1	[Ton]	54.19	31.20	1 - eq0.58	
Critical strength ratio	**0.58**				
Global critical strength ratio	**0.78**				





DETALLE 43
PF–0807 SIN/ESC.

CORTE B–B
SIN/ESC.

Conexión a momento columna en alma y viga

Units system: Metric
File name: C:\MXPC9040\III SENER\III\RACK DE TUBERIAS CIMENTACION PLANTA 1 DE 2\R1\conexiones\CONEXIONES EN RAM\CONEXIONES RACK PRINCIPAL\CONEXION A MOMENTO CORTANTE C18X86 T14X68.cnx\

Steel connections

Detailed report

Connection name : CA_BCW_LU 3X2-1_2X1_4_r=2_r=2
Connection ID : 1V
Design code : AISC 360-05 LRFD

Family : Angle(s) (CA)
Type : Beam - Column web (BCW)

LOADS

Members	Load	Type	V2 [Ton]	V3 [Ton]	M33 [Ton*m]	M22 [Ton*m]	Axial [Ton]
Beam	1V - DL	Design	7.04	--	--	--	1.30

GEOMETRIC CONSIDERATIONS

Dimensions	Unit	Value	Min. value	Max. value	Sta.	References
Angle						
Length	[cm]	25.00	14.45	28.91		p. 10-8
Thickness	[cm]	0.95	--	1.59		p. 10-9
Angle (Beam side)						
Vertical edge distance	[cm]	5.00	2.54	--		Tables J3.4, J3.5
Horizontal edge distance	[cm]	3.12	2.54	--		Tables J3.4, J3.5
Vertical center-to-center spacing (pitch)	[cm]	7.50	5.08	22.86		Sec. J3.5
Angle (Support side)						
Weld size	[1/16in]	5	3	5		Sec. J2.2b
Beam						
Horizontal edge distance	[cm]	3.23	2.54	--		Tables J3.4,

J3.5
Support

DESIGN CHECK

Verification **References**	**Unit**	**Capacity**	**Demand**	**Ctrl EQ**	**Ratio**
Angle (Beam side)					
Bolts shear Tables (7-1..14)	[Ton]	43.31	7.16	1V - DL	0.17
Bolt bearing under shear load Eq. J3-6	[Ton]	79.91	7.04	1V - DL	0.09
Shear yielding Eq. J4-3	[Ton]	72.32	7.04	1V - DL	0.10
Shear rupture Eq. J4-4	[Ton]	64.08	7.04	1V - DL	0.11
Block shear Eq. J4-5	[Ton]	55.10	7.04	1V - DL	0.13
Bolt bearing under axial load Eq. J3-6	[Ton]	43.80	1.30	1V - DL	0.03
Tear out under axial load Eq. J4-5	[Ton]	75.03	1.30	1V - DL	0.02
Angle (Support side)					
Weld capacity p. 10-11	[Ton]	41.86	7.04	1V - DL	0.17
Shear yielding Eq. J4-3	[Ton]	72.32	7.04	1V - DL	0.10
Beam					
Bolt bearing under shear load Eq. J3-6	[Ton]	44.22	7.04	1V - DL	0.16
Shear yielding Eq. J4-3	[Ton]	56.92	7.04	1V - DL	0.12
Shear rupture Eq. J4-4	[Ton]	55.89	7.04	1V - DL	0.13
Bolt bearing under axial load Eq. J3-6	[Ton]	25.51	1.30	1V - DL	0.05
Tear out under axial load Eq. J4-5	[Ton]	41.78	1.30	1V - DL	0.03
Support					

Critical strength ratio **0.17**

Units system: Metric
File name: C:\MXPC9040\III SENER\III\RACK DE TUBERIAS CIMENTACION PLANTA 1 DE 2\R1\conexiones\CONEXIONES EN RAM\CONEXIONES RACK PRINCIPAL\CONEXION A MOMENTO CORTANTE C18X86 T14X68.cnx\

Steel connections

Detailed report

Connection name : FP_BCW_1PL_7B3/4
Connection ID : 1M
Design code : AISC 360-05 LRFD

Family : Flange-plated (FP)
Type : Beam - Column web (BCW)

LOADS

Members	Load	Type	V2	V3	M33
M22	**Axial**				
[Ton]	**[Ton]**	**[Ton*m]**	**[Ton*m]**	**[Ton]**	
Beam	1M - DL	Design	--	--	
26.32	--	1.30			

GEOMETRIC CONSIDERATIONS

Dimensions References	Unit	Value	Min. value	Max. value	Sta.
<u>Plate (beam side)</u>					
Vertical center-to-center spacing (pitch) Sec. J3.5	[cm]	7.62	7.62	30.48	
Horizontal center-to-center spacing (gage) Sec. J3.5	[cm]	14.00	7.62	30.48	
<u>Top flange plate data</u>					
Vertical edge distance Tables J3.4, J3.5	[cm]	4.45	3.81	--	
Horizontal edge distance Tables J3.4, J3.5	[cm]	5.00	3.81	--	
<u>Bottom flange plate data</u>					
Vertical edge distance Tables J3.4, J3.5	[cm]	5.00	3.81	--	
Horizontal edge distance Tables J3.4, J3.5	[cm]	5.00	3.81	--	
<u>Plate (support side)</u>					
Top plate weld size - column flange Sec. J2.2b	[1/16in]	8	3	6	
Bottom plate weld size - column flange Sec. J2.2b	[1/16in]	8	3	6	
<u>Beam</u>					

Vertical edge distance Tables J3.4, J3.5	[cm]	5.00	3.81	--	
Horizontal edge distance Tables J3.4, J3.5	[cm]	5.70	3.81	--	
<u>Support</u>					
Flange thickness p. 9-5	[cm]	1.96	1.08	--	
Web thickness p. 9-5	[cm]	1.22	1.08	--	

DESIGN CHECK

Verification **References**	**Unit**	**Capacity**	**Demand**	**Ctrl EQ**	**Ratio**
<u>Moment - Flange-Plated</u>					
Compression strength (Top plate) Eq. J4-6	[Ton]	201.83	69.01	1M - DL	0.34
Bottom plate tension yielding Eq. J4-1	[Ton]	202.08	70.31	1M - DL	0.35
Bolts shear (Top plate) Tables (7-1..14)	[Ton]	129.85	77.37	1M - DL	0.60
Bolt bearing (Top plate) Eq. J3-6	[Ton]	272.91	69.01	1M - DL	0.25
Bolts shear (Bottom plate) Tables (7-1..14)	[Ton]	129.85	78.67	1M - DL	0.61
Bottom plate tension rupture Eq. J4-2	[Ton]	228.20	70.31	1M - DL	0.31
Bottom plate block shear Eq. J4-5	[Ton]	209.95	70.31	1M - DL	0.33
Bolt bearing (Bottom plate) Eq. J3-6	[Ton]	281.95	70.31	1M - DL	0.25
<u>Plate (support side)</u>					
Top plate to column weld Eq. J2-4	[Ton]	90.68	77.37	1M - DL	0.85
Bottom plate to column weld Eq. J2-4	[Ton]	90.68	78.67	1M - DL	0.87
Top plate shear capacity at column flange weld [3]	[Ton]	76.85	69.01	1M - DL	0.90
Bottom plate shear capacity at column flange weld [3]	[Ton]	76.85	70.31	1M - DL	0.91
<u>Beam</u>					
Flexural strength of the beam Sec. F13.1	[Ton*m]	42.93	26.32	1M - DL	0.61
Bolt bearing on flange Eq. J3-6	[Ton]	232.27	78.67	1M - DL	0.34
Beam block shear Eq. J4-5	[Ton]	158.41	78.67	1M - DL	0.50
<u>Support</u>					

Critical strength ratio **0.91**

6.0 Diseño de la Cimentación.

Se diseñarán las cimentaciones mediante zapatas aisladas con contratrabes.

Se consideran las siguientes capacidades de terreno de acuerdo a Estudio de Mecánica de suelos.

El NAF no se encontró hasta la máxima profundidad de perforación de 45.40 metros.

La capacidad de carga del terreno es muy alta, estando el diseño gobernado por los asentamientos elásticos inmediatos que se producen por la arcilla dura.

La capacidad de carga superficial para la zona sur de la planta es de 130 t/m^2 para zapatas de 1 metro por 1 metro y de 300 t/m^2 para la zona Norte de la planta.

CAPACIDAD DE CARGA DE SERVICIO EN ZAPATAS DE LA ZONA NORTE DE LA PLANTA

ASENTAMIENTO EN ZAPATAS CUADRADAS DF=2.00 M

ANCHO M	LARGO M	ASENTAMIENTO CM	CONTACTO T/M2
0.50	0.50	2.50	55.00
1.00	1.00	2.50	28.00
1.50	1.50	2.50	18.60
2.00	2.00	2.50	8.50
2.50	2.50	2.50	6.80
3.00	3.00	2.50	5.70
3.50	3.50	2.50	5.00
4.00	4.00	2.50	3.55
4.50	4.50	2.50	3.20

ASENTAMIENTO EN ZAPATAS CUADRADAS DF=2.00M

ANCHO M	LARGO M	ASENTAMIENTO CM	PRESIÓN CONTACTO T/M2
0.50	0.50	5.00	110.00
1.00	1.00	5.00	56.00
1.50	1.50	5.00	37.20
2.00	2.00	5.00	17.00
2.50	2.50	5.00	13.60
3.00	3.00	5.00	11.40
3.50	3.50	5.00	10.00
4.00	4.00	5.00	7.10
4.50	4.50	5.00	6.40

CAPACIDAD DE CARGA DE SERVICIO EN ZAPATAS DE LA ZONA SUR DE LA PLANTA

ASENTAMIENTO EN ZAPATAS CUADRADAS DF=2.00 M

ANCHO M	LARGO M	ASENTAMIENTO CM	PRESIÓN CONTACTO T/M2
0.50	0.50	2.50	70.00
1.00	1.00	2.50	36.00
1.50	1.50	2.50	23.00
2.00	2.00	2.50	16.00
2.50	2.50	2.50	13.00
3.00	3.00	2.50	9.90
3.50	3.50	2.50	4.20
4.00	4.00	2.50	4.00
4.50	4.50	2.50	3.50

ASENTAMIENTO EN ZAPATAS CUADRADAS DF=2.00 M

ANCHO M	LARGO M	ASENTAMIENTO CM	PRESIÓN CONTACTO T/M2
0.50	0.50	5.00	140.00
1.00	1.00	5.00	72.00
1.50	1.50	5.00	46.00
2.00	2.00	5.00	32.00
2.50	2.50	5.00	26.00
3.00	3.00	5.00	19.80
3.50	3.50	5.00	8.40
4.00	4.00	5.00	8.00
4.50	4.50	5.00	7.00

RACK PRINCIPAL NORTE-SUR

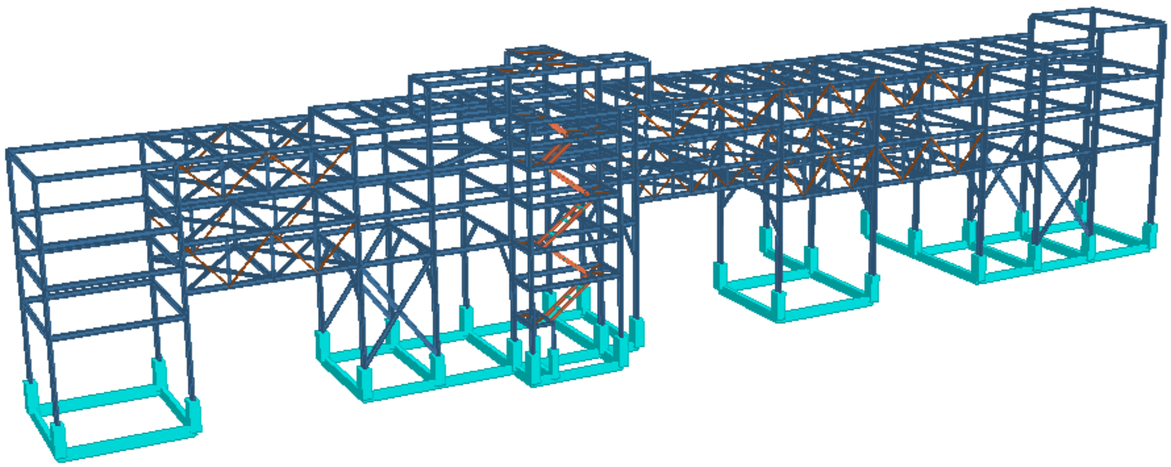


Imagen 5.7 Cimentación a base de dados y trabes de liga

Considerando que las contratrabes se llevan los momentos se tiene lo siguiente:

Node	L/C	Force-X Mton	Force-Y Mton	Force-Z Mton	Moment-X MTon-m	Moment-Y MTon-m	Moment-Z MTon-m
1095	21	0.443	47.472	-0.242	0.000	-0.000	0.000
1097	21	0.525	44.345	0.428	0.000	-0.000	0.000
1104	21	0.059	41.179	1.424	0.000	0.000	0.000

Node	L/C	Force-X Mton	Force-Y Mton	Force-Z Mton	Moment-X MTon-m	Moment-Y MTon-m	Moment-Z MTon-m
1095	21	0.443	47.472	-0.242	0.000	-0.000	0.000
1097	21	0.525	44.345	0.428	0.000	-0.000	0.000
1104	21	0.059	41.179	1.424	0.000	0.000	0.000

Node	L/C	Force-X Mton	Force-Y Mton	Force-Z Mton	Moment-X MTon-m	Moment-Y MTon-m	Moment-Z MTon-m
1095	31	0.620	66.460	-0.339	0.000	-0.000	0.000
1097	31	0.735	62.083	0.599	0.000	-0.000	0.000
1104	31	0.083	57.650	1.993	0.000	0.000	0.000
1110	31	0.131	55.837	0.993	0.000	0.000	0.000

Node	L/C	Force-X Mton	Force-Y Mton	Force-Z Mton	Moment-X MTon-m	Moment-Y MTon-m	Moment-Z MTon-m
1104	33	1.624	71.578	7.251	0.000	0.004	0.000
1095	33	1.897	66.341	5.208	0.000	0.002	0.000
1106	33	0.750	64.647	7.754	0.000	0.006	0.000
1102	33	13.878	62.953	6.590	0.000	0.004	0.000

Para la más critica

Geometría de la zapata

L1 = 0.80 m
L2 = 0.80 m
L = 1.60 m

B1 = 0.80 m
B2 = 0.80 m
B = 1.60 m

C1 = 0.400 m
C = 0.80 m

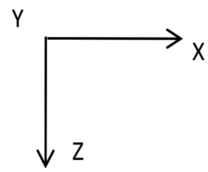
D1 = 0.325 m
D = 0.65 m

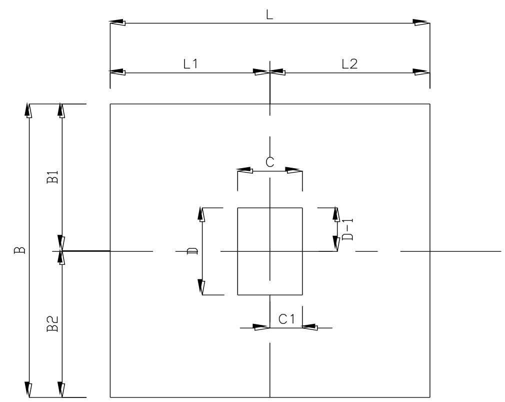
Area 2.56 m^2

Area dado 0.32 m^2

Ixx = 0.55 m^4

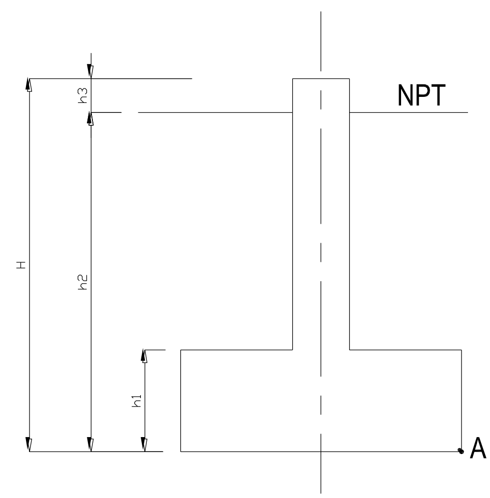
Izz = 0.55 m^4





PLANTA

h1 = 0.45 m
h2 = 2.00 m
h3 = 0.20 m
H = 2.20 m



ELEVACION

MATERIALES

concreto f'c = 250 kg/cm^2

acero de refuerzo fy = 4200 kg/cm^2

Peso volumetrico del concreto γc = 2.4 ton/m^3

Peso volumetrico del relleno γr = 1.8 ton/m^3

Capacidad del terreno qadm = 44 ton/m^2

Cargas gravitacionales

CARGAS DE SERVICIO EN LA ZAPATA			CARGAS ULTIMAS EN LA ZAPATA		
P =	47.47	ton.	P =	66.46	ton.
Mx =	0.00	t-m	Mx =	0.00	t-m
Mz =	0.00	t-m	Mz =	0.00	t-m
Vx =	0.44	ton.	Vx =	0.62	ton.
Vz =	-0.24	ton.	Vz =	-0.34	ton.

Cargas accidentales

CARGAS DE SERVICIO EN LA ZAPATA			CARGAS ULTIMAS EN LA ZAPATA		
P =	57.48	ton.	P =	71.58	ton.
Mx =	0.00	t-m	Mx =	0.00	t-m
Mz =	0.00	t-m	Mz =	0.00	t-m
Vx =	1.18	ton.	Vx =	1.62	ton.
Vz =	5.45	ton.	Vz =	7.25	ton.

Peso de la zapata Wz =	2.765	ton.
Peso del dado Wd =	1.934	ton.
Peso del relleno Wr =	5.692	ton.
	10.391	**ton.**

REVISION POR VOLTEO

Calculo del momento resistente en direccion X

Mr = Wz (B/2) + Wd B2 + Wr (B/2) + P B2 = 54.298 t-m

$$\frac{Mr}{Mact} = 5429824 > 2$$ NO HAY VOLTEO

Calculo del momento resistente en direccion Z

Mr = Wz (L/2) + Wd L2 + Wr (L/2) + P L2 = 54.298 t-m

$$\frac{Mr}{Mact} = 5429824 > 2$$ NO HAY VOLTEO

REVISION POR CAPACIDADES DE TERRENO

Calculo de excentricidades

$$e = \frac{Mr - Mact}{R}$$

R = 67.873 ton.

ex = 0.80 m En direccion X
ez = 0.80 m En direccion z

L/2 - ex = 0 m < L/6 = 0.27 m LA RESULTANTE CAE EN EL TERCIO MEDIO
B/2 - ez = 0 m < B/6 = 0.27 m LA RESULTANTE CAE EN EL TERCIO MEDIO

Calculo de reacciones en el terreno:

$$q = \frac{P}{A}$$ Para cargas gravitacionales

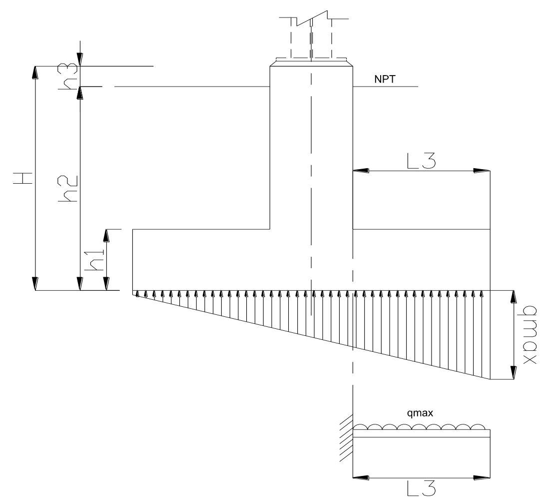
$$q = \frac{P}{A} + \frac{Mx}{Ixx}(B/2) + \frac{Mz}{Izz}(L/2)$$ Para cargas accidentales

Para cargas de servicio gravitacionales:	Para cargas ultimas gravitacionales:
q = 22.603 t/m^2	q = 30.020 t/m^2

Para cargas de servicio accidentales	Para cargas ultimas accidentales
q1 = 26.513 t/m^2	q1 = 32.019 t/m^2
q2 = 26.513 t/m^2	q2 = 32.019 t/m^2
q3 = 26.513 t/m^2	q3 = 32.019 t/m^2
q4 = 26.513 t/m^2	q4 = 32.019 t/m^2

Todas las cargas actuantes sobre del terreno son menores a la capacidad admisible de carga del terreno.

Revision de peralte de zapata:



COMO VIGA ANCHA

h1 =	0.45	m
bw =	100	cm
d =	38	cm
L3 =	0.475	m
qmax =	32.02	t/m^2
f'c =	250	kg/cm^2
fy =	4200	kg/cm^2

$Mact = q\,L3^2/2 =$ 3.612 t-m = 361215 kg-cm

$Vact = q * L =$ 15.209 ton. = 15209 kg

REVISION POR CORTANTE

$Vc = \phi\ (0{,}53\,\lambda\,\sqrt{f'c}\ bw\ d) =$ 23883 kg > Vact **SE ACEPTA EL PERALTE**

$\lambda =$ 1

$\phi =$ 0.75

REVISION POR FLEXION

$$\phi M_n = \phi As f_y d\left(1 - 0.59\frac{As f_y}{b d f_c'}\right) \geq M_u,$$

$$M_u - \phi As f_y d\left(1 - 0.59\frac{As f_y}{b d f_c'}\right) \leq 0.$$

ϕ = 0.85

$$\rho_{min} = \frac{0.8\sqrt{f_c'}}{f_y} \geq \frac{14}{f_y}.$$

$$\rho_{min} = \frac{0.8\sqrt{f_c'}}{f_y}$$ = 0.0030

$\frac{14}{f_y}.$ = 0.0033 Este es el porcentaje minimo a flexion

Se propone porcentaje minimo como primera opciòn:

Asmin = ρ bw d = 12.67 cm^2 /m

ϕ Mn = 1661585.4 kg-cm > Mact **SE ACEPTA EL ARMADO**

Se propone Vs # 6 @ 20 Para cara inferior

REVISION POR PENETRACION

Esfuerzo cortante permisible de acuerdo al ACI-318-08 cap. 11.12.2

$$Vc = 0.17\left(1 + \frac{2}{\beta}\right)\sqrt{f'c}$$

b= lado largo / lado corto= 80/65 = 1.23

Vc= 2.21 Mpa = 22.52 kg/cm2 ecuación 11-

$$Vc = 0.083\left(\frac{\alpha s d}{b0} + 2\right)\sqrt{f'c}$$

Para el dado:

b=	0.65	m	L=	0.80	m
as=	40	columnas interiores			
d=	0.43	m			
b0=	4.62	m	Perimetro		
Ao=	1.99	m2			
Vc=	2.35	Mpa	=	24.0	kg/cm2

$$Vc = 0.33\sqrt{f'c}$$

Vc= 1.63 Mpa = 16.7 kg/cm2 ecuación 11-33

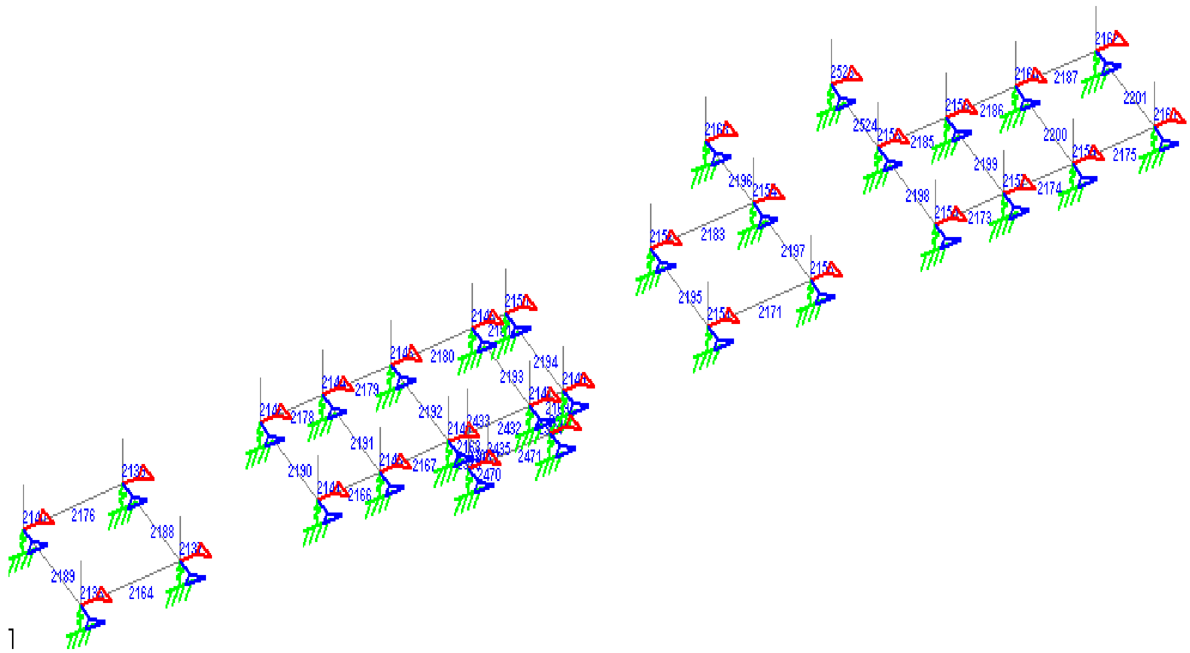
Vc min= 16.65 kg/cm2

ϕ= 0.75 Cortante y torsión

ϕVc 12.49 kg/cm2 ,

Vu = Pu / Ao = 3.60 kg/cm2 < Vc min.

- **Diseño trabes de Contratrabes**



Las Contratrabes se diseñan considerando que estas absorben todos los momentos de volteo que trasmite la superestructura a la cimentación. Las Trabes de liga se dividen en los siguientes grupos:

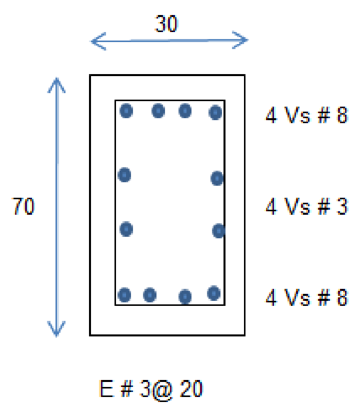
- Contratrabes transversales “CT-1”

De igual forma que para la superestructura se determina aquella viga que presenta las solicitaciones más desfavorables en este caso el miembro número 2190

Beam	L/C	Node	Axial Force Mton	Shear-Y Mton	Shear-Z Mton	Torsion MTon-m	Moment-Y MTon-m	Moment-Z MTon-m
2190	33	1100	0.000	11.506	0.000	0.639	0.000	40.125
2190	33	1099	0.000	11.570	0.000	0.481	0.000	32.549
2188	33	1097	0.000	9.953	0.000	0.498	0.000	32.525
2192	33	1104	0.000	9.392	0.000	0.288	0.000	30.988
2193	33	1106	0.000	9.246	0.000	1.441	0.000	30.611
2190	23	1100	0.000	8.502	0.000	0.467	0.000	29.093
2191	33	1102	0.000	8.492	0.000	0.376	0.000	28.081
2188	33	1095	0.000	9.636	0.000	0.454	0.000	27.720
2192	33	1103	0.000	6.886	0.000	0.927	0.000	24.777

```
       BEAM  NO.  2190 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

LEN -  8000. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  700. MMS

LEVEL    HEIGHT     BAR INFO       FROM         TO           ANCHOR
          (MM)                     (MM)        (MM)         STA  END
_______________________________________________________________________

  1         63.     4 - 25MM        0.        8000.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL POS MOMENT=    368.00 KN-MET  AT  4000.MM, LOAD   34|
|   REQD STEEL=  1703.MM2, RHO=0.0089, RHOMX=0.0190 RHOMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   254./   50./   58. MMS         |
|   REQD. DEVELOPMENT LENGTH =  1632. MMS                       |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   397222.9 cm^4

  2        637.     4 - 25MM        0.        8000.        YES  YES
 STAAD SPACE                                           -- PAGE NO.  152
|----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=    395.89 KN-MET  AT  8000.MM, LOAD   34|
|   REQD STEEL=  1847.MM2, RHO=0.0097, RHOMX=0.0190 RHOMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   254./   50./   58. MMS         |
|   REQD. DEVELOPMENT LENGTH =  1632. MMS                       |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   397222.9 cm^4


REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
( MM )         (SQ.  MM )                (KNS-MET )

    0.        1475./    1841.         322./      393.        34/   33
  667.        1546./    1767.         336./      379.        34/   33
 1333.        1605./    1706.         348./      368.        34/   33
 2000.        1651./    1660.         357./      358.        34/   33
 2667.        1684./    1627.         363./      352.        34/   33
 3333.        1703./    1608.         367./      348.        34/   33
 4000.        1709./    1603.         368./      347.        34/   33
 4667.        1701./    1610.         366./      349.        34/   33
 5333.        1680./    1631.         362./      353.        34/   33
 6000.        1645./    1666.         355./      360.        34/   33
 6667.        1597./    1715.         346./      369.        34/   33
 7333.        1535./    1777.         334./      381.        34/   33
 8000.        1462./    1854.         319./      396.        33/   34

       B E A M  N O.  2190 D E S I G N  R E S U L T S - SHEAR

 AT START SUPPORT - Vu=  109.06 KNS  Vc=  154.77 KNS  Vs=    0.00 KNS
 Tu=    5.40 KN-MET  Tc=    6.8 KN-MET  Ts=    0.0 KN-MET  LOAD    33
 NO STIRRUPS ARE REQUIRED FOR TORSION.
```

El Croquis 7 muestra el armado para las Contratrabes “CT-1”.



Croquis 7 Armado de Contratrabe “CT-1”

- Contrtrabes Longitudinales “CT-2”

Estas contratrabes presentan solicitaciones menores que las “CT-1” por lo que su acero de refuerzo es menor como se puede ver a continuación.

Beam	L/C	Node	Axial Force Mton	Shear-Y Mton	Shear-Z Mton	Torsion MTon-m	Moment-Y MTon-m	Moment-Z MTon-m
2179	33	1102	0.000	10.598	0.000	0.406	0.000	35.124
2167	33	1101	0.000	9.889	0.000	0.836	0.000	28.843
2185	33	1116	0.000	8.961	0.000	0.580	0.000	26.514
2179	23	1102	0.000	7.997	0.000	0.296	0.000	26.069
2167	23	1101	0.000	7.379	0.000	0.649	0.000	21.119

Checando la más critica:

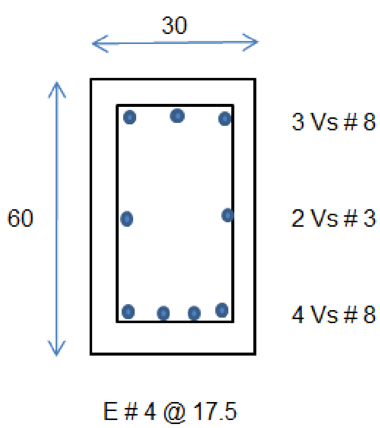
```
       BEAM  NO.  2179 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

LEN -  5500. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  600. MMS

LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
          (MM)                     (MM)         (MM)          STA  END
_______________________________________________________________________

  1        61.     4 - 20MM        0.        5500.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL POS MOMENT=    211.57 KN-MET  AT   458.MM, LOAD   34|
|   REQD STEEL=  1133.MM2, RHO=0.0070, RHOMX=0.0190 RHOMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   254./   45./   59. MMS         |
|   REQD. DEVELOPMENT LENGTH =  1015. MMS                       |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   195002.9 cm^4

  2       533.     3 - 32MM        0.        5500.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=    344.45 KN-MET  AT     0.MM, LOAD   33|
|   REQD STEEL=  1978.MM2, RHO=0.0124, RHOMX=0.0190 RHOMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   254./   64./   83. MMS         |
|   REQD. DEVELOPMENT LENGTH =  1858. MMS                       |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   307656.4 cm^4


REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
( MM )         (SQ.  MM )                (KNS-MET )

    0.        1138./    1969.         211./      344.       34/   33
  458.        1143./    1796.         212./      318.       34/   33
  917.        1142./    1634.         211./      293.       34/   33
 1375.        1134./    1483.         210./      268.       34/   33
 1833.        1121./    1341.         208./      245.       34/   33
 2292.        1101./    1209.         204./      223.       34/   33
 2750.        1075./    1085.         200./      202.       34/   33
 3208.        1042./     969.         194./      182.       34/   33
 3667.        1004./     862.         188./      163.       34/   33
 4125.         960./     762.         180./      145.       34/   33
 4583.         911./     669.         171./      128.       34/   33
 5042.         855./     583.         161./      112.       34/   33
 5500.         794./     504.         150./       97.       33/   34


       B E A M  N O.  2179 D E S I G N  R E S U L T S - SHEAR

 STAAD SPACE                                            -- PAGE NO.  138
 AT START SUPPORT - Vu=  101.20 KNS  Vc=  129.95 KNS  Vs=    4.99 KNS
 Tu=    3.38 KN-MET  Tc=    5.6 KN-MET  Ts=    0.0 KN-MET  LOAD    33
 NO STIRRUPS ARE REQUIRED FOR TORSION
```

El acero de refuerzo longitudinal solicitado en el lecho inferior es de 11.43 cm^2 y que se alcanza con 3 var #8 = 15.21 cm^2.

El acero de refuerzo longitudinal solicitado en el lecho superior es de 19.69 cm^2 y que se alcanza con 4 var #8 = 20.28 cm^2.

Para el refuerzo por cortante se requieren estribos del #3 de dos ramas con una separación de s= 27 cm.

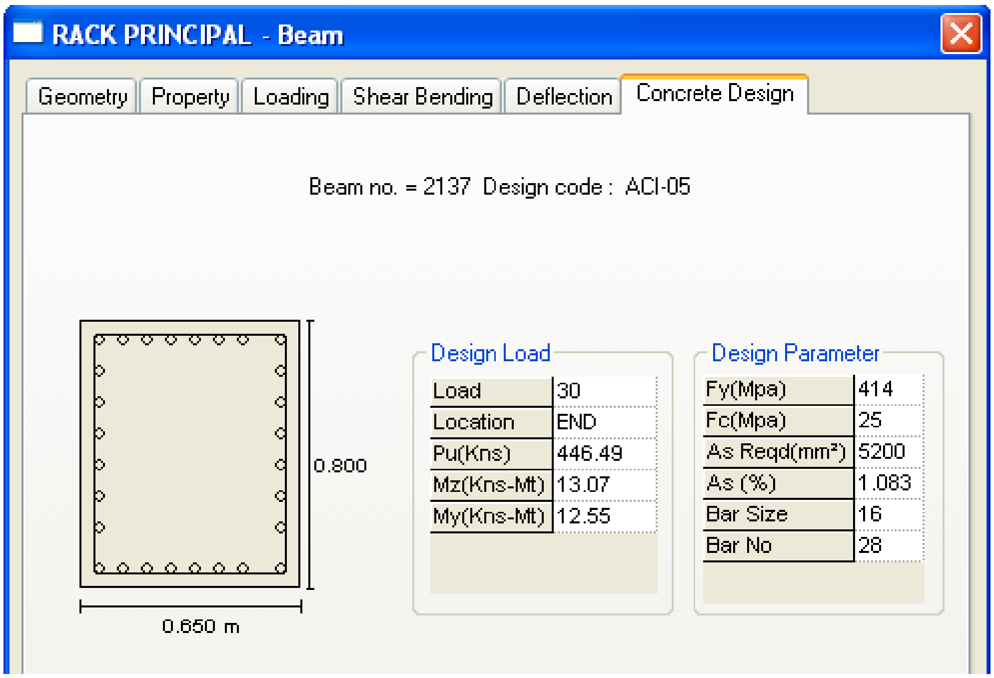
El Croquis 8 muestra el armado para las Contrtrabes “CT-2”.



Croquis 8 Armado de Contratrabe “CT-2”

- **Diseño trabes de Dados:**

De igual forma que para las contratrabes se determina aquel elemento que presenta las solicitaciones más desfavorables en este caso el miembro número 2137



Acero de refuerzo en dados:

As = 14 Vs # 8 = 70.94 cm^2

Se colocarán estribos del # 3 @ 15

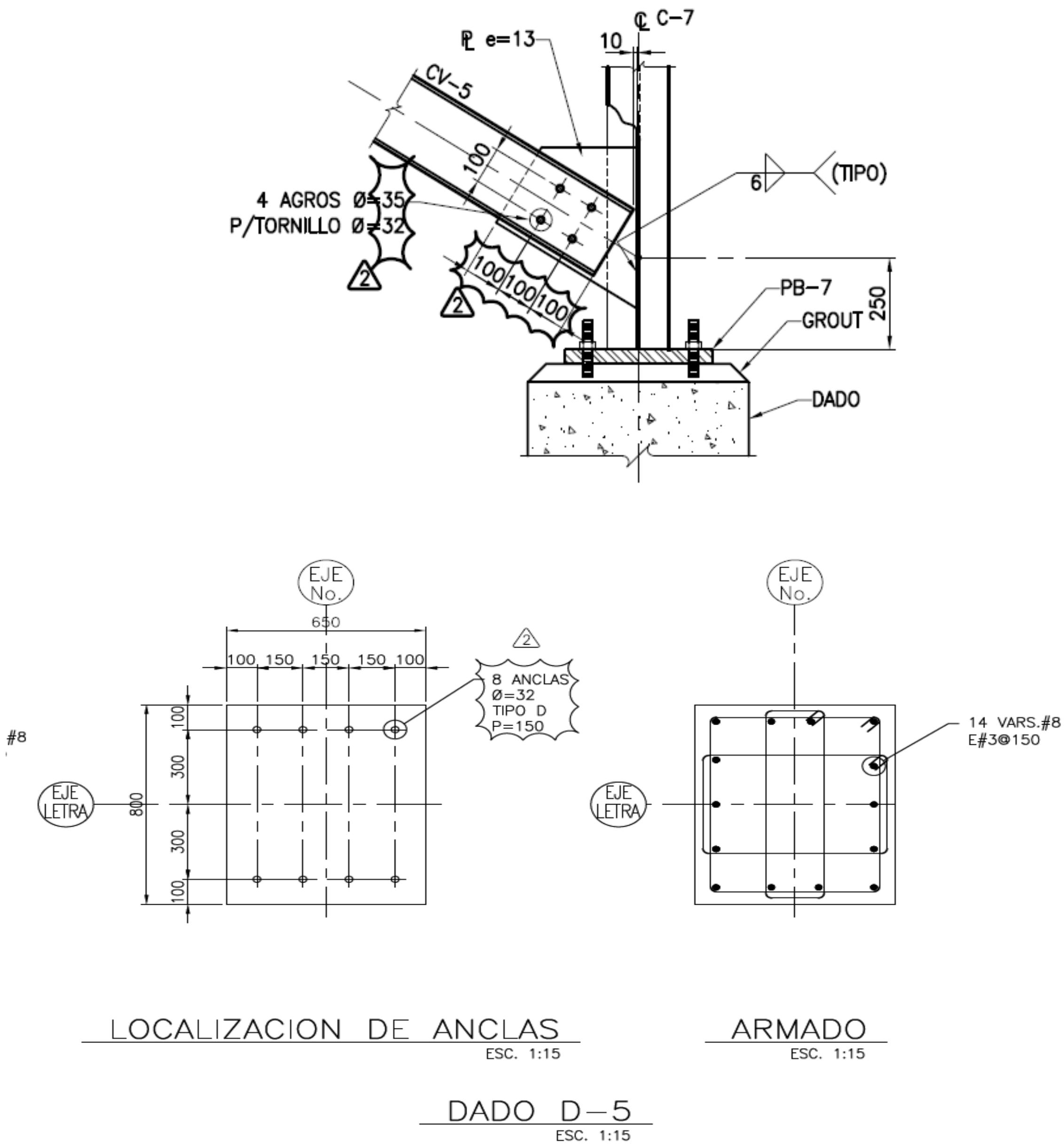
7.0 Procedimiento Constructivo.

La primera etapa para la construcción de un Rack es la cimentación, donde los dados y las contratrabes se construyen con un habilitando del acero de refuerzo en forma continua, se deben dejar ahogadas las anclas necesarias para recibir la estructura metálica ver Imagen 7.1 y el colado de los elementos de concreto se hace de forma monolítico ver Imagen 7.2.

Imagen 7.1 Habilitado de refuerzo en trabes de liga y dados para la cimentación de un Rack

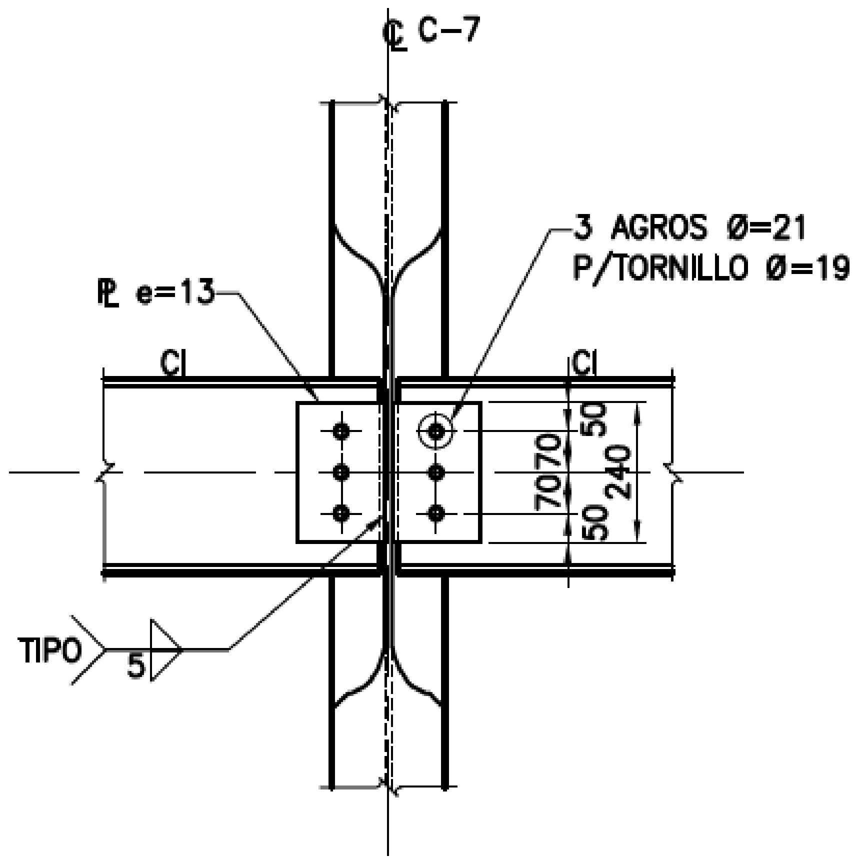
Imagen 7.2 Colado monolítico de la cimentación para un Rack de Tuberías

En la segunda etapa se construye la superestructura, la cual se conforma de marcos transversales y vigas longitudinales de acero estructural prefabricado en taller. El taller es el encargado de cortar y preparar cada uno de los elementos para su instalación, es responsabilidad del taller hacer llegar al cliente los planos de taller para su aprobación antes de trasladar los elementos estructurales al sitio. Una vez que estos elementos se encuentran cortados y listos se integraran a la cimentación mediante un procedimiento de izaje, empotrando las columnas con placa base en los dados con sus anclajes, el Croquis 9 muestra a detalle el resultado de este.



Croquis 9 Detalle de empotramiento de columna C-1 en dados

Para ligar los marcos transversales se utilizan las vigas longitudinales “Puntales”, por lo que, para lograr una continuidad de la estructura se debe contemplar una conexión a cortante mostrada en Croquis 11.



Croquis 11 Conexión a cortantes puntales longitudinales a columna

Podemos ver estos procedimientos para el montaje de la superestructura del Rack en las siguientes imágenes.

Imagen 7.3 Montaje de marcos transversales de Rack de Tuberías

Imagen 7.4 Almacenaje de columnas de Rack de Tuberías

8.0 Conclusiones.

En conclusión, el análisis, diseño y construcción de un Rack de Tuberías con lleva el estudio de aspectos que no son propios de una estructura común. Con esta tesis se está proporcionando una herramienta que auxilia al ingeniero civil en el detallado para su análisis y diseño que influye de forma importante en los costos y tiempos de ejecución de obra.

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Anexos

1.0 Cargas de tuberías
2.0 Cargas de charolas eléctricas
3.0 Corrida de modelo matemático (STAD Pro)
4.0 Planos estructurales

Todos los anexos se encuentran el disco DVD anexo.

ANEXOS

1.0 CARGAS DE TUBERIAS

CARGAS SOBRE RACK DE TUBERIAS PARA OBRA CIVIL

Doc. Nº:
Revisión: A4   Fecha: 14/10/2011

Realizado	Comprobado	Aprobado	Aprobado (PEAP)
		-	-

PARA REVISIÓN INTERNA (IDC)...................................... ☐
PARA DISEÑO / COMENTARIOS CFE (IFD)..................... ☐
PARA PETICIÓN DE OFERTA (IFB).................................. ☐
PARA ORDEN DE COMPRA (IPO) .... ☐

PARA CONSTRUCCIÓN ……. .... ☐
PARA INFORMACIÓN (INF)... ☒
SEGÚN CONSTRUIDO (ASB) .... ☐
DOCUMENTO CANCELADO (NULL)................................ ☐

REGISTRO DE CAMBIOS

REV.	FECHA	SECCIÓN / PÁRRAFO AFECTADO	INICIO DEL DOCUMENTO/ RAZONES DEL CAMBIO
A1	2011-04-08	TODAS	PARA INFORMACION
A2	2011-04-15	TODAS	Añadidas cargas Vapor Rec.Caliente y vapor de baja presión. Modificadas coordenadas
A3	2011-07-21	TODAS	Cargas actualizadas
A4	2011-10-21	TODAS	Cargas actualizadas

CARGAS SOBRE RACK

LÍNEAS	SOPORTE	.115500grvc2/N.165500grv			E.-337.300 / TOS 1215.200			E.-331.300 / TOS 1215.200			E.-325.300 / TOS 1215.200			N.-122.000/ TOS 1213.700			N.-127.500 /TOS 1213.700			N.-133.000 /TOS 1213.700			E.-325.300 / Apoyo lira			N.-138.000 / Apoyo lira		
	FUERZAS (N)	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
VAPOR PRINCIPAL DE CALDERA GVRC2 A TURBINA	HIDRAULICA											-48416		492	-49452			-19129			-34542			-26391				
	TÉRMICO		-10607									27491		53097	9800	2215				-2001	-3517	1618	563	1748	-1767			
	PESO											-45940		-246	-47642						-32028			-24732				
	SISMO		±28332									±17193		±34952	±11448						±7868	±28654		±5931				
	VIENTO		±4379									±4549		±20206	±1905						±777	±12803		±278				
VAPOR REC. FRIO DE TURBINA A CALDERA GVRC2	HIDRAULICA		-48368			-27741			-58894			-38654			-70838			-8545			-17578	-59		-31799			-52620	
	TÉRMICO		-8074	-32314	-149	-1848	42229		-40009	651		9123		52319	27719	1002	-431	-5869	773		-1810	4448	-124	2974	-466	944	869	-1057
	PESO		-23778			-5441			-36946			-9123			-39035			-13855			-10372	-36		-19276			-31149	
	SISMO		±768	±32314	±13127	±548	±11961	±16583	±7971					±26307	±13209			±3766			±5203	±19722		±2377			±8310	
	VIENTO		±591	±22967	±18420	±368	±19578	±21550	±4740					±19041	±4062			±2737			±1995	±13799		±1799			±291	
VAPOR REC. CALIENTE DE CALDERA GVRC2 A TURBINA	HIDRAULICA		-17139			-43170		541				-64680			-52161			-7914			-42193			-33955			-28743	
	TÉRMICO				-20865	-2738	10882	27742				-47752	1734	42924	62867	2027	-330	-38413	716	-2562	-8103	7760	-476	1203	-1112	1139	-706	-1427
	PESO		-15312			-28789		1140		1008		-46210			-33620			-6090			-25345			-21893			-17910	
	SISMO				±15245	±1228	±22284	±6662				±20799	±362	±26184				±7760			±6261	±28890	±264	±5376	±304	±252	±4832	±418
	VIENTO				±23084	±1374	±18848	±9982				±2237	±227	±19858				±857	±61		±876	±16393	±121	±1111	±185	±147	±281	±136
VAPOR REC. CALIENTE DE CALDERA GVRC1 A TURBINA	HIDRAULICA		-26080			-26208			-21958			-49257																
	TÉRMICO				-20467	-1318	203	43679	-2888	932	382	-36089	1658															
	PESO		-13948			-21400			-12395			-33822																
	SISMO				±14211	±1607	±24364	±8072	±1607	±465		±21488																
	VIENTO				±22598	±1332	±24480	±9905	±136	±466		±3509	±466															

LÍNEAS	SOPORTE	E.-325.300 / Apoyo lira			N.-143.000/ TOS 1213.700			N.-151.200 / TOS 1213.700			N.-161.800 / TOS 1213.700			N.-165.500/ TOS 1213.700			N.-172.000/ TOS 1213.700			N.-177.250 / TOS 1213.700			N.-182.500/ TOS 1213.700			N.-188.000 / TOS 1213.700		
	FUERZAS (N)	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
VAPOR PRINCIPAL DE CALDERA GVRC2 A TURBINA	HIDRAULICA		-28718			-37433	-132		-28228			-47456	1506		-40435		-938	-44472			-21355			-23591			-22735	
	TÉRMICO	1469	275	-1712	6971	-1097	-20414	2380	131	407	2452	-18748	79959	781	5987		-95579	-15426	482	-1263	-4658	-49610	-1263	2309	-603	-1925	-4234	-1377
	PESO		-26808			-34982	136		-26357			-44777	817		-40448		-432	-41716			-18883			-21953			-21227	
	SISMO		±7730			±8317	±7630		±6968			±10758	±36063		±13567		±64186	±9879			±1742	±39953		±5572			±12884	
	VIENTO		±543			±553	±9262		±220			±178	±24855		±1155		±28645	±3522			±914	±26857		±789			±2846	
VAPOR REC. FRIO DE TURBINA A CALDERA GVRC2	HIDRAULICA		-33530			-23579			-57887			-56551			-40369		1423	-60362			-28343			-45777				
	TÉRMICO	1853	-8282	-382		8920	-60912		-10429	70315		-3060			6425		-40151	6130			6782	694		-16897				
	PESO		-20394			-13845			-34071			-38406			-29687		1615	-39169			-17180			-24314				
	SISMO		±8597			±3418	±9562		±9624	±18438		±14280			±10243		±72015	±18332			±1778	±16993		±14394				
	VIENTO		±1256			±1183	±10667		±1343	±20273		±2862			±2648		±41828	±1135			±1599	±24121		±2955				
VAPOR REC. CALIENTE DE CALDERA GVRC2 A TURBINA	HIDRAULICA		-35386			-41245			-47841			-43610			-15852		-199	-32374			-24637			-26685			-26060	
	TÉRMICO	1937	1502	-1060	6050	486	-43220	5002	-386	47225	1226	-370	224	782	776	177	-24641	-1862	-28668	-631	7422	-244	-1263	-27731	-531		39715	
	PESO		-22333			-26145			-30094			-27470			-9932		-425	-20597			-16122			-18169			-16453	
	SISMO	±450	±6423	±292	±630	±6526	±21205	±188	±7702	±11321		±6976			±2564		±84496	±8064	±19438		±6492			±1478			±18151	
	VIENTO	±102	±491	±76	±18	±183	±17810		±149	±16687		±56	±34		±260		±57554	±1850	±29534		±1515			±5477			±12698	
VAPOR REC. CALIENTE DE CALDERA GVRC1 A TURBINA	HIDRAULICA																	-47058			-14783			-26181			-44608	
	TÉRMICO																	-23846		-632	-31110	1197	-1263	-18037	516		7198	
	PESO																	23888			-11919			-19817			-18725	
	SISMO																±63750	±4273			±12422			±3324			±19400	
	VIENTO																±48377	±3610			±4058			±5362			±10681	

LÍNEAS	SOPORTE	N.-193.500/ TOS 1213.700			E.-325.300/ TOS 1212.200			E.-317.300 / TOS 1212.200			E.-312.350/ TOS 1212.200			E.-307.350/ TOS 1212.200			E.-301.350/ TOS 1212.200			E.-295.350/ TOS 1212.200			E.-290.350 / TOS 1212.200			E.-285.350/ TOS 1212.200		
	FUERZAS (N)	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
VAPOR PRINCIPAL DE CALDERA GVRC2 A TURBINA	HIDRAULICA		-28084									-43447			-21797			-40803			-28045			-5469			-63529	
	TÉRMICO	-164	23692	-130							-2665	-31815	-3247		20141		-1375	-38723	1924	1662	-736	-1202	101	3132	91	2476	16948	37053
	PESO		-25761									-41254			-20141			13126			-25404			-5191			-59730	
	SISMO		±6014									±7040						±7000			±6293			±6905			±9700	±42630
	VIENTO		±6411									±1751						±1443			±2975			±6663			±4255	±120086
VAPOR REC. FRIO DE TURBINA A CALDERA GVRC2	HIDRAULICA		-62872						-52238			-13503			-41959			-36961			-32464			-22817				3873
	TÉRMICO		30882						-32908			6969			16547			-11170			9910			-3956				19256
	PESO		-34417						-29116			-6969			-23275			-20998			-18033			-11468				2489
	SISMO		±13468						±12063						±3576		±19051	±8241			±5566			±9872				±43988
	VIENTO		±4830						±3807						±1474		±26237	±5127			±3480			±3208				±31962
VAPOR REC. CALIENTE DE CALDERA GVRC2 A TURBINA	HIDRAULICA		-29294			-45360			-36087			-12526			-78158			-55457			-36207						-72878	
	TÉRMICO		18110			-30000		-2804	-68842	-860	-1038	7361	-107	-2010	8799			-12619			29100	129574	11677			1693	-14650	1323
	PESO		-18110			42736			-23508			-5418			-66583			-42741			-21955						-50101	
	SISMO					±15326			±5505			±3969		±545	±28169			±12054			8736	±121564	±39789				±24130	
	VIENTO					±9509			±13563			±6471		±488	±13118			±1000			2691	±71614	±31702				±1620	
VAPOR REC. CALIENTE DE CALDERA GVRC1 A TURBINA	HIDRAULICA		-32309			-52377			-57010			-17902			-77496													
	TÉRMICO		19996			39386			-42648			7575			-25035													
	PESO		-19996			-37075			-36248			-9350			-68184													
	SISMO					±11873			±1040			±3138			±15336													
	VIENTO					±10153			±8276			±3013			±5628													

PLANOS DE REFERENCIA

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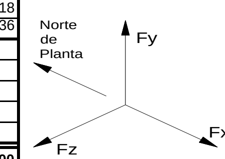
SISTEMA DE COORDENADAS



NOTAS

- Localización de los apoyos de acuerdo con los planos de referencia de tuberías
- Cargas para tuberías Φ ≥ 12"
- Cargas para bandejas de tuberías Φ < 12" se considerará 150 kg/m2

CARGAS SOBRE RACK

LÍNEAS	SOPORTE	N.-115.500 ELEV.1209.700			N.-165.500 ELEV.1209.700			N.-165.500/E.-328.300 (14")			N.-171.000/E.-325.300 (14")			N.-171.000/E.-322.300 (14")			E.-337.300 / TOS 1215.200			E.-331.300 / TOS 1215.200			E.-325.300 / TOS 1215.200			N.165.500/ TOS 1215.200		
	FUERZAS (N)	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
VAPOR PRINCIPAL DE CALDERA GVRC2 A TURBINA	HIDRAULICA			5292																								
	TÉRMICO			28826																								
	PESO			2703																								
	SISMO			±34788																								
	VIENTO			±17802																								
VAPOR PRINCIPAL DE CALDERA GVRC1 A TURBINA	HIDRAULICA						1219		-50201			-48055			-4504													
	TÉRMICO						22834		10751		-9331	-3961																
	PESO						1788		-57085			-43855			-6065													
	SISMO						±26833		±10638		±46266	±41310		±37046														
	VIENTO						±13638		±2547		±24581	±3169		±8827														
VAPOR REC. FRIO DE COLECTOR A CALDERA GVRC1	HIDRAULICA																	-25921			-34380			-62675			-48815	
	TÉRMICO																	-2520	-24980	9523	-3547			1834		340	-1148	-61750
	PESO																	-11758			-14726			-51446			-27476	
	SISMO																±12782		±54954	±22487	±1027			±1041				±32233
	VIENTO																±13607		±43066	±19250	±128			±584				±13112
	HIDRAULICA																											
	TÉRMICO																											
	PESO																											
	SISMO																											
	VIENTO																											

LÍNEAS	SOPORTE	N.-165.500/E.-332.300 (20")			N.-165.500/E.-328.300 (20")			N.-169.650/E.-328.300 (10")			N.-157.000/E.-318.300 (20")			N.-157.000/E.-325.000 (20")			N.-282.350/TOS1212.350											
	FUERZAS (N)	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
BY-PASS VAPOR AP DE CALDERA GVRC1	HIDRAULICA		-23920			-12069			-50069																			
	TÉRMICO		-18929			609			10748																			
	PESO		-22942			-616			-55600																			
	SISMO		±22855						±1919																			
	VIENTO		±788						±1435																			
BY-PASS VAPOR AP DE CALDERA GVRC2	HIDRAULICA											-24323			-20903													
	TÉRMICO											11995			9757													
	PESO											-15584			-12529													
	SISMO											±554			±5199													
	VIENTO											±1732			±2139													
VAPOR REC. FRIO DE TURBINA A CALDERA GVRC2	HIDRAULICA																	-107107										
	TÉRMICO																	4830										
	PESO																	-69449										
	SISMO																	±34265										
	VIENTO																	±8048										
	HIDRAULICA																											
	TÉRMICO																											
	PESO																											
	SISMO																											
	VIENTO																											

LÍNEAS	SOPORTE	E.325.300/TOS 1212.200			E.325.300/TOS 1209.700			E.317.300/TOS 1209.700			E.312.350/TOS 1209.700																	
	FUERZAS (N)	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
VAPOR REC. CALIENTE DE CALDERA GVRC2 A TURBINA	HIDRAULICA					-33313			-34854			-23405																
	TÉRMICO				-2818	-44394	-1475		18260		2381	-13514	36196															
	PESO		Esta en hoja 1			-20789			-22831			-14208																
	SISMO					±5334			±12156			±5194	±25747															
	VIENTO					±9661			±5787			±5477	±17922															
VAPOR REC. CALIENTE DE CALDERA GVRC1 A TURBINA	HIDRAULICA		-32706			-46341						-47448																
	TÉRMICO		56327			-65572			18260			14052	-166511															
	PESO		-21791			-29269			-22831			-30862																
	SISMO		±11822			±6656			±23593			±13164	±9474															
	VIENTO		±11178			±4309			±13925			±1221	±5303															
	HIDRAULICA																											
	TÉRMICO																											
	PESO																											
	SISMO																											
	VIENTO																											
	HIDRAULICA																											
	TÉRMICO																											
	PESO																											
	SISMO																											
	VIENTO																											

PLANOS DE REFERENCIA

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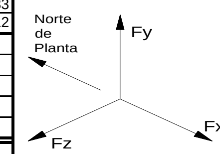
SISTEMA DE COORDENADAS



NOTAS

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- Cargas para tuberías Φ ≥ 12"
- Cargas para bandejas de tuberías Φ < 12" se considerará 150 kg/m2

RACK DE TUBERIAS

HOJAS DE CARGAS DE TUBERIAS

CARGAS SOBRE RACK

LÍNEAS	SOPORTE	.115500grvc2/N.165500grv			E.-343.300/TOS 1215.200			E.-337.300 /TOS 1215.200			E.-331.300/TOS 1215.200			E.-325.300 /TOS 1215.200			N.-122.000 /TOS 1213.700			N.-127.500/TOS 1213.700			N.-133.000 /TOS 1213.700			E.-325.300 / Apoyo lira		
	FUERZAS (N)	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
VAPOR BAJA PRESION DE CALDERA GVRC2 A TURBINA	HIDRAULICA		-20075	-182	-291	-8083			-4161	-58	124	-5894			-5310		-38	-5157			-5208	4					-7972	
	TÉRMICO	4175	1672	-4025	-4026	1581			-526	1505	1873	-334			1448		389	-1903			585	5033					-101	
	PESO	288	-14713	157	-133	-7150			-2124	-46	62	-4324			-3457		-19	-3348			-4073	1					-5570	
	SISMO	±1904		±1169	±2303	±4825			±189	±5229	±1687	±5720			±163		±5870	±1933			±1993	±5844					±5349	
	VIENTO	±5068		±4220	±5851	±176			±251	±4604	±6971	±767			±1081		±7584	±387			±588	±12546					±242	
VAPOR BAJA PRESION DE CALDERA GVRC1 A TURBINA	HIDRAULICA	451	-20076	-194	-294	-8116			-4098	-119	137	-6095			-5536													
	TÉRMICO	4225	1672	-4052	-4070	1645			-2444	1615	1934	461			1990													
	PESO	297	-14714	161	-136	-7158			-2754	-86	70	-3937			-3608													
	SISMO	±1892		±556	±2313	±4583			±1920	±5128	±1651	±3836			±1161													
	VIENTO	±5027		±1955	±7369	±210			±291	±5012	±6871	±548			±956													
	HIDRAULICA																											
	TÉRMICO																											
	PESO																											
	SISMO																											
	VIENTO																											
	HIDRAULICA																											
	TÉRMICO																											
	PESO																											
	SISMO																											
	VIENTO																											

LÍNEAS	SOPORTE	N.-138.000 / Apoyo lira			E.-325.300 / Apoyo lira			N.-151.200			N.-161.800			N.-165.500			N.-172.000			N.-177.250			N.-182.500			N.-188.000		
	FUERZAS (N)	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
VAPOR BAJA PRESION DE CALDERA GVRC2 A TURBINA	HIDRAULICA		-14041			-8203			-9656			-8704	-11		-2605		-58	-6308			-4274	129		-6250	-157		-1100	
	TÉRMICO		125			-45			16	648		-18	654		8		674	3			-19	1657		67	-2577		-248	
	PESO		-9810			-5737			-5740			-5655	-7		-1694		-42	-4090			-2816	83		-4163	-99		-691	
	SISMO		±2441			±4162			±1668	±3443		±3968	±11155		±121		±11394	±334			±173	±1569		±4750	±2190		±253	
	VIENTO		±40			±248			±172	±13005		±195	±4730		±92		±8379	±5			±101	±5435		±1222	±8305		±1270	
VAPOR BAJA PRESION DE CALDERA GVRC1 A TURBINA	HIDRAULICA																	-4625			-4649	279		-6406	-241		-342	
	TÉRMICO																4065	-3958			1294	5655		-287	-4730		-414	
	PESO																	-3096			-3062	180		-4264	-155		-226	
	SISMO																±6773	±445			±210	±327		±4350	±2881		±267	
	VIENTO																±6295	±794			±476	±1299		±425	±10622		±1185	
	HIDRAULICA																											
	TÉRMICO																											
	PESO																											
	SISMO																											
	VIENTO																											
	HIDRAULICA																											
	TÉRMICO																											
	PESO																											
	SISMO																											
	VIENTO																											

LÍNEAS	SOPORTE	N.-193.500			E.-317.300			E.-312.350			E.-307.350			E.-301.350			E.-295.350			E.-290.350			E.-280.350					
	FUERZAS (N)	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
VAPOR BAJA PRESION DE CALDERA GVRC2 A TURBINA	HIDRAULICA		-11385			-11246			-649			-9678			-11697			-5691		846	-18028							
	TÉRMICO		577			1086		699	1325	-426	8457	7343		-2027	1558	-665	-494	-8376	11118	18114	14771							
	PESO		-7396			-7868			-593			-7777			-5728			-3400		421	-8717							
	SISMO		±944			±1339		±4434	±9761		±6015	±512			±158		±20135	±907		±4766	±3155							
	VIENTO		±1832			±615		±6379	±2293		±6064	±428			±1509		±24748	±1026		±10358	±628							
VAPOR BAJA PRESION DE CALDERA GVRC1 A TURBINA	HIDRAULICA		-12809			-12949			-2817			-1667																
	TÉRMICO		574			-1348		-2364	1546	-1645		-6747																
	PESO		-8325			-9041			1923			-9408																
	SISMO		±937			±1596		±1538	±6657		±6146	±6240																
	VIENTO		±1594			±632		±6664	±445		±5111	±2897																
	HIDRAULICA																											
	TÉRMICO																											
	PESO																											
	SISMO																											
	VIENTO																											
	HIDRAULICA																											
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	PESO																											
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PLANOS DE REFERENCIA

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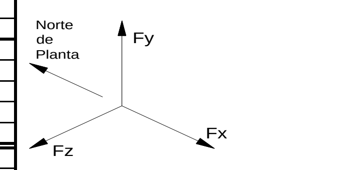
SISTEMA DE COORDENADAS



NOTAS

- Localización de los apoyos de acuerdo con los planos de referencia de tuberías
- Cargas para tuberías Φ ≥ 12"
- Cargas para bandejas de tuberías Φ < 12" se considerará 150 kg/m2

CARGAS SOBRE RACK

LÍNEAS	SOPORTE	N.165.500/TOS 1215.200			E.355.300/TOS 121.440			E.349.300 /TOS 1212.440			E.343.440/TOS 1212.440			N.-337.300 /TOS 1212.440														
	FUERZAS (N)	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
ASPIRACION BOMBAS ALTA PRESI0N GVRC1	HIDRAULICA		-12000			-10000			-6000			-13000			-3000													
	TÉRMICO	5000	-4000	1000	-9000	-4000	-7000	7000	5000	5000	5000	-28000	3000		-3000													
	PESO		-10000			-11000			-5000			-10000			-8000													
	SISMO	±1000	±1500	±1000																								
	VIENTO	±6000	±400	±8000	±3000			±4000	±600	±9000																		
ASPIRACION BOMBAS ALTA PRESI0N GVRC1	HIDRAULICA																											
	TÉRMICO																											
	PESO																											
	SISMO																											
	VIENTO																											
	HIDRAULICA																											
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	VIENTO																											
	HIDRAULICA																											
	TÉRMICO																											
	PESO																											
	SISMO																											
	VIENTO																											

LÍNEAS	SOPORTE	N.115.500/TOS 1215.200			E.355.300/TOS 121.440			E.349.300 /TOS 1212.440			E.343.440/TOS 1212.440			N.-337.300 /TOS 1212.440														
	FUERZAS (N)	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
ASPIRACION BOMBAS ALTA PRESI0N GVRC2	HIDRAULICA		-12000			-10000			-6000			-13000			-3000													
	TÉRMICO	5000	-4000	1000	-9000	-4000	-7000	7000	5000	5000	5000	-28000	3000		-3000													
	PESO		-10000			-11000			-5000			-10000			-8000													
	SISMO	±1000	±1500	±1000																								
	VIENTO	±6000	±400	±8000	±3000			±4000	±600	±9000																		
	HIDRAULICA																											
	TÉRMICO																											
	PESO																											
	SISMO																											
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	HIDRAULICA																											
	TÉRMICO																											
	PESO																											
	SISMO																											
	VIENTO																											

LÍNEAS	SOPORTE																											
	FUERZAS (N)	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
	HIDRAULICA																											
	TÉRMICO																											
	PESO																											
	SISMO																											
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	HIDRAULICA																											
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	PESO																											
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	VIENTO																											

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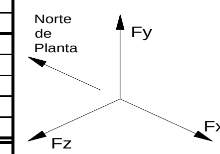
SISTEMA DE COORDENADAS



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RACK DE TUBERIAS

HOJAS DE CARGAS DE TUBERIAS

CARGAS SOBRE PLATAFORMA PARA VALVULAS

CARGAS SOBRE RACK

LÍNEAS	SOPORTE	Soporte nº 3 Amortig.			Soporte nº 4 muelle			Soporte nº 5 colgante			Soporte nº 6 Amortig.			Soporte nº 7 Amortig.			Soporte nº 8 Amortig.			Soporte nº 9 Amortig.			Soporte nº 10 colgante			Soporte nº 11 muelle		
	FUERZAS (N	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
POR PRINCIP	HIDRAULICA					-84000			-94000																-111000			-67000	
	TERMICO					-6000			5000																-36500			-3500	
	PESO					-79500			-98000																-110000			-63500	
	SISMO	±4500		±21000							±14500					±26500			±18000	±82000								
	VIENTO																											
VAPOR REC. FRIO DE TURBINA A CALDERA	HIDRAULICA																				-39041	-59					-41733	
	TÉRMICO																				-3108	11681					1364	
	PESO																				-23022	-36					-24814	
	SISMO																				±2155	±22555					±1139	
	VIENTO																				±460	±19790					±113	
VAPOR REC. CALIENTE DE CALDERA GVRC2 A	HIDRAULICA																											
	TÉRMICO																											
	PESO																											
	SISMO																											
	VIENTO																											
VAPOR REC. CALIENTE DE CALDERA	HIDRAULICA																											
	TÉRMICO																											
	PESO																											
	SISMO																											
	VIENTO																											

LÍNEAS	SOPORTE	Soporte nº 12 Amortig.			Soporte nº 16 Amortig.			Soporte nº 16 muelle			Soporte nº 17 Amortig.			Soporte nº 21 muelle			Soporte nº 25 muelle			Soporte nº 25 amortig.								
	FUERZAS (N	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
POR PRINCIP	HIDRAULICA																											
	TÉRMICO																											
	PESO																											
	SISMO	±14500		±23500																								
	VIENTO																											
VAPOR REC. FRIO DE TURBINA A CALDERA GVRC2	HIDRAULICA								-90500																			
	TÉRMICO								-7000																			
	PESO								-59000																			
	SISMO						±28000				±40500																	
	VIENTO																											
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	TÉRMICO																											
	PESO														-50000													
	SISMO																											
	VIENTO																											
VAPOR BAJA PRESION DE CALDERA	HIDRAULICA																	-20500										
	TÉRMICO																	-500										
	PESO																	-10000										
	SISMO																											
	VIENTO																			±15000		±6500						

LÍNEAS	SOPORTE	Soporte nº 26 restr.mec.			Soporte nº 27 amortig			Soporte nº 27 restr.mec.																				
	FUERZAS (N)																											
POR PRINCIP	HIDRAULICA																											
	TÉRMICO																											
	PESO																											
	SISMO																											
	VIENTO																											
VAPOR REC. FRIO DE TURBINA A CALDERA	HIDRAULICA																											
	TÉRMICO																											
	PESO																											
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	VIENTO																											
VAPOR REC. CALIENTE DE CALDERA	HIDRAULICA																											
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	PESO		-22000						-35000																			
	SISMO																											
	VIENTO						±11000																					

PLANOS DE REFERENCIA

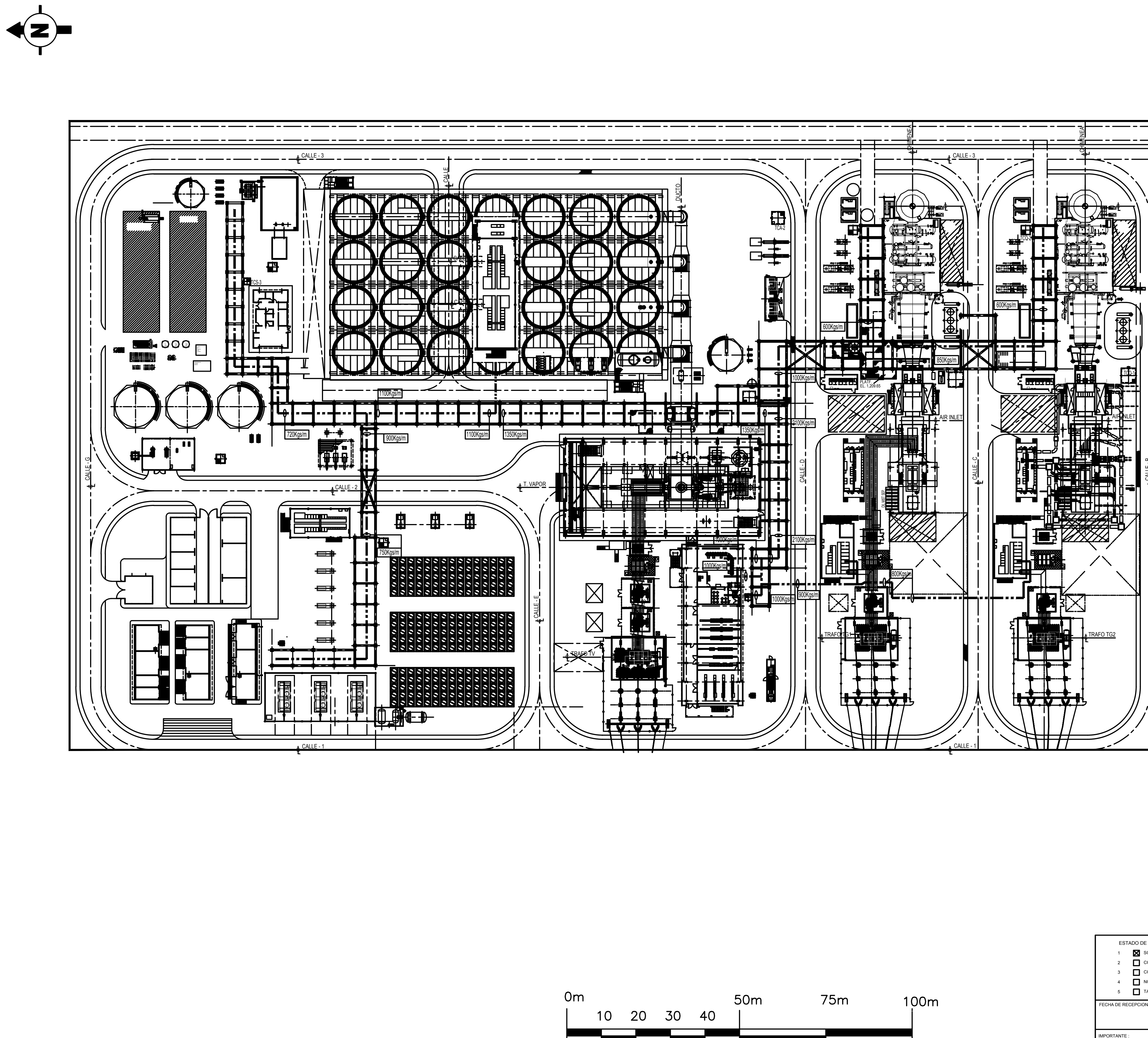
Doc. Nº: xxxxx-xxxxx-xxx, Racks

SISTEMA DE COORDENADAS

NOTAS

- Localización de los apoyos de acuerdo con los planos de referencia de tuberías
- Cargas para tuberías Φ ≥ 12"
- Cargas para bandejas de tuberías Φ < 12" se considerará 150 kg/m2

CFE-PM27005-SRPE-PE-0176



PARA INFORMACION

REV.	FECHA	DESCRIPCION	REVISO	APROBO
0	17-10-11	PARA INFORMACION		

REVISIONES

ESTADO DE DOCUMENTO COMO SE ANOTA

1 ☒ SOLO PARA INFORMACION
2 ☐ CONFORME SIN COMENTARIOS
3 ☐ CONFORME CON COMENTARIOS
4 ☐ NO CONFORME
5 ☐ TAL COMO SE CONSTRUYO

FECHA DE RECEPCION :

Revisado por Ing. Supervisor

Fecha:

IMPORTANTE :

NO. DE CONTROL

PROYECTO: PLANTA DE CICLO COMBINADO

TITULO: ARREGLO GENERAL DE LA CENTRAL PLANTA

APROBADO

COMPROBADO

REALIZADO

ESCALA 1:400

ORDEN DE COMPRA

ITEM

TITULO: CARGAS DE CHAROLAS POR LOS RACK`s

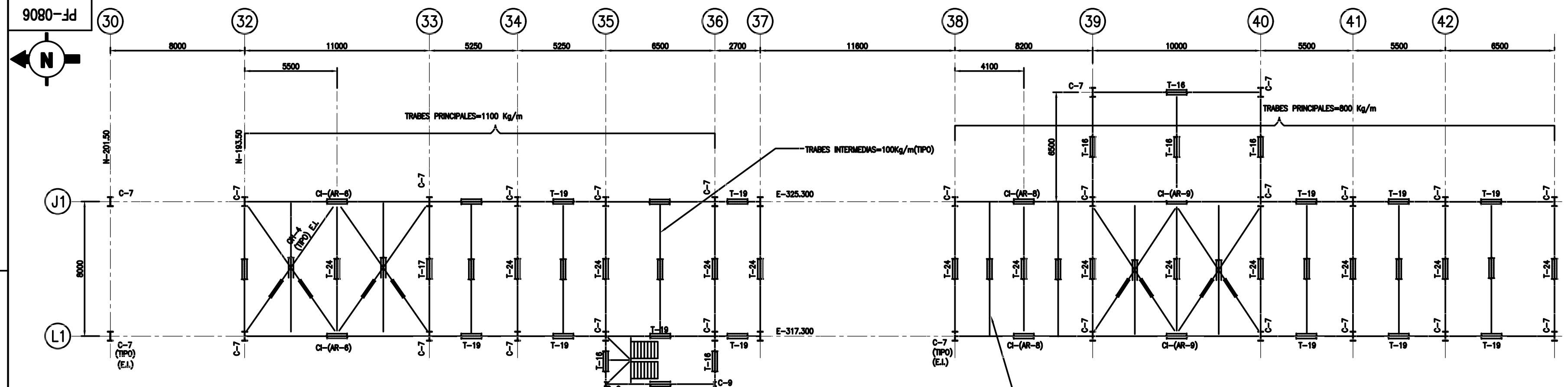
DOCUMENTO DE PROYECTO No. CFE-PM27005-SRJE-PE-0173

REV. No. 0

DOCUMENTO SUMINISTRADOR No.

REV. No.

PF-0806



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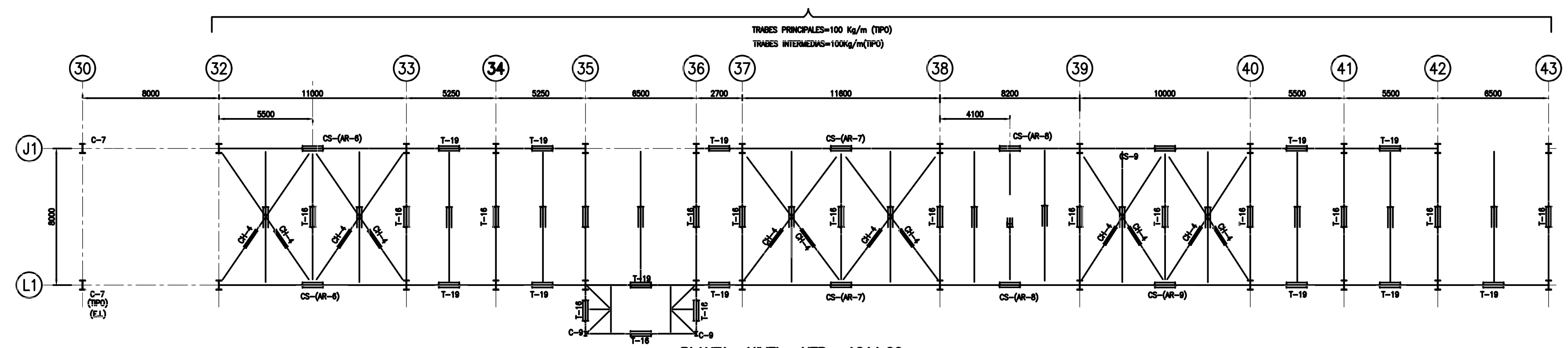
ESC. 1:125



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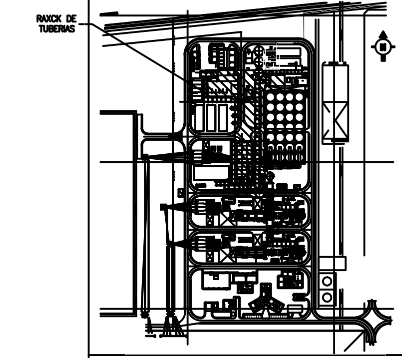

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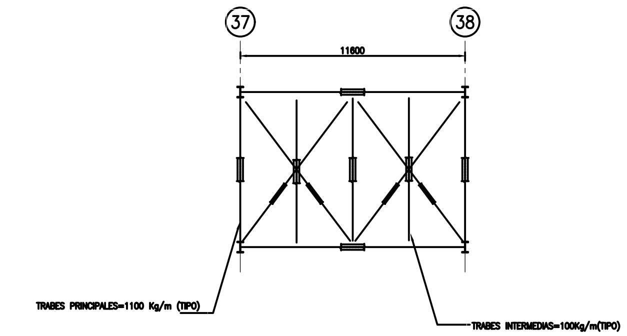

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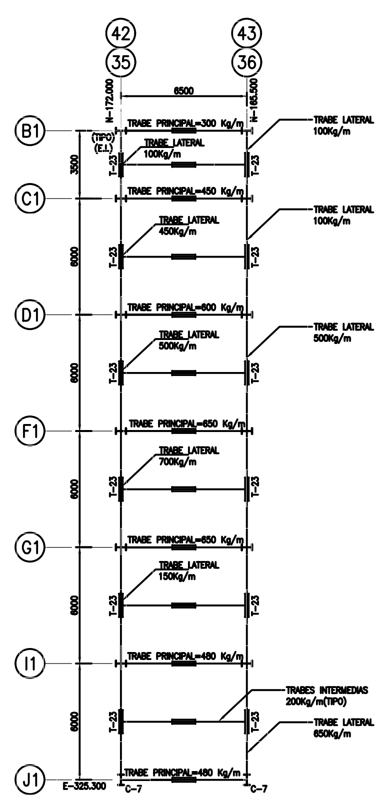

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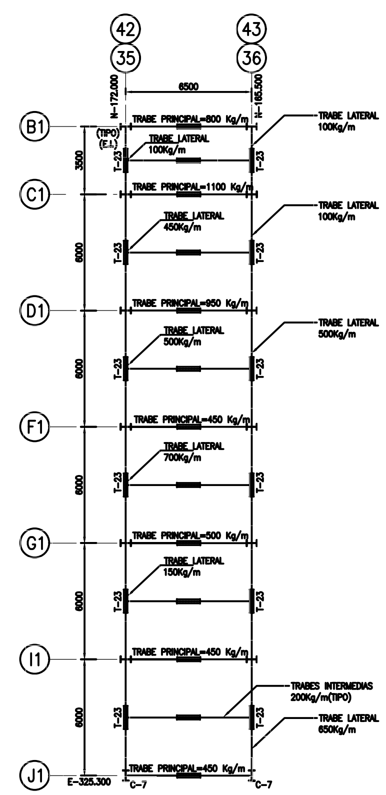


PLANTAS NIVELES NTP +1212.45

ESC. 1:125

NOTAS:

1.- ESTE PLANO ES SOLO PARA INDICAR CARGAS DE TUBERIAS DE SERVICIOS SOBRE LOS MARCOS DEL RACK.
2.- DIMENSIONES EN MILIMETROS.
3.- NIVELES Y COORDENADAS EN METROS.

PLANOS DE REFERENCIA

CFE-PM27005-SRPM3-PM-0152 DISPOSICION GENERAL DEL RACK DE TUBERIAS.

REV.	FECHA	DESCRIPCION	REVISO	APROBO
0	17/10/11	SOLO PARA INFORMACION		

REVISIONES

ESTADO DE DOCUMENTO COMO SE ANOTA

1 [X] SOLO PARA INFORMACION
2 [ ] CONFORME SIN COMENTARIOS
3 [ ] CONFORME CON COMENTARIOS
4 [ ] NO CONFORME
5 [ ] TAL COMO SE CONSTRUYO

FECHA DE RECEPCION :

Revisado por Ing. Supervisor

Fecha:

IMPORTANTE :

NO. DE CONTROL

PROYECTO: PLANTA DE CICLO COMBINADO

TITULO: CARGAS DE TUBERIAS DE SERVICIOS SOBRE RACK PRINCIPAL Y RACK TREN 1 Y 2

APROBADO

COMPROBADO

REALIZADO

ESCALA 1:125

TITULO: CARGAS DE TUBERIAS DE SERVICIOS SOBRE RACK PRINCIPAL Y RACK TREN 1 Y 2

ORDEN DE COMPRA

ITEM

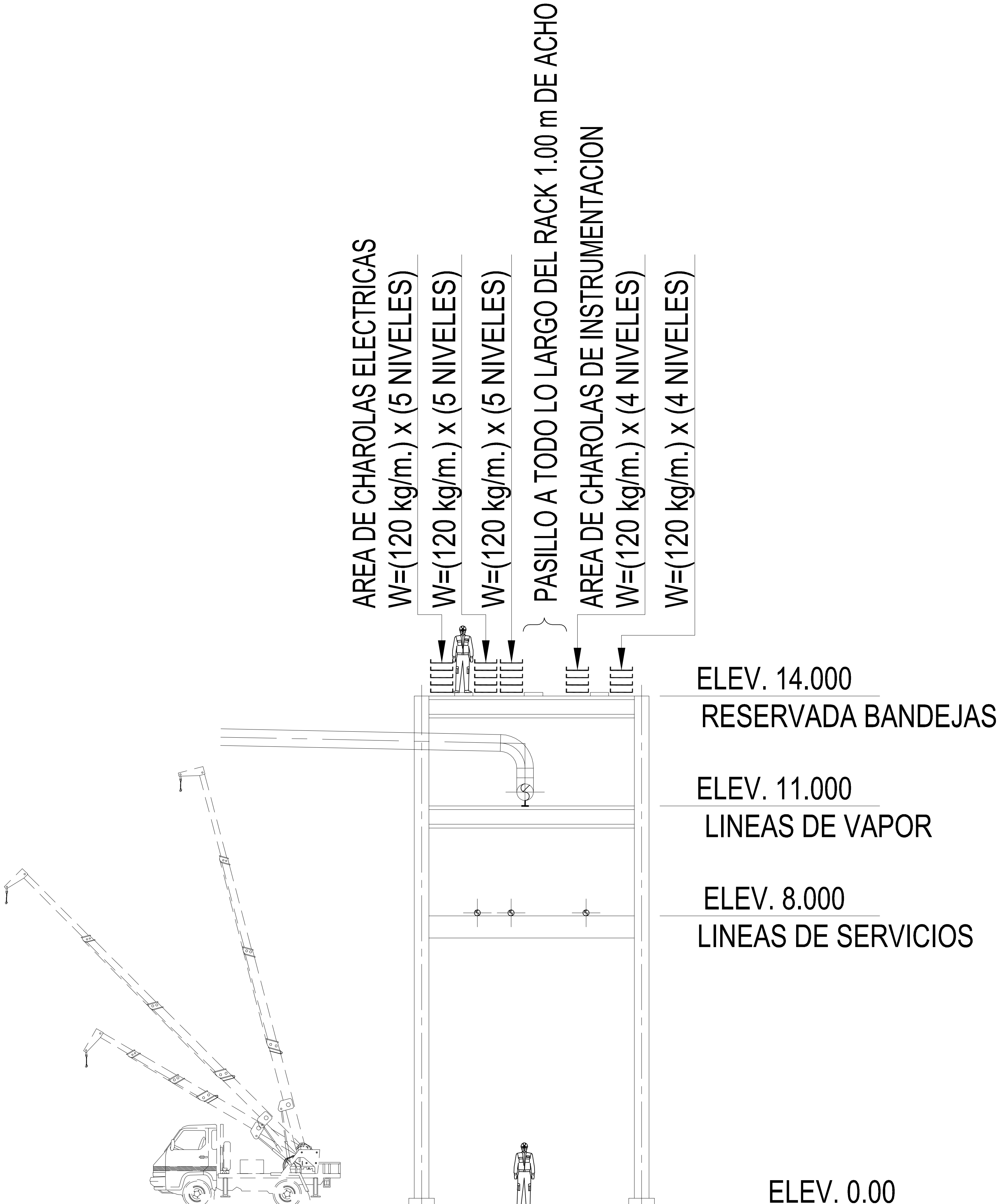
DOCUMENTO DE PROYECTO No. PM27005-SRJT-PM-0141

REV. No. 0

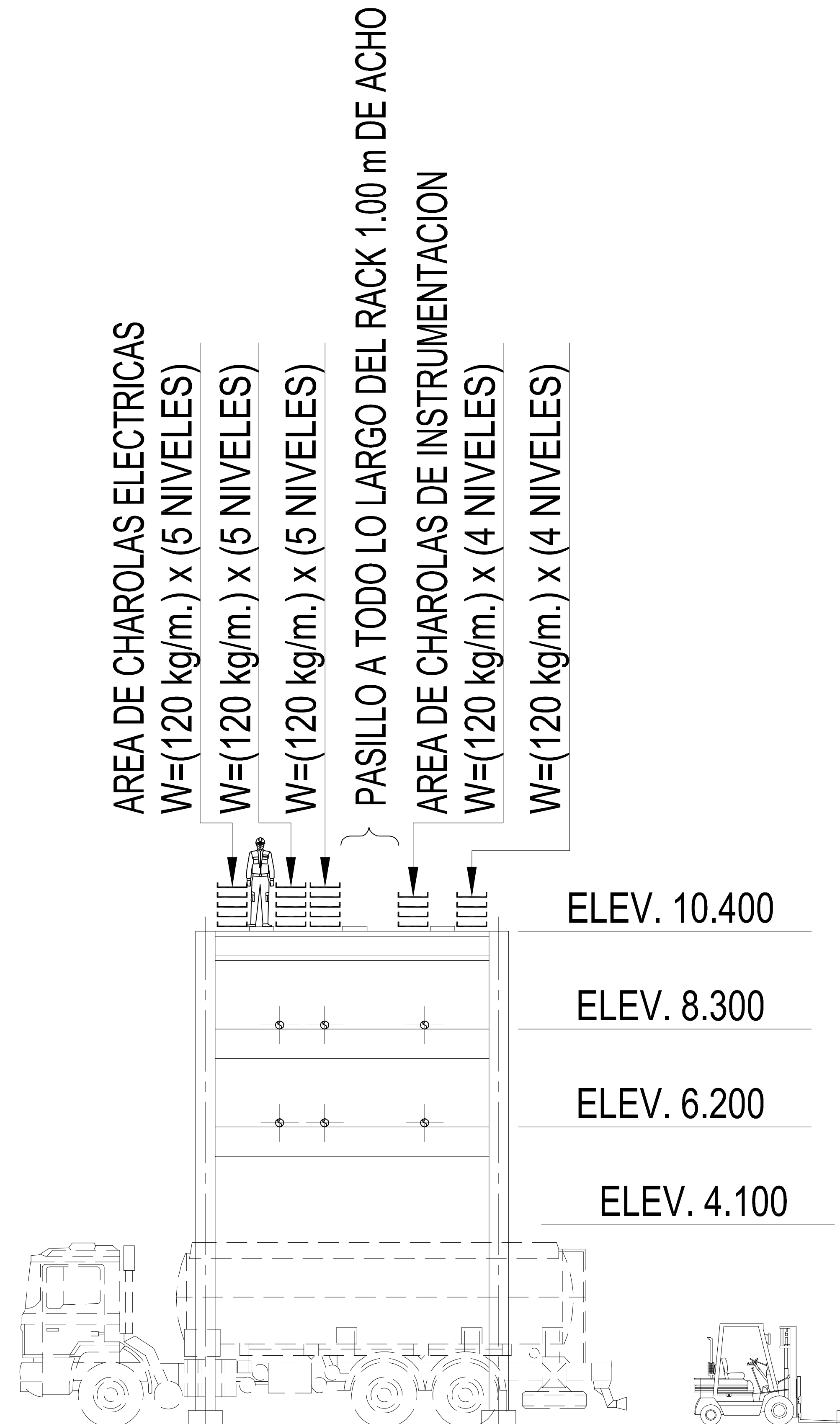
DOCUMENTO SUMINISTRADOR No.

REV. No.

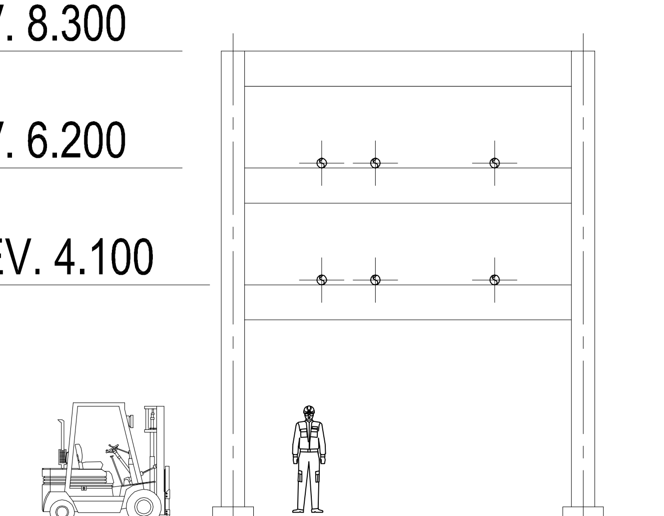
ESC. 1:125



PASO SOBRE CALDERAS (TIPO 1)



PASO DE CALLE (TIPO 2)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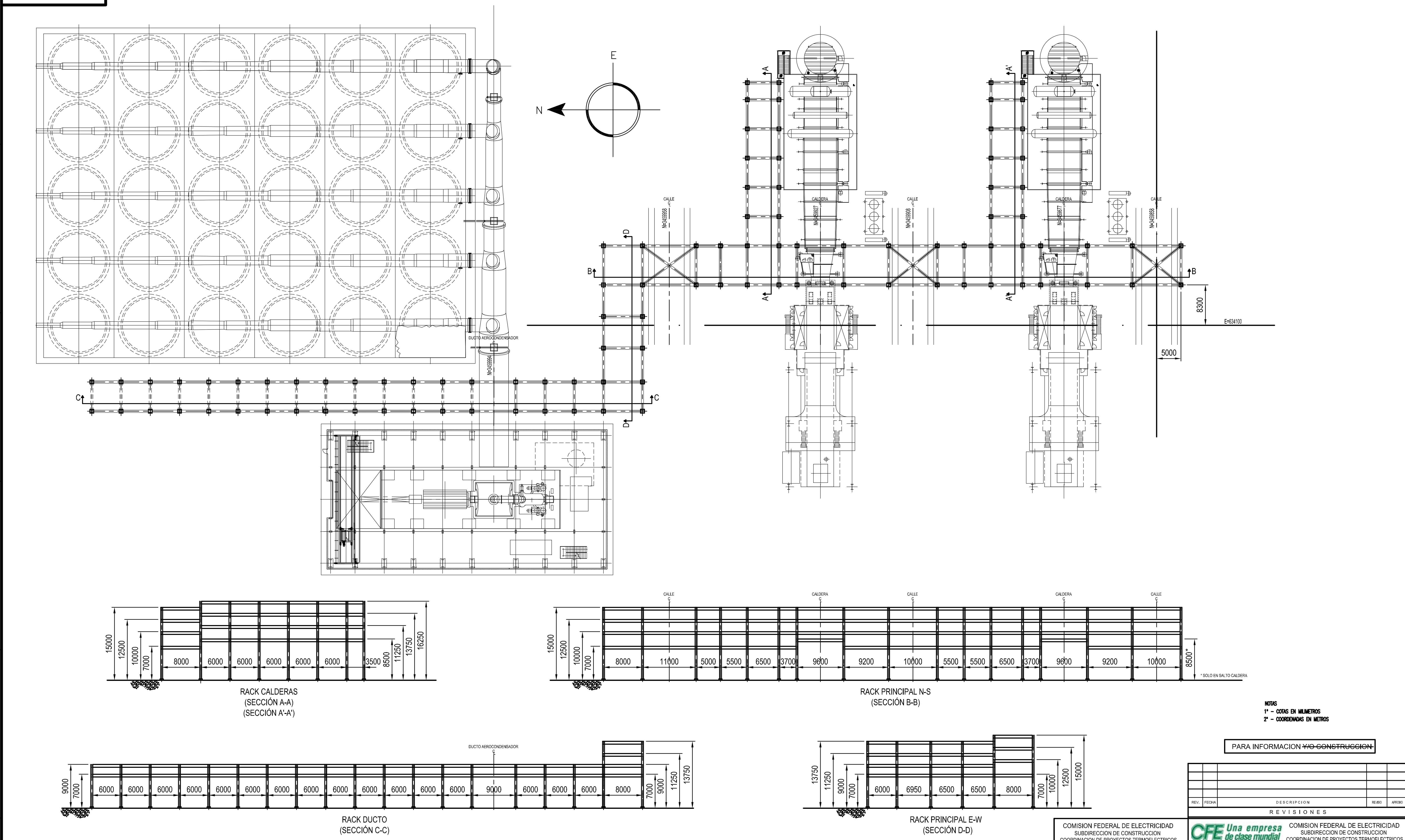

NOTAS
1ª - COTAS EN MILIMETROS
2ª - COORDENADAS EN METROS

PARA INFORMACION ~~Y/O CONSTRUCCION~~

REV.	FECHA	DESCRIPCION	REVISO	APROBO

REVISIONES

COMISION FEDERAL DE ELECTRICIDAD
SUBDIRECCION DE CONSTRUCCION
COORDINACION DE PROYECTOS TERMOELECTRICOS
ESTADO DEL DOCUMENTO

ESTADO DE DOCUMENTO COMO SE ANOTA
1 ☐ SOLO PARA INFORMACION
2 ☐ CONFORME SIN COMENTARIOS
3 ☐ CONFORME CON COMENTARIOS
4 ☐ NO CONFORME
5 ☐ TAL COMO SE CONSTRUYO

FECHA DE RECEPCION :
Revisado por Ing. Supervisor
Fecha:

IMPORTANTE :
La revision de CFE no releva al PROVEEDOR de su responsabilidad de acuerdo a lo establecido en el contrato.

NO. DE CONTROL DE CFE :

CFE Una empresa de clase mundial
COMISION FEDERAL DE ELECTRICIDAD
SUBDIRECCION DE CONSTRUCCION
COORDINACION DE PROYECTOS TERMOELECTRICOS

PROYECTO: 171 CC AGUA PRIETA II (con campo solar)

TITULO: CROQUIS Nº 1
PLANTA Y ALZADOS

APROBADO
COMPROBADO
REALIZADO
ESCALA

PROYECTOS ELECTRICOS AGUA PRIETA S.A.P.I. DE C.V.
(PEAP)
TITULO:

ORDEN DE COMPRA | ITEM
DOCUMENTO DE PROYECTO No. - | REV. No. -
DOCUMENTO SUMINISTRADOR No. | REV. No.

elecnor SENER

DIN A-0

3.0 CORRIDA DE MODELO MATEMATICO


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     5. JOB CLIENT CFE
     6. JOB REV 0
     7. ENGINEER NAME GVZ
     8. CHECKER NAME GPVR
     9. APPROVED NAME RHC
    10. CHECKER DATE 19-AGO-11
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349. 2018 813 1042; 2019 1041 810; 2020 1042 816; 2021 1041 813; 2022 1041 814
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457. 2670 1374 358; 2671 1375 356; 2672 1374 1375; 2673 927 929; 2674 921 923

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464. 2705 1389 1221; 2706 1388 1389; 2707 349 1388; 2708 1388 359; 2709 421 1390
465. 2710 1390 437; 2711 1391 439; 2712 1390 1391; 2713 1047 826; 2714 1048 830
466. 2715 1151 946; 2716 1152 950; 2717 1159 876; 2718 1160 888; 2719 1150 829
467. 2720 1149 825; 2721 1162 887; 2722 1161 875; 2723 951 1156; 2724 947 1155
468. 2725 1156 949; 2726 1155 945; 2727 1338 1347; 2728 1336 1347; 2729 1346 1341
469. 2730 1343 1341; 2731 628 1345; 2732 353 1345; 2733 1344 1340; 2734 1342 1340
470. DEFINE MATERIAL START
471. ISOTROPIC STEEL
472. E 1.99947E+008
473. POISSON 0.3
474. DENSITY 76.8191
475. ALPHA 6.5E-006
476. DAMP 0.03
477. G 0
478. ISOTROPIC CONCRETE
479. E 2.17185E+007
480. POISSON 0.17
481. DENSITY 23.5616
482. ALPHA 1E-005
483. DAMP 0.05
484. END DEFINE MATERIAL
485. MEMBER PROPERTY AMERICAN
486. 482 TO 484 488 TO 492 494 TO 496 500 TO 504 530 531 534 TO 539 543 545 547 -
487. 549 551 553 555 556 558 TO 563 567 568 578 TO 583 587 588 591 TO 595 599 -
488. 600 614 TO 619 623 624 634 636 TO 641 645 646 648 TO 653 657 658 660 TO 665 -
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489. 669 670 672 TO 677 681 682 684 TO 689 693 694 734 735 737 738 740 741 743 -
490. 744 TO 748 752 753 755 756 877 879 881 883 885 887 1009 1011 1013 1015 1017 -
491. 1019 1028 1029 1253 1528 1531 1533 1883 TO 1902 1983 1984 2059 2061 2062 -
492. 2064 2090 2094 2121 2411 2510 2511 2515 2516 2550 2551 2590 2605 -
493. 2619 TABLE ST W18X86
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485 486 493 497 TO 499 505 512 515 518 521 524 527 541 557 565 569 585 597 -
621 643 647 654 655 659 666 667 671 678 679 683 691 742 749 750 757 1027 -
1030 1033 1035 1063 1083 1086 1105 1114 1174 1183 1440 1447 1452 1471 1495 -
1501 1504 1507 1510 1513 1516 1519 1522 1525 1667 1668 1696 1699 1702 1705 -
1711 1805 1808 TO 1811 1981 1982 1987 1988 1995 1996 2005 2006 2019 2020 -
2029 2030 2066 2067 2070 2073 2076 2079 2099 2101 2106 2115 2126 2127 2129 -
2131 TO 2133 2310 2311 2313 TO 2315 2317 TO 2319 2321 2322 2331 2333 2360 -
2361 TO 2362 2408 2413 2449 2451 2452 2509 2512 TO 2514 2519 2520 2530 2531 -
2554 2555 2559 2562 2564 2566 2568 TO 2575 2588 2687 2690 TO 2692 2695 2698 -
2699 TO 2704 2706 2712 TO 2718 2723 TO 2726 TABLE ST W12X50
532 533 544 546 548 550 552 554 696 697 700 701 705 706 710 715 716 720 721 -
725 727 TO 733 889 1031 1032 1438 1439 1441 1443 1445 1446 1450 1451 1453 -
1455 1465 1466 1468 1469 1472 1473 1475 1476 1478 1479 1481 1482 1493 1494 -
1496 1497 1499 1500 1503 1506 1509 1511 1512 1514 1515 1517 1518 1520 1521 -
1523 1524 1605 1606 1608 1609 1613 1615 1616 1618 1619 1623 1625 1626 1628 -
1629 1633 1694 1697 1698 1703 1704 1706 1707 1712 1718 1731 1732 1734 1735 -
1737 1739 1745 1746 1748 1749 1751 1753 1879 1880 2326 TO 2330 2332 2334 -
2336 2337 2350 2370 2383 2401 2415 2539 2540 2542 2543 TABLE ST W12X50
570 TO 577 602 TO 611 613 626 TO 631 633 635 698 699 702 703 707 708 -
712 TO 714 717 718 722 723 736 758 TO 762 890 891 1022 1023 1090 1095 1100 -
1107 1111 1543 1544 1584 1594 1597 1599 1600 1700 1701 1709 1710 1803 1806 -
1807 1812 1813 1815 1816 1820 1821 1823 1824 1826 1827 1829 1830 1832 1833 -
1835 1836 1838 1839 1841 1842 1844 1845 1847 1848 1869 1870 2063 2065 2086 -
2087 2095 2097 2124 2349 2369 2392 2399 2400 2414 2547 2549 2556 2557 2561 -
2582 2595 2597 2599 2602 2635 2663 TO 2667 2670 2671 2675 TO 2678 2685 2686 -
2688 2689 2693 2694 2696 2697 2705 2707 TO 2711 TABLE ST W12X35
487 540 564 584 589 642 690 1021 1034 1051 1074 1077 1080 1685 1686 1804 2053 -
2092 2093 2107 2546 2606 TABLE ST W14X68
1442 1444 1448 1449 1454 1456 1467 1470 1474 1477 1480 1483 1607 1610 1617 -
1620 1627 1630 1713 1715 TO 1717 1719 1721 1733 1736 1738 1740 TO 1744 1747 -
1750 1752 1754 2532 TO 2534 TABLE ST W6X16
1814 1817 TO 1819 1822 1825 1828 1831 1834 1837 1840 1843 1846 -
1849 TABLE ST W6X16
1643 TO 1646 1651 TO 1658 1722 TO 1727 1729 1730 1755 TO 1770 2535 TO 2537 -
2538 TABLE LD L30306
1851 TO 1853 1855 TO 1865 1872 1873 TABLE LD L30306
2007 TO 2018 2021 TO 2024 2037 TO 2052 2229 TO 2260 2269 TO 2284 2544 2545 -
2576 TO 2581 TABLE ST W8X21
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532. 1690 TO 1693 TABLE ST W12X30

533. 1771 1772 1777 1778 1781 TO 1784 1787 1788 1793 1794 1797 TO 1799 -

534. 1800 TABLE ST W10X30

535. 1926 TO 1945 1985 1986 1989 1990 2517 2518 2521 2522 TABLE ST W10X30

536. 601 612 1052 1053 1055 1061 1064 1067 1070 1075 1078 1081 1085 1087 1089 1091 -

537. 1093 1096 1098 1101 1103 1106 1109 1110 1112 1113 1165 2054 2084 2085 2089 -

538. 2096 2098 2125 2610 2632 TO 2634 2636 TO 2638 TABLE ST W12X35

539. 1056 1062 1065 1073 1076 1079 1092 1094 1097 1099 1102 1104 2055 2069 2072 -

540. 2075 2078 2081 TO 2083 TABLE ST W8X21

541. 2091 2100 2103 2108 2109 2111 2113 2114 2116 2117 2119 2120 2583 2585 2589 -

542. 2593 2594 2596 2598 2601 TABLE ST W10X30

543. 2110 2118 2134 2600 2603 TABLE ST W8X21

544. MEMBER PROPERTY AMERICAN

545. 2137 TO 2163 2523 PRIS YD 0.65 ZD 0.8

546. 2164 2171 2176 2183 2188 TO 2201 2323 2324 2524 PRIS YD 0.7 ZD 0.3

547. 2166 TO 2169 2173 TO 2175 2178 TO 2181 2185 TO 2187 2432 2470 TO 2471 -

548. 2472 PRIS YD 0.6 ZD 0.3

549. 2285 TO 2289 TABLE LD L30306

550. 2430 2431 2445 2446 TABLE ST W8X21

551. 2335 2338 TO 2340 2342 TO 2346 2351 TO 2359 2363 TO 2366 2371 TO 2374 2376 -

552. 2381 2385 2387 2388 2393 2394 2402 TO 2407 2409 2410 2416 TO 2421 -

553. 2424 TO 2429 2450 2453 2454 TABLE ST W8X18

554. 2455 TO 2469 TABLE ST L30306

555. 2347 2348 2367 2368 2377 2378 2390 2391 2397 2398 2422 2423 2447 2448 2473 -

556. 2474 TO 2480 2485 TO 2500 TABLE ST C10X15

557. MEMBER PROPERTY AMERICAN

558. 2433 2435 PRIS YD 0.5 ZD 0.5

559. 2290 TO 2293 2295 TO 2298 2301 TO 2305 2412 TABLE ST W12X50

560. MEMBER PROPERTY AMERICAN

561. 2481 TO 2484 2501 TO 2508 PRIS YD 0.03 ZD 0.25

562. 2526 TO 2529 TABLE ST W12X50

563. 542 711 726 1502 1505 1508 1611 1621 1631 1903 1915 TABLE ST W14X68

564. 1639 TO 1642 1659 TO 1666 TABLE LD L35358

565. 506 509 566 586 596 598 620 622 625 644 656 668 680 692 719 751 1484 1498 -

566. 1669 1689 1695 1708 1714 1720 1904 TO 1914 1916 TO 1924 2135 2541 -

567. 2584 TABLE ST W12X65

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568. MEMBER PROPERTY AMERICAN
569. 2306 2307 PRIS YD 0.5 ZD 0.65
570. 2604 2607 2611 2615 2617 2620 2622 2623 2625 2627 TABLE ST W12X35
571. 2608 2609 2612 TO 2614 2616 2618 2621 2624 2626 2628 TO 2631 2639 TO 2646 -
572. 2651 TO 2656 2659 2660 TABLE ST W12X30
573. 2647 TO 2650 2657 2658 2661 2662 TABLE ST W12X40
574. 2668 2669 2672 TO 2674 2679 TO 2684 2719 TO 2722 TABLE ST W12X50
575. 2727 TO 2734 TABLE LD L40406
576. CONSTANTS
577. BETA 90 MEMB 482 TO 484 488 TO 492 494 TO 496 500 TO 504 530 531 534 TO 539 -
578. 543 545 547 549 551 553 555 556 558 TO 563 567 568 578 TO 583 587 588 591 -
579. 592 TO 595 599 600 614 TO 619 623 624 634 636 TO 641 645 646 648 TO 653 657 -
580. 658 660 TO 665 669 670 672 TO 677 681 682 684 TO 689 693 694 734 735 737 -
581. 738 740 741 743 TO 748 752 753 755 756 877 879 881 883 885 887 1009 1011 -
582. 1013 1015 1017 1019 1028 1029 1253 1528 1531 1533 1883 TO 1902 1983 1984 -
583. 2059 2061 2062 2064 2090 TO 2092 2094 2098 2100 2109 2117 2121 2290 TO 2293 -
584. 2295 TO 2298 2301 TO 2305 2411 2412 2510 2511 2515 2516 2550 2551 2582 2585 -
585. 2589 2590 2604 2605 2607 2611 2615 2617 2619 2620 2622 2623 2625 2627
586. BETA 45 MEMB 2455 TO 2469
587. MATERIAL STEEL MEMB 482 TO 506 509 512 515 518 521 524 527 530 TO 589 591 -
588. 592 TO 631 633 TO 694 696 TO 703 705 TO 708 710 TO 723 725 TO 738 740 TO 753 -
589. 755 TO 762 877 879 881 883 885 887 889 TO 891 1009 1011 1013 1015 1017 1019 -
590. 1021 TO 1023 1027 TO 1035 1051 TO 1053 1055 1056 1061 TO 1065 1067 1070 1073 -
591. 1074 TO 1081 1083 1085 TO 1087 1089 TO 1107 1109 TO 1114 1165 1174 1183 1253 -
592. 1438 TO 1456 1465 TO 1484 1493 TO 1525 1528 1531 1533 1543 1544 1584 1594 -
593. 1597 1599 1600 1605 TO 1611 1613 1615 TO 1621 1623 1625 TO 1631 1633 1639 -
594. 1640 TO 1646 1651 TO 1669 1685 1686 1689 TO 1727 1729 TO 1772 1777 1778 1781 -
595. 1782 TO 1784 1787 1788 1793 1794 1797 TO 1800 1803 TO 1849 1851 TO 1853 1855 -
596. 1856 TO 1865 1869 1870 1872 1873 1879 1880 1883 TO 1924 1926 TO 1945 1981 -
597. 1982 TO 1990 1995 1996 2005 TO 2024 2029 2030 2037 TO 2055 2059 2061 TO 2067 -
598. 2069 2070 2072 2073 2075 2076 2078 2079 2081 TO 2087 2089 TO 2101 2103 2106 -
599. 2107 TO 2111 2113 TO 2121 2124 TO 2127 2129 2131 TO 2135 2229 TO 2260 2269 -
600. 2270 TO 2293 2295 TO 2298 2301 TO 2305 2310 2311 2313 TO 2315 2317 TO 2319 -
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601. 2321 2322 2326 TO 2340 2342 TO 2374 2376 TO 2378 2381 2383 2385 2387 2388 -
602. 2390 TO 2394 2397 TO 2431 2445 TO 2469 2473 TO 2522 2526 TO 2547 -
603. 2549 TO 2551 2554 TO 2557 2559 2561 2562 2564 2566 2568 TO 2585 2588 TO 2590 -
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604. 2593 TO 2734
605. MATERIAL CONCRETE MEMB 2137 TO 2164 2166 TO 2169 2171 2173 TO 2176 -
606. 2178 TO 2181 2183 2185 TO 2201 2306 2307 2323 2324 2432 2433 2435 -
607. 2470 TO 2472 2523 2524
608. MEMBER RELEASE
609. 532 533 544 546 548 550 552 554 570 TO 577 602 604 TO 607 609 611 613 626 -
610. 627 TO 631 633 635 696 TO 703 705 TO 708 710 TO 723 725 TO 733 736 761 1021 -
611. 1035 1599 1869 1870 1879 1880 2063 2065 2526 2527 2547 2549 2572 2575 2663 -
612. 2668 2669 2672 TO 2674 2679 TO 2684 2709 START MY MZ
613. 572 575 606 609 611 626 TO 631 633 635 712 713 722 723 1021 1063 1100 1107 -
614. 1450 1451 1453 1455 1478 1479 1481 1482 1493 1494 1502 1503 1511 1512 1520 -
615. 1521 1523 1524 1599 1625 1626 1628 1629 1631 1633 1718 1720 1731 1732 1734 -
616. 1735 1737 1739 1832 1833 1835 1836 2087 2124 2528 2529 2547 2549 2557 2561 -
617. 2572 2575 2664 TO 2670 2672 TO 2680 2685 2686 2688 2689 2693 2694 2696 2697 -
618. 2710 2711 2719 TO 2722 END MY MZ
619. 1033 1070 1106 1471 1484 1507 1667 TO 1669 2687 2690 TO 2692 2695 2698 2699 -
620. 2701 2703 2704 2706 2712 START MY MZ
621. 1033 1075 1109 1471 1484 1507 1667 1668 1913 2687 2690 2695 2698 2701 2706 -
622. 2712 TO 2715 2717 2718 END MY MZ
623. 1056 1062 1065 1073 1076 1079 1094 1099 1104 1110 1113 2055 2069 2072 2075 -
624. 2078 2081 2082 2089 2095 2125 2559 2636 START MY MZ
625. 1056 1062 1065 1073 1076 1079 1094 1099 1104 2055 2069 2072 2075 2078 2081 -
626. 2082 2085 2125 2562 2610 2633 2638 END MX MY MZ
627. 603 608 610 1543 1544 1584 2103 2110 2111 2114 2118 2119 2134 2399 2556 2594 -
628. 2595 TO 2597 2600 2603 2707 START MY MZ
629. 1584 1594 1600 2103 2110 2113 2114 2118 2120 2131 2134 2369 2414 2556 2598 -
630. 2599 TO 2603 2671 2708 END MY MZ
631. 1440 1447 1452 1495 1498 1501 1504 1510 1513 1516 1519 1522 1525 1696 1699 -
632. 1702 1705 1708 1711 2700 2702 2723 2724 START MY MZ
633. 1447 1516 1522 1525 1696 1699 1702 1705 1711 1914 1995 1996 2005 2006 2019 -
634. 2020 2029 2030 2584 2702 2716 2725 2726 END MY MZ
635. 1771 1772 1777 1778 1787 1788 1793 1794 2007 2009 2011 2013 2015 TO 2018 2037 -
636. 2038 TO 2040 2045 TO 2048 2229 TO 2237 2239 2241 2243 2245 2247 2249 2251 -
637. 2253 2255 2257 2259 2269 TO 2272 2277 TO 2289 START MX MY MZ
638. 1781 TO 1784 1797 TO 1800 2008 2010 2012 2014 2021 TO 2024 2041 TO 2044 2049 -
639. 2050 TO 2052 2229 TO 2236 2238 2240 2242 2244 2246 2248 2250 2252 2254 2256 -
640. 2258 2260 2273 TO 2289 END MX MY MZ
641. 1926 TO 1933 1936 TO 1945 1985 1986 1989 1990 2517 2518 2521 2522 END MX MY MZ
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642. 1926 TO 1933 1936 TO 1945 1985 1986 1989 1990 2517 2518 2521 -
643. 2522 START MX MY MZ
644. 2335 2338 2339 2351 2363 2364 2366 2371 2402 2409 2416 2424 2450 2453 -
645. 2454 START MX MY MZ
646. 2340 2342 2356 2359 2363 2365 2366 2376 2388 2406 2409 2420 2428 2450 2453 -
647. 2454 END MX MY MZ
648. 2347 2348 2367 2368 2377 2378 2390 2391 2422 2423 2447 2448 2530 -
649. 2531 START MX MY
650. 2347 2348 2367 2368 2397 2398 2487 2488 2497 TO 2500 2530 2531 END MX MY
651. 2647 TO 2650 2657 2658 2661 2662 START MY MZ
652. 2647 TO 2650 2657 2658 2661 2662 END MY MZ
653. MEMBER TRUSS
654. 1690 TO 1693 2535 TO 2538 2544 2545 2576 2577
655. MEMBER TRUSS
656. 1639 TO 1646 1651 TO 1666 1722 TO 1727 1729 1730 1755 TO 1770 1851 TO 1853 -
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657. 1855 TO 1865 1872 1873
658. MEMBER TRUSS
659. 2455 TO 2469 2544 2545 2576 TO 2581
660. MEMBER TRUSS
661. 2727 TO 2734
662. SUPPORTS
663. 1095 TO 1121 1181 1182 1298 FIXED BUT MX MZ KFY 25113.6
664. CUT OFF MODE SHAPE 200
665. LOAD 1 LOADTYPE DEAD  TITLE CARGA MUERTA (D)
666. SELFWEIGHT Y -1
667. MEMBER LOAD
668. 601 633 2063 2561 UNI GY -0.2245
669. 1056 1062 1065 1073 2069 UNI GY -0.4489
670. 1113 2633 2636 2638 UNI GY -0.216
671. 1110 2610 UNI GY -0.432
672. 569 1086 UNI GY -0.453
673. 1094 1099 1104 UNI GY -0.477
674. 1051 1080 2606 UNI GY -0.238
675. 589 UNI GY -0.462
676. 1053 1055 UNI GY -0.1725
677. 1079 UNI GY -0.427
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678. 1076 2055 UNI GY -0.49
679. 612 UNI GY -0.245
680. 2067 2070 2083 UNI GY -0.259
681. 2082 UNI GY -0.518
682. 2072 UNI GY -0.457
683. 2075 2078 2081 UNI GY -0.466
684. 635 2065 2557 UNI GY -0.233
685. *********************************************
686. 608 612 2369 2392 2705 2707 2708 UNI GY -0.383
687. **********************************************
688. 603 610 2086 2087 2327 2329 2330 2336 2337 2369 2370 2414 2415 2430 -
689. 2431 UNI GY -0.25
690. 2363 TO 2366 2450 2453 2454 UNI GY -0.5
691. 2347 2348 2367 2368 2377 2378 2390 2391 2422 2423 2447 2448 2473 TO 2480 2485 -
692. 2486 TO 2500 UNI GY -0.157
693. 2647 TO 2650 CON GY -3.25 0.7
694. 2657 2658 2661 2662 CON GY -1.425 0.835
695. 493 659 671 683 742 1447 1507 1516 1522 1525 UNI GY -5.563 3.9 4.8
696. 2571 UNI GY -5.563 1.25 2.15
697. 1105 1995 1996 2019 2020 2029 UNI GY -5.563 0.001 0.8
698. LOAD 2 LOADTYPE LIVE  TITLE CARGA VIVA (L)
699. MEMBER LOAD
700. 601 633 2063 2561 UNI GY -3.188
701. 1056 1062 1065 1073 2069 UNI GY -6.377
702. 1113 2633 2636 2638 UNI GY -3.066
703. 1110 2610 UNI GY -6.132
704. 569 1086 UNI GY -6.438
705. 1094 1099 1104 UNI GY -6.744
706. 1051 1080 2606 UNI GY -3.372
707. 589 UNI GY -6.56
708. 1053 1055 UNI GY -2.453
709. 1079 UNI GY -5.95
710. 1076 2055 UNI GY -6.99
711. 612 UNI GY -3.495
712. 2067 2070 2083 2096 UNI GY -3.679
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713. 2082 UNI GY -7.358
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2072 UNI GY -6.5
2075 2078 2081 UNI GY -6.622
635 2065 2557 UNI GY -3.311
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608 612 2369 2392 2705 2707 2708 UNI GY -5.445
603 610 2086 2087 2327 2329 2330 2336 2337 2369 2370 2414 2415 2430 -
2431 UNI GY -3.483
2363 TO 2366 2450 2453 2454 UNI GY -6.966
2347 2348 2367 2368 2377 2378 2390 2391 2422 2423 2447 2448 2473 TO 2480 2485 -
2486 TO 2500 UNI GY -2.23
493 659 671 683 742 1447 1507 1516 1522 1525 UNI GY -14.715 3.9 4.8
2571 UNI GY -14.715 1.25 2.15
1105 1995 1996 2019 2020 2029 UNI GY -14.715 0.001 0.8
LOAD 3 LOADTYPE GRAVITY  TITLE CHAROLAS ELECTRICAS (WE)
MEMBER LOAD
493 524 659 671 683 742 758 1440 1447 1452 1504 1507 1510 1513 1516 1519 1522 -
1525 2575 CON GY -5.3 1.85
493 524 659 671 683 742 758 1440 1447 1452 1504 1507 1510 1513 1516 1519 1522 -
1525 2575 CON GY -5.3 2.45
493 659 671 683 742 758 1440 1447 1452 1504 1507 1510 1513 1516 1519 1522 -
1525 2575 CON GY -3.532 3.15
2571 CON GY -3.532 0.5
493 659 671 683 742 758 1440 1447 1452 1504 1507 1510 1513 1516 1519 1522 -
1525 2575 CON GY -3.532 3.85
2571 CON GY -3.532 1.2
493 659 671 683 742 758 1447 1507 1516 1522 1525 2575 CON GY -3.532 4.85
2571 CON GY -3.532 2.2
1995 1996 2019 2020 2029 2030 CON GY -3.532 0.85
493 659 671 683 742 758 1447 1507 1516 1522 1525 2575 CON GY -3.532 5.55
2574 CON GY -3.532 0.200002
1995 1996 2019 2020 2029 2030 CON GY -3.532 1.55
1105 1599 2101 2108 2110 2114 2116 2118 2125 2131 2134 2555 2583 2593 2600 -
2603 CON GY -5.3 0.05
1105 1599 2101 2108 2110 2114 2116 2118 2125 2131 2134 2555 2583 2593 2600 -
2603 CON GY -5.3 0.65
1105 1599 2101 2108 2110 2114 2116 2118 2125 2131 2134 2555 2583 2593 2600 -
2603 CON GY -3.532 0.7
1105 1599 2101 2108 2110 2114 2116 2118 2125 2131 2134 2555 2583 2593 2600 -
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752. 2603 CON GY -3.532 1.3
753. 1105 1599 2101 2108 2110 2114 2116 2118 2125 2131 2134 2555 2583 2593 2600 -
754. 2603 CON GY -3.532 2.2
755. 1105 1599 2101 2108 2110 2114 2116 2118 2125 2131 2134 2555 2583 2593 2600 -
756. 2603 CON GY -3.532 2.8
757. LOAD 4 LOADTYPE TEMPERATURE  TITLE CARGA TERMICA (T)
758. *TUBERIA VAPOR BAJA PRESION GVRC2 A TURBINA****************
759. MEMBER LOAD
760. 889 1021 CON GY 1.448 3
761. 690 CON GY -1.903 2.195
762. 690 CON GX 0.389 2.195
763. 678 CON GY 0.585 2.195
764. 678 CON GZ 5.033 2.195
765. 1621 CON GY -0.101 0.5
766. 1027 2509 CON GY 0.125 1.35
767. 1751 CON GY -0.045 1.4
768. 642 CON GY 0.016 2.195
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769. 642 CON GZ -0.648 2.195
770. 620 CON GY -0.018 2.195
771. 620 CON GZ 0.654 2.195
772. 596 CON GY 0.008 2.195
773. 584 CON GY 0.003 2.195
774. 584 CON GX -0.674 2.195
775. 564 CON GY -0.019 2.195
776. 564 CON GZ 1.657 2.195
777. 540 CON GY 0.067 2.195
778. 540 CON GZ -2.577 2.195
779. 1033 CON GY -0.248 2.195
780. 1034 CON GY 0.577 2.195
781. 487 CON GY 1.086 2.195
782. *TUBERIA VAPOR BAJA PRESION GVRC1 A TURBINA****************
783. 584 CON GY -3.958 1.47
784. 584 CON GX 4.065 1.47
785. 564 CON GY -1.294 1.47
786. 564 CON GZ 5.655 1.47
787. 540 CON GY -0.287 1.47
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788. 540 CON GZ -4.73 1.47

789. 1033 CON GY -0.414 1.47

790. 1034 CON GY 0.574 1.47

791. 487 CON GY -1.348 1.47

792. *TUBERIA VAPOR REC FRIO TURBINA A GVRC2****************

793. 889 1021 CON GY 9.123 4.05

794. 690 CON GY -27.719 3.195

795. 690 CON GX 52.319 3.195

796. 690 CON GZ 1.002 3.195

797. 678 CON GY -5.869 3.195

798. 678 CON GX -0.431 3.195

799. 678 CON GZ 0.773 3.195

800. 666 CON GY -1.81 3.195

801. 666 CON GZ 4.448 3.195

802. 1611 CON GY 2.974 2

803. 1611 CON GX -0.124 2

804. 1611 CON GZ -0.466 2

805. 1667 CON GY 0.869 3.195

806. 1667 CON GX 0.944 3.195

807. 1667 CON GZ -1.057 3.195

808. 1027 CON GY 8.92 2.35

809. 1027 CON GZ -60.912 2.35

810. 1697 CON GY -8.282 1.05

811. 1697 CON GX 1.853 1.05

812. 1697 CON GZ -0.382 1.05

813. 642 CON GY -10.429 3.195

814. 642 CON GZ 70.315 3.195

815. 620 CON GY -3.06 3.195

816. 596 CON GY 6.425 3.195

817. 584 CON GY 6.13 3.195

818. 584 CON GX -40.151 3.195

819. 564 CON GY 6.782 3.195

820. 564 CON GZ 0.694 3.195

821. 540 CON GY -16.897 3.195

822. 1034 CON GY 30.882 3.195

823. 487 CON GY -32.908 3.195

824. *TUBERIA VAPOR REC. CALIENTE DE GVRC2 A TURBINA****************

825. 889 CON GY -47.752 5.325

826. 889 CON GZ 1.734 5.325

827. 1804 CON GY 62.867 1.8

828. 1804 CON GX 42.924 1.8

829. 1804 CON GZ 2.027 1.8

830. 678 CON GY -38.413 5.8

831. 678 CON GX -0.33 5.8

832. 678 CON GZ 0.716 5.8

833. 666 CON GY -8.103 5.8

834. 666 CON GX -2.562 5.8

835. 666 CON GZ 7.76 5.8

836. 1611 CON GY 1.203 0.7

837. 1611 CON GX -0.476 0.7

838. 1611 CON GZ -1.112 0.7

839. 1667 CON GY -0.706 5.8

840. 1667 CON GX 1.139 5.8

841. 1667 CON GZ -1.427 5.8

842. 1981 CON GY -0.486 1.15

843. 1981 CON GX 6.05 1.15

844. 1981 CON GZ -43.22 1.15

845. 1697 CON GY 1.502 1.4

846. 1697 CON GX 1.937 1.4

847. 1697 CON GZ -1.06 1.4

848. 642 CON GY -0.386 5.8

849. 642 CON GX 5.002 5.8

850. 642 CON GZ 47.225 5.8

851. 620 CON GY -0.37 5.8

852. 620 CON GX 1.226 5.8

853. 620 CON GZ 0.224 5.8

854. 1689 CON GY 0.776 1.8

855. 1689 CON GX 0.782 1.8

856. 1689 CON GZ 0.177 1.8

857. 2546 CON GY -1.862 0.4

858. 2546 CON GX -24.641 0.4

859. 2546 CON GZ -28.668 0.4

860. 1685 CON GY 7.422 1.8

861. 1685 CON GX -0.631 1.8

862. 1685 CON GZ -0.244 1.8

863. 540 CON GY -27.731 5.8

864. 540 CON GX 1.263 5.8

865. 540 CON GZ -0.531 5.8

866. 1033 CON GY 39.715 5.8

867. 1034 CON GY 18.11 5.8

868. 499 CON GY -30 5.8

869. 487 CON GY -68.842 5.8

870. 487 CON GX -2.804 5.8

871. 487 CON GZ -0.86 5.8

872. *TUBERIA VAPOR RECALENTADO CALIENTE DE GVRC1 A TURB.****************

873. 1021 CON GY -19.894 5.325

874. 1686 CON GY -23.846 0.47

875. 1686 CON GZ 3.646 0.47

876. 1685 CON GY -31.11 0.47

877. 1685 CON GX -0.632 0.47

878. 1685 CON GZ 1.197 0.47

879. 540 CON GY -18.037 4.47

880. 540 CON GX -1.263 4.47

881. 540 CON GZ 0.516 4.47

882. 1033 CON GY 7.198 4.47

883. 1034 CON GY 19.996 4.47

884. 499 CON GY 39.386 4.47

885. 487 CON GY -42.648 4.47

886. *TUBERIA VAPOR PRINCIPAL****************

887. MEMBER LOAD

888. 889 CON GY 7.589 1

889. 1804 CON GY 9.8 3

890. 1804 CON GX 53.097 3

891. 1804 CON GZ 2.215 3

892. 678 CON GY -19.129 7

893. 666 CON GY -3.517 7

894. 666 CON GX -2.001 7

895. 666 CON GZ 1.618 7

896. 711 CON GY -1.748 2

897. 711 CON GX 0.563 2

898. 711 CON GZ -1.767 2
899. 1737 CON GY 0.275 0.3
900. 1737 CON GX 1.469 0.3
901. 1737 CON GZ -1.712 0.3
902. 1988 CON GY -1.097 0.65
903. 1988 CON GX 6.971 0.65
904. 1988 CON GZ -20.414 0.65
905. 642 CON GY 0.131 7
906. 642 CON GX 2.38 7
907. 642 CON GZ 0.407 7
908. 620 CON GY -18.748 7
909. 620 CON GX 2.452 7
910. 620 CON GZ 79.959 7
911. 2546 CON GY -15.426 1.6
912. 2546 CON GX -95.579 1.6
913. 2546 CON GZ 0.482 1.6
914. 1685 CON GY -4.658 3
915. 1685 CON GX -1.263 3
916. 1685 CON GZ -49.61 3
917. 540 CON GY 2.309 7
918. 540 CON GX -1.263 7
919. 540 CON GZ -0.603 7
920. 1033 CON GY -4.234 7
921. 1033 CON GX -1.925 7
922. 1033 CON GZ -1.377 7
923. 1034 CON GY 23.692 7
924. 1034 CON GX -0.164 7
925. 1034 CON GZ -0.13 7
926. 1021 CON GY -3.961 1
927. 1021 CON GX -9.331 1
928. JOINT LOAD
929. 905 FY 9.757
930. MEMBER LOAD
931. 1696 CON GY 11.995 7
932. 1023 CON GY -65.572 5.325
933. 2671 CON GY 18.26 2.075
934. LOAD 5 LOADTYPE FLUIDS TITLE PESO EN OPERACION DE TUBERIAS (Q2)
935. MEMBER LOAD

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936. 486 509 542 566 586 598 1484 1903 TO 1906 1915 TO 1918 UNI GY -10.791
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937. 512 541 565 585 597 621 622 667 1022 1471 1668 1907 1919 2687 2691 2692 2695 -
938. 2698 2699 2704 2706 2713 TO 2715 2718 UNI GY -0.981
939. 499 644 656 668 680 692 1669 1708 1711 1908 TO 1914 1920 TO 1924 2723 TO 2725 -
940. 2726 UNI GY -7.848
941. 750 891 1023 UNI GY -1.4715
942. 498 UNI GY -9.81
943. 643 655 679 691 1702 1705 2690 2700 TO 2703 2712 2716 2717 UNI GY -0.981
944. 890 UNI GY -2.943
945. *TUBERIA VAPOR BAJA PRESION GVRC2 A TURBINA****************
946. MEMBER LOAD
947. 889 1021 CON GY -3.457 3
948. 690 CON GY -3.348 2.195
949. 690 CON GX -0.019 2.195
950. 678 CON GY -4.073 2.195
951. 678 CON GZ 0.001 2.195
952. 1621 CON GY -5.57 0.5
953. 1027 2509 CON GY -9.81 1.35
954. 1751 CON GY -5.737 1.40001
955. 642 CON GY -5.74 2.195
956. 620 CON GY -5.655 2.195
957. 620 CON GZ -0.007 2.195
958. 596 CON GY -1.694 2.195
959. 584 CON GY -4.09 2.195
960. 584 CON GX -0.042 2.195
961. 564 CON GY -2.816 2.195
962. 564 CON GZ 0.083 2.195
963. 540 CON GY -4.163 2.195
964. 540 CON GZ -0.099 2.195
965. 1033 CON GY -0.691 2.195
966. 1034 CON GY -7.396 2.195
967. 487 CON GY -7.868 2.195
968. *TUBERIA VAPOR BAJA PRESION GVRC1 A TURBINA****************
969. 584 CON GY -3.096 1.47
970. 564 CON GY -3.062 1.47
971. 564 CON GZ 0.18 1.47
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 972. 540 CON GY -4.264 1.47
 973. 540 CON GZ -0.155 1.47
 974. 1033 CON GY -0.226 1.47
 975. 1034 CON GY -8.325 1.47
 976. 487 CON GY -9.041 1.47
 977. *TUBERIA VAPOR REC FRIO TURBINA A GVRC2****************
 978. 889 1021 CON GY -9.123 4.05
 979. 690 CON GY -39.035 3.195
 980. 678 CON GY -13.855 3.195
 981. 666 CON GY -10.372 3.195
 982. 666 CON GZ -0.036 3.195
 983. 1611 CON GY -19.276 2
 984. 1667 CON GY -31.149 3.195
 985. 1027 CON GY -13.845 2.35
 986. 1697 CON GY -20.394 1.05
 987. 642 CON GY -34.071 3.195
 988. 620 CON GY -38.406 3.195
 989. 596 CON GY -29.687 3.195
 990. 584 CON GY -39.169 3.195
 991. 584 CON GX 1.615 3.195
 992. 564 CON GY -17.18 3.195
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 993. 540 CON GY -24.314 3.195
 994. 1034 CON GY -34.417 3.195
 995. *TUBERIA VAPOR REC. CALIENTE DE GVRC2 A TURBINA****************
 996. 889 CON GY -46.21 5.325
 997. 1804 CON GY -33.62 1.8
 998. 678 CON GY -6.09 5.8
 999. 666 CON GY -25.345 5.8
1000. 1611 CON GY -21.893 0.7
1001. 1667 CON GY -17.91 5.8
1002. 1981 CON GY -26.145 1.15
1003. 1697 CON GY -22.333 1.4
1004. 642 CON GY -30.094 5.8
1005. 620 CON GY -27.47 5.8
1006. 1689 CON GY -9.932 1.8
1007. 2546 CON GY -20.597 0.399998
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2546 CON GX -0.425 0.399998
1685 CON GY -16.122 1.8
540 CON GY -18.169 5.8
1033 CON GY 16.453 5.8
1034 CON GY -18.11 5.8
499 CON GY 42.736 5.8
487 CON GY -23.508 5.8
*TUBERIA VAPOR RECALENTADO CALIENTE DE GVRC1 A TURB.****************
1021 CON GY -19.894 5.325
1686 CON GY -23.888 0.47
1685 CON GY -11.919 0.47
540 CON GY -19.817 4.47
1033 CON GY -18.725 4.47
1034 CON GY -19.996 4.47
499 CON GY -37.075 4.47
487 CON GY -36.248 4.47
*TUBERIA VAPOR PRINCIPAL****************
MEMBER LOAD
889 1021 CON GY -45.94 1
1804 CON GY -47.642 3
1804 CON GX -0.246 3
678 CON GY -19.129 7
666 CON GY -32.028 7
711 CON GY -24.732 2
1737 CON GY -26.808 0.3
1988 CON GY -34.982 0.65
1988 CON GZ 0.136 0.65
642 CON GY -26.357 7
620 CON GY -44.777 7
620 CON GZ 0.817 7
2546 CON GY -41.716 1.6
2546 CON GX -0.432 1.6
1685 CON GY -18.883 3
540 CON GY -21.953 7
1033 CON GY -21.227 7
1034 CON GY -25.761 7
1021 CON GY -43.855 1
2549 CON GY -6.065 1
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1046. JOINT LOAD
1047. 905 FY -12.529
1048. MEMBER LOAD
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1049. 1696 CON GY -15.584 7
1050. 1023 CON GY -29.269 5.325
1051. 2671 CON GY -22.831 2.075
1052. 2668 2669 2672 TO 2674 2679 TO 2684 2719 TO 2722 UNI GY -0.98
1053. LOAD 6 LOADTYPE FLUIDS  TITLE PESO PRUEBA HIDRAULICA TUBERIAS (Q3)
1054. MEMBER LOAD
1055. 486 509 542 566 586 598 1484 1903 TO 1906 1915 TO 1918 UNI GY -10.791
1056. 512 541 565 585 597 621 622 667 1022 1471 1668 1907 1919 2687 2691 2692 2695 -
1057. 2698 2699 2704 2706 2713 TO 2715 2718 UNI GY -0.981
1058. 499 644 656 668 680 692 1669 1708 1711 1908 TO 1914 1920 TO 1924 2723 TO 2725 -
1059. 2726 UNI GY -7.848
1060. 750 891 1023 UNI GY -1.4715
1061. 498 UNI GY -9.81
1062. 643 655 679 691 1702 1705 2690 2700 TO 2703 2712 2716 2717 UNI GY -0.981
1063. 890 UNI GY -2.943
1064. *TUBERIA VAPOR BAJA PRESION GVRC2 A TURBINA****************
1065. MEMBER LOAD
1066. 889 1021 CON GY -5.31 3
1067. 690 CON GY -5.157 2.195
1068. 690 CON GX -0.038 2.195
1069. 678 CON GY -5.208 2.195
1070. 678 CON GZ 0.004 2.195
1071. 1621 CON GY -7.972 0.5
1072. 1027 2509 CON GY -14.041 1.35
1073. 1751 CON GY -8.203 1.40001
1074. 642 CON GY -9.656 2.195
1075. 620 CON GY -8.704 2.195
1076. 620 CON GZ -0.011 2.195
1077. 596 CON GY -2.605 2.195
1078. 584 CON GY -6.308 2.195
1079. 584 CON GX -0.058 2.195
1080. 564 CON GY -4.274 2.195
1081. 564 CON GZ 0.129 2.195
```

1082. 540 CON GY -6.25 2.195

1083. 540 CON GZ -0.157 2.195

1084. 1033 CON GY -1.1 2.195

1085. 1034 CON GY -11.385 2.195

1086. 487 CON GY -11.246 2.195

1087. *TUBERIA VAPOR BAJA PRESION GVRC1 A TURBINA****************

1088. 584 CON GY -4.817 1.47

1089. 584 CON GX -0.124 1.47

1090. 564 CON GY -4.649 1.47

1091. 564 CON GZ 0.279 1.47

1092. 540 CON GY -6.406 1.47

1093. 540 CON GZ -0.241 1.47

1094. 1033 CON GY -0.092 1.47

1095. 1034 CON GY -12.809 1.47

1096. 487 CON GY -12.333 1.47

1097. *TUBERIA VAPOR REC FRIO TURBINA A GVRC2****************

1098. 889 1021 CON GY -38.654 4.05

1099. 690 CON GY -70.838 3.195

1100. 678 CON GY -8.545 3.195

1101. 666 CON GY -17.578 3.195

1102. 666 CON GZ -0.059 3.195

1103. 1611 CON GY -31.799 2

1104. 1667 CON GY -52.62 3.195

1105. 1027 CON GY -23.579 2.35

1106. 1697 CON GY -33.53 1.05

1107. 642 CON GY -57.887 3.195

1108. 620 CON GY -56.551 3.195

1109. 596 CON GY -40.369 3.195

1110. 584 CON GY -60.362 3.195

1111. 584 CON GX 1.423 3.195

1112. 564 CON GY -28.343 3.195

1113. 540 CON GY -45.777 3.195

1114. 1034 CON GY -62.872 3.195

1115. 487 CON GY -52.238 3.195

1116. *TUBERIA VAPOR REC. CALIENTE DE GVRC2 A TURBINA****************

1117. 889 CON GY -64.68 5.325

```
1118. 1804 CON GY -52.161 1.8
1119. 678 CON GY -7.914 5.8
1120. 666 CON GY -42.193 5.8
1121. 1611 CON GY -33.955 0.7
1122. 1667 CON GY -28.743 5.8
1123. 1981 CON GY -41.245 1.15
1124. 1697 CON GY -35.386 1.4
1125. 642 CON GY -47.841 5.8
1126. 620 CON GY -43.61 5.8
1127. 1689 CON GY -15.852 1.8
1128. 2546 CON GY -32.374 0.4
1129. 2546 CON GX -0.199 0.4
1130. 1685 CON GY -24.637 1.8
1131. 540 CON GY -26.685 5.8
1132. 1034 CON GY -26.06 5.8
1133. 1034 CON GY -29.294 5.8
1134. 499 CON GY -45.36 5.8
1135. 487 CON GY -36.087 5.8
1136. *TUBERIA VAPOR RECALENTADO CALIENTE DE GVRC1 A TURB.****************
1137. 1021 CON GY -19.894 5.325
1138. 1686 CON GY -47.058 0.47
1139. 1685 CON GY -14.783 0.47
1140. 540 CON GY -26.181 4.47
1141. 1034 CON GY -44.608 4.47
1142. 1034 CON GY -32.309 4.47
1143. 487 CON GY -52.377 4.47
1144. *TUBERIA VAPOR PRINCIPAL****************
1145. MEMBER LOAD
1146. 889 1021 CON GY -48.416 1
1147. 1804 CON GY -49.452 3
1148. 1804 CON GX 0.492 3
1149. 678 CON GY -19.129 7
1150. 666 CON GY -34.542 7
1151. 711 CON GY -26.391 2
1152. 1737 CON GY -28.718 0.3
1153. 1988 CON GY -37.433 0.65
1154. 1988 CON GZ -0.132 0.65
1155. 642 CON GY -28.228 7
```

1156. 620 CON GY -47.456 7

1157. 620 CON GZ 1.506 7

1158. 2546 CON GY -44.472 1.6

1159. 2546 CON GX -0.938 1.6

1160. 1685 CON GY -21.355 3

1161. 540 CON GY -23.591 7

1162. 1033 CON GY -22.735 7

1163. 1034 CON GY -28.084 7

1164. 1021 CON GY -48.055 1

1165. 2549 CON GY -4.504 1

1166. JOINT LOAD

1167. 905 FY -20.903

1168. MEMBER LOAD

1169. 1696 CON GY -24.323 7

1170. 1023 CON GY -46.341 5.325

1171. LOAD 7 LOADTYPE SEISMIC TITLE SISMO EN DIRECCION HORIZONTAL X (EX)

1172. SPECTRUM SRSS X 1 ACC SCALE 16 DAMP 0.05 LIN

1173. 0 0.057; 0.05 0.136; 0.1 0.206; 0.4 0.129; 0.5 0.111; 0.6 0.098; 0.7 0.089

1174. 0.8 0.08; 0.9 0.075; 1 0.07; 1.5 0.053; 2 0.044; 2.5 0.038; 3 0.016

1175. 3.5 0.0008; 4 0.004; 4.5 0.002; 5 0.001; 6 0.001; 7 0.0004; 8 0.0002

1176. 9 0.0001

1177. SELFWEIGHT Y 1

1178. SELFWEIGHT X 1

1179. SELFWEIGHT Z 1

1180. ****************POR CARGA MUERTA*****************

1181. MEMBER LOAD

1182. 601 633 2063 2561 UNI GY 0.2245

1183. 1056 1062 1065 1073 2069 UNI GY 0.4489

1184. 1113 2633 2636 2638 UNI GY 0.216

1185. 1110 2610 UNI GY 0.432

1186. 569 1086 UNI GY 0.453

1187. 1094 1099 1104 UNI GY 0.477

1188. 1051 1080 2606 UNI GY 0.238

1189. 589 UNI GY 0.462

1190. 1053 1055 UNI GY 0.1725

1191. 1079 UNI GY 0.427

```
1192. 1076 2055 UNI GY 0.49
1193. 612 UNI GY 0.245
1194. 2067 2070 2083 2096 UNI GY 0.259
1195. 2082 UNI GY 0.518
1196. 2072 UNI GY 0.457
1197. 2075 2078 2081 UNI GY 0.466
1198. 635 2065 2557 UNI GY 0.233
1199. 608 612 2369 2392 2705 2707 2708 UNI GY 0.383
1200. 603 610 2086 2087 2327 2329 2330 2336 2337 2369 2370 2414 2415 2430 -
1201. 2431 UNI GY 0.25
1202. 2363 TO 2366 2450 2453 2454 UNI GY 0.5
1203. 2347 2348 2367 2368 2377 2378 2390 2391 2422 2423 2447 2448 2473 TO 2480 2485 -
1204. 2486 TO 2500 UNI GY 0.157
1205. 2647 TO 2650 CON GY 3.25 0.7
1206. 2657 2658 2661 2662 CON GY 1.425 0.835
1207. 493 659 671 683 742 1447 1507 1516 1522 1525 UNI GY 5.563 3.9 4.8
1208. 2571 UNI GY 5.563 1.25 2.15
1209. 1105 1995 1996 2019 2020 2029 UNI GY 5.563 0.001 0.8
1210. ************
1211. 601 633 2063 2561 UNI GX 0.2245
1212. 1056 1062 1065 1073 2069 UNI GX 0.4489
1213. 1113 2633 2636 2638 UNI GX 0.216
1214. 1110 2610 UNI GX 0.432
1215. 569 1086 UNI GX 0.453
1216. 1094 1099 1104 UNI GX 0.477
```


```
1217. 1051 1080 2606 UNI GX 0.238
1218. 589 UNI GX 0.462
1219. 1053 1055 UNI GX 0.1725
1220. 1079 UNI GX 0.427
1221. 1076 2055 UNI GX 0.49
1222. 612 UNI GX 0.245
1223. 2067 2070 2083 2096 UNI GX 0.259
1224. 2082 UNI GX 0.518
1225. 2072 UNI GX 0.457
1226. 2075 2078 2081 UNI GX 0.466
1227. 635 2065 2557 UNI GX 0.233
```

```
608 612 2369 2392 2705 2707 2708 UNI GX 0.383
603 610 2086 2087 2327 2329 2330 2336 2337 2369 2370 2414 2415 2430 -
2431 UNI GX 0.25
2363 TO 2366 2450 2453 2454 UNI GX 0.5
2347 2348 2367 2368 2377 2378 2390 2391 2422 2423 2447 2448 2473 TO 2480 2485 -
2486 TO 2500 UNI GX 0.157
2647 TO 2650 CON GX 3.25 0.7
2657 2658 2661 2662 CON GX 1.425 0.835
493 659 671 683 742 1447 1507 1516 1522 1525 UNI GX 5.563 3.9 4.8
2571 UNI GX 5.563 1.25 2.15
1105 1995 1996 2019 2020 2029 UNI GX 5.563 0.001 0.8
*************
601 633 2063 2561 UNI GZ 0.2245
1056 1062 1065 1073 2069 UNI GZ 0.4489
1113 2633 2636 2638 UNI GZ 0.216
1110 2610 UNI GZ 0.432
569 1086 UNI GZ 0.453
1094 1099 1104 UNI GZ 0.477
1051 1080 2606 UNI GZ 0.238
589 UNI GZ 0.462
1053 1055 UNI GZ 0.1725
1079 UNI GZ 0.427
1076 2055 UNI GZ 0.49
612 UNI GZ 0.245
2067 2070 2083 2096 UNI GZ 0.259
2082 UNI GZ 0.518
2072 UNI GZ 0.457
2075 2078 2081 UNI GZ 0.466
635 2065 2557 UNI GZ 0.233
608 612 2369 2392 2705 2707 2708 UNI GZ 0.383
603 610 2086 2087 2327 2329 2330 2336 2337 2369 2370 2414 2415 2430 -
2431 UNI GZ 0.25
2363 TO 2366 2450 2453 2454 UNI GZ 0.5
2347 2348 2367 2368 2377 2378 2390 2391 2422 2423 2447 2448 2473 TO 2480 2485 -
2486 TO 2500 UNI GZ 0.157
2647 TO 2650 CON GZ 3.25 0.7
2657 2658 2661 2662 CON GZ 1.425 0.835
493 659 671 683 742 1447 1507 1516 1522 1525 UNI GZ 5.563 3.9 4.8
```

1266. 2571 UNI GZ 5.563 1.25 2.15

1267. 1105 1995 1996 2019 2020 2029 UNI GZ 5.563 0.001 0.8

1268. ******************POR CHAROLAS ELECTRICAS**********************

1269. MEMBER LOAD

1270. 493 524 659 671 683 742 758 1440 1447 1452 1504 1507 1510 1513 1516 1519 1522 -

1271. 1525 2575 CON GY 5.3 1.85

1272. 493 524 659 671 683 742 758 1440 1447 1452 1504 1507 1510 1513 1516 1519 1522 -

1273. 1525 2575 CON GY 5.3 2.45

1274. 493 659 671 683 742 758 1440 1447 1452 1504 1507 1510 1513 1516 1519 1522 -

1275. 1525 2575 CON GY 3.532 3.15

1276. 2571 CON GY 3.532 0.5

1277. 493 659 671 683 742 758 1440 1447 1452 1504 1507 1510 1513 1516 1519 1522 -

1278. 1525 2575 CON GY 3.532 3.85

1279. 2571 CON GY 3.532 1.2

1280. 493 659 671 683 742 758 1447 1507 1516 1522 1525 2575 CON GY 3.532 4.85

1281. 2571 CON GY 3.532 2.2

1282. 1995 1996 2019 2020 2029 2030 CON GY 3.532 0.85

1283. 493 659 671 683 742 758 1447 1507 1516 1522 1525 2575 CON GY 3.532 5.55

1284. 2574 CON GY 3.532 0.200002

1285. 1995 1996 2019 2020 2029 2030 CON GY 3.532 1.55

1286. 1105 1599 2101 2108 2110 2114 2116 2118 2125 2131 2134 2555 2583 2593 2600 -

1287. 2603 CON GY 5.3 0.05

1288. 1105 1599 2101 2108 2110 2114 2116 2118 2125 2131 2134 2555 2583 2593 2600 -

1289. 2603 CON GY 5.3 0.65

1290. 1105 1599 2101 2108 2110 2114 2116 2118 2125 2131 2134 2555 2583 2593 2600 -

1291. 2603 CON GY 3.532 0.7

1292. 1105 1599 2101 2108 2110 2114 2116 2118 2125 2131 2134 2555 2583 2593 2600 -

1293. 2603 CON GY 3.532 1.3

1294. 1105 1599 2101 2108 2110 2114 2116 2118 2125 2131 2134 2555 2583 2593 2600 -

1295. 2603 CON GY 3.532 2.2

1296. 1105 1599 2101 2108 2110 2114 2116 2118 2125 2131 2134 2555 2583 2593 2600 -

1297. 2603 CON GY 3.532 2.8

1298. ****************************

1299. MEMBER LOAD

1300. 493 524 659 671 683 742 758 1440 1447 1452 1504 1507 1510 1513 1516 1519 1522 -

1301. 1525 2575 CON GX 5.3 1.85

```
1302. 493 524 659 671 683 742 758 1440 1447 1452 1504 1507 1510 1513 1516 1519 1522 -
1303. 1525 2575 CON GX 5.3 2.45
1304. 493 659 671 683 742 758 1440 1447 1452 1504 1507 1510 1513 1516 1519 1522 -
1305. 1525 2575 CON GX 3.532 3.15
1306. 2571 CON GX 3.532 0.5
1307. 493 659 671 683 742 758 1440 1447 1452 1504 1507 1510 1513 1516 1519 1522 -
1308. 1525 2575 CON GX 3.532 3.85
1309. 2571 CON GX 3.532 1.2
1310. 493 659 671 683 742 758 1447 1507 1516 1522 1525 2575 CON GX 3.532 4.85
1311. 2571 CON GX 3.532 2.2
1312. 1995 1996 2019 2020 2029 2030 CON GX 3.532 0.85
1313. 493 659 671 683 742 758 1447 1507 1516 1522 1525 2575 CON GX 3.532 5.55
1314. 2574 CON GX 3.532 0.200002
1315. 1995 1996 2019 2020 2029 2030 CON GX 3.532 1.55
1316. 1105 1599 2101 2108 2110 2114 2116 2118 2125 2131 2134 2555 2583 2593 2600 -
1317. 2603 CON GX 5.3 0.05
1318. 1105 1599 2101 2108 2110 2114 2116 2118 2125 2131 2134 2555 2583 2593 2600 -
1319. 2603 CON GX 5.3 0.65
1320. 1105 1599 2101 2108 2110 2114 2116 2118 2125 2131 2134 2555 2583 2593 2600 -
1321. 2603 CON GX 3.532 0.7
1322. 1105 1599 2101 2108 2110 2114 2116 2118 2125 2131 2134 2555 2583 2593 2600 -
1323. 2603 CON GX 3.532 1.3
1324. 1105 1599 2101 2108 2110 2114 2116 2118 2125 2131 2134 2555 2583 2593 2600 -
1325. 2603 CON GX 3.532 2.2
1326. 1105 1599 2101 2108 2110 2114 2116 2118 2125 2131 2134 2555 2583 2593 2600 -
1327. 2603 CON GX 3.532 2.8
1328. *****************************
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1329. MEMBER LOAD
1330. 493 524 659 671 683 742 758 1440 1447 1452 1504 1507 1510 1513 1516 1519 1522 -
1331. 1525 2575 CON GZ 5.3 1.85
1332. 493 524 659 671 683 742 758 1440 1447 1452 1504 1507 1510 1513 1516 1519 1522 -
1333. 1525 2575 CON GZ 5.3 2.45
1334. 493 659 671 683 742 758 1440 1447 1452 1504 1507 1510 1513 1516 1519 1522 -
1335. 1525 2575 CON GZ 3.532 3.15
1336. 2571 CON GZ 3.532 0.5
1337. 493 659 671 683 742 758 1440 1447 1452 1504 1507 1510 1513 1516 1519 1522 -
```

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1525 2575 CON GZ 3.532 3.85
2571 CON GZ 3.532 1.2
493 659 671 683 742 758 1447 1507 1516 1522 1525 2575 CON GZ 3.532 4.85
2571 CON GZ 3.532 2.2
1995 1996 2019 2020 2029 2030 CON GZ 3.532 0.85
493 659 671 683 742 758 1447 1507 1516 1522 1525 2575 CON GZ 3.532 5.55
2574 CON GZ 3.532 0.200002
1995 1996 2019 2020 2029 2030 CON GZ 3.532 1.55
1105 1599 2101 2108 2110 2114 2116 2118 2125 2131 2134 2555 2583 2593 2600 -
2603 CON GZ 5.3 0.05
1105 1599 2101 2108 2110 2114 2116 2118 2125 2131 2134 2555 2583 2593 2600 -
2603 CON GZ 5.3 0.65
1105 1599 2101 2108 2110 2114 2116 2118 2125 2131 2134 2555 2583 2593 2600 -
2603 CON GZ 3.532 0.7
1105 1599 2101 2108 2110 2114 2116 2118 2125 2131 2134 2555 2583 2593 2600 -
2603 CON GZ 3.532 1.3
1105 1599 2101 2108 2110 2114 2116 2118 2125 2131 2134 2555 2583 2593 2600 -
2603 CON GZ 3.532 2.2
1105 1599 2101 2108 2110 2114 2116 2118 2125 2131 2134 2555 2583 2593 2600 -
2603 CON GZ 3.532 2.8
******************POR CARGA VIVA******************************
601 633 2063 2561 UNI GY 3.188
1056 1062 1065 1073 2069 UNI GY 6.377
1113 2633 2636 2638 UNI GY 3.066
1110 2610 UNI GY 6.132
569 1086 UNI GY 6.438
1094 1099 1104 UNI GY 6.744
1051 1080 2606 UNI GY 3.372
589 UNI GY 6.56
1053 1055 UNI GY 2.453
1079 UNI GY 5.95
1076 2055 UNI GY 6.99
612 UNI GY 3.495
2067 2070 2083 2096 UNI GY 3.679
2082 UNI GY 7.358
2072 UNI GY 6.5
2075 2078 2081 UNI GY 6.622
635 2065 2557 UNI GY 3.311
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1376. 608 612 2369 2392 2705 2707 2708 UNI GY 5.445
1377. 603 610 2086 2087 2327 2329 2330 2336 2337 2369 2370 2414 2415 2430 -
1378. 2431 UNI GY 3.483
1379. 2363 TO 2366 2450 2453 2454 UNI GY 6.966
1380. 2347 2348 2367 2368 2377 2378 2390 2391 2422 2423 2447 2448 2473 TO 2480 2485 -
1381. 2486 TO 2500 UNI GY 2.23
1382. 493 659 671 683 742 1447 1507 1516 1522 1525 UNI GY 14.715 3.9 4.8
1383. 2571 UNI GY 14.715 1.25 2.15
1384. 1105 1995 1996 2019 2020 2029 UNI GY 14.715 0.001 0.8
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1385. ***********************
1386. 601 633 2063 2561 UNI GX 3.188
1387. 1056 1062 1065 1073 2069 UNI GX 6.377
1388. 1113 2633 2636 2638 UNI GX 3.066
1389. 1110 2610 UNI GX 6.132
1390. 569 1086 UNI GX 6.438
1391. 1094 1099 1104 UNI GX 6.744
1392. 1051 1080 2606 UNI GX 3.372
1393. 589 UNI GX 6.56
1394. 1053 1055 UNI GX 2.453
1395. 1079 UNI GX 5.95
1396. 1076 2055 UNI GX 6.99
1397. 612 UNI GX 3.495
1398. 2067 2070 2083 2096 UNI GX 3.679
1399. 2082 UNI GX 7.358
1400. 2072 UNI GX 6.5
1401. 2075 2078 2081 UNI GX 6.622
1402. 635 2065 2557 UNI GX 3.311
1403. 608 612 2369 2392 2705 2707 2708 UNI GX 5.445
1404. 603 610 2086 2087 2327 2329 2330 2336 2337 2369 2370 2414 2415 2430 -
1405. 2431 UNI GX 3.483
1406. 2363 TO 2366 2450 2453 2454 UNI GX 6.966
1407. 2347 2348 2367 2368 2377 2378 2390 2391 2422 2423 2447 2448 2473 TO 2480 2485 -
1408. 2486 TO 2500 UNI GX 2.23
1409. 493 659 671 683 742 1447 1507 1516 1522 1525 UNI GX 14.715 3.9 4.8
1410. 2571 UNI GX 14.715 1.25 2.15
1411. 1105 1995 1996 2019 2020 2029 UNI GX 14.715 0.001 0.8
```

1412. **********************

1413. 601 633 2063 2561 UNI GZ 3.188

1414. 1056 1062 1065 1073 2069 UNI GZ 6.377

1415. 1113 2633 2636 2638 UNI GZ 3.066

1416. 1110 2610 UNI GZ 6.132

1417. 569 1086 UNI GZ 6.438

1418. 1094 1099 1104 UNI GZ 6.744

1419. 1051 1080 2606 UNI GZ 3.372

1420. 589 UNI GZ 6.56

1421. 1053 1055 UNI GZ 2.453

1422. 1079 UNI GZ 5.95

1423. 1076 2055 UNI GZ 6.99

1424. 612 UNI GZ 3.495

1425. 2067 2070 2083 2096 UNI GZ 3.679

1426. 2082 UNI GZ 7.358

1427. 2072 UNI GZ 6.5

1428. 2075 2078 2081 UNI GZ 6.622

1429. 635 2065 2557 UNI GZ 3.311

1430. 608 612 2369 2392 2705 2707 2708 UNI GZ 5.445

1431. 603 610 2086 2087 2327 2329 2330 2336 2337 2369 2370 2414 2415 2430 -

1432. 2431 UNI GZ 3.483

1433. 2363 TO 2366 2450 2453 2454 UNI GZ 6.966

1434. 2347 2348 2367 2368 2377 2378 2390 2391 2422 2423 2447 2448 2473 TO 2480 2485 -

1435. 2486 TO 2500 UNI GZ 2.23

1436. 493 659 671 683 742 1447 1507 1516 1522 1525 UNI GZ 14.715 3.9 4.8

1437. 2571 UNI GZ 14.715 1.25 2.15

1438. 1105 1995 1996 2019 2020 2029 UNI GZ 14.715 0.001 0.8

1439. **************POR PESOS DE TUBERIAS*********************************

1440. MEMBER LOAD

1441. 486 509 542 566 586 598 1484 1903 TO 1906 1915 TO 1918 UNI GY 10.791

1442. 512 541 565 585 597 621 622 667 1022 1471 1668 1907 1919 2687 2691 2692 2695 -

1443. 2698 2699 2704 2706 2713 TO 2715 2718 UNI GY 0.981

1444. 499 644 656 668 680 692 1669 1708 1711 1908 TO 1914 1920 TO 1924 2723 TO 2725 -

1445. 2726 UNI GY 7.848

1446. 750 891 1023 UNI GY 1.4715

1447. 498 UNI GY 9.81

```
643 655 679 691 1702 1705 2690 2700 TO 2703 2712 2716 2717 UNI GY 0.981
890 UNI GY 2.943
*TUBERIA VAPOR BAJA PRESION GVRC2 A TURBINA****************
MEMBER LOAD
889 1021 CON GY 3.457 3
690 CON GY 3.348 2.195
678 CON GY 4.073 2.195
1621 CON GY 5.57 0.5
1027 2509 CON GY 9.81 1.35
1751 CON GY 5.737 1.40001
642 CON GY 5.74 2.195
620 CON GY 5.655 2.195
596 CON GY 1.694 2.195
584 CON GY 4.09 2.195
564 CON GY 2.816 2.195
540 CON GY 4.163 2.195
1033 CON GY 0.691 2.195
1034 CON GY 7.396 2.195
487 CON GY 7.868 2.195
*TUBERIA VAPOR BAJA PRESION GVRC1 A TURBINA****************
584 CON GY 3.096 1.47
564 CON GY 3.062 1.47
540 CON GY 4.264 1.47
1033 CON GY 0.226 1.47
1034 CON GY 8.325 1.47
487 CON GY 9.041 1.47
*TUBERIA VAPOR REC FRIO TURBINA A GVRC2****************
889 1021 CON GY 9.123 4.05
690 CON GY 39.035 3.195
678 CON GY 13.855 3.195
666 CON GY 10.372 3.195
1611 CON GY 19.276 2
1667 CON GY 31.149 3.195
1027 CON GY 13.845 2.35
1697 CON GY 20.394 1.05
642 CON GY 34.071 3.195
620 CON GY 38.406 3.195
596 CON GY 29.687 3.195
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1486. 584 CON GY 39.169 3.195

1487. 564 CON GY 17.18 3.195

1488. 540 CON GY 24.314 3.195

1489. 1034 CON GY 34.417 3.195

1490. *TUBERIA VAPOR REC. CALIENTE DE GVRC2 A TURBINA****************

1491. 889 CON GY 46.21 5.325

1492. 1804 CON GY 33.62 1.8

1493. 678 CON GY 6.09 5.8

1494. 666 CON GY 25.345 5.8

1495. 1611 CON GY 21.893 0.7

1496. 1667 CON GY 17.91 5.8

1497. 1981 CON GY 26.145 1.15

1498. 1697 CON GY 22.333 1.4

1499. 642 CON GY 30.094 5.8

1500. 620 CON GY 27.47 5.8

1501. 1689 CON GY 9.932 1.8

1502. 2546 CON GY 20.597 0.4

1503. 1685 CON GY 16.122 1.8

1504. 540 CON GY 18.169 5.8

1505. 1033 CON GY 16.453 5.8

1506. 1034 CON GY 18.11 5.8

1507. 499 CON GY 42.736 5.8

1508. 487 CON GY 23.508 5.8

1509. *TUBERIA VAPOR RECALENTADO CALIENTE DE GVRC1 A TURB.****************

1510. 1021 CON GY 19.894 5.325

1511. 1686 CON GY 23.888 0.47

1512. 1685 CON GY 11.919 0.47

1513. 540 CON GY 19.817 4.47

1514. 1033 CON GY 18.725 4.47

1515. 1034 CON GY 19.996 4.47

1516. 499 CON GY 37.075 4.47

1517. 487 CON GY 36.248 4.47

1518. *TUBERIA VAPOR PRINCIPAL****************

1519. MEMBER LOAD

1520. 889 1021 CON GY 45.94 1

1521. 1804 CON GY 47.642 3

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1522. 678 CON GY 19.129 7
1523. 666 CON GY 32.028 7
1524. 711 CON GY 24.732 2
1525. 1737 CON GY 26.808 0.3
1526. 1988 CON GY 34.982 0.65
1527. 642 CON GY 26.357 7
1528. 620 CON GY 44.777 7
1529. 2546 CON GY 41.716 1.6
1530. 1685 CON GY 18.883 3
1531. 540 CON GY 21.953 7
1532. 1033 CON GY 21.227 7
1533. 1034 CON GY 25.761 7
1534. 1021 CON GY 43.855 1
1535. 2549 CON GY 6.065 1
1536. JOINT LOAD
1537. 905 FY 12.529
1538. MEMBER LOAD
1539. 1696 CON GY 15.584 7
1540. 1023 CON GY 29.269 5.325
1541. 2671 CON GY 22.831 2.075
1542. 2668 2669 2672 TO 2674 2679 TO 2684 2719 TO 2722 UNI GY 0.98
1543. ******************EN X*************************
1544. MEMBER LOAD
1545. 486 509 542 566 586 598 1484 1903 TO 1906 1915 TO 1918 UNI GX 10.791
1546. 512 541 565 585 597 621 622 667 1022 1471 1668 1907 1919 2687 2691 2692 2695 -
1547. 2698 2699 2704 2706 2713 TO 2715 2718 UNI GX 0.981
1548. 499 644 656 668 680 692 1669 1708 1711 1908 TO 1914 1920 TO 1924 2723 TO 2725 -
1549. 2726 UNI GX 7.848
1550. 750 891 1023 UNI GX 1.4715
1551. 498 UNI GX 9.81
1552. 643 655 679 691 1702 1705 2690 2700 TO 2703 2712 2716 2717 UNI GX 0.981
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1553. 890 UNI GX 2.943
1554. *TUBERIA VAPOR BAJA PRESION GVRC2 A TURBINA****************
1555. MEMBER LOAD
1556. 889 1021 CON GX 3.457 3
1557. 690 CON GX 3.348 2.195
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1558. 678 CON GX 4.073 2.195

1559. 1621 CON GX 5.57 0.5

1560. 1027 2509 CON GX 9.81 1.35

1561. 1751 CON GX 5.737 1.40001

1562. 642 CON GX 5.74 2.195

1563. 620 CON GX 5.655 2.195

1564. 596 CON GX 1.694 2.195

1565. 584 CON GX 4.09 2.195

1566. 564 CON GX 2.816 2.195

1567. 540 CON GX 4.163 2.195

1568. 1033 CON GX 0.691 2.195

1569. 1034 CON GX 7.396 2.195

1570. 487 CON GX 7.868 2.195

1571. *TUBERIA VAPOR BAJA PRESION GVRC1 A TURBINA****************

1572. 584 CON GX 3.096 1.47

1573. 564 CON GX 3.062 1.47

1574. 540 CON GX 4.264 1.47

1575. 1033 CON GX 0.226 1.47

1576. 1034 CON GX 8.325 1.47

1577. 487 CON GX 9.041 1.47

1578. *TUBERIA VAPOR REC FRIO TURBINA A GVRC2****************

1579. 889 1021 CON GX 9.123 4.05

1580. 690 CON GX 39.035 3.195

1581. 678 CON GX 13.855 3.195

1582. 666 CON GX 10.372 3.195

1583. 1611 CON GX 19.276 2

1584. 1667 CON GX 31.149 3.195

1585. 1027 CON GX 13.845 2.35

1586. 1697 CON GX 20.394 1.05

1587. 642 CON GX 34.071 3.195

1588. 620 CON GX 38.406 3.195

1589. 596 CON GX 29.687 3.195

1590. 584 CON GX 39.169 3.195

1591. 564 CON GX 17.18 3.195

1592. 540 CON GX 24.314 3.195

1593. 1034 CON GX 34.417 3.195

1594. *TUBERIA VAPOR REC. CALIENTE DE GVRC2 A TURBINA****************

1595. 889 CON GX 46.21 5.325

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1596. 1804 CON GX 33.62 1.8
1597. 678 CON GX 6.09 5.8
1598. 666 CON GX 25.345 5.8
1599. 1611 CON GX 21.893 0.7
1600. 1667 CON GX 17.91 5.8
1601. 1981 CON GX 26.145 1.15
1602. 1697 CON GX 22.333 1.4
1603. 642 CON GX 30.094 5.8
1604. 620 CON GX 27.47 5.8
1605. 1689 CON GX 9.932 1.8
1606. 2546 CON GX 20.597 0.4
1607. 1685 CON GX 16.122 1.8
1608. 540 CON GX 18.169 5.8
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1609. 1033 CON GX 16.453 5.8
1610. 1034 CON GX 18.11 5.8
1611. 499 CON GX 42.736 5.8
1612. 487 CON GX 23.508 5.8
1613. *TUBERIA VAPOR RECALENTADO CALIENTE DE GVRC1 A TURB.****************
1614. 1021 CON GX 19.894 5.325
1615. 1686 CON GX 23.888 0.47
1616. 1685 CON GX 11.919 0.47
1617. 540 CON GX 19.817 4.47
1618. 1033 CON GX 18.725 4.47
1619. 1034 CON GX 19.996 4.47
1620. 499 CON GX 37.075 4.47
1621. 487 CON GX 36.248 4.47
1622. *TUBERIA VAPOR PRINCIPAL****************
1623. MEMBER LOAD
1624. 889 1021 CON GX 45.94 1
1625. 1804 CON GX 47.642 3
1626. 678 CON GX 19.129 7
1627. 666 CON GX 32.028 7
1628. 711 CON GX 24.732 2
1629. 1737 CON GX 26.808 0.3
1630. 1988 CON GX 34.982 0.65
1631. 642 CON GX 26.357 7
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1632. 620 CON GX 44.777 7
1633. 2546 CON GX 41.716 1.6
1634. 1685 CON GX 18.883 3
1635. 540 CON GX 21.953 7
1636. 1033 CON GX 21.227 7
1637. 1034 CON GX 25.761 7
1638. 1021 CON GX 43.855 1
1639. 2549 CON GX 6.065 1
1640. JOINT LOAD
1641. 905 FX 12.529
1642. MEMBER LOAD
1643. 1696 CON GX 15.584 7
1644. 1023 CON GX 29.269 5.325
1645. 2671 CON GX 22.831 2.075
1646. 2668 2669 2672 TO 2674 2679 TO 2684 2719 TO 2722 UNI GX 0.98
1647. ******************EN Z*************************
1648. MEMBER LOAD
1649. 486 509 542 566 586 598 1484 1903 TO 1906 1915 TO 1918 UNI GZ 10.791
1650. 512 541 565 585 597 621 622 667 1022 1471 1668 1907 1919 2687 2691 2692 2695 -
1651. 2698 2699 2704 2706 2713 TO 2715 2718 UNI GZ 0.981
1652. 499 644 656 668 680 692 1669 1708 1711 1908 TO 1914 1920 TO 1924 2723 TO 2725 -
1653. 2726 UNI GZ 7.848
1654. 750 891 1023 UNI GZ 1.4715
1655. 498 UNI GZ 9.81
1656. 643 655 679 691 1702 1705 2690 2700 TO 2703 2712 2716 2717 UNI GZ 0.981
1657. 890 UNI GZ 2.943
1658. *TUBERIA VAPOR BAJA PRESION GVRC2 A TURBINA****************
1659. MEMBER LOAD
1660. 889 1021 CON GZ 3.457 3
1661. 690 CON GZ 3.348 2.195
1662. 678 CON GZ 4.073 2.195
1663. 1621 CON GZ 5.57 0.5
1664. 1027 2509 CON GZ 9.81 1.35
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1665. 1751 CON GZ 5.737 1.40001
1666. 642 CON GZ 5.74 2.195
1667. 620 CON GZ 5.655 2.195
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1668. 596 CON GZ 1.694 2.195

1669. 584 CON GZ 4.09 2.195

1670. 564 CON GZ 2.816 2.195

1671. 540 CON GZ 4.163 2.195

1672. 1033 CON GZ 0.691 2.195

1673. 1034 CON GZ 7.396 2.195

1674. 487 CON GZ 7.868 2.195

1675. *TUBERIA VAPOR BAJA PRESION GVRC1 A TURBINA****************

1676. 584 CON GZ 3.096 1.47

1677. 564 CON GZ 3.062 1.47

1678. 540 CON GZ 4.264 1.47

1679. 1033 CON GZ 0.226 1.47

1680. 1034 CON GZ 8.325 1.47

1681. 487 CON GZ 9.041 1.47

1682. *TUBERIA VAPOR REC FRIO TURBINA A GVRC2****************

1683. 889 1021 CON GZ 9.123 4.05

1684. 690 CON GZ 39.035 3.195

1685. 678 CON GZ 13.855 3.195

1686. 666 CON GZ 10.372 3.195

1687. 1611 CON GZ 19.276 2

1688. 1667 CON GZ 31.149 3.195

1689. 1027 CON GZ 13.845 2.35

1690. 1697 CON GZ 20.394 1.05

1691. 642 CON GZ 34.071 3.195

1692. 620 CON GZ 38.406 3.195

1693. 596 CON GZ 29.687 3.195

1694. 584 CON GZ 39.169 3.195

1695. 564 CON GZ 17.18 3.195

1696. 540 CON GZ 24.314 3.195

1697. 1034 CON GZ 34.417 3.195

1698. *TUBERIA VAPOR REC. CALIENTE DE GVRC2 A TURBINA****************

1699. 889 CON GZ 46.21 5.325

1700. 1804 CON GZ 33.62 1.8

1701. 678 CON GZ 6.09 5.8

1702. 666 CON GZ 25.345 5.8

1703. 1611 CON GZ 21.893 0.7

1704. 1667 CON GZ 17.91 5.8

1705. 1981 CON GZ 26.145 1.15

1706. 1697 CON GZ 22.333 1.4

1707. 642 CON GZ 30.094 5.8

1708. 620 CON GZ 27.47 5.8

1709. 1689 CON GZ 9.932 1.8

1710. 2546 CON GZ 20.597 0.4

1711. 1685 CON GZ 16.122 1.8

1712. 540 CON GZ 18.169 5.8

1713. 1033 CON GZ 16.453 5.8

1714. 1034 CON GZ 18.11 5.8

1715. 499 CON GZ 42.736 5.8

1716. 487 CON GZ 23.508 5.8

1717. *TUBERIA VAPOR RECALENTADO CALIENTE DE GVRC1 A TURB.****************

1718. 1021 CON GZ 19.894 5.325

1719. 1686 CON GZ 23.888 0.47

1720. 1685 CON GZ 11.919 0.47

1721. 540 CON GZ 19.817 4.47

1722. 1033 CON GZ 18.725 4.47

1723. 1034 CON GZ 19.996 4.47

1724. 499 CON GZ 37.075 4.47

1725. 487 CON GZ 36.248 4.47

1726. *TUBERIA VAPOR PRINCIPAL****************

1727. MEMBER LOAD

1728. 889 1021 CON GZ 45.94 1

1729. 1804 CON GZ 47.642 3

1730. 678 CON GZ 19.129 7

1731. 666 CON GZ 32.028 7

1732. 711 CON GZ 24.732 2

1733. 1737 CON GZ 26.808 0.3

1734. 1988 CON GZ 34.982 0.65

1735. 642 CON GZ 26.357 7

1736. 620 CON GZ 44.777 7

1737. 2546 CON GZ 41.716 1.6

1738. 1685 CON GZ 18.883 3

1739. 540 CON GZ 21.953 7

1740. 1033 CON GZ 21.227 7

1741. 1034 CON GZ 25.761 7

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1742. 1021 CON GZ 43.855 1
1743. 2549 CON GZ 6.065 1
1744. JOINT LOAD
1745. 905 FZ 12.529
1746. MEMBER LOAD
1747. 1696 CON GZ 15.584 7
1748. 1023 CON GZ 29.269 5.325
1749. 2671 CON GZ 22.831 2.075
1750. 2668 2669 2672 TO 2674 2679 TO 2684 2719 TO 2722 UNI GZ 0.98
1751. LOAD 8 LOADTYPE SEISMIC  TITLE SISMO EN DIRECCION HORIZONTAL Z (EX)
1752. SPECTRUM SRSS Z 1 ACC SCALE 19 DAMP 0.05 LIN
1753. 0 0.089; 0.05 0.183; 0.1 0.257; 0.4 0.161; 0.5 0.138; 0.6 0.123; 0.7 0.111
1754. 0.8 0.101; 0.9 0.094; 1 0.087; 1.5 0.067; 2 0.055; 2.5 0.047; 3 0.02
1755. 3.5 0.01; 4 0.005; 4.5 0.003; 5 0.002
1756. LOAD 9 LOADTYPE SEISMIC  TITLE SISMO EN DIRECCION VERTICAL Y (EY)
1757. SPECTRUM SRSS Y 1 ACC SCALE 9.81 DAMP 0.05 LIN
1758. *0 0.089; 0.05 0.183; 0.1 0.257; 0.4 0.161; 0.5 0.138; 0.6 0.123; 0.7 0.111
1759. *0.8 0.101; 0.9 0.094; 1 0.087; 1.5 0.067; 2 0.055; 2.5 0.047; 3 0.020
1760. *3.5 0.010; 4 0.005; 4.5 0.003; 5 0.002
1761. 0 0.0318; 0.05 0.0758; 0.1 0.1146; 0.4 0.0717; 0.5 0.0618; 0.6 0.0547
1762. 0.7 0.0493; 0.8 0.0451; 0.9 0.0417; 1 0.0389; 1.5 0.0297; 2 0.0245; 2.5 0.0211
1763. 3 0.009; 3.5 0.0044; 4 0.0024; 4.5 0.0014; 5 0.0008; 6 0.0004; 7 0.0002
1764. LOAD 10 LOADTYPE WIND  TITLE VIENTO EN DIRECCION X (WX)
1765. *TUBERIA VAPOR BAJA PRESION GVRC2 A TURBINA****************
1766. MEMBER LOAD
1767. 889 1021 CON GY -1.081 3
1768. 690 CON GY -0.387 2.195
1769. 690 CON GX 7.584 2.195
1770. 678 CON GY -0.588 2.195
1771. 678 CON GZ 1.621 2.195
1772. 666 CON GY -0.501 2.195
1773. 1621 CON GY -0.242 0.5
1774. 1027 2509 CON GY -0.04 1.35
1775. 1751 CON GY -0.248 1.4
1776. 642 CON GY -0.291 2.195
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1777. 620 CON GY -0.172 2.195
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1778. 596 CON GY -0.092 2.195

1779. 584 CON GY -0.005 2.195

1780. 584 CON GX 8.379 2.195

1781. 564 CON GY -0.101 2.195

1782. 540 CON GY -0.347 2.195

1783. 1033 CON GY -1.27 2.195

1784. 1034 CON GY -1.832 2.195

1785. 487 CON GY -0.615 2.195

1786. *TUBERIA VAPOR BAJA PRESION GVRC1 A TURBINA****************

1787. 584 CON GY -0.794 1.47

1788. 584 CON GX 6.295 1.47

1789. 564 CON GY -0.476 1.47

1790. 540 CON GY -0.425 1.47

1791. 1033 CON GY -1.185 1.47

1792. 1034 CON GY -1.594 1.47

1793. 487 CON GY -0.632 1.47

1794. *TUBERIA VAPOR REC FRIO TURBINA A GVRC2****************

1795. 690 CON GY -4.062 3.195

1796. 690 CON GX 19.041 3.195

1797. 678 CON GY -2.737 3.195

1798. 666 CON GY -1.995 3.195

1799. 1611 CON GY -1.799 2

1800. 1667 CON GY -0.291 3.195

1801. 1027 CON GY -1.183 2.35

1802. 1697 CON GY -1.256 1.05

1803. 642 CON GY -1.343 3.195

1804. 620 CON GY -2.862 3.195

1805. 596 CON GY -2.648 3.195

1806. 584 CON GY -1.135 3.195

1807. 584 CON GX 41.828 3.195

1808. 564 CON GY -1.599 3.195

1809. 540 CON GY -2.955 3.195

1810. 1034 CON GY -4.83 3.195

1811. 487 CON GY -3.807 3.195

1812. *TUBERIA VAPOR REC. CALIENTE DE GVRC2 A TURBINA****************

1813. 889 CON GY -2.237 5.325

1814. 1804 CON GX 19.858 1.8

1815. 678 CON GY -0.857 5.8

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1816. 666 CON GY -0.876 5.8
1817. 1611 CON GY -1.111 0.7
1818. 1611 CON GX 0.121 0.7
1819. 1667 CON GY -0.281 5.8
1820. 1667 CON GX 0.147 5.8
1821. 1981 CON GY -0.183 1.15
1822. 1981 CON GX 0.018 1.15
1823. 1697 CON GY -0.491 1.4
1824. 1697 CON GX 0.102 1.4
1825. 642 CON GY -0.149 5.8
1826. 620 CON GY -0.056 5.8
1827. 1689 CON GY -0.26 1.8
1828. 2546 CON GY -1.85 0.399998
1829. 2546 CON GX 57.554 0.399998
1830. 1685 CON GY -1.515 1.8
1831. 540 CON GY -5.477 5.8
1832. 1033 CON GY -12.698 5.8
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1833. 499 CON GY -9.509 5.8
1834. 487 CON GY -13.563 5.8
1835. *TUBERIA VAPOR RECALENTADO CALIENTE DE GVRC1 A TURB.****************
1836. 1021 CON GY -19.894 5.325
1837. 1686 CON GY -3.61 0.47
1838. 1686 CON GX 48.377 0.47
1839. 1685 CON GY -4.058 0.47
1840. 1685 CON GX 25.744 0.47
1841. 540 CON GY -3.223 4.47
1842. 1033 CON GY -6.019 4.47
1843. 499 CON GY -10.153 4.47
1844. 487 CON GY -8.276 4.47
1845. *TUBERIA VAPOR PRINCIPAL****************
1846. MEMBER LOAD
1847. 889 1021 CON GY -4.549 1
1848. 1804 CON GY -1.905 3
1849. 1804 CON GX 20.206 3
1850. 666 CON GY -0.777 7
1851. 711 CON GY -0.278 2
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1852. 1737 CON GY -0.543 0.3
1853. 1988 CON GY -0.553 0.65
1854. 642 CON GY -0.22 7
1855. 620 CON GY -0.178 7
1856. 620 CON GZ 24.855 7
1857. 2546 CON GY -3.522 1.6
1858. 2546 CON GX 28.645 1.6
1859. 1685 CON GY 0.914 3
1860. 540 CON GY -0.789 7
1861. 1033 CON GY -2.846 7
1862. 1034 CON GY -6.411 7
1863. 1021 CON GY -3.169 1
1864. 1021 CON GX 24.581 1
1865. 2549 CON GX 1.63 1
1866. JOINT LOAD
1867. 905 FY -1.732
1868. MEMBER LOAD
1869. 1696 CON GY -2.139 7
1870. 1023 CON GY 11.461 5.325
1871. 2671 CON GY 5.787 2.075
1872. ********************************************
1873. 488 TO 491 500 TO 503 UNI GX 0.69
1874. 515 518 521 527 2570 2573 UNI GX 0.46
1875. 482 TO 484 492 494 TO 496 504 543 545 547 549 551 553 UNI GX 0.55
1876. 506 509 512 524 1034 2571 2574 UNI GX 0.37
1877. LOAD 11 LOADTYPE WIND  TITLE VIENTO EN DIRECCION Z (WZ)
1878. *TUBERIA VAPOR BAJA PRESION GVRC2 A TURBINA****************
1879. MEMBER LOAD
1880. 889 1021 CON GY -1.081 3
1881. 690 CON GY -0.387 2.195
1882. 690 CON GX 7.584 2.195
1883. 678 CON GY -0.588 2.195
1884. 678 CON GZ 1.621 2.195
1885. 666 CON GY -0.501 2.195
1886. 1621 CON GY -0.242 0.5
1887. 1027 2509 CON GY -0.04 1.35
1888. 1751 CON GY -0.248 1.4
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1889. 642 CON GY -0.291 2.195

1890. 620 CON GY -0.172 2.195

1891. 596 CON GY -0.092 2.195

1892. 584 CON GY -0.005 2.195

1893. 584 CON GX 8.379 2.195

1894. 564 CON GY -0.101 2.195

1895. 540 CON GY -0.347 2.195

1896. 1033 CON GY -1.27 2.195

1897. 1034 CON GY -1.832 2.195

1898. 487 CON GY -0.615 2.195

1899. *TUBERIA VAPOR BAJA PRESION GVRC1 A TURBINA****************

1900. 584 CON GY -0.794 1.47

1901. 584 CON GX 6.295 1.47

1902. 564 CON GY -0.476 1.47

1903. 540 CON GY -0.425 1.47

1904. 1033 CON GY -1.185 1.47

1905. 1034 CON GY -1.594 1.47

1906. 487 CON GY -0.632 1.47

1907. *TUBERIA VAPOR REC FRIO TURBINA A GVRC2****************

1908. 690 CON GY -4.062 3.195

1909. 690 CON GX 19.041 3.195

1910. 678 CON GY -2.737 3.195

1911. 666 CON GY -1.995 3.195

1912. 1611 CON GY -1.799 2

1913. 1667 CON GY -0.291 3.195

1914. 1027 CON GY -1.183 2.35

1915. 1697 CON GY -1.256 1.05

1916. 642 CON GY -1.343 3.195

1917. 620 CON GY -2.862 3.195

1918. 596 CON GY -2.648 3.195

1919. 584 CON GY -1.135 3.195

1920. 584 CON GX 41.828 3.195

1921. 564 CON GY -1.599 3.195

1922. 540 CON GY -2.955 3.195

1923. 1034 CON GY -4.83 3.195

1924. 487 CON GY -3.807 3.195

1925. *TUBERIA VAPOR REC. CALIENTE DE GVRC2 A TURBINA****************

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1926. 889 CON GY -2.237 5.325
1927. 1804 CON GX 19.858 1.8
1928. 678 CON GY -0.857 5.8
1929. 666 CON GY -0.876 5.8
1930. 1611 CON GY -1.111 0.7
1931. 1611 CON GX 0.121 0.7
1932. 1667 CON GY -0.281 5.8
1933. 1667 CON GX 0.147 5.8
1934. 1981 CON GY -0.183 1.15
1935. 1981 CON GX 0.018 1.15
1936. 1697 CON GY -0.491 1.4
1937. 1697 CON GX 0.102 1.4
1938. 642 CON GY -0.149 5.8
1939. 620 CON GY -0.056 5.8
1940. 1689 CON GY -0.26 1.8
1941. 2546 CON GY -1.85 0.399998
1942. 2546 CON GX 57.554 0.399998
1943. 1685 CON GY -1.515 1.8
1944. 540 CON GY -5.477 5.8
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1945. 1033 CON GY -12.698 5.8
1946. 499 CON GY -9.509 5.8
1947. 487 CON GY -13.563 5.8
1948. *TUBERIA VAPOR RECALENTADO CALIENTE DE GVRC1 A TURB.****************
1949. 1021 CON GY -19.894 5.325
1950. 1686 CON GY -3.61 0.47
1951. 1686 CON GX 48.377 0.47
1952. 1685 CON GY -4.058 0.47
1953. 1685 CON GX 25.744 0.47
1954. 540 CON GY -3.223 4.47
1955. 1033 CON GY -6.019 4.47
1956. 499 CON GY -10.153 4.47
1957. 487 CON GY -8.276 4.47
1958. *TUBERIA VAPOR PRINCIPAL****************
1959. MEMBER LOAD
1960. 889 1021 CON GY -4.549 1
1961. 1804 CON GY -1.905 3
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1962. 1804 CON GX 20.206 3
1963. 666 CON GY -0.777 7
1964. 711 CON GY -0.278 2
1965. 1737 CON GY -0.543 0.3
1966. 1988 CON GY -0.553 0.65
1967. 642 CON GY -0.22 7
1968. 620 CON GY -0.178 7
1969. 620 CON GZ 24.855 7
1970. 2546 CON GY -3.522 1.6
1971. 2546 CON GX 28.645 1.6
1972. 1685 CON GY 0.914 3
1973. 540 CON GY -0.789 7
1974. 1033 CON GY -2.846 7
1975. 1034 CON GY -6.411 7
1976. 1021 CON GY -3.169 1
1977. 1021 CON GX 24.581 1
1978. 2549 CON GX 1.63 1
1979. JOINT LOAD
1980. 905 FY -1.732
1981. MEMBER LOAD
1982. 1696 CON GY -2.139 7
1983. 1023 CON GY 11.461 5.325
1984. 2671 CON GY 5.787 2.075
1985. *************************
1986. MEMBER LOAD
1987. 494 TO 496 500 TO 504 531 534 TO 536 543 547 551 555 559 TO 561 567 -
1988. 579 TO 581 587 591 TO 593 599 615 TO 617 623 634 637 TO 639 645 649 TO 651 -
1989. 657 661 TO 663 669 673 TO 675 681 685 TO 687 693 737 738 740 744 TO 746 752 -
1990. 755 877 879 881 883 885 887 1009 1011 1013 1015 1017 1019 1884 1886 1888 -
1991. 1890 1892 1894 1896 1898 1900 1902 2059 2064 2090 2092 2304 -
1992. 2551 UNI GZ 0.49
1993. 497 TO 499 505 532 544 548 552 570 572 TO 574 604 TO 606 613 626 630 631 635 -
1994. 700 TO 703 705 TO 708 710 TO 713 726 889 TO 891 1021 TO 1023 1031 1035 1063 -
1995. 1090 1095 1100 1107 1111 1114 1174 1183 1438 1441 1445 1450 1453 1465 1466 -
1996. 1472 1473 1478 1479 1502 1505 1508 1605 1606 1611 1615 1616 1621 1625 1626 -
1997. 1631 1694 1697 1700 1703 1706 1709 1712 1718 1731 1732 1737 1745 1746 1751 -
1998. 1803 1807 1815 1816 1823 1824 1829 1830 1835 1836 1841 1842 1847 1848 1869 -
1999. 1870 1879 2065 2126 2540 2557 2572 2635 2664 2667 2677 2678 2685 2688 2693 -
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2000. 2696 UNI GZ 0.46
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2001. 725 727 728 758 1493 1496 1499 1511 1514 1517 1520 1523 1599 1880 2103 2134 -
2002. 2542 UNI GZ 0.46
2003. 482 TO 484 488 TO 492 530 537 TO 539 545 549 553 556 558 562 563 568 578 582 -
2004. 583 588 594 595 600 614 618 619 624 636 640 641 646 648 652 653 658 660 664 -
2005. 665 670 672 676 677 682 684 688 689 694 734 735 741 743 747 748 753 756 1253 -
2006. 1528 1531 1533 1883 1885 1887 1889 1891 1893 1895 1897 1899 1901 2061 2062 -
2007. 2091 2094 2098 2100 2109 2117 2121 2127 2290 TO 2293 2295 TO 2298 -
2008. 2301 TO 2303 2305 2411 2412 2550 2582 2585 2589 2590 2604 2605 2607 2611 -
2009. 2615 2617 2619 2620 2622 2623 2625 2627 UNI GZ 0.44
2010. 485 TO 487 493 533 546 550 554 571 575 TO 577 602 603 607 TO 612 627 TO 629 -
2011. 633 696 TO 699 714 TO 723 731 736 760 TO 762 1032 1439 1443 1446 1451 1455 -
2012. 1468 1469 1475 1476 1481 1482 1503 1506 1509 1608 1609 1613 1618 1619 1623 -
2013. 1628 1629 1633 1695 1698 1701 1704 1707 1710 1714 1720 1734 1735 1739 1748 -
2014. 1749 1753 1806 1812 1813 1820 1821 1826 1827 1832 1833 1838 1839 1844 1845 -
2015. 2063 2086 2087 2124 2349 2369 2392 2400 2541 2547 2549 2561 2575 2665 2666 -
2016. 2671 2675 2676 2686 2689 2694 2697 2705 2707 TO 2711 UNI GZ 0.41
2017. 729 730 732 733 759 1494 1497 1500 1512 1515 1518 1521 1524 1543 1544 1584 -
2018. 1594 1597 1600 2111 2113 2114 2119 2120 2543 2556 UNI GZ 0.41
2019. *****************************************
2020. *COMBINACIONES PARA CARGA DE SERVICIOS
2021. *****************************************
2022. LOAD COMB 20 (D + CH + Q2) 1.0
2023. 1 1.0 3 1.0 5 1.0
2024. LOAD COMB 21 (D + CH + Q3) 1.0
2025. 1 1.0 3 1.0 6 1.0
2026. LOAD COMB 22 (D + CH + Q2 + L + T) 1.0
2027. 1 1.0 3 1.0 5 1.0 2 1.0 4 1.0
2028. LOAD COMB SRSS 23 (D + CH + Q2 + LO +SISMO) 1.0
2029. -1 1.0 -3 1.0 -5 1.0 -2 0.5 7 1.0 8 1.0 9 1.0 1
2030. LOAD COMB SRSS 24 (D + CH + Q2 + LO -SISMO) 1.0
2031. -1 1.0 -3 1.0 -5 1.0 -2 0.5 7 1.0 8 1.0 9 1.0 -1.
2032. LOAD COMB 25 (D + CH + Q2 + WX) 1.0
2033. 1 1.0 3 1.0 5 1.0 10 1.0
2034. LOAD COMB 26 (D + CH + Q2 - WX) 1.0
2035. 1 1.0 3 1.0 5 1.0 10 -1.0
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2036. LOAD COMB 27 (D + CH + Q2 + WZ) 1.0
2037. 1 1.0 3 1.0 5 1.0 11 1.0
2038. LOAD COMB 28 (D + CH + Q2 - WZ) 1.0
2039. 1 1.0 3 1.0 5 1.0 11 -1.0
2040. *****************************************
2041. *COMBINACIONES PARA DISEÑO DE CONCRETO
2042. *****************************************
2043. LOAD COMB 30 (D + CH + Q2) 1.4
2044. 1 1.4 3 1.4 5 1.4
2045. LOAD COMB 31 (D + CH + Q3) 1.4
2046. 1 1.4 3 1.4 6 1.4
2047. LOAD COMB 32 1.2 D + 1.2 CH + 1.2 Q2 + 1.6 L + 1.6 T
2048. 1 1.2 3 1.2 5 1.2 2 1.6 4 1.6
2049. LOAD COMB SRSS 33 1.2(D + CH + Q2) + LO + 1.4 SISMO
2050. -1 1.2 -3 1.2 -5 1.2 -2 0.5 7 1.0 8 1.0 9 1.0 1.4
2051. LOAD COMB SRSS 34 1.2(D + CH + Q2) + LO - 1.4 SISMO
2052. -1 1.2 -3 1.2 -5 1.2 -2 0.5 7 1.0 8 1.0 9 1.0 -1.4
2053. LOAD COMB 35 1.2 (D + CH + Q2) + L + 1.3 WX
2054. 1 1.2 3 1.2 5 1.2 2 1.0 10 1.3
2055. LOAD COMB 36 1.2 (D + CH + Q2)+ L - 1.3 WX
2056. 1 1.2 3 1.2 5 1.2 2 1.0 10 -1.3
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2057. LOAD COMB 37 1.2 (D + CH + Q2) + L + 1.3 WZ
2058. 1 1.2 3 1.2 5 1.2 2 1.0 11 1.3
2059. LOAD COMB 38 1.2 (D + CH + Q2)+ L - 1.3 WZ
2060. 1 1.2 3 1.2 5 1.2 2 1.0 11 -1.3
2061. *****************************************
2062. *COMBINACIONES PARA DISEÑO DE ACERO
2063. *****************************************
2064. LOAD COMB 40 (D + CH + Q2) 1.4
2065. 1 1.4 3 1.4 5 1.4
2066. LOAD COMB 41 (D + CH + Q3) 1.4
2067. 1 1.4 3 1.4 6 1.4
2068. LOAD COMB 42 1.2 D + 1.2 CH + 1.2 Q2 + 1.6 L + 1.6 T
2069. 1 1.2 3 1.2 5 1.2 2 1.6 4 1.6
2070. LOAD COMB SRSS 43 1.2(D + CH + Q2) + LR + 1.5 SISMO
2071. -1 1.2 -3 1.2 -5 1.2 -2 0.5 7 1.0 8 1.0 9 1.0 1.5
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 2072. LOAD COMB SRSS 44 1.2(D + CH + Q2) + LR - 1.5 SISMO
 2073. -1 1.2 -3 1.2 -5 1.2 -2 0.5 7 1.0 8 1.0 9 1.0 -1.5
 2074. LOAD COMB 45 1.2 (D + CH + Q2) + LR + 1.3 WX
 2075. 1 1.2 3 1.2 5 1.2 2 0.5 10 1.3
 2076. LOAD COMB 46 1.2 (D + CH + Q2)+ LR - 1.3 WX
 2077. 1 1.2 3 1.2 5 1.2 2 0.5 10 -1.3
 2078. LOAD COMB 47 1.2 (D + CH + Q2) + LR + 1.3 WZ
 2079. 1 1.2 3 1.2 5 1.2 2 0.5 11 1.3
 2080. LOAD COMB 48 1.2 (D + CH + Q2)+ LR - 1.3 WZ
 2081. 1 1.2 3 1.2 5 1.2 2 0.5 11 -1.3
 2082. PERFORM ANALYSIS


          P R O B L E M   S T A T I S T I C S
          -----------------------------------

    NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS =   673/  1329/    30

          SOLVER USED IS THE IN-CORE ADVANCED SOLVER

    TOTAL PRIMARY LOAD CASES =   11, TOTAL DEGREES OF FREEDOM =   3948

   ZERO STIFFNESS IN DIRECTION 2 AT JOINT   1321 EQN.NO.    3542
         LOADS APPLIED OR DISTRIBUTED HERE FROM ELEMENTS WILL BE IGNORED.
         THIS MAY BE DUE TO ALL MEMBERS AT THIS JOINT BEING RELEASED OR
         EFFECTIVELY RELEASED IN THIS DIRECTION.
   ZERO STIFFNESS IN DIRECTION 4 AT JOINT   1321 EQN.NO.    3544
   ZERO STIFFNESS IN DIRECTION 5 AT JOINT   1321 EQN.NO.    3545
   ZERO STIFFNESS IN DIRECTION 6 AT JOINT   1321 EQN.NO.    3546
   ZERO STIFFNESS IN DIRECTION 2 AT JOINT   1322 EQN.NO.    3548
   ZERO STIFFNESS IN DIRECTION 4 AT JOINT   1322 EQN.NO.    3550
   ZERO STIFFNESS IN DIRECTION 5 AT JOINT   1322 EQN.NO.    3551
   ZERO STIFFNESS IN DIRECTION 6 AT JOINT   1322 EQN.NO.    3552
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NUMBER OF MODES REQUESTED              =   200
NUMBER OF EXISTING MASSES IN THE MODEL =  1959
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NUMBER OF MODES THAT WILL BE USED = 200

ZERO STIFFNESS IN DIRECTION 2 AT JOINT 1321 EQN.NO. 3542

LOADS APPLIED OR DISTRIBUTED HERE FROM ELEMENTS WILL BE IGNORED.

THIS MAY BE DUE TO ALL MEMBERS AT THIS JOINT BEING RELEASED OR

EFFECTIVELY RELEASED IN THIS DIRECTION.

ZERO STIFFNESS IN DIRECTION 4 AT JOINT 1321 EQN.NO. 3544

ZERO STIFFNESS IN DIRECTION 5 AT JOINT 1321 EQN.NO. 3545

ZERO STIFFNESS IN DIRECTION 6 AT JOINT 1321 EQN.NO. 3546

ZERO STIFFNESS IN DIRECTION 2 AT JOINT 1322 EQN.NO. 3548

ZERO STIFFNESS IN DIRECTION 4 AT JOINT 1322 EQN.NO. 3550

ZERO STIFFNESS IN DIRECTION 5 AT JOINT 1322 EQN.NO. 3551

ZERO STIFFNESS IN DIRECTION 6 AT JOINT 1322 EQN.NO. 3552

CALCULATED FREQUENCIES FOR LOAD CASE 7

MODE	FREQUENCY(CYCLES/SEC)	PERIOD(SEC)
1	0.828	1.20774
2	0.873	1.14592
3	0.993	1.00755
4	1.031	0.97037
5	1.055	0.94785
6	1.100	0.90884
7	1.253	0.79838
8	1.350	0.74088
9	1.459	0.68561
10	1.476	0.67768
11	1.554	0.64362
12	1.645	0.60778
13	1.646	0.60769
14	1.660	0.60245
15	1.695	0.59009
16	1.979	0.50540
17	2.064	0.48445
18	2.103	0.47545

19	2.126	0.47029
20	2.286	0.43754
21	2.375	0.42097
22	2.392	0.41799
23	2.487	0.40206
24	2.545	0.39300
25	2.633	0.37974
26	2.675	0.37383
27	2.746	0.36421
28	2.869	0.34855
29	2.973	0.33635
30	3.049	0.32800
31	3.070	0.32574
32	3.121	0.32038
33	3.148	0.31767
34	3.149	0.31756
35	3.175	0.31497
36	3.190	0.31344
37	3.210	0.31148
38	3.237	0.30894
39	3.252	0.30754
40	3.272	0.30566
41	3.297	0.30333
42	3.304	0.30270
43	3.327	0.30059
44	3.364	0.29725
45	3.385	0.29541
46	3.394	0.29462
47	3.422	0.29221
48	3.440	0.29073
49	3.458	0.28917
50	3.548	0.28188
51	3.574	0.27981

CALCULATED FREQUENCIES FOR LOAD CASE 7

MODE	FREQUENCY(CYCLES/SEC)	PERIOD(SEC)

52	3.659	0.27330
53	3.672	0.27232
54	3.834	0.26080
55	3.860	0.25910
56	3.902	0.25627
57	3.963	0.25234
58	4.010	0.24940
59	4.067	0.24586
60	4.086	0.24473
61	4.110	0.24329
62	4.123	0.24252
63	4.128	0.24223
64	4.161	0.24031
65	4.200	0.23812
66	4.229	0.23645
67	4.245	0.23555
68	4.283	0.23349
69	4.336	0.23065
70	4.374	0.22865
71	4.400	0.22729
72	4.421	0.22620
73	4.424	0.22604
74	4.430	0.22574
75	4.454	0.22452
76	4.519	0.22127
77	4.602	0.21732
78	4.617	0.21660
79	4.651	0.21503
80	4.751	0.21050
81	4.769	0.20967
82	4.829	0.20708
83	4.876	0.20511
84	5.040	0.19842
85	5.114	0.19555
86	5.162	0.19372
87	5.229	0.19125

88	5.245	0.19066
89	5.264	0.18997
90	5.306	0.18847
91	5.323	0.18785
92	5.431	0.18414
93	5.445	0.18364
94	5.455	0.18330
95	5.514	0.18134
96	5.535	0.18067
97	5.547	0.18027
98	5.603	0.17849
99	5.627	0.17773
100	5.669	0.17641
101	5.713	0.17502

CALCULATED FREQUENCIES FOR LOAD CASE 7

MODE	FREQUENCY(CYCLES/SEC)	PERIOD(SEC)
102	5.795	0.17255
103	5.883	0.16997
104	5.937	0.16843
105	6.014	0.16628
106	6.016	0.16622
107	6.116	0.16349
108	6.153	0.16252
109	6.177	0.16188
110	6.182	0.16175
111	6.303	0.15866
112	6.320	0.15824
113	6.347	0.15755
114	6.382	0.15668
115	6.401	0.15623
116	6.442	0.15524
117	6.482	0.15427
118	6.543	0.15284

119	6.593	0.15168
120	6.624	0.15097
121	6.644	0.15050
122	6.661	0.15012
123	6.711	0.14901
124	6.762	0.14788
125	6.806	0.14694
126	6.910	0.14471
127	6.960	0.14368
128	6.998	0.14290
129	7.042	0.14201
130	7.093	0.14099
131	7.166	0.13955
132	7.185	0.13918
133	7.285	0.13726
134	7.299	0.13701
135	7.373	0.13562
136	7.408	0.13499
137	7.482	0.13366
138	7.486	0.13359
139	7.577	0.13199
140	7.669	0.13040
141	7.697	0.12992
142	7.759	0.12888
143	7.836	0.12762
144	7.859	0.12724
145	7.921	0.12625
146	7.935	0.12602
147	7.962	0.12560
148	7.984	0.12526
149	8.013	0.12479
150	8.024	0.12463
151	8.043	0.12433

CALCULATED FREQUENCIES FOR LOAD CASE 7

MODE	FREQUENCY(CYCLES/SEC)	PERIOD(SEC)

152	8.092	0.12357
153	8.124	0.12310
154	8.134	0.12294
155	8.165	0.12247
156	8.237	0.12140
157	8.291	0.12061
158	8.298	0.12051
159	8.443	0.11844
160	8.496	0.11770
161	8.509	0.11752
162	8.542	0.11707
163	8.553	0.11691
164	8.566	0.11674
165	8.631	0.11586
166	8.660	0.11548
167	8.697	0.11499
168	8.709	0.11482
169	8.768	0.11405
170	8.838	0.11314
171	8.931	0.11197
172	9.051	0.11049
173	9.106	0.10982
174	9.150	0.10929
175	9.245	0.10817
176	9.267	0.10791
177	9.335	0.10712
178	9.365	0.10678
179	9.381	0.10660
180	9.454	0.10578
181	9.468	0.10561
182	9.501	0.10525
183	9.554	0.10467
184	9.608	0.10408
185	9.677	0.10333
186	9.742	0.10265
187	9.763	0.10243

188	9.792	0.10213
189	9.836	0.10167
190	9.842	0.10161
191	9.909	0.10092
192	9.943	0.10057
193	10.002	0.09998
194	10.044	0.09956
195	10.071	0.09929
196	10.081	0.09920
197	10.149	0.09853
198	10.162	0.09840
199	10.257	0.09749
200	10.477	0.09545

C O M P O S I T E D A M P I N G SUMMARY

MODE	STRAIN ENERGY	DAMP*ENERGY	COMPOSITE DAMPING
1	8.681919E+00	3.067572E-01	0.0353
2	4.034432E+00	1.406401E-01	0.0349
3	1.932831E+01	6.807405E-01	0.0352
4	2.708001E+01	9.693521E-01	0.0358
5	4.440585E+00	1.573494E-01	0.0354
6	2.126562E+00	6.893564E-02	0.0324
7	3.528618E+00	1.214743E-01	0.0344
8	1.153158E+01	4.039866E-01	0.0350
9	3.307110E+00	1.005108E-01	0.0304
10	2.602998E+00	7.877011E-02	0.0303
11	8.523600E+00	2.968351E-01	0.0348
12	2.375124E+00	7.125383E-02	0.0300
13	1.864004E+00	5.592012E-02	0.0300
14	3.780964E+00	1.136969E-01	0.0301
15	4.161430E+00	1.286291E-01	0.0309

16	7.165535E+00	2.270423E-01	0.0317
17	4.373654E+00	1.319872E-01	0.0302
18	3.066849E+00	9.257943E-02	0.0302
19	2.090518E+00	6.311120E-02	0.0302
20	5.538111E+00	1.664860E-01	0.0301
21	3.667517E+00	1.112197E-01	0.0303
22	3.199270E+01	9.665493E-01	0.0302
23	2.899564E+00	1.043696E-01	0.0360
24	7.585665E+00	2.323225E-01	0.0306
25	4.621752E+00	1.390101E-01	0.0301
26	1.365569E+01	4.104965E-01	0.0301
27	1.107512E+01	3.326791E-01	0.0300
28	1.038549E+01	3.122379E-01	0.0301
29	6.734867E+00	2.043701E-01	0.0303
30	1.818032E+01	5.481162E-01	0.0301
31	3.808614E+00	1.146810E-01	0.0301
32	1.199953E+01	3.606660E-01	0.0301
33	8.688132E+00	2.606816E-01	0.0300
34	2.219175E+00	6.669801E-02	0.0301
35	1.063895E+01	3.237296E-01	0.0304
36	1.358220E+01	4.078107E-01	0.0300
37	1.029916E+01	3.089852E-01	0.0300
38	1.375579E+01	4.154687E-01	0.0302
39	1.238471E+00	3.734263E-02	0.0302
40	1.167434E+00	3.502871E-02	0.0300
41	1.798183E+01	5.412105E-01	0.0301
42	1.918845E+01	5.847158E-01	0.0305
43	1.799070E+01	5.418628E-01	0.0301
44	1.259101E+01	3.787339E-01	0.0301
45	1.624413E+00	4.888106E-02	0.0301
46	1.227400E+00	3.682829E-02	0.0300
47	1.162757E+01	3.488474E-01	0.0300
48	1.378905E+01	4.177326E-01	0.0303

MODE	STRAIN ENERGY	DAMP*ENERGY	COMPOSITE DAMPING

49	1.428784E+01	4.345333E-01	0.0304
50	1.457482E+01	4.476419E-01	0.0307
51	3.431629E+01	1.053624E+00	0.0307
52	2.041747E+01	6.168237E-01	0.0302
53	2.901063E+01	8.783847E-01	0.0303
54	5.359091E+01	1.676195E+00	0.0313
55	6.337737E+01	1.972737E+00	0.0311
56	1.348525E+01	4.201363E-01	0.0312
57	1.358447E+02	4.367081E+00	0.0321
58	4.851554E+01	1.492615E+00	0.0308
59	5.029659E+00	1.520442E-01	0.0302
60	6.339551E+00	1.918796E-01	0.0303
61	8.696707E+00	2.625717E-01	0.0302
62	2.690600E+01	8.348312E-01	0.0310
63	1.919004E+01	5.882723E-01	0.0307
64	1.507635E+01	4.584366E-01	0.0304
65	1.827412E+01	5.499037E-01	0.0301
66	8.131596E+01	2.474009E+00	0.0304
67	3.893215E+01	1.186179E+00	0.0305
68	7.444567E+00	2.252298E-01	0.0303
69	1.842582E+01	5.531549E-01	0.0300
70	1.869799E+01	5.632314E-01	0.0301
71	9.682333E+00	2.913500E-01	0.0301
72	2.165645E+01	6.503207E-01	0.0300
73	6.270663E+00	1.887060E-01	0.0301
74	9.784610E+00	2.935782E-01	0.0300
75	1.478898E+01	4.482933E-01	0.0303
76	4.170505E+01	1.263517E+00	0.0303
77	5.767630E+01	1.766618E+00	0.0306
78	5.400113E+01	1.640044E+00	0.0304
79	4.939282E+01	1.514800E+00	0.0307
80	2.243093E+01	6.922976E-01	0.0309
81	3.482692E+01	1.068103E+00	0.0307
82	6.820476E+01	2.127021E+00	0.0312
83	7.930522E+01	2.463999E+00	0.0311
84	5.328508E+01	1.622318E+00	0.0304
85	5.498407E+01	1.691819E+00	0.0308
86	4.907006E+01	1.502599E+00	0.0306

87	8.855756E+01	2.853995E+00	0.0322
88	8.993381E+01	2.790522E+00	0.0310
89	1.066919E+02	3.319358E+00	0.0311
90	1.817393E+02	5.734850E+00	0.0316
91	5.793915E+01	1.803582E+00	0.0311
92	3.899532E+01	1.266191E+00	0.0325
93	4.388810E+01	1.339923E+00	0.0305
94	4.039694E+01	1.229777E+00	0.0304
95	3.064698E+01	9.452159E-01	0.0308
96	2.245490E+01	6.779724E-01	0.0302
97	3.237999E+01	1.003409E+00	0.0310
98	4.942114E+00	1.490222E-01	0.0302
99	9.546656E+01	2.923886E+00	0.0306
100	1.341789E+02	4.345327E+00	0.0324
101	1.475575E+01	4.566039E-01	0.0309

MODE	STRAIN ENERGY	DAMP*ENERGY	COMPOSITE DAMPING
102	2.534057E+01	7.768658E-01	0.0307
103	1.946343E+02	6.046277E+00	0.0311
104	1.123834E+02	3.456702E+00	0.0308
105	3.017954E+01	9.129439E-01	0.0303
106	4.706113E+01	1.442017E+00	0.0306
107	5.178853E+01	1.635292E+00	0.0316
108	1.893096E+00	5.769769E-02	0.0305
109	5.382543E+00	1.706056E-01	0.0317
110	2.227882E+01	6.947604E-01	0.0312
111	5.809600E+01	1.764105E+00	0.0304
112	5.499889E+01	1.695527E+00	0.0308
113	3.903349E+01	1.320197E+00	0.0338
114	2.587881E+00	7.870807E-02	0.0304
115	7.667478E+00	2.312786E-01	0.0302
116	1.006398E+01	3.087392E-01	0.0307
117	3.797672E+01	1.185776E+00	0.0312
118	6.456014E+00	1.995824E-01	0.0309
119	3.873540E+01	1.223900E+00	0.0316

120	2.021451E+00	6.065298E-02	0.0300
121	5.407501E+00	1.664051E-01	0.0308
122	8.901038E+00	2.696426E-01	0.0303
123	1.050003E+02	3.374981E+00	0.0321
124	3.054930E+01	9.348453E-01	0.0306
125	7.829250E+01	2.438280E+00	0.0311
126	5.946636E+01	1.838801E+00	0.0309
127	8.699169E+00	2.721366E-01	0.0313
128	4.953293E+01	1.630219E+00	0.0329
129	4.521443E+01	1.505279E+00	0.0333
130	1.512490E+02	4.653013E+00	0.0308
131	3.539636E+00	1.079749E-01	0.0305
132	1.256936E+01	3.860490E-01	0.0307
133	1.151296E+01	3.505402E-01	0.0304
134	2.384607E+01	7.350208E-01	0.0308
135	2.324811E+01	7.176651E-01	0.0309
136	2.907424E+01	8.842002E-01	0.0304
137	3.431931E+01	1.044301E+00	0.0304
138	2.148905E+01	6.742307E-01	0.0314
139	2.524696E+01	7.867735E-01	0.0312
140	1.411387E+02	4.345399E+00	0.0308
141	8.218419E+01	2.562191E+00	0.0312
142	1.866301E+02	5.826624E+00	0.0312
143	1.829049E+02	5.737522E+00	0.0314
144	1.997620E+01	6.097306E-01	0.0305
145	7.957790E+01	2.471415E+00	0.0311
146	1.213312E+02	3.714978E+00	0.0306
147	2.130389E+01	6.437906E-01	0.0302
148	1.222318E+02	3.805868E+00	0.0311
149	1.052255E+02	3.315639E+00	0.0315
150	2.145198E+01	6.505102E-01	0.0303
151	1.889453E+01	5.732242E-01	0.0303
152	9.783878E+01	3.012963E+00	0.0308
153	8.899580E+01	2.735866E+00	0.0307
154	1.400963E+01	4.239022E-01	0.0303

MODE	STRAIN ENERGY	DAMP*ENERGY	COMPOSITE DAMPING
155	3.590483E+01	1.108152E+00	0.0309
156	4.864587E+01	1.472040E+00	0.0303
157	1.809573E+02	5.513120E+00	0.0305
158	2.803867E+01	8.528474E-01	0.0304
159	1.605771E+01	4.907545E-01	0.0306
160	5.678962E+01	1.722739E+00	0.0303
161	2.077878E+01	6.363179E-01	0.0306
162	1.674990E+01	5.062970E-01	0.0302
163	9.386864E+01	2.903209E+00	0.0309
164	5.229266E+00	1.571420E-01	0.0301
165	1.833871E+01	5.523423E-01	0.0301
166	1.527995E+01	4.593954E-01	0.0301
167	4.767898E+01	1.452229E+00	0.0305
168	1.360348E+01	4.104060E-01	0.0302
169	7.907007E+01	2.495566E+00	0.0316
170	1.142550E+02	3.605748E+00	0.0316
171	3.523636E+02	1.069165E+01	0.0303
172	3.704461E+01	1.141885E+00	0.0308
173	6.916825E+01	2.116397E+00	0.0306
174	2.934822E+01	8.852577E-01	0.0302
175	5.467056E+02	1.679449E+01	0.0307
176	6.124024E+01	1.847882E+00	0.0302
177	4.364494E+01	1.320437E+00	0.0303
178	2.113038E+02	6.475242E+00	0.0306
179	1.607146E+02	4.903085E+00	0.0305
180	1.950174E+02	5.934461E+00	0.0304
181	1.029099E+02	3.115575E+00	0.0303
182	1.535862E+02	4.648016E+00	0.0303
183	4.433730E+01	1.334637E+00	0.0301
184	2.926943E+02	8.938984E+00	0.0305
185	1.618523E+02	4.928837E+00	0.0305
186	1.540858E+01	4.633406E-01	0.0301
187	7.715465E+01	2.346161E+00	0.0304
188	1.294540E+02	3.952229E+00	0.0305
189	1.318956E+02	3.981153E+00	0.0302
190	6.481617E+01	1.952263E+00	0.0301

191	1.276640E+02	3.876291E+00	0.0304
192	2.376693E+02	7.576992E+00	0.0319
193	2.070366E+01	6.232804E-01	0.0301
194	9.443843E+01	2.840575E+00	0.0301
195	1.524484E+01	4.573458E-01	0.0300
196	1.706631E+01	5.128473E-01	0.0301
197	9.009227E+01	2.746503E+00	0.0305
198	1.359542E+02	4.156732E+00	0.0306
199	3.018250E+02	9.185206E+00	0.0304
200	1.348435E+02	4.087208E+00	0.0303

RESPONSE LOAD CASE 7

SRSS MODAL COMBINATION METHOD USED.

DYNAMIC WEIGHT X Y Z 8.303278E+03 9.798368E+03 8.303278E+03 KN

MISSING WEIGHT X Y Z -5.333425E+02 -8.010067E+01 -3.933308E+02 KN

MODAL WEIGHT X Y Z 7.769936E+03 9.718267E+03 7.909947E+03 KN

MODE	ACCELERATION-G	DAMPING
1	0.10268	0.05000
2	0.10611	0.05000
3	0.11379	0.05000
4	0.11663	0.05000
5	0.11846	0.05000
6	0.12164	0.05000
7	0.13076	0.05000
8	0.13921	0.05000
9	0.14732	0.05000
10	0.14849	0.05000
11	0.15349	0.05000
12	0.15875	0.05000

13	0.15876	0.05000
14	0.15953	0.05000
15	0.16199	0.05000
16	0.17996	0.05000
17	0.18567	0.05000
18	0.18831	0.05000
19	0.18983	0.05000
20	0.19945	0.05000
21	0.20431	0.05000
22	0.20519	0.05000
23	0.20986	0.05000
24	0.21340	0.05000
25	0.21895	0.05000
26	0.22143	0.05000
27	0.22546	0.05000
28	0.23201	0.05000
29	0.23712	0.05000
30	0.24062	0.05000
31	0.24157	0.05000
32	0.24381	0.05000
33	0.24494	0.05000
34	0.24499	0.05000
35	0.24608	0.05000
36	0.24672	0.05000
37	0.24754	0.05000
38	0.24860	0.05000
39	0.24919	0.05000
40	0.24997	0.05000
41	0.25095	0.05000
42	0.25122	0.05000

MODE	ACCELERATION-G	DAMPING
43	0.25210	0.05000

44	0.25350	0.05000
45	0.25427	0.05000
46	0.25460	0.05000
47	0.25561	0.05000
48	0.25623	0.05000
49	0.25688	0.05000
50	0.25993	0.05000
51	0.26080	0.05000
52	0.26353	0.05000
53	0.26394	0.05000
54	0.26876	0.05000
55	0.26947	0.05000
56	0.27066	0.05000
57	0.27231	0.05000
58	0.27354	0.05000
59	0.27502	0.05000
60	0.27549	0.05000
61	0.27609	0.05000
62	0.27642	0.05000
63	0.27654	0.05000
64	0.27734	0.05000
65	0.27826	0.05000
66	0.27896	0.05000
67	0.27934	0.05000
68	0.28020	0.05000
69	0.28139	0.05000
70	0.28223	0.05000
71	0.28280	0.05000
72	0.28325	0.05000
73	0.28332	0.05000
74	0.28344	0.05000
75	0.28396	0.05000
76	0.28532	0.05000
77	0.28697	0.05000
78	0.28727	0.05000
79	0.28793	0.05000
80	0.28983	0.05000
81	0.29017	0.05000

82	0.29126	0.05000
83	0.29208	0.05000
84	0.29488	0.05000
85	0.29609	0.05000
86	0.29685	0.05000
87	0.29788	0.05000
88	0.29813	0.05000
89	0.29842	0.05000
90	0.29905	0.05000
91	0.29931	0.05000
92	0.30086	0.05000
93	0.30107	0.05000

MODE	ACCELERATION-G	DAMPING
94	0.30121	0.05000
95	0.30204	0.05000
96	0.30232	0.05000
97	0.30248	0.05000
98	0.30323	0.05000
99	0.30355	0.05000
100	0.30410	0.05000
101	0.30468	0.05000
102	0.30572	0.05000
103	0.30680	0.05000
104	0.30744	0.05000
105	0.30834	0.05000
106	0.30837	0.05000
107	0.30951	0.05000
108	0.30992	0.05000
109	0.31018	0.05000
110	0.31024	0.05000
111	0.31153	0.05000
112	0.31171	0.05000

113	0.31200	0.05000
114	0.31236	0.05000
115	0.31255	0.05000
116	0.31297	0.05000
117	0.31337	0.05000
118	0.31397	0.05000
119	0.31446	0.05000
120	0.31475	0.05000
121	0.31495	0.05000
122	0.31511	0.05000
123	0.31558	0.05000
124	0.31605	0.05000
125	0.31644	0.05000
126	0.31737	0.05000
127	0.31781	0.05000
128	0.31813	0.05000
129	0.31851	0.05000
130	0.31893	0.05000
131	0.31953	0.05000
132	0.31969	0.05000
133	0.32050	0.05000
134	0.32060	0.05000
135	0.32118	0.05000
136	0.32145	0.05000
137	0.32200	0.05000
138	0.32203	0.05000
139	0.32270	0.05000
140	0.32337	0.05000
141	0.32357	0.05000
142	0.32401	0.05000
143	0.32453	0.05000
144	0.32469	0.05000

MODE	ACCELERATION-G	DAMPING

145	0.32511	0.05000
146	0.32520	0.05000
147	0.32538	0.05000
148	0.32552	0.05000
149	0.32572	0.05000
150	0.32578	0.05000
151	0.32591	0.05000
152	0.32623	0.05000
153	0.32643	0.05000
154	0.32649	0.05000
155	0.32669	0.05000
156	0.32714	0.05000
157	0.32747	0.05000
158	0.32751	0.05000
159	0.32838	0.05000
160	0.32869	0.05000
161	0.32876	0.05000
162	0.32895	0.05000
163	0.32902	0.05000
164	0.32909	0.05000
165	0.32946	0.05000
166	0.32962	0.05000
167	0.32982	0.05000
168	0.32989	0.05000
169	0.33021	0.05000
170	0.33059	0.05000
171	0.33109	0.05000
172	0.33171	0.05000
173	0.33199	0.05000
174	0.33221	0.05000
175	0.33268	0.05000
176	0.33278	0.05000
177	0.33312	0.05000
178	0.33326	0.05000
179	0.33334	0.05000
180	0.33368	0.05000
181	0.33375	0.05000

182	0.33390	0.05000
183	0.33414	0.05000
184	0.33439	0.05000
185	0.33470	0.05000
186	0.33499	0.05000
187	0.33508	0.05000
188	0.33521	0.05000
189	0.33540	0.05000
190	0.33543	0.05000
191	0.33571	0.05000
192	0.33586	0.05000
193	0.33606	0.05000
194	0.33509	0.05000
195	0.33448	0.05000

MODE	ACCELERATION-G	DAMPING
196	0.33427	0.05000
197	0.33274	0.05000
198	0.33245	0.05000
199	0.33037	0.05000
200	0.32570	0.05000

MODAL BASE ACTIONS FORCES IN KN LENGTH IN METE

MOMENTS ARE ABOUT THE ORIGIN

MODE	PERIOD	FX	FY	FZ	MX	MY	MZ
1	1.208	0.90	-0.32	-20.88	-256.93	3759.15	-70.39
2	1.146	0.20	-0.08	3.90	54.42	-847.18	-18.54

3	1.008	14.82	-2.29	-6.16	-64.55	2138.88	-623.14
4	0.970	759.07	6.03	-59.73	-951.80	43010.18	-8762.50
5	0.948	76.62	1.25	92.32	1162.69	-18634.45	-737.55
6	0.909	0.00	0.03	-0.38	-6.16	84.13	7.22
7	0.798	3.80	0.04	3.04	34.88	-51.31	-44.55
8	0.741	6.50	-0.11	-12.40	-129.90	2955.06	-117.60
9	0.686	0.07	-0.07	0.17	5.99	-40.76	-15.61
10	0.678	0.04	-0.04	0.54	2.57	-114.25	-9.17
11	0.644	0.35	-0.17	1.02	19.42	-180.20	-44.06
12	0.608	0.00	0.00	0.00	0.01	0.11	-0.11
13	0.608	0.00	0.00	0.00	0.00	0.01	0.00
14	0.602	7.61	-0.02	-0.18	1.02	328.56	-77.91
15	0.590	0.00	0.00	-0.03	-0.42	5.88	0.87
16	0.505	0.13	0.45	-1.97	-37.64	434.18	97.10
17	0.484	0.10	-0.04	0.18	2.93	-41.59	-11.23
18	0.475	9.04	0.71	2.40	-12.11	-101.86	159.20
19	0.470	10.85	0.40	2.44	2.35	-56.75	96.51
20	0.438	0.55	0.32	0.07	-12.66	9.18	19.55
21	0.421	0.13	0.02	0.20	-5.66	-26.06	11.06
22	0.418	4.10	-0.35	0.70	28.46	17.35	35.22
23	0.402	4.64	-0.06	0.27	2.59	72.44	-20.17
24	0.393	0.05	0.30	-0.66	-14.22	136.18	61.15
25	0.380	0.19	-0.07	0.09	3.73	-9.95	-11.09
26	0.374	1.02	-1.22	0.06	50.03	16.70	-195.43
27	0.364	0.70	-0.63	0.27	25.87	-26.86	-124.96
28	0.349	1.38	0.03	-0.19	3.80	76.70	45.00
29	0.336	0.09	-0.63	0.84	21.17	-144.54	-116.55
30	0.328	0.00	0.00	0.00	0.14	0.09	-0.83
31	0.326	0.13	0.38	-0.02	-12.24	12.47	78.00
32	0.320	0.04	-0.39	-0.03	14.25	9.34	-86.05
33	0.318	0.03	-0.20	-0.01	7.15	4.13	-41.65
34	0.318	0.00	0.03	-0.02	-0.93	4.01	4.91
35	0.315	0.47	13.51	-0.42	-518.34	97.38	2526.79
36	0.313	0.03	0.12	0.00	-5.79	2.50	10.49
37	0.311	0.00	-0.04	0.00	1.26	0.48	-7.53
38	0.309	0.05	-2.96	-0.24	105.50	53.43	-643.77
39	0.308	0.00	0.00	0.00	0.01	1.04	-0.06
40	0.306	0.00	0.00	0.00	0.00	0.00	0.00

41	0.303	0.02	-0.38	-0.18	15.98	32.48	-77.21
42	0.303	0.06	-1.01	0.60	36.12	-100.58	-190.75
43	0.301	0.07	0.26	-0.17	-11.20	29.88	42.90
44	0.297	0.05	0.04	0.04	-2.41	-7.11	8.77
45	0.295	0.00	0.01	0.01	-0.41	-1.54	1.60
46	0.295	0.00	0.00	0.00	0.03	0.00	-0.12
47	0.292	0.01	-0.01	0.00	0.24	-0.05	-1.45

MODAL BASE ACTIONS FORCES IN KN LENGTH IN METE

MOMENTS ARE ABOUT THE ORIGIN

MODE	PERIOD	FX	FY	FZ	MX	MY	MZ
48	0.291	0.58	-2.85	0.22	106.02	-24.35	-546.51
49	0.289	0.00	0.00	0.00	-0.15	-0.29	0.71
50	0.282	0.00	0.03	0.12	-1.07	-27.69	5.24
51	0.280	0.76	-19.47	-0.07	741.82	28.70	-3304.06
52	0.273	0.12	3.82	0.07	-142.93	-13.10	788.61
53	0.272	1.04	-17.41	-0.77	660.58	197.24	-3410.88
54	0.261	1.93	2.29	-5.24	-83.80	1030.51	561.31
55	0.259	0.09	1.36	-0.26	-57.78	52.35	231.56
56	0.256	0.00	-0.04	0.12	0.51	-22.69	-6.89
57	0.252	0.14	0.69	1.48	-34.78	-253.47	143.36
58	0.249	2.61	-8.06	1.30	287.45	-118.48	-1176.91
59	0.246	0.01	0.01	-0.04	0.23	10.20	5.32
60	0.245	0.01	-0.03	0.09	1.31	-18.78	-2.84
61	0.243	0.00	0.02	0.04	-0.75	-7.88	7.14
62	0.243	0.04	0.80	0.35	-28.61	-72.05	167.70
63	0.242	0.02	1.11	-0.06	-39.72	10.95	234.63
64	0.240	0.12	1.33	-0.22	-47.66	53.62	259.14
65	0.238	0.00	0.11	0.04	-4.29	-7.83	25.47
66	0.236	0.00	-0.09	-0.04	4.12	8.69	-15.28
67	0.236	2.06	1.96	1.27	-72.65	-182.33	307.13
68	0.233	0.01	0.03	-0.17	0.39	32.55	7.29
69	0.231	0.02	-0.02	-0.01	0.60	3.58	-6.16

70	0.229	0.02	-0.04	0.05	2.89	-8.67	-11.08
71	0.227	0.07	0.50	0.05	-18.62	-4.15	102.86
72	0.226	0.01	0.32	0.03	-12.85	-5.19	65.17
73	0.226	0.01	-0.10	-0.03	3.65	6.17	-19.65
74	0.226	0.00	-0.01	0.00	0.32	0.04	-1.72
75	0.225	0.14	-0.10	0.13	0.06	-11.13	-16.58
76	0.221	1.00	-2.80	1.19	101.80	-195.02	-512.20
77	0.217	0.00	-0.63	0.00	22.39	1.44	-147.49
78	0.217	0.16	7.36	0.08	-266.44	-18.98	1548.02
79	0.215	1.62	-0.66	-2.08	45.25	452.06	-375.68
80	0.211	1.34	5.05	-0.55	-188.50	162.39	1602.09
81	0.210	0.28	1.07	0.22	-45.73	-31.33	281.97
82	0.207	0.33	4.24	-0.45	-150.04	101.83	897.93
83	0.205	0.23	4.95	0.90	-212.81	-159.10	985.91
84	0.198	0.05	-0.30	0.02	12.93	-4.37	-59.76
85	0.196	0.13	0.49	-0.03	-22.77	18.31	74.14
86	0.194	0.00	-0.01	-0.01	0.26	3.22	-2.20
87	0.191	0.00	-0.04	-0.10	3.43	24.50	-7.81
88	0.191	0.01	-0.16	0.02	2.77	-3.60	-34.49
89	0.190	0.10	0.08	-0.47	-6.21	98.12	15.73
90	0.188	0.17	0.16	-0.50	7.09	93.45	44.08
91	0.188	0.07	-0.32	-0.45	25.77	87.64	-67.46
92	0.184	0.00	-0.03	0.04	1.27	-5.26	-5.08
93	0.184	0.00	-0.02	0.06	0.90	-11.08	-4.14

MODAL BASE ACTIONS FORCES IN KN LENGTH IN METE

MOMENTS ARE ABOUT THE ORIGIN

MODE	PERIOD	FX	FY	FZ	MX	MY	MZ
94	0.183	0.00	0.03	-0.06	-0.60	12.71	5.74
95	0.181	0.02	0.46	-0.16	-16.54	32.00	65.38
96	0.181	0.00	-0.03	0.00	0.97	0.51	-3.89
97	0.180	0.16	3.23	0.34	-124.81	-54.83	505.78
98	0.178	0.00	0.01	0.00	-0.29	-0.75	1.30

99	0.178	0.02	-0.27	0.17	10.56	-31.68	-49.01
100	0.176	0.09	-0.66	-0.22	24.72	35.75	-93.37
101	0.175	0.74	-2.60	-1.14	102.52	250.96	-539.58
102	0.173	0.08	0.93	0.27	-35.75	-51.05	207.84
103	0.170	0.40	-0.58	-0.78	32.73	201.39	-106.23
104	0.168	0.24	-2.82	0.91	89.83	-173.09	-591.87
105	0.166	0.03	-0.75	0.10	22.72	-17.35	-153.84
106	0.166	0.11	0.59	0.15	-13.48	-25.69	109.20
107	0.163	0.20	-0.23	0.52	4.40	-91.69	-78.14
108	0.163	0.00	-0.09	0.02	2.63	-5.71	-22.48
109	0.162	0.65	3.45	0.10	-117.44	48.22	822.16
110	0.162	1.84	2.07	1.73	-104.70	-259.77	342.34
111	0.159	0.05	-0.35	0.11	9.85	-20.95	-67.52
112	0.158	0.26	-1.31	0.05	54.67	5.94	-258.21
113	0.158	0.02	-0.03	-0.32	3.23	74.99	-7.74
114	0.157	0.00	0.05	0.04	-1.01	-8.20	10.83
115	0.156	0.03	-0.16	0.05	4.89	-8.70	-27.20
116	0.155	0.35	-0.23	-0.18	24.81	49.32	-18.21
117	0.154	2.56	-0.87	-0.71	29.91	226.11	-76.40
118	0.153	0.00	-0.01	0.00	0.12	-0.81	-0.04
119	0.152	0.98	0.99	-0.23	-31.31	97.00	192.06
120	0.151	0.00	-0.03	0.00	1.24	-0.04	-6.36
121	0.151	0.28	-0.81	0.10	34.48	0.96	-211.34
122	0.150	0.05	-0.52	0.05	21.61	-8.03	-92.78
123	0.149	0.06	-0.11	-0.12	9.73	23.80	-34.39
124	0.148	0.05	-0.86	-0.04	30.00	12.89	-170.78
125	0.147	1.70	0.42	0.25	-44.46	-14.91	144.93
126	0.145	0.17	-0.30	0.10	13.89	-6.78	-75.07
127	0.144	0.03	-0.11	0.42	2.03	-89.90	-18.75
128	0.143	0.12	0.06	0.25	-0.88	-45.61	22.20
129	0.142	0.33	0.17	0.07	-0.61	2.90	51.64
130	0.141	0.15	-1.21	-0.45	51.70	104.69	-249.67
131	0.140	0.15	-0.17	0.42	4.79	-89.14	-20.06
132	0.139	0.02	-0.10	-0.07	4.62	17.88	-25.86
133	0.137	0.01	-0.02	0.11	0.29	-23.70	-5.11
134	0.137	0.01	-0.09	0.17	2.31	-36.36	-18.13
135	0.136	0.14	0.25	0.08	-8.99	-8.81	50.50
136	0.135	0.09	0.27	-0.10	-5.15	20.69	56.11

137	0.134	0.23	-0.04	-0.16	-1.62	51.12	-28.17
138	0.134	0.11	0.28	0.43	-13.07	-87.63	64.00
139	0.132	0.22	0.44	-0.32	-10.81	70.94	99.68

MODAL BASE ACTIONS FORCES IN KN LENGTH IN METE

MOMENTS ARE ABOUT THE ORIGIN

MODE	PERIOD	FX	FY	FZ	MX	MY	MZ
140	0.130	0.00	-0.01	0.00	0.29	-1.32	-4.27
141	0.130	0.11	-0.80	0.53	25.45	-94.93	-167.08
142	0.129	0.02	0.16	-0.02	-5.03	5.91	30.30
143	0.128	0.18	0.39	0.16	-15.69	-27.75	91.32
144	0.127	1.80	-0.78	0.78	25.59	-75.42	-134.52
145	0.126	0.62	-0.12	-0.47	5.62	99.21	-31.00
146	0.126	0.05	-0.46	0.11	18.10	-19.94	-100.90
147	0.126	0.96	0.05	-0.23	2.25	77.14	-16.51
148	0.125	4.02	-1.27	-0.78	47.41	265.79	-316.54
149	0.125	0.75	-0.56	0.37	19.63	-48.42	-123.35
150	0.125	1.95	1.28	-0.82	-49.31	237.13	237.48
151	0.124	0.07	0.24	-0.13	-8.30	26.07	43.11
152	0.124	0.96	0.25	-0.48	-14.37	141.54	56.82
153	0.123	0.39	-0.36	0.16	15.47	-18.88	-93.75
154	0.123	0.22	0.62	0.00	-19.93	9.38	129.25
155	0.122	2.08	0.77	-1.05	-27.72	269.93	131.70
156	0.121	0.41	-0.68	-0.13	27.83	39.99	-128.36
157	0.121	0.24	0.02	0.15	-4.04	-15.09	23.84
158	0.121	0.30	0.14	-0.06	-4.61	23.91	15.88
159	0.118	0.18	-0.62	0.00	24.34	8.50	-119.58
160	0.118	0.00	0.01	-0.01	-0.35	1.50	1.26
161	0.118	1.40	0.79	0.15	-29.75	26.64	152.09
162	0.117	0.16	-0.28	0.06	9.66	-7.97	-60.41
163	0.117	0.01	-0.07	-0.01	2.62	2.05	-7.72
164	0.117	0.01	0.04	-0.01	-2.06	2.38	10.91
165	0.116	0.06	0.05	0.04	-1.92	-5.18	2.84

166	0.115	0.04	-0.04	0.02	1.72	-2.35	-6.25
167	0.115	0.27	-0.42	0.13	13.99	-15.20	-75.14
168	0.115	0.02	0.02	-0.01	-1.41	3.01	5.40
169	0.114	0.02	-0.23	0.01	9.53	-1.42	-53.35
170	0.113	0.13	0.62	0.01	-30.79	9.03	131.65
171	0.112	0.04	0.15	-0.09	-5.67	18.75	32.03
172	0.110	0.29	-0.46	-0.44	17.70	96.58	-91.09
173	0.110	1.25	1.06	-0.01	-32.73	54.51	237.78
174	0.109	0.00	0.03	-0.02	-1.15	3.98	5.72
175	0.108	0.04	0.03	0.28	-2.36	-48.17	3.48
176	0.108	0.11	-0.12	-0.10	5.16	23.79	-20.59
177	0.107	0.53	0.08	0.21	-5.27	-15.79	21.48
178	0.107	0.06	-0.33	0.07	12.74	-10.51	-57.63
179	0.107	0.23	-0.15	-0.08	5.96	28.18	-29.40
180	0.106	1.68	1.64	0.18	-64.59	32.64	369.42
181	0.106	0.04	0.32	-0.12	-10.42	23.29	73.02
182	0.105	0.27	-0.70	-0.12	25.87	27.07	-144.69
183	0.105	0.01	-0.04	0.01	1.41	-1.86	-8.67
184	0.104	0.57	-0.50	0.06	19.43	9.23	-96.19
185	0.103	0.23	0.15	0.06	-5.90	1.22	41.87

MODAL BASE ACTIONS FORCES IN KN LENGTH IN METE

MOMENTS ARE ABOUT THE ORIGIN

MODE	PERIOD	FX	FY	FZ	MX	MY	MZ
186	0.103	0.10	-0.06	0.02	2.56	0.46	-7.52
187	0.102	0.14	-0.02	0.19	-0.45	-30.72	7.54
188	0.102	0.76	-0.73	-0.39	34.14	111.42	-133.03
189	0.102	0.01	0.03	0.01	-1.15	-1.76	5.16
190	0.102	0.23	-0.03	0.04	1.92	4.11	-3.75
191	0.101	0.08	0.11	0.00	-4.92	3.31	25.85
192	0.101	0.83	-0.80	0.13	33.44	10.63	-153.27
193	0.100	0.21	-0.02	0.02	0.36	1.62	-5.50
194	0.100	0.01	0.01	0.00	-0.25	0.59	1.21

195	0.099	0.00	0.00	0.00	0.00	0.00	0.00
196	0.099	0.01	0.00	0.03	-0.09	-5.15	0.19
197	0.099	0.53	-0.49	0.26	18.08	-32.98	-95.79
198	0.098	0.08	0.22	0.21	-9.55	-37.70	44.11
199	0.097	0.02	0.04	-0.03	-1.85	9.30	7.81
200	0.095	0.43	0.43	-0.07	-19.44	30.87	76.85

MASS PARTICIPATION FACTORS IN PERCENT   BASE SHEAR IN KN

MODE	X	Y	Z	SUMM-X	SUMM-Y	SUMM-Z	X	Y	Z
1	0.11	0.01	56.79	0.106	0.011	56.795	0.90	0.00	0.00
2	0.02	0.00	8.41	0.129	0.014	65.210	0.20	0.00	0.00
3	1.57	0.03	0.27	1.698	0.046	65.481	14.82	0.00	0.00
4	78.39	0.00	0.49	80.083	0.050	65.966	759.07	0.00	0.00
5	7.79	0.00	11.31	87.873	0.052	77.274	76.62	0.00	0.00
6	0.00	0.03	4.41	87.874	0.080	81.682	0.00	0.00	0.00
7	0.35	0.00	0.22	88.224	0.080	81.906	3.80	0.00	0.00
8	0.56	0.00	2.05	88.786	0.080	83.952	6.50	0.00	0.00
9	0.01	0.00	0.04	88.792	0.085	83.988	0.07	0.00	0.00
10	0.00	0.00	0.66	88.795	0.088	84.644	0.04	0.00	0.00
11	0.03	0.01	0.24	88.822	0.093	84.882	0.35	0.00	0.00
12	0.00	0.00	0.00	88.822	0.093	84.882	0.00	0.00	0.00
13	0.00	0.00	0.00	88.822	0.093	84.882	0.00	0.00	0.00
14	0.57	0.00	0.00	89.397	0.093	84.882	7.61	0.00	0.00
15	0.00	0.03	1.31	89.397	0.118	86.190	0.00	0.00	0.00
16	0.01	0.09	2.07	89.405	0.207	88.258	0.13	0.00	0.00
17	0.01	0.00	0.02	89.412	0.208	88.279	0.10	0.00	0.00
18	0.58	0.00	0.04	89.990	0.211	88.320	9.04	0.00	0.00
19	0.69	0.00	0.03	90.678	0.212	88.354	10.85	0.00	0.00
20	0.03	0.01	0.00	90.711	0.221	88.355	0.55	0.00	0.00
21	0.01	0.00	0.02	90.719	0.221	88.373	0.13	0.00	0.00
22	0.24	0.00	0.01	90.959	0.223	88.381	4.10	0.00	0.00

23	0.27	0.00	0.00	91.225	0.223	88.381	4.64	0.00	0.00
24	0.00	0.08	0.47	91.228	0.304	88.850	0.05	0.00	0.00
25	0.01	0.00	0.00	91.239	0.305	88.853	0.19	0.00	0.00
26	0.06	0.07	0.00	91.294	0.372	88.853	1.02	0.00	0.00
27	0.04	0.03	0.01	91.332	0.398	88.858	0.70	0.00	0.00
28	0.07	0.00	0.00	91.404	0.398	88.860	1.38	0.00	0.00
29	0.00	0.19	0.39	91.408	0.586	89.246	0.09	0.00	0.00
30	0.00	0.14	0.00	91.408	0.731	89.249	0.00	0.00	0.00
31	0.01	0.05	0.00	91.415	0.777	89.250	0.13	0.00	0.00
32	0.00	0.18	0.00	91.417	0.957	89.251	0.04	0.00	0.00
33	0.00	0.05	0.00	91.418	1.005	89.251	0.03	0.00	0.00
34	0.00	0.06	0.03	91.418	1.064	89.281	0.00	0.00	0.00
35	0.02	16.03	0.02	91.441	17.094	89.299	0.47	0.00	0.00
36	0.00	0.02	0.00	91.443	17.116	89.299	0.03	0.00	0.00
37	0.00	0.03	0.00	91.443	17.148	89.299	0.00	0.00	0.00
38	0.00	6.63	0.05	91.446	23.776	89.352	0.05	0.00	0.00
39	0.00	0.00	0.16	91.446	23.776	89.509	0.00	0.00	0.00
40	0.00	0.00	0.00	91.446	23.776	89.509	0.00	0.00	0.00
41	0.00	0.24	0.06	91.447	24.019	89.573	0.02	0.00	0.00
42	0.00	0.67	0.27	91.450	24.686	89.844	0.06	0.00	0.00
43	0.00	0.04	0.02	91.453	24.725	89.863	0.07	0.00	0.00
44	0.00	0.00	0.00	91.456	24.726	89.864	0.05	0.00	0.00
45	0.00	0.01	0.02	91.456	24.739	89.884	0.00	0.00	0.00
46	0.00	0.00	0.00	91.456	24.739	89.884	0.00	0.00	0.00
47	0.00	0.00	0.00	91.456	24.739	89.884	0.01	0.00	0.00

	MASS PARTICIPATION FACTORS IN PERCENT						BASE SHEAR IN KN		
MODE	X	Y	Z	SUMM-X	SUMM-Y	SUMM-Z	X	Y	Z
48	0.03	0.56	0.00	91.483	25.295	89.887	0.58	0.00	0.00
49	0.00	0.21	0.01	91.483	25.505	89.900	0.00	0.00	0.00
50	0.00	0.01	0.24	91.484	25.519	90.136	0.00	0.00	0.00
51	0.04	19.57	0.00	91.519	45.088	90.137	0.76	0.00	0.00

52	0.01	4.75	0.00	91.524	49.839	90.139	0.12	0.00	0.00
53	0.05	11.29	0.03	91.571	61.132	90.165	1.04	0.00	0.00
54	0.09	0.10	0.64	91.658	61.235	90.801	1.93	0.00	0.00
55	0.00	0.74	0.03	91.662	61.979	90.833	0.09	0.00	0.00
56	0.00	0.03	0.25	91.662	62.006	91.084	0.00	0.00	0.00
57	0.01	0.13	0.71	91.668	62.139	91.797	0.14	0.00	0.00
58	0.12	0.93	0.03	91.784	63.065	91.825	2.61	0.00	0.00
59	0.00	0.00	0.01	91.784	63.066	91.832	0.01	0.00	0.00
60	0.00	0.01	0.05	91.784	63.072	91.883	0.01	0.00	0.00
61	0.00	0.01	0.02	91.784	63.078	91.901	0.00	0.00	0.00
62	0.00	0.62	0.14	91.786	63.695	92.042	0.04	0.00	0.00
63	0.00	2.03	0.01	91.787	65.726	92.048	0.02	0.00	0.00
64	0.01	0.52	0.02	91.792	66.251	92.066	0.12	0.00	0.00
65	0.00	0.13	0.02	91.793	66.380	92.083	0.00	0.00	0.00
66	0.00	0.14	0.04	91.793	66.516	92.120	0.00	0.00	0.00
67	0.09	0.07	0.03	91.881	66.584	92.153	2.06	0.00	0.00
68	0.00	0.00	0.13	91.882	66.588	92.287	0.01	0.00	0.00
69	0.00	0.00	0.00	91.883	66.589	92.288	0.02	0.00	0.00
70	0.00	0.00	0.00	91.884	66.591	92.293	0.02	0.00	0.00
71	0.00	0.12	0.00	91.887	66.714	92.294	0.07	0.00	0.00
72	0.00	0.36	0.00	91.887	67.072	92.298	0.01	0.00	0.00
73	0.00	0.05	0.01	91.888	67.121	92.304	0.01	0.00	0.00
74	0.00	0.01	0.00	91.888	67.129	92.304	0.00	0.00	0.00
75	0.01	0.00	0.01	91.893	67.131	92.309	0.14	0.00	0.00
76	0.04	0.28	0.06	91.936	67.411	92.369	1.00	0.00	0.00
77	0.00	3.60	0.00	91.936	71.007	92.370	0.00	0.00	0.00
78	0.01	12.22	0.00	91.942	83.230	92.371	0.16	0.00	0.00
79	0.07	0.01	0.11	92.010	83.240	92.483	1.62	0.00	0.00
80	0.06	0.67	0.01	92.066	83.913	92.492	1.34	0.00	0.00
81	0.01	0.15	0.01	92.077	84.060	92.500	0.28	0.00	0.00
82	0.01	1.89	0.02	92.091	85.945	92.524	0.33	0.00	0.00
83	0.01	3.67	0.14	92.101	89.611	92.669	0.23	0.00	0.00
84	0.00	0.07	0.00	92.103	89.680	92.669	0.05	0.00	0.00
85	0.01	0.06	0.00	92.108	89.742	92.669	0.13	0.00	0.00
86	0.00	0.01	0.05	92.108	89.755	92.715	0.00	0.00	0.00
87	0.00	0.01	0.09	92.108	89.766	92.806	0.00	0.00	0.00
88	0.00	0.08	0.00	92.109	89.846	92.808	0.01	0.00	0.00
89	0.00	0.00	0.09	92.113	89.848	92.895	0.10	0.00	0.00

90	0.01	0.00	0.06	92.120	89.853	92.955	0.17	0.00	0.00
91	0.00	0.05	0.13	92.122	89.905	93.081	0.07	0.00	0.00
92	0.00	0.07	0.09	92.122	89.976	93.176	0.00	0.00	0.00
93	0.00	0.01	0.09	92.122	89.985	93.266	0.00	0.00	0.00

	MASS PARTICIPATION FACTORS IN PERCENT						BASE SHEAR IN KN		
MODE	X	Y	Z	SUMM-X	SUMM-Y	SUMM-Z	X	Y	Z
94	0.00	0.02	0.11	92.123	90.006	93.373	0.00	0.00	0.00
95	0.00	0.31	0.05	92.123	90.318	93.418	0.02	0.00	0.00
96	0.00	0.03	0.00	92.124	90.349	93.419	0.00	0.00	0.00
97	0.01	2.17	0.03	92.130	92.515	93.448	0.16	0.00	0.00
98	0.00	0.06	0.02	92.130	92.578	93.463	0.00	0.00	0.00
99	0.00	0.14	0.07	92.131	92.721	93.532	0.02	0.00	0.00
100	0.00	0.16	0.02	92.134	92.884	93.554	0.09	0.00	0.00
101	0.03	0.30	0.07	92.164	93.188	93.623	0.74	0.00	0.00
102	0.00	0.35	0.03	92.167	93.541	93.657	0.08	0.00	0.00
103	0.02	0.03	0.06	92.182	93.569	93.717	0.40	0.00	0.00
104	0.01	1.12	0.14	92.192	94.688	93.854	0.24	0.00	0.00
105	0.00	0.55	0.01	92.193	95.239	93.866	0.03	0.00	0.00
106	0.00	0.10	0.01	92.197	95.342	93.873	0.11	0.00	0.00
107	0.01	0.01	0.05	92.205	95.350	93.924	0.20	0.00	0.00
108	0.00	0.15	0.01	92.205	95.503	93.937	0.00	0.00	0.00
109	0.03	0.61	0.00	92.231	96.110	93.938	0.65	0.00	0.00
110	0.07	0.08	0.06	92.302	96.187	94.001	1.84	0.00	0.00
111	0.00	0.08	0.01	92.304	96.267	94.010	0.05	0.00	0.00
112	0.01	0.21	0.00	92.314	96.477	94.010	0.26	0.00	0.00
113	0.00	0.00	0.18	92.315	96.478	94.191	0.02	0.00	0.00
114	0.00	0.02	0.01	92.315	96.500	94.205	0.00	0.00	0.00
115	0.00	0.03	0.00	92.316	96.526	94.208	0.03	0.00	0.00
116	0.01	0.00	0.00	92.330	96.530	94.211	0.35	0.00	0.00
117	0.10	0.01	0.01	92.428	96.540	94.219	2.56	0.00	0.00
118	0.00	0.00	0.00	92.428	96.544	94.220	0.00	0.00	0.00

119	0.04	0.03	0.00	92.466	96.576	94.223	0.98	0.00	0.00
120	0.00	0.01	0.00	92.466	96.585	94.223	0.00	0.00	0.00
121	0.01	0.07	0.00	92.477	96.659	94.224	0.28	0.00	0.00
122	0.00	0.16	0.00	92.479	96.817	94.226	0.05	0.00	0.00
123	0.00	0.01	0.01	92.481	96.824	94.235	0.06	0.00	0.00
124	0.00	0.52	0.00	92.483	97.348	94.236	0.05	0.00	0.00
125	0.06	0.00	0.00	92.548	97.351	94.238	1.70	0.00	0.00
126	0.01	0.02	0.00	92.554	97.369	94.240	0.17	0.00	0.00
127	0.00	0.01	0.22	92.555	97.381	94.461	0.03	0.00	0.00
128	0.00	0.00	0.02	92.560	97.382	94.482	0.12	0.00	0.00
129	0.01	0.00	0.00	92.572	97.385	94.482	0.33	0.00	0.00
130	0.01	0.31	0.05	92.578	97.692	94.534	0.15	0.00	0.00
131	0.01	0.01	0.05	92.583	97.699	94.579	0.15	0.00	0.00
132	0.00	0.02	0.01	92.584	97.714	94.587	0.02	0.00	0.00
133	0.00	0.00	0.04	92.584	97.715	94.625	0.01	0.00	0.00
134	0.00	0.03	0.15	92.585	97.747	94.772	0.01	0.00	0.00
135	0.01	0.01	0.00	92.590	97.761	94.774	0.14	0.00	0.00
136	0.00	0.03	0.00	92.594	97.787	94.778	0.09	0.00	0.00
137	0.01	0.00	0.00	92.602	97.787	94.782	0.23	0.00	0.00
138	0.00	0.02	0.06	92.606	97.809	94.842	0.11	0.00	0.00
139	0.01	0.03	0.02	92.615	97.836	94.859	0.22	0.00	0.00

	MASS PARTICIPATION FACTORS IN PERCENT						BASE SHEAR IN KN		
MODE	X	Y	Z	SUMM-X	SUMM-Y	SUMM-Z	X	Y	Z
140	0.00	0.00	0.00	92.615	97.841	94.860	0.00	0.00	0.00
141	0.00	0.18	0.09	92.619	98.024	94.954	0.11	0.00	0.00
142	0.00	0.04	0.00	92.620	98.061	94.955	0.02	0.00	0.00
143	0.01	0.03	0.01	92.626	98.088	94.960	0.18	0.00	0.00
144	0.07	0.01	0.01	92.693	98.099	94.973	1.80	0.00	0.00
145	0.02	0.00	0.01	92.716	98.099	94.986	0.62	0.00	0.00
146	0.00	0.13	0.01	92.718	98.230	94.994	0.05	0.00	0.00
147	0.04	0.00	0.00	92.753	98.230	94.996	0.96	0.00	0.00

148	0.15	0.01	0.01	92.902	98.243	95.002	4.02	0.00	0.00
149	0.03	0.01	0.01	92.930	98.256	95.009	0.75	0.00	0.00
150	0.07	0.03	0.01	93.002	98.282	95.022	1.95	0.00	0.00
151	0.00	0.03	0.01	93.005	98.307	95.030	0.07	0.00	0.00
152	0.04	0.00	0.01	93.040	98.309	95.039	0.96	0.00	0.00
153	0.01	0.01	0.00	93.055	98.319	95.041	0.39	0.00	0.00
154	0.01	0.05	0.00	93.063	98.372	95.041	0.22	0.00	0.00
155	0.08	0.01	0.02	93.139	98.381	95.061	2.08	0.00	0.00
156	0.01	0.04	0.00	93.154	98.417	95.062	0.41	0.00	0.00
157	0.01	0.00	0.00	93.163	98.417	95.066	0.24	0.00	0.00
158	0.01	0.00	0.00	93.174	98.419	95.066	0.30	0.00	0.00
159	0.01	0.07	0.00	93.181	98.485	95.066	0.18	0.00	0.00
160	0.00	0.00	0.00	93.181	98.487	95.067	0.00	0.00	0.00
161	0.05	0.01	0.00	93.232	98.500	95.068	1.40	0.00	0.00
162	0.01	0.02	0.00	93.238	98.516	95.069	0.16	0.00	0.00
163	0.00	0.01	0.00	93.239	98.527	95.069	0.01	0.00	0.00
164	0.00	0.00	0.00	93.239	98.531	95.069	0.01	0.00	0.00
165	0.00	0.00	0.00	93.241	98.533	95.070	0.06	0.00	0.00
166	0.00	0.00	0.00	93.243	98.534	95.070	0.04	0.00	0.00
167	0.01	0.02	0.00	93.253	98.554	95.073	0.27	0.00	0.00
168	0.00	0.00	0.00	93.253	98.555	95.073	0.02	0.00	0.00
169	0.00	0.10	0.00	93.254	98.652	95.073	0.02	0.00	0.00
170	0.00	0.09	0.00	93.259	98.741	95.073	0.13	0.00	0.00
171	0.00	0.02	0.01	93.260	98.757	95.081	0.04	0.00	0.00
172	0.01	0.02	0.02	93.271	98.779	95.105	0.29	0.00	0.00
173	0.05	0.03	0.00	93.316	98.807	95.105	1.25	0.00	0.00
174	0.00	0.01	0.00	93.316	98.812	95.109	0.00	0.00	0.00
175	0.00	0.00	0.08	93.318	98.813	95.188	0.04	0.00	0.00
176	0.00	0.00	0.00	93.322	98.817	95.191	0.11	0.00	0.00
177	0.02	0.00	0.00	93.341	98.817	95.194	0.53	0.00	0.00
178	0.00	0.05	0.00	93.343	98.868	95.197	0.06	0.00	0.00
179	0.01	0.00	0.00	93.352	98.871	95.198	0.23	0.00	0.00
180	0.06	0.05	0.00	93.412	98.919	95.199	1.68	0.00	0.00
181	0.00	0.08	0.01	93.414	99.003	95.213	0.04	0.00	0.00
182	0.01	0.06	0.00	93.423	99.059	95.214	0.27	0.00	0.00
183	0.00	0.01	0.00	93.424	99.065	95.215	0.01	0.00	0.00
184	0.02	0.01	0.00	93.444	99.078	95.215	0.57	0.00	0.00
185	0.01	0.00	0.00	93.453	99.081	95.216	0.23	0.00	0.00

	MASS PARTICIPATION FACTORS IN PERCENT						BASE SHEAR IN KN		
MODE	X	Y	Z	SUMM-X	SUMM-Y	SUMM-Z	X	Y	Z
186	0.00	0.00	0.00	93.456	99.082	95.216	0.10	0.00	0.00
187	0.00	0.00	0.01	93.461	99.082	95.225	0.14	0.00	0.00
188	0.03	0.02	0.01	93.488	99.103	95.232	0.76	0.00	0.00
189	0.00	0.00	0.00	93.489	99.106	95.233	0.01	0.00	0.00
190	0.01	0.00	0.00	93.497	99.106	95.233	0.23	0.00	0.00
191	0.00	0.00	0.00	93.500	99.111	95.233	0.08	0.00	0.00
192	0.03	0.02	0.00	93.530	99.134	95.234	0.83	0.00	0.00
193	0.01	0.00	0.00	93.537	99.134	95.234	0.21	0.00	0.00
194	0.00	0.00	0.00	93.538	99.134	95.234	0.01	0.00	0.00
195	0.00	0.00	0.00	93.538	99.134	95.234	0.00	0.00	0.00
196	0.00	0.00	0.00	93.538	99.134	95.236	0.01	0.00	0.00
197	0.02	0.01	0.00	93.557	99.148	95.241	0.53	0.00	0.00
198	0.00	0.02	0.02	93.560	99.165	95.260	0.08	0.00	0.00
199	0.00	0.00	0.00	93.561	99.169	95.262	0.02	0.00	0.00
200	0.02	0.01	0.00	93.577	99.182	95.263	0.43	0.00	0.00
					TOTAL SRSS SHEAR		763.35	0.00	0.00
					TOTAL 10PCT SHEAR		851.30	0.00	0.00
					TOTAL ABS SHEAR		958.31	0.00	0.00

RESPONSE LOAD CASE 8

SRSS MODAL COMBINATION METHOD USED.

DYNAMIC WEIGHT X Y Z 8.303278E+03 9.798368E+03 8.303278E+03 KN

MISSING WEIGHT X Y Z -5.333425E+02 -8.010067E+01 -3.933308E+02 KN

MODAL WEIGHT X Y Z   7.769936E+03 9.718267E+03 7.909947E+03 KN

MODE	ACCELERATION-G	DAMPING
1	0.15246	0.05000
2	0.15725	0.05000
3	0.16797	0.05000
4	0.17258	0.05000
5	0.17563	0.05000
6	0.18092	0.05000
7	0.19600	0.05000
8	0.20714	0.05000
9	0.21840	0.05000
10	0.22025	0.05000

MODE	ACCELERATION-G	DAMPING
11	0.22817	0.05000
12	0.23650	0.05000
13	0.23652	0.05000
14	0.23774	0.05000
15	0.24119	0.05000
16	0.26580	0.05000
17	0.27430	0.05000
18	0.27831	0.05000
19	0.28061	0.05000
20	0.29520	0.05000
21	0.30259	0.05000
22	0.30391	0.05000
23	0.31101	0.05000
24	0.31627	0.05000

25	0.32449	0.05000
26	0.32816	0.05000
27	0.33412	0.05000
28	0.34383	0.05000
29	0.35139	0.05000
30	0.35657	0.05000
31	0.35797	0.05000
32	0.36129	0.05000
33	0.36297	0.05000
34	0.36304	0.05000
35	0.36465	0.05000
36	0.36560	0.05000
37	0.36681	0.05000
38	0.36839	0.05000
39	0.36925	0.05000
40	0.37042	0.05000
41	0.37187	0.05000
42	0.37226	0.05000
43	0.37356	0.05000
44	0.37564	0.05000
45	0.37678	0.05000
46	0.37727	0.05000
47	0.37876	0.05000
48	0.37968	0.05000
49	0.38065	0.05000
50	0.38516	0.05000
51	0.38645	0.05000
52	0.39048	0.05000
53	0.39109	0.05000
54	0.39823	0.05000
55	0.39929	0.05000
56	0.40104	0.05000
57	0.40348	0.05000
58	0.40530	0.05000
59	0.40749	0.05000
60	0.40820	0.05000
61	0.40909	0.05000

MODE	ACCELERATION-G	DAMPING
62	0.40957	0.05000
63	0.40974	0.05000
64	0.41094	0.05000
65	0.41229	0.05000
66	0.41333	0.05000
67	0.41389	0.05000
68	0.41517	0.05000
69	0.41692	0.05000
70	0.41817	0.05000
71	0.41901	0.05000
72	0.41969	0.05000
73	0.41978	0.05000
74	0.41997	0.05000
75	0.42073	0.05000
76	0.42274	0.05000
77	0.42519	0.05000
78	0.42563	0.05000
79	0.42661	0.05000
80	0.42942	0.05000
81	0.42993	0.05000
82	0.43154	0.05000
83	0.43276	0.05000
84	0.43691	0.05000
85	0.43869	0.05000
86	0.43982	0.05000
87	0.44135	0.05000
88	0.44172	0.05000
89	0.44215	0.05000
90	0.44308	0.05000
91	0.44346	0.05000
92	0.44576	0.05000
93	0.44607	0.05000

94	0.44628	0.05000
95	0.44750	0.05000
96	0.44791	0.05000
97	0.44816	0.05000
98	0.44927	0.05000
99	0.44974	0.05000
100	0.45056	0.05000
101	0.45141	0.05000
102	0.45295	0.05000
103	0.45455	0.05000
104	0.45550	0.05000
105	0.45683	0.05000
106	0.45687	0.05000
107	0.45856	0.05000
108	0.45917	0.05000
109	0.45956	0.05000
110	0.45964	0.05000
111	0.46156	0.05000
112	0.46182	0.05000

MODE	ACCELERATION-G	DAMPING
113	0.46225	0.05000
114	0.46278	0.05000
115	0.46307	0.05000
116	0.46368	0.05000
117	0.46428	0.05000
118	0.46517	0.05000
119	0.46589	0.05000
120	0.46633	0.05000
121	0.46662	0.05000
122	0.46685	0.05000
123	0.46754	0.05000
124	0.46824	0.05000

125	0.46883	0.05000
126	0.47021	0.05000
127	0.47085	0.05000
128	0.47133	0.05000
129	0.47188	0.05000
130	0.47252	0.05000
131	0.47340	0.05000
132	0.47364	0.05000
133	0.47483	0.05000
134	0.47498	0.05000
135	0.47584	0.05000
136	0.47624	0.05000
137	0.47706	0.05000
138	0.47710	0.05000
139	0.47810	0.05000
140	0.47908	0.05000
141	0.47938	0.05000
142	0.48002	0.05000
143	0.48080	0.05000
144	0.48104	0.05000
145	0.48165	0.05000
146	0.48180	0.05000
147	0.48205	0.05000
148	0.48227	0.05000
149	0.48256	0.05000
150	0.48266	0.05000
151	0.48284	0.05000
152	0.48331	0.05000
153	0.48361	0.05000
154	0.48371	0.05000
155	0.48399	0.05000
156	0.48466	0.05000
157	0.48515	0.05000
158	0.48521	0.05000
159	0.48649	0.05000
160	0.48696	0.05000
161	0.48706	0.05000
162	0.48734	0.05000

163	0.48744	0.05000

MODE	ACCELERATION-G	DAMPING
164	0.48755	0.05000
165	0.48810	0.05000
166	0.48833	0.05000
167	0.48864	0.05000
168	0.48874	0.05000
169	0.48922	0.05000
170	0.48978	0.05000
171	0.49051	0.05000
172	0.49143	0.05000
173	0.49184	0.05000
174	0.49217	0.05000
175	0.49286	0.05000
176	0.49302	0.05000
177	0.49351	0.05000
178	0.49372	0.05000
179	0.49384	0.05000
180	0.49435	0.05000
181	0.49445	0.05000
182	0.49467	0.05000
183	0.49503	0.05000
184	0.49540	0.05000
185	0.49586	0.05000
186	0.49629	0.05000
187	0.49642	0.05000
188	0.49661	0.05000
189	0.49689	0.05000
190	0.49693	0.05000
191	0.49736	0.05000
192	0.49757	0.05000
193	0.49787	0.05000

194	0.49666	0.05000
195	0.49589	0.05000
196	0.49563	0.05000
197	0.49371	0.05000
198	0.49335	0.05000
199	0.49073	0.05000
200	0.48487	0.05000

MODAL BASE ACTIONS FORCES IN KN LENGTH IN METE

MOMENTS ARE ABOUT THE ORIGIN

MODE	PERIOD	FX	FY	FZ	MX	MY	MZ
1	1.208	-31.00	11.10	718.97	8846.62	-129436.64	2423.75
2	1.146	5.78	-2.20	109.87	1534.22	-23882.72	-522.64
3	1.008	-9.09	1.41	3.78	39.60	-1312.22	382.30
4	0.970	-88.39	-0.70	6.96	110.83	-5008.28	1020.34
5	0.948	136.87	2.24	164.90	2076.88	-33286.32	-1317.46
6	0.909	-0.57	-5.69	66.23	1063.20	-14520.20	-1245.51
7	0.798	4.55	0.05	3.63	41.74	-61.39	-53.31
8	0.741	-18.45	0.30	35.20	368.66	-8386.76	333.76
9	0.686	0.25	-0.25	0.65	22.66	-154.32	-59.09
10	0.678	0.80	-0.88	12.01	57.12	-2539.07	-203.82
11	0.644	1.52	-0.73	4.51	85.43	-792.61	-193.78
12	0.608	0.00	0.00	0.00	0.00	0.01	-0.01
13	0.608	0.00	0.00	0.00	0.00	0.00	0.00
14	0.602	-0.27	0.00	0.01	-0.04	-11.78	2.79
15	0.590	-0.04	-3.94	26.19	409.92	-5743.72	-849.27
16	0.505	-2.91	-10.31	45.64	871.46	-10053.10	-2248.35
17	0.484	0.27	-0.09	0.48	7.60	-107.89	-29.14
18	0.475	3.54	0.28	0.94	-4.75	-39.94	62.43
19	0.470	3.60	0.13	0.81	0.78	-18.85	32.05
20	0.438	0.11	0.06	0.01	-2.45	1.78	3.78
21	0.421	0.29	0.04	0.47	-13.27	-61.12	25.95

22	0.418	1.04	-0.09	0.18	7.22	4.40	8.93
23	0.402	0.41	-0.01	0.02	0.23	6.33	-1.76
24	0.393	-0.98	-5.54	12.31	264.55	-2534.07	-1137.97
25	0.380	0.13	-0.05	0.06	2.63	-7.01	-7.82
26	0.374	0.08	-0.10	0.00	4.03	1.34	-15.72
27	0.364	0.40	-0.36	0.15	14.60	-15.16	-70.54
28	0.349	-0.29	-0.01	0.04	-0.79	-15.95	-9.36
29	0.336	1.24	-8.56	11.28	285.80	-1950.98	-1573.13
30	0.328	0.00	0.69	0.10	-25.06	-15.85	145.41
31	0.326	-0.04	-0.10	0.01	3.32	-3.38	-21.15
32	0.320	-0.04	0.47	0.04	-17.17	-11.25	103.65
33	0.318	-0.02	0.10	0.01	-3.49	-2.01	20.33
34	0.318	-0.03	-1.37	0.89	47.35	-203.60	-249.01
35	0.315	-0.63	-17.90	0.56	686.80	-129.02	-3347.99
36	0.313	0.00	0.00	0.00	-0.10	0.04	0.17
37	0.311	0.00	0.06	0.00	-2.31	-0.88	13.78
38	0.309	-0.36	19.58	1.60	-697.34	-353.13	4255.21
39	0.308	-0.01	0.15	4.82	-7.99	-1084.08	59.10
40	0.306	0.00	0.00	0.00	0.00	0.00	0.00
41	0.303	-0.27	4.18	1.98	-173.66	-352.92	838.83
42	0.303	0.88	-14.29	8.39	508.95	-1417.18	-2687.54
43	0.301	-0.25	-0.90	0.57	38.22	-101.98	-146.42
44	0.297	0.06	0.04	0.04	-2.60	-7.66	9.44
45	0.295	0.01	0.53	0.61	-26.45	-99.82	103.61
46	0.295	0.00	0.00	0.00	0.00	0.00	0.02
47	0.292	0.00	0.00	0.00	0.07	-0.01	-0.39

MODAL BASE ACTIONS FORCES IN KN LENGTH IN METE

MOMENTS ARE ABOUT THE ORIGIN

MODE	PERIOD	FX	FY	FZ	MX	MY	MZ
48	0.291	0.32	-1.58	0.12	58.88	-13.52	-303.52
49	0.289	0.00	1.77	0.40	-61.93	-117.85	292.10
50	0.282	0.18	1.95	7.56	-65.91	-1706.78	322.92

51	0.280	-0.10	2.68	0.01	-102.16	-3.95	455.01
52	0.273	0.11	3.52	0.07	-131.80	-12.08	727.20
53	0.272	-1.14	19.07	0.84	-723.43	-216.00	3735.38
54	0.261	-7.77	-9.20	21.05	336.51	-4137.93	-2253.88
55	0.259	-0.39	-5.57	1.07	236.68	-214.44	-948.51
56	0.256	0.18	-3.01	8.35	35.80	-1590.82	-483.14
57	0.252	2.19	11.20	23.87	-562.26	-4097.88	2317.73
58	0.249	1.93	-5.93	0.96	211.71	-87.26	-866.80
59	0.246	-0.06	-0.04	0.24	-1.39	-60.62	-31.60
60	0.245	0.13	-0.67	1.73	25.28	-362.03	-54.76
61	0.243	0.06	0.38	0.59	-11.70	-123.07	111.57
62	0.243	0.52	10.93	4.83	-390.80	-984.23	2290.85
63	0.242	-0.08	-4.07	0.20	145.03	-40.00	-856.72
64	0.240	-0.33	-3.53	0.59	126.47	-142.31	-687.74
65	0.238	0.05	1.73	0.57	-67.20	-122.70	398.92
66	0.236	-0.06	2.64	1.27	-123.77	-260.79	458.36
67	0.236	1.87	1.78	1.15	-66.17	-166.06	279.73
68	0.233	-0.25	-0.86	4.63	-10.52	-876.12	-196.21
69	0.231	-0.02	0.02	0.01	-0.55	-3.29	5.66
70	0.229	0.07	-0.13	0.16	10.17	-30.51	-39.02
71	0.227	0.08	0.55	0.06	-20.72	-4.62	114.46
72	0.226	0.04	1.39	0.13	-55.58	-22.45	281.92
73	0.226	-0.05	0.65	0.21	-24.32	-41.08	130.89
74	0.226	0.00	0.00	0.00	0.17	0.02	-0.92
75	0.225	0.19	-0.14	0.19	0.08	-15.68	-23.36
76	0.221	1.77	-4.95	2.11	179.83	-344.50	-904.81
77	0.217	0.00	0.73	0.00	-25.90	-1.67	170.64
78	0.217	0.12	5.73	0.06	-207.72	-14.80	1206.84
79	0.215	-3.08	1.25	3.95	-85.98	-858.90	713.79
80	0.211	-0.81	-3.08	0.33	114.81	-98.91	-975.78
81	0.210	0.33	1.27	0.26	-54.28	-37.19	334.72
82	0.207	-0.66	-8.36	0.88	295.57	-200.61	-1768.88
83	0.205	1.34	28.42	5.20	-1222.79	-914.20	5665.05
84	0.198	0.02	-0.16	0.01	6.76	-2.28	-31.23
85	0.196	-0.05	-0.18	0.01	8.40	-6.76	-27.36
86	0.194	-0.02	0.96	1.68	-29.57	-369.37	252.61
87	0.191	-0.15	1.25	3.31	-115.02	-821.77	261.89
88	0.191	0.03	-0.47	0.06	8.13	-10.55	-101.12

89	0.190	-0.70	-0.53	3.22	42.33	-669.06	-107.28
90	0.188	-0.75	-0.69	2.20	-30.96	-407.90	-192.39
91	0.188	-0.67	3.25	4.63	-263.55	-896.31	689.90
92	0.184	0.05	-3.28	3.51	124.83	-515.70	-498.26
93	0.184	0.08	-1.16	3.33	54.34	-667.79	-249.59

MODAL BASE ACTIONS FORCES IN KN LENGTH IN METE

MOMENTS ARE ABOUT THE ORIGIN

MODE	PERIOD	FX	FY	FZ	MX	MY	MZ
94	0.183	-0.09	-1.92	3.98	40.87	-863.39	-389.73
95	0.181	-0.24	-4.81	1.69	171.77	-332.40	-679.02
96	0.181	0.00	0.12	0.01	-3.92	-2.05	15.71
97	0.180	0.51	10.14	1.08	-391.98	-172.18	1588.42
98	0.178	0.01	1.26	0.57	-41.98	-109.45	189.00
99	0.178	0.26	-4.04	2.59	157.54	-472.78	-731.26
100	0.176	-0.33	2.38	0.79	-88.61	-128.13	334.67
101	0.175	-1.69	5.93	2.61	-234.10	-573.04	1232.06
102	0.173	0.39	4.49	1.29	-173.26	-247.44	1007.32
103	0.170	-1.15	1.68	2.25	-94.71	-582.83	307.41
104	0.168	1.35	-16.08	5.18	511.99	-986.60	-3373.54
105	0.166	0.15	-3.29	0.44	99.38	-75.91	-673.06
106	0.166	0.22	1.14	0.28	-25.83	-49.20	209.16
107	0.163	0.77	-0.85	1.94	16.50	-343.91	-293.08
108	0.163	0.03	-1.84	0.49	55.08	-119.43	-470.25
109	0.162	0.16	0.83	0.03	-28.26	11.60	197.82
110	0.162	2.56	2.89	2.41	-145.63	-361.31	476.15
111	0.159	0.16	-1.13	0.36	31.95	-67.97	-219.04
112	0.158	0.07	-0.35	0.01	14.69	1.60	-69.39
113	0.158	-0.48	0.56	6.94	-69.29	-1610.24	166.23
114	0.157	0.05	0.71	0.53	-14.32	-116.64	153.99
115	0.156	0.07	-0.37	0.11	11.51	-20.49	-64.06
116	0.155	-0.26	0.17	0.13	-18.47	-36.71	13.56
117	0.154	-1.05	0.36	0.29	-12.25	-92.61	31.29

118	0.153	0.01	-0.10	0.06	1.98	-13.31	-0.58
119	0.152	-0.35	-0.35	0.08	11.08	-34.34	-68.00
120	0.151	0.00	-0.01	0.00	0.54	-0.02	-2.77
121	0.151	0.15	-0.42	0.05	18.02	0.50	-110.47
122	0.150	0.08	-0.72	0.07	30.26	-11.25	-129.89
123	0.149	-0.17	0.34	0.35	-29.33	-71.77	103.69
124	0.148	-0.06	1.11	0.05	-38.82	-16.68	220.97
125	0.147	0.37	0.09	0.05	-9.53	-3.20	31.07
126	0.145	0.15	-0.27	0.09	12.32	-6.01	-66.57
127	0.144	0.62	-2.19	8.66	42.09	-1859.65	-387.75
128	0.143	0.37	0.19	0.80	-2.77	-144.33	70.25
129	0.142	0.11	0.06	0.02	-0.20	0.96	17.08
130	0.141	-0.67	5.36	2.01	-229.58	-464.89	1108.71
131	0.140	0.62	-0.73	1.77	20.32	-378.18	-85.09
132	0.139	-0.10	0.49	0.33	-23.26	-90.03	130.20
133	0.137	0.16	-0.27	1.48	4.09	-329.31	-70.96
134	0.137	0.25	-2.92	5.81	79.09	-1246.08	-621.31
135	0.136	0.12	0.21	0.07	-7.68	-7.52	43.13
136	0.135	-0.14	-0.42	0.15	8.02	-32.19	-87.30
137	0.134	-0.23	0.04	0.16	1.63	-51.61	28.45
138	0.134	0.63	1.57	2.40	-73.48	-492.54	359.72
139	0.132	-0.47	-0.92	0.67	22.86	-150.00	-210.78

MODAL BASE ACTIONS FORCES IN KN LENGTH IN METE

MOMENTS ARE ABOUT THE ORIGIN

MODE	PERIOD	FX	FY	FZ	MX	MY	MZ
140	0.130	0.01	-0.07	0.02	1.79	-8.05	-26.02
141	0.130	0.78	-5.69	3.76	181.74	-677.88	-1193.11
142	0.129	-0.03	-0.23	0.03	7.20	-8.47	-43.42
143	0.128	0.24	0.53	0.22	-21.48	-38.00	125.05
144	0.127	1.16	-0.50	0.51	16.50	-48.62	-86.73
145	0.126	-0.69	0.13	0.52	-6.28	-110.81	34.63
146	0.126	0.16	-1.44	0.34	57.07	-62.86	-318.06

147	0.126	-0.35	-0.02	0.08	-0.81	-27.72	5.93
148	0.125	-1.15	0.36	0.22	-13.57	-76.09	90.62
149	0.125	0.55	-0.41	0.28	14.52	-35.82	-91.27
150	0.125	-1.22	-0.80	0.52	30.88	-148.48	-148.70
151	0.124	-0.19	-0.63	0.34	21.76	-68.29	-112.94
152	0.124	-0.71	-0.18	0.35	10.52	-103.59	-41.58
153	0.123	0.24	-0.22	0.10	9.40	-11.47	-56.98
154	0.123	0.00	0.00	0.00	-0.10	0.05	0.63
155	0.122	-1.56	-0.58	0.79	20.78	-202.38	-98.74
156	0.121	-0.19	0.32	0.06	-13.02	-18.71	60.03
157	0.121	0.22	0.02	0.13	-3.67	-13.70	21.64
158	0.121	-0.09	-0.04	0.02	1.37	-7.09	-4.71
159	0.118	0.00	-0.01	0.00	0.42	0.15	-2.09
160	0.118	-0.01	-0.07	0.05	2.06	-8.79	-7.41
161	0.118	0.22	0.13	0.02	-4.77	4.27	24.40
162	0.117	0.09	-0.17	0.04	5.81	-4.79	-36.32
163	0.117	-0.01	0.05	0.00	-1.67	-1.31	4.93
164	0.117	-0.01	-0.05	0.01	2.22	-2.57	-11.78
165	0.116	0.05	0.04	0.03	-1.71	-4.62	2.52
166	0.115	0.03	-0.03	0.01	1.23	-1.68	-4.46
167	0.115	0.20	-0.31	0.10	10.35	-11.24	-55.58
168	0.115	-0.02	-0.01	0.01	1.05	-2.24	-4.03
169	0.114	0.01	-0.14	0.00	5.77	-0.86	-32.29
170	0.113	0.01	0.07	0.00	-3.25	0.95	13.91
171	0.112	-0.14	-0.49	0.32	19.09	-63.09	-107.79
172	0.110	-0.65	1.02	0.98	-39.70	-216.59	204.27
173	0.110	-0.01	-0.01	0.00	0.37	-0.61	-2.67
174	0.109	-0.03	-0.19	0.15	8.24	-28.47	-40.87
175	0.108	0.42	0.34	3.24	-26.97	-549.67	39.71
176	0.108	-0.15	0.15	0.13	-6.62	-30.52	26.42
177	0.107	0.32	0.05	0.13	-3.14	-9.40	12.80
178	0.107	0.11	-0.55	0.12	21.38	-17.63	-96.68
179	0.107	-0.12	0.07	0.04	-3.06	-14.46	15.09
180	0.106	0.26	0.26	0.03	-10.18	5.15	58.23
181	0.106	-0.18	-1.51	0.57	49.43	-110.51	-346.40
182	0.105	-0.18	0.46	0.08	-17.10	-17.89	95.64
183	0.105	0.01	-0.06	0.02	2.18	-2.88	-13.38
184	0.104	0.08	-0.07	0.01	2.84	1.35	-14.05

185	0.103	0.09	0.06	0.02	-2.29	0.47	16.22

MODAL BASE ACTIONS FORCES IN KN LENGTH IN METE

MOMENTS ARE ABOUT THE ORIGIN

MODE	PERIOD	FX	FY	FZ	MX	MY	MZ
186	0.103	0.03	-0.02	0.01	0.75	0.14	-2.20
187	0.102	0.28	-0.03	0.38	-0.91	-62.42	15.33
188	0.102	-0.57	0.55	0.29	-25.76	-84.07	100.38
189	0.102	0.02	0.05	0.03	-2.15	-3.29	9.64
190	0.102	0.06	-0.01	0.01	0.47	1.00	-0.91
191	0.101	0.00	0.00	0.00	0.20	-0.13	-1.03
192	0.101	0.20	-0.19	0.03	8.04	2.55	-36.84
193	0.100	0.03	0.00	0.00	0.05	0.25	-0.84
194	0.100	0.00	0.00	0.00	0.03	-0.08	-0.16
195	0.099	0.00	0.00	0.00	0.00	0.00	-0.01
196	0.099	0.04	0.00	0.10	-0.33	-19.27	0.71
197	0.099	0.38	-0.35	0.19	13.09	-23.87	-69.32
198	0.098	0.32	0.82	0.80	-35.86	-141.60	165.68
199	0.097	-0.04	-0.12	0.08	5.31	-26.74	-22.44
200	0.095	-0.10	-0.10	0.02	4.65	-7.38	-18.36

MASS PARTICIPATION FACTORS IN PERCENT BASE SHEAR IN KN

MODE	X	Y	Z	SUMM-X	SUMM-Y	SUMM-Z	X	Y	Z
1	0.11	0.01	56.79	0.106	0.011	56.795	0.00	0.00	718.97
2	0.02	0.00	8.41	0.129	0.014	65.210	0.00	0.00	109.87
3	1.57	0.03	0.27	1.698	0.046	65.481	0.00	0.00	3.78

4	78.39	0.00	0.49	80.083	0.050	65.966	0.00	0.00	6.96
5	7.79	0.00	11.31	87.873	0.052	77.274	0.00	0.00	164.90
6	0.00	0.03	4.41	87.874	0.080	81.682	0.00	0.00	66.23
7	0.35	0.00	0.22	88.224	0.080	81.906	0.00	0.00	3.63
8	0.56	0.00	2.05	88.786	0.080	83.952	0.00	0.00	35.20
9	0.01	0.00	0.04	88.792	0.085	83.988	0.00	0.00	0.65
10	0.00	0.00	0.66	88.795	0.088	84.644	0.00	0.00	12.01
11	0.03	0.01	0.24	88.822	0.093	84.882	0.00	0.00	4.51
12	0.00	0.00	0.00	88.822	0.093	84.882	0.00	0.00	0.00
13	0.00	0.00	0.00	88.822	0.093	84.882	0.00	0.00	0.00
14	0.57	0.00	0.00	89.397	0.093	84.882	0.00	0.00	0.01
15	0.00	0.03	1.31	89.397	0.118	86.190	0.00	0.00	26.19
16	0.01	0.09	2.07	89.405	0.207	88.258	0.00	0.00	45.64
17	0.01	0.00	0.02	89.412	0.208	88.279	0.00	0.00	0.48
18	0.58	0.00	0.04	89.990	0.211	88.320	0.00	0.00	0.94
19	0.69	0.00	0.03	90.678	0.212	88.354	0.00	0.00	0.81
20	0.03	0.01	0.00	90.711	0.221	88.355	0.00	0.00	0.01
21	0.01	0.00	0.02	90.719	0.221	88.373	0.00	0.00	0.47
22	0.24	0.00	0.01	90.959	0.223	88.381	0.00	0.00	0.18
23	0.27	0.00	0.00	91.225	0.223	88.381	0.00	0.00	0.02
24	0.00	0.08	0.47	91.228	0.304	88.850	0.00	0.00	12.31
25	0.01	0.00	0.00	91.239	0.305	88.853	0.00	0.00	0.06
26	0.06	0.07	0.00	91.294	0.372	88.853	0.00	0.00	0.00
27	0.04	0.03	0.01	91.332	0.398	88.858	0.00	0.00	0.15
28	0.07	0.00	0.00	91.404	0.398	88.860	0.00	0.00	0.04
29	0.00	0.19	0.39	91.408	0.586	89.246	0.00	0.00	11.28
30	0.00	0.14	0.00	91.408	0.731	89.249	0.00	0.00	0.10
31	0.01	0.05	0.00	91.415	0.777	89.250	0.00	0.00	0.01
32	0.00	0.18	0.00	91.417	0.957	89.251	0.00	0.00	0.04
33	0.00	0.05	0.00	91.418	1.005	89.251	0.00	0.00	0.01
34	0.00	0.06	0.03	91.418	1.064	89.281	0.00	0.00	0.89
35	0.02	16.03	0.02	91.441	17.094	89.299	0.00	0.00	0.56
36	0.00	0.02	0.00	91.443	17.116	89.299	0.00	0.00	0.00
37	0.00	0.03	0.00	91.443	17.148	89.299	0.00	0.00	0.00
38	0.00	6.63	0.05	91.446	23.776	89.352	0.00	0.00	1.60
39	0.00	0.00	0.16	91.446	23.776	89.509	0.00	0.00	4.82
40	0.00	0.00	0.00	91.446	23.776	89.509	0.00	0.00	0.00
41	0.00	0.24	0.06	91.447	24.019	89.573	0.00	0.00	1.98

42	0.00	0.67	0.27	91.450	24.686	89.844	0.00	0.00	8.39
43	0.00	0.04	0.02	91.453	24.725	89.863	0.00	0.00	0.57
44	0.00	0.00	0.00	91.456	24.726	89.864	0.00	0.00	0.04
45	0.00	0.01	0.02	91.456	24.739	89.884	0.00	0.00	0.61
46	0.00	0.00	0.00	91.456	24.739	89.884	0.00	0.00	0.00
47	0.00	0.00	0.00	91.456	24.739	89.884	0.00	0.00	0.00

MASS PARTICIPATION FACTORS IN PERCENT — BASE SHEAR IN KN

MODE	X	Y	Z	SUMM-X	SUMM-Y	SUMM-Z	X	Y	Z
48	0.03	0.56	0.00	91.483	25.295	89.887	0.00	0.00	0.12
49	0.00	0.21	0.01	91.483	25.505	89.900	0.00	0.00	0.40
50	0.00	0.01	0.24	91.484	25.519	90.136	0.00	0.00	7.56
51	0.04	19.57	0.00	91.519	45.088	90.137	0.00	0.00	0.01
52	0.01	4.75	0.00	91.524	49.839	90.139	0.00	0.00	0.07
53	0.05	11.29	0.03	91.571	61.132	90.165	0.00	0.00	0.84
54	0.09	0.10	0.64	91.658	61.235	90.801	0.00	0.00	21.05
55	0.00	0.74	0.03	91.662	61.979	90.833	0.00	0.00	1.07
56	0.00	0.03	0.25	91.662	62.006	91.084	0.00	0.00	8.35
57	0.01	0.13	0.71	91.668	62.139	91.797	0.00	0.00	23.87
58	0.12	0.93	0.03	91.784	63.065	91.825	0.00	0.00	0.96
59	0.00	0.00	0.01	91.784	63.066	91.832	0.00	0.00	0.24
60	0.00	0.01	0.05	91.784	63.072	91.883	0.00	0.00	1.73
61	0.00	0.01	0.02	91.784	63.078	91.901	0.00	0.00	0.59
62	0.00	0.62	0.14	91.786	63.695	92.042	0.00	0.00	4.83
63	0.00	2.03	0.01	91.787	65.726	92.048	0.00	0.00	0.20
64	0.01	0.52	0.02	91.792	66.251	92.066	0.00	0.00	0.59
65	0.00	0.13	0.02	91.793	66.380	92.083	0.00	0.00	0.57
66	0.00	0.14	0.04	91.793	66.516	92.120	0.00	0.00	1.27
67	0.09	0.07	0.03	91.881	66.584	92.153	0.00	0.00	1.15
68	0.00	0.00	0.13	91.882	66.588	92.287	0.00	0.00	4.63
69	0.00	0.00	0.00	91.883	66.589	92.288	0.00	0.00	0.01
70	0.00	0.00	0.00	91.884	66.591	92.293	0.00	0.00	0.16

71	0.00	0.12	0.00	91.887	66.714	92.294	0.00	0.00	0.06
72	0.00	0.36	0.00	91.887	67.072	92.298	0.00	0.00	0.13
73	0.00	0.05	0.01	91.888	67.121	92.304	0.00	0.00	0.21
74	0.00	0.01	0.00	91.888	67.129	92.304	0.00	0.00	0.00
75	0.01	0.00	0.01	91.893	67.131	92.309	0.00	0.00	0.19
76	0.04	0.28	0.06	91.936	67.411	92.369	0.00	0.00	2.11
77	0.00	3.60	0.00	91.936	71.007	92.370	0.00	0.00	0.00
78	0.01	12.22	0.00	91.942	83.230	92.371	0.00	0.00	0.06
79	0.07	0.01	0.11	92.010	83.240	92.483	0.00	0.00	3.95
80	0.06	0.67	0.01	92.066	83.913	92.492	0.00	0.00	0.33
81	0.01	0.15	0.01	92.077	84.060	92.500	0.00	0.00	0.26
82	0.01	1.89	0.02	92.091	85.945	92.524	0.00	0.00	0.88
83	0.01	3.67	0.14	92.101	89.611	92.669	0.00	0.00	5.20
84	0.00	0.07	0.00	92.103	89.680	92.669	0.00	0.00	0.01
85	0.01	0.06	0.00	92.108	89.742	92.669	0.00	0.00	0.01
86	0.00	0.01	0.05	92.108	89.755	92.715	0.00	0.00	1.68
87	0.00	0.01	0.09	92.108	89.766	92.806	0.00	0.00	3.31
88	0.00	0.08	0.00	92.109	89.846	92.808	0.00	0.00	0.06
89	0.00	0.00	0.09	92.113	89.848	92.895	0.00	0.00	3.22
90	0.01	0.00	0.06	92.120	89.853	92.955	0.00	0.00	2.20
91	0.00	0.05	0.13	92.122	89.905	93.081	0.00	0.00	4.63
92	0.00	0.07	0.09	92.122	89.976	93.176	0.00	0.00	3.51
93	0.00	0.01	0.09	92.122	89.985	93.266	0.00	0.00	3.33

	MASS PARTICIPATION FACTORS IN PERCENT						BASE SHEAR IN KN		
MODE	X	Y	Z	SUMM-X	SUMM-Y	SUMM-Z	X	Y	Z
94	0.00	0.02	0.11	92.123	90.006	93.373	0.00	0.00	3.98
95	0.00	0.31	0.05	92.123	90.318	93.418	0.00	0.00	1.69
96	0.00	0.03	0.00	92.124	90.349	93.419	0.00	0.00	0.01
97	0.01	2.17	0.03	92.130	92.515	93.448	0.00	0.00	1.08
98	0.00	0.06	0.02	92.130	92.578	93.463	0.00	0.00	0.57
99	0.00	0.14	0.07	92.131	92.721	93.532	0.00	0.00	2.59

100	0.00	0.16	0.02	92.134	92.884	93.554	0.00	0.00	0.79
101	0.03	0.30	0.07	92.164	93.188	93.623	0.00	0.00	2.61
102	0.00	0.35	0.03	92.167	93.541	93.657	0.00	0.00	1.29
103	0.02	0.03	0.06	92.182	93.569	93.717	0.00	0.00	2.25
104	0.01	1.12	0.14	92.192	94.688	93.854	0.00	0.00	5.18
105	0.00	0.55	0.01	92.193	95.239	93.866	0.00	0.00	0.44
106	0.00	0.10	0.01	92.197	95.342	93.873	0.00	0.00	0.28
107	0.01	0.01	0.05	92.205	95.350	93.924	0.00	0.00	1.94
108	0.00	0.15	0.01	92.205	95.503	93.937	0.00	0.00	0.49
109	0.03	0.61	0.00	92.231	96.110	93.938	0.00	0.00	0.03
110	0.07	0.08	0.06	92.302	96.187	94.001	0.00	0.00	2.41
111	0.00	0.08	0.01	92.304	96.267	94.010	0.00	0.00	0.36
112	0.01	0.21	0.00	92.314	96.477	94.010	0.00	0.00	0.01
113	0.00	0.00	0.18	92.315	96.478	94.191	0.00	0.00	6.94
114	0.00	0.02	0.01	92.315	96.500	94.205	0.00	0.00	0.53
115	0.00	0.03	0.00	92.316	96.526	94.208	0.00	0.00	0.11
116	0.01	0.00	0.00	92.330	96.530	94.211	0.00	0.00	0.13
117	0.10	0.01	0.01	92.428	96.540	94.219	0.00	0.00	0.29
118	0.00	0.00	0.00	92.428	96.544	94.220	0.00	0.00	0.06
119	0.04	0.03	0.00	92.466	96.576	94.223	0.00	0.00	0.08
120	0.00	0.01	0.00	92.466	96.585	94.223	0.00	0.00	0.00
121	0.01	0.07	0.00	92.477	96.659	94.224	0.00	0.00	0.05
122	0.00	0.16	0.00	92.479	96.817	94.226	0.00	0.00	0.07
123	0.00	0.01	0.01	92.481	96.824	94.235	0.00	0.00	0.35
124	0.00	0.52	0.00	92.483	97.348	94.236	0.00	0.00	0.05
125	0.06	0.00	0.00	92.548	97.351	94.238	0.00	0.00	0.05
126	0.01	0.02	0.00	92.554	97.369	94.240	0.00	0.00	0.09
127	0.00	0.01	0.22	92.555	97.381	94.461	0.00	0.00	8.66
128	0.00	0.00	0.02	92.560	97.382	94.482	0.00	0.00	0.80
129	0.01	0.00	0.00	92.572	97.385	94.482	0.00	0.00	0.02
130	0.01	0.31	0.05	92.578	97.692	94.534	0.00	0.00	2.01
131	0.01	0.01	0.05	92.583	97.699	94.579	0.00	0.00	1.77
132	0.00	0.02	0.01	92.584	97.714	94.587	0.00	0.00	0.33
133	0.00	0.00	0.04	92.584	97.715	94.625	0.00	0.00	1.48
134	0.00	0.03	0.15	92.585	97.747	94.772	0.00	0.00	5.81
135	0.01	0.01	0.00	92.590	97.761	94.774	0.00	0.00	0.07
136	0.00	0.03	0.00	92.594	97.787	94.778	0.00	0.00	0.15
137	0.01	0.00	0.00	92.602	97.787	94.782	0.00	0.00	0.16

138	0.00	0.02	0.06	92.606	97.809	94.842	0.00	0.00	2.40
139	0.01	0.03	0.02	92.615	97.836	94.859	0.00	0.00	0.67

MODE	MASS PARTICIPATION FACTORS IN PERCENT						BASE SHEAR IN KN		
	X	Y	Z	SUMM-X	SUMM-Y	SUMM-Z	X	Y	Z
140	0.00	0.00	0.00	92.615	97.841	94.860	0.00	0.00	0.02
141	0.00	0.18	0.09	92.619	98.024	94.954	0.00	0.00	3.76
142	0.00	0.04	0.00	92.620	98.061	94.955	0.00	0.00	0.03
143	0.01	0.03	0.01	92.626	98.088	94.960	0.00	0.00	0.22
144	0.07	0.01	0.01	92.693	98.099	94.973	0.00	0.00	0.51
145	0.02	0.00	0.01	92.716	98.099	94.986	0.00	0.00	0.52
146	0.00	0.13	0.01	92.718	98.230	94.994	0.00	0.00	0.34
147	0.04	0.00	0.00	92.753	98.230	94.996	0.00	0.00	0.08
148	0.15	0.01	0.01	92.902	98.243	95.002	0.00	0.00	0.22
149	0.03	0.01	0.01	92.930	98.256	95.009	0.00	0.00	0.28
150	0.07	0.03	0.01	93.002	98.282	95.022	0.00	0.00	0.52
151	0.00	0.03	0.01	93.005	98.307	95.030	0.00	0.00	0.34
152	0.04	0.00	0.01	93.040	98.309	95.039	0.00	0.00	0.35
153	0.01	0.01	0.00	93.055	98.319	95.041	0.00	0.00	0.10
154	0.01	0.05	0.00	93.063	98.372	95.041	0.00	0.00	0.00
155	0.08	0.01	0.02	93.139	98.381	95.061	0.00	0.00	0.79
156	0.01	0.04	0.00	93.154	98.417	95.062	0.00	0.00	0.06
157	0.01	0.00	0.00	93.163	98.417	95.066	0.00	0.00	0.13
158	0.01	0.00	0.00	93.174	98.419	95.066	0.00	0.00	0.02
159	0.01	0.07	0.00	93.181	98.485	95.066	0.00	0.00	0.00
160	0.00	0.00	0.00	93.181	98.487	95.067	0.00	0.00	0.05
161	0.05	0.01	0.00	93.232	98.500	95.068	0.00	0.00	0.02
162	0.01	0.02	0.00	93.238	98.516	95.069	0.00	0.00	0.04
163	0.00	0.01	0.00	93.239	98.527	95.069	0.00	0.00	0.00
164	0.00	0.00	0.00	93.239	98.531	95.069	0.00	0.00	0.01
165	0.00	0.00	0.00	93.241	98.533	95.070	0.00	0.00	0.03
166	0.00	0.00	0.00	93.243	98.534	95.070	0.00	0.00	0.01

167	0.01	0.02	0.00	93.253	98.554	95.073	0.00	0.00	0.10
168	0.00	0.00	0.00	93.253	98.555	95.073	0.00	0.00	0.01
169	0.00	0.10	0.00	93.254	98.652	95.073	0.00	0.00	0.00
170	0.00	0.09	0.00	93.259	98.741	95.073	0.00	0.00	0.00
171	0.00	0.02	0.01	93.260	98.757	95.081	0.00	0.00	0.32
172	0.01	0.02	0.02	93.271	98.779	95.105	0.00	0.00	0.98
173	0.05	0.03	0.00	93.316	98.807	95.105	0.00	0.00	0.00
174	0.00	0.01	0.00	93.316	98.812	95.109	0.00	0.00	0.15
175	0.00	0.00	0.08	93.318	98.813	95.188	0.00	0.00	3.24
176	0.00	0.00	0.00	93.322	98.817	95.191	0.00	0.00	0.13
177	0.02	0.00	0.00	93.341	98.817	95.194	0.00	0.00	0.13
178	0.00	0.05	0.00	93.343	98.868	95.197	0.00	0.00	0.12
179	0.01	0.00	0.00	93.352	98.871	95.198	0.00	0.00	0.04
180	0.06	0.05	0.00	93.412	98.919	95.199	0.00	0.00	0.03
181	0.00	0.08	0.01	93.414	99.003	95.213	0.00	0.00	0.57
182	0.01	0.06	0.00	93.423	99.059	95.214	0.00	0.00	0.08
183	0.00	0.01	0.00	93.424	99.065	95.215	0.00	0.00	0.02
184	0.02	0.01	0.00	93.444	99.078	95.215	0.00	0.00	0.01
185	0.01	0.00	0.00	93.453	99.081	95.216	0.00	0.00	0.02

	MASS PARTICIPATION FACTORS IN PERCENT						BASE SHEAR IN KN		
MODE	X	Y	Z	SUMM-X	SUMM-Y	SUMM-Z	X	Y	Z
186	0.00	0.00	0.00	93.456	99.082	95.216	0.00	0.00	0.01
187	0.00	0.00	0.01	93.461	99.082	95.225	0.00	0.00	0.38
188	0.03	0.02	0.01	93.488	99.103	95.232	0.00	0.00	0.29
189	0.00	0.00	0.00	93.489	99.106	95.233	0.00	0.00	0.03
190	0.01	0.00	0.00	93.497	99.106	95.233	0.00	0.00	0.01
191	0.00	0.00	0.00	93.500	99.111	95.233	0.00	0.00	0.00
192	0.03	0.02	0.00	93.530	99.134	95.234	0.00	0.00	0.03
193	0.01	0.00	0.00	93.537	99.134	95.234	0.00	0.00	0.00
194	0.00	0.00	0.00	93.538	99.134	95.234	0.00	0.00	0.00
195	0.00	0.00	0.00	93.538	99.134	95.234	0.00	0.00	0.00

196	0.00	0.00	0.00	93.538	99.134	95.236	0.00	0.00	0.10
197	0.02	0.01	0.00	93.557	99.148	95.241	0.00	0.00	0.19
198	0.00	0.02	0.02	93.560	99.165	95.260	0.00	0.00	0.80
199	0.00	0.00	0.00	93.561	99.169	95.262	0.00	0.00	0.08
200	0.02	0.01	0.00	93.577	99.182	95.263	0.00	0.00	0.02
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				TOTAL SRSS		SHEAR	0.00	0.00	752.86
				TOTAL 10PCT		SHEAR	0.00	0.00	872.49
				TOTAL ABS		SHEAR	0.00	0.00	1438.02

RESPONSE LOAD CASE 9

SRSS MODAL COMBINATION METHOD USED.

DYNAMIC WEIGHT X Y Z 8.303278E+03 9.798368E+03 8.303278E+03 KN

MISSING WEIGHT X Y Z -5.333425E+02 -8.010067E+01 -3.933308E+02 KN

MODAL WEIGHT X Y Z 7.769936E+03 9.718267E+03 7.909947E+03 KN

MODE	ACCELERATION-G	DAMPING
1	0.03509	0.05000
2	0.03623	0.05000
3	0.03877	0.05000
4	0.03974	0.05000
5	0.04037	0.05000
6	0.04147	0.05000
7	0.04518	0.05000
8	0.04760	0.05000
9	0.05009	0.05000
10	0.05052	0.05000

MODE	ACCELERATION-G	DAMPING
11	0.05236	0.05000
12	0.05430	0.05000
13	0.05430	0.05000
14	0.05459	0.05000
15	0.05542	0.05000
16	0.06144	0.05000
17	0.06336	0.05000
18	0.06425	0.05000
19	0.06476	0.05000
20	0.06801	0.05000
21	0.06965	0.05000
22	0.06994	0.05000
23	0.07152	0.05000
24	0.07273	0.05000
25	0.07462	0.05000
26	0.07547	0.05000
27	0.07684	0.05000
28	0.07908	0.05000
29	0.08083	0.05000
30	0.08202	0.05000
31	0.08235	0.05000
32	0.08311	0.05000
33	0.08350	0.05000
34	0.08352	0.05000
35	0.08389	0.05000
36	0.08411	0.05000
37	0.08439	0.05000
38	0.08475	0.05000
39	0.08495	0.05000
40	0.08522	0.05000
41	0.08555	0.05000
42	0.08564	0.05000
43	0.08594	0.05000

44	0.08642	0.05000
45	0.08669	0.05000
46	0.08680	0.05000
47	0.08714	0.05000
48	0.08736	0.05000
49	0.08758	0.05000
50	0.08862	0.05000
51	0.08892	0.05000
52	0.08985	0.05000
53	0.08999	0.05000
54	0.09164	0.05000
55	0.09188	0.05000
56	0.09229	0.05000
57	0.09285	0.05000
58	0.09327	0.05000
59	0.09377	0.05000
60	0.09394	0.05000
61	0.09414	0.05000

MODE	ACCELERATION-G	DAMPING
62	0.09425	0.05000
63	0.09429	0.05000
64	0.09457	0.05000
65	0.09488	0.05000
66	0.09512	0.05000
67	0.09525	0.05000
68	0.09554	0.05000
69	0.09595	0.05000
70	0.09624	0.05000
71	0.09643	0.05000
72	0.09659	0.05000
73	0.09661	0.05000
74	0.09665	0.05000

75	0.09683	0.05000
76	0.09729	0.05000
77	0.09786	0.05000
78	0.09796	0.05000
79	0.09818	0.05000
80	0.09883	0.05000
81	0.09895	0.05000
82	0.09932	0.05000
83	0.09960	0.05000
84	0.10056	0.05000
85	0.10097	0.05000
86	0.10123	0.05000
87	0.10159	0.05000
88	0.10167	0.05000
89	0.10177	0.05000
90	0.10198	0.05000
91	0.10207	0.05000
92	0.10260	0.05000
93	0.10267	0.05000
94	0.10272	0.05000
95	0.10300	0.05000
96	0.10310	0.05000
97	0.10316	0.05000
98	0.10341	0.05000
99	0.10352	0.05000
100	0.10371	0.05000
101	0.10391	0.05000
102	0.10426	0.05000
103	0.10463	0.05000
104	0.10485	0.05000
105	0.10516	0.05000
106	0.10517	0.05000
107	0.10556	0.05000
108	0.10570	0.05000
109	0.10579	0.05000
110	0.10581	0.05000
111	0.10625	0.05000
112	0.10631	0.05000

MODE	ACCELERATION-G	DAMPING
113	0.10641	0.05000
114	0.10653	0.05000
115	0.10660	0.05000
116	0.10674	0.05000
117	0.10688	0.05000
118	0.10708	0.05000
119	0.10725	0.05000
120	0.10735	0.05000
121	0.10741	0.05000
122	0.10747	0.05000
123	0.10763	0.05000
124	0.10779	0.05000
125	0.10792	0.05000
126	0.10824	0.05000
127	0.10839	0.05000
128	0.10850	0.05000
129	0.10863	0.05000
130	0.10878	0.05000
131	0.10898	0.05000
132	0.10903	0.05000
133	0.10931	0.05000
134	0.10935	0.05000
135	0.10954	0.05000
136	0.10963	0.05000
137	0.10982	0.05000
138	0.10983	0.05000
139	0.11006	0.05000
140	0.11029	0.05000
141	0.11036	0.05000
142	0.11051	0.05000
143	0.11069	0.05000

144	0.11074	0.05000
145	0.11088	0.05000
146	0.11092	0.05000
147	0.11098	0.05000
148	0.11103	0.05000
149	0.11109	0.05000
150	0.11112	0.05000
151	0.11116	0.05000
152	0.11127	0.05000
153	0.11134	0.05000
154	0.11136	0.05000
155	0.11142	0.05000
156	0.11158	0.05000
157	0.11169	0.05000
158	0.11171	0.05000
159	0.11200	0.05000
160	0.11211	0.05000
161	0.11213	0.05000
162	0.11220	0.05000
163	0.11222	0.05000

MODE	ACCELERATION-G	DAMPING
164	0.11224	0.05000
165	0.11237	0.05000
166	0.11243	0.05000
167	0.11250	0.05000
168	0.11252	0.05000
169	0.11263	0.05000
170	0.11276	0.05000
171	0.11293	0.05000
172	0.11314	0.05000
173	0.11323	0.05000
174	0.11331	0.05000

175	0.11347	0.05000
176	0.11351	0.05000
177	0.11362	0.05000
178	0.11367	0.05000
179	0.11370	0.05000
180	0.11381	0.05000
181	0.11384	0.05000
182	0.11389	0.05000
183	0.11397	0.05000
184	0.11406	0.05000
185	0.11416	0.05000
186	0.11426	0.05000
187	0.11429	0.05000
188	0.11434	0.05000
189	0.11440	0.05000
190	0.11441	0.05000
191	0.11451	0.05000
192	0.11456	0.05000
193	0.11462	0.05000
194	0.11430	0.05000
195	0.11409	0.05000
196	0.11402	0.05000
197	0.11350	0.05000
198	0.11340	0.05000
199	0.11269	0.05000
200	0.11111	0.05000

MODAL BASE ACTIONS FORCES IN KN LENGTH IN METE

MOMENTS ARE ABOUT THE ORIGIN

MODE	PERIOD	FX	FY	FZ	MX	MY	MZ
1	1.208	-0.11	0.04	2.56	31.45	-460.08	8.62
2	1.146	-0.03	0.01	-0.51	-7.07	110.04	2.41

3	1.008	-0.78	0.12	0.32	3.40	-112.81	32.87
4	0.970	2.06	0.02	-0.16	-2.58	116.44	-23.72
5	0.948	0.43	0.01	0.51	6.48	-103.89	-4.11
6	0.909	0.01	0.11	-1.30	-20.95	286.07	24.54
7	0.798	0.01	0.00	0.01	0.13	-0.20	-0.17
8	0.741	-0.04	0.00	0.07	0.73	-16.59	0.66
9	0.686	-0.02	0.02	-0.06	-2.04	13.88	5.32
10	0.678	-0.01	0.01	-0.20	-0.96	42.59	3.42
11	0.644	-0.06	0.03	-0.17	-3.17	29.42	7.19
12	0.608	0.00	0.00	0.00	0.00	0.00	0.00
13	0.608	0.00	0.00	0.00	0.00	0.00	0.00
14	0.602	-0.01	0.00	0.00	0.00	-0.36	0.08
15	0.590	0.00	0.14	-0.90	-14.16	198.46	29.34
16	0.505	0.15	0.54	-2.38	-45.52	525.09	117.44
17	0.484	-0.01	0.00	-0.02	-0.34	4.83	1.30
18	0.475	0.24	0.02	0.06	-0.32	-2.72	4.25
19	0.470	0.14	0.01	0.03	0.03	-0.72	1.22
20	0.438	0.11	0.06	0.01	-2.52	1.83	3.89
21	0.421	0.01	0.00	0.01	-0.29	-1.32	0.56
22	0.418	-0.12	0.01	-0.02	-0.84	-0.51	-1.03
23	0.402	-0.02	0.00	0.00	-0.01	-0.34	0.09
24	0.393	0.10	0.57	-1.27	-27.38	262.29	117.78
25	0.380	-0.02	0.01	-0.01	-0.45	1.19	1.32
26	0.374	-0.42	0.50	-0.02	-20.45	-6.82	79.87
27	0.364	-0.21	0.19	-0.08	-7.90	8.20	38.15
28	0.349	0.01	0.00	0.00	0.03	0.64	0.38
29	0.336	-0.22	1.49	-1.97	-49.88	340.48	274.54
30	0.328	0.00	1.16	0.16	-42.03	-26.59	243.90
31	0.326	0.13	0.37	-0.02	-11.98	12.21	76.35
32	0.320	-0.13	1.46	0.11	-52.90	-34.66	319.36
33	0.318	-0.07	0.39	0.02	-14.39	-8.31	83.84
34	0.318	0.01	0.48	-0.32	-16.69	71.75	87.75
35	0.315	4.61	131.77	-4.12	-5055.37	949.70	24643.64
36	0.313	0.04	0.17	0.00	-8.36	3.61	15.14
37	0.311	-0.01	0.27	0.01	-9.69	-3.67	57.76
38	0.309	-1.01	55.04	4.50	-1960.20	-992.64	11961.21
39	0.308	0.00	0.00	0.03	-0.06	-7.80	0.43
40	0.306	0.00	0.00	0.00	0.00	0.00	0.03

41	0.303	-0.13	2.03	0.96	-84.49	-171.71	408.13
42	0.303	-0.35	5.60	-3.29	-199.44	555.35	1053.18
43	0.301	0.09	0.33	-0.21	-13.82	36.86	52.93
44	0.297	0.01	0.01	0.01	-0.63	-1.87	2.30
45	0.295	0.00	0.11	0.12	-5.33	-20.11	20.87
46	0.295	0.00	0.01	0.00	-0.23	-0.02	1.03
47	0.292	0.00	0.00	0.00	-0.07	0.01	0.41

MODAL BASE ACTIONS FORCES IN KN LENGTH IN METE

MOMENTS ARE ABOUT THE ORIGIN

MODE	PERIOD	FX	FY	FZ	MX	MY	MZ
48	0.291	-0.97	4.75	-0.36	-176.87	40.63	911.72
49	0.289	0.00	1.81	0.41	-63.03	-119.95	297.30
50	0.282	0.01	0.12	0.45	-3.90	-101.11	19.13
51	0.280	-6.64	170.50	0.62	-6494.71	-251.23	28927.29
52	0.273	1.30	41.83	0.81	-1564.71	-143.41	8633.07
53	0.272	-5.94	99.57	4.39	-3777.10	-1127.78	19502.90
54	0.261	0.78	0.93	-2.12	-33.85	416.30	226.75
55	0.259	0.46	6.70	-1.28	-284.59	257.85	1140.52
56	0.256	-0.01	0.25	-0.69	-2.97	131.86	40.05
57	0.252	0.24	1.21	2.58	-60.70	-442.40	250.22
58	0.249	-2.75	8.47	-1.37	-302.06	124.50	1236.72
59	0.246	0.00	0.00	-0.01	0.05	2.20	1.15
60	0.245	-0.01	0.06	-0.15	-2.26	32.32	4.89
61	0.243	0.01	0.06	0.09	-1.72	-18.14	16.45
62	0.243	0.27	5.69	2.51	-203.65	-512.89	1193.77
63	0.242	0.38	18.77	-0.94	-669.19	184.55	3952.96
64	0.240	0.45	4.86	-0.81	-173.94	195.72	945.83
65	0.238	0.04	1.20	0.40	-46.68	-85.24	277.13
66	0.236	-0.03	1.27	0.61	-59.33	-125.02	219.73
67	0.236	0.67	0.63	0.41	-23.56	-59.12	99.60
68	0.233	0.01	0.04	-0.20	0.45	37.37	8.37
69	0.231	-0.01	0.00	0.00	-0.15	-0.88	1.52

70	0.229	-0.01	0.02	-0.03	-1.84	5.52	7.05
71	0.227	0.17	1.16	0.13	-43.30	-9.64	239.16
72	0.226	0.11	3.39	0.32	-135.75	-54.83	688.55
73	0.226	-0.03	0.46	0.15	-17.33	-29.26	93.25
74	0.226	0.00	0.07	0.00	-2.75	-0.31	14.58
75	0.225	-0.03	0.02	-0.03	-0.01	2.68	3.99
76	0.221	-0.95	2.67	-1.14	-97.10	186.02	488.56
77	0.217	-0.21	34.48	0.17	-1229.82	-79.05	8101.35
78	0.217	2.51	117.33	1.32	-4250.04	-302.76	24692.70
79	0.215	-0.22	0.09	0.29	-6.24	-62.36	51.83
80	0.211	1.72	6.52	-0.71	-243.12	209.45	2066.40
81	0.210	0.37	1.42	0.29	-60.64	-41.55	373.94
82	0.207	1.45	18.35	-1.92	-648.71	440.30	3882.34
83	0.205	1.69	35.77	6.54	-1538.90	-1150.54	7129.55
84	0.198	-0.10	0.69	-0.04	-29.19	9.86	134.97
85	0.196	0.17	0.61	-0.04	-28.34	22.79	92.28
86	0.194	0.00	0.13	0.22	-3.87	-48.37	33.08
87	0.191	-0.01	0.11	0.29	-10.00	-71.42	22.76
88	0.191	-0.05	0.80	-0.11	-13.93	18.07	173.31
89	0.190	0.03	0.02	-0.12	-1.59	25.21	4.04
90	0.188	0.05	0.05	-0.16	2.22	29.30	13.82
91	0.188	-0.11	0.52	0.75	-42.55	-144.70	111.38
92	0.184	-0.01	0.71	-0.75	-26.86	110.95	107.20
93	0.184	-0.01	0.09	-0.27	-4.38	53.80	20.11

MODAL BASE ACTIONS FORCES IN KN LENGTH IN METE

MOMENTS ARE ABOUT THE ORIGIN

MODE	PERIOD	FX	FY	FZ	MX	MY	MZ
94	0.183	0.01	0.21	-0.44	-4.54	95.99	43.33
95	0.181	0.16	3.15	-1.11	-112.50	217.72	444.75
96	0.181	-0.01	0.31	0.03	-10.14	-5.29	40.59
97	0.180	1.10	21.90	2.33	-846.29	-371.75	3429.44
98	0.178	0.00	0.64	0.29	-21.25	-55.41	95.68

99	0.178	-0.09	1.45	-0.93	-56.58	169.79	262.62
100	0.176	-0.23	1.65	0.55	-61.57	-89.03	232.54
101	0.175	-0.89	3.10	1.37	-122.44	-299.70	644.38
102	0.173	0.32	3.60	1.03	-139.11	-198.68	808.80
103	0.170	-0.20	0.29	0.39	-16.25	-100.02	52.75
104	0.168	-0.96	11.50	-3.70	-365.90	705.09	2410.96
105	0.166	-0.26	5.68	-0.76	-171.54	131.03	1161.78
106	0.166	0.20	1.06	0.26	-24.08	-45.87	194.98
107	0.163	-0.08	0.09	-0.20	-1.66	34.53	29.42
108	0.163	-0.03	1.58	-0.42	-47.37	102.72	404.46
109	0.162	1.18	6.29	0.19	-214.10	87.90	1498.90
110	0.162	0.71	0.80	0.66	-40.22	-99.80	131.52
111	0.159	-0.12	0.83	-0.26	-23.35	49.68	160.10
112	0.158	-0.45	2.19	-0.08	-91.94	-9.99	434.21
113	0.158	-0.01	0.01	0.13	-1.29	-30.09	3.11
114	0.157	0.02	0.22	0.16	-4.45	-36.28	47.90
115	0.156	-0.05	0.27	-0.08	-8.48	15.09	47.17
116	0.155	-0.08	0.05	0.04	-5.47	-10.88	4.02
117	0.154	-0.30	0.10	0.08	-3.47	-26.20	8.85
118	0.153	0.00	0.04	-0.02	-0.74	4.99	0.22
119	0.152	0.34	0.34	-0.08	-10.85	33.61	66.54
120	0.151	-0.01	0.09	0.00	-3.27	0.10	16.81
121	0.151	-0.28	0.78	-0.10	-33.42	-0.93	204.89
122	0.150	-0.18	1.66	-0.17	-69.51	25.84	298.40
123	0.149	-0.04	0.08	0.08	-6.59	-16.12	23.28
124	0.148	-0.29	5.53	0.26	-193.65	-83.21	1102.28
125	0.147	0.14	0.03	0.02	-3.71	-1.24	12.08
126	0.145	-0.10	0.18	-0.06	-8.38	4.09	45.29
127	0.144	-0.04	0.13	-0.50	-2.45	108.30	22.58
128	0.143	0.02	0.01	0.04	-0.15	-7.70	3.75
129	0.142	0.06	0.03	0.01	-0.11	0.51	9.14
130	0.141	-0.41	3.28	1.23	-140.57	-284.65	678.85
131	0.140	-0.06	0.07	-0.17	-1.91	35.62	8.01
132	0.139	-0.03	0.17	0.11	-7.94	-30.74	44.46
133	0.137	-0.01	0.01	-0.06	-0.17	13.99	3.02
134	0.137	-0.03	0.34	-0.67	-9.15	144.20	71.90
135	0.136	0.09	0.15	0.05	-5.33	-5.22	29.94
136	0.135	0.09	0.28	-0.10	-5.27	21.17	57.41

137	0.134	-0.02	0.00	0.01	0.11	-3.34	1.84
138	0.134	0.10	0.24	0.36	-11.10	-74.41	54.35
139	0.132	0.15	0.29	-0.21	-7.26	47.66	66.97

MODAL BASE ACTIONS FORCES IN KN LENGTH IN METE

MOMENTS ARE ABOUT THE ORIGIN

MODE	PERIOD	FX	FY	FZ	MX	MY	MZ
140	0.130	0.00	0.05	-0.02	-1.26	5.67	18.33
141	0.130	-0.27	1.98	-1.31	-63.35	236.29	415.88
142	0.129	0.05	0.40	-0.05	-12.67	14.89	76.38
143	0.128	0.13	0.30	0.12	-11.91	-21.08	69.37
144	0.127	-0.26	0.11	-0.12	-3.75	11.06	19.73
145	0.126	-0.04	0.01	0.03	-0.36	-6.28	1.96
146	0.126	-0.16	1.42	-0.33	-56.30	62.02	313.80
147	0.126	0.02	0.00	0.00	0.04	1.32	-0.28
148	0.125	-0.43	0.14	0.08	-5.11	-28.65	34.12
149	0.125	-0.19	0.14	-0.10	-5.02	12.38	31.53
150	0.125	0.44	0.29	-0.18	-11.02	52.99	53.07
151	0.124	0.08	0.27	-0.15	-9.41	29.53	48.84
152	0.124	0.08	0.02	-0.04	-1.25	12.32	4.95
153	0.123	-0.12	0.11	-0.05	-4.85	5.92	29.39
154	0.123	0.21	0.58	0.00	-18.67	8.79	121.12
155	0.122	0.26	0.10	-0.13	-3.52	34.26	16.71
156	0.121	-0.23	0.39	0.07	-15.97	-22.94	73.62
157	0.121	0.01	0.00	0.00	-0.11	-0.39	0.62
158	0.121	0.05	0.02	-0.01	-0.76	3.95	2.62
159	0.118	-0.21	0.72	0.00	-28.38	-9.91	139.41
160	0.118	0.00	0.02	-0.02	-0.59	2.53	2.13
161	0.118	0.27	0.15	0.03	-5.69	5.09	29.07
162	0.117	-0.09	0.17	-0.04	-5.84	4.82	36.56
163	0.117	-0.02	0.12	0.01	-4.63	-3.63	13.66
164	0.117	0.02	0.05	-0.01	-2.33	2.69	12.34
165	0.116	0.02	0.01	0.01	-0.51	-1.36	0.75

166	0.115	-0.01	0.01	-0.01	-0.52	0.71	1.88
167	0.115	-0.14	0.23	-0.07	-7.54	8.19	40.50
168	0.115	0.01	0.00	0.00	-0.38	0.80	1.44
169	0.114	-0.08	1.08	-0.03	-44.67	6.67	250.03
170	0.113	0.21	0.98	0.02	-48.68	14.28	208.10
171	0.112	0.05	0.18	-0.11	-6.83	22.59	38.59
172	0.110	-0.16	0.25	0.24	-9.56	-52.15	49.18
173	0.110	0.36	0.31	0.00	-9.48	15.79	68.86
174	0.109	0.01	0.06	-0.04	-2.45	8.45	12.13
175	0.108	0.01	0.01	0.08	-0.65	-13.35	0.96
176	0.108	-0.04	0.04	0.04	-1.86	-8.57	7.42
177	0.107	0.03	0.00	0.01	-0.28	-0.83	1.14
178	0.107	-0.11	0.56	-0.13	-21.97	18.12	99.33
179	0.107	-0.05	0.03	0.02	-1.28	-6.03	6.30
180	0.106	0.56	0.54	0.06	-21.50	10.87	122.99
181	0.106	0.11	0.93	-0.35	-30.33	67.80	212.54
182	0.105	-0.24	0.63	0.11	-23.23	-24.30	129.91
183	0.105	-0.01	0.06	-0.01	-2.09	2.75	12.80
184	0.104	-0.17	0.15	-0.02	-5.76	-2.74	28.49
185	0.103	0.05	0.03	0.01	-1.33	0.27	9.42

MODAL BASE ACTIONS FORCES IN KN LENGTH IN METE

MOMENTS ARE ABOUT THE ORIGIN

MODE	PERIOD	FX	FY	FZ	MX	MY	MZ
186	0.103	-0.02	0.01	0.00	-0.51	-0.09	1.50
187	0.102	-0.01	0.00	-0.01	0.02	1.25	-0.31
188	0.102	-0.25	0.24	0.13	-11.17	-36.45	43.53
189	0.102	0.01	0.03	0.01	-1.04	-1.59	4.65
190	0.102	-0.01	0.00	0.00	-0.08	-0.18	0.16
191	0.101	0.04	0.05	0.00	-2.36	1.59	12.40
192	0.101	-0.27	0.26	-0.04	-11.05	-3.51	50.66
193	0.100	-0.01	0.00	0.00	-0.01	-0.05	0.17
194	0.100	0.00	0.00	0.00	-0.08	0.18	0.36

195	0.099	0.00	0.00	0.00	0.00	0.00	0.00
196	0.099	0.00	0.00	0.00	0.00	0.00	0.00
197	0.099	-0.17	0.15	-0.08	-5.67	10.34	30.02
198	0.098	0.07	0.19	0.19	-8.39	-33.14	38.78
199	0.097	0.01	0.04	-0.03	-1.71	8.61	7.23
200	0.095	0.15	0.15	-0.02	-6.65	10.57	26.31

MASS PARTICIPATION FACTORS IN PERCENT / BASE SHEAR IN KN

MODE	X	Y	Z	SUMM-X	SUMM-Y	SUMM-Z	X	Y	Z
1	0.11	0.01	56.79	0.106	0.011	56.795	0.00	0.04	0.00
2	0.02	0.00	8.41	0.129	0.014	65.210	0.00	0.01	0.00
3	1.57	0.03	0.27	1.698	0.046	65.481	0.00	0.12	0.00
4	78.39	0.00	0.49	80.083	0.050	65.966	0.00	0.02	0.00
5	7.79	0.00	11.31	87.873	0.052	77.274	0.00	0.01	0.00
6	0.00	0.03	4.41	87.874	0.080	81.682	0.00	0.11	0.00
7	0.35	0.00	0.22	88.224	0.080	81.906	0.00	0.00	0.00
8	0.56	0.00	2.05	88.786	0.080	83.952	0.00	0.00	0.00
9	0.01	0.00	0.04	88.792	0.085	83.988	0.00	0.02	0.00
10	0.00	0.00	0.66	88.795	0.088	84.644	0.00	0.01	0.00
11	0.03	0.01	0.24	88.822	0.093	84.882	0.00	0.03	0.00
12	0.00	0.00	0.00	88.822	0.093	84.882	0.00	0.00	0.00
13	0.00	0.00	0.00	88.822	0.093	84.882	0.00	0.00	0.00
14	0.57	0.00	0.00	89.397	0.093	84.882	0.00	0.00	0.00
15	0.00	0.03	1.31	89.397	0.118	86.190	0.00	0.14	0.00
16	0.01	0.09	2.07	89.405	0.207	88.258	0.00	0.54	0.00
17	0.01	0.00	0.02	89.412	0.208	88.279	0.00	0.00	0.00
18	0.58	0.00	0.04	89.990	0.211	88.320	0.00	0.02	0.00
19	0.69	0.00	0.03	90.678	0.212	88.354	0.00	0.01	0.00
20	0.03	0.01	0.00	90.711	0.221	88.355	0.00	0.06	0.00
21	0.01	0.00	0.02	90.719	0.221	88.373	0.00	0.00	0.00
22	0.24	0.00	0.01	90.959	0.223	88.381	0.00	0.01	0.00

23	0.27	0.00	0.00	91.225	0.223	88.381	0.00	0.00	0.00
24	0.00	0.08	0.47	91.228	0.304	88.850	0.00	0.57	0.00
25	0.01	0.00	0.00	91.239	0.305	88.853	0.00	0.01	0.00
26	0.06	0.07	0.00	91.294	0.372	88.853	0.00	0.50	0.00
27	0.04	0.03	0.01	91.332	0.398	88.858	0.00	0.19	0.00
28	0.07	0.00	0.00	91.404	0.398	88.860	0.00	0.00	0.00
29	0.00	0.19	0.39	91.408	0.586	89.246	0.00	1.49	0.00
30	0.00	0.14	0.00	91.408	0.731	89.249	0.00	1.16	0.00
31	0.01	0.05	0.00	91.415	0.777	89.250	0.00	0.37	0.00
32	0.00	0.18	0.00	91.417	0.957	89.251	0.00	1.46	0.00
33	0.00	0.05	0.00	91.418	1.005	89.251	0.00	0.39	0.00
34	0.00	0.06	0.03	91.418	1.064	89.281	0.00	0.48	0.00
35	0.02	16.03	0.02	91.441	17.094	89.299	0.00	131.77	0.00
36	0.00	0.02	0.00	91.443	17.116	89.299	0.00	0.17	0.00
37	0.00	0.03	0.00	91.443	17.148	89.299	0.00	0.27	0.00
38	0.00	6.63	0.05	91.446	23.776	89.352	0.00	55.04	0.00
39	0.00	0.00	0.16	91.446	23.776	89.509	0.00	0.00	0.00
40	0.00	0.00	0.00	91.446	23.776	89.509	0.00	0.00	0.00
41	0.00	0.24	0.06	91.447	24.019	89.573	0.00	2.03	0.00
42	0.00	0.67	0.27	91.450	24.686	89.844	0.00	5.60	0.00
43	0.00	0.04	0.02	91.453	24.725	89.863	0.00	0.33	0.00
44	0.00	0.00	0.00	91.456	24.726	89.864	0.00	0.01	0.00
45	0.00	0.01	0.02	91.456	24.739	89.884	0.00	0.11	0.00
46	0.00	0.00	0.00	91.456	24.739	89.884	0.00	0.01	0.00
47	0.00	0.00	0.00	91.456	24.739	89.884	0.00	0.00	0.00

	MASS PARTICIPATION FACTORS IN PERCENT						BASE SHEAR IN KN		
MODE	X	Y	Z	SUMM-X	SUMM-Y	SUMM-Z	X	Y	Z
48	0.03	0.56	0.00	91.483	25.295	89.887	0.00	4.75	0.00
49	0.00	0.21	0.01	91.483	25.505	89.900	0.00	1.81	0.00
50	0.00	0.01	0.24	91.484	25.519	90.136	0.00	0.12	0.00
51	0.04	19.57	0.00	91.519	45.088	90.137	0.00	170.50	0.00

52	0.01	4.75	0.00	91.524	49.839	90.139	0.00	41.83	0.00
53	0.05	11.29	0.03	91.571	61.132	90.165	0.00	99.57	0.00
54	0.09	0.10	0.64	91.658	61.235	90.801	0.00	0.93	0.00
55	0.00	0.74	0.03	91.662	61.979	90.833	0.00	6.70	0.00
56	0.00	0.03	0.25	91.662	62.006	91.084	0.00	0.25	0.00
57	0.01	0.13	0.71	91.668	62.139	91.797	0.00	1.21	0.00
58	0.12	0.93	0.03	91.784	63.065	91.825	0.00	8.47	0.00
59	0.00	0.00	0.01	91.784	63.066	91.832	0.00	0.00	0.00
60	0.00	0.01	0.05	91.784	63.072	91.883	0.00	0.06	0.00
61	0.00	0.01	0.02	91.784	63.078	91.901	0.00	0.06	0.00
62	0.00	0.62	0.14	91.786	63.695	92.042	0.00	5.69	0.00
63	0.00	2.03	0.01	91.787	65.726	92.048	0.00	18.77	0.00
64	0.01	0.52	0.02	91.792	66.251	92.066	0.00	4.86	0.00
65	0.00	0.13	0.02	91.793	66.380	92.083	0.00	1.20	0.00
66	0.00	0.14	0.04	91.793	66.516	92.120	0.00	1.27	0.00
67	0.09	0.07	0.03	91.881	66.584	92.153	0.00	0.63	0.00
68	0.00	0.00	0.13	91.882	66.588	92.287	0.00	0.04	0.00
69	0.00	0.00	0.00	91.883	66.589	92.288	0.00	0.00	0.00
70	0.00	0.00	0.00	91.884	66.591	92.293	0.00	0.02	0.00
71	0.00	0.12	0.00	91.887	66.714	92.294	0.00	1.16	0.00
72	0.00	0.36	0.00	91.887	67.072	92.298	0.00	3.39	0.00
73	0.00	0.05	0.01	91.888	67.121	92.304	0.00	0.46	0.00
74	0.00	0.01	0.00	91.888	67.129	92.304	0.00	0.07	0.00
75	0.01	0.00	0.01	91.893	67.131	92.309	0.00	0.02	0.00
76	0.04	0.28	0.06	91.936	67.411	92.369	0.00	2.67	0.00
77	0.00	3.60	0.00	91.936	71.007	92.370	0.00	34.48	0.00
78	0.01	12.22	0.00	91.942	83.230	92.371	0.00	117.33	0.00
79	0.07	0.01	0.11	92.010	83.240	92.483	0.00	0.09	0.00
80	0.06	0.67	0.01	92.066	83.913	92.492	0.00	6.52	0.00
81	0.01	0.15	0.01	92.077	84.060	92.500	0.00	1.42	0.00
82	0.01	1.89	0.02	92.091	85.945	92.524	0.00	18.35	0.00
83	0.01	3.67	0.14	92.101	89.611	92.669	0.00	35.77	0.00
84	0.00	0.07	0.00	92.103	89.680	92.669	0.00	0.69	0.00
85	0.01	0.06	0.00	92.108	89.742	92.669	0.00	0.61	0.00
86	0.00	0.01	0.05	92.108	89.755	92.715	0.00	0.13	0.00
87	0.00	0.01	0.09	92.108	89.766	92.806	0.00	0.11	0.00
88	0.00	0.08	0.00	92.109	89.846	92.808	0.00	0.80	0.00
89	0.00	0.00	0.09	92.113	89.848	92.895	0.00	0.02	0.00

90	0.01	0.00	0.06	92.120	89.853	92.955	0.00	0.05	0.00
91	0.00	0.05	0.13	92.122	89.905	93.081	0.00	0.52	0.00
92	0.00	0.07	0.09	92.122	89.976	93.176	0.00	0.71	0.00
93	0.00	0.01	0.09	92.122	89.985	93.266	0.00	0.09	0.00

MASS PARTICIPATION FACTORS IN PERCENT BASE SHEAR IN KN

MODE	X	Y	Z	SUMM-X	SUMM-Y	SUMM-Z	X	Y	Z
94	0.00	0.02	0.11	92.123	90.006	93.373	0.00	0.21	0.00
95	0.00	0.31	0.05	92.123	90.318	93.418	0.00	3.15	0.00
96	0.00	0.03	0.00	92.124	90.349	93.419	0.00	0.31	0.00
97	0.01	2.17	0.03	92.130	92.515	93.448	0.00	21.90	0.00
98	0.00	0.06	0.02	92.130	92.578	93.463	0.00	0.64	0.00
99	0.00	0.14	0.07	92.131	92.721	93.532	0.00	1.45	0.00
100	0.00	0.16	0.02	92.134	92.884	93.554	0.00	1.65	0.00
101	0.03	0.30	0.07	92.164	93.188	93.623	0.00	3.10	0.00
102	0.00	0.35	0.03	92.167	93.541	93.657	0.00	3.60	0.00
103	0.02	0.03	0.06	92.182	93.569	93.717	0.00	0.29	0.00
104	0.01	1.12	0.14	92.192	94.688	93.854	0.00	11.50	0.00
105	0.00	0.55	0.01	92.193	95.239	93.866	0.00	5.68	0.00
106	0.00	0.10	0.01	92.197	95.342	93.873	0.00	1.06	0.00
107	0.01	0.01	0.05	92.205	95.350	93.924	0.00	0.09	0.00
108	0.00	0.15	0.01	92.205	95.503	93.937	0.00	1.58	0.00
109	0.03	0.61	0.00	92.231	96.110	93.938	0.00	6.29	0.00
110	0.07	0.08	0.06	92.302	96.187	94.001	0.00	0.80	0.00
111	0.00	0.08	0.01	92.304	96.267	94.010	0.00	0.83	0.00
112	0.01	0.21	0.00	92.314	96.477	94.010	0.00	2.19	0.00
113	0.00	0.00	0.18	92.315	96.478	94.191	0.00	0.01	0.00
114	0.00	0.02	0.01	92.315	96.500	94.205	0.00	0.22	0.00
115	0.00	0.03	0.00	92.316	96.526	94.208	0.00	0.27	0.00
116	0.01	0.00	0.00	92.330	96.530	94.211	0.00	0.05	0.00
117	0.10	0.01	0.01	92.428	96.540	94.219	0.00	0.10	0.00
118	0.00	0.00	0.00	92.428	96.544	94.220	0.00	0.04	0.00

119	0.04	0.03	0.00	92.466	96.576	94.223	0.00	0.34	0.00
120	0.00	0.01	0.00	92.466	96.585	94.223	0.00	0.09	0.00
121	0.01	0.07	0.00	92.477	96.659	94.224	0.00	0.78	0.00
122	0.00	0.16	0.00	92.479	96.817	94.226	0.00	1.66	0.00
123	0.00	0.01	0.01	92.481	96.824	94.235	0.00	0.08	0.00
124	0.00	0.52	0.00	92.483	97.348	94.236	0.00	5.53	0.00
125	0.06	0.00	0.00	92.548	97.351	94.238	0.00	0.03	0.00
126	0.01	0.02	0.00	92.554	97.369	94.240	0.00	0.18	0.00
127	0.00	0.01	0.22	92.555	97.381	94.461	0.00	0.13	0.00
128	0.00	0.00	0.02	92.560	97.382	94.482	0.00	0.01	0.00
129	0.01	0.00	0.00	92.572	97.385	94.482	0.00	0.03	0.00
130	0.01	0.31	0.05	92.578	97.692	94.534	0.00	3.28	0.00
131	0.01	0.01	0.05	92.583	97.699	94.579	0.00	0.07	0.00
132	0.00	0.02	0.01	92.584	97.714	94.587	0.00	0.17	0.00
133	0.00	0.00	0.04	92.584	97.715	94.625	0.00	0.01	0.00
134	0.00	0.03	0.15	92.585	97.747	94.772	0.00	0.34	0.00
135	0.01	0.01	0.00	92.590	97.761	94.774	0.00	0.15	0.00
136	0.00	0.03	0.00	92.594	97.787	94.778	0.00	0.28	0.00
137	0.01	0.00	0.00	92.602	97.787	94.782	0.00	0.00	0.00
138	0.00	0.02	0.06	92.606	97.809	94.842	0.00	0.24	0.00
139	0.01	0.03	0.02	92.615	97.836	94.859	0.00	0.29	0.00

	MASS PARTICIPATION FACTORS IN PERCENT						BASE SHEAR IN KN		
MODE	X	Y	Z	SUMM-X	SUMM-Y	SUMM-Z	X	Y	Z
140	0.00	0.00	0.00	92.615	97.841	94.860	0.00	0.05	0.00
141	0.00	0.18	0.09	92.619	98.024	94.954	0.00	1.98	0.00
142	0.00	0.04	0.00	92.620	98.061	94.955	0.00	0.40	0.00
143	0.01	0.03	0.01	92.626	98.088	94.960	0.00	0.30	0.00
144	0.07	0.01	0.01	92.693	98.099	94.973	0.00	0.11	0.00
145	0.02	0.00	0.01	92.716	98.099	94.986	0.00	0.01	0.00
146	0.00	0.13	0.01	92.718	98.230	94.994	0.00	1.42	0.00
147	0.04	0.00	0.00	92.753	98.230	94.996	0.00	0.00	0.00

148	0.15	0.01	0.01	92.902	98.243	95.002	0.00	0.14	0.00
149	0.03	0.01	0.01	92.930	98.256	95.009	0.00	0.14	0.00
150	0.07	0.03	0.01	93.002	98.282	95.022	0.00	0.29	0.00
151	0.00	0.03	0.01	93.005	98.307	95.030	0.00	0.27	0.00
152	0.04	0.00	0.01	93.040	98.309	95.039	0.00	0.02	0.00
153	0.01	0.01	0.00	93.055	98.319	95.041	0.00	0.11	0.00
154	0.01	0.05	0.00	93.063	98.372	95.041	0.00	0.58	0.00
155	0.08	0.01	0.02	93.139	98.381	95.061	0.00	0.10	0.00
156	0.01	0.04	0.00	93.154	98.417	95.062	0.00	0.39	0.00
157	0.01	0.00	0.00	93.163	98.417	95.066	0.00	0.00	0.00
158	0.01	0.00	0.00	93.174	98.419	95.066	0.00	0.02	0.00
159	0.01	0.07	0.00	93.181	98.485	95.066	0.00	0.72	0.00
160	0.00	0.00	0.00	93.181	98.487	95.067	0.00	0.02	0.00
161	0.05	0.01	0.00	93.232	98.500	95.068	0.00	0.15	0.00
162	0.01	0.02	0.00	93.238	98.516	95.069	0.00	0.17	0.00
163	0.00	0.01	0.00	93.239	98.527	95.069	0.00	0.12	0.00
164	0.00	0.00	0.00	93.239	98.531	95.069	0.00	0.05	0.00
165	0.00	0.00	0.00	93.241	98.533	95.070	0.00	0.01	0.00
166	0.00	0.00	0.00	93.243	98.534	95.070	0.00	0.01	0.00
167	0.01	0.02	0.00	93.253	98.554	95.073	0.00	0.23	0.00
168	0.00	0.00	0.00	93.253	98.555	95.073	0.00	0.00	0.00
169	0.00	0.10	0.00	93.254	98.652	95.073	0.00	1.08	0.00
170	0.00	0.09	0.00	93.259	98.741	95.073	0.00	0.98	0.00
171	0.00	0.02	0.01	93.260	98.757	95.081	0.00	0.18	0.00
172	0.01	0.02	0.02	93.271	98.779	95.105	0.00	0.25	0.00
173	0.05	0.03	0.00	93.316	98.807	95.105	0.00	0.31	0.00
174	0.00	0.01	0.00	93.316	98.812	95.109	0.00	0.06	0.00
175	0.00	0.00	0.08	93.318	98.813	95.188	0.00	0.01	0.00
176	0.00	0.00	0.00	93.322	98.817	95.191	0.00	0.04	0.00
177	0.02	0.00	0.00	93.341	98.817	95.194	0.00	0.00	0.00
178	0.00	0.05	0.00	93.343	98.868	95.197	0.00	0.56	0.00
179	0.01	0.00	0.00	93.352	98.871	95.198	0.00	0.03	0.00
180	0.06	0.05	0.00	93.412	98.919	95.199	0.00	0.54	0.00
181	0.00	0.08	0.01	93.414	99.003	95.213	0.00	0.93	0.00
182	0.01	0.06	0.00	93.423	99.059	95.214	0.00	0.63	0.00
183	0.00	0.01	0.00	93.424	99.065	95.215	0.00	0.06	0.00
184	0.02	0.01	0.00	93.444	99.078	95.215	0.00	0.15	0.00
185	0.01	0.00	0.00	93.453	99.081	95.216	0.00	0.03	0.00

	MASS PARTICIPATION FACTORS IN PERCENT						BASE SHEAR IN KN		
MODE	X	Y	Z	SUMM-X	SUMM-Y	SUMM-Z	X	Y	Z
186	0.00	0.00	0.00	93.456	99.082	95.216	0.00	0.01	0.00
187	0.00	0.00	0.01	93.461	99.082	95.225	0.00	0.00	0.00
188	0.03	0.02	0.01	93.488	99.103	95.232	0.00	0.24	0.00
189	0.00	0.00	0.00	93.489	99.106	95.233	0.00	0.03	0.00
190	0.01	0.00	0.00	93.497	99.106	95.233	0.00	0.00	0.00
191	0.00	0.00	0.00	93.500	99.111	95.233	0.00	0.05	0.00
192	0.03	0.02	0.00	93.530	99.134	95.234	0.00	0.26	0.00
193	0.01	0.00	0.00	93.537	99.134	95.234	0.00	0.00	0.00
194	0.00	0.00	0.00	93.538	99.134	95.234	0.00	0.00	0.00
195	0.00	0.00	0.00	93.538	99.134	95.234	0.00	0.00	0.00
196	0.00	0.00	0.00	93.538	99.134	95.236	0.00	0.00	0.00
197	0.02	0.01	0.00	93.557	99.148	95.241	0.00	0.15	0.00
198	0.00	0.02	0.02	93.560	99.165	95.260	0.00	0.19	0.00
199	0.00	0.00	0.00	93.561	99.169	95.262	0.00	0.04	0.00
200	0.02	0.01	0.00	93.577	99.182	95.263	0.00	0.15	0.00
					TOTAL SRSS SHEAR		0.00	281.34	0.00
					TOTAL 10PCT SHEAR		0.00	461.20	0.00
					TOTAL ABS SHEAR		0.00	892.82	0.00

```
2083. LOAD LIST 30 TO 38
2084. START CONCRETE DESIGN
2085. CODE ACI
2086. CONCRETE TAKE
2087. FC 24525 MEMB 2137 TO 2164 2166 TO 2169 2171 2173 TO 2176 2178 TO 2181 2183 -
```

```
2088. 2185 TO 2201 2306 2307 2323 2324 2432 2433 2435 2470 TO 2472 2523 2524
2089. MINSEC 10 MEMB 2137 TO 2164 2166 TO 2169 2171 2173 TO 2176 2178 TO 2181 2183 -
2090. 2185 TO 2201 2306 2307 2323 2324 2432 2433 2435 2470 TO 2472 2523 2524
2091. TRACK 2 MEMB 2137 TO 2164 2166 TO 2169 2171 2173 TO 2176 2178 TO 2181 2183 -
2092. 2185 TO 2201 2306 2307 2323 2324 2432 2433 2435 2470 TO 2472 2523 2524
2093. DESIGN BEAM 2164 2166 TO 2169 2171 2173 TO 2176 2178 TO 2181 2183 -
2094. 2185 TO 2201 2323 2324 2432 2470 TO 2472 2524
```


```
=====================================================================

       BEAM  NO.  2164 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

LEN -  8000. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  700. MMS

LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
          (MM)                     (MM)         (MM)          STA  END
_____________________________________________________________________

  1         54.     6 - 12MM         0.         8000.        YES  YES
|-----------------------------------------------------------------|
|   CRITICAL POS MOMENT=    124.31 KN-MET  AT  5333.MM, LOAD   34|
|   REQD STEEL=   646.MM2, ROW=0.0033, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   38. MMS         |
|   REQD. DEVELOPMENT LENGTH =   566. MMS                        |
|-----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   175566.9 cm^4

  2        646.     6 - 12MM         0.         8000.        YES  YES
|-----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=    123.66 KN-MET  AT     0.MM, LOAD   33|
|   REQD STEEL=   646.MM2, ROW=0.0033, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   38. MMS         |
```

| REQD. DEVELOPMENT LENGTH =   566. MMS |

|--|

Cracked Moment of Inertia Iz at above location =   175566.9 cm^4

REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	200./	536.	47./	124.	34/	33
667.	282./	448.	66./	104.	34/	33
1333.	353./	373.	82./	87.	34/	33
2000.	413./	310.	96./	72.	34/	33
2667.	461./	259.	107./	61.	34/	33
3333.	498./	219.	115./	51.	34/	33
4000.	523./	191.	121./	45.	34/	33
4667.	537./	174.	124./	41.	34/	33
5333.	539./	169.	124./	40.	34/	33
6000.	529./	175.	122./	41.	34/	33
6667.	507./	192.	117./	45.	34/	33
7333.	474./	221.	110./	52.	34/	33
8000.	429./	261.	100./	61.	33/	34

B E A M N O. 2164 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu=   47.84 KNS Vc= 154.68 KNS Vs=   0.00 KNS

Tu=   12.29 KN-MET Tc=   6.8 KN-MET Ts=   16.4 KN-MET LOAD   33

STIRRUPS ARE REQUIRED FOR TORSION.

REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.

PROVIDE 10 MM 2-LEGGED STIRRUPS AT 207. MM C/C FOR 3358. MM

ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   2.94 SQ.CM.

```
  AT END   SUPPORT - Vu=   31.92 KNS  Vc=  153.61 KNS  Vs=    0.00 KNS
  Tu=   12.29 KN-MET  Tc=    6.8 KN-MET  Ts=   16.4 KN-MET  LOAD    34
  STIRRUPS ARE REQUIRED FOR TORSION.
  REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
  PROVIDE 10 MM 2-LEGGED STIRRUPS AT 207. MM  C/C FOR 3358. MM
  ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   2.94 SQ.CM.


 ___1096J____________________  7999X 300X  700_____________________1095J____
||=========================================================================||
| 6No12 H 646.| |0.TO 8000| | | | | |   | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |   | | | | | | | | | | | | | | | | | | |
| 18*10c/c207 | | | | | | | | | | | |   | | | | | | | | | |18*10c/c207| | |
| | | | | | | | | | | | | | | | | | |   | | | | | | | | | | | | | | | | | | |
| 6No12 H |54.| |0.TO 8000| | | | | |   | | | | | | | | | | | | | | | | | | |
||=========================================================================||
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|     | |     | |     | |     | |     | |     | |     | |     |        |     |
|     | |     | |     | |     | |     | |     | |     | |     |        |     |
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  =====================================================================

         BEAM  NO.  2166 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

  LEN -  5250. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  600. MMS

  LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
             (MM)                    (MM)          (MM)          STA  END
```

```
  1         56.     3 - 16MM         0.         4833.        YES  NO
|----------------------------------------------------------------|
|   CRITICAL POS MOMENT=    111.84 KN-MET  AT     0.MM, LOAD   34|
|   REQD STEEL=   572.MM2, ROW=0.0035, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   41./   94. MMS         |
|   REQD. DEVELOPMENT LENGTH =   483. MMS                        |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   109760.7 cm^4

  2        546.     5 - 12MM         0.         5250.        YES  YES
```



```
|----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=    107.86 KN-MET  AT  5250.MM, LOAD   32|
|   REQD STEEL=   549.MM2, ROW=0.0034, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   48. MMS         |
|   REQD. DEVELOPMENT LENGTH =   453. MMS                        |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   104738.6 cm^4


REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
( MM )          (SQ.  MM )                (KNS-MET )

    0.          579./     340.         112./       67.       34/   33
  438.          547./     330.         106./       65.       34/   33
  875.          509./     325.          99./       64.       34/   33
 1313.          466./     324.          91./       64.       34/   33
 1750.          419./     329.          82./       65.       34/   33
 2188.          366./     339.          72./       66.       34/   33
 2625.          309./     354.          61./       69.       34/   33
```

3063.	247./	374.	49./	73.	34/	33
3500.	181./	400.	36./	78.	34/	33
3938.	111./	430.	22./	84.	34/	33
4375.	36./	467.	7./	91.	34/	33
4813.	0./	508.	0./	99.	0/	33
5250.	0./	558.	0./	108.	0/	32

B E A M   N O.   2166 D E S I G N   R E S U L T S - SHEAR

```
AT START SUPPORT - Vu=   17.99 KNS  Vc=  128.98 KNS  Vs=    0.00 KNS
Tu=   15.23 KN-MET  Tc=    5.6 KN-MET  Ts=   20.3 KN-MET  LOAD    33
STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 182. MM  C/C FOR 2083. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   3.83 SQ.CM.

AT END   SUPPORT - Vu=   51.84 KNS  Vc=  137.35 KNS  Vs=    0.00 KNS
Tu=   15.23 KN-MET  Tc=    5.6 KN-MET  Ts=   20.3 KN-MET  LOAD    34
STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 182. MM  C/C FOR 2083. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   3.83 SQ.CM.
```



```
 ___1099J____________________  5250X 300X  600_____________________1101J____
|                                                                            |
||==========================================================================||
| 5No12 H 546.|  0.TO 5250|  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |
| 13*10c/c182 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 13*10c/c182       |
| 3No16 H  56.|  0.TO 4833|  |  |  |  |  |  |  |  |  |  |  |  |  |  |        |
||=====================================================================      |
|                                                                            |
|____________________________________________________________________________|
```

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| 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |    | 5#12  |
|       |  |       |  |       |  |       |  |       |  |       |    |       |
| 3#16  |  | 3#16  |  | 3#16  |  | 3#16  |  | 3#16  |  | 3#16  |    |       |
|  ooo  |  |  ooo  |  |  ooo  |  |  ooo  |  |  ooo  |  |  ooo  |    |       |
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|_______|  |_______|  |_______|  |_______|  |_______|  |_______|    |_______|



 =====================================================================

        BEAM  NO.  2167 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

 LEN -  5250. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  600. MMS

 LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
           (MM)                     (MM)         (MM)          STA  END
 _____________________________________________________________________


   1         61.     4 - 25MM         0.         5250.        YES  YES
 |----------------------------------------------------------------|
 |   CRITICAL POS MOMENT=    330.97 KN-MET  AT     0.MM, LOAD   34|
 |   REQD STEEL=  1860.MM2, ROW=0.0115, ROWMX=0.0190 ROWMN=0.0033 |
 |   MAX/MIN/ACTUAL BAR SPACING=   261./   50./   60. MMS         |
 |   REQD. DEVELOPMENT LENGTH =  1582. MMS                        |
 |----------------------------------------------------------------|

   Cracked Moment of Inertia Iz at above location =   272812.6 cm^4

   2        539.     4 - 25MM         0.         5250.        YES  YES
 |----------------------------------------------------------------|
 |   CRITICAL NEG MOMENT=    330.47 KN-MET  AT     0.MM, LOAD   33|
 |   REQD STEEL=  1857.MM2, ROW=0.0115, ROWMX=0.0190 ROWMN=0.0033 |
 |   MAX/MIN/ACTUAL BAR SPACING=   261./   50./   60. MMS         |
```

| REQD. DEVELOPMENT LENGTH = 1582. MMS |

|---|

Cracked Moment of Inertia Iz at above location =   272812.6 cm^4

REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	1868./	1865.	331./	330.	34/	33

437.	1834./	1772.	326./	316.	34/	33
875.	1794./	1687.	319./	303.	34/	33
1312.	1748./	1609.	312./	290.	34/	33
1750.	1696./	1538.	304./	279.	34/	33
2187.	1638./	1473.	295./	268.	34/	33
2625.	1575./	1416.	285./	259.	34/	33
3062.	1507./	1364.	274./	250.	34/	33
3500.	1434./	1319.	262./	243.	34/	33
3937.	1356./	1281.	249./	236.	34/	33
4375.	1273./	1248.	235./	231.	34/	33
4812.	1185./	1221.	220./	226.	34/	33
5250.	1093./	1200.	204./	223.	33/	34

B E A M N O. 2167 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 112.29 KNS Vc= 132.64 KNS Vs=   17.08 KNS

Tu=   8.87 KN-MET Tc=   5.6 KN-MET Ts=   11.8 KN-MET LOAD   33

STIRRUPS ARE REQUIRED FOR SHEAR AND TORSION.

PROVIDE 10 MM 2-LEGGED STIRRUPS AT 182. MM C/C FOR 2083. MM

ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   2.23 SQ.CM.

```
  AT END   SUPPORT - Vu=  115.90 KNS  Vc=  135.40 KNS  Vs=   19.13 KNS
  Tu=    8.87 KN-MET  Tc=    5.6 KN-MET  Ts=   11.8 KN-MET  LOAD    34
  STIRRUPS ARE REQUIRED FOR SHEAR AND TORSION.
  PROVIDE 10 MM 2-LEGGED STIRRUPS AT 182. MM  C/C FOR 2083. MM
  ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   2.23 SQ.CM.


___1101J____________________  5249X 300X  600_____________________1103J____
|                                                                          |
||========================================================================||
| 4No25 H 539.|  0.TO 5250|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| 13*10c/c182 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 13*10c/c182  | |
| 4No25 H  61.|  0.TO 5250|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
||========================================================================||
|                                                                          |
|__________________________________________________________________________|
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| 4#25  |  | 4#25  |  | 4#25  |  | 4#25  |  | 4#25  |  | 4#25  |    | 4#25  |
|       |  |       |  |       |  |       |  |       |  |       |    |       |
| 4#25  |  | 4#25  |  | 4#25  |  | 4#25  |  | 4#25  |  | 4#25  |    | 4#25  |
| oooo  |  | oooo  |  | oooo  |  | oooo  |  | oooo  |  | oooo  |    | oooo  |
|       |  |       |  |       |  |       |  |       |  |       |    |       |
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```


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 ====================================================================

       BEAM  NO.  2168 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

 LEN -  1500. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  600. MMS

 LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
           (MM)                     (MM)         (MM)         STA  END
```

```
  1         54.     5 - 12MM         0.         1500.        YES  YES
|-----------------------------------------------------------------|
|   CRITICAL POS MOMENT=     81.21 KN-MET  AT   625.MM, LOAD   34|
|   REQD STEEL=   546.MM2, ROW=0.0033, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   48. MMS         |
|   REQD. DEVELOPMENT LENGTH =   453. MMS                        |
|-----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   104738.6 cm^4

  2        546.     5 - 12MM         0.         1500.        YES  YES
|-----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=     94.85 KN-MET  AT     0.MM, LOAD   33|
|   REQD STEEL=   546.MM2, ROW=0.0033, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   48. MMS         |
|   REQD. DEVELOPMENT LENGTH =   453. MMS                        |
|-----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   104738.6 cm^4


REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
( MM )         (SQ.  MM )                (KNS-MET )

    0.          411./     489.          80./       95.       34/   33
  125.          413./     452.          81./       88.       34/   33
  250.          414./     415.          81./       81.       34/   33
  375.          415./     380.          81./       74.       34/   33
  500.          416./     345.          81./       68.       34/   33
  625.          416./     310.          81./       61.       34/   33
  750.          416./     276.          81./       54.       34/   33
  875.          416./     243.          81./       48.       34/   33
 1000.          415./     211.          81./       42.       34/   33
```

```
  1125.         414./     179.          81./       35.       34/   33
  1250.         413./     147.          81./       29.       34/   33
  1375.         411./     117.          80./       23.       34/   33
  1500.         410./      87.          80./       17.       33/   34
```

B E A M N O. 2168 D E S I G N R E S U L T S - SHEAR


```
  AT START SUPPORT - Vu=   55.24 KNS  Vc=  132.30 KNS  Vs=    0.00 KNS
  Tu=    4.17 KN-MET  Tc=    5.6 KN-MET  Ts=    0.0 KN-MET  LOAD    33
  NO STIRRUPS ARE REQUIRED FOR TORSION.
  REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
  PROVIDE 10 MM 2-LEGGED STIRRUPS AT 273. MM  C/C FOR  208. MM

  AT END   SUPPORT - Vu=   53.13 KNS  Vc=  133.65 KNS  Vs=    0.00 KNS
  Tu=    0.82 KN-MET  Tc=    5.5 KN-MET  Ts=    0.0 KN-MET  LOAD    33
  NO STIRRUPS ARE REQUIRED FOR TORSION.
  REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
  PROVIDE 10 MM 2-LEGGED STIRRUPS AT 273. MM  C/C FOR  208. MM
```

```
 ___1103J____________________  1500X 300X  600_____________________1249J____
|                                                                            |
||==========================================================================||
| 5No12 H 546.  |0.TO 1500                            |             | |
|  2*10c/c273   |                                     | 2*10c/c273  | |
| 5No12 H  54.  |0.TO 1500                            |             | |
||==========================================================================||
|                                                                            |
|___________________________________________________________________________|
 _______    _______    _______    _______    _______    _______     _______
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| 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |   | 5#12  |
```

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|       |  |       |  |       |  |       |  |       |  |       |    |       |
| 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |    | 5#12  |
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|_______|  |_______|  |_______|  |_______|  |_______|  |_______|    |_______|


 =====================================================================

        BEAM  NO.  2169 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

 LEN -  2700. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  600. MMS

 LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
           (MM)                     (MM)         (MM)          STA  END
 _____________________________________________________________________


   1         54.     5 - 12MM         0.         2700.        YES  YES
 |----------------------------------------------------------------|
 |   CRITICAL POS MOMENT=     87.92 KN-MET  AT  2700.MM, LOAD   33|
 |   REQD STEEL=   546.MM2, ROW=0.0033, ROWMX=0.0190 ROWMN=0.0033 |
 |   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   48. MMS         |
 |   REQD. DEVELOPMENT LENGTH =   453. MMS                       |
 |----------------------------------------------------------------|

   Cracked Moment of Inertia Iz at above location =   104738.6 cm^4

   2        542.     4 - 20MM         0.         2700.        YES  YES
```


```
 |----------------------------------------------------------------|
 |   CRITICAL NEG MOMENT=    212.45 KN-MET  AT     0.MM, LOAD   32|
 |   REQD STEEL=  1131.MM2, ROW=0.0070, ROWMX=0.0190 ROWMN=0.0033 |
 |   MAX/MIN/ACTUAL BAR SPACING=   261./   45./   61. MMS         |
 |   REQD. DEVELOPMENT LENGTH =   985. MMS                       |
 |----------------------------------------------------------------|
```

Cracked Moment of Inertia Iz at above location =   197182.2 cm^4

REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	124./	1142.	25./	212.	34/	32
225.	156./	1018.	31./	191.	34/	33
450.	188./	935.	37./	176.	34/	33
675.	218./	855.	43./	162.	34/	33
900.	247./	778.	49./	148.	34/	33
1125.	275./	703.	54./	135.	34/	33
1350.	303./	630.	59./	121.	34/	33
1575.	329./	560.	65./	108.	34/	33
1800.	355./	493.	69./	96.	34/	33
2025.	380./	428.	74./	83.	34/	33
2250.	404./	366.	79./	72.	34/	33
2475.	428./	306.	83./	60.	34/	33
2700.	452./	249.	88./	49.	33/	34

B E A M N O. 2169 D E S I G N R E S U L T S - SHEAR

```
  AT START SUPPORT - Vu=  110.26 KNS  Tu=   61.9 KN-MET
                    Vc=  131.7 KNS, ACI 318:CLAUSE 11.6.3.1
LOAD    32 TORSION VALUE TOO HIGH, INCREASE MEMBER SIZE.
  AT END   SUPPORT - Vu=  102.03 KNS  Tu=   61.9 KN-MET
                    Vc=  137.4 KNS, ACI 318:CLAUSE 11.6.3.1
LOAD    32 TORSION VALUE TOO HIGH, INCREASE MEMBER SIZE.

___1105J____________________  2700X 300X  600_____________________1107J____
|                                                                          |
||========================================================================||
```

```
| 4No20 H 542.   0.TO 2700                                                    |
|                                                                             |
| 5No12 H  54.   0.TO 2700                                                    |
||===========================================================================||
|                                                                             |
|_____________________________________________________________________________|
 _______     _______     _______     _______     _______     _______      _______
|       |   |       |   |       |   |       |   |       |   |       |    |       |
| oooo  |   | oooo  |   | oooo  |   | oooo  |   | oooo  |   | oooo  |    | oooo  |
| 4#20  |   | 4#20  |   | 4#20  |   | 4#20  |   | 4#20  |   | 4#20  |    | 4#20  |
|       |   |       |   |       |   |       |   |       |   |       |    |       |
| 5#12  |   | 5#12  |   | 5#12  |   | 5#12  |   | 5#12  |   | 5#12  |    | 5#12  |
| ooooo |   | ooooo |   | ooooo |   | ooooo |   | ooooo |   | ooooo |    | ooooo |
|       |   |       |   |       |   |       |   |       |   |       |    |       |
|_______|   |_______|   |_______|   |_______|   |_______|   |_______|    |_______|
```



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 ======================================================================

        BEAM  NO.  2171 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

 LEN -  8200. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  700. MMS

 LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
           (MM)                     (MM)         (MM)          STA  END
 ______________________________________________________________________

   1         54.     6 - 12MM        0.         8200.         YES  YES
  |----------------------------------------------------------------|
  |   CRITICAL POS MOMENT=     98.73 KN-MET  AT  4100.MM, LOAD   34|
  |   REQD STEEL=   646.MM2, ROW=0.0033, ROWMX=0.0190 ROWMN=0.0033 |
  |   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   38. MMS         |
  |   REQD. DEVELOPMENT LENGTH =   566. MMS                        |
  |----------------------------------------------------------------|
```

```
  Cracked Moment of Inertia Iz at above location =   175566.9 cm^4

  2        646.     6 - 12MM         0.         8200.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=     70.15 KN-MET  AT  8200.MM, LOAD   34|
|   REQD STEEL=   646.MM2, ROW=0.0033, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   38. MMS         |
|   REQD. DEVELOPMENT LENGTH =   566. MMS                       |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   175566.9 cm^4


REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
( MM )          (SQ.  MM )                (KNS-MET )

    0.         208./     283.          49./       66.       34/   33
  683.         274./     219.          64./       51.       34/   33
 1367.         328./     166.          77./       39.       34/   33
 2050.         371./     126.          86./       30.       34/   33
 2733.         401./      98.          93./       23.       34/   33
 3417.         419./      82.          97./       19.       34/   33
 4100.         425./      77.          99./       18.       34/   33
 4783.         419./      85.          97./       20.       34/   33
 5467.         401./     104.          93./       24.       34/   33
 6150.         370./     135.          86./       32.       34/   33
 6833.         328./     178.          77./       42.       34/   33
 7517.         274./     233.          64./       55.       34/   33
 8200.         208./     300.          49./       70.       33/   34



       B E A M  N O.  2171 D E S I G N  R E S U L T S - SHEAR
```

```
AT START SUPPORT - Vu=   16.83 KNS  Vc=  158.05 KNS  Vs=    0.00 KNS
Tu=   29.44 KN-MET  Tc=    6.8 KN-MET  Ts=   39.3 KN-MET  LOAD    32
STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 185. MM  C/C FOR 3458. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   7.04 SQ.CM.

AT END   SUPPORT - Vu=   24.24 KNS  Vc=  162.53 KNS  Vs=    0.00 KNS
Tu=   29.44 KN-MET  Tc=    6.8 KN-MET  Ts=   39.3 KN-MET  LOAD    32
STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 185. MM  C/C FOR 3458. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   7.04 SQ.CM.


 ___1109J____________________  8199X 300X  700_____________________1111J____
||==========================================================================||
| 6No12 H 646.| |0.TO 8200| | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20*10c/c185 | | | | | | | | | | | | | | | | | | | | | | | |20*10c/c185| | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6No12 H |54.| |0.TO 8200| | | | | | | | | | | | | | | | | | | | | | | | | |
||==========================================================================||
|___________________________________________________________________________|

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|ooooo|    |ooooo|    |ooooo|    |ooooo|    |ooooo|    |ooooo|       |ooooo|
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|     |    |     |    |     |    |     |    |     |    |     |       |     |
|     |    |     |    |     |    |     |    |     |    |     |       |     |
|     |    |     |    |     |    |     |    |     |    |     |       |     |
|     |    |     |    |     |    |     |    |     |    |     |       |     |
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```

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       BEAM  NO.  2173 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

LEN -  5500. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  600. MMS

LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
          (MM)                     (MM)         (MM)         STA  END
_____________________________________________________________________


  1        58.     4 - 20MM         0.         5500.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL POS MOMENT=    216.47 KN-MET  AT  5500.MM, LOAD   33|
|   REQD STEEL=  1154.MM2, ROW=0.0071, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   45./   61. MMS         |
|   REQD. DEVELOPMENT LENGTH =   985. MMS                        |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   197182.2 cm^4

  2       539.     4 - 25MM         0.         5500.        YES  YES
```

```
|----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=    315.75 KN-MET  AT  5500.MM, LOAD   34|
|   REQD STEEL=  1763.MM2, ROW=0.0109, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   50./   60. MMS         |
|   REQD. DEVELOPMENT LENGTH =  1582. MMS                        |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   272812.6 cm^4


REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
( MM )         (SQ.  MM )                (KNS-MET )
```

0.	570./	409.	110./	80.	34/	33
458.	650./	482.	125./	94.	34/	33
917.	724./	561.	139./	108.	34/	33
1375.	794./	647.	151./	124.	34/	33
1833.	858./	740.	163./	141.	34/	33
2292.	917./	840.	173./	159.	34/	33
2750.	970./	947.	183./	179.	34/	33
3208.	1017./	1062.	191./	199.	34/	33
3667.	1059./	1186.	198./	220.	34/	33
4125.	1094./	1317.	204./	242.	34/	33
4583.	1124./	1458.	209./	266.	34/	33
5042.	1148./	1609.	213./	290.	34/	33
5500.	1165./	1770.	216./	316.	33/	34

B E A M N O. 2173 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 65.09 KNS Vc= 134.30 KNS Vs= 0.00 KNS
Tu= 16.86 KN-MET Tc= 5.6 KN-MET Ts= 22.5 KN-MET LOAD 33
STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 182. MM C/C FOR 2208. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE = 4.24 SQ.CM.

AT END SUPPORT - Vu= 88.66 KNS Vc= 131.51 KNS Vs= 0.00 KNS
Tu= 16.86 KN-MET Tc= 5.6 KN-MET Ts= 22.5 KN-MET LOAD 34
STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 182. MM C/C FOR 2208. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE = 4.24 SQ.CM.

___1113J____________________ 5499X 300X 600_____________________1115J____

```
|                                                                              |
||============================================================================||
| 4No25 H 539.|  0.TO 5500|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| 14*10c/c182 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 14*10c/c182  | |
| 4No20 H  58.|  0.TO 5500|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
||============================================================================||
|                                                                              |
|______________________________________________________________________________|

 _______    _______    _______    _______    _______    _______      _______
|       |  |       |  |       |  |       |  |       |  |       |    |       |
| oooo  |  | oooo  |  | oooo  |  | oooo  |  | oooo  |  | oooo  |    | oooo  |
| 4#25  |  | 4#25  |  | 4#25  |  | 4#25  |  | 4#25  |  | 4#25  |    | 4#25  |
|       |  |       |  |       |  |       |  |       |  |       |    |       |
| 4#20  |  | 4#20  |  | 4#20  |  | 4#20  |  | 4#20  |  | 4#20  |    | 4#20  |
| oooo  |  | oooo  |  | oooo  |  | oooo  |  | oooo  |  | oooo  |    | oooo  |
|       |  |       |  |       |  |       |  |       |  |       |    |       |
|_______|  |_______|  |_______|  |_______|  |_______|  |_______|    |_______|


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        BEAM  NO.  2174 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

 LEN -  5500. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  600. MMS

 LEVEL    HEIGHT     BAR INFO       FROM          TO            ANCHOR
            (MM)                    (MM)         (MM)          STA  END
 ______________________________________________________________________


   1         54.     5 - 12MM         0.         5500.         YES  YES
 |----------------------------------------------------------------|
 |   CRITICAL POS MOMENT=     54.61 KN-MET  AT  5500.MM, LOAD   33|
 |   REQD STEEL=   546.MM2, ROW=0.0033, ROWMX=0.0190 ROWMN=0.0033 |
 |   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   48. MMS         |
 |   REQD. DEVELOPMENT LENGTH =   453. MMS                        |
 |----------------------------------------------------------------|
```

```
  Cracked Moment of Inertia Iz at above location =   104738.6 cm^4


  2        546.     5 - 12MM         0.         5500.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=     87.70 KN-MET  AT     0.MM, LOAD   33|
|   REQD STEEL=   546.MM2, ROW=0.0033, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   48. MMS         |
|   REQD. DEVELOPMENT LENGTH =   453. MMS                        |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   104738.6 cm^4


REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
( MM )          (SQ.  MM )                (KNS-MET )

   0.           0./     451.           0./       88.        0/   33
```



```
  458.         11./     392.           2./       77.       32/   33
  917.         22./     340.           4./       67.       32/   33
 1375.         66./     294.          13./       58.       34/   33
 1833.        111./     253.          22./       50.       34/   33
 2292.        150./     219.          30./       43.       34/   33
 2750.        184./     190.          36./       38.       34/   33
 3208.        213./     166.          42./       33.       34/   33
 3667.        237./     149.          47./       30.       34/   33
 4125.        255./     137.          50./       27.       34/   33
 4583.        268./     130.          53./       26.       34/   33
 5042.        275./     130.          54./       26.       34/   33
 5500.        278./     169.          55./       33.       33/   32
```

B E A M N O. 2174 D E S I G N R E S U L T S - SHEAR

```
AT START SUPPORT - Vu=   36.59 KNS  Vc=  130.47 KNS  Vs=    0.00 KNS
Tu=   12.83 KN-MET  Tc=    5.6 KN-MET  Ts=   17.1 KN-MET  LOAD    33
STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 182. MM  C/C FOR 2208. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   3.22 SQ.CM.

AT END   SUPPORT - Vu=   12.02 KNS  Vc=  129.10 KNS  Vs=    0.00 KNS
Tu=   12.83 KN-MET  Tc=    5.6 KN-MET  Ts=   17.1 KN-MET  LOAD    34
STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 182. MM  C/C FOR 2208. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   3.22 SQ.CM.


 ___1115J____________________  5499X 300X  600_____________________1117J____
|                                                                            |
||==========================================================================||
| 5No12 H 546.|  0.TO 5500|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| 14*10c/c182 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 14*10c/c182  | |
| 5No12 H  54.|  0.TO 5500|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
||==========================================================================||
|                                                                            |
|____________________________________________________________________________|
 _______    _______    _______    _______    _______    _______      _______
|       |  |       |  |       |  |       |  |       |  |       |    |       |
| ooooo |  | ooooo |  | ooooo |  | ooooo |  | ooooo |  | ooooo |    | ooooo |
| 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |    | 5#12  |
|       |  |       |  |       |  |       |  |       |  |       |    |       |
| 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |    | 5#12  |
| ooooo |  | ooooo |  | ooooo |  | ooooo |  | ooooo |  | ooooo |    | ooooo |
|       |  |       |  |       |  |       |  |       |  |       |    |       |
|_______|  |_______|  |_______|  |_______|  |_______|  |_______|    |_______|
```

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=====================================================================

       BEAM  NO.  2175 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

LEN -  6500. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  600. MMS

LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
          (MM)                     (MM)         (MM)         STA  END
_____________________________________________________________________


  1        58.     4 - 20MM        0.         6500.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL POS MOMENT=    224.19 KN-MET  AT     0.MM, LOAD   34|
|   REQD STEEL=  1199.MM2, ROW=0.0074, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   45./   61. MMS         |
|   REQD. DEVELOPMENT LENGTH =   985. MMS                        |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   197182.2 cm^4

  2       542.     3 - 20MM        0.         6500.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=    168.51 KN-MET  AT     0.MM, LOAD   33|
|   REQD STEEL=   883.MM2, ROW=0.0054, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   45./   92. MMS         |
|   REQD. DEVELOPMENT LENGTH =   657. MMS                        |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   157123.0 cm^4


REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
( MM )         (SQ.  MM )                (KNS-MET )
```

0.	1210./	891.	224./	169.	34/	33
542.	1173./	813.	218./	155.	34/	33
1083.	1127./	744.	210./	142.	34/	33
1625.	1073./	684.	201./	131.	34/	33
2167.	1010./	632.	190./	122.	34/	33
2708.	940./	589.	177./	114.	34/	33
3250.	862./	554.	163./	107.	34/	33
3792.	777./	527.	148./	102.	34/	33
4333.	684./	508.	131./	99.	34/	33
4875.	585./	498.	113./	97.	34/	33
5417.	479./	495.	93./	96.	34/	33
5958.	367./	500.	72./	97.	34/	33
6500.	249./	514.	49./	100.	33/	34

B E A M N O. 2175 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 47.22 KNS Vc= 130.44 KNS Vs= 0.00 KNS

Tu= 6.32 KN-MET Tc= 5.6 KN-MET Ts= 8.4 KN-MET LOAD 33

STIRRUPS ARE REQUIRED FOR TORSION.

REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.

PROVIDE 10 MM 2-LEGGED STIRRUPS AT 182. MM C/C FOR 2708. MM

ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE = 1.59 SQ.CM.

AT END SUPPORT - Vu= 63.57 KNS Vc= 136.93 KNS Vs= 0.00 KNS

Tu= 6.32 KN-MET Tc= 5.6 KN-MET Ts= 8.4 KN-MET LOAD 34

STIRRUPS ARE REQUIRED FOR TORSION.

REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.

PROVIDE 10 MM 2-LEGGED STIRRUPS AT 182. MM C/C FOR 2708. MM

ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE = 1.59 SQ.CM.

___1117J____________________ 6500X 300X 600_____________________1119J____

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|                                                                              |
||============================================================================||
| 3No20 H 542.|  0.TO 6500|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| 16*10c/c182 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 16*10c/c182  | |
| 4No20 H  58.|  0.TO 6500|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
||============================================================================||
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|______________________________________________________________________________|

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| 3#20  |  | 3#20  |  | 3#20  |  | 3#20  |  | 3#20  |  | 3#20  |    | 3#20  |
|       |  |       |  |       |  |       |  |       |  |       |    |       |
| 4#20  |  | 4#20  |  | 4#20  |  | 4#20  |  | 4#20  |  | 4#20  |    | 4#20  |
| oooo  |  | oooo  |  | oooo  |  | oooo  |  | oooo  |  | oooo  |    | oooo  |
|       |  |       |  |       |  |       |  |       |  |       |    |       |
|_______|  |_______|  |_______|  |_______|  |_______|  |_______|    |_______|


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        BEAM  NO.  2176 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

 LEN -  8000. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  700. MMS

 LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
            (MM)                    (MM)         (MM)         STA  END
 _______________________________________________________________________


   1         54.     6 - 12MM         0.         8000.        YES  YES
 |----------------------------------------------------------------|
 |   CRITICAL POS MOMENT=    144.63 KN-MET  AT  5333.MM, LOAD   34|
 |   REQD STEEL=   646.MM2, ROW=0.0033, ROWMX=0.0190 ROWMN=0.0033 |
 |   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   38. MMS         |
 |   REQD. DEVELOPMENT LENGTH =   566. MMS                        |
 |----------------------------------------------------------------|
```

Cracked Moment of Inertia Iz at above location = 175566.9 cm^4

```
 2        646.     6 - 12MM         0.         8000.        YES  YES
```



```
|----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=    146.16 KN-MET  AT     0.MM, LOAD   33|
|   REQD STEEL=   646.MM2, ROW=0.0033, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   38. MMS         |
|   REQD. DEVELOPMENT LENGTH =   566. MMS                        |
|----------------------------------------------------------------|
```

Cracked Moment of Inertia Iz at above location = 175566.9 cm^4

REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	286./	637.	67./	146.	34/	33
667.	369./	547.	86./	126.	34/	33
1333.	441./	470.	102./	109.	34/	33
2000.	501./	404.	116./	94.	34/	33
2667.	550./	351.	127./	82.	34/	33
3333.	588./	310.	135./	72.	34/	33
4000.	614./	280.	141./	66.	34/	33
4667.	628./	262.	144./	61.	34/	33
5333.	630./	255.	145./	60.	34/	33
6000.	620./	260.	142./	61.	34/	33
6667.	599./	276.	138./	65.	34/	33
7333.	565./	304.	130./	71.	34/	33
8000.	520./	343.	120./	80.	33/	34

B E A M N O. 2176 D E S I G N R E S U L T S - SHEAR

```
AT START SUPPORT - Vu=   53.23 KNS  Vc=  154.41 KNS  Vs=    0.00 KNS

Tu=   12.22 KN-MET  Tc=    6.8 KN-MET  Ts=   16.3 KN-MET  LOAD    33

STIRRUPS ARE REQUIRED FOR TORSION.

REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.

PROVIDE 10 MM 2-LEGGED STIRRUPS AT 207. MM  C/C FOR 3358. MM

ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   2.92 SQ.CM.


AT END   SUPPORT - Vu=   36.38 KNS  Vc=  153.53 KNS  Vs=    0.00 KNS

Tu=   12.22 KN-MET  Tc=    6.8 KN-MET  Ts=   16.3 KN-MET  LOAD    34

STIRRUPS ARE REQUIRED FOR TORSION.

REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.

PROVIDE 10 MM 2-LEGGED STIRRUPS AT 207. MM  C/C FOR 3358. MM

ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   2.92 SQ.CM.
```



```
 ___1098J____________________  7999X 300X  700_____________________1097J____
||==========================================================================||
| 6No12 H 646.| |0.TO 8000| | | | | |   | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |   | | | | | | | | | | | | | | | | | | |
| 18*10c/c207 | | | | | | | | | | | |   | | | | | | | | | | |18*10c/c207| | |
| | | | | | | | | | | | | | | | | | |   | | | | | | | | | | | | | | | | | | |
| 6No12 H |54.| |0.TO 8000| | | | | |   | | | | | | | | | | | | | | | | | | |
||==========================================================================||
|___________________________________________________________________________|

 _____      _____      _____      _____      _____      _____         _____
|ooooo|    |ooooo|    |ooooo|    |ooooo|    |ooooo|    |ooooo|       |ooooo|
|     |    |     |    |     |    |     |    |     |    |     |       |     |
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|     |    |     |    |     |    |     |    |     |    |     |       |     |
|     |    |     |    |     |    |     |    |     |    |     |       |     |
|     |    |     |    |     |    |     |    |     |    |     |       |     |
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```

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====================================================================

       BEAM  NO.  2178 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

LEN -  5250. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  600. MMS

LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
          (MM)                     (MM)         (MM)         STA  END
____________________________________________________________________


  1         54.     6 - 12MM         0.         5250.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL POS MOMENT=    127.54 KN-MET  AT     0.MM, LOAD   34|
|   REQD STEEL=   653.MM2, ROW=0.0040, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   38. MMS         |
|   REQD. DEVELOPMENT LENGTH =   566. MMS                       |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   122044.6 cm^4

  2        544.     4 - 16MM         0.         5250.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=    141.59 KN-MET  AT     0.MM, LOAD   33|
|   REQD STEEL=   732.MM2, ROW=0.0045, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   41./   63. MMS         |
|   REQD. DEVELOPMENT LENGTH =   617. MMS                       |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   139329.5 cm^4


REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
( MM )          (SQ.  MM )                (KNS-MET )
```

0.	664./	741.	128./	142.	34/	33

438.	654./	708.	126./	136.	34/	33
875.	638./	680.	123./	130.	34/	33
1313.	617./	658.	119./	126.	34/	33
1750.	592./	641.	114./	123.	34/	33
2188.	561./	630.	108./	121.	34/	33
2625.	525./	625.	102./	120.	34/	33
3063.	485./	625.	94./	120.	34/	33
3500.	440./	630.	86./	121.	34/	33
3938.	391./	641.	76./	123.	34/	33
4375.	337./	658.	66./	126.	34/	33
4813.	279./	681.	55./	131.	34/	33
5250.	217./	710.	43./	136.	33/	34

B E A M N O. 2178 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 45.28 KNS Vc= 130.03 KNS Vs= 0.00 KNS
Tu= 15.17 KN-MET Tc= 5.6 KN-MET Ts= 20.2 KN-MET LOAD 33
STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 182. MM C/C FOR 2083. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE = 3.81 SQ.CM.

AT END SUPPORT - Vu= 60.32 KNS Vc= 134.40 KNS Vs= 0.00 KNS
Tu= 15.17 KN-MET Tc= 5.6 KN-MET Ts= 20.2 KN-MET LOAD 34
STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 182. MM C/C FOR 2083. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE = 3.81 SQ.CM.

___1100J____________________ 5250X 300X 600_____________________1102J____

```
|                                                                            |
||==========================================================================||
| 4No16 H 544.|  0.TO 5250|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| 13*10c/c182 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 13*10c/c182  | |
| 6No12 H  54.|  0.TO 5250|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
||==========================================================================||
|                                                                            |
|____________________________________________________________________________|
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|       |  |       |  |       |  |       |  |       |  |       |    |       |
| oooo  |  | oooo  |  | oooo  |  | oooo  |  | oooo  |  | oooo  |    | oooo  |
| 4#16  |  | 4#16  |  | 4#16  |  | 4#16  |  | 4#16  |  | 4#16  |    | 4#16  |
|       |  |       |  |       |  |       |  |       |  |       |    |       |
| 6#12  |  | 6#12  |  | 6#12  |  | 6#12  |  | 6#12  |  | 6#12  |    | 6#12  |
|oooooo |  |oooooo |  |oooooo |  |oooooo |  |oooooo |  |oooooo |    |oooooo |
|       |  |       |  |       |  |       |  |       |  |       |    |       |
|_______|  |_______|  |_______|  |_______|  |_______|  |_______|    |_______|
```



```
 ====================================================================

       BEAM  NO.  2179 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

 LEN -  5250. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  600. MMS

 LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
           (MM)                     (MM)         (MM)          STA  END
 ____________________________________________________________________

   1         61.     3 - 25MM         0.         5250.         YES  YES
 |----------------------------------------------------------------|
 |   CRITICAL POS MOMENT=    265.30 KN-MET  AT     0.MM, LOAD   34|
 |   REQD STEEL=  1450.MM2, ROW=0.0090, ROWMX=0.0190 ROWMN=0.0033 |
 |   MAX/MIN/ACTUAL BAR SPACING=   261./   50./   89. MMS         |
```

```
|   REQD. DEVELOPMENT LENGTH =  1055. MMS                       |
|---------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   220403.6 cm^4

  2        536.     3 - 32MM         0.         5250.        YES  YES
|---------------------------------------------------------------|
|   CRITICAL NEG MOMENT=    385.00 KN-MET  AT     0.MM, LOAD   33|
|   REQD STEEL=  2239.MM2, ROW=0.0139, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   64./   86. MMS          |
|   REQD. DEVELOPMENT LENGTH =  1799. MMS                       |
|---------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   311255.6 cm^4


REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
( MM )          (SQ.  MM )                (KNS-MET )

    0.        1456./    2229.         265./      385.       34/   33
  437.        1435./    2033.         262./      356.       34/   33
  875.        1409./    1849.         258./      328.       34/   33
 1312.        1377./    1676.         252./      301.       34/   33
 1750.        1339./    1514.         246./      275.       34/   33
 2187.        1295./    1361.         239./      250.       34/   33
 2625.        1246./    1218.         230./      225.       34/   33
 3062.        1192./    1083.         221./      202.       34/   33
 3500.        1133./     956.         211./      180.       34/   33
 3937.        1068./     837.         200./      159.       34/   33
 4375.         999./     725.         188./      139.       34/   33
 4812.         924./     620.         175./      119.       34/   33
 5250.         845./     522.         160./      101.       33/   34


       B E A M  N O.  2179 D E S I G N  R E S U L T S - SHEAR
```

```
AT START SUPPORT - Vu=  114.42 KNS  Vc=  130.85 KNS  Vs=   21.72 KNS
Tu=    4.29 KN-MET  Tc=    5.6 KN-MET  Ts=    0.0 KN-MET  LOAD    33
NO STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT IS REQUIRED FOR SHEAR.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 270. MM  C/C FOR 2083. MM

AT END   SUPPORT - Vu=   93.22 KNS  Vc=  136.56 KNS  Vs=    0.00 KNS
Tu=    2.45 KN-MET  Tc=    5.6 KN-MET  Ts=    0.0 KN-MET  LOAD    33
NO STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 270. MM  C/C FOR 2083. MM


 ___1102J____________________  5249X 300X  600_____________________1104J____
|                                                                            |
||===========================================================================||
| 3No32 H 536.|  0.TO 5250|   |   |       |   |   |   |   |   |   |   |   | |
|  9*10c/c270 |   |   |   |   |   |       |   |   |   |   |   9*10c/c270  | |
| 3No25 H |61.|  0.TO 5250|   |   |       |   |   |   |   |   |   |   |   | |
||===========================================================================||
|                                                                            |
|____________________________________________________________________________|
 _______    _______    _______    _______    _______    _______      _______
|       |  |       |  |       |  |       |  |       |  |       |    |       |
|  OOO  |  |  OOO  |  |  OOO  |  |  OOO  |  |  OOO  |  |  OOO  |    |  OOO  |
| 3#32  |  | 3#32  |  | 3#32  |  | 3#32  |  | 3#32  |  | 3#32  |    | 3#32  |
|       |  |       |  |       |  |       |  |       |  |       |    |       |
| 3#25  |  | 3#25  |  | 3#25  |  | 3#25  |  | 3#25  |  | 3#25  |    | 3#25  |
|  ooo  |  |  ooo  |  |  ooo  |  |  ooo  |  |  ooo  |  |  ooo  |    |  ooo  |
|       |  |       |  |       |  |       |  |       |  |       |    |       |
|_______|  |_______|  |_______|  |_______|  |_______|  |_______|    |_______|
```

```
=====================================================================

       BEAM  NO.  2180 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

LEN -  6500. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  600. MMS

LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
          (MM)                     (MM)         (MM)          STA  END
_____________________________________________________________________


  1         56.     4 - 16MM         0.         6500.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL POS MOMENT=    134.82 KN-MET  AT  6500.MM, LOAD   32|
|   REQD STEEL=   695.MM2, ROW=0.0043, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   41./   63. MMS         |
|   REQD. DEVELOPMENT LENGTH =   617. MMS                       |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   139329.5 cm^4

  2        546.     5 - 12MM         0.         6500.        YES  YES
```


```
|----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=     60.51 KN-MET  AT  6500.MM, LOAD   34|
|   REQD STEEL=   546.MM2, ROW=0.0033, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   48. MMS         |
|   REQD. DEVELOPMENT LENGTH =   453. MMS                       |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   104738.6 cm^4


REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
( MM )         (SQ.  MM )                (KNS-MET )
```

0.	260./	96.	51./	19.	34/	33
542.	313./	70.	61./	14.	34/	33
1083.	359./	52.	70./	10.	34/	33
1625.	398./	42.	78./	8.	34/	33
2167.	430./	40.	84./	8.	34/	33
2708.	454./	46.	88./	9.	34/	33
3250.	504./	59.	98./	12.	32/	33
3792.	557./	81.	108./	16.	32/	33
4333.	602./	110.	116./	22.	32/	33
4875.	640./	148.	123./	29.	32/	33
5417.	669./	193.	128./	38.	32/	33
5958.	691./	247.	132./	49.	32/	33
6500.	704./	308.	135./	61.	32/	34

```
      B E A M  N O.  2180 D E S I G N  R E S U L T S - SHEAR


  AT START SUPPORT - Vu=   13.06 KNS  Vc=  131.07 KNS  Vs=    0.00 KNS
  Tu=    0.19 KN-MET  Tc=    5.6 KN-MET  Ts=    0.0 KN-MET  LOAD    30
                   STIRRUPS ARE NOT REQUIRED.
  AT END   SUPPORT - Vu=   19.10 KNS  Vc=  139.47 KNS  Vs=    0.00 KNS
  Tu=    0.19 KN-MET  Tc=    5.6 KN-MET  Ts=    0.0 KN-MET  LOAD    30
                   STIRRUPS ARE NOT REQUIRED.
```



```
 ___1104J____________________  6499X 300X  600_____________________1106J____
|                                                                           |
||=========================================================================||
| 5No12 H 546.   0.TO 6500                                                  |
|                                                                           |
| 4No16 H  56.   0.TO 6500                                                  |
||=========================================================================||
|                                                                           |
|___________________________________________________________________________|
```

```
 _______   _______   _______   _______   _______   _______     _______
|       | |       | |       | |       | |       | |       |   |       |
| ooooo | | ooooo | | ooooo | | ooooo | | ooooo | | ooooo |   | ooooo |
| 5#12  | | 5#12  | | 5#12  | | 5#12  | | 5#12  | | 5#12  |   | 5#12  |
|       | |       | |       | |       | |       | |       |   |       |
| 4#16  | | 4#16  | | 4#16  | | 4#16  | | 4#16  | | 4#16  |   | 4#16  |
| oooo  | | oooo  | | oooo  | | oooo  | | oooo  | | oooo  |   | oooo  |
|       | |       | |       | |       | |       | |       |   |       |
|_______| |_______| |_______| |_______| |_______| |_______|   |_______|



 ====================================================================

        BEAM  NO.  2181 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

 LEN -  2700. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  600. MMS

 LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
            (MM)                    (MM)         (MM)          STA  END
 ____________________________________________________________________


   1         58.     4 - 20MM        0.         2700.        YES  YES
 |----------------------------------------------------------------|
 |   CRITICAL POS MOMENT=    224.32 KN-MET  AT     0.MM, LOAD   32|
 |   REQD STEEL=  1200.MM2, ROW=0.0074, ROWMX=0.0190 ROWMN=0.0033 |
 |   MAX/MIN/ACTUAL BAR SPACING=   261./   45./   61. MMS         |
 |   REQD. DEVELOPMENT LENGTH =   985. MMS                       |
 |----------------------------------------------------------------|

   Cracked Moment of Inertia Iz at above location =   197182.2 cm^4

   2        544.     4 - 16MM        0.         2700.        YES  YES
 |----------------------------------------------------------------|
 |   CRITICAL NEG MOMENT=    132.43 KN-MET  AT  2700.MM, LOAD   32|
 |   REQD STEEL=   682.MM2, ROW=0.0042, ROWMX=0.0190 ROWMN=0.0033 |
 |   MAX/MIN/ACTUAL BAR SPACING=   261./   41./   63. MMS         |
```

```
 |   REQD. DEVELOPMENT LENGTH =   617. MMS                       |
 |---------------------------------------------------------------|

   Cracked Moment of Inertia Iz at above location =   139329.5 cm^4


 REQUIRED REINF. STEEL SUMMARY :
 -------------------------------
 SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
 ( MM )          (SQ.  MM )               (KNS-MET )

     0.        1211./     317.         224./       62.       32/   33
```



```
   225.        1047./     324.         196./       64.       32/   33
   450.         885./     333.         167./       65.       32/   33
   675.         725./     343.         139./       67.       32/   33
   900.         567./     355.         110./       70.       32/   33
  1125.         457./     370.          89./       72.       34/   33
  1350.         414./     386.          81./       75.       34/   33
  1575.         371./     404.          73./       79.       34/   33
  1800.         328./     424.          64./       83.       34/   33
  2025.         284./     447.          56./       87.       34/   33
  2250.         240./     472.          47./       92.       34/   33
  2475.         196./     523.          39./      101.       34/   32
  2700.         152./     691.          30./      132.       33/   32



        B E A M  N O.  2181 D E S I G N  R E S U L T S - SHEAR


  AT START SUPPORT - Vu=  128.02 KNS  Tu=   58.0 KN-MET
                     Vc=  136.2 KNS, ACI 318:CLAUSE 11.6.3.1
LOAD    32 TORSION VALUE TOO HIGH, INCREASE MEMBER SIZE.
  AT END   SUPPORT - Vu=  136.24 KNS  Tu=   58.0 KN-MET
                     Vc=  147.7 KNS, ACI 318:CLAUSE 11.6.3.1
LOAD    32 TORSION VALUE TOO HIGH, INCREASE MEMBER SIZE.
```

```
 ___1106J____________________  2700X 300X  600_____________________1108J____
|                                                                          |
||========================================================================||
| 4No16 H 544.   0.TO 2700                                                 |
|                                                                          |
| 4No20 H  58.   0.TO 2700                                                 |
||========================================================================||
|                                                                          |
|__________________________________________________________________________|
 _______    _______    _______    _______    _______    _______      _______
|       |  |       |  |       |  |       |  |       |  |       |    |       |
| oooo  |  | oooo  |  | oooo  |  | oooo  |  | oooo  |  | oooo  |    | oooo  |
| 4#16  |  | 4#16  |  | 4#16  |  | 4#16  |  | 4#16  |  | 4#16  |    | 4#16  |
|       |  |       |  |       |  |       |  |       |  |       |    |       |
| 4#20  |  | 4#20  |  | 4#20  |  | 4#20  |  | 4#20  |  | 4#20  |    | 4#20  |
| oooo  |  | oooo  |  | oooo  |  | oooo  |  | oooo  |  | oooo  |    | oooo  |
|       |  |       |  |       |  |       |  |       |  |       |    |       |
|_______|  |_______|  |_______|  |_______|  |_______|  |_______|    |_______|



  ======================================================================

         BEAM  NO.  2183 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

  LEN -  8200. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  700. MMS

  LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
            (MM)                     (MM)         (MM)         STA  END
  ______________________________________________________________________


    1         54.     6 - 12MM         0.         8200.        YES  YES
```

```
  |----------------------------------------------------------------|
  |   CRITICAL POS MOMENT=    115.42 KN-MET  AT  4100.MM, LOAD   34|
```

```
|   REQD STEEL=   646.MM2, ROW=0.0033, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   38. MMS         |
|   REQD. DEVELOPMENT LENGTH =   566. MMS                        |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   175566.9 cm^4

  2        646.     6 - 12MM         0.         8200.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=     91.18 KN-MET  AT  8200.MM, LOAD   34|
|   REQD STEEL=   646.MM2, ROW=0.0033, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   38. MMS         |
|   REQD. DEVELOPMENT LENGTH =   566. MMS                        |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   175566.9 cm^4


REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
( MM )          (SQ.  MM )                (KNS-MET )

    0.          270./     345.          63./       80.       34/   33
  683.          338./     282.          79./       66.       34/   33
 1367.          394./     232.          92./       54.       34/   33
 2050.          439./     194.         102./       46.       34/   33
 2733.          471./     168.         109./       40.       34/   33
 3417.          491./     154.         114./       36.       34/   33
 4100.          499./     152.         115./       36.       34/   33
 4783.          495./     162.         114./       38.       34/   33
 5467.          478./     184.         111./       43.       34/   33
 6150.          449./     217.         104./       51.       34/   33
 6833.          408./     263.          95./       62.       34/   33
 7517.          355./     321.          83./       75.       34/   33
 8200.          290./     392.          68./       91.       33/   34
```

```
      B E A M  N O.  2183 D E S I G N  R E S U L T S - SHEAR


  AT START SUPPORT - Vu=   22.46 KNS  Vc=  162.53 KNS  Vs=    0.00 KNS
  Tu=   28.60 KN-MET  Tc=    6.8 KN-MET  Ts=   38.1 KN-MET  LOAD    32
  STIRRUPS ARE REQUIRED FOR TORSION.
  REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
  PROVIDE 10 MM 2-LEGGED STIRRUPS AT 190. MM  C/C FOR 3458. MM
  ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   6.84 SQ.CM.

  AT END   SUPPORT - Vu=   18.61 KNS  Vc=  162.53 KNS  Vs=    0.00 KNS
  Tu=   28.60 KN-MET  Tc=    6.8 KN-MET  Ts=   38.1 KN-MET  LOAD    32
  STIRRUPS ARE REQUIRED FOR TORSION.
  REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
  PROVIDE 10 MM 2-LEGGED STIRRUPS AT 190. MM  C/C FOR 3458. MM
  ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   6.84 SQ.CM.
```



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 ___1110J____________________ 8199X 300X  700_____________________1112J____
||========================================================================||
| 6No12 H 646.| |0.TO 8200| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20*10c/c190 | | | | | | | | | | | | | | | | | | | | | | |20*10c/c190| | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6No12 H |54.| |0.TO 8200| | | | | | | | | | | | | | | | | | | | | | | | |
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|__________________________________________________________________________|

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|_____|     |_____|     |_____|     |_____|     |_____|     |_____|        |_____|

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       BEAM  NO.  2185 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

 LEN -  5500. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  600. MMS

 LEVEL    HEIGHT     BAR INFO       FROM           TO           ANCHOR
            (MM)                    (MM)          (MM)          STA  END
 _____________________________________________________________________

   1         61.     4 - 25MM         0.         5500.        YES  YES
 |----------------------------------------------------------------|
 |   CRITICAL POS MOMENT=    293.85 KN-MET  AT  5500.MM, LOAD   33|
 |   REQD STEEL=  1625.MM2, ROW=0.0100, ROWMX=0.0190 ROWMN=0.0033 |
 |   MAX/MIN/ACTUAL BAR SPACING=   261./   50./   60. MMS         |
 |   REQD. DEVELOPMENT LENGTH =  1582. MMS                        |
 |----------------------------------------------------------------|

   Cracked Moment of Inertia Iz at above location =   272812.6 cm^4

   2        539.     4 - 25MM         0.         5500.        YES  YES
 |----------------------------------------------------------------|
 |   CRITICAL NEG MOMENT=    317.95 KN-MET  AT  5500.MM, LOAD   34|
 |   REQD STEEL=  1777.MM2, ROW=0.0110, ROWMX=0.0190 ROWMN=0.0033 |
 |   MAX/MIN/ACTUAL BAR SPACING=   261./   50./   60. MMS         |
 |   REQD. DEVELOPMENT LENGTH =  1582. MMS                        |
 |----------------------------------------------------------------|

   Cracked Moment of Inertia Iz at above location =   272812.6 cm^4


 REQUIRED REINF. STEEL SUMMARY :
 -------------------------------
```

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	639./	644.	123./	124.	34/	33

458.	749./	701.	143./	134.	34/	33
917.	854./	763.	162./	146.	34/	33
1375.	955./	832.	180./	158.	34/	33
1833.	1052./	907.	197./	171.	34/	33
2292.	1143./	990.	213./	186.	34/	33
2750.	1230./	1079.	228./	202.	34/	33
3208.	1311./	1176.	241./	218.	34/	33
3667.	1387./	1281.	254./	236.	34/	33
4125.	1457./	1393.	266./	255.	34/	33
4583.	1521./	1515.	276./	275.	34/	33
5042.	1580./	1645.	285./	296.	34/	33
5500.	1632./	1784.	294./	318.	33/	34

B E A M N O. 2185 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 87.15 KNS Vc= 136.10 KNS Vs= 0.00 KNS
Tu= 17.15 KN-MET Tc= 5.6 KN-MET Ts= 22.9 KN-MET LOAD 33
STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 182. MM C/C FOR 2208. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE = 4.31 SQ.CM.

AT END SUPPORT - Vu= 91.34 KNS Vc= 131.29 KNS Vs= 0.00 KNS
Tu= 17.15 KN-MET Tc= 5.6 KN-MET Ts= 22.9 KN-MET LOAD 34
STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 182. MM C/C FOR 2208. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE = 4.31 SQ.CM.

```
 ___1114J____________________  5499X 300X  600_____________________1116J____
|                                                                            |
||==========================================================================||
| 4No25 H 539.|  0.TO 5500|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| 14*10c/c182 |  |  |  |  |  |  |  |  |  |  |  |  |  | 14*10c/c182  | |
| 4No25 H  61.|  0.TO 5500|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
||==========================================================================||
|                                                                            |
|___________________________________________________________________________|

 _______    _______    _______    _______    _______    _______     _______
|       |  |       |  |       |  |       |  |       |  |       |   |       |
| oooo  |  | oooo  |  | oooo  |  | oooo  |  | oooo  |  | oooo  |   | oooo  |
| 4#25  |  | 4#25  |  | 4#25  |  | 4#25  |  | 4#25  |  | 4#25  |   | 4#25  |
|       |  |       |  |       |  |       |  |       |  |       |   |       |
| 4#25  |  | 4#25  |  | 4#25  |  | 4#25  |  | 4#25  |  | 4#25  |   | 4#25  |
| oooo  |  | oooo  |  | oooo  |  | oooo  |  | oooo  |  | oooo  |   | oooo  |
|       |  |       |  |       |  |       |  |       |  |       |   |       |
|_______|  |_______|  |_______|  |_______|  |_______|  |_______|   |_______|
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        BEAM  NO.  2186 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

 LEN -  5500. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  600. MMS

 LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
            (MM)                    (MM)         (MM)         STA  END
 _____________________________________________________________________

   1         54.     5 - 12MM       338.         5500.        NO   YES
  |----------------------------------------------------------------|
  |   CRITICAL POS MOMENT=     55.40 KN-MET  AT  5042.MM, LOAD   34|
```

```
|   REQD STEEL=   546.MM2, ROW=0.0033, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   48. MMS         |
|   REQD. DEVELOPMENT LENGTH =   453. MMS                        |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   104738.6 cm^4

  2        546.     5 - 12MM         0.         5500.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=     96.27 KN-MET  AT     0.MM, LOAD   33|
|   REQD STEEL=   546.MM2, ROW=0.0033, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   48. MMS         |
|   REQD. DEVELOPMENT LENGTH =   453. MMS                        |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   104738.6 cm^4
```

REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	0./	496.	0./	96.	0/	33
458.	0./	431.	0./	84.	0/	33
917.	46./	371.	9./	73.	34/	33
1375.	93./	318.	18./	62.	34/	33
1833.	135./	271.	27./	53.	34/	33
2292.	172./	230.	34./	45.	34/	33
2750.	203./	194.	40./	38.	34/	33
3208.	230./	164.	45./	33.	34/	33
3667.	251./	140.	49./	28.	34/	33
4125.	266./	122.	52./	24.	34/	33
4583.	277./	109.	54./	22.	34/	33
5042.	282./	101.	55./	20.	34/	33
5500.	281./	99.	55./	20.	33/	34

B E A M N O. 2186 D E S I G N R E S U L T S - SHEAR


```
AT START SUPPORT - Vu=   38.27 KNS  Vc=  130.36 KNS  Vs=    0.00 KNS
Tu=   12.84 KN-MET  Tc=    5.6 KN-MET  Ts=   17.1 KN-MET  LOAD    33
STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 182. MM  C/C FOR 2208. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   3.22 SQ.CM.

AT END   SUPPORT - Vu=   11.99 KNS  Vc=  129.07 KNS  Vs=    0.00 KNS
Tu=   12.84 KN-MET  Tc=    5.6 KN-MET  Ts=   17.1 KN-MET  LOAD    34
STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 182. MM  C/C FOR 2208. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   3.22 SQ.CM.


 ___1116J____________________  5499X 300X  600_____________________1118J____
|                                                                          |
||=========================================================================||
| 5No12 H 546.|  0.TO 5500|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| 14*10c/c182 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 14*10c/c182  | |
|    5No12 H  54.|338.TO 5500|  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
|   ======================================================================||
|                                                                          |
|__________________________________________________________________________|

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| 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |    | 5#12  |
|       |  |       |  |       |  |       |  |       |  |       |    |       |
|       |  | 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |    | 5#12  |
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 |_______|  |_______|  |_______|  |_______|  |_______|  |_______|    |_______|

  =====================================================================

         BEAM  NO.  2187 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

  LEN -  6500. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  600. MMS

  LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
            (MM)                     (MM)         (MM)         STA  END
  _____________________________________________________________________

    1         61.     3 - 25MM         0.         6500.        YES  YES
  |----------------------------------------------------------------|
  |   CRITICAL POS MOMENT=    246.88 KN-MET  AT     0.MM, LOAD   34|
  |   REQD STEEL=  1339.MM2, ROW=0.0083, ROWMX=0.0190 ROWMN=0.0033 |
  |   MAX/MIN/ACTUAL BAR SPACING=   261./   50./   89. MMS         |
  |   REQD. DEVELOPMENT LENGTH =  1055. MMS                        |
  |----------------------------------------------------------------|

    Cracked Moment of Inertia Iz at above location =   220403.6 cm^4

    2        542.     4 - 20MM         0.         6500.        YES  YES
```

```
  |----------------------------------------------------------------|
  |   CRITICAL NEG MOMENT=    228.72 KN-MET  AT     0.MM, LOAD   33|
  |   REQD STEEL=  1225.MM2, ROW=0.0075, ROWMX=0.0190 ROWMN=0.0033 |
  |   MAX/MIN/ACTUAL BAR SPACING=   261./   45./   61. MMS         |
  |   REQD. DEVELOPMENT LENGTH =   985. MMS                        |
  |----------------------------------------------------------------|

    Cracked Moment of Inertia Iz at above location =   197182.2 cm^4
```

REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	1345./	1237.	247./	229.	34/	33
542.	1301./	1120.	240./	209.	34/	33
1083.	1250./	1014.	231./	190.	34/	33
1625.	1190./	918.	221./	173.	34/	33
2167.	1121./	831.	209./	158.	34/	33
2708.	1045./	754.	196./	144.	34/	33
3250.	961./	685.	181./	131.	34/	33
3792.	870./	626.	165./	120.	34/	33
4333.	772./	574.	147./	111.	34/	33
4875.	667./	532.	128./	103.	34/	33
5417.	555./	497.	107./	96.	34/	33
5958.	437./	470.	85./	91.	34/	33
6500.	313./	451.	61./	88.	33/	34

B E A M N O. 2187 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 58.41 KNS Vc= 129.91 KNS Vs= 0.00 KNS

Tu= 4.02 KN-MET Tc= 5.6 KN-MET Ts= 0.0 KN-MET LOAD 33

NO STIRRUPS ARE REQUIRED FOR TORSION.

REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.

PROVIDE 10 MM 2-LEGGED STIRRUPS AT 270. MM C/C FOR 2708. MM

AT END SUPPORT - Vu= 65.27 KNS Vc= 135.98 KNS Vs= 0.00 KNS

Tu= 4.02 KN-MET Tc= 5.6 KN-MET Ts= 0.0 KN-MET LOAD 34

NO STIRRUPS ARE REQUIRED FOR TORSION.

REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.

PROVIDE 10 MM 2-LEGGED STIRRUPS AT 270. MM C/C FOR 2708. MM

```
___1118J____________________  6500X 300X  600_____________________1120J____
|                                                                          |
||========================================================================||
| 4No20 H 542.|  0.TO 6500|   |   |   |   |   |   |   |   |   |   |   |  | |
| 12*10c/c270 |   |   |   |   |   |   |   |   |   |   |  12*10c/c270   | |
| 3No25 H |61.|  0.TO 6500|   |   |   |   |   |   |   |   |   |   |   |  | |
||========================================================================||
|                                                                          |
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| 4#20  |  | 4#20  |  | 4#20  |  | 4#20  |  | 4#20  |  | 4#20  |   | 4#20  |
|       |  |       |  |       |  |       |  |       |  |       |   |       |
| 3#25  |  | 3#25  |  | 3#25  |  | 3#25  |  | 3#25  |  | 3#25  |   | 3#25  |
|  ooo  |  |  ooo  |  |  ooo  |  |  ooo  |  |  ooo  |  |  ooo  |   |  ooo  |
|       |  |       |  |       |  |       |  |       |  |       |   |       |
|_______|  |_______|  |_______|  |_______|  |_______|  |_______|   |_______|


 ====================================================================

       BEAM  NO.  2188 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

 LEN -  8000. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  700. MMS

 LEVEL    HEIGHT     BAR INFO       FROM          TO          ANCHOR
           (MM)                     (MM)         (MM)         STA  END
 ____________________________________________________________________

   1         64.     3 - 32MM         0.         8000.        YES  YES
 |----------------------------------------------------------------|
 |   CRITICAL POS MOMENT=    420.53 KN-MET  AT  4667.MM, LOAD   34|
 |   REQD STEEL=  1980.MM2, ROW=0.0104, ROWMX=0.0190 ROWMN=0.0033 |
 |   MAX/MIN/ACTUAL BAR SPACING=   261./   64./   86. MMS         |
```

```
|   REQD. DEVELOPMENT LENGTH =  1799. MMS                         |
|-----------------------------------------------------------------|
```

Cracked Moment of Inertia Iz at above location =   460654.4 cm^4

```
  2        636.     3 - 32MM         0.         8000.        YES  YES
|-----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=    430.33 KN-MET  AT     0.MM, LOAD   33|
|   REQD STEEL=  2032.MM2, ROW=0.0107, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   64./   86. MMS          |
|   REQD. DEVELOPMENT LENGTH =  1799. MMS                         |
|-----------------------------------------------------------------|
```

Cracked Moment of Inertia Iz at above location =   460654.4 cm^4

```
REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
( MM )          (SQ.  MM )                (KNS-MET )

    0.        1669./    2026.         362./      430.       34/   33
```



```
  667.        1752./    1939.         378./      414.       34/   33
 1333.        1823./    1867.         392./      400.       34/   33
 2000.        1880./    1810.         403./      389.       34/   33
 2667.        1924./    1767.         411./      381.       34/   33
 3333.        1955./    1737.         417./      375.       34/   33
 4000.        1971./    1721.         420./      372.       34/   33
 4667.        1973./    1719.         421./      372.       34/   33
 5333.        1962./    1730.         418./      374.       34/   33
 6000.        1936./    1755.         414./      379.       34/   33
 6667.        1897./    1793.         406./      386.       34/   33
 7333.        1844./    1846.         396./      396.       34/   33
 8000.        1778./    1912.         383./      409.       33/   34
```

```
          B E A M  N O.  2188 D E S I G N  R E S U L T S - SHEAR


  AT START SUPPORT - Vu=  121.64 KNS  Vc=  155.42 KNS  Vs=    6.77 KNS
  Tu=    4.44 KN-MET  Tc=    6.8 KN-MET  Ts=    0.0 KN-MET  LOAD    33
  NO STIRRUPS ARE REQUIRED FOR TORSION.
  REINFORCEMENT IS REQUIRED FOR SHEAR.
  PROVIDE 10 MM 2-LEGGED STIRRUPS AT 318. MM  C/C FOR 3358. MM

  AT END   SUPPORT - Vu=   74.40 KNS  Vc=  153.45 KNS  Vs=    0.00 KNS
  Tu=    4.55 KN-MET  Tc=    6.8 KN-MET  Ts=    0.0 KN-MET  LOAD    33
  NO STIRRUPS ARE REQUIRED FOR TORSION.
  REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
  PROVIDE 10 MM 2-LEGGED STIRRUPS AT 318. MM  C/C FOR 3358. MM


 ___1097J____________________  7999X 300X  700_____________________1095J____
|                                                                           |
||=========================================================================||
| 3No32 H 636.|  0.TO 8000|   |   |   |   |   |   |   |   |   |   |   |   | |
| 12*10c/c318 |   |   |   |   |   |   |   |   |   |   |  12*10c/c318  | |
| 3No32 H |64.|  0.TO 8000|   |   |   |   |   |   |   |   |   |   |   | |
||=========================================================================||
|                                                                           |
|___________________________________________________________________________|
 _____      _____      _____      _____      _____      _____         _____
|     |    |     |    |     |    |     |    |     |    |     |       |     |
| OOO |    | OOO |    | OOO |    | OOO |    | OOO |    | OOO |       | OOO |
| 3#32|    | 3#32|    | 3#32|    | 3#32|    | 3#32|    | 3#32|       | 3#32|
|     |    |     |    |     |    |     |    |     |    |     |       |     |
| 3#32|    | 3#32|    | 3#32|    | 3#32|    | 3#32|    | 3#32|       | 3#32|
| OOO |    | OOO |    | OOO |    | OOO |    | OOO |    | OOO |       | OOO |
|     |    |     |    |     |    |     |    |     |    |     |       |     |
|_____|    |_____|    |_____|    |_____|    |_____|    |_____|       |_____|
```

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=====================================================================

       BEAM  NO.  2189 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

LEN -  8000. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  700. MMS

LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
          (MM)                     (MM)         (MM)         STA  END
_____________________________________________________________________


  1         58.     4 - 20MM         0.         8000.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL POS MOMENT=    247.33 KN-MET  AT  4000.MM, LOAD   34|
|   REQD STEEL=  1097.MM2, ROW=0.0057, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   45./   61. MMS         |
|   REQD. DEVELOPMENT LENGTH =   985. MMS                       |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   286994.1 cm^4

  2        642.     4 - 20MM         0.         8000.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=    250.41 KN-MET  AT     0.MM, LOAD   33|
|   REQD STEEL=  1111.MM2, ROW=0.0058, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   45./   61. MMS         |
|   REQD. DEVELOPMENT LENGTH =   985. MMS                       |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   286994.1 cm^4


REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
( MM )         (SQ.  MM )                (KNS-MET )
```

```
   0.         869./    1120.         197./      250.       34/   33
 667.         939./    1049.         212./      235.       34/   33
1333.         996./     991.         224./      223.       34/   33
2000.        1042./     945.         234./      213.       34/   33
2667.        1076./     912.         241./      206.       34/   33
3333.        1097./     892.         246./      202.       34/   33
4000.        1105./     883.         247./      200.       34/   33
4667.        1101./     887.         246./      201.       34/   33
5333.        1085./     903.         243./      204.       34/   33
6000.        1056./     932.         237./      211.       34/   33
6667.        1014./     973.         228./      219.       34/   33
7333.         961./    1026.         217./      231.       34/   33
8000.         895./    1093.         203./      245.       33/   34
```

B E A M   N O. 2189 D E S I G N   R E S U L T S - SHEAR


```
AT START SUPPORT - Vu=   76.57 KNS  Vc=  154.39 KNS  Vs=    0.00 KNS
Tu=    4.69 KN-MET  Tc=    6.8 KN-MET  Ts=    0.0 KN-MET  LOAD    33
NO STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 321. MM  C/C FOR 3358. MM

AT END   SUPPORT - Vu=   71.00 KNS  Vc=  154.77 KNS  Vs=    0.00 KNS
Tu=    4.69 KN-MET  Tc=    6.8 KN-MET  Ts=    0.0 KN-MET  LOAD    34
NO STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 321. MM  C/C FOR 3358. MM
```

```
 ___1098J____________________  7999X 300X  700_____________________1096J____
||===========================================================================||
| 4No20 H 642.|  0.TO 8000|   |   |   |   |   |   |   |   |   |   |   |   | |
```

```
| |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | |
| 12*10c/c321 |   |   |   |   |   |   |   |   |   |   |   |  12*10c/c321  | |
| |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | |
| 4No20 H |58.|  0.TO 8000|   |   |   |   |   |   |   |   |   |   |   |   | |
||===========================================================================||
|___________________________________________________________________________|
 _____      _____      _____      _____      _____      _____         _____
|oooo |    |oooo |    |oooo |    |oooo |    |oooo |    |oooo |       |oooo |
| 4#20|    | 4#20|    | 4#20|    | 4#20|    | 4#20|    | 4#20|       | 4#20|
|     |    |     |    |     |    |     |    |     |    |     |       |     |
|     |    |     |    |     |    |     |    |     |    |     |       |     |
|     |    |     |    |     |    |     |    |     |    |     |       |     |
| 4#20|    | 4#20|    | 4#20|    | 4#20|    | 4#20|    | 4#20|       | 4#20|
|oooo |    |oooo |    |oooo |    |oooo |    |oooo |    |oooo |       |oooo |
|_____|    |_____|    |_____|    |_____|    |_____|    |_____|       |_____|


  =====================================================================

         BEAM  NO.  2190 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

  LEN -  8000. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  700. MMS

  LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
            (MM)                     (MM)         (MM)         STA  END
  _____________________________________________________________________


    1         64.     3 - 32MM        0.         8000.        YES  YES
  |----------------------------------------------------------------|
  |   CRITICAL POS MOMENT=    487.05 KN-MET  AT  4000.MM, LOAD   34|
  |   REQD STEEL=  2343.MM2, ROW=0.0123, ROWMX=0.0190 ROWMN=0.0033 |
  |   MAX/MIN/ACTUAL BAR SPACING=   261./   64./   86. MMS         |
  |   REQD. DEVELOPMENT LENGTH =  1799. MMS                        |
  |----------------------------------------------------------------|

    Cracked Moment of Inertia Iz at above location =   460654.4 cm^4
```

```
 2        632.     2 - 40MM         0.         8000.        YES  YES
```



```
|-----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=    513.40 KN-MET  AT     0.MM, LOAD   33|
|   REQD STEEL=  2513.MM2, ROW=0.0133, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   80./  164. MMS         |
|   REQD. DEVELOPMENT LENGTH =  1773. MMS                       |
|-----------------------------------------------------------------|
```

Cracked Moment of Inertia Iz at above location =   467463.3 cm^4

REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	2068./	2482.	438./	513.	34/	33
667.	2148./	2399.	453./	499.	34/	33
1333.	2213./	2332.	465./	487.	34/	33
2000.	2265./	2279.	475./	477.	34/	33
2667.	2303./	2242.	481./	470.	34/	33
3333.	2326./	2219.	486./	466.	34/	33
4000.	2334./	2210.	487./	465.	34/	33
4667.	2328./	2216.	486./	466.	34/	33
5333.	2307./	2237.	482./	469.	34/	33
6000.	2272./	2272.	476./	476.	34/	33
6667.	2222./	2322.	467./	485.	34/	33
7333.	2159./	2387.	455./	496.	34/	33
8000.	2082./	2467.	441./	511.	33/	34

B E A M N O. 2190 D E S I G N R E S U L T S - SHEAR

```
AT START SUPPORT - Vu=  139.21 KNS  Vc=  156.21 KNS  Vs=   29.41 KNS
Tu=    7.48 KN-MET  Tc=    6.8 KN-MET  Ts=   10.0 KN-MET  LOAD    33
STIRRUPS ARE REQUIRED FOR SHEAR AND TORSION.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 207. MM  C/C FOR 3358. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   1.79 SQ.CM.

AT END   SUPPORT - Vu=  129.73 KNS  Vc=  156.99 KNS  Vs=   15.98 KNS
Tu=    7.48 KN-MET  Tc=    6.8 KN-MET  Ts=   10.0 KN-MET  LOAD    34
STIRRUPS ARE REQUIRED FOR SHEAR AND TORSION.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 207. MM  C/C FOR 3358. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   1.79 SQ.CM.
```



```
 ___1100J____________________  7999X 300X  700_____________________1099J____
|                                                                            |
||===========================================================================||
| 2No40 H 632.| |0.TO 8000| | | | | |   | | | | | | | | | | | | | | | | | | |
| 18*10c/c207 | | | | | | | | | | | |   | | | | | | | | | |18*10c/c207| | |
| 3No32 H |64.| |0.TO 8000| | | | | |   | | | | | | | | | | | | | | | | | | |
||===========================================================================||
|                                                                            |
|____________________________________________________________________________|

 _____      _____      _____      _____      _____      _____         _____
|     |    |     |    |     |    |     |    |     |    |     |       |     |
| OO  |    | OO  |    | OO  |    | OO  |    | OO  |    | OO  |       | OO  |
| 2#40|    | 2#40|    | 2#40|    | 2#40|    | 2#40|    | 2#40|       | 2#40|
|     |    |     |    |     |    |     |    |     |    |     |       |     |
| 3#32|    | 3#32|    | 3#32|    | 3#32|    | 3#32|    | 3#32|       | 3#32|
| OOO |    | OOO |    | OOO |    | OOO |    | OOO |    | OOO |       | OOO |
|     |    |     |    |     |    |     |    |     |    |     |       |     |
|_____|    |_____|    |_____|    |_____|    |_____|    |_____|       |_____|

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```

```
      BEAM  NO.  2191 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

LEN -  8000. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  700. MMS

LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
          (MM)                     (MM)         (MM)          STA  END
_____________________________________________________________________



  1         58.     4 - 20MM         0.         8000.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL POS MOMENT=    237.95 KN-MET  AT  6000.MM, LOAD   34|
|   REQD STEEL=  1053.MM2, ROW=0.0055, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   45./   61. MMS         |
|   REQD. DEVELOPMENT LENGTH =   985. MMS                        |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   286994.1 cm^4

  2        639.     3 - 25MM         0.         8000.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=    300.43 KN-MET  AT     0.MM, LOAD   33|
|   REQD STEEL=  1357.MM2, ROW=0.0071, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   50./   89. MMS         |
|   REQD. DEVELOPMENT LENGTH =  1055. MMS                        |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   322220.8 cm^4


REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
( MM )         (SQ.  MM )                (KNS-MET )

    0.         549./    1362.         127./      300.       34/   33
```

667.	652./	1250.	150./	277.	34/	33
1333.	744./	1152.	170./	257.	34/	33
2000.	825./	1067.	188./	239.	34/	33
2667.	895./	996.	203./	224.	34/	33
3333.	952./	937.	215./	212.	34/	33
4000.	998./	892.	225./	202.	34/	33
4667.	1031./	858.	232./	195.	34/	33
5333.	1052./	837.	236./	190.	34/	33
6000.	1061./	829.	238./	188.	34/	33
6667.	1057./	832.	237./	189.	34/	33
7333.	1040./	848.	234./	192.	34/	33
8000.	1012./	875.	228./	198.	33/	34

B E A M N O. 2191 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 85.93 KNS Vc= 154.05 KNS Vs= 0.00 KNS

Tu= 4.43 KN-MET Tc= 6.8 KN-MET Ts= 0.0 KN-MET LOAD 33

NO STIRRUPS ARE REQUIRED FOR TORSION.

REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.

PROVIDE 10 MM 2-LEGGED STIRRUPS AT 321. MM C/C FOR 3358. MM

AT END SUPPORT - Vu= 8.47 KNS Vc= 154.60 KNS Vs= 0.00 KNS

Tu= 0.63 KN-MET Tc= 6.8 KN-MET Ts= 0.0 KN-MET LOAD 30

STIRRUPS ARE NOT REQUIRED.

```
 ___1102J____________________  7999X 300X  700_____________________1101J____
|                                                                            |
||===========================================================================||
| 3No25 H 639.|  0.TO 8000|   |   |   |   |   |                              |
| 12*10c/c321 |   |   |   |   |   |   |   |   |                              |
| |   |   |   |   |   |   |   |   |   |   |   |                              |
| 4No20 H |58.|  0.TO 8000|   |   |   |   |   |                              |
||===========================================================================||
|____________________________________________________________________________|
 _____      _____      _____      _____      _____      _____         _____
```

```
|      |     |      |     |      |     |      |     |      |     |      |        |      |
| ooo  |     | ooo  |     | ooo  |     | ooo  |     | ooo  |     | ooo  |        | ooo  |
| 3#25|      | 3#25|      | 3#25|      | 3#25|      | 3#25|      | 3#25|         | 3#25|
|      |     |      |     |      |     |      |     |      |     |      |        |      |
|      |     |      |     |      |     |      |     |      |     |      |        |      |
| 4#20|      | 4#20|      | 4#20|      | 4#20|      | 4#20|      | 4#20|         | 4#20|
|oooo  |     |oooo  |     |oooo  |     |oooo  |     |oooo  |     |oooo  |        |oooo  |
|_____|      |_____|      |_____|      |_____|      |_____|      |_____|         |_____|
```



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=====================================================================

       BEAM  NO.  2192 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

 LEN -  8000. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  700. MMS

 LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
           (MM)                     (MM)         (MM)          STA  END
 _____________________________________________________________________

   1         61.     3 - 25MM         0.         8000.        YES  YES
 |----------------------------------------------------------------|
 |   CRITICAL POS MOMENT=    290.90 KN-MET  AT  5333.MM, LOAD   34|
 |   REQD STEEL=  1311.MM2, ROW=0.0068, ROWMX=0.0190 ROWMN=0.0033 |
 |   MAX/MIN/ACTUAL BAR SPACING=   261./   50./   89. MMS         |
 |   REQD. DEVELOPMENT LENGTH =  1055. MMS                        |
 |----------------------------------------------------------------|

   Cracked Moment of Inertia Iz at above location =   322220.8 cm^4

   2        642.     5 - 20MM         0.         8000.        YES  YES
 |----------------------------------------------------------------|
 |   CRITICAL NEG MOMENT=    337.72 KN-MET  AT     0.MM, LOAD   33|
 |   REQD STEEL=  1534.MM2, ROW=0.0080, ROWMX=0.0190 ROWMN=0.0033 |
```

```
|   MAX/MIN/ACTUAL BAR SPACING=   261./   45./   46. MMS         |
|   REQD. DEVELOPMENT LENGTH =  1314. MMS                        |
|----------------------------------------------------------------|
```

Cracked Moment of Inertia Iz at above location =   341631.0 cm^4

REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	880./	1547.	199./	338.	34/	33
667.	976./	1431.	220./	314.	34/	33
1333.	1061./	1330.	238./	294.	34/	33
2000.	1135./	1242.	253./	276.	34/	33
2667.	1196./	1169.	266./	261.	34/	33
3333.	1245./	1108.	276./	248.	34/	33
4000.	1281./	1061.	284./	238.	34/	33
4667.	1304./	1026.	289./	231.	34/	33
5333.	1315./	1003.	291./	226.	34/	33
6000.	1313./	993.	290./	224.	34/	33
6667.	1298./	996.	287./	224.	34/	33
7333.	1270./	1011.	282./	227.	34/	33
8000.	1230./	1038.	273./	233.	33/	34

B E A M N O. 2192 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu=   34.12 KNS Vc= 152.12 KNS Vs=   0.00 KNS

Tu=   9.43 KN-MET Tc=   6.8 KN-MET Ts=   12.6 KN-MET LOAD   34

STIRRUPS ARE REQUIRED FOR TORSION.

REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.

PROVIDE 10 MM 2-LEGGED STIRRUPS AT 207. MM C/C FOR 3358. MM

```
  ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   2.25 SQ.CM.


  AT END   SUPPORT - Vu=   51.59 KNS  Vc=  153.44 KNS  Vs=    0.00 KNS
  Tu=    9.43 KN-MET  Tc=    6.8 KN-MET  Ts=   12.6 KN-MET  LOAD    33
  STIRRUPS ARE REQUIRED FOR TORSION.
  REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
  PROVIDE 10 MM 2-LEGGED STIRRUPS AT 207. MM  C/C FOR 3358. MM
  ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   2.25 SQ.CM.



 ___1104J____________________  7999X 300X  700_____________________1103J____
||=========================================================================||
| 5No20 H 642.| |0.TO 8000| | | | | |   | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |   | | | | | | | | | | | | | | | | | |
| 18*10c/c207 | | | | | | | | | | | |   | | | | | | | | | |18*10c/c207| | |
| 3No25 H |61.| |0.TO 8000| | | | | |   | | | | | | | | | | | | | | | | | |
||=========================================================================||
|                                                                           |
|___________________________________________________________________________|
 _____      _____      _____      _____      _____      _____         _____
|ooooo|    |ooooo|    |ooooo|    |ooooo|    |ooooo|    |ooooo|       |ooooo|
| 5#20|    | 5#20|    | 5#20|    | 5#20|    | 5#20|    | 5#20|       | 5#20|
|     |    |     |    |     |    |     |    |     |    |     |       |     |
|     |    |     |    |     |    |     |    |     |    |     |       |     |
| 3#25|    | 3#25|    | 3#25|    | 3#25|    | 3#25|    | 3#25|       | 3#25|
| ooo |    | ooo |    | ooo |    | ooo |    | ooo |    | ooo |       | ooo |
|     |    |     |    |     |    |     |    |     |    |     |       |     |
|_____|    |_____|    |_____|    |_____|    |_____|    |_____|       |_____|



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         BEAM  NO.  2193 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05


  LEN -  8000. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  700. MMS


  LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
```

```
        (MM)                    (MM)        (MM)         STA  END
_____________________________________________________________________

  1         61.     3 - 25MM        0.        8000.        YES  YES
|-----------------------------------------------------------------|
|   CRITICAL POS MOMENT=    290.54 KN-MET  AT  5333.MM, LOAD   34|
|   REQD STEEL=  1309.MM2, ROW=0.0068, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   50./   89. MMS         |
|   REQD. DEVELOPMENT LENGTH =  1055. MMS                       |
|-----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   322220.8 cm^4

  2        642.     5 - 20MM        0.        8000.        YES  YES
```


```
|-----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=    336.51 KN-MET  AT     0.MM, LOAD   33|
|   REQD STEEL=  1528.MM2, ROW=0.0079, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   45./   46. MMS         |
|   REQD. DEVELOPMENT LENGTH =  1314. MMS                       |
|-----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   341631.0 cm^4


REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
( MM )          (SQ.  MM )                (KNS-MET )

    0.          905./    1541.         205./      337.       34/   33
  667.          998./    1427.         225./      314.       34/   33
 1333.         1080./    1328.         242./      294.       34/   33
 2000.         1150./    1243.         257./      276.       34/   33
 2667.         1208./    1172.         269./      261.       34/   33
 3333.         1253./    1113.         278./      249.       34/   33
```

4000.	1286./	1068.	285./	239.	34/ 33
4667.	1306./	1035.	289./	232.	34/ 33
5333.	1313./	1015.	291./	228.	34/ 33
6000.	1308./	1007.	289./	226.	34/ 33
6667.	1289./	1011.	286./	227.	34/ 33
7333.	1258./	1028.	279./	231.	34/ 33
8000.	1214./	1058.	270./	237.	33/ 34

B E A M N O. 2193 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 36.83 KNS Vc= 158.59 KNS Vs= 0.00 KNS

Tu= 24.22 KN-MET Tc= 6.8 KN-MET Ts= 32.3 KN-MET LOAD 32

STIRRUPS ARE REQUIRED FOR TORSION.

REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.

PROVIDE 10 MM 2-LEGGED STIRRUPS AT 207. MM C/C FOR 3358. MM

ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE = 5.79 SQ.CM.

AT END SUPPORT - Vu= 3.05 KNS Vc= 150.71 KNS Vs= 0.00 KNS

Tu= 24.22 KN-MET Tc= 6.8 KN-MET Ts= 32.3 KN-MET LOAD 32

STIRRUPS ARE REQUIRED FOR TORSION.

REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.

PROVIDE 10 MM 2-LEGGED STIRRUPS AT 207. MM C/C FOR 3358. MM

ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE = 5.79 SQ.CM.


```
 ___1106J____________________  7999X 300X  700_____________________1105J____
||==============================================================================||
| 5No20 H 642.| |0.TO 8000| | | | | |   | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |   | | | | | | | | | | | | | | | | | | | |
| 18*10c/c207 | | | | | | | | | | | |   | | | | | | | | | | |18*10c/c207| | |
| 3No25 H |61.| |0.TO 8000| | | | | |   | | | | | | | | | | | | | | | | | | | |
||==============================================================================||
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|___________________________________________________________________|
 _____      _____      _____      _____      _____      _____         _____
|ooooo|    |ooooo|    |ooooo|    |ooooo|    |ooooo|    |ooooo|       |ooooo|
| 5#20|    | 5#20|    | 5#20|    | 5#20|    | 5#20|    | 5#20|       | 5#20|
|     |    |     |    |     |    |     |    |     |    |     |       |     |
|     |    |     |    |     |    |     |    |     |    |     |       |     |
| 3#25|    | 3#25|    | 3#25|    | 3#25|    | 3#25|    | 3#25|       | 3#25|
| ooo |    | ooo |    | ooo |    | ooo |    | ooo |    | ooo |       | ooo |
|     |    |     |    |     |    |     |    |     |    |     |       |     |
|_____|    |_____|    |_____|    |_____|    |_____|    |_____|       |_____|


  =====================================================================

         BEAM  NO.  2194 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

  LEN -  8000. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  700. MMS

  LEVEL    HEIGHT     BAR INFO       FROM          TO            ANCHOR
            (MM)                     (MM)         (MM)          STA  END
  _____________________________________________________________________


    1         58.     4 - 20MM         0.         8000.         YES  YES
  |----------------------------------------------------------------|
  |   CRITICAL POS MOMENT=    260.03 KN-MET  AT  4000.MM, LOAD   34|
  |   REQD STEEL=  1157.MM2, ROW=0.0060, ROWMX=0.0190 ROWMN=0.0033 |
  |   MAX/MIN/ACTUAL BAR SPACING=   261./   45./   61. MMS         |
  |   REQD. DEVELOPMENT LENGTH =   985. MMS                       |
  |----------------------------------------------------------------|

    Cracked Moment of Inertia Iz at above location =   286994.1 cm^4

    2        642.     4 - 20MM         0.         8000.         YES  YES
  |----------------------------------------------------------------|
  |   CRITICAL NEG MOMENT=    272.35 KN-MET  AT     0.MM, LOAD   33|
  |   REQD STEEL=  1216.MM2, ROW=0.0063, ROWMX=0.0190 ROWMN=0.0033 |
```

```
|   MAX/MIN/ACTUAL BAR SPACING=   261./   45./   61. MMS         |
|   REQD. DEVELOPMENT LENGTH =   985. MMS                        |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   286994.1 cm^4



REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
( MM )          (SQ.  MM )               (KNS-MET )

    0.          954./    1225.         215./      272.       32/   33
```



```
  667.          980./    1148.         221./      256.       34/   33
 1333.         1041./    1085.         234./      243.       34/   33
 2000.         1091./    1034.         244./      232.       34/   33
 2667.         1129./     997.         252./      224.       34/   33
 3333.         1153./     971.         257./      219.       34/   33
 4000.         1166./     958.         260./      216.       34/   33
 4667.         1166./     958.         260./      216.       34/   33
 5333.         1153./     969.         257./      219.       34/   33
 6000.         1127./     994.         252./      224.       34/   33
 6667.         1089./    1030.         244./      231.       34/   33
 7333.         1039./    1080.         233./      242.       34/   33
 8000.          977./    1193.         220./      266.       33/   32



       B E A M  N O.  2194 D E S I G N  R E S U L T S - SHEAR



 AT START SUPPORT - Vu=   40.19 KNS  Vc=  153.15 KNS  Vs=    0.00 KNS
 Tu=   38.37 KN-MET  Tc=    6.8 KN-MET  Ts=   51.2 KN-MET  LOAD    32
 STIRRUPS ARE REQUIRED FOR TORSION.
 REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
 PROVIDE 12 MM 2-LEGGED STIRRUPS AT 204. MM  C/C FOR 3358. MM
```

ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   9.18 SQ.CM.

AT END   SUPPORT - Vu=   80.07 KNS Vc= 155.26 KNS Vs=   0.00 KNS

Tu=   38.37 KN-MET Tc=   6.8 KN-MET Ts=   51.2 KN-MET LOAD   32

STIRRUPS ARE REQUIRED FOR TORSION.

REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.

PROVIDE 12 MM 2-LEGGED STIRRUPS AT 204. MM C/C FOR 3358. MM

ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   9.18 SQ.CM.

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 ___1108J____________________  7999X 300X  700_____________________1107J____
||=========================================================================||
| 4No20 H 642.| |0.TO 8000| | | | | |   | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |   | | | | | | | | | | | | | | | | | | |
| 18*12c/c204 | | | | | | | | | | | | |   | | | | | | | | | | |18*12c/c204| | |
| | | | | | | | | | | | | | | | | | | |   | | | | | | | | | | | | | | | | | | |
| 4No20 H |58.| |0.TO 8000| | | | | |   | | | | | | | | | | | | | | | | | | |
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|     |    |     |    |     |    |     |    |     |    |     |       |     |
| 4#20|    | 4#20|    | 4#20|    | 4#20|    | 4#20|    | 4#20|       | 4#20|
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BEAM NO. 2195 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

LEN - 8000. MM FY - 414. FC - 25. MPA, SIZE - 300. X 700. MMS

```
LEVEL    HEIGHT     BAR INFO       FROM           TO           ANCHOR
          (MM)                     (MM)          (MM)          STA  END
____________________________________________________________________



  1         61.     4 - 25MM         0.         8000.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL POS MOMENT=    361.50 KN-MET  AT     0.MM, LOAD   32|
|   REQD STEEL=  1661.MM2, ROW=0.0087, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   50./   60. MMS         |
|   REQD. DEVELOPMENT LENGTH =  1582. MMS                       |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   401032.4 cm^4

  2        636.     3 - 32MM         0.         8000.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=    428.57 KN-MET  AT  8000.MM, LOAD   32|
|   REQD STEEL=  2023.MM2, ROW=0.0106, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   64./   86. MMS         |
|   REQD. DEVELOPMENT LENGTH =  1799. MMS                       |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   460654.4 cm^4


REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
( MM )         (SQ.  MM )                (KNS-MET )

    0.        1667./    1190.         361./      265.       32/   33
  667.        1410./    1122.         310./      251.       32/   33
 1333.        1148./    1068.         256./      239.       32/   33
 2000.        1056./    1026.         237./      231.       34/   33
 2667.        1085./     997.         243./      224.       34/   33
 3333.        1103./     980.         247./      221.       34/   33
```

4000.	1107./	975.	248./	220.	34/	33
4667.	1099./	983.	246./	221.	34/	33
5333.	1079./	1003.	242./	226.	34/	33
6000.	1046./	1036.	235./	233.	34/	33
6667.	1001./	1216.	225./	271.	34/	32
7333.	944./	1600.	213./	348.	34/	32
8000.	875./	2016.	198./	429.	33/	32

B E A M N O. 2195 D E S I G N R E S U L T S - SHEAR


```
AT START SUPPORT - Vu=   78.82 KNS  Vc=  154.49 KNS  Vs=    0.00 KNS
Tu=    7.12 KN-MET  Tc=    6.8 KN-MET  Ts=    9.5 KN-MET  LOAD    32
STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 207. MM  C/C FOR 3358. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   1.70 SQ.CM.

AT END   SUPPORT - Vu=  118.70 KNS  Vc=  156.06 KNS  Vs=    2.21 KNS
Tu=    7.12 KN-MET  Tc=    6.8 KN-MET  Ts=    9.5 KN-MET  LOAD    32
STIRRUPS ARE REQUIRED FOR SHEAR AND TORSION.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 207. MM  C/C FOR 3358. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   1.70 SQ.CM.
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 ___1110J____________________  7999X 300X  700_____________________1109J____
|                                                                            |
||==========================================================================||
| 3No32 H 636.| |0.TO 8000| | | | | |   | | | | | | | | | | | | | | | | | | |
| 18*10c/c207 | | | | | | | | | | | |   | | | | | | | | | |18*10c/c207| | |
| 4No25 H |61.| |0.TO 8000| | | | | |   | | | | | | | | | | | | | | | | | | |
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| OOO |  | OOO |  | OOO |  | OOO |  | OOO |  | OOO |    | OOO |
| 3#32|  | 3#32|  | 3#32|  | 3#32|  | 3#32|  | 3#32|    | 3#32|
|     |  |     |  |     |  |     |  |     |  |     |    |     |
| 4#25|  | 4#25|  | 4#25|  | 4#25|  | 4#25|  | 4#25|    | 4#25|
|oooo |  |oooo |  |oooo |  |oooo |  |oooo |  |oooo |    |oooo |
|     |  |     |  |     |  |     |  |     |  |     |    |     |
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        BEAM  NO.  2196 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

 LEN -  6500. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  700. MMS

 LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
          (MM)                      (MM)         (MM)          STA  END
 ____________________________________________________________________


   1         56.     4 - 16MM         0.         6500.         YES  YES
 |----------------------------------------------------------------|
 |   CRITICAL POS MOMENT=    172.07 KN-MET  AT  6500.MM, LOAD   33|
 |   REQD STEEL=   746.MM2, ROW=0.0039, ROWMX=0.0190 ROWMN=0.0033 |
 |   MAX/MIN/ACTUAL BAR SPACING=   261./   41./   63. MMS         |
 |   REQD. DEVELOPMENT LENGTH =   617. MMS                       |
 |----------------------------------------------------------------|

   Cracked Moment of Inertia Iz at above location =   201146.2 cm^4

   2        642.     3 - 20MM         0.         6500.         YES  YES
```

```
 |----------------------------------------------------------------|
 |   CRITICAL NEG MOMENT=    199.91 KN-MET  AT     0.MM, LOAD   33|
```

```
|   REQD STEEL=   876.MM2, ROW=0.0045, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   45./   92. MMS         |
|   REQD. DEVELOPMENT LENGTH =   657. MMS                        |
|----------------------------------------------------------------|
```

Cracked Moment of Inertia Iz at above location =   227647.7 cm^4

REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	78./	882.	19./	200.	34/	33
542.	174./	768.	41./	175.	34/	33
1083.	263./	662.	62./	152.	34/	33
1625.	345./	566.	80./	130.	34/	33
2167.	420./	478.	98./	111.	34/	33
2708.	488./	399.	113./	93.	34/	33
3250.	549./	328.	127./	77.	34/	33
3792.	602./	266.	139./	62.	34/	33
4333.	648./	211.	149./	49.	34/	33
4875.	687./	164.	157./	38.	34/	33
5417.	717./	124.	164./	29.	34/	33
5958.	740./	92.	169./	22.	34/	33
6500.	754./	68.	172./	16.	33/	34

B E A M N O. 2196 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu=   10.22 KNS Vc= 152.82 KNS Vs=   0.00 KNS

Tu=   13.01 KN-MET Tc=   6.8 KN-MET Ts=   17.3 KN-MET LOAD   34

STIRRUPS ARE REQUIRED FOR TORSION.

REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.

PROVIDE 10 MM 2-LEGGED STIRRUPS AT 207. MM C/C FOR 2608. MM

ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   3.11 SQ.CM.

```
AT END   SUPPORT - Vu=   41.68 KNS  Vc=  163.79 KNS  Vs=    0.00 KNS
Tu=   13.01 KN-MET  Tc=    6.8 KN-MET  Ts=   17.3 KN-MET  LOAD    33
STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 207. MM  C/C FOR 2608. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   3.11 SQ.CM.
```



```
 ___1121J____________________  6500X 300X  700_____________________1112J____
||===========================================================================||
| 3No20 H 642.|  0.TO 6500|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| 14*10c/c207 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 14*10c/c207  | |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| 4No16 H  56.|  0.TO 6500|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
||===========================================================================||
|___________________________________________________________________________|

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| ooo |    | ooo |    | ooo |    | ooo |    | ooo |    | ooo |        | ooo |
| 3#20|    | 3#20|    | 3#20|    | 3#20|    | 3#20|    | 3#20|        | 3#20|
|     |    |     |    |     |    |     |    |     |    |     |        |     |
|     |    |     |    |     |    |     |    |     |    |     |        |     |
|     |    |     |    |     |    |     |    |     |    |     |        |     |
| 4#16|    | 4#16|    | 4#16|    | 4#16|    | 4#16|    | 4#16|        | 4#16|
|oooo |    |oooo |    |oooo |    |oooo |    |oooo |    |oooo |        |oooo |
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      BEAM  NO.  2197 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

LEN -  8000. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  700. MMS
```

```
LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
          (MM)                     (MM)         (MM)          STA  END
_______________________________________________________________________


  1         56.     4 - 16MM         0.         8000.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL POS MOMENT=    170.46 KN-MET  AT  1333.MM, LOAD   34|
|   REQD STEEL=   739.MM2, ROW=0.0038, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   41./   63. MMS         |
|   REQD. DEVELOPMENT LENGTH =   617. MMS                        |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   201146.2 cm^4

  2        642.     4 - 20MM         0.         8000.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=    233.23 KN-MET  AT  8000.MM, LOAD   34|
|   REQD STEEL=  1031.MM2, ROW=0.0054, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   45./   61. MMS         |
|   REQD. DEVELOPMENT LENGTH =   985. MMS                        |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   286994.1 cm^4


REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
( MM )          (SQ.  MM )               (KNS-MET )

    0.          731./     776.         167./      177.       34/   32
```

```
  667.          745./     599.         170./      138.       34/   32
 1333.          747./     437.         170./      101.       34/   32
 2000.          737./     356.         168./       83.       34/   33
 2667.          715./     383.         163./       89.       34/   33
```

3333.	681./	421.	156./	98.	34/	33
4000.	635./	472.	146./	109.	34/	33
4667.	577./	534.	133./	123.	34/	33
5333.	508./	609.	118./	140.	34/	33
6000.	429./	697.	99./	159.	34/	33
6667.	407./	797.	95./	181.	32/	33
7333.	463./	911.	107./	206.	32/	33
8000.	507./	1038.	117./	233.	32/	34

B E A M N O. 2197 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 56.67 KNS Vc= 154.26 KNS Vs= 0.00 KNS

Tu= 7.79 KN-MET Tc= 6.8 KN-MET Ts= 10.4 KN-MET LOAD 32

STIRRUPS ARE REQUIRED FOR TORSION.

REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.

PROVIDE 10 MM 2-LEGGED STIRRUPS AT 207. MM C/C FOR 3358. MM

ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE = 1.86 SQ.CM.

AT END SUPPORT - Vu= 16.79 KNS Vc= 152.20 KNS Vs= 0.00 KNS

Tu= 7.79 KN-MET Tc= 6.8 KN-MET Ts= 10.4 KN-MET LOAD 32

STIRRUPS ARE REQUIRED FOR TORSION.

REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.

PROVIDE 10 MM 2-LEGGED STIRRUPS AT 207. MM C/C FOR 3358. MM

ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE = 1.86 SQ.CM.

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 ___1112J____________________  7999X 300X  700_____________________1111J____
||=========================================================================||
| 4No20 H 642.| |0.TO 8000| | | | | |   | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |   | | | | | | | | | | | | | | | | | |
| 18*10c/c207 | | | | | | | | | | | |   | | | | | | | | | |18*10c/c207| | |
| | | | | | | | | | | | | | | | | | | |   | | | | | | | | | | | | | | | | | |
| 4No16 H |56.| |0.TO 8000| | | | | |   | | | | | | | | | | | | | | | | | |
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|     |  |     |  |     |  |     |  |     |  |     |     |     |
| 4#16|  | 4#16|  | 4#16|  | 4#16|  | 4#16|  | 4#16|     | 4#16|
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       BEAM  NO.  2198 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

 LEN -  8000. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  700. MMS

 LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
           (MM)                     (MM)         (MM)          STA   END
 _____________________________________________________________________

   1         54.     6 - 12MM         0.        8000.         YES   YES
 |----------------------------------------------------------------|
 |   CRITICAL POS MOMENT=    139.69 KN-MET  AT  2000.MM, LOAD   34|
 |   REQD STEEL=   646.MM2, ROW=0.0033, ROWMX=0.0190 ROWMN=0.0033 |
 |   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   38. MMS         |
 |   REQD. DEVELOPMENT LENGTH =   566. MMS                        |
 |----------------------------------------------------------------|

   Cracked Moment of Inertia Iz at above location =   175566.9 cm^4

   2        642.     3 - 20MM         0.        8000.         YES   YES
 |----------------------------------------------------------------|
 |   CRITICAL NEG MOMENT=    196.50 KN-MET  AT  8000.MM, LOAD   34|
```

```
|   REQD STEEL=   860.MM2, ROW=0.0045, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   45./   92. MMS         |
|   REQD. DEVELOPMENT LENGTH =   657. MMS                        |
|----------------------------------------------------------------|
```

Cracked Moment of Inertia Iz at above location =   227647.7 cm^4

REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	550./	390.	127./	91.	34/	33
667.	581./	365.	134./	85.	34/	33
1333.	600./	352.	138./	82.	34/	33
2000.	608./	350.	140./	82.	34/	33
2667.	603./	360.	139./	84.	34/	33
3333.	587./	381.	135./	89.	34/	33
4000.	559./	414.	129./	96.	34/	33
4667.	519./	459.	120./	106.	34/	33
5333.	468./	515.	108./	119.	34/	33
6000.	405./	584.	94./	134.	34/	33
6667.	331./	665.	77./	152.	34/	33
7333.	247./	759.	58./	173.	34/	33
8000.	152./	867.	36./	197.	33/	34

B E A M N O. 2198 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu=   20.48 KNS Vc= 152.50 KNS Vs=   0.00 KNS

Tu=   12.69 KN-MET Tc=   6.8 KN-MET Ts=   16.9 KN-MET LOAD   34

STIRRUPS ARE REQUIRED FOR TORSION.

REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.

```
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 207. MM  C/C FOR 3358. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   3.03 SQ.CM.

AT END   SUPPORT - Vu=    6.22 KNS  Vc=  151.66 KNS  Vs=    0.00 KNS
Tu=   12.69 KN-MET  Tc=    6.8 KN-MET  Ts=   16.9 KN-MET  LOAD    33
STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 207. MM  C/C FOR 3358. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   3.03 SQ.CM.


 ___1114J____________________  7999X 300X  700_____________________1113J____
||=========================================================================||
| 3No20 H 642.| |0.TO 8000| | | | | |   | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |   | | | | | | | | | | | | | | | | | | |
| 18*10c/c207 | | | | | | | | | | | |   | | | | | | | | | |18*10c/c207| | |
| | | | | | | | | | | | | | | | | | |   | | | | | | | | | | | | | | | | | | |
| 6No12 H |54.| |0.TO 8000| | | | | |   | | | | | | | | | | | | | | | | | | |
||=========================================================================||
|___________________________________________________________________________|
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| ooo |    | ooo |    | ooo |    | ooo |    | ooo |    | ooo |        | ooo |
| 3#20|    | 3#20|    | 3#20|    | 3#20|    | 3#20|    | 3#20|        | 3#20|
|     |    |     |    |     |    |     |    |     |    |     |        |     |
|     |    |     |    |     |    |     |    |     |    |     |        |     |
|     |    |     |    |     |    |     |    |     |    |     |        |     |
|     |    |     |    |     |    |     |    |     |    |     |        |     |
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        BEAM  NO.  2199 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

 LEN -  8000. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  700. MMS
```

```
LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
          (MM)                      (MM)         (MM)          STA  END
_____________________________________________________________________

  1        54.     6 - 12MM         0.         8000.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL POS MOMENT=    153.81 KN-MET  AT  4000.MM, LOAD   34|
|   REQD STEEL=   662.MM2, ROW=0.0034, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   38. MMS         |
|   REQD. DEVELOPMENT LENGTH =   566. MMS                        |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   175566.9 cm^4

  2       644.     4 - 16MM         0.         8000.        YES  YES
```



```
|----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=    175.51 KN-MET  AT  8000.MM, LOAD   34|
|   REQD STEEL=   762.MM2, ROW=0.0039, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   41./   63. MMS         |
|   REQD. DEVELOPMENT LENGTH =   617. MMS                        |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   201146.2 cm^4


REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
( MM )          (SQ.  MM )                (KNS-MET )

   0.          473./     740.         109./      169.       34/   33
  667.         535./     676.         123./      155.       34/   33
 1333.         586./     625.         135./      144.       34/   33
 2000.         625./     586.         143./      135.       34/   33
 2667.         652./     559.         150./      129.       34/   33
```

3333.	668./	544.	153./	125.	34/	33
4000.	671./	540.	154./	125.	34/	33
4667.	663./	549.	152./	127.	34/	33
5333.	643./	569.	147./	131.	34/	33
6000.	611./	601.	140./	138.	34/	33
6667.	567./	645.	131./	148.	34/	33
7333.	512./	701.	118./	160.	34/	33
8000.	445./	770.	103./	176.	33/	34

B E A M N O. 2199 D E S I G N R E S U L T S - SHEAR

```
AT START SUPPORT - Vu=   22.35 KNS  Vc=  160.04 KNS  Vs=    0.00 KNS
Tu=    0.89 KN-MET  Tc=    6.8 KN-MET  Ts=    0.0 KN-MET  LOAD    30
                   STIRRUPS ARE NOT REQUIRED.
AT END   SUPPORT - Vu=   24.18 KNS  Vc=  158.46 KNS  Vs=    0.00 KNS
Tu=    0.89 KN-MET  Tc=    6.8 KN-MET  Ts=    0.0 KN-MET  LOAD    30
                   STIRRUPS ARE NOT REQUIRED.
```



```
 ___1116J____________________  7999X 300X  700_____________________1115J____
||===========================================================================||
| 4No16 H 644.   0.TO 8000                                                   |
|                                                                            |
|                                                                            |
|                                                                            |
| 6No12 H  54.   0.TO 8000                                                   |
||===========================================================================||
|____________________________________________________________________________|
 _____      _____      _____      _____      _____      _____         _____
|oooo |    |oooo |    |oooo |    |oooo |    |oooo |    |oooo |       |oooo |
| 4#16|    | 4#16|    | 4#16|    | 4#16|    | 4#16|    | 4#16|       | 4#16|
|     |    |     |    |     |    |     |    |     |    |     |       |     |
|     |    |     |    |     |    |     |    |     |    |     |       |     |
|     |    |     |    |     |    |     |    |     |    |     |       |     |
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 =====================================================================

        BEAM  NO.  2200 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

 LEN -  8000. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  700. MMS

 LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
           (MM)                     (MM)         (MM)          STA  END
 _____________________________________________________________________


   1         61.     3 - 25MM         0.         8000.         YES  YES
 |----------------------------------------------------------------|
 |   CRITICAL POS MOMENT=    309.51 KN-MET  AT  4000.MM, LOAD   34|
 |   REQD STEEL=  1402.MM2, ROW=0.0073, ROWMX=0.0190 ROWMN=0.0033 |
 |   MAX/MIN/ACTUAL BAR SPACING=   261./   50./   89. MMS         |
 |   REQD. DEVELOPMENT LENGTH =  1055. MMS                        |
 |----------------------------------------------------------------|

   Cracked Moment of Inertia Iz at above location =   322220.8 cm^4

   2        642.     5 - 20MM         0.         8000.         YES  YES
 |----------------------------------------------------------------|
 |   CRITICAL NEG MOMENT=    332.60 KN-MET  AT     0.MM, LOAD   33|
 |   REQD STEEL=  1509.MM2, ROW=0.0078, ROWMX=0.0190 ROWMN=0.0033 |
 |   MAX/MIN/ACTUAL BAR SPACING=   261./   45./   46. MMS         |
 |   REQD. DEVELOPMENT LENGTH =  1314. MMS                        |
 |----------------------------------------------------------------|

   Cracked Moment of Inertia Iz at above location =   341631.0 cm^4
```

REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	1152./	1521.	257./	333.	34/	33

667.	1225./	1445.	272./	317.	34/	33
1333.	1287./	1382.	285./	305.	34/	33
2000.	1336./	1332.	295./	294.	34/	33
2667.	1372./	1296.	303./	287.	34/	33
3333.	1396./	1273.	307./	282.	34/	33
4000.	1406./	1262.	310./	280.	34/	33
4667.	1404./	1265.	309./	281.	34/	33
5333.	1388./	1280.	306./	284.	34/	33
6000.	1360./	1308.	300./	289.	34/	33
6667.	1319./	1349.	292./	298.	34/	33
7333.	1265./	1403.	281./	309.	34/	33
8000.	1199./	1471.	267./	322.	33/	34

B E A M N O. 2200 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 94.88 KNS Vc= 154.48 KNS Vs= 0.00 KNS
Tu= 3.42 KN-MET Tc= 6.8 KN-MET Ts= 0.0 KN-MET LOAD 33
NO STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 320. MM C/C FOR 3358. MM

AT END SUPPORT - Vu= 86.91 KNS Vc= 155.07 KNS Vs= 0.00 KNS
Tu= 3.42 KN-MET Tc= 6.8 KN-MET Ts= 0.0 KN-MET LOAD 34
NO STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 320. MM C/C FOR 3358. MM

```
 ___1118J____________________  7999X 300X  700_____________________1117J____
||========================================================================||
| 5No20 H 642.|  0.TO 8000|   |   |   |   |   |   |   |   |   |   |   |   | |
| |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | |
| 12*10c/c320 |   |   |   |   |   |   |   |   |   |   |  12*10c/c320  | |
| 3No25 H |61.|  0.TO 8000|   |   |   |   |   |   |   |   |   |   |   |   | |
||========================================================================||
|                                                                          |
|__________________________________________________________________________|
 _____      _____      _____      _____      _____      _____         _____
|ooooo|    |ooooo|    |ooooo|    |ooooo|    |ooooo|    |ooooo|       |ooooo|
| 5#20|    | 5#20|    | 5#20|    | 5#20|    | 5#20|    | 5#20|       | 5#20|
|     |    |     |    |     |    |     |    |     |    |     |       |     |
|     |    |     |    |     |    |     |    |     |    |     |       |     |
| 3#25|    | 3#25|    | 3#25|    | 3#25|    | 3#25|    | 3#25|       | 3#25|
| ooo |    | ooo |    | ooo |    | ooo |    | ooo |    | ooo |       | ooo |
|     |    |     |    |     |    |     |    |     |    |     |       |     |
|_____|    |_____|    |_____|    |_____|    |_____|    |_____|       |_____|
```



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  =====================================================================

         BEAM  NO.  2201 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

  LEN -  8000. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  700. MMS

  LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
             (MM)                    (MM)         (MM)         STA  END
  _____________________________________________________________________

    1         58.     4 - 20MM        0.         8000.        YES  YES
   |----------------------------------------------------------------|
   |   CRITICAL POS MOMENT=    256.36 KN-MET  AT  4000.MM, LOAD   34|
```

```
|   REQD STEEL=  1140.MM2, ROW=0.0059, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   45./   61. MMS         |
|   REQD. DEVELOPMENT LENGTH =   985. MMS                        |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   286994.1 cm^4

  2        642.     4 - 20MM         0.         8000.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=    260.98 KN-MET  AT  8000.MM, LOAD   34|
|   REQD STEEL=  1162.MM2, ROW=0.0060, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   45./   61. MMS         |
|   REQD. DEVELOPMENT LENGTH =   985. MMS                        |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   286994.1 cm^4


REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
( MM )          (SQ.  MM )                (KNS-MET )

    0.         957./    1103.         216./      247.       34/   33
  667.        1020./    1040.         229./      233.       34/   33
 1333.        1070./     989.         240./      223.       34/   33
 2000.        1108./     951.         248./      215.       34/   33
 2667.        1134./     926.         253./      209.       34/   33
 3333.        1148./     913.         256./      207.       34/   33
 4000.        1148./     913.         256./      206.       34/   33
 4667.        1136./     924.         254./      209.       34/   33
 5333.        1112./     948.         249./      214.       34/   33
 6000.        1075./     985.         241./      222.       34/   33
 6667.        1026./    1034.         231./      232.       34/   33
 7333.         964./    1095.         218./      245.       34/   33
 8000.         891./    1170.         202./      261.       33/   34
```

B E A M N O. 2201 D E S I G N R E S U L T S - SHEAR


```
AT START SUPPORT - Vu=   76.02 KNS  Vc=  154.55 KNS  Vs=    0.00 KNS
Tu=    2.11 KN-MET  Tc=    6.8 KN-MET  Ts=    0.0 KN-MET  LOAD    33
NO STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 321. MM  C/C FOR 3358. MM

AT END   SUPPORT - Vu=   75.25 KNS  Vc=  155.21 KNS  Vs=    0.00 KNS
Tu=    2.11 KN-MET  Tc=    6.8 KN-MET  Ts=    0.0 KN-MET  LOAD    34
NO STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 321. MM  C/C FOR 3358. MM


 ___1120J____________________  7999X 300X  700_____________________1119J____
||=========================================================================||
| 4No20 H 642.|  0.TO 8000|   |   |   |   |   |   |   |   |   |   |   |   | |
| |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | |
| 12*10c/c321 |   |   |   |   |   |   |   |   |   |   |   12*10c/c321   | |
| |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | |
| 4No20 H |58.|  0.TO 8000|   |   |   |   |   |   |   |   |   |   |   |   | |
||=========================================================================||
|___________________________________________________________________________|

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|oooo |    |oooo |    |oooo |    |oooo |    |oooo |    |oooo |       |oooo |
| 4#20|    | 4#20|    | 4#20|    | 4#20|    | 4#20|    | 4#20|       | 4#20|
|     |    |     |    |     |    |     |    |     |    |     |       |     |
|     |    |     |    |     |    |     |    |     |    |     |       |     |
|     |    |     |    |     |    |     |    |     |    |     |       |     |
| 4#20|    | 4#20|    | 4#20|    | 4#20|    | 4#20|    | 4#20|       | 4#20|
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       BEAM  NO.  2323 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

LEN -  2850. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  700. MMS

LEVEL    HEIGHT     BAR INFO       FROM           TO           ANCHOR
          (MM)                     (MM)          (MM)          STA  END
_____________________________________________________________________


  1         56.     4 - 16MM        0.         2850.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL POS MOMENT=    175.69 KN-MET  AT     0.MM, LOAD   34|
|   REQD STEEL=   763.MM2, ROW=0.0039, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   41./   63. MMS         |
|   REQD. DEVELOPMENT LENGTH =   617. MMS                        |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   201146.2 cm^4

  2        644.     4 - 16MM        0.         2850.        YES  YES
```

```
|----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=    182.08 KN-MET  AT  2850.MM, LOAD   34|
|   REQD STEEL=   792.MM2, ROW=0.0041, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   41./   63. MMS         |
|   REQD. DEVELOPMENT LENGTH =   617. MMS                        |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   201146.2 cm^4


REQUIRED REINF. STEEL SUMMARY :
-------------------------------
```

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	771./	28.	176./	7.	34/	33
237.	733./	82.	167./	19.	34/	33
475.	694./	138.	159./	33.	34/	33
712.	653./	195.	150./	46.	34/	33
950.	611./	255.	140./	60.	34/	33
1187.	568./	316.	131./	74.	34/	33
1425.	523./	379.	121./	88.	34/	33
1662.	478./	444.	111./	103.	34/	33
1900.	431./	511.	100./	118.	34/	33
2137.	383./	580.	89./	134.	34/	33
2375.	334./	651.	78./	149.	34/	33
2612.	283./	725.	66./	166.	34/	33
2850.	232./	800.	54./	182.	33/	34

B E A M N O. 2323 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 25.87 KNS Vc= 156.14 KNS Vs= 0.00 KNS
Tu= 15.92 KN-MET Tc= 6.8 KN-MET Ts= 21.2 KN-MET LOAD 33
STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 207. MM C/C FOR 783. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE = 3.81 SQ.CM.

AT END SUPPORT - Vu= 129.99 KNS Vc= 163.76 KNS Vs= 9.56 KNS
Tu= 15.92 KN-MET Tc= 6.8 KN-MET Ts= 21.2 KN-MET LOAD 34
STIRRUPS ARE REQUIRED FOR SHEAR AND TORSION.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 207. MM C/C FOR 783. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE = 3.81 SQ.CM.

```
 ___1103J____________________  2849X 300X  700_____________________1181J____
||=========================================================================||
| 4No16 H 644.|  0.TO 2850|                      |     |     |     |     | |
| |     |     |     |     |                      |     |     |     |     | |
|  5*10c/c207 |     |     |                      |     |    5*10c/c207   | |
| |     |     |     |     |                      |     |     |     |     | |
| 4No16 H  56.|  0.TO 2850|                      |     |     |     |     | |
||=========================================================================||
|___________________________________________________________________________|
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| 4#16|    | 4#16|    | 4#16|    | 4#16|    | 4#16|    | 4#16|       | 4#16|
|     |    |     |    |     |    |     |    |     |    |     |       |     |
|     |    |     |    |     |    |     |    |     |    |     |       |     |
|     |    |     |    |     |    |     |    |     |    |     |       |     |
| 4#16|    | 4#16|    | 4#16|    | 4#16|    | 4#16|    | 4#16|       | 4#16|
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  =====================================================================

         BEAM  NO.  2324 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

  LEN -  2850. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  700. MMS

  LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
             (MM)                    (MM)         (MM)         STA  END
  _____________________________________________________________________


    1         56.     4 - 16MM        0.         2850.        YES  YES
   |----------------------------------------------------------------|
   |   CRITICAL POS MOMENT=    177.35 KN-MET  AT     0.MM, LOAD   34|
   |   REQD STEEL=   770.MM2, ROW=0.0040, ROWMX=0.0190 ROWMN=0.0033 |
   |   MAX/MIN/ACTUAL BAR SPACING=   261./   41./   63. MMS         |
   |   REQD. DEVELOPMENT LENGTH =   617. MMS                       |
```

```
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   201146.2 cm^4

  2        644.     4 - 16MM         0.         2850.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=    158.77 KN-MET  AT  2850.MM, LOAD   34|
|   REQD STEEL=   686.MM2, ROW=0.0036, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   41./   63. MMS         |
|   REQD. DEVELOPMENT LENGTH =   617. MMS                       |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   201146.2 cm^4


REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
( MM )         (SQ.  MM )               (KNS-MET )

    0.         779./      23.         177./        5.       34/   33
```



```
  237.         745./      69.         170./       16.       34/   33
  475.         710./     117.         162./       28.       34/   33
  712.         673./     167.         154./       39.       34/   33
  950.         635./     218.         146./       51.       34/   33
 1187.         596./     271.         137./       63.       34/   33
 1425.         556./     326.         128./       76.       34/   33
 1662.         514./     382.         119./       89.       34/   33
 1900.         471./     441.         109./      102.       34/   33
 2137.         426./     501.          99./      116.       34/   33
 2375.         381./     563.          89./      130.       34/   33
 2612.         334./     628.          78./      144.       34/   33
 2850.         286./     694.          67./      159.       33/   34
```

```
B E A M  N O.  2324 D E S I G N  R E S U L T S - SHEAR


AT START SUPPORT - Vu=   66.62 KNS  Vc=  156.50 KNS  Vs=    0.00 KNS
Tu=   19.88 KN-MET  Tc=    6.8 KN-MET  Ts=   26.5 KN-MET  LOAD    32
STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 207. MM  C/C FOR  783. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   4.75 SQ.CM.

AT END   SUPPORT - Vu=   75.92 KNS  Vc=  164.20 KNS  Vs=    0.00 KNS
Tu=   19.88 KN-MET  Tc=    6.8 KN-MET  Ts=   26.5 KN-MET  LOAD    32
STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 207. MM  C/C FOR  783. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   4.75 SQ.CM.


 ___1105J____________________  2849X 300X  700_____________________1182J____
||===========================================================================||
| 4No16 H 644.|  0.TO 2850|                       |     |     |     |     | |
| |     |     |     |     |                       |     |     |     |     | |
|  5*10c/c207 |     |     |                       |     |     5*10c/c207  | |
| |     |     |     |     |                       |     |     |     |     | |
| 4No16 H  56.|  0.TO 2850|                       |     |     |     |     | |
||===========================================================================||
|___________________________________________________________________________|

 _____      _____      _____      _____      _____      _____          _____
|oooo |    |oooo |    |oooo |    |oooo |    |oooo |    |oooo |        |oooo |
| 4#16|    | 4#16|    | 4#16|    | 4#16|    | 4#16|    | 4#16|        | 4#16|
|     |    |     |    |     |    |     |    |     |    |     |        |     |
|     |    |     |    |     |    |     |    |     |    |     |        |     |
|     |    |     |    |     |    |     |    |     |    |     |        |     |
| 4#16|    | 4#16|    | 4#16|    | 4#16|    | 4#16|    | 4#16|        | 4#16|
|oooo |    |oooo |    |oooo |    |oooo |    |oooo |    |oooo |        |oooo |
|_____|    |_____|    |_____|    |_____|    |_____|    |_____|        |_____|
```

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=====================================================================

       BEAM  NO.  2432 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

LEN -  5000. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  600. MMS

LEVEL    HEIGHT     BAR INFO       FROM          TO            ANCHOR
          (MM)                     (MM)         (MM)          STA  END
_____________________________________________________________________


  1         54.     5 - 12MM         0.         4516.        YES  NO
|----------------------------------------------------------------|
|   CRITICAL POS MOMENT=     82.59 KN-MET  AT     0.MM, LOAD   34|
|   REQD STEEL=   546.MM2, ROW=0.0033, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   48. MMS         |
|   REQD. DEVELOPMENT LENGTH =   453. MMS                       |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   104738.6 cm^4

  2        544.     4 - 16MM         0.         5000.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=    145.48 KN-MET  AT  5000.MM, LOAD   32|
|   REQD STEEL=   753.MM2, ROW=0.0046, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   41./   63. MMS         |
|   REQD. DEVELOPMENT LENGTH =   617. MMS                       |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   139329.5 cm^4


REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
```

```
 ( MM )         (SQ.  MM )               (KNS-MET )

    0.         424./       0.          83./        0.       34/    0
  417.         402./      14.          78./        3.       34/   33
  833.         376./      47.          74./        9.       34/   33
 1250.         345./      85.          68./       17.       34/   33
 1667.         310./     128.          61./       25.       34/   33
 2083.         271./     175.          53./       35.       34/   33
 2500.         227./     228.          45./       45.       34/   33
 2917.         179./     285.          35./       56.       34/   33
 3333.         127./     347.          25./       68.       34/   33
 3750.          71./     414.          14./       81.       34/   33
 4167.          10./     512.           2./       99.       34/   32
 4583.           0./     634.           0./      122.        0/   32
 5000.           0./     763.           0./      145.        0/   32


      B E A M  N O.  2432 D E S I G N  R E S U L T S - SHEAR
```



```
 AT START SUPPORT - Vu=   15.27 KNS  Vc=  130.44 KNS  Vs=    0.00 KNS
 Tu=    0.55 KN-MET  Tc=    5.6 KN-MET  Ts=    0.0 KN-MET  LOAD    30
                   STIRRUPS ARE NOT REQUIRED.
 AT END   SUPPORT - Vu=   54.77 KNS  Vc=  130.40 KNS  Vs=    0.00 KNS
 Tu=    4.70 KN-MET  Tc=    5.6 KN-MET  Ts=    0.0 KN-MET  LOAD    32
 NO STIRRUPS ARE REQUIRED FOR TORSION.
 REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
 PROVIDE 10 MM 2-LEGGED STIRRUPS AT 273. MM  C/C FOR 1958. MM


___1249J____________________  4999X 300X  600_____________________1105J____
|                                                                          |
||========================================================================||
| 4No16 H 544.   0.TO 5000         |    |    |    |    |    |    |          |
|                                  |    |    |    |    |    |  9*10c/c273   |
```

```
| 5No12 H  54.   0.TO 4516        |    |    |    |    |    |    |          |
||====================================================================      |
|                                                                           |
|___________________________________________________________________________|
 _______    _______    _______    _______    _______    _______      _______
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| oooo  |  | oooo  |  | oooo  |  | oooo  |  | oooo  |  | oooo  |    | oooo  |
| 4#16  |  | 4#16  |  | 4#16  |  | 4#16  |  | 4#16  |  | 4#16  |    | 4#16  |
|       |  |       |  |       |  |       |  |       |  |       |    |       |
| 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |    |       |
| ooooo |  | ooooo |  | ooooo |  | ooooo |  | ooooo |  | ooooo |    |       |
|       |  |       |  |       |  |       |  |       |  |       |    |       |
|_______|  |_______|  |_______|  |_______|  |_______|  |_______|    |_______|


  ======================================================================

         BEAM  NO.  2470 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

  LEN -  1500. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  600. MMS

  LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
            (MM)                     (MM)         (MM)          STA  END
  ______________________________________________________________________


    1         54.     5 - 12MM         0.         1500.        YES  YES
  |----------------------------------------------------------------|
  |   CRITICAL POS MOMENT=     57.12 KN-MET  AT  1500.MM, LOAD   32|
  |   REQD STEEL=   546.MM2, ROW=0.0033, ROWMX=0.0190 ROWMN=0.0033 |
  |   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   48. MMS         |
  |   REQD. DEVELOPMENT LENGTH =   453. MMS                        |
  |----------------------------------------------------------------|

    Cracked Moment of Inertia Iz at above location =   104738.6 cm^4

    2        546.     5 - 12MM         0.         1096.        YES  NO
```

```
|--------------------------------------------------------------|
|   CRITICAL NEG MOMENT=     40.12 KN-MET  AT     0.MM, LOAD   33|
|   REQD STEEL=   546.MM2, ROW=0.0033, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   48. MMS         |
|   REQD. DEVELOPMENT LENGTH =   453. MMS                        |
|--------------------------------------------------------------|
```

Cracked Moment of Inertia Iz at above location = 104738.6 cm^4

REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	65./	203.	13./	40.	34/	33
125.	82./	168.	16./	33.	34/	33
250.	100./	133.	20./	26.	34/	33
375.	117./	98.	23./	20.	34/	33
500.	134./	65.	27./	13.	34/	33
625.	151./	31.	30./	6.	34/	33
750.	167./	0.	33./	0.	34/	0
875.	183./	0.	36./	0.	34/	0
1000.	199./	0.	39./	0.	34/	0
1125.	214./	0.	42./	0.	34/	0
1250.	230./	0.	45./	0.	34/	0
1375.	255./	0.	50./	0.	32/	0
1500.	291./	0.	57./	0.	32/	0

B E A M N O. 2470 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 38.92 KNS Vc= 134.67 KNS Vs= 0.00 KNS

Tu= 0.68 KN-MET Tc= 5.6 KN-MET Ts= 0.0 KN-MET LOAD 30

```
                 STIRRUPS ARE NOT REQUIRED.
 AT END   SUPPORT - Vu=   56.74 KNS  Vc=  139.29 KNS  Vs=    0.00 KNS
 Tu=    0.54 KN-MET  Tc=    5.6 KN-MET  Ts=    0.0 KN-MET  LOAD    32
 NO STIRRUPS ARE REQUIRED FOR TORSION.
 REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
 PROVIDE 10 MM 2-LEGGED STIRRUPS AT 273. MM  C/C FOR  208. MM
```



```
___1181J____________________  1500X 300X  600_____________________1252J____
|                                                                          |
||=======================================================                  |
| 5No12 H 546.   0.TO 1096                                                 |
|                                                          2*10c/c273      |
| 5No12 H  54.   0.TO 1500                                                 |
||========================================================================||
|                                                                          |
|__________________________________________________________________________|
 _______    _______    _______    _______    _______    _______      _______
|       |  |       |  |       |  |       |  |       |  |       |    |       |
| ooooo |  | ooooo |  | ooooo |  | ooooo |  | ooooo |  |       |    |       |
| 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |  |       |    |       |
|       |  |       |  |       |  |       |  |       |  |       |    |       |
| 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |    | 5#12  |
| ooooo |  | ooooo |  | ooooo |  | ooooo |  | ooooo |  | ooooo |    | ooooo |
|       |  |       |  |       |  |       |  |       |  |       |    |       |
|_______|  |_______|  |_______|  |_______|  |_______|  |_______|    |_______|


 ====================================================================

       BEAM  NO.  2471 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

 LEN -  5000. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  600. MMS

 LEVEL    HEIGHT     BAR INFO       FROM          TO            ANCHOR
```

```
         (MM)                    (MM)         (MM)         STA  END
_____________________________________________________________________

  1         54.     5 - 12MM        0.        5000.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL POS MOMENT=     89.13 KN-MET  AT     0.MM, LOAD   34|
|   REQD STEEL=   546.MM2, ROW=0.0033, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   48. MMS         |
|   REQD. DEVELOPMENT LENGTH =   453. MMS                        |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   104738.6 cm^4

  2        546.     5 - 12MM        0.        5000.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=     55.93 KN-MET  AT  5000.MM, LOAD   34|
|   REQD STEEL=   546.MM2, ROW=0.0033, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   48. MMS         |
|   REQD. DEVELOPMENT LENGTH =   453. MMS                        |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   104738.6 cm^4


REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION     REINF STEEL(+VE/-VE)     MOMENTS(+VE/-VE)    LOAD(+VE/-VE)
( MM )          (SQ.  MM )              (KNS-MET )

    0.          458./      30.          89./        6.       34/   33
```

```
  417.          446./      26.          87./        5.       34/   33
  833.          430./      27.          84./        5.       34/   33
 1250.          409./      32.          80./        6.       34/   33
 1667.          384./      42.          75./        8.       34/   33
 2083.          353./      56.          69./       11.       34/   33
```

2500.	319./	75.	63./	15.	34/ 33
2917.	280./	98.	55./	20.	34/ 33
3333.	237./	126.	47./	25.	34/ 33
3750.	189./	159.	37./	31.	34/ 33
4167.	138./	196.	27./	39.	34/ 33
4583.	82./	238.	16./	47.	34/ 33
5000.	22./	284.	4./	56.	33/ 34

B E A M N O. 2471 D E S I G N R E S U L T S - SHEAR

```
AT START SUPPORT - Vu=    2.01 KNS  Vc=  128.22 KNS  Vs=    0.00 KNS
Tu=    1.23 KN-MET  Tc=    5.6 KN-MET  Ts=    0.0 KN-MET  LOAD    30
                   STIRRUPS ARE NOT REQUIRED.
AT END   SUPPORT - Vu=   25.26 KNS  Vc=  137.10 KNS  Vs=    0.00 KNS
Tu=    1.23 KN-MET  Tc=    5.6 KN-MET  Ts=    0.0 KN-MET  LOAD    30
                   STIRRUPS ARE NOT REQUIRED.
```

```
___1252J____________________  4999X 300X  600_____________________1182J____
|                                                                          |
||========================================================================||
| 5No12 H 546.   0.TO 5000                                                 |
|                                                                          |
| 5No12 H  54.   0.TO 5000                                                 |
||========================================================================||
|                                                                          |
|__________________________________________________________________________|
 _______    _______    _______    _______    _______    _______     _______
|       |  |       |  |       |  |       |  |       |  |       |   |       |
| ooooo |  | ooooo |  | ooooo |  | ooooo |  | ooooo |  | ooooo |   | ooooo |
| 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |   | 5#12  |
|       |  |       |  |       |  |       |  |       |  |       |   |       |
| 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |   | 5#12  |
| ooooo |  | ooooo |  | ooooo |  | ooooo |  | ooooo |  | ooooo |   | ooooo |
|       |  |       |  |       |  |       |  |       |  |       |   |       |
|_______|  |_______|  |_______|  |_______|  |_______|  |_______|   |_______|
```

```
=====================================================================

       BEAM  NO.  2472 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

LEN -  2850. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  600. MMS

LEVEL    HEIGHT     BAR INFO       FROM          TO           ANCHOR
          (MM)                     (MM)         (MM)          STA  END
_____________________________________________________________________


  1         54.     5 - 12MM         0.         2850.         YES  YES
```



```
|----------------------------------------------------------------|
|   CRITICAL POS MOMENT=     16.40 KN-MET  AT   950.MM, LOAD   34|
|   REQD STEEL=   546.MM2, ROW=0.0033, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   48. MMS         |
|   REQD. DEVELOPMENT LENGTH =   453. MMS                        |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   104738.6 cm^4

  2        546.     5 - 12MM         0.         2850.         YES  YES
|----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=     12.21 KN-MET  AT  2850.MM, LOAD   34|
|   REQD STEEL=   546.MM2, ROW=0.0033, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   48. MMS         |
|   REQD. DEVELOPMENT LENGTH =   453. MMS                        |
|----------------------------------------------------------------|

  Cracked Moment of Inertia Iz at above location =   104738.6 cm^4


REQUIRED REINF. STEEL SUMMARY :
```

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	69./	18.	14./	4.	34/	33
237.	74./	13.	15./	3.	34/	33
475.	78./	10.	16./	2.	34/	33
712.	81./	9.	16./	2.	34/	33
950.	82./	9.	16./	2.	34/	33
1187.	82./	10.	16./	2.	34/	33
1425.	81./	13.	16./	3.	34/	33
1662.	77./	18.	15./	4.	34/	33
1900.	73./	23.	15./	5.	34/	33
2137.	67./	31.	13./	6.	34/	33
2375.	60./	39.	12./	8.	34/	33
2612.	51./	50.	10./	10.	34/	33
2850.	41./	61.	8./	12.	33/	34

B E A M N O. 2472 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 8.41 KNS Vc= 134.67 KNS Vs= 0.00 KNS
Tu= 6.53 KN-MET Tc= 5.6 KN-MET Ts= 8.7 KN-MET LOAD 33
STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 182. MM C/C FOR 883. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE = 1.64 SQ.CM.

AT END SUPPORT - Vu= 13.40 KNS Vc= 134.67 KNS Vs= 0.00 KNS
Tu= 6.53 KN-MET Tc= 5.6 KN-MET Ts= 8.7 KN-MET LOAD 34
STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 182. MM C/C FOR 883. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE = 1.64 SQ.CM.

```
 ___1249J____________________  2849X 300X  600_____________________1252J____
|                                                                            |
||==========================================================================||
| 5No12|H 546.   0.TO 2850 |                     |    |    |    |    |    | |
|  6*10c/c182    |    |    |                     |    |    | 6*10c/c182   | |
| 5No12|H  54.   0.TO 2850 |                     |    |    |    |    |    | |
||==========================================================================||
|                                                                            |
|____________________________________________________________________________|

 _______    _______    _______    _______    _______    _______      _______
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| ooooo |  | ooooo |  | ooooo |  | ooooo |  | ooooo |  | ooooo |    | ooooo |
| 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |    | 5#12  |
|       |  |       |  |       |  |       |  |       |  |       |    |       |
| 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |  | 5#12  |    | 5#12  |
| ooooo |  | ooooo |  | ooooo |  | ooooo |  | ooooo |  | ooooo |    | ooooo |
|       |  |       |  |       |  |       |  |       |  |       |    |       |
|_______|  |_______|  |_______|  |_______|  |_______|  |_______|    |_______|


  =====================================================================

         BEAM  NO.  2524 DESIGN RESULTS - FLEXURE PER CODE ACI 318-05

  LEN -  6500. MM  FY -  414.  FC -  25.  MPA, SIZE -  300. X  700. MMS

  LEVEL    HEIGHT     BAR INFO       FROM           TO           ANCHOR
            (MM)                     (MM)          (MM)          STA  END
  _____________________________________________________________________


    1         54.     6 - 12MM         0.         6500.         YES  YES
  |----------------------------------------------------------------|
  |   CRITICAL POS MOMENT=    115.30 KN-MET  AT  4875.MM, LOAD   34|
  |   REQD STEEL=   646.MM2, ROW=0.0033, ROWMX=0.0190 ROWMN=0.0033 |
```

```
|   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   38. MMS          |
|   REQD. DEVELOPMENT LENGTH =   566. MMS                        |
|----------------------------------------------------------------|
```

Cracked Moment of Inertia Iz at above location =   175566.9 cm^4

```
  2        646.     6 - 12MM         0.         6500.        YES  YES
|----------------------------------------------------------------|
|   CRITICAL NEG MOMENT=    145.94 KN-MET  AT     0.MM, LOAD   33|
|   REQD STEEL=   646.MM2, ROW=0.0033, ROWMX=0.0190 ROWMN=0.0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   261./   37./   38. MMS          |
|   REQD. DEVELOPMENT LENGTH =   566. MMS                        |
|----------------------------------------------------------------|
```

Cracked Moment of Inertia Iz at above location =   175566.9 cm^4

REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	162./	636.	38./	146.	34/	33

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
542.	229./	553.	54./	128.	34/	33
1083.	289./	480.	67./	111.	34/	33
1625.	341./	414.	80./	96.	34/	33
2167.	386./	357.	90./	83.	34/	33
2708.	424./	307.	98./	72.	34/	33
3250.	454./	265.	105./	62.	34/	33
3792.	477./	231.	110./	54.	34/	33
4333.	491./	205.	114./	48.	34/	33
4875.	499./	186.	115./	44.	34/	33
5417.	498./	175.	115./	41.	34/	33
5958.	490./	171.	113./	40.	34/	33
6500.	474./	174.	110./	41.	33/	34

```
B E A M  N O.  2524 D E S I G N  R E S U L T S - SHEAR


AT START SUPPORT - Vu=   54.80 KNS  Vc=  154.56 KNS  Vs=    0.00 KNS
Tu=   18.72 KN-MET  Tc=    6.8 KN-MET  Ts=   25.0 KN-MET  LOAD    33
STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 207. MM  C/C FOR 2608. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   4.48 SQ.CM.

AT END   SUPPORT - Vu=   27.64 KNS  Vc=  153.14 KNS  Vs=    0.00 KNS
Tu=   18.72 KN-MET  Tc=    6.8 KN-MET  Ts=   25.0 KN-MET  LOAD    34
STIRRUPS ARE REQUIRED FOR TORSION.
REINFORCEMENT FOR SHEAR IS PER CL.11.5.5.1.
PROVIDE 10 MM 2-LEGGED STIRRUPS AT 207. MM  C/C FOR 2608. MM
ADDITIONAL LONGITUDINAL STEEL REQD. FOR TORSIONAL RESISTANCE =   4.48 SQ.CM.


 ___1298J____________________  6500X 300X  700_____________________1114J____
||=========================================================================||
| 6No12 H 646.|  0.TO 6500|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| 14*10c/c207 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 14*10c/c207  | |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| 6No12 H  54.|  0.TO 6500|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
||=========================================================================||
|___________________________________________________________________________|
 _____      _____      _____      _____      _____      _____         _____
|ooooo|    |ooooo|    |ooooo|    |ooooo|    |ooooo|    |ooooo|       |ooooo|
|     |    |     |    |     |    |     |    |     |    |     |       |     |
|     |    |     |    |     |    |     |    |     |    |     |       |     |
|     |    |     |    |     |    |     |    |     |    |     |       |     |
|     |    |     |    |     |    |     |    |     |    |     |       |     |
|     |    |     |    |     |    |     |    |     |    |     |       |     |
|ooooo|    |ooooo|    |ooooo|    |ooooo|    |ooooo|    |ooooo|       |ooooo|
|_____|    |_____|    |_____|    |_____|    |_____|    |_____|       |_____|
```

```
*******************END OF BEAM DESIGN*************************


2095. DESIGN COLUMN 2137 TO 2163 2306 2307 2433 2435 2523
```



```
====================================================================

     COLUMN  NO.  2137  DESIGN PER ACI 318-05 - AXIAL + BENDING


 FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 800.0 X 650.0 MMS, TIED
        ONLY MINIMUM STEEL IS REQUIRED.
        AREA OF STEEL REQUIRED =  5200.0  SQ. MM

 BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
 ----------------------------------------------------------

  28 - 16 MM               1.083       30      END     0.650
 (PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
 TIE BAR NUMBER   10 SPACING 256.00 MM

    COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

  --------------------------------------------------------
    P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
 13051.65  10441.32   5139.01   1310.81     255.1
     M0       P-tens.   Des.Pn    Des.Mn     e/h
   656.99  -2328.96    734.27     17.53    0.01038
  --------------------------------------------------------

    COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)

  --------------------------------------------------------
```

```
    P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
 13051.65  10441.32   5230.10   1633.12     312.3
     M0       P-tens.   Des.Pn    Des.Mn     e/h
   824.17  -2328.96    734.27     14.32    0.00848
  --------------------------------------------------------
                         Pn       Mn       Pn       Mn    (@ Z )
          |             9638.15   828.21  4819.07  1307.51
       P0 |*            8834.97   962.17  4015.89  1281.31
          | *           8031.79  1071.09  3212.72  1222.65
    Pn,max|__*          7228.61  1159.29  2409.54  1132.41
          |   *         6425.43  1229.16  1606.36  1010.05
    Pn    |    *        5622.25  1283.60   803.18   850.73
   NOMINAL|     *         Pn       Mn       Pn       Mn    (@ Y )
     AXIAL|      *      9638.15  1030.09  4819.07  1629.04
COMPRESSION|       *     8834.97  1196.79  4015.89  1595.93
        Pb|-------*Mb   8031.79  1333.11  3212.72  1522.76
          |      *      7228.61  1444.09  2409.54  1410.64
___________|____*_______ 6425.43  1532.75  1606.36  1258.98
          |  * M0   Mn, 5622.25  1604.04   803.18  1065.43
          | *   BENDING
    P-tens|*     MOMENT
          |
```

```
 ====================================================================

      COLUMN  NO.  2138  DESIGN PER ACI 318-05 - AXIAL + BENDING
```



```
 FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 800.0 X 650.0 MMS, TIED
        ONLY MINIMUM STEEL IS REQUIRED.
        AREA OF STEEL REQUIRED =  5200.0  SQ. MM

 BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
 ----------------------------------------------------------
```

```
 28 - 16 MM               1.083      30      END     0.650
(PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
TIE BAR NUMBER   10 SPACING 256.00 MM

    COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5139.01   1310.81     255.1
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  656.99  -2328.96    355.96     39.39    0.04811
 --------------------------------------------------------

    COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5230.10   1633.12     312.3
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  824.17  -2328.96    355.96     22.92    0.02799
 --------------------------------------------------------
                        Pn       Mn       Pn       Mn    (@ Z )
           |            9638.15   828.21  4819.07  1307.51
        P0 |*           8834.97   962.17  4015.89  1281.31
           | *          8031.79  1071.09  3212.72  1222.65
    Pn,max|__*          7228.61  1159.29  2409.54  1132.41
           |   *        6425.43  1229.16  1606.36  1010.05
    Pn     |    *       5622.25  1283.60   803.18   850.73
   NOMINAL|     *         Pn       Mn       Pn       Mn    (@ Y )
     AXIAL|      *      9638.15  1030.09  4819.07  1629.04
COMPRESSION|       *     8834.97  1196.79  4015.89  1595.93
        Pb|-------*Mb   8031.79  1333.11  3212.72  1522.76
           |      *     7228.61  1444.09  2409.54  1410.64
___________|____*_______ 6425.43  1532.75  1606.36  1258.98
           |  * M0   Mn, 5622.25  1604.04   803.18  1065.43
           | *   BENDING
    P-tens|*     MOMENT
           |
```

```
====================================================================

     COLUMN  NO.  2139  DESIGN PER ACI 318-05 - AXIAL + BENDING


FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 800.0 X 650.0 MMS, TIED
        ONLY MINIMUM STEEL IS REQUIRED.
        AREA OF STEEL REQUIRED =  5200.0  SQ. MM
 STAAD SPACE                                              -- PAGE NO.  157


BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
----------------------------------------------------------


 28 - 16 MM              1.083       30      END     0.650
(PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
TIE BAR NUMBER   10 SPACING 256.00 MM

    COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5139.01   1310.81     255.1
    M0        P-tens.   Des.Pn    Des.Mn     e/h
  656.99  -2328.96    679.71     17.99    0.01150
 --------------------------------------------------------

    COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5230.10   1633.12     312.3
    M0        P-tens.   Des.Pn    Des.Mn     e/h
  824.17  -2328.96    679.71     37.34    0.02389
 --------------------------------------------------------
                        Pn        Mn        Pn        Mn     (@ Z )
```

```
          |             9638.15   828.21  4819.07  1307.51
       P0 |*            8834.97   962.17  4015.89  1281.31
          | *           8031.79  1071.09  3212.72  1222.65
    Pn,max|__*          7228.61  1159.29  2409.54  1132.41
          |   *         6425.43  1229.16  1606.36  1010.05
    Pn    |    *        5622.25  1283.60   803.18   850.73
   NOMINAL|     *         Pn       Mn       Pn       Mn    (@ Y )
     AXIAL|      *      9638.15  1030.09  4819.07  1629.04
COMPRESSION|       *     8834.97  1196.79  4015.89  1595.93
        Pb|-------*Mb   8031.79  1333.11  3212.72  1522.76
          |      *      7228.61  1444.09  2409.54  1410.64
__________|____*_______ 6425.43  1532.75  1606.36  1258.98
          |  * M0   Mn, 5622.25  1604.04   803.18  1065.43
          | *   BENDING
    P-tens|*     MOMENT
          |
```

```
 ====================================================================

      COLUMN  NO.  2140  DESIGN PER ACI 318-05 - AXIAL + BENDING

 FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 800.0 X 650.0 MMS, TIED
         ONLY MINIMUM STEEL IS REQUIRED.
         AREA OF STEEL REQUIRED =  5200.0  SQ. MM

 BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
 ----------------------------------------------------------

  28 - 16 MM               1.083       30      END     0.650
 (PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
 TIE BAR NUMBER   10 SPACING 256.00 MM
```



```
     COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)
```

```
  --------------------------------------------------------

    P0        Pn max    P-bal.    M-bal.     e-bal. (MM)

 13051.65  10441.32   5139.01   1310.81     255.1

     M0       P-tens.   Des.Pn    Des.Mn     e/h

   656.99  -2328.96    305.46     40.21    0.05723

  --------------------------------------------------------


     COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)


  --------------------------------------------------------

    P0        Pn max    P-bal.    M-bal.     e-bal. (MM)

 13051.65  10441.32   5230.10   1633.12     312.3

     M0       P-tens.   Des.Pn    Des.Mn     e/h

   824.17  -2328.96    305.46     27.94    0.03977

  --------------------------------------------------------

                      Pn       Mn       Pn       Mn    (@ Z )

           |            9638.15   828.21  4819.07  1307.51

        P0 |*           8834.97   962.17  4015.89  1281.31

           | *          8031.79  1071.09  3212.72  1222.65

     Pn,max|__*         7228.61  1159.29  2409.54  1132.41

           |   *        6425.43  1229.16  1606.36  1010.05

     Pn    |    *       5622.25  1283.60   803.18   850.73

    NOMINAL|     *        Pn       Mn       Pn       Mn    (@ Y )

      AXIAL|      *     9638.15  1030.09  4819.07  1629.04

COMPRESSION|       *    8834.97  1196.79  4015.89  1595.93

         Pb|-------*Mb  8031.79  1333.11  3212.72  1522.76

           |      *     7228.61  1444.09  2409.54  1410.64

___________|____*_______ 6425.43  1532.75  1606.36  1258.98

           |  * M0   Mn, 5622.25  1604.04   803.18  1065.43

           | *   BENDING

     P-tens|*     MOMENT

           |



 ====================================================================


      COLUMN  NO.  2141  DESIGN PER ACI 318-05 - AXIAL + BENDING
```

```
FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 800.0 X 650.0 MMS, TIED
        ONLY MINIMUM STEEL IS REQUIRED.
        AREA OF STEEL REQUIRED =  5200.0  SQ. MM

BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
----------------------------------------------------------

 28 - 16 MM               1.083       30      END     0.650
(PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
TIE BAR NUMBER   10 SPACING 256.00 MM

    COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5139.01   1310.81     255.1
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  656.99  -2328.96    592.46      1.56    0.00114
 --------------------------------------------------------
```



```
    COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5230.10   1633.12     312.3
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  824.17  -2328.96    592.46     21.56    0.01582
 --------------------------------------------------------
                       Pn       Mn       Pn       Mn    (@ Z )
         |            9638.15   828.21  4819.07  1307.51
      P0 |*           8834.97   962.17  4015.89  1281.31
         | *          8031.79  1071.09  3212.72  1222.65
   Pn,max|__*         7228.61  1159.29  2409.54  1132.41
         |   *        6425.43  1229.16  1606.36  1010.05
   Pn    |    *       5622.25  1283.60   803.18   850.73
```

```
   NOMINAL|     *         Pn       Mn       Pn       Mn    (@ Y )
     AXIAL|      *      9638.15  1030.09  4819.07  1629.04
COMPRESSION|       *     8834.97  1196.79  4015.89  1595.93
        Pb|-------*Mb   8031.79  1333.11  3212.72  1522.76
          |      *      7228.61  1444.09  2409.54  1410.64
___________|____*_______ 6425.43  1532.75  1606.36  1258.98
          |  * M0   Mn, 5622.25  1604.04   803.18  1065.43
          | *   BENDING
    P-tens|*     MOMENT
          |
```

```
  ====================================================================

       COLUMN  NO.  2142  DESIGN PER ACI 318-05 - AXIAL + BENDING

  FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 800.0 X 650.0 MMS, TIED
          AREA OF STEEL REQUIRED =  6292.0  SQ. MM

  BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
  ----------------------------------------------------------

    8 - 32 MM               1.237       34      STA     0.650
  (PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
  TIE BAR NUMBER   10 SPACING 256.00 MM

      COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

   --------------------------------------------------------
     P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
  13367.56  10694.05   4991.22   1402.60     281.0
      M0       P-tens.   Des.Pn    Des.Mn     e/h
    742.39  -2661.63    255.03    228.70    0.38990
   --------------------------------------------------------

      COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)
```

```
   --------------------------------------------------------

     P0        Pn max    P-bal.    M-bal.     e-bal. (MM)

  13367.56  10694.05   5091.20   1752.95     344.3

      M0       P-tens.   Des.Pn    Des.Mn     e/h

    935.70  -2661.63    255.03    806.74    1.37534

   --------------------------------------------------------
```



```
                       Pn       Mn       Pn       Mn    (@ Z )
           |             9871.43   853.66  4935.71  1401.35
        P0 |*            9048.81   990.93  4113.09  1366.49
           | *           8226.19  1108.51  3290.48  1309.19
     Pn,max|__*          7403.57  1205.24  2467.86  1235.71
           |   *         6580.95  1284.53  1645.24  1125.80
     Pn    |    *        5758.33  1350.16   822.62   947.72
    NOMINAL|     *         Pn       Mn       Pn       Mn    (@ Y )
      AXIAL|      *      9871.43  1060.00  4935.71  1749.03
 COMPRESSION|       *     9048.81  1237.22  4113.09  1706.12
         Pb|-------*Mb   8226.19  1384.54  3290.48  1635.58
           |      *      7403.57  1506.92  2467.86  1545.17
___________|____*_______ 6580.95  1608.16  1645.24  1411.79
           |  * M0   Mn, 5758.33  1692.91   822.62  1194.05
           | *   BENDING
     P-tens|*     MOMENT
           |


  ====================================================================


      COLUMN  NO.  2143  DESIGN PER ACI 318-05 - AXIAL + BENDING



  FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 800.0 X 650.0 MMS, TIED
          AREA OF STEEL REQUIRED =  5564.0  SQ. MM


  BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
  ----------------------------------------------------------
```

```
 28 - 16 MM              1.083      34      STA     0.650
(PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
TIE BAR NUMBER   10 SPACING 256.00 MM

    COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5139.01   1310.81     255.1
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  656.99  -2328.96      3.73    451.50   52.61004
 --------------------------------------------------------

    COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5230.10   1633.12     312.3
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  824.17  -2328.96      3.73    341.07   39.74303
 --------------------------------------------------------
```



```
                           Pn       Mn       Pn       Mn    (@ Z )
           |             9638.15   828.21  4819.07  1307.51
        P0 |*            8834.97   962.17  4015.89  1281.31
           | *           8031.79  1071.09  3212.72  1222.65
     Pn,max|__*          7228.61  1159.29  2409.54  1132.41
           |   *         6425.43  1229.16  1606.36  1010.05
     Pn    |    *        5622.25  1283.60   803.18   850.73
    NOMINAL|     *         Pn       Mn       Pn       Mn    (@ Y )
      AXIAL|      *      9638.15  1030.09  4819.07  1629.04
COMPRESSION|       *     8834.97  1196.79  4015.89  1595.93
         Pb|-------*Mb   8031.79  1333.11  3212.72  1522.76
           |      *      7228.61  1444.09  2409.54  1410.64
___________|____*_______ 6425.43  1532.75  1606.36  1258.98
           |  * M0   Mn, 5622.25  1604.04   803.18  1065.43
           | *   BENDING
```

```
   P-tens|*     MOMENT
         |

=====================================================================

     COLUMN  NO.  2144  DESIGN PER ACI 318-05 - AXIAL + BENDING

FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 800.0 X 650.0 MMS, TIED
        AREA OF STEEL REQUIRED =  5564.0  SQ. MM

BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
----------------------------------------------------------

 28 - 16 MM               1.083       34      STA     0.900
(PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
TIE BAR NUMBER   10 SPACING 256.00 MM

    COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5139.01   1310.81     255.1
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  656.99  -2328.96     -9.57    466.28  -21.18749
 --------------------------------------------------------

    COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5230.10   1633.12     312.3
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  824.17  -2328.96     -9.57    328.78  -14.93973
 --------------------------------------------------------
```

```
                       Pn        Mn        Pn        Mn    (@ Z )
          |            9638.15   828.21  4819.07  1307.51
       P0 |*           8834.97   962.17  4015.89  1281.31
          | *          8031.79  1071.09  3212.72  1222.65
    Pn,max|__*         7228.61  1159.29  2409.54  1132.41
          |   *        6425.43  1229.16  1606.36  1010.05
    Pn    |    *       5622.25  1283.60   803.18   850.73
   NOMINAL|     *          Pn        Mn        Pn        Mn    (@ Y )
     AXIAL|      *     9638.15  1030.09  4819.07  1629.04
COMPRESSION|       *     8834.97  1196.79  4015.89  1595.93
        Pb|-------*Mb   8031.79  1333.11  3212.72  1522.76
          |      *     7228.61  1444.09  2409.54  1410.64
___________|____*_______ 6425.43  1532.75  1606.36  1258.98
          |  * M0   Mn, 5622.25  1604.04   803.18  1065.43
          | *   BENDING
    P-tens|*     MOMENT
          |
```

```
  ====================================================================

       COLUMN  NO.  2145  DESIGN PER ACI 318-05 - AXIAL + BENDING


  FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 800.0 X 650.0 MMS, TIED
          ONLY MINIMUM STEEL IS REQUIRED.
          AREA OF STEEL REQUIRED =  5200.0  SQ. MM

  BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
  ----------------------------------------------------------

   28 - 16 MM               1.083       30      END     0.650
  (PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
  TIE BAR NUMBER   10 SPACING 256.00 MM

      COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

   --------------------------------------------------------
```

```
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
 13051.65  10441.32   5139.01   1310.81     255.1
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  656.99  -2328.96    519.30      3.78    0.00316
 --------------------------------------------------------
```

COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)

```
 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
 13051.65  10441.32   5230.10   1633.12     312.3
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  824.17  -2328.96    519.30     40.91    0.03425
 --------------------------------------------------------
```



```
                       Pn        Mn        Pn        Mn    (@ Z )
           |           9638.15   828.21  4819.07  1307.51
        P0 |*          8834.97   962.17  4015.89  1281.31
           | *         8031.79  1071.09  3212.72  1222.65
    Pn,max|__*         7228.61  1159.29  2409.54  1132.41
           |   *       6425.43  1229.16  1606.36  1010.05
    Pn     |    *      5622.25  1283.60   803.18   850.73
   NOMINAL|     *        Pn        Mn        Pn        Mn    (@ Y )
     AXIAL|      *     9638.15  1030.09  4819.07  1629.04
COMPRESSION|       *   8834.97  1196.79  4015.89  1595.93
        Pb|-------*Mb  8031.79  1333.11  3212.72  1522.76
           |      *    7228.61  1444.09  2409.54  1410.64
___________|____*_______ 6425.43  1532.75  1606.36  1258.98
           |  * M0   Mn, 5622.25  1604.04   803.18  1065.43
           | *   BENDING
    P-tens|*     MOMENT
           |
```

```
 ====================================================================
```

COLUMN NO. 2146 DESIGN PER ACI 318-05 - AXIAL + BENDING

```
FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 800.0 X 650.0 MMS, TIED
        ONLY MINIMUM STEEL IS REQUIRED.
        AREA OF STEEL REQUIRED =  5200.0  SQ. MM

BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
----------------------------------------------------------

 28 - 16 MM               1.083       30      END     0.650
(PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
TIE BAR NUMBER   10 SPACING 256.00 MM

    COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

 ---------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5139.01   1310.81     255.1
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  656.99  -2328.96    709.45      9.90    0.00607
 ---------------------------------------------------------

    COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)

 ---------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5230.10   1633.12     312.3
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  824.17  -2328.96    709.45     46.00    0.02819
 ---------------------------------------------------------
```



```
                        Pn       Mn       Pn       Mn    (@ Z )
         |            9638.15   828.21  4819.07  1307.51
      P0 |*           8834.97   962.17  4015.89  1281.31
         | *          8031.79  1071.09  3212.72  1222.65
   Pn,max|__*         7228.61  1159.29  2409.54  1132.41
         |   *        6425.43  1229.16  1606.36  1010.05
```

```
     Pn    |    *        5622.25  1283.60   803.18   850.73
    NOMINAL|     *         Pn       Mn       Pn       Mn    (@ Y )
      AXIAL|      *      9638.15  1030.09  4819.07  1629.04
COMPRESSION|       *     8834.97  1196.79  4015.89  1595.93
         Pb|-------*Mb   8031.79  1333.11  3212.72  1522.76
           |      *      7228.61  1444.09  2409.54  1410.64
___________|____*_______ 6425.43  1532.75  1606.36  1258.98
           |  * M0   Mn, 5622.25  1604.04   803.18  1065.43
           | *   BENDING
     P-tens|*     MOMENT
           |


  ====================================================================

       COLUMN  NO.  2147  DESIGN PER ACI 318-05 - AXIAL + BENDING


  FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 800.0 X 650.0 MMS, TIED
          ONLY MINIMUM STEEL IS REQUIRED.
          AREA OF STEEL REQUIRED =  5200.0  SQ. MM

  BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
  ----------------------------------------------------------

   28 - 16 MM               1.083       30      END     0.650
  (PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
  TIE BAR NUMBER   10 SPACING 256.00 MM

      COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

   --------------------------------------------------------
      P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
  13051.65  10441.32   5139.01   1310.81     255.1
      M0       P-tens.   Des.Pn    Des.Mn     e/h
     656.99  -2328.96    363.34      9.18    0.01098
   --------------------------------------------------------
```

```
     COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)

  --------------------------------------------------------
    P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
 13051.65  10441.32   5230.10   1633.12     312.3
     M0       P-tens.   Des.Pn    Des.Mn     e/h
   824.17  -2328.96    363.34     45.72    0.05472
  --------------------------------------------------------
  STAAD SPACE                                            -- PAGE NO.  165

                        Pn       Mn       Pn       Mn    (@ Z )
          |            9638.15   828.21  4819.07  1307.51
       P0 |*           8834.97   962.17  4015.89  1281.31
          | *          8031.79  1071.09  3212.72  1222.65
    Pn,max|__*         7228.61  1159.29  2409.54  1132.41
          |   *        6425.43  1229.16  1606.36  1010.05
    Pn    |    *       5622.25  1283.60   803.18   850.73
   NOMINAL|     *       Pn       Mn       Pn       Mn    (@ Y )
     AXIAL|      *     9638.15  1030.09  4819.07  1629.04
COMPRESSION|       *   8834.97  1196.79  4015.89  1595.93
        Pb|-------*Mb  8031.79  1333.11  3212.72  1522.76
          |      *     7228.61  1444.09  2409.54  1410.64
___________|____*_______ 6425.43  1532.75  1606.36  1258.98
          |  * M0   Mn, 5622.25  1604.04   803.18  1065.43
          | *   BENDING
    P-tens|*     MOMENT
          |

 ====================================================================

      COLUMN  NO.  2148  DESIGN PER ACI 318-05 - AXIAL + BENDING

 FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 800.0 X 650.0 MMS, TIED
        ONLY MINIMUM STEEL IS REQUIRED.
        AREA OF STEEL REQUIRED =  5200.0  SQ. MM
```

```
BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
----------------------------------------------------------

 28 - 16 MM               1.083       30      END     0.650
(PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
TIE BAR NUMBER   10 SPACING 256.00 MM

    COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5139.01   1310.81     255.1
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  656.99  -2328.96    631.03     13.34    0.00919
 --------------------------------------------------------

    COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5230.10   1633.12     312.3
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  824.17  -2328.96    631.03     56.94    0.03923
 --------------------------------------------------------
```



```
                          Pn       Mn       Pn       Mn    (@ Z )
            |           9638.15   828.21  4819.07  1307.51
         P0 |*          8834.97   962.17  4015.89  1281.31
            | *         8031.79  1071.09  3212.72  1222.65
      Pn,max|__*        7228.61  1159.29  2409.54  1132.41
            |   *       6425.43  1229.16  1606.36  1010.05
      Pn    |    *      5622.25  1283.60   803.18   850.73
     NOMINAL|     *       Pn       Mn       Pn       Mn    (@ Y )
       AXIAL|      *    9638.15  1030.09  4819.07  1629.04
 COMPRESSION|       *   8834.97  1196.79  4015.89  1595.93
          Pb|-------*Mb 8031.79  1333.11  3212.72  1522.76
            |      *    7228.61  1444.09  2409.54  1410.64
```

```
___________|____*_______ 6425.43  1532.75  1606.36  1258.98
           |  * M0   Mn, 5622.25  1604.04   803.18  1065.43
           | *   BENDING
      P-tens|*     MOMENT
           |


  ====================================================================

       COLUMN  NO.  2149  DESIGN PER ACI 318-05 - AXIAL + BENDING


  FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 800.0 X 650.0 MMS, TIED
          ONLY MINIMUM STEEL IS REQUIRED.
          AREA OF STEEL REQUIRED =  5200.0  SQ. MM

  BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
  ----------------------------------------------------------

   28 - 16 MM               1.083       30      END     0.650
  (PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
  TIE BAR NUMBER   10 SPACING 256.00 MM

      COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

   --------------------------------------------------------
     P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
  13051.65  10441.32   5139.01   1310.81     255.1
      M0       P-tens.   Des.Pn    Des.Mn     e/h
    656.99  -2328.96    676.82     21.12    0.01357
   --------------------------------------------------------

      COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)

   --------------------------------------------------------
     P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
  13051.65  10441.32   5230.10   1633.12     312.3
      M0       P-tens.   Des.Pn    Des.Mn     e/h
```

```
  824.17  -2328.96    676.82     29.08    0.01868
 --------------------------------------------------------
```



```
                           Pn        Mn        Pn        Mn    (@ Z )
           |             9638.15   828.21  4819.07  1307.51
        P0 |*            8834.97   962.17  4015.89  1281.31
           | *           8031.79  1071.09  3212.72  1222.65
     Pn,max|__*          7228.61  1159.29  2409.54  1132.41
           |   *         6425.43  1229.16  1606.36  1010.05
     Pn    |    *        5622.25  1283.60   803.18   850.73
    NOMINAL|     *         Pn        Mn        Pn        Mn    (@ Y )
      AXIAL|      *      9638.15  1030.09  4819.07  1629.04
COMPRESSION|       *     8834.97  1196.79  4015.89  1595.93
         Pb|-------*Mb   8031.79  1333.11  3212.72  1522.76
           |      *      7228.61  1444.09  2409.54  1410.64
___________|____*_______ 6425.43  1532.75  1606.36  1258.98
           |  * M0   Mn, 5622.25  1604.04   803.18  1065.43
           | *   BENDING
     P-tens|*     MOMENT
           |
```

```
====================================================================

     COLUMN  NO.  2150  DESIGN PER ACI 318-05 - AXIAL + BENDING


FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 800.0 X 650.0 MMS, TIED
        ONLY MINIMUM STEEL IS REQUIRED.
        AREA OF STEEL REQUIRED =  5200.0  SQ. MM

BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
----------------------------------------------------------

 28 - 16 MM               1.083       30      END     0.650
(PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
TIE BAR NUMBER   10 SPACING 256.00 MM
```

```
    COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

 --------------------------------------------------------
    P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
 13051.65  10441.32   5139.01   1310.81     255.1
    M0       P-tens.   Des.Pn    Des.Mn     e/h
   656.99  -2328.96    511.88     19.42    0.01649
 --------------------------------------------------------

    COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)

 --------------------------------------------------------
    P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
 13051.65  10441.32   5230.10   1633.12     312.3
    M0       P-tens.   Des.Pn    Des.Mn     e/h
   824.17  -2328.96    511.88     19.47    0.01654
 --------------------------------------------------------
```



```
                         Pn        Mn        Pn        Mn    (@ Z )
           |           9638.15   828.21  4819.07  1307.51
        P0 |*          8834.97   962.17  4015.89  1281.31
           | *         8031.79  1071.09  3212.72  1222.65
    Pn,max|__*         7228.61  1159.29  2409.54  1132.41
           |   *       6425.43  1229.16  1606.36  1010.05
    Pn     |    *      5622.25  1283.60   803.18   850.73
   NOMINAL|     *        Pn        Mn        Pn        Mn    (@ Y )
     AXIAL|      *     9638.15  1030.09  4819.07  1629.04
COMPRESSION|       *   8834.97  1196.79  4015.89  1595.93
        Pb|-------*Mb  8031.79  1333.11  3212.72  1522.76
           |      *    7228.61  1444.09  2409.54  1410.64
___________|____*_______ 6425.43  1532.75  1606.36  1258.98
           |  * M0   Mn, 5622.25  1604.04   803.18  1065.43
           | *   BENDING
    P-tens|*     MOMENT
           |
```

```
=====================================================================

     COLUMN  NO.  2151  DESIGN PER ACI 318-05 - AXIAL + BENDING


FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 800.0 X 650.0 MMS, TIED
        ONLY MINIMUM STEEL IS REQUIRED.
        AREA OF STEEL REQUIRED =  5200.0  SQ. MM

BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
----------------------------------------------------------

 28 - 16 MM               1.083       30      END     0.650
(PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
TIE BAR NUMBER   10 SPACING 256.00 MM

    COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5139.01   1310.81     255.1
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  656.99  -2328.96    735.34     10.26    0.00607
 --------------------------------------------------------

    COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5230.10   1633.12     312.3
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  824.17  -2328.96    735.34     20.89    0.01235
 --------------------------------------------------------
```


```
                       Pn       Mn       Pn       Mn    (@ Z )
        |            9638.15   828.21  4819.07  1307.51
```

```
        P0 |*           8834.97   962.17  4015.89  1281.31
           | *          8031.79  1071.09  3212.72  1222.65
     Pn,max|__*         7228.61  1159.29  2409.54  1132.41
           |   *        6425.43  1229.16  1606.36  1010.05
     Pn    |    *       5622.25  1283.60   803.18   850.73
    NOMINAL|     *         Pn       Mn       Pn       Mn    (@ Y )
      AXIAL|      *     9638.15  1030.09  4819.07  1629.04
 COMPRESSION|       *    8834.97  1196.79  4015.89  1595.93
         Pb|-------*Mb   8031.79  1333.11  3212.72  1522.76
           |      *     7228.61  1444.09  2409.54  1410.64
___________|____*_______ 6425.43  1532.75  1606.36  1258.98
           |  * M0   Mn, 5622.25  1604.04   803.18  1065.43
           | *   BENDING
     P-tens|*     MOMENT
           |
```

==

COLUMN NO. 2152 DESIGN PER ACI 318-05 - AXIAL + BENDING

```
FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 800.0 X 650.0 MMS, TIED
        ONLY MINIMUM STEEL IS REQUIRED.
        AREA OF STEEL REQUIRED =  5200.0  SQ. MM

BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
----------------------------------------------------------

 28 - 16 MM               1.083       30      END     0.650
(PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
TIE BAR NUMBER   10 SPACING 256.00 MM

    COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5139.01   1310.81     255.1
```

```
   M0       P-tens.   Des.Pn    Des.Mn     e/h
 656.99  -2328.96    692.43     10.39    0.00652
----------------------------------------------------------


   COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)


----------------------------------------------------------
  P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5230.10   1633.12     312.3
   M0       P-tens.   Des.Pn    Des.Mn     e/h
 824.17  -2328.96    692.43     22.71    0.01426
----------------------------------------------------------
```



```
                      Pn       Mn       Pn       Mn    (@ Z )
           |          9638.15   828.21  4819.07  1307.51
       P0 |*          8834.97   962.17  4015.89  1281.31
          | *         8031.79  1071.09  3212.72  1222.65
    Pn,max|__*        7228.61  1159.29  2409.54  1132.41
          |   *       6425.43  1229.16  1606.36  1010.05
    Pn    |    *      5622.25  1283.60   803.18   850.73
   NOMINAL|     *       Pn       Mn       Pn       Mn    (@ Y )
     AXIAL|      *    9638.15  1030.09  4819.07  1629.04
COMPRESSION|       *  8834.97  1196.79  4015.89  1595.93
         Pb|-------*Mb 8031.79  1333.11  3212.72  1522.76
          |      *    7228.61  1444.09  2409.54  1410.64
___________|____*_______ 6425.43  1532.75  1606.36  1258.98
          |  * M0   Mn, 5622.25  1604.04   803.18  1065.43
          | *   BENDING
    P-tens|*     MOMENT
          |


  ====================================================================


      COLUMN  NO.  2153  DESIGN PER ACI 318-05 - AXIAL + BENDING
```

```
FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 800.0 X 650.0 MMS, TIED
        ONLY MINIMUM STEEL IS REQUIRED.
        AREA OF STEEL REQUIRED =  5200.0  SQ. MM

BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
----------------------------------------------------------


 28 - 16 MM               1.083       30      END     0.650
(PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
TIE BAR NUMBER   10 SPACING 256.00 MM

    COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5139.01   1310.81     255.1
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  656.99  -2328.96    651.32     11.69    0.00780
 --------------------------------------------------------

    COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5230.10   1633.12     312.3
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  824.17  -2328.96    651.32     82.96    0.05538
 --------------------------------------------------------
```


```
                        Pn       Mn       Pn       Mn    (@ Z )
         |            9638.15   828.21  4819.07  1307.51
      P0 |*           8834.97   962.17  4015.89  1281.31
         | *          8031.79  1071.09  3212.72  1222.65
   Pn,max|__*         7228.61  1159.29  2409.54  1132.41
         |   *        6425.43  1229.16  1606.36  1010.05
   Pn    |    *       5622.25  1283.60   803.18   850.73
  NOMINAL|     *        Pn       Mn       Pn       Mn    (@ Y )
```

```
     AXIAL|      *      9638.15  1030.09  4819.07  1629.04
COMPRESSION|      *     8834.97  1196.79  4015.89  1595.93
        Pb|-------*Mb   8031.79  1333.11  3212.72  1522.76
          |      *      7228.61  1444.09  2409.54  1410.64
___________|____*_______ 6425.43  1532.75  1606.36  1258.98
          |  * M0   Mn, 5622.25  1604.04   803.18  1065.43
          | *   BENDING
    P-tens|*     MOMENT
          |
```

```
  ====================================================================

     COLUMN  NO.  2154  DESIGN PER ACI 318-05 - AXIAL + BENDING

  FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 800.0 X 650.0 MMS, TIED
          ONLY MINIMUM STEEL IS REQUIRED.
          AREA OF STEEL REQUIRED =  5200.0  SQ. MM

  BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
  ----------------------------------------------------------

   28 - 16 MM               1.083       30      END     0.650
  (PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
  TIE BAR NUMBER   10 SPACING 256.00 MM

      COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

   --------------------------------------------------------
     P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
  13051.65  10441.32   5139.01   1310.81     255.1
      M0       P-tens.   Des.Pn    Des.Mn     e/h
    656.99  -2328.96    698.41     10.82    0.00674
   --------------------------------------------------------

      COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)
```

```
 --------------------------------------------------------

   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)

 13051.65  10441.32   5230.10   1633.12     312.3

    M0       P-tens.   Des.Pn    Des.Mn     e/h

   824.17  -2328.96    698.41     15.99    0.00996

 --------------------------------------------------------
```



```
                      Pn        Mn        Pn        Mn    (@ Z )
          |         9638.15   828.21  4819.07  1307.51
       P0 |*        8834.97   962.17  4015.89  1281.31
          | *       8031.79  1071.09  3212.72  1222.65
   Pn,max|__*       7228.61  1159.29  2409.54  1132.41
          |   *     6425.43  1229.16  1606.36  1010.05
   Pn     |    *    5622.25  1283.60   803.18   850.73
  NOMINAL|     *      Pn        Mn        Pn        Mn    (@ Y )
    AXIAL|      *   9638.15  1030.09  4819.07  1629.04
COMPRESSION|     *  8834.97  1196.79  4015.89  1595.93
       Pb|-------*Mb 8031.79  1333.11  3212.72  1522.76
          |      *  7228.61  1444.09  2409.54  1410.64
___________|____*_______ 6425.43  1532.75  1606.36  1258.98
          |  * M0   Mn, 5622.25  1604.04   803.18  1065.43
          | *   BENDING
   P-tens|*     MOMENT
          |
```

```
 ====================================================================

     COLUMN  NO.  2155  DESIGN PER ACI 318-05 - AXIAL + BENDING

 FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 800.0 X 650.0 MMS, TIED
         ONLY MINIMUM STEEL IS REQUIRED.
         AREA OF STEEL REQUIRED =  5200.0  SQ. MM

 BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
 ----------------------------------------------------------
```

```
 28 - 16 MM               1.083      30      END     0.650
(PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
TIE BAR NUMBER   10 SPACING 256.00 MM


    COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5139.01   1310.81     255.1
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  656.99  -2328.96    599.03     11.54    0.00838
 --------------------------------------------------------


    COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5230.10   1633.12     312.3
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  824.17  -2328.96    599.03     66.32    0.04813
 --------------------------------------------------------
```



```
                      Pn       Mn       Pn       Mn    (@ Z )
          |          9638.15   828.21  4819.07  1307.51
       P0 |*         8834.97   962.17  4015.89  1281.31
          | *        8031.79  1071.09  3212.72  1222.65
   Pn,max|__*        7228.61  1159.29  2409.54  1132.41
          |   *      6425.43  1229.16  1606.36  1010.05
   Pn     |    *     5622.25  1283.60   803.18   850.73
   NOMINAL|     *       Pn       Mn       Pn       Mn    (@ Y )
     AXIAL|      *   9638.15  1030.09  4819.07  1629.04
COMPRESSION|       * 8834.97  1196.79  4015.89  1595.93
        Pb|-------*Mb 8031.79  1333.11  3212.72  1522.76
          |      *   7228.61  1444.09  2409.54  1410.64
___________|____*_______ 6425.43  1532.75  1606.36  1258.98
          |  * M0   Mn, 5622.25  1604.04   803.18  1065.43
```

```
        | *   BENDING
   P-tens|*     MOMENT
        |
```

==

COLUMN NO. 2156 DESIGN PER ACI 318-05 - AXIAL + BENDING

FY - 413.7 FC - 24.5 MPA, RECT SIZE - 800.0 X 650.0 MMS, TIED

ONLY MINIMUM STEEL IS REQUIRED.

AREA OF STEEL REQUIRED = 5200.0 SQ. MM

BAR CONFIGURATION	REINF PCT.	LOAD	LOCATION	PHI
28 - 16 MM	1.083	30	END	0.650

(PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)

TIE BAR NUMBER 10 SPACING 256.00 MM

COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

P0	Pn max	P-bal.	M-bal.	e-bal. (MM)
13051.65	10441.32	5139.01	1310.81	255.1
M0	P-tens.	Des.Pn	Des.Mn	e/h
656.99	-2328.96	493.32	2.04	0.00180

COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)

P0	Pn max	P-bal.	M-bal.	e-bal. (MM)
13051.65	10441.32	5230.10	1633.12	312.3
M0	P-tens.	Des.Pn	Des.Mn	e/h
824.17	-2328.96	493.32	1.35	0.00119

```
                      Pn        Mn        Pn        Mn     (@ Z )
          |          9638.15   828.21  4819.07  1307.51
       P0 |*         8834.97   962.17  4015.89  1281.31
          | *        8031.79  1071.09  3212.72  1222.65
   Pn,max|__*        7228.61  1159.29  2409.54  1132.41
          |   *      6425.43  1229.16  1606.36  1010.05
   Pn     |    *     5622.25  1283.60   803.18   850.73
  NOMINAL|     *       Pn        Mn        Pn        Mn     (@ Y )
    AXIAL|      *    9638.15  1030.09  4819.07  1629.04
COMPRESSION|      *  8834.97  1196.79  4015.89  1595.93
       Pb|-------*Mb 8031.79  1333.11  3212.72  1522.76
          |      *   7228.61  1444.09  2409.54  1410.64
___________|____*_______ 6425.43  1532.75  1606.36  1258.98
          |  * M0   Mn, 5622.25  1604.04   803.18  1065.43
          | *   BENDING
   P-tens|*     MOMENT
          |
```

```
 ====================================================================

     COLUMN  NO.  2157  DESIGN PER ACI 318-05 - AXIAL + BENDING

 FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 800.0 X 650.0 MMS, TIED
         ONLY MINIMUM STEEL IS REQUIRED.
         AREA OF STEEL REQUIRED =  5200.0  SQ. MM

 BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
 ----------------------------------------------------------

  28 - 16 MM              1.083       30      END     0.650
 (PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
 TIE BAR NUMBER   10 SPACING 256.00 MM

    COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)
```

```
 ---------------------------------------------------------

   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)

 13051.65  10441.32   5139.01   1310.81     255.1

    M0       P-tens.   Des.Pn    Des.Mn     e/h

  656.99  -2328.96    344.14      9.15    0.01155

 ---------------------------------------------------------


    COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)


 ---------------------------------------------------------

   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)

 13051.65  10441.32   5230.10   1633.12     312.3

    M0       P-tens.   Des.Pn    Des.Mn     e/h

  824.17  -2328.96    344.14     20.88    0.02638

 ---------------------------------------------------------
```



```
                      Pn       Mn       Pn       Mn    (@ Z )
           |            9638.15   828.21  4819.07  1307.51
        P0 |*           8834.97   962.17  4015.89  1281.31
           | *          8031.79  1071.09  3212.72  1222.65
     Pn,max|__*         7228.61  1159.29  2409.54  1132.41
           |   *        6425.43  1229.16  1606.36  1010.05
     Pn    |    *       5622.25  1283.60   803.18   850.73
    NOMINAL|     *        Pn       Mn       Pn       Mn    (@ Y )
      AXIAL|      *     9638.15  1030.09  4819.07  1629.04
COMPRESSION|       *    8834.97  1196.79  4015.89  1595.93
         Pb|-------*Mb  8031.79  1333.11  3212.72  1522.76
           |      *     7228.61  1444.09  2409.54  1410.64
___________|____*_______ 6425.43  1532.75  1606.36  1258.98
           |  * M0   Mn, 5622.25  1604.04   803.18  1065.43
           | *   BENDING
     P-tens|*     MOMENT
           |


 ==================================================================
```

```
     COLUMN  NO.  2158  DESIGN PER ACI 318-05 - AXIAL + BENDING


FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 800.0 X 650.0 MMS, TIED
        ONLY MINIMUM STEEL IS REQUIRED.
        AREA OF STEEL REQUIRED =  5200.0  SQ. MM

BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
----------------------------------------------------------

 28 - 16 MM               1.083       30      END     0.650
(PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
TIE BAR NUMBER   10 SPACING 256.00 MM

    COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5139.01   1310.81     255.1
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  656.99  -2328.96    390.85     11.85    0.01318
 --------------------------------------------------------

    COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5230.10   1633.12     312.3
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  824.17  -2328.96    390.85     22.99    0.02557
 --------------------------------------------------------
```


```
                      Pn       Mn       Pn       Mn    (@ Z )
        |           9638.15   828.21  4819.07  1307.51
     P0 |*          8834.97   962.17  4015.89  1281.31
        | *         8031.79  1071.09  3212.72  1222.65
```

```
    Pn,max|__*          7228.61  1159.29  2409.54  1132.41
          |   *         6425.43  1229.16  1606.36  1010.05
    Pn    |    *        5622.25  1283.60   803.18   850.73
   NOMINAL|     *         Pn       Mn       Pn       Mn    (@ Y )
     AXIAL|      *      9638.15  1030.09  4819.07  1629.04
COMPRESSION|       *     8834.97  1196.79  4015.89  1595.93
        Pb|-------*Mb   8031.79  1333.11  3212.72  1522.76
          |      *      7228.61  1444.09  2409.54  1410.64
___________|____*_______ 6425.43  1532.75  1606.36  1258.98
          |  * M0   Mn, 5622.25  1604.04   803.18  1065.43
          | *   BENDING
    P-tens|*     MOMENT
          |
```

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  =====================================================================

       COLUMN  NO.  2159  DESIGN PER ACI 318-05 - AXIAL + BENDING


  FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 800.0 X 650.0 MMS, TIED
          ONLY MINIMUM STEEL IS REQUIRED.
          AREA OF STEEL REQUIRED =  5200.0  SQ. MM

  BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
  ----------------------------------------------------------

   28 - 16 MM               1.083       30      END     0.650
  (PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
  TIE BAR NUMBER   10 SPACING 256.00 MM

      COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

   --------------------------------------------------------
     P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
  13051.65  10441.32   5139.01   1310.81     255.1
      M0        P-tens.   Des.Pn    Des.Mn     e/h
    656.99  -2328.96    412.86      3.76    0.00396
```

```
 -------------------------------------------------------

    COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)

 -------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
 13051.65  10441.32   5230.10   1633.12     312.3
    M0       P-tens.   Des.Pn    Des.Mn     e/h
   824.17  -2328.96    412.86     18.00    0.01896
 -------------------------------------------------------
 STAAD SPACE                                              -- PAGE NO.  177

                       Pn       Mn       Pn       Mn    (@ Z )
          |           9638.15   828.21  4819.07  1307.51
       P0 |*          8834.97   962.17  4015.89  1281.31
          | *         8031.79  1071.09  3212.72  1222.65
    Pn,max|__*        7228.61  1159.29  2409.54  1132.41
          |   *       6425.43  1229.16  1606.36  1010.05
    Pn    |    *      5622.25  1283.60   803.18   850.73
   NOMINAL|     *       Pn       Mn       Pn       Mn    (@ Y )
     AXIAL|      *    9638.15  1030.09  4819.07  1629.04
COMPRESSION|       *   8834.97  1196.79  4015.89  1595.93
        Pb|-------*Mb  8031.79  1333.11  3212.72  1522.76
          |      *    7228.61  1444.09  2409.54  1410.64
___________|____*_______ 6425.43  1532.75  1606.36  1258.98
          |  * M0   Mn, 5622.25  1604.04   803.18  1065.43
          | *   BENDING
    P-tens|*     MOMENT
          |

 ===================================================================

     COLUMN  NO.  2160  DESIGN PER ACI 318-05 - AXIAL + BENDING

 FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 800.0 X 650.0 MMS, TIED
        AREA OF STEEL REQUIRED =  6292.0  SQ. MM
```

```
BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
----------------------------------------------------------

  8 - 32 MM               1.237       34      STA     0.650
(PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
TIE BAR NUMBER   10 SPACING 256.00 MM

    COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13367.56  10694.05   4991.22   1402.60     281.0
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  742.39  -2661.63      3.19    371.12   50.57240
 --------------------------------------------------------

    COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13367.56  10694.05   5091.20   1752.95     344.3
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  935.70  -2661.63      3.19    540.67   73.67786
 --------------------------------------------------------
```



```
                          Pn       Mn       Pn       Mn    (@ Z )
          |             9871.43   853.66  4935.71  1401.35
       P0 |*            9048.81   990.93  4113.09  1366.49
          | *           8226.19  1108.51  3290.48  1309.19
    Pn,max|__*          7403.57  1205.24  2467.86  1235.71
          |   *         6580.95  1284.53  1645.24  1125.80
    Pn    |    *        5758.33  1350.16   822.62   947.72
   NOMINAL|     *         Pn       Mn       Pn       Mn    (@ Y )
     AXIAL|      *      9871.43  1060.00  4935.71  1749.03
COMPRESSION|       *     9048.81  1237.22  4113.09  1706.12
        Pb|-------*Mb   8226.19  1384.54  3290.48  1635.58
```

```
          |      *      7403.57  1506.92  2467.86  1545.17
__________|____*_______ 6580.95  1608.16  1645.24  1411.79
          |  * M0   Mn, 5758.33  1692.91   822.62  1194.05
          | *   BENDING
     P-tens|*     MOMENT
          |



  ====================================================================

       COLUMN  NO.  2161  DESIGN PER ACI 318-05 - AXIAL + BENDING


  FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 800.0 X 650.0 MMS, TIED
          ONLY MINIMUM STEEL IS REQUIRED.
          AREA OF STEEL REQUIRED =  5200.0  SQ. MM

  BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
  ----------------------------------------------------------

   28 - 16 MM               1.083       30      END     0.650
  (PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
  TIE BAR NUMBER   10 SPACING 256.00 MM

      COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

   --------------------------------------------------------
     P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
  13051.65  10441.32   5139.01   1310.81     255.1
      M0       P-tens.   Des.Pn    Des.Mn     e/h
    656.99  -2328.96    131.94     24.82    0.08178
   --------------------------------------------------------

      COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)

   --------------------------------------------------------
     P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
  13051.65  10441.32   5230.10   1633.12     312.3
```

```
    M0       P-tens.   Des.Pn    Des.Mn     e/h
   824.17  -2328.96    131.94     31.47    0.10371
  -------------------------------------------------------
```



```
                          Pn       Mn       Pn       Mn    (@ Z )
           |            9638.15   828.21  4819.07  1307.51
        P0 |*           8834.97   962.17  4015.89  1281.31
           | *          8031.79  1071.09  3212.72  1222.65
     Pn,max|__*         7228.61  1159.29  2409.54  1132.41
           |   *        6425.43  1229.16  1606.36  1010.05
     Pn    |    *       5622.25  1283.60   803.18   850.73
    NOMINAL|     *        Pn       Mn       Pn       Mn    (@ Y )
      AXIAL|      *     9638.15  1030.09  4819.07  1629.04
COMPRESSION|       *    8834.97  1196.79  4015.89  1595.93
         Pb|-------*Mb  8031.79  1333.11  3212.72  1522.76
           |      *     7228.61  1444.09  2409.54  1410.64
___________|____*_______ 6425.43  1532.75  1606.36  1258.98
           |  * M0   Mn, 5622.25  1604.04   803.18  1065.43
           | *   BENDING
     P-tens|*     MOMENT
           |

 ====================================================================

      COLUMN  NO.  2162  DESIGN PER ACI 318-05 - AXIAL + BENDING

 FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 800.0 X 650.0 MMS, TIED
         ONLY MINIMUM STEEL IS REQUIRED.
         AREA OF STEEL REQUIRED =  5200.0  SQ. MM

 BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
 ----------------------------------------------------------

  28 - 16 MM              1.083       30      END     0.650
 (PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
```

```
  TIE BAR NUMBER   10 SPACING 256.00 MM

      COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

   --------------------------------------------------------
     P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
  13051.65  10441.32   5139.01   1310.81     255.1
      M0       P-tens.   Des.Pn    Des.Mn     e/h
    656.99  -2328.96    301.12     15.85    0.02289
   --------------------------------------------------------

      COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)

   --------------------------------------------------------
     P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
  13051.65  10441.32   5230.10   1633.12     312.3
      M0       P-tens.   Des.Pn    Des.Mn     e/h
    824.17  -2328.96    301.12     18.49    0.02670
   --------------------------------------------------------
```



```
                           Pn       Mn       Pn       Mn    (@ Z )
           |             9638.15   828.21  4819.07  1307.51
        P0 |*            8834.97   962.17  4015.89  1281.31
           | *           8031.79  1071.09  3212.72  1222.65
     Pn,max|__*          7228.61  1159.29  2409.54  1132.41
           |   *         6425.43  1229.16  1606.36  1010.05
     Pn    |    *        5622.25  1283.60   803.18   850.73
    NOMINAL|     *         Pn       Mn       Pn       Mn    (@ Y )
      AXIAL|      *      9638.15  1030.09  4819.07  1629.04
COMPRESSION|       *     8834.97  1196.79  4015.89  1595.93
         Pb|-------*Mb   8031.79  1333.11  3212.72  1522.76
           |      *      7228.61  1444.09  2409.54  1410.64
___________|____*_______ 6425.43  1532.75  1606.36  1258.98
           |  * M0   Mn, 5622.25  1604.04   803.18  1065.43
           | *   BENDING
     P-tens|*     MOMENT
           |
```

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     COLUMN  NO.  2163  DESIGN PER ACI 318-05 - AXIAL + BENDING


FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 800.0 X 650.0 MMS, TIED
        ONLY MINIMUM STEEL IS REQUIRED.
        AREA OF STEEL REQUIRED =  5200.0  SQ. MM

BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
----------------------------------------------------------

 28 - 16 MM               1.083       30      END     0.650
(PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
TIE BAR NUMBER   10 SPACING 256.00 MM

    COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5139.01   1310.81     255.1
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  656.99  -2328.96    248.91      2.42    0.00422
 --------------------------------------------------------

    COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5230.10   1633.12     312.3
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  824.17  -2328.96    248.91     81.08    0.14163
 --------------------------------------------------------
```


```
                         Pn       Mn       Pn       Mn    (@ Z )
```

```
          |             9638.15   828.21  4819.07  1307.51
       P0 |*            8834.97   962.17  4015.89  1281.31
          | *           8031.79  1071.09  3212.72  1222.65
    Pn,max|__*          7228.61  1159.29  2409.54  1132.41
          |   *         6425.43  1229.16  1606.36  1010.05
    Pn    |    *        5622.25  1283.60   803.18   850.73
   NOMINAL|     *         Pn       Mn       Pn       Mn    (@ Y )
     AXIAL|      *      9638.15  1030.09  4819.07  1629.04
COMPRESSION|       *     8834.97  1196.79  4015.89  1595.93
        Pb|-------*Mb   8031.79  1333.11  3212.72  1522.76
          |      *      7228.61  1444.09  2409.54  1410.64
___________|____*_______ 6425.43  1532.75  1606.36  1258.98
          |  * M0   Mn, 5622.25  1604.04   803.18  1065.43
          | *   BENDING
    P-tens|*     MOMENT
          |
```

==

COLUMN NO. 2306 DESIGN PER ACI 318-05 - AXIAL + BENDING

FY - 413.7 FC - 24.5 MPA, RECT SIZE - 650.0 X 500.0 MMS, TIED

ONLY MINIMUM STEEL IS REQUIRED.

AREA OF STEEL REQUIRED = 3250.0 SQ. MM

BAR CONFIGURATION	REINF PCT.	LOAD	LOCATION	PHI
32 - 12 MM	1.114	30	END	0.650

(PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)

TIE BAR NUMBER 10 SPACING 192.00 MM

COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

P0	Pn max	P-bal.	M-bal.	e-bal. (MM)

```
 8196.75   6557.40   3137.33    625.43     199.4
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  316.93  -1497.16    258.93      3.86    0.00648
 ---------------------------------------------------------


    COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)


 ---------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
 8196.75   6557.40   3225.91    829.21     257.0
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  422.86  -1497.16    258.93     28.57    0.04797
 ---------------------------------------------------------
```



```
                        Pn       Mn       Pn       Mn    (@ Z )
           |          6052.99   396.28  3026.49   624.45
       P0 |*          5548.57   458.62  2522.08   612.47
          | *         5044.16   510.22  2017.66   585.45
    Pn,max|__*        4539.74   551.77  1513.25   542.28
          |   *       4035.32   584.37  1008.83   482.85
    Pn    |    *      3530.91   609.64   504.42   406.68
   NOMINAL|     *       Pn       Mn       Pn       Mn    (@ Y )
     AXIAL|      *    6052.99   521.77  3026.49   827.60
COMPRESSION|       *   5548.57   606.17  2522.08   811.47
        Pb|-------*Mb  5044.16   674.96  2017.66   775.60
          |      *    4539.74   730.68  1513.25   718.53
___________|____*_______ 4035.32   775.35  1008.83   642.18
          |  * M0   Mn, 3530.91   811.14   504.42   542.96
          | *   BENDING
    P-tens|*     MOMENT
          |


 ====================================================================


     COLUMN  NO.  2307  DESIGN PER ACI 318-05 - AXIAL + BENDING
```

```
FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 650.0 X 500.0 MMS, TIED
        ONLY MINIMUM STEEL IS REQUIRED.
        AREA OF STEEL REQUIRED =  3250.0  SQ. MM

BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
----------------------------------------------------------

 32 - 12 MM               1.114       30      END     0.650
(PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
TIE BAR NUMBER   10 SPACING 192.00 MM

    COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
 8196.75   6557.40   3137.33    625.43     199.4
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  316.93  -1497.16    212.60      8.87    0.01813
 --------------------------------------------------------

    COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
 8196.75   6557.40   3225.91    829.21     257.0
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  422.86  -1497.16    212.60     36.11    0.07384
 --------------------------------------------------------
```


```
                       Pn        Mn        Pn        Mn    (@ Z )
        |            6052.99   396.28  3026.49   624.45
     P0 |*           5548.57   458.62  2522.08   612.47
        | *          5044.16   510.22  2017.66   585.45
   Pn,max|__*        4539.74   551.77  1513.25   542.28
        |   *        4035.32   584.37  1008.83   482.85
   Pn   |    *       3530.91   609.64   504.42   406.68
```

```
   NOMINAL|     *         Pn       Mn       Pn       Mn    (@ Y )
     AXIAL|      *      6052.99   521.77  3026.49   827.60
COMPRESSION|       *     5548.57   606.17  2522.08   811.47
        Pb|-------*Mb   5044.16   674.96  2017.66   775.60
          |      *      4539.74   730.68  1513.25   718.53
___________|____*_______ 4035.32   775.35  1008.83   642.18
          |  * M0   Mn, 3530.91   811.14   504.42   542.96
          | *   BENDING
    P-tens|*     MOMENT
          |
```

```
====================================================================

     COLUMN  NO.  2433  DESIGN PER ACI 318-05 - AXIAL + BENDING


FY - 413.7  FC -  24.5 MPA,  SQRE SIZE - 500.0 X 500.0 MMS, TIED
        ONLY MINIMUM STEEL IS REQUIRED.
        AREA OF STEEL REQUIRED =  2500.0  SQ. MM

BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
----------------------------------------------------------

  8 - 20 MM               1.005       30      END     0.650
(PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
TIE BAR NUMBER   10 SPACING 320.00 MM

    COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
 6198.88   4959.10   2361.37    476.52     201.8
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  221.29  -1039.71     14.09      3.57    0.11029
 --------------------------------------------------------

    COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)
```

```
 -------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
 6198.88   4959.10   2361.37    476.52     201.8
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  221.29  -1039.71     14.09      0.71    0.02184
 -------------------------------------------------------
```



```
                        Pn       Mn       Pn       Mn    (@ Z )
        |             4577.63   301.28  2288.82   474.90
     P0 |*            4196.16   348.74  1907.35   459.98
        | *           3814.70   388.04  1525.88   437.01
  Pn,max|__*          3433.23   419.63  1144.41   407.95
        |   *         3051.76   444.44   762.94   359.24
  Pn    |    *        2670.29   463.80   381.47   294.91
 NOMINAL|     *         Pn       Mn       Pn       Mn    (@ Y )
   AXIAL|      *      4577.63   301.28  2288.82   474.90
COMPRESSION|       *     4196.16   348.74  1907.35   459.98
      Pb|-------*Mb   3814.70   388.04  1525.88   437.01
        |      *      3433.23   419.63  1144.41   407.95
___________|____*_______ 3051.76   444.44   762.94   359.24
        |  * M0   Mn, 2670.29   463.80   381.47   294.91
        | *   BENDING
  P-tens|*     MOMENT
        |
```

==

COLUMN NO. 2435 DESIGN PER ACI 318-05 - AXIAL + BENDING

FY - 413.7 FC - 24.5 MPA, SQRE SIZE - 500.0 X 500.0 MMS, TIED

ONLY MINIMUM STEEL IS REQUIRED.

AREA OF STEEL REQUIRED = 2500.0 SQ. MM

BAR CONFIGURATION REINF PCT. LOAD LOCATION PHI

```
 ----------------------------------------------------------

   8 - 20 MM              1.005      30      END     0.650
  (PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
  TIE BAR NUMBER   10 SPACING 320.00 MM

      COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

  --------------------------------------------------------
    P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
  6198.88   4959.10   2361.37    476.52     201.8
     M0       P-tens.   Des.Pn    Des.Mn     e/h
   221.29  -1039.71      5.45      0.76    0.06073
  --------------------------------------------------------

      COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)

  --------------------------------------------------------
    P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
  6198.88   4959.10   2361.37    476.52     201.8
     M0       P-tens.   Des.Pn    Des.Mn     e/h
   221.29  -1039.71      5.45      1.33    0.10634
  --------------------------------------------------------
```



```
                         Pn       Mn       Pn       Mn    (@ Z )
           |           4577.63   301.28  2288.82   474.90
        P0 |*          4196.16   348.74  1907.35   459.98
           | *         3814.70   388.04  1525.88   437.01
     Pn,max|__*        3433.23   419.63  1144.41   407.95
           |   *       3051.76   444.44   762.94   359.24
     Pn    |    *      2670.29   463.80   381.47   294.91
    NOMINAL|     *       Pn       Mn       Pn       Mn    (@ Y )
      AXIAL|      *    4577.63   301.28  2288.82   474.90
COMPRESSION|       *   4196.16   348.74  1907.35   459.98
         Pb|-------*Mb 3814.70   388.04  1525.88   437.01
           |      *    3433.23   419.63  1144.41   407.95
___________|____*_______ 3051.76   444.44   762.94   359.24
```

```
         |  * M0   Mn, 2670.29   463.80   381.47   294.91
         | *   BENDING
   P-tens|*     MOMENT
         |

====================================================================

     COLUMN  NO.  2523  DESIGN PER ACI 318-05 - AXIAL + BENDING

FY - 413.7  FC -  24.5 MPA,  RECT SIZE - 800.0 X 650.0 MMS, TIED
        ONLY MINIMUM STEEL IS REQUIRED.
        AREA OF STEEL REQUIRED =  5200.0  SQ. MM

BAR CONFIGURATION       REINF PCT.   LOAD   LOCATION   PHI
----------------------------------------------------------

 28 - 16 MM               1.083       30      END     0.650
(PROVIDE EQUAL NUMBER OF BARS ON EACH FACE)
TIE BAR NUMBER   10 SPACING 256.00 MM

    COLUMN INTERACTION: MOMENT ABOUT Z -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5139.01   1310.81     255.1
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  656.99  -2328.96    152.00      1.18    0.00337
 --------------------------------------------------------

    COLUMN INTERACTION: MOMENT ABOUT Y -AXIS (KN-MET)

 --------------------------------------------------------
   P0        Pn max    P-bal.    M-bal.     e-bal. (MM)
13051.65  10441.32   5230.10   1633.12     312.3
    M0       P-tens.   Des.Pn    Des.Mn     e/h
  824.17  -2328.96    152.00     49.44    0.14143
```

```
   --------------------------------------------------------

   STAAD SPACE                                                 -- PAGE NO.  186

                              Pn        Mn        Pn        Mn     (@ Z )
           |               9638.15   828.21  4819.07  1307.51
        P0 |*              8834.97   962.17  4015.89  1281.31
           | *             8031.79  1071.09  3212.72  1222.65
     Pn,max|__*            7228.61  1159.29  2409.54  1132.41
           |   *           6425.43  1229.16  1606.36  1010.05
     Pn    |    *          5622.25  1283.60   803.18   850.73
    NOMINAL|     *            Pn        Mn        Pn        Mn     (@ Y )
      AXIAL|      *        9638.15  1030.09  4819.07  1629.04
COMPRESSION|       *       8834.97  1196.79  4015.89  1595.93
         Pb|-------*Mb     8031.79  1333.11  3212.72  1522.76
           |      *        7228.61  1444.09  2409.54  1410.64
___________|____*_______   6425.43  1532.75  1606.36  1258.98
           |  * M0   Mn,   5622.25  1604.04   803.18  1065.43
           | *   BENDING
     P-tens|*     MOMENT
           |


  *******************END OF COLUMN DESIGN RESULTS*******************


 2096. CONCRETE TAKE
 2097. END CONCRETE DESIGN
   STAAD SPACE                                                 -- PAGE NO.  187


          **************  CONCRETE  TAKE OFF  **************
                (FOR BEAMS AND COLUMNS DESIGNED ABOVE)

          TOTAL VOLUME OF CONCRETE =     2958.63 CU.FT



           BAR SIZE         WEIGHT
            NUMBER         (in lbs)
           --------        --------
```

```
          10          2207.94

          12          2193.29

          16          6605.57

          20          3099.81

          25          2299.44

          32          2063.62

          40           347.23

                  ------------

        *** TOTAL=    18816.90


2098. LOAD LIST 40 TO 48
2099. PARAMETER 1
2100. CODE LRFD
2101. BEAM 1 MEMB 482 TO 506 509 512 515 518 521 524 527 530 TO 589 591 TO 631 633 -
2102. 634 TO 694 696 TO 703 705 TO 708 710 TO 723 725 TO 738 740 TO 753 755 TO 762 -
2103. 877 879 881 883 885 887 889 TO 891 1009 1011 1013 1015 1017 1019 -
2104. 1021 TO 1023 1027 TO 1035 1051 TO 1053 1055 1056 1061 TO 1065 1067 1070 1073 -
2105. 1074 TO 1081 1083 1085 TO 1087 1089 TO 1107 1109 TO 1114 1165 1174 1183 1253 -
2106. 1438 TO 1456 1465 TO 1484 1493 TO 1525 1528 1531 1533 1543 1544 1584 1594 -
2107. 1597 1599 1600 1605 TO 1611 1613 1615 TO 1621 1623 1625 TO 1631 1633 1639 -
2108. 1640 TO 1646 1651 TO 1669 1685 1686 1689 TO 1727 1729 TO 1772 1777 1778 1781 -
2109. 1782 TO 1784 1787 1788 1793 1794 1797 TO 1800 1803 TO 1849 1851 TO 1853 1855 -
2110. 1856 TO 1865 1869 1870 1872 1873 1879 1880 1883 TO 1924 1926 TO 1945 1981 -
2111. 1982 TO 1990 1995 1996 2005 TO 2024 2029 2030 2037 TO 2055 2059 2061 TO 2067 -
2112. 2069 2070 2072 2073 2075 2076 2078 2079 2081 TO 2087 2089 TO 2101 2103 2106 -
2113. 2107 TO 2111 2113 TO 2121 2124 TO 2127 2129 2131 TO 2135 2229 TO 2260 2269 -
2114. 2270 TO 2284 2290 TO 2293 2295 TO 2298 2301 TO 2305 2310 2311 2313 TO 2315 -
2115. 2317 TO 2319 2321 2322 2326 TO 2340 2342 TO 2374 2376 TO 2378 2381 2383 2385 -
2116. 2387 2388 2390 TO 2394 2397 TO 2431 2445 TO 2469 2473 TO 2480 2485 TO 2500 -
2117. 2509 TO 2522 2532 TO 2534 2540 TO 2543 2546 2547 2549 TO 2551 2554 TO 2557 -
2118. 2559
2119. BEAM 1 MEMB 2723 TO 2726
2120. BEAM 1 MEMB 2685 TO 2718
2121. BEAM 1 MEMB 2664 TO 2667 2671 2675 TO 2678
2122. BEAM 1 MEMB 2604 TO 2608 2610 TO 2612 2615 2617 TO 2623 2625 TO 2627 2631 -
2123. 2633 TO 2638 2643 TO 2646 2655 2656 2659 2660
2124. BEAM 1 MEMB 2561 2562 2564 2566 2568 2582 TO 2585 2588 TO 2590 2593 2600 2603
2125. BEAM 1 MEMB 2569 TO 2575
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2126. KY 1 MEMB 482 TO 484 488 TO 492 494 TO 496 500 TO 504 530 531 534 TO 539 543 -
2127. 545 547 549 551 553 555 556 558 TO 563 567 568 578 TO 583 587 588 -
2128. 591 TO 595 599 600 614 TO 619 623 624 634 636 TO 641 645 646 648 TO 653 657 -
2129. 658 660 TO 665 669 670 672 TO 677 681 682 684 TO 689 693 694 734 735 737 -
2130. 738 740 741 743 TO 748 752 753 755 756 877 879 881 883 885 887 1009 1011 -
2131. 1013 1015 1017 1019 1253 1528 1531 1533 1883 TO 1902 2059 2061 2062 2064 -
2132. 2090 2094 2121 2290 TO 2293 2295 TO 2298 2301 TO 2305 2411 2412 2550 2551 -
2133. 2582 2590 2604 2605 2607 2611 2615 2617 2619 2620 2622 2623 2625 2627
2134. KZ 1.9 MEMB 482 TO 484 488 TO 492 494 TO 496 500 TO 504 530 531 534 TO 539 -
2135. 543 545 547 549 551 553 555 556 558 TO 563 567 568 578 TO 583 587 588 591 -
2136. 592 TO 595 599 600 614 TO 619 623 624 634 636 TO 641 645 646 648 TO 653 657 -
2137. 658 660 TO 665 669 670 672 TO 677 681 682 684 TO 689 693 694 734 735 737 -
2138. 738 740 741 743 TO 748 752 753 755 756 877 879 881 883 885 887 1009 1011 -
2139. 1013 1015 1017 1019 1253 1528 1531 1533 1883 TO 1902 2059 2061 2062 2064 -
2140. 2090 2094 2121 2290 TO 2293 2295 TO 2298 2301 TO 2305 2411 2412 2550 2551 -
2141. 2582 2590 2604 2605 2607 2611 2615 2617 2619 2620 2622 2623 2625 2627
2142. UNB 2.7 MEMB 626 TO 631 633 635 1584 2063 2065 2069 2072 2075 2078 2081 2103 -
2143. 2556 2557 2561
2144. UNT 2.7 MEMB 626 TO 631 633 635 1584 2063 2065 2069 2072 2075 2078 2081 2103 -
2145. 2556 2557 2561
2146. UNB 5 MEMB 570 TO 577 726 731 1106 1107 1109 1111 1112 1502 1503 1505 1506 -
2147. 1508 1509 2124 2634 2635 2637 2664 2665 2693 2694
2148. UNT 5 MEMB 570 TO 577 726 731 1106 1107 1109 1111 1112 1502 1503 1505 1506 -
2149. 1508 1509 2124 2634 2635 2637 2664 2665 2693 2694
2150. UNB 5.5 MEMB 532 533 602 604 TO 607 609 611 613 698 699 702 703 707 708 712 -
2151. 713 717 718 722 723 727 728 732 733 1090 1095 1100 1438 1439 1445 1446 1450 -
2152. 1451 1520 1521 1523 1524 1543 1594 2119 2120 2547 2666 2667 2675 TO 2678 -
2153. 2685 2686 2688 2689 2696 2697
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2154. UNT 5.5 MEMB 532 533 602 604 TO 607 609 611 613 698 699 702 703 707 708 712 -
2155. 713 717 718 722 723 727 728 732 733 1090 1095 1100 1438 1439 1445 1446 1450 -
2156. 1451 1520 1521 1523 1524 1543 1594 2119 2120 2547 2666 2667 2675 TO 2678 -
2157. 2685 2686 2688 2689 2696 2697
2158. UNB 6.5 MEMB 603 608 610 758 759 761 762 889 TO 891 1022 1023 1027 1030 1544 -
2159. 1597 1600 1981 1982 1987 1988 2086 2087 2095 2097 2326 TO 2329 2332 2336 -
2160. 2337 2349 2350 2369 2370 2383 2392 2399 TO 2401 2414 2415 2509 2512 TO 2514 -
2161. 2519 2520 2530 2549 2671 2705 2707 TO 2711
```

2162. UNT 6.5 MEMB 603 608 610 758 759 761 762 889 TO 891 1022 1023 1027 1030 1981 -
2163. 1982 1987 1988 2326 TO 2330 2332 2334 2336 2337 2349 2350 2369 2370 2383 -
2164. 2392 2400 2401 2415 2509 2512 TO 2514 2519 2520 2530 2549 2671 2705 2707 -
2165. 2708 TO 2711
2166. UNB 10 MEMB 697 701 706 711 716 721 1605 1606 1608 1609 1611 1613 1615 1616 -
2167. 1618 1619 1621 1623 1625 1626 1628 1629 1631 1633 2526 TO 2529
2168. UNT 10 MEMB 697 701 706 711 716 721 1605 1606 1608 1609 1611 1613 1615 1616 -
2169. 1618 1619 1621 1623 1625 1626 1628 1629 1631 1633 2526 TO 2529
2170. UNB 8.2 MEMB 696 700 705 710 715 720 1697 1698 1703 1704 1706 1707 1731 1732 -
2171. 1734 1735 1737 1739 1745 1746 1748 1749 1751 1753
2172. UNT 8.2 MEMB 696 700 705 710 715 720 1697 1698 1703 1704 1706 1707 1731 1732 -
2173. 1734 1735 1737 1739 1745 1746 1748 1749 1751 1753
2174. UNB 11 MEMB 544 546 548 550 552 554 1031 1032 1441 1443 1453 1455 1465 1466 -
2175. 1468 1469 1472 1473 1475 1476 1478 1479 1481 1482 2037 TO 2052 2229 TO 2236
2176. UNT 11 MEMB 544 546 548 550 552 554 1031 1032 1441 1443 1453 1455 1465 1466 -
2177. 1468 1469 1472 1473 1475 1476 1478 1479 1481 1482 2037 TO 2052 2229 TO 2236
2178. UNB 11.6 MEMB 714 719 736 1694 1695 1700 1701 1709 1710 1712 1714 1718 1720 -
2179. 1812 1813 1815 1816 1820 1821 1823 1824 1826 1827 1829 1830 1832 1833 1835 -
2180. 1836 1838 1839 1841 1842 1844 1845 1847 1848 1869 1870 1879 2540 2541
2181. UNT 11.6 MEMB 714 719 736 1694 1695 1700 1701 1709 1710 1712 1714 1718 1720 -
2182. 1812 1813 1815 1816 1820 1821 1823 1824 1826 1827 1829 1830 1832 1833 1835 -
2183. 1836 1838 1839 1841 1842 1844 1845 1847 1848 1869 1870 1879 2540 2541
2184. UNB 5.3 MEMB 729 1493 1494 1496 1497 1499 1500 1880 2542 2543
2185. UNT 5.3 MEMB 729 1493 1494 1496 1497 1499 1500 1880 2542 2543
2186. UNB 4.1 MEMB 725 730 1511 1512 1514 1515 1517 1518
2187. UNT 4.1 MEMB 725 730 1511 1512 1514 1515 1517 1518
2188. UNB 8 MEMB 485 TO 487 493 497 TO 499 505 506 509 512 515 518 521 524 527 540 -
2189. 541 TO 542 557 564 TO 566 569 585 586 589 596 TO 598 620 TO 622 625 -
2190. 642 TO 644 647 654 TO 656 659 666 TO 668 671 678 TO 680 683 691 692 750 751 -
2191. 1011 1033 1034 1051 1074 1077 1080 1083 1086 1105 1447 1471 1484 1498 1507 -
2192. 1516 1667 TO 1669 1685 1689 1696 1699 1702 1705 1708 1903 TO 1924 2053 2092 -
2193. 2093 TO 2094 2107 2115 2135 2305 2554 2555 2570 TO 2575 2584 2588 2593 2606 -
2194. 2608 2612 2618 2621 2626 2631 2643 TO 2646 2655 2656 2659 2660 2687 2690 -
2195. 2691 TO 2692 2695 2698 TO 2704 2706 2712 TO 2718
2196. UNT 8 MEMB 485 TO 487 493 497 TO 499 505 506 509 512 515 518 521 524 527 540 -
2197. 541 TO 542 555 TO 557 564 TO 566 569 585 586 589 596 TO 598 620 TO 622 625 -
2198. 642 TO 644 647 654 TO 656 659 666 TO 668 671 678 TO 680 683 691 692 750 751 -
2199. 1011 1033 1034 1051 1074 1077 1080 1083 1086 1105 1447 1471 1484 1498 1507 -

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2200. 1516 1522 1525 1667 TO 1669 1685 1689 1696 1699 1702 1705 1708 1903 TO 1924 -
2201. 2053 2092 TO 2094 2107 2115 2135 2305 2554 2555 2570 TO 2575 2584 2588 2593 -
2202. 2606 2608 2612 2618 2621 2626 2631 2643 TO 2646 2655 2656 2659 2660 2687 -
2203. 2690 TO 2692 2695 2698 TO 2704 2706 2712 TO 2718
2204. UNB 4 MEMB 1440 1452 1495 1501 1504 1510 1513 1519 1995 1996 2005 2006 2019 -
2205. 2020 2029 2030
2206. UNT 4 MEMB 1440 1452 1495 1501 1504 1510 1513 1519 1995 1996 2005 2006 2019 -
2207. 2020 2029 2030
2208. UNB 2.85 MEMB 2311 2314 2317 2319 2321 2331
2209. UNT 2.85 MEMB 2314 2317 2319 2321 2331
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2210. CHECK CODE MEMB 482 TO 506 509 512 515 518 521 524 527 530 TO 589 591 TO 631 -
2211. 633 TO 694 696 TO 703 705 TO 708 710 TO 723 725 TO 738 740 TO 753 -
2212. 755 TO 762 877 879 881 883 885 887 889 TO 891 1009 1011 1013 1015 1017 1019 -
2213. 1021 TO 1023 1027 TO 1035 1051 TO 1053 1055 1056 1061 TO 1065 1067 1070 1073 -
2214. 1074 TO 1081 1083 1085 TO 1087 1089 TO 1107 1109 TO 1114 1165 1174 1183 1253 -
2215. 1438 TO 1456 1465 TO 1484 1493 TO 1525 1528 1531 1533 1543 1544 1584 1594 -
2216. 1597 1599 1600 1605 TO 1611 1613 1615 TO 1621 1623 1625 TO 1631 1633 1639 -
2217. 1640 TO 1646 1651 TO 1669 1685 1686 1689 TO 1727 1729 TO 1772 1777 1778 1781 -
2218. 1782 TO 1784 1787 1788 1793 1794 1797 TO 1800 1803 TO 1849 1851 TO 1853 1855 -
2219. 1856 TO 1865 1869 1870 1872 1873 1879 1880 1883 TO 1924 1926 TO 1945 1981 -
2220. 1982 TO 1990 1995 1996 2005 TO 2024 2029 2030 2037 TO 2055 2059 2061 TO 2067 -
2221. 2069 2070 2072 2073 2075 2076 2078 2079 2081 TO 2087 2089 TO 2101 2103 2106 -
2222. 2107 TO 2111 2113 TO 2121 2124 TO 2127 2129 2131 TO 2135 2229 TO 2260 2269 -
2223. 2270 TO 2293 2295 TO 2298 2301 TO 2305 2310 2311 2313 TO 2315 2317 TO 2319 -
2224. 2321 2322 2326 TO 2340 2342 TO 2374 2376 TO 2378 2381 2383 2385 2387 2388 -
2225. 2390 TO 2394 2397 TO 2431 2445 TO 2469 2473 TO 2480 2485 TO 2500 -
2226. 2509 TO 2522 2526 TO 2547 2549 TO 2551 2554 TO 2557 2559 2561 2562 2564 2566 -
2227. 2568 TO 2585 2588
```


STAAD.Pro CODE CHECKING - (LRFD 3RD EDITION)

****

```
ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/

                         FX            MY             MZ       LOCATION

=======================================================================



   482  ST   W18X86                  (AISC SECTIONS)

                          PASS     LRFD-H1-1B-C       0.802        44

                      233.26 C       -56.72        -265.46        0.00

   483  ST   W18X86                  (AISC SECTIONS)

                          PASS     LRFD-H1-1B-C       0.372        44

                      535.87 C       -38.11         -48.96        1.38

   484  ST   W18X86                  (AISC SECTIONS)

                          PASS     LRFD-H1-1B-C       0.423        43

                      176.00 C       -50.14         -72.95        1.50

   485  ST   W12X50                  (AISC SECTIONS)

                          PASS     LRFD-H1-1B-C       0.523        43

                        6.33 C         9.31          75.06        0.00

   486  ST   W12X50                  (AISC SECTIONS)

                          PASS     LRFD-H1-1B-T       0.676        43

                        9.88 T        12.85          95.76        0.00

   487  ST   W14X68                  (AISC SECTIONS)

                          PASS     LRFD-H1-1B-C       0.809        42

                       33.22 C         2.44        -258.31        4.67

   488  ST   W18X86                  (AISC SECTIONS)

                          PASS     LRFD-H1-1B-C       0.671        44

                      112.73 C       -70.50        -149.91        0.00

   489  ST   W18X86                  (AISC SECTIONS)

                          PASS     LRFD-H1-1B-C       0.397        44

                      237.10 C        41.34          82.07        3.00

   490  ST   W18X86                  (AISC SECTIONS)

                          PASS     LRFD-H1-1B-C       0.713        42

                      198.07 C       115.67         -10.16        2.50

   491  ST   W18X86                  (AISC SECTIONS)
```

```
                     PASS     LRFD-H1-1B-C       0.526        42
                 60.97 C       -87.96         -5.17        0.00
   492  ST   W18X86                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.640        42
                 81.47 C       106.17        -10.70        0.00
   493  ST   W12X50                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.556        43
                 25.32 C        17.83         56.74        0.00
   494  ST   W18X86                   (AISC SECTIONS)
                     PASS     LRFD-H1-1A-C       0.884        43
                587.60 C        48.80        279.10        0.00
   495  ST   W18X86                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.440        44
                520.84 C       -45.69        -66.91        1.38
   496  ST   W18X86                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.452        44
                415.34 C        50.90         65.34        1.50
   497  ST   W12X50                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.592        43
                 11.90 C         9.30         87.04        0.00
```


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ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

   498  ST   W12X50                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.658        43
                  9.05 T        12.92         92.25        0.00
   499  ST   W12X50                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.792        43
                 32.86 C        15.08        107.04        0.00
```

500	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.699	44
			90.88 C	-83.97	-121.57	0.00
501	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.381	44
			200.60 C	40.48	78.42	3.00
502	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.465	44
			116.01 C	60.45	66.87	2.50
503	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.289	41
			32.64 C	-46.25	10.59	0.00
504	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.519	43
			90.28 C	-41.40	-181.56	1.50
505	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.425	43
			16.60 C	17.60	34.01	0.00
506	ST	W12X65		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.823	43
			2.72 T	11.71	226.49	0.00
509	ST	W12X65		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.952	43
			5.33 T	16.55	256.17	0.00
512	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.852	43
			12.89 T	15.76	121.82	0.00
515	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.654	43
			4.70 C	9.72	98.99	0.00
518	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.620	43
			0.40 T	13.64	83.65	0.00
521	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.577	43
			5.41 T	16.13	69.09	0.00
524	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.957	43

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                  52.32 C        18.35        133.10        0.00
```



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ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
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   527  ST   W12X50                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.604        43
                   15.56 C        18.54         67.64        0.00
   530  ST   W18X86                 (AISC SECTIONS)
                           PASS     LRFD-H1-1A-C       0.642        44
                  561.78 C         8.77        291.22        4.20
   531  ST   W18X86                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.601        44
                  521.37 C       -11.93       -286.38        3.85
   532  ST   W12X50                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.050        44
                   79.43 C        -0.10         -5.66        2.52
   533  ST   W12X50                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.046        44
                   75.29 C        -0.15         -5.03        2.52
   534  ST   W18X86                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.461        44
                  435.60 C        37.29        119.76        3.00
   535  ST   W18X86                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.540        43
                   91.20 C       -47.12       -172.69        2.50
   536  ST   W18X86                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.372        44
                  154.84 C        52.83         29.41        2.50
   537  ST   W18X86                 (AISC SECTIONS)
```

```
                       PASS     LRFD-H1-1B-C       0.485        44
                  467.00 C        37.49        131.90        3.00
   538  ST   W18X86                  (AISC SECTIONS)
                       PASS     LRFD-H1-1B-C       0.467        44
                  281.68 C        29.37        172.69        2.50
   539  ST   W18X86                  (AISC SECTIONS)
                       PASS     LRFD-H1-1B-C       0.475        44
                  177.39 C        52.41         98.61        2.50
   540  ST   W14X68                  (AISC SECTIONS)
                       PASS     LRFD-H1-1B-T       0.690        44
                    4.83 T         0.30        228.72        8.00
   541  ST   W12X50                  (AISC SECTIONS)
                       PASS     LRFD-H1-1B-C       0.651        43
                    2.90 C         0.19        122.44        0.00
   542  ST   W14X68                  (AISC SECTIONS)
                       PASS     LRFD-H1-1B-T       0.994        43
                  313.13 T       -17.41       -269.02        2.50
   543  ST   W18X86                  (AISC SECTIONS)
                       PASS     LRFD-H1-1B-C       0.413        43
                  138.66 C        45.14         88.89        0.00
```


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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY              MZ       LOCATION
=======================================================================

   544  ST   W12X50                  (AISC SECTIONS)
                       PASS     LRFD-H1-1B-C       0.058        44
                   59.30 C        -1.04         -3.85        2.52
   545  ST   W18X86                  (AISC SECTIONS)
                       PASS     LRFD-H1-1B-C       0.353        44
                   63.68 C       -41.67        -69.87        0.00
```

546	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.052	43
			70.55 T	-1.13	-2.93	2.75
547	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.521	44
			275.83 C	-44.85	-151.04	0.92
548	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.040	41
			72.33 C	-0.05	-2.54	2.29
549	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.810	42
			281.81 C	-128.41	-18.76	1.00
550	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.055	42
			108.42 C	0.07	-3.13	2.75
551	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.493	44
			515.83 C	-24.63	-186.88	1.38
552	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.032	44
			64.64 C	-0.11	-1.70	2.52
553	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.408	44
			530.87 C	-25.02	-125.79	1.38
554	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.022	44
			35.56 C	0.02	-1.55	2.52
555	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.356	43
			56.42 C	52.83	29.42	0.00
556	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.458	43
			72.73 C	52.41	98.62	0.00
557	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.585	43
			44.62 C	0.19	106.97	0.00
558	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.289	44

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                 419.23 C          6.97        113.36        4.20
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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
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   559  ST   W18X86                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.370        44
                      431.37 C       -10.87       -150.17        3.85
   560  ST   W18X86                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.364        43
                      271.81 C        18.54        145.25        0.00
   561  ST   W18X86                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.298        44
                      215.24 C       -20.09       -101.39        2.29
   562  ST   W18X86                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.240        44
                      231.99 C        25.56         37.40        3.00
   563  ST   W18X86                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.275        44
                      197.65 C        22.73         77.13        2.50
   564  ST   W14X68                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.588        43
                       26.85 T         0.25        193.45        0.00
   565  ST   W12X50                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.507        43
                        4.37 C         0.11         95.07        0.00
   566  ST   W12X65                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.575        44
                       52.43 C        14.93        142.29        2.50
   567  ST   W18X86                 (AISC SECTIONS)
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                       PASS     LRFD-H1-1B-C       0.297        43
                  161.06 C        22.13          97.38        0.00
   568  ST   W18X86                    (AISC SECTIONS)
                       PASS     LRFD-H1-1B-C       0.388        44
                  112.74 C        23.01         161.04        3.00
   569  ST   W12X50                    (AISC SECTIONS)
                       PASS     LRFD-H1-1B-C       0.963        43
                   83.59 C         0.19         176.68        0.00
   570  ST   W12X35                    (AISC SECTIONS)
                       PASS     LRFD-H1-1B-T       0.402        42
                   23.33 T         6.03         -34.71        1.25
   571  ST   W12X35                    (AISC SECTIONS)
                       PASS     LRFD-H1-1B-C       0.419        44
                   42.24 C        11.92         -15.40        2.50
   572  ST   W12X35                    (AISC SECTIONS)
                       PASS     LRFD-H1-1B-C       0.117        48
                   56.41 C         2.06          -2.11        2.63
   573  ST   W12X35                    (AISC SECTIONS)
                       PASS     LRFD-H1-1B-T       0.276        43
                  203.11 T        -4.40         -14.16        2.63
```



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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
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   574  ST   W12X35                    (AISC SECTIONS)
                       PASS     LRFD-H1-1B-C       0.281        44
                  144.07 C         5.47         -11.62        2.63
   575  ST   W12X35                    (AISC SECTIONS)
                       PASS     LRFD-H1-1B-C       0.138        48
                   85.11 C         1.84          -2.11        2.63
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 576  ST   W12X35                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.267        43
                176.06 T         -4.39         -14.13        2.63
 577  ST   W12X35                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.284        44
                147.51 C          5.54         -11.64        2.63
 578  ST   W18X86                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.579        44
                262.65 C        -51.89        -163.75        0.00
 579  ST   W18X86                   (AISC SECTIONS)
                     PASS     LRFD-H1-1A-C       0.753        43
                660.85 C         56.77         166.19        0.00
 580  ST   W18X86                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.583        43
                472.71 C         49.06         156.48        0.00
 581  ST   W18X86                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.350        44
                404.14 C         39.75          41.16        1.25
 582  ST   W18X86                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.423        44
                263.33 C        -28.49        -147.04        0.00
 583  ST   W18X86                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.510        44
                383.22 C         23.12         215.32        2.50
 584  ST   W14X68                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.734        47
                 56.71 T        -63.99         -97.57        4.00
 585  ST   W12X50                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.536        43
                  9.74 T          0.10         100.93        0.00
 586  ST   W12X65                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.657        44
                137.92 C         13.40         164.64        2.50
 587  ST   W18X86                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.313        43
                296.37 C         16.94         116.33        0.00
 588  ST   W18X86                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.283        44
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                 111.48 C        -24.08         -86.61        0.00
```


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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

   589  ST   W14X68                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.531        43
                    119.18 C          0.33         167.16        0.00
   591  ST   W18X86                 (AISC SECTIONS)
                           PASS     LRFD-H1-1A-C       0.752        43
                    610.00 C         55.48         183.44        0.00
   592  ST   W18X86                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.466        42
                    556.35 C        -61.40          19.30        1.50
   593  ST   W18X86                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.246        44
                    316.91 C        -22.95         -45.27        1.15
   594  ST   W18X86                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.385        44
                    140.22 C        -27.41        -138.68        0.00
   595  ST   W18X86                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.359        44
                    200.84 C         19.70         145.33        2.50
   596  ST   W12X65                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.499        43
                     19.95 T          0.45         148.90        0.00
   597  ST   W12X50                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.521        43
                      4.96 C          0.09          97.56        0.00
   598  ST   W12X65                 (AISC SECTIONS)
```

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                    PASS     LRFD-H1-1B-C       0.680        44
               119.03 C        15.36        169.24        2.50
 599  ST   W18X86                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.405        43
               260.26 C        47.82         61.50        0.00
 600  ST   W18X86                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.281        44
               170.06 C        17.96        103.72        1.55
 601  ST   W12X35                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.520        43
                21.97 C         0.22         82.26        0.00
 602  ST   W12X35                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.235        44
                84.48 C         4.39        -11.94        2.62
 603  ST   W12X35                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.547        43
                20.58 T        -7.47        -41.39        1.50
 604  ST   W12X35                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.225        44
                69.63 C         4.33        -11.76        2.62
```



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=======================================================================

 605  ST   W12X35                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.256        43
               171.27 T        -3.82        -14.02        2.62
 606  ST   W12X35                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.082        47
                17.18 C        -2.06         -2.11        2.62
```

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607  ST   W12X35                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.244        43
               141.19 T         -3.78        -13.82        2.62
608  ST   W12X35                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.684        43
               105.98 T         -7.62        -53.52        3.25
609  ST   W12X35                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.095        48
                37.16 C          1.84         -2.11        2.62
610  ST   W12X35                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.504        42
                91.35 T          1.91        -49.39        1.50
611  ST   W12X35                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.073        47
                36.11 T         -1.84         -2.11        2.62
612  ST   W12X35                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.440        42
                24.99 T         -2.79         68.06        0.00
613  ST   W12X35                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.659        43
                82.67 T         -3.36        -72.93        1.40
614  ST   W18X86                   (AISC SECTIONS)
                    PASS     LRFD-H1-1A-C       0.573        42
               608.46 C        -25.49       -165.45        0.00
615  ST   W18X86                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.631        43
               437.33 C         57.57        143.85        0.00
616  ST   W18X86                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.477        42
               208.16 C        -34.97       -166.53        0.00
617  ST   W18X86                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.448        44
               112.92 C        -62.17        -48.46        0.00
618  ST   W18X86                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.420        44
               428.18 C         53.94         30.38        1.50
619  ST   W18X86                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.431        44
```

207.22 C -51.53 -68.97 0.00

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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

   620  ST   W12X65                 (AISC SECTIONS)
                          PASS     LRFD-H1-1B-C       0.852        41
                       2.02 C        -0.91       -255.69        3.33
   621  ST   W12X50                 (AISC SECTIONS)
                          PASS     LRFD-H1-1B-T       0.653        42
                      12.80 T        -0.01        123.12        8.00
   622  ST   W12X65                 (AISC SECTIONS)
                          PASS     LRFD-H1-1B-C       0.454        42
                     178.93 C        -0.14       -126.00        2.50
   623  ST   W18X86                 (AISC SECTIONS)
                          PASS     LRFD-H1-1B-C       0.330        43
                     165.29 C        47.10         23.00        0.00
   624  ST   W18X86                 (AISC SECTIONS)
                          PASS     LRFD-H1-1B-C       0.282        43
                     230.88 C        35.80         27.90        0.00
   625  ST   W12X65                 (AISC SECTIONS)
                          PASS     LRFD-H1-1B-T       0.057        44
                       7.08 T        -4.21         -8.85        2.99
   626  ST   W12X35                 (AISC SECTIONS)
                          PASS     LRFD-H1-1B-C       0.031        47
                      32.20 C        -0.54         -0.56        1.35
   627  ST   W12X35                 (AISC SECTIONS)
                          PASS     LRFD-H1-1B-C       0.027        48
                      25.45 C         0.49         -0.56        1.35
   628  ST   W12X35                 (AISC SECTIONS)
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                     PASS     LRFD-H1-1B-T       0.037        48
                 66.37 T          0.49         -0.56        1.35
 629  ST   W12X35                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.059        43
                127.78 C          0.00          0.00        0.00
 630  ST   W12X35                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.043        42
                118.02 T          0.00         -0.56        1.35
 631  ST   W12X35                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.051        47
                 75.68 C         -0.54         -0.56        1.35
 633  ST   W12X35                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.039        42
                 23.70 T          0.00         -5.45        1.35
 634  ST   W18X86                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.284        44
                 76.50 C        -38.36        -35.12        0.00
 635  ST   W12X35                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.043        42
                 33.32 T          0.00         -5.64        1.35
```



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                         FX            MY             MZ       LOCATION
=======================================================================

 636  ST   W18X86                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.515        44
                309.45 C        -42.06       -141.47        0.00
 637  ST   W18X86                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.542        43
                488.33 C         40.83        142.77        0.00
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638  ST   W18X86                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.500        43
               363.81 C        43.34        133.48        0.00
639  ST   W18X86                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.380        44
               190.71 C       -27.97       -128.53        2.29
640  ST   W18X86                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.389        44
               312.24 C       -27.59       -124.86        0.00
641  ST   W18X86                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.517        42
               193.44 C       -12.01        284.34        2.50
642  ST   W14X68                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.816        42
                84.69 C        -0.33        258.49        8.00
643  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.733        42
                16.07 T         0.14        137.81        8.00
644  ST   W12X65                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.765        42
               212.72 C         0.01       -218.22        2.50
645  ST   W18X86                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.342        43
               141.36 C        36.38         74.73        0.00
646  ST   W18X86                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.334        44
                93.10 C       -37.28        -71.03        0.00
647  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.556        43
                30.63 C         0.08        102.65        0.00
648  ST   W18X86                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.409        44
               299.99 C       -30.29       -117.63        0.00
649  ST   W18X86                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.556        43
               460.26 C        51.32        115.71        0.00
650  ST   W18X86                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.379        44
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                 315.07 C        -44.37         -49.30        0.00
```



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ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
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   651  ST   W18X86                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.296        44
                 294.58 C         29.15          55.63        2.50
   652  ST   W18X86                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.403        44
                 217.49 C        -37.70        -102.13        0.00
   653  ST   W18X86                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.288        43
                 204.78 C         37.25          27.79        0.00
   654  ST   W12X50                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.374        42
                  47.03 T        -11.84          39.50        0.00
   655  ST   W12X50                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.356        44
                  31.21 C          0.11          61.79        8.00
   656  ST   W12X65                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.420        43
                  44.12 T        -12.03        -101.74        2.50
   657  ST   W18X86                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.279        43
                 231.34 C         29.17          50.88        0.00
   658  ST   W18X86                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.235        44
                 103.77 C        -31.82         -24.28        0.00
   659  ST   W12X50                  (AISC SECTIONS)
```

```
                      PASS     LRFD-H1-1B-C       0.432        42
                  19.86 C         -0.32          77.51        0.00
   660  ST   W18X86                    (AISC SECTIONS)
                      PASS     LRFD-H1-1B-C       0.518        43
                 432.63 C         69.49          25.61        0.00
   661  ST   W18X86                    (AISC SECTIONS)
                      PASS     LRFD-H1-1B-C       0.624        43
                 375.93 C         71.17          95.38        0.00
   662  ST   W18X86                    (AISC SECTIONS)
                      PASS     LRFD-H1-1B-C       0.424        43
                 343.56 C         45.71          71.34        0.00
   663  ST   W18X86                    (AISC SECTIONS)
                      PASS     LRFD-H1-1B-C       0.256        43
                 147.07 C         35.23          20.38        0.00
   664  ST   W18X86                    (AISC SECTIONS)
                      PASS     LRFD-H1-1B-C       0.424        44
                 198.48 C        -48.56         -75.84        0.00
   665  ST   W18X86                    (AISC SECTIONS)
                      PASS     LRFD-H1-1B-C       0.270        43
                 154.03 C        -31.52          43.86        2.50
```



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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
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   666  ST   W12X50                    (AISC SECTIONS)
                      PASS     LRFD-H1-1B-C       0.723        41
                   4.05 C          0.02         136.36        8.00
   667  ST   W12X50                    (AISC SECTIONS)
                      PASS     LRFD-H1-1B-C       0.263        44
                   1.62 C          0.08          49.31        8.00
```

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668  ST   W12X65                  (AISC SECTIONS)
                      PASS     LRFD-H1-1B-T       0.332        43
                  47.56 T        -11.24         -76.55        2.50
669  ST   W18X86                  (AISC SECTIONS)
                      PASS     LRFD-H1-1B-C       0.242        43
                 103.64 C         22.20          66.69        0.00
670  ST   W18X86                  (AISC SECTIONS)
                      PASS     LRFD-H1-1B-C       0.269        44
                  85.61 C        -31.52         -50.44        0.00
671  ST   W12X50                  (AISC SECTIONS)
                      PASS     LRFD-H1-1B-C       0.385        44
                  33.28 C          0.03          66.99        8.00
672  ST   W18X86                  (AISC SECTIONS)
                      PASS     LRFD-H1-1B-C       0.242        44
                 335.19 C          5.96          96.49        4.20
673  ST   W18X86                  (AISC SECTIONS)
                      PASS     LRFD-H1-1B-C       0.291        43
                 342.64 C         16.03          89.42        0.00
674  ST   W18X86                  (AISC SECTIONS)
                      PASS     LRFD-H1-1B-C       0.207        43
                 148.25 C         10.46          83.74        0.00
675  ST   W18X86                  (AISC SECTIONS)
                      PASS     LRFD-H1-1B-C       0.188        43
                  63.69 C        -17.54         -52.54        2.50
676  ST   W18X86                  (AISC SECTIONS)
                      PASS     LRFD-H1-1B-C       0.231        44
                  88.02 C        -16.63         -82.33        0.00
677  ST   W18X86                  (AISC SECTIONS)
                      PASS     LRFD-H1-1B-C       0.243        42
                 191.39 C        -17.95          74.37        2.50
678  ST   W12X50                  (AISC SECTIONS)
                      PASS     LRFD-H1-1B-T       0.729        42
                  15.90 T          0.11         137.10        8.00
679  ST   W12X50                  (AISC SECTIONS)
                      PASS     LRFD-H1-1B-C       0.302        43
                   2.81 C          0.09          56.54        0.00
680  ST   W12X65                  (AISC SECTIONS)
                      PASS     LRFD-H1-1B-T       0.345        43
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                    108.02 T       -11.29        -76.95        2.50
```



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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
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   681  ST   W18X86                (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.146        43
                      73.50 C         16.40          27.14        0.00
   682  ST   W18X86                (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.207        42
                      69.09 C       -17.95          -62.73        0.00
   683  ST   W12X50                (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.431        43
                      25.27 C          0.01          77.30        0.00
   684  ST   W18X86                (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.376        44
                     384.98 C          7.95         170.50        4.20
   685  ST   W18X86                (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.413        43
                     487.46 C          9.23         177.85        0.00
   686  ST   W18X86                (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.319        43
                     309.02 C          8.22         153.49        0.00
   687  ST   W18X86                (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.286        43
                     147.00 C       -30.83          -58.82        1.25
   688  ST   W18X86                (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.261        43
                     258.09 C         12.52          99.94        0.00
   689  ST   W18X86                (AISC SECTIONS)
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                    PASS     LRFD-H1-1B-C       0.412        44
                 207.05 C        21.93        172.11        2.50
   690  ST   W14X68                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.606        42
                  11.36 T        55.33        -75.32        3.00
   691  ST   W12X50                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.584        43
                  12.65 T         0.10        109.85        0.00
   692  ST   W12X65                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.701        44
                 146.39 C        15.66        173.17        2.50
   693  ST   W18X86                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.367        41
                 165.66 C        51.44         31.14        1.50
   694  ST   W18X86                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.172        44
                  26.01 C        -6.44        -89.30        0.00
   696  ST   W12X50                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.214        43
                  15.87 T       -14.61         -3.52        2.05
```


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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
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   697  ST   W12X50                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.048        42
                 108.97 C         0.23         -2.28        2.50
   698  ST   W12X35                  (AISC SECTIONS)
                    PASS     LRFD-H1-1A-C       0.395        44
                 236.27 C         4.30        -12.54        2.75
```

699	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.248	44
			133.38 C	3.82	-12.44	2.75
700	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.217	43
			25.70 T	-14.70	-3.53	2.05
701	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.059	43
			132.01 T	-0.03	-4.36	2.50
702	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1A-C	0.377	44
			217.35 C	4.26	-12.59	2.75
703	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.250	43
			134.29 T	-3.82	-14.78	2.75
705	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.143	43
			66.73 T	-8.05	-4.06	2.05
706	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.088	44
			155.59 C	-0.18	-6.59	2.29
707	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.241	43
			118.63 T	-3.73	-14.62	2.75
708	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.262	43
			86.46 T	-4.98	-14.80	2.75
710	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.227	43
			91.37 T	-14.10	-4.05	2.05
711	ST	W14X68		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.345	43
			67.58 T	-14.42	-66.66	2.50
712	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.090	48
			17.69 C	2.26	-2.32	2.75
713	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.094	48

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                    21.30 C         2.26          -2.32        2.75
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                         FX            MY             MZ       LOCATION
=======================================================================

   714  ST   W12X35                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.089        43
                      64.79 T        -0.07          -3.77        1.45
   715  ST   W12X50                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.144        43
                      82.98 T        -7.97          -3.87        2.05
   716  ST   W12X50                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.043        44
                      64.82 C        -0.20          -3.52        2.29
   717  ST   W12X35                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.233        43
                      93.88 T        -3.73         -14.66        2.75
   718  ST   W12X35                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.252        43
                      59.91 T        -4.95         -14.76        2.75
   719  ST   W12X65                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.693        42
                      69.51 T       -60.09         -77.99        1.00
   720  ST   W12X50                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.281        43
                     117.79 T       -17.76          -3.91        2.05
   721  ST   W12X50                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.040        44
                      50.39 C        -0.45          -3.14        2.29
   722  ST   W12X35                 (AISC SECTIONS)
```

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                    PASS     LRFD-H1-1B-C       0.080        48
                13.80 C         2.02          -2.32        2.75
   723  ST   W12X35                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.092        48
                24.97 C         2.02          -2.32        2.75
   725  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.295        44
               177.85 C        17.49          -4.24        2.05
   726  ST   W14X68                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.744        43
                43.21 T       -49.90        -139.12        2.50
   727  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.352        43
                13.84 T       -10.55         -47.27        2.75
   728  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.432        43
                 3.58 T       -16.82         -47.35        2.75
   729  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.234        44
               151.33 C        13.02          -5.66        1.00
```



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                          FX            MY             MZ       LOCATION
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   730  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.279        44
               148.77 C        17.32          -2.93        2.05
   731  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.345        44
                91.55 C        23.25          -3.40        2.50
```

732	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.330	43
			24.43 T	-10.76	-41.16	2.75
733	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.410	43
			7.52 T	-17.14	-41.20	2.75
734	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.419	43
			421.81 C	53.94	30.38	0.00
735	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.406	44
			401.37 C	44.13	62.45	1.50
736	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.121	42
			80.60 C	-0.02	-5.11	1.45
737	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.449	43
			194.09 C	-62.17	-41.72	1.50
738	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.368	43
			297.61 C	-43.26	-50.52	1.50
740	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.223	41
			47.57 C	24.97	-48.62	1.50
741	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.181	44
			38.42 C	6.02	95.93	1.50
742	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.600	43
			29.88 C	1.28	105.37	0.00
743	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.655	43
			156.76 C	65.36	136.57	0.00
744	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.705	43
			278.43 C	60.55	164.40	0.00
745	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.347	44

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                  221.24 C       -46.94        -29.46        1.38
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                         FX            MY             MZ       LOCATION
=======================================================================

   746  ST   W18X86                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.291        43
                      67.93 C        -40.49        -32.15        1.25
   747  ST   W18X86                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.254        44
                      98.90 C         19.02         87.67        3.00
   748  ST   W18X86                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.340        43
                       2.29 T        -42.11        -65.72        2.50
   749  ST   W12X50                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.431        42
                       6.24 T        -30.90         -6.33        4.00
   750  ST   W12X50                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.507        44
                       3.16 T          0.15         95.59        8.00
   751  ST   W12X65                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.462        44
                       2.14 C          1.37        136.97        8.00
   752  ST   W18X86                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.418        41
                     157.77 C        -67.50          3.59        1.50
   753  ST   W18X86                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.080        43
                       2.10 T         -6.63        -28.10        2.50
   755  ST   W18X86                 (AISC SECTIONS)
```

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                     PASS     LRFD-H1-1B-C       0.252        43
                  8.62 C        -31.94        -45.42        1.50
   756  ST   W18X86                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.124        43
                  4.28 T        -11.83        -37.35        1.50
   757  ST   W12X50                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.276        44
                  8.29 C          1.09         48.16        8.00
   758  ST   W12X35                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.339        44
                 22.81 C          1.27         31.94        6.50
   759  ST   W12X35                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.138        44
                  3.61 C          1.27         11.84        6.50
   760  ST   W12X35                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.475        42
                 48.53 T        -16.72         -8.50        0.00
   761  ST   W12X35                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.318        43
                 35.67 T         -6.08        -18.20        3.25
```



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   762  ST   W12X35                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.485        44
                 25.05 C          1.93         46.66        6.50
   877  ST   W18X86                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.292        41
                 28.57 C         48.97          3.59        0.00
```

879	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.277	41
			68.34 C	-38.26	31.13	0.00
881	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.276	43
			61.76 C	-28.77	-68.98	1.25
883	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.438	43
			135.20 C	-33.03	-155.11	1.25
885	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.228	44
			214.97 C	14.83	74.84	1.50
887	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.252	43
			298.37 C	25.05	42.87	0.00
889	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.570	41
			24.89 C	0.01	116.46	6.50
890	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.571	44
			1.12 C	0.24	65.25	6.50
891	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.480	44
			18.91 C	0.13	52.15	6.50
1009	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.225	44
			197.75 C	-7.54	-103.97	0.05
1011	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.492	43
			40.49 C	-4.97	-242.18	1.50
1013	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.424	44
			318.06 C	47.82	69.06	1.25
1015	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.405	44
			382.40 C	-20.57	-156.13	1.15
1017	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.395	42

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                    419.52 C        52.76         19.30        0.00
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ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

  1019  ST   W18X86                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.362        44
                    459.48 C        32.32         72.98        1.50
  1021  ST   W14X68                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.471        41
                      2.44 C         0.00       -169.12        3.79
  1022  ST   W12X35                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.546        43
                     33.13 C         0.03         57.67        0.00
  1023  ST   W12X35                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.996        42
                     21.53 T         0.10        114.16        6.50
  1027  ST   W12X50                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.533        42
                    160.47 T        13.68         66.48        2.50
  1028  ST   W18X86                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.250        43
                    222.91 C         9.96         99.98        0.00
  1029  ST   W18X86                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.243        42
                    134.56 C         0.54       -148.21        3.00
  1030  ST   W12X50                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.380        42
                    152.43 T         0.43         71.13        2.50
  1031  ST   W12X50                  (AISC SECTIONS)
```

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                       PASS     LRFD-H1-1B-T       0.103        47
                    85.16 T          2.20         -7.69        0.00
  1032  ST   W12X50                   (AISC SECTIONS)
                       PASS     LRFD-H1-1B-T       0.140        47
                   145.14 T          1.99        -11.34        0.00
  1033  ST   W12X50                   (AISC SECTIONS)
                       PASS     LRFD-H1-1B-C       0.449        42
                     7.38 C         -2.31         78.08        6.00
  1034  ST   W14X68                   (AISC SECTIONS)
                       PASS     LRFD-H1-1B-C       0.887        41
                    18.57 C         -0.05        292.28        8.00
  1035  ST   W12X50                   (AISC SECTIONS)
                       PASS     LRFD-H1-1B-T       0.380        43
                    63.79 T         -7.87        -69.60        1.30
  1051  ST   W14X68                   (AISC SECTIONS)
                       PASS     LRFD-H1-1B-C       0.442        44
                   107.83 C        -15.68       -101.22        0.32
  1052  ST   W12X35                   (AISC SECTIONS)
                       PASS     LRFD-H1-1B-T       0.400        44
                    31.07 T         -8.29        -35.08        0.00
```



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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
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  1053  ST   W12X35                   (AISC SECTIONS)
                       PASS     LRFD-H1-1B-T       0.388        42
                     0.61 T         -0.47        -70.48        1.30
  1055  ST   W12X35                   (AISC SECTIONS)
                       PASS     LRFD-H1-1B-T       0.527        42
                     0.61 T         -2.65        -86.69        0.50
```

1056	ST	W8X21		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-T		0.275	42
			3.25 T	0.00	-17.01		1.75
1061	ST	W12X35		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C		0.552	42
			1.29 C	2.47	-92.01		0.00
1062	ST	W8X21		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-T		0.274	42
			1.80 T	0.00	-17.01		1.75
1063	ST	W12X50		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-T		0.431	42
			20.08 T	1.75	-107.01		0.00
1064	ST	W12X35		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C		0.345	42
			1.29 C	1.20	-59.05		0.00
1065	ST	W8X21		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-T		0.274	42
			1.49 T	0.00	-17.01		1.75
1067	ST	W12X35		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C		0.561	42
			1.29 C	1.40	-98.66		0.80
1070	ST	W12X35		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C		0.111	44
			5.18 C	3.90	-2.68		0.60
1073	ST	W8X21		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-T		0.275	42
			4.25 T	0.00	-17.01		1.75
1074	ST	W14X68		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C		0.554	44
			93.84 C	22.67	121.62		1.00
1075	ST	W12X35		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-T		0.123	44
			31.70 T	-2.57	-9.22		0.00
1076	ST	W8X21		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-T		0.069	42
			2.88 T	0.00	-4.92		0.90
1077	ST	W14X68		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C		0.596	44

115.06 C -26.15 -125.68 0.34

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
1078 ST	W12X35		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.228	43
		6.36 C	8.07	-5.38	0.00
1079 ST	W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.059	42
		2.72 C	0.00	-4.21	0.90
1080 ST	W14X68		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.545	43
		48.49 C	-25.08	-115.40	0.65
1081 ST	W12X35		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.227	44
		5.24 C	8.07	-5.38	0.65
1083 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.751	44
		24.94 C	-11.91	-111.56	0.00
1085 ST	W12X35		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.187	44
		41.20 T	-7.09	-0.15	0.00
1086 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.752	44
		66.64 C	-11.43	-110.92	0.83
1087 ST	W12X35		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.585	43
		38.37 C	12.40	50.26	0.00
1089 ST	W12X35		(AISC SECTIONS)		

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                      PASS     LRFD-H1-1B-C       0.561        42
                   1.29 C         1.40        -98.66        0.00
  1090  ST   W12X35                 (AISC SECTIONS)
                      PASS     LRFD-H1-1B-T       0.542        44
                  80.27 T        -1.32        -64.13        0.00
  1091  ST   W12X35                 (AISC SECTIONS)
                      PASS     LRFD-H1-1B-T       0.162        44
                  58.10 T        -2.95        -13.30        0.00
  1092  ST   W8X21                  (AISC SECTIONS)
                      PASS     LRFD-H1-1B-C       0.369        43
                   6.02 C         3.85         10.37        0.00
  1093  ST   W12X35                 (AISC SECTIONS)
                      PASS     LRFD-H1-1B-C       0.101        42
                  35.57 C         0.71        -13.17        0.33
  1094  ST   W8X21                  (AISC SECTIONS)
                      PASS     SHEAR-Y            0.029        42
                   0.88 T         0.00          0.00        0.00
  1095  ST   W12X35                 (AISC SECTIONS)
                      PASS     LRFD-H1-1B-T       0.414        44
                  78.25 T        -2.20        -44.42        0.00
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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                          FX            MY             MZ       LOCATION
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  1096  ST   W12X35                 (AISC SECTIONS)
                      PASS     LRFD-H1-1B-T       0.132        44
                  58.69 T        -1.84        -12.69        0.00
  1097  ST   W8X21                  (AISC SECTIONS)
                      PASS     LRFD-H1-1B-T       0.198        44
                   2.66 T        -4.00         -0.02        0.00
```

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1098  ST   W12X35                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.100        42
                    35.57 C          0.06        -15.87        0.00
1099  ST   W8X21                     (AISC SECTIONS)
                        PASS     SHEAR-Y            0.029        42
                     0.05 C          0.00          0.00        0.00
1100  ST   W12X35                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.266        44
                    75.95 T         -2.56        -23.60        0.00
1101  ST   W12X35                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.155        43
                    59.38 T         -5.33          0.98        1.30
1102  ST   W8X21                     (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.235        44
                     3.40 C          4.72         -0.01        3.85
1103  ST   W12X35                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.258        44
                    63.71 C          9.48          0.48        1.30
1104  ST   W8X21                     (AISC SECTIONS)
                        PASS     SHEAR-Y            0.029        42
                     0.49 C          0.00          0.00        0.00
1105  ST   W12X50                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.645        44
                    42.49 C          0.21        119.27        3.25
1106  ST   W12X35                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.405        43
                     3.92 T         -4.24        -42.26        1.25
1107  ST   W12X35                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.478        44
                    94.66 T         -1.48        -57.69        0.00
1109  ST   W12X35                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.391        44
                    44.33 T         -1.65        -47.28        0.00
1110  ST   W12X35                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.263        43
                     9.35 T         -9.17         -5.80        3.85
1111  ST   W12X35                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.655        42
```

24.63 T 11.57 -51.31 0.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
1112 ST	W12X35		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.712	44
		20.11 T	-7.05	-74.95	0.00
1113 ST	W12X35		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.320	43
		7.59 T	-7.87	-19.87	3.85
1114 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.569	43
		62.29 T	-6.01	-126.10	1.30
1165 ST	W12X35		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.187	43
		6.40 C	6.17	-6.51	0.00
1174 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.782	42
		20.08 T	5.44	-187.27	0.00
1183 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.643	43
		60.92 T	-2.08	-159.53	1.02
1253 ST	W18X86		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.582	44
		187.40 C	-39.98	-207.77	0.00
1438 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.042	47
		68.90 C	0.38	-3.87	2.75
1439 ST	W12X50		(AISC SECTIONS)		

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                    PASS     LRFD-H1-1B-C       0.050        47
                68.00 C          0.25         -6.08        2.75
 1440  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.367        43
                 3.85 T          0.03        -89.40        4.00
 1441  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.104        47
               100.37 T          2.20         -7.26        2.75
 1442  ST   W6X16                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.107        44
                31.36 C          0.01          2.44        2.50
 1443  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.130        47
               125.78 T          1.99        -10.49        2.75
 1444  ST   W6X16                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.092        44
                28.89 C          0.00          2.02        2.50
 1445  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.059        44
               112.90 C         -0.18         -5.19        2.52
```


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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY              MZ       LOCATION
=======================================================================

 1446  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.049        44
                96.25 C         -0.10         -4.25        2.52
 1447  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.514        42
                10.56 T          0.00        -96.85        4.00
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1448  ST   W6X16                    (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.050        43
                     18.16 T         -0.01          -1.40        2.50
1449  ST   W6X16                    (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.062        43
                     31.58 T         -0.01          -1.48        2.50
1450  ST   W12X50                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-C       0.049        43
                    125.02 C          0.09          -2.58        0.00
1451  ST   W12X50                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-C       0.044        43
                    106.53 C          0.18          -2.22        0.00
1452  ST   W12X50                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.384        43
                      3.80 T         -0.06         -93.48        4.00
1453  ST   W12X50                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-C       0.067        43
                    143.98 C          1.10          -1.42        0.00
1454  ST   W6X16                    (AISC SECTIONS)
                         PASS     LRFD-H1-1B-C       0.119        43
                     32.97 C          0.00           2.84        0.00
1455  ST   W12X50                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-C       0.060        43
                    130.80 C          1.11          -0.98        0.00
1456  ST   W6X16                    (AISC SECTIONS)
                         PASS     LRFD-H1-1B-C       0.124        43
                     30.96 C          0.01           3.10        0.00
1465  ST   W12X50                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.111        44
                    190.86 T         -0.18          -9.11        0.00
1466  ST   W12X50                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-C       0.072        44
                    145.50 C         -0.12          -3.93        2.52
1467  ST   W6X16                    (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.094        43
                     60.51 T          0.00          -1.80        3.00
1468  ST   W12X50                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.107        44
```

179.27 T -0.15 -8.99 0.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
1469 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.061	42
		123.05 C	0.05	-3.43	1.37
1470 ST	W6X16		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.088	43
		61.04 T	0.00	-1.56	3.00
1471 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.103	40
		8.37 T	0.00	-19.15	4.00
1472 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.126	43
		206.24 T	-0.18	-10.59	2.75
1473 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.061	44
		70.05 C	-0.02	-5.64	2.52
1474 ST	W6X16		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.101	44
		10.20 C	-0.01	-3.01	0.00
1475 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.108	43
		160.32 T	-0.15	-9.76	2.75
1476 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.058	44
		74.50 C	-0.07	-4.98	2.52
1477 ST	W6X16		(AISC SECTIONS)		

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                     PASS     LRFD-H1-1B-C       0.082        44
                10.07 C        -0.01         -2.30        0.00
 1478  ST   W12X50                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.101        43
               319.37 C         0.17          0.73        0.00
 1479  ST   W12X50                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.055        43
               167.36 C         0.05         -0.80        0.00
 1480  ST   W6X16                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.108        43
                14.16 C         0.02          2.99        0.00
 1481  ST   W12X50                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.099        43
               318.76 C         0.17          0.42        0.00
 1482  ST   W12X50                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.061        42
               122.37 C         0.20         -3.20        0.00
 1483  ST   W6X16                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.103        43
                14.04 C         0.03          2.80        0.00
```



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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY              MZ       LOCATION
=======================================================================

 1484  ST   W12X65                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.439        40
                12.44 C         0.00       -131.46        4.00
 1493  ST   W12X50                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.048        43
               143.51 C         0.18         -0.63        0.00
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  1494  ST   W12X50                      (AISC SECTIONS)
                               PASS     LRFD-H1-1B-C       0.062        43
                          177.66 C         0.15          -1.48        0.00
  1495  ST   W12X50                      (AISC SECTIONS)
                               PASS     LRFD-H1-1B-C       0.062        41
                            0.08 C        -0.06         -14.82        4.00
  1496  ST   W12X50                      (AISC SECTIONS)
                               PASS     LRFD-H1-1B-C       0.054        44
                          131.34 C        -0.08          -3.03        2.66
  1497  ST   W12X50                      (AISC SECTIONS)
                               PASS     LRFD-H1-1B-C       0.073        41
                          132.72 C         0.01          -7.47        0.00
  1498  ST   W12X65                      (AISC SECTIONS)
                               PASS     LRFD-H1-1B-T       0.442        43
                           24.59 T        -1.97        -128.57        5.12
  1499  ST   W12X50                      (AISC SECTIONS)
                               PASS     LRFD-H1-1B-C       0.059        44
                          111.30 C        -0.19          -5.27        2.66
  1500  ST   W12X50                      (AISC SECTIONS)
                               PASS     LRFD-H1-1B-C       0.089        44
                          139.84 C        -0.23          -9.97        2.66
  1501  ST   W12X50                      (AISC SECTIONS)
                               PASS     LRFD-H1-1B-C       0.057        40
                            1.18 C        -0.03         -13.77        4.00
  1502  ST   W14X68                      (AISC SECTIONS)
                               PASS     LRFD-H1-1B-T       0.738        44
                           26.89 T       -49.35        -139.69        0.00
  1503  ST   W12X50                      (AISC SECTIONS)
                               PASS     LRFD-H1-1B-C       0.340        43
                           89.09 C        22.98          -3.41        0.00
  1504  ST   W12X50                      (AISC SECTIONS)
                               PASS     LRFD-H1-1B-T       0.709        43
                            9.05 T       -23.99         -95.98        4.00
* 1505  ST   W14X68                      (AISC SECTIONS)
                               FAIL     LRFD-H1-1B-T       1.019        44
                           32.45 T       -69.57        -188.88        0.00
  1506  ST   W12X50                      (AISC SECTIONS)
                               PASS     LRFD-H1-1B-C       0.462        43
```

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                   95.33 C        32.43          -2.62        0.00
```



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ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================


  1507  ST   W12X50                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.511        42
                        0.12 T          0.00         -96.85        4.00
* 1508  ST   W14X68                   (AISC SECTIONS)
                           FAIL     LRFD-H1-1B-T       1.020        43
                       37.23 T        -69.57        -188.88        2.50
  1509  ST   W12X50                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.460        44
                       88.90 C         32.43          -2.48        2.50
  1510  ST   W12X50                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.703        43
                        9.34 T        -24.05         -94.41        4.00
  1511  ST   W12X50                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.319        43
                      157.85 C         17.80         -10.55        0.00
  1512  ST   W12X50                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.266        43
                       74.23 C         17.67          -3.47        0.00
  1513  ST   W12X50                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.722        43
                        4.38 T        -24.22         -98.71        4.00
  1514  ST   W12X50                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.375        43
                      165.63 C         24.61          -2.05        0.00
  1515  ST   W12X50                   (AISC SECTIONS)
```

```
                    PASS     LRFD-H1-1B-C       0.346        43
                79.52 C        24.68          -0.37        0.00
  1516  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.511        42
                 0.16 T         0.00         -96.85        4.00
  1517  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.380        44
               162.93 C       -24.06          -5.12        1.88
  1518  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.364        44
               148.03 C        24.68          -0.25        2.05
  1519  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.578        43
                 2.71 T       -23.81         -64.94        4.00
  1520  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.351        44
                 9.98 T       -10.55         -47.26        0.00
  1521  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.329        44
                20.65 T       -10.76         -41.16        0.00
```



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ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY              MZ       LOCATION
=======================================================================

  1522  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.511        42
                 0.12 C         0.00         -96.85        4.00
  1523  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.432        44
                 3.33 T       -16.82         -47.34        0.00
```

1524	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.409	44
			4.33 T	-17.14	-41.20	0.00
1525	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.511	42
			0.03 T	0.00	-96.85	4.00
1528	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.233	43
			46.79 C	23.08	62.91	0.00
1531	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.279	44
			49.97 C	-34.44	-49.34	0.00
1533	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.262	44
			55.26 C	-29.65	-56.08	0.00
1543	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.445	43
			7.09 T	-12.06	-19.77	2.50
1544	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.410	43
			8.36 T	-0.06	-76.00	1.81
1584	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.016	48
			3.37 T	0.49	-0.56	1.35
1594	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.444	44
			5.02 T	-12.06	-19.77	0.00
1597	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.681	43
			48.73 T	-0.64	-121.73	1.81
1599	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.068	48
			3.50 T	0.60	-9.08	1.20
1600	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.734	44
			46.70 T	-0.64	-121.75	0.00
1605	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.193	41

270.94 T -0.15 -20.20 2.50

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
1606 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.289	44
		156.80 C	-0.02	-38.67	2.29
1607 ST	W6X16		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.142	44
		29.14 C	0.00	3.35	3.00
1608 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.119	43
		210.89 T	-0.13	-10.69	2.50
1609 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.059	44
		65.64 C	-0.09	-6.20	2.29
1610 ST	W6X16		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.086	44
		9.92 C	0.01	-2.49	0.00
1611 ST	W14X68		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.346	44
		74.10 T	-14.42	-66.66	0.00
1613 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.100	41
		95.44 T	0.00	-12.33	2.50
1615 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.196	41
		278.34 T	-0.14	-20.26	0.00
1616 ST	W12X50		(AISC SECTIONS)		

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                    PASS     LRFD-H1-1B-T       0.323        44
                 5.18 T         -0.01        -50.94        0.00
 1617  ST   W6X16                     (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.115        43
                46.79 T         -0.35         -1.85        3.00
 1618  ST   W12X50                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.117        44
               225.34 T         -0.13         -9.85        0.00
 1619  ST   W12X50                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.053        48
                78.54 C         -0.31         -4.23        0.00
 1620  ST   W6X16                     (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.065        43
                45.71 T          0.00         -1.15        3.00
 1621  ST   W14X68                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.192        43
                65.32 C          6.47         38.52        0.00
 1623  ST   W12X50                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.100        41
                95.50 T          0.00        -12.25        0.00
```


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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY              MZ       LOCATION
=======================================================================

 1625  ST   W12X50                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.085        44
               276.59 T         -0.06         -3.01        0.00
 1626  ST   W12X50                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.066        43
               161.11 C         -0.02          3.20        0.00
```

1627	ST	W6X16		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.170	43
			36.42 C	0.03	3.83	0.00
1628	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.083	43
			258.64 C	0.21	-0.96	0.00
1629	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.046	48
			78.03 C	-0.26	-3.27	0.00
1630	ST	W6X16		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.093	43
			12.75 C	0.01	2.55	0.00
1631	ST	W14X68		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.100	44
			52.52 T	-3.37	-19.45	0.00
1633	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.039	43
			83.55 C	0.52	-1.31	0.00
1639	LD	L35358		(AISC SECTIONS)		
			PASS	TENSION	0.247	44
			231.75 T	0.00	0.00	0.00
1640	LD	L35358		(AISC SECTIONS)		
			PASS	COMPRESSION	0.582	43
			169.78 C	0.00	0.00	0.00
1641	LD	L35358		(AISC SECTIONS)		
			PASS	COMPRESSION	0.729	44
			212.74 C	0.00	0.00	3.91
1642	LD	L35358		(AISC SECTIONS)		
			PASS	TENSION	0.301	43
			282.42 T	0.00	0.00	3.91
1643	LD	L30306		(AISC SECTIONS)		
			PASS	TENSION	0.211	44
			128.56 T	0.00	0.00	0.00
1644	LD	L30306		(AISC SECTIONS)		
			PASS	COMPRESSION	0.636	43
			89.88 C	0.00	0.00	0.00
1645	LD	L30306		(AISC SECTIONS)		
			PASS	COMPRESSION	0.700	44

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                    98.98 C        0.00           0.00        3.91
```



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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

  1646  LD   L30306                   (AISC SECTIONS)
                           PASS     TENSION            0.222        43
                   134.67 T         0.00           0.00        3.91
  1651  LD   L30306                   (AISC SECTIONS)
                           PASS     TENSION            0.218        44
                   132.48 T         0.00           0.00        0.00
  1652  LD   L30306                   (AISC SECTIONS)
                           PASS     COMPRESSION        0.559        43
                    87.24 C         0.00           0.00        0.00
  1653  LD   L30306                   (AISC SECTIONS)
                           PASS     COMPRESSION        0.647        44
                   100.96 C         0.00           0.00        3.72
  1654  LD   L30306                   (AISC SECTIONS)
                           PASS     TENSION            0.244        43
                   148.49 T         0.00           0.00        3.72
  1655  LD   L30306                   (AISC SECTIONS)
                           PASS     TENSION            0.180        44
                   109.19 T         0.00           0.00        0.00
  1656  LD   L30306                   (AISC SECTIONS)
                           PASS     COMPRESSION        0.420        43
                    65.50 C         0.00           0.00        0.00
  1657  LD   L30306                   (AISC SECTIONS)
                           PASS     COMPRESSION        0.698        44
                   108.90 C         0.00           0.00        3.72
  1658  LD   L30306                   (AISC SECTIONS)
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                    PASS     TENSION            0.257       43
               155.96 T         0.00          0.00       3.72
  1659  LD   L35358                  (AISC SECTIONS)
                    PASS     TENSION            0.180       44
               168.75 T         0.00          0.00       0.00
  1660  LD   L35358                  (AISC SECTIONS)
                    PASS     COMPRESSION        0.471       43
               126.46 C         0.00          0.00       0.00
  1661  LD   L35358                  (AISC SECTIONS)
                    PASS     COMPRESSION        0.657       44
               176.52 C         0.00          0.00       4.07
  1662  LD   L35358                  (AISC SECTIONS)
                    PASS     TENSION            0.232       43
               217.15 T         0.00          0.00       4.07
  1663  LD   L35358                  (AISC SECTIONS)
                    PASS     TENSION            0.244       44
               228.58 T         0.00          0.00       0.00
  1664  LD   L35358                  (AISC SECTIONS)
                    PASS     COMPRESSION        0.689       43
               185.30 C         0.00          0.00       0.00
```



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ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

  1665  LD   L35358                  (AISC SECTIONS)
                    PASS     COMPRESSION        0.721       44
               193.73 C         0.00          0.00       4.07
  1666  LD   L35358                  (AISC SECTIONS)
                    PASS     TENSION            0.251       43
               235.36 T         0.00          0.00       4.07
```

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 1667  ST   W12X50                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.961        41
                      0.01 T          0.00       -182.12        3.33
 1668  ST   W12X50                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.104        41
                     11.70 T          0.00        -19.15        4.00
 1669  ST   W12X65                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.405        43
                      9.55 T        -13.37        -96.67        2.50
 1685  ST   W14X68                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.455        44
                     26.69 T          0.31        149.03        4.00
 1686  ST   W14X68                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.721        45
                     32.59 T        -64.02        -97.56        0.00
 1689  ST   W12X65                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.406        44
                     14.21 T          3.71        114.89        4.00
 1690  ST   W12X30                   (AISC SECTIONS)
                        PASS     COMPRESSION        0.364        46
                    103.81 C          0.00          0.00        0.00
 1691  ST   W12X30                   (AISC SECTIONS)
                        PASS     COMPRESSION        0.277        48
                     79.08 C          0.00          0.00        0.00
 1692  ST   W12X30                   (AISC SECTIONS)
                        PASS     COMPRESSION        0.433        45
                     92.29 C          0.00          0.00        0.00
 1693  ST   W12X30                   (AISC SECTIONS)
                        PASS     COMPRESSION        0.432        47
                     92.27 C          0.00          0.00        0.00
 1694  ST   W12X50                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.112        48
                    111.45 T         -2.35         -7.34        0.00
 1695  ST   W12X65                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.145        42
                    249.51 T          7.29        -13.83        0.00
 1696  ST   W12X50                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.182        41
```

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                    8.87 C          0.00        -32.91        6.67
```



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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

  1697  ST   W12X50                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.552        44
                       64.93 T       -32.97        -19.73        1.37
  1698  ST   W12X50                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.483        44
                       83.66 T       -33.58         -4.63        0.00
  1699  ST   W12X50                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.043        40
                        0.01 T         0.00         -8.16        4.00
  1700  ST   W12X35                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.214        40
                      137.12 C         0.04         -9.19        0.00
  1701  ST   W12X35                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.224        40
                      154.75 C        -0.05         -9.37        0.00
  1702  ST   W12X50                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.105        40
                       18.60 T         0.00        -19.15        4.00
  1703  ST   W12X50                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.195        43
                      110.64 C        11.43         -2.86        0.00
  1704  ST   W12X50                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.186        43
                       74.18 C        11.43         -2.99        0.00
  1705  ST   W12X50                  (AISC SECTIONS)
```

```
                     PASS     LRFD-H1-1B-T       0.101        40
                  0.02 T          0.00        -19.15        4.00
 1706  ST   W12X50                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.413        44
                121.59 T        -25.13        -10.41        0.00
 1707  ST   W12X50                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.402        44
                 91.22 T        -25.17         -9.55        0.00
 1708  ST   W12X65                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.405        43
                  6.81 T        -14.46        -94.75        2.50
 1709  ST   W12X35                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.302        40
                203.37 T         -0.07        -13.27        0.00
 1710  ST   W12X35                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.306        40
                208.10 T          0.07        -13.46        0.00
 1711  ST   W12X50                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.527        40
                 22.22 C          0.00        -96.06        4.00
```



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                         FX            MY             MZ       LOCATION
=======================================================================

 1712  ST   W12X50                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.149        41
                 90.47 T         -0.61         16.02        0.00
 1713  ST   W6X16                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.084        44
                  8.23 C         -0.31         -1.81        0.00
```

1714	ST	W12X65		(AISC SECTIONS)			
				PASS	LRFD-H1-1B-T	0.226	42
			268.61 T	-17.29	17.76	0.00	
1715	ST	W6X16		(AISC SECTIONS)			
				PASS	LRFD-H1-1B-C	0.092	44
			10.68 C	0.01	2.90	2.50	
1716	ST	W6X16		(AISC SECTIONS)			
				PASS	LRFD-H1-1B-T	0.063	44
			20.44 T	-0.02	-1.79	0.00	
1717	ST	W6X16		(AISC SECTIONS)			
				PASS	LRFD-H1-1B-C	0.180	42
			4.92 C	-1.82	0.82	2.50	
1718	ST	W12X50		(AISC SECTIONS)			
				PASS	LRFD-H1-1B-T	0.053	48
			94.37 T	1.47	-1.47	0.73	
1719	ST	W6X16		(AISC SECTIONS)			
				PASS	LRFD-H1-1B-C	0.066	43
			9.09 C	0.00	2.06	0.00	
1720	ST	W12X65		(AISC SECTIONS)			
				PASS	LRFD-H1-1B-T	0.072	42
			212.69 T	3.60	-2.68	0.00	
1721	ST	W6X16		(AISC SECTIONS)			
				PASS	LRFD-H1-1B-C	0.081	43
			10.45 C	0.01	2.54	0.00	
1722	LD	L30306		(AISC SECTIONS)			
				PASS	TENSION	0.282	44
			171.53 T	0.00	0.00	0.00	
1723	LD	L30306		(AISC SECTIONS)			
				PASS	COMPRESSION	0.720	44
			105.88 C	0.00	0.00	3.83	
1724	LD	L30306		(AISC SECTIONS)			
				PASS	COMPRESSION	0.492	44
			72.28 C	0.00	0.00	3.83	
1725	LD	L30306		(AISC SECTIONS)			
				PASS	TENSION	0.156	43
			94.99 T	0.00	0.00	3.83	
1726	LD	L30306		(AISC SECTIONS)			
				PASS	TENSION	0.372	41

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                    226.27 T          0.00           0.00        0.00
```



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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

  1727  LD   L30306                 (AISC SECTIONS)
                           PASS     COMPRESSION        0.798        43
                    117.32 C          0.00           0.00        0.00
  1729  LD   L30306                 (AISC SECTIONS)
                           PASS     TENSION            0.189        43
                    114.77 T          0.00           0.00        3.83
  1730  LD   L30306                 (AISC SECTIONS)
                           PASS     COMPRESSION        0.585        44
                     85.94 C          0.00           0.00        3.83
  1731  ST   W12X50                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.250        44
                    170.30 T        -14.51          -3.79        0.00
  1732  ST   W12X50                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.150        43
                    110.57 C          8.29          -2.11        0.00
  1733  ST   W6X16                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.086        43
                     11.33 C          0.12           2.06        0.00
  1734  ST   W12X50                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.229        44
                    105.43 T        -14.41          -2.91        0.00
  1735  ST   W12X50                 (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.145        44
                     62.01 T         -8.30          -4.05        0.00
  1736  ST   W6X16                  (AISC SECTIONS)
```

```
                    PASS     LRFD-H1-1B-C       0.095        43
                11.19 C         0.14          2.33        0.00
  1737  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.534        43
               132.82 C        36.95          2.73        0.00
  1738  ST   W6X16                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.155        43
                25.14 C         0.29          3.68        0.00
  1739  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.268        44
                42.50 T       -17.67         -5.09        0.00
  1740  ST   W6X16                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.128        42
                29.64 C         0.02          3.31        0.00
  1741  ST   W6X16                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.094        44
                44.04 T        -0.19         -1.66        0.00
  1742  ST   W6X16                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.075        43
                40.81 T         0.19          1.06        2.75
```



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ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

  1743  ST   W6X16                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.091        42
                31.01 T         0.02         -2.53        0.00
  1744  ST   W6X16                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.070        43
                 5.84 T        -0.31         -1.50        2.50
```

1745	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.416	43
			117.33 T	-25.13	-11.25	2.05
1746	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.194	43
			66.26 T	-11.43	-5.46	2.05
1747	ST	W6X16		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.110	44
			9.34 C	-0.13	-3.00	0.00
1748	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.403	43
			86.96 T	-25.17	-10.05	2.05
1749	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.193	43
			82.56 T	-11.41	-4.63	2.05
1750	ST	W6X16		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.092	44
			8.48 C	-0.12	-2.44	0.00
1751	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.381	43
			152.69 T	-25.04	-3.37	2.05
1752	ST	W6X16		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.125	42
			23.24 C	-0.02	-3.54	0.00
1753	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.480	43
			83.94 T	-33.58	-4.00	2.05
1754	ST	W6X16		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.080	44
			18.50 C	0.20	1.47	2.50
1755	LD	L30306		(AISC SECTIONS)		
			PASS	TENSION	0.273	42
			166.05 T	0.00	0.00	0.00
1756	LD	L30306		(AISC SECTIONS)		
			PASS	COMPRESSION	0.622	42
			128.26 C	0.00	0.00	0.00
1757	LD	L30306		(AISC SECTIONS)		
			PASS	COMPRESSION	0.397	44

	81.89 C	0.00	0.00	3.23

ALL UNITS ARE - KN METE (UNLESS OTHERWISE NOTED)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
1758	LD L30306		(AISC SECTIONS)		
		PASS	TENSION	0.318	41
		193.09 T	0.00	0.00	3.23
1759	LD L30306		(AISC SECTIONS)		
		PASS	COMPRESSION	0.241	42
		49.71 C	0.00	0.00	3.23
1760	LD L30306		(AISC SECTIONS)		
		PASS	COMPRESSION	0.255	43
		52.56 C	0.00	0.00	0.00
1761	LD L30306		(AISC SECTIONS)		
		PASS	COMPRESSION	0.586	42
		120.72 C	0.00	0.00	3.23
1762	LD L30306		(AISC SECTIONS)		
		PASS	TENSION	0.267	42
		162.47 T	0.00	0.00	3.23
1763	LD L30306		(AISC SECTIONS)		
		PASS	TENSION	0.237	44
		143.83 T	0.00	0.00	0.00
1764	LD L30306		(AISC SECTIONS)		
		PASS	COMPRESSION	0.690	43
		112.55 C	0.00	0.00	0.00
1765	LD L30306		(AISC SECTIONS)		
		PASS	COMPRESSION	0.382	44
		62.38 C	0.00	0.00	3.63
1766	LD L30306		(AISC SECTIONS)		

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                       PASS     COMPRESSION        0.190        43
                    31.02 C         0.00           0.00        0.00
 1767  LD   L30306                    (AISC SECTIONS)
                       PASS     TENSION            0.186        44
                   113.27 T         0.00           0.00        0.00
 1768  LD   L30306                    (AISC SECTIONS)
                       PASS     COMPRESSION        0.504        43
                    82.29 C         0.00           0.00        0.00
 1769  LD   L30306                    (AISC SECTIONS)
                       PASS     COMPRESSION        0.496        44
                    80.99 C         0.00           0.00        3.63
 1770  LD   L30306                    (AISC SECTIONS)
                       PASS     TENSION            0.181        43
                   109.75 T         0.00           0.00        3.63
 1771  ST   W10X30                    (AISC SECTIONS)
                       PASS     LRFD-H1-1A-C       0.271        44
                   115.01 C         2.34           0.58        4.14
 1772  ST   W10X30                    (AISC SECTIONS)
                       PASS     LRFD-H1-1A-C       0.576        44
                   284.18 C         1.76           0.32        4.30
```



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ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

 1777  ST   W10X30                    (AISC SECTIONS)
                       PASS     LRFD-H1-1A-C       0.527        44
                   230.52 C         3.48           0.41        4.30
 1778  ST   W10X30                    (AISC SECTIONS)
                       PASS     LRFD-H1-1A-C       0.397        44
                   152.22 C         3.78           1.13        4.30
```

1781	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1A-C	0.549	43
		231.62 C		3.45	1.48	0.00
1782	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1A-C	0.415	43
		153.43 C		3.75	2.12	0.00
1783	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1A-C	0.318	43
		130.77 C		2.26	0.69	0.00
1784	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1A-C	0.572	43
		283.49 C		1.82	1.46	0.00
1787	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.157	43
		80.61 T		-2.85	-3.73	4.14
1788	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1A-C	0.615	44
		305.24 C		1.76	0.34	4.30
1793	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1A-C	0.453	44
		190.89 C		3.49	0.35	4.30
1794	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1A-C	0.389	44
		148.72 C		3.79	0.97	4.30
1797	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1A-C	0.473	43
		191.43 C		3.45	1.42	0.00
1798	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1A-C	0.408	43
		150.36 C		3.76	2.02	0.00
1799	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.136	43
		59.98 C		2.26	0.79	0.00
1800	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1A-C	0.612	43
		305.31 C		1.82	1.53	0.00
1803	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.481	42

79.60 T 16.60 -8.23 3.25

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
1804 ST	W14X68		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.772	42
		11.04 T	92.48	28.99	2.00
1805 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.444	42
		5.05 C	-30.87	-9.55	0.00
1806 ST	W12X35		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.409	42
		28.07 C	-15.44	-3.11	0.00
1807 ST	W12X35		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.412	42
		19.70 T	16.11	-2.09	0.00
1808 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.627	42
		27.36 T	45.84	-4.85	0.00
1809 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.623	42
		41.98 T	46.23	2.08	5.15
1810 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.644	42
		68.75 C	45.34	4.88	5.15
1811 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.780	42
		76.11 C	53.81	9.97	0.00
1812 ST	W12X35		(AISC SECTIONS)		

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                        PASS     LRFD-H1-1B-T       0.203        44
                   142.92 T         -0.12          -8.71        0.00
  1813  ST   W12X35                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.180        42
                   181.88 C          0.02          -6.28        1.45
  1814  ST   W6X16                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.099        41
                    33.18 T          0.00           3.10        1.50
  1815  ST   W12X35                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.197        44
                   138.72 T         -0.04          -8.59        0.00
  1816  ST   W12X35                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.159        44
                   151.47 C         -0.05          -5.72        1.33
  1817  ST   W6X16                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.103        41
                    32.53 T          0.00           3.31        1.50
  1818  ST   W6X16                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.042        44
                    36.17 T          0.00          -0.66        0.00
```



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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
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  1819  ST   W6X16                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.050        44
                    35.86 T          0.00          -0.99        0.00
  1820  ST   W12X35                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.257        40
                   148.52 T         -0.08         -11.78        0.00
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1821  ST   W12X35                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.169        41
                    43.86 C          0.05          -8.67        0.00
1822  ST   W6X16                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.088        43
                    33.19 T          0.00          -2.68        1.50
1823  ST   W12X35                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.258        40
                   151.76 T          0.08         -11.74        0.00
1824  ST   W12X35                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.163        41
                    30.28 C         -0.03          -8.63        0.00
1825  ST   W6X16                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.088        43
                    32.75 T          0.00          -2.68        1.50
1826  ST   W12X35                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.310        40
                   206.15 T          0.07         -13.68        1.45
1827  ST   W12X35                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.222        40
                   139.56 C         -0.05          -9.59        1.45
1828  ST   W6X16                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.051        44
                     5.40 C          0.00           1.90        1.50
1829  ST   W12X35                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.309        40
                   204.71 T         -0.07         -13.68        1.45
1830  ST   W12X35                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.218        40
                   128.72 C          0.04          -9.59        1.45
1831  ST   W6X16                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.058        44
                     5.25 C          0.00           2.21        1.50
1832  ST   W12X35                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.091        47
                    32.29 C         -0.37          -4.01        0.00
1833  ST   W12X35                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.098        42
```

	78.09 C	0.05	-3.84	0.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
1834	ST W6X16		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.110	43
		6.48 C	0.00	4.31	0.00
1835	ST W12X35		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.084	44
		27.08 T	-0.11	-4.13	0.00
1836	ST W12X35		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.069	44
		12.62 T	-0.11	-3.54	0.00
1837	ST W6X16		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.108	43
		6.07 C	0.00	4.25	0.00
1838	ST W12X35		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.248	43
		140.85 T	-0.12	-11.33	1.45
1839	ST W12X35		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.167	43
		59.38 T	-0.07	-8.31	1.45
1840	ST W6X16		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.123	41
		6.65 C	0.00	-4.90	0.00
1841	ST W12X35		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.242	43
		137.35 T	-0.04	-11.20	1.45
1842	ST W12X35		(AISC SECTIONS)		

```
                     PASS     LRFD-H1-1B-T       0.171        43
                 79.10 T        -0.12          -8.11        1.45
  1843  ST   W6X16                    (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.127        41
                  7.16 C         0.00          -5.02        0.00
  1844  ST   W12X35                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.216        41
                152.07 T        -0.08          -9.34        1.45
  1845  ST   W12X35                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.176        44
                176.14 C        -0.05          -6.12        1.33
  1846  ST   W6X16                    (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.043        43
                  6.18 C         0.00           1.56        0.00
  1847  ST   W12X35                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.220        41
                156.19 T         0.08          -9.50        1.45
  1848  ST   W12X35                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.169        44
                153.99 C        -0.10          -6.19        1.33
```



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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY              MZ       LOCATION
=======================================================================

  1849  ST   W6X16                    (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.044        43
                  6.22 C         0.00           1.59        0.00
  1851  LD   L30306                   (AISC SECTIONS)
                     PASS     COMPRESSION        0.350        41
                131.45 C         0.00           0.00        0.00
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```
1852  LD   L30306                  (AISC SECTIONS)
                        PASS     TENSION            0.136        44
                    82.45 T         0.00           0.00        0.00
1853  LD   L30306                  (AISC SECTIONS)
                        PASS     COMPRESSION        0.149        43
                    55.73 C         0.00           0.00        0.00
1855  LD   L30306                  (AISC SECTIONS)
                        PASS     COMPRESSION        0.291        43
                   109.22 C         0.00           0.00        0.00
1856  LD   L30306                  (AISC SECTIONS)
                        PASS     TENSION            0.101        44
                    61.38 T         0.00           0.00        0.00
1857  LD   L30306                  (AISC SECTIONS)
                        PASS     COMPRESSION        0.096        44
                    36.02 C         0.00           0.00        2.09
1858  LD   L30306                  (AISC SECTIONS)
                        PASS     TENSION            0.239        41
                   145.38 T         0.00           0.00        0.00
1859  LD   L30306                  (AISC SECTIONS)
                        PASS     COMPRESSION        0.334        41
                   125.41 C         0.00           0.00        0.00
1860  LD   L30306                  (AISC SECTIONS)
                        PASS     TENSION            0.119        44
                    72.45 T         0.00           0.00        0.00
1861  LD   L30306                  (AISC SECTIONS)
                        PASS     COMPRESSION        0.125        42
                    46.86 C         0.00           0.00        0.00
1862  LD   L30306                  (AISC SECTIONS)
                        PASS     COMPRESSION        0.095        44
                    35.65 C         0.00           0.00        2.09
1863  LD   L30306                  (AISC SECTIONS)
                        PASS     TENSION            0.100        43
                    60.75 T         0.00           0.00        2.09
1864  LD   L30306                  (AISC SECTIONS)
                        PASS     COMPRESSION        0.293        44
                   110.00 C         0.00           0.00        2.09
1865  LD   L30306                  (AISC SECTIONS)
                        PASS     TENSION            0.208        43
```

	126.39 T	0.00	0.00	2.09

ALL UNITS ARE - KN METE (UNLESS OTHERWISE NOTED)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
1869 ST	W12X35		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.108	44
		120.36 C	-0.13	-3.38	1.33
1870 ST	W12X35		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.093	43
		84.94 T	-0.10	-3.54	1.45
1872 LD	L30306		(AISC SECTIONS)		
		PASS	TENSION	0.254	41
		154.29 T	0.00	0.00	0.00
1873 LD	L30306		(AISC SECTIONS)		
		PASS	TENSION	0.207	44
		126.06 T	0.00	0.00	0.00
1879 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.801	42
		27.32 T	-39.62	-37.11	1.00
1880 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.185	44
		111.72 C	-10.08	-5.62	0.92
1883 ST	W18X86		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.549	43
		451.81 C	8.77	291.22	0.00
1884 ST	W18X86		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.532	44
		188.08 C	-13.12	-291.00	0.00
1885 ST	W18X86		(AISC SECTIONS)		

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                    PASS     LRFD-H1-1B-C       0.278        44
               313.22 C        16.59         90.78        2.50
 1886  ST   W18X86                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.350        44
               290.45 C        18.55        134.42        2.50
 1887  ST   W18X86                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.366        44
               454.19 C        32.85         71.76        2.50
 1888  ST   W18X86                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.574        44
               449.53 C        49.07        150.32        2.50
 1889  ST   W18X86                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.359        44
               327.31 C        33.41         78.44        2.50
 1890  ST   W18X86                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.440        44
               406.29 C        29.22        141.49        2.50
 1891  ST   W18X86                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.371        44
               404.46 C       -24.47       -113.28        2.29
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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY              MZ       LOCATION
=======================================================================

 1892  ST   W18X86                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.460        42
               255.20 C       -34.92       -148.78        2.50
 1893  ST   W18X86                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.408        44
               453.32 C        34.68         93.06        2.50
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1894  ST   W18X86                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.502        44
                416.87 C         43.34        126.94        2.50
1895  ST   W18X86                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.386        43
                213.39 C        -37.69        -92.20        2.50
1896  ST   W18X86                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.416        44
                530.50 C        -41.46        -63.75        2.29
1897  ST   W18X86                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.415        43
                217.61 C        -48.56        -68.37        2.50
1898  ST   W18X86                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.423        44
                375.94 C        -49.83        -52.56        2.29
1899  ST   W18X86                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.235        44
                248.86 C        -15.82        -71.47        2.29
1900  ST   W18X86                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.237        44
                265.26 C        -21.79        -47.27        2.29
1901  ST   W18X86                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.371        44
                305.78 C        -21.06       -137.11        2.29
1902  ST   W18X86                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.331        44
                117.39 C         -9.84       -174.40        0.00
1903  ST   W14X68                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.986        44
                  0.82 T        -17.28       -284.62        1.50
1904  ST   W12X65                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.565        43
                  2.48 T         14.93        142.29        0.00
1905  ST   W12X65                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.648        44
                 11.31 C        -12.29       -171.71        2.00
1906  ST   W12X65                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.659        44
```

	6.09 C	-14.37	-171.61	2.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
1907	ST W12X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.569	42
		11.26 C	0.01	171.27	3.00
1908	ST W12X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.735	42
		3.54 C	0.00	221.97	3.00
1909	ST W12X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.434	44
		9.68 C	12.73	106.56	3.00
1910	ST W12X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.358	44
		23.94 C	12.06	83.88	3.00
1911	ST W12X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.365	44
		1.78 T	-11.16	-88.97	1.50
1912	ST W12X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.688	44
		0.53 T	-15.10	-179.26	1.75
1913	ST W12X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.411	44
		5.95 T	-12.26	-100.81	0.46
1914	ST W12X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.411	44
		2.54 T	-13.25	-99.05	0.46
1915	ST W14X68		(AISC SECTIONS)		

```
                     PASS     LRFD-H1-1B-T       0.990        44
                313.39 T        -17.15       -268.40        0.00
  1916  ST   W12X65                    (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.583        44
                125.65 T        -14.66       -141.46        0.00
  1917  ST   W12X65                    (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.652        44
                189.48 T        -11.56       -164.63        0.00
  1918  ST   W12X65                    (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.671        44
                194.81 T        -13.79       -165.87        0.00
  1919  ST   W12X65                    (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.477        42
                175.03 T          0.14        134.20        0.00
  1920  ST   W12X65                    (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.782        42
                260.58 T          0.00        221.97        0.00
  1921  ST   W12X65                    (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.434        43
                  6.03 T         12.73        106.56        0.00
```



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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

  1922  ST   W12X65                    (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.356        43
                 13.99 C         12.06         83.88        0.00
  1923  ST   W12X65                    (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.344        44
                108.26 T        -11.03        -77.26        0.00
```

1924	ST	W12X65		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.692	44
			199.17 T	-14.59	-170.67	0.00
1926	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1A-C	0.643	43
			451.23 C	0.00	0.00	0.00
1927	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1A-C	0.644	43
			451.91 C	0.00	0.00	0.00
1928	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1A-C	0.379	43
			265.59 C	0.00	0.00	0.00
1929	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1A-C	0.258	43
			180.66 C	0.00	0.00	0.00
1930	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1A-C	0.431	43
			302.10 C	0.00	0.00	0.00
1931	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1A-C	0.425	43
			297.86 C	0.00	0.00	0.00
1932	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1A-C	0.442	43
			309.74 C	0.00	0.00	0.00
1933	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1A-C	0.403	43
			282.54 C	0.00	0.00	0.00
1934	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1A-C	0.553	44
			219.71 C	0.17	30.31	3.54
1935	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1A-C	0.650	42
			250.70 C	0.18	37.07	3.54
1936	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1A-C	0.353	43
			247.31 C	0.00	0.00	0.00
1937	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1A-C	0.537	42

	373.63 C	0.00	-0.56	1.47

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
1938	ST W10X30		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.104	42
		138.75 C	0.00	-0.58	1.77
1939	ST W10X30		(AISC SECTIONS)		
		PASS	LRFD-H1-1A-C	0.287	43
		200.91 C	0.00	0.00	0.00
1940	ST W10X30		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.053	43
		74.60 C	0.00	0.00	0.00
1941	ST W10X30		(AISC SECTIONS)		
		PASS	LRFD-H1-1A-C	0.238	43
		166.86 C	0.00	0.00	0.00
1942	ST W10X30		(AISC SECTIONS)		
		PASS	LRFD-H1-1A-C	0.223	43
		156.45 C	0.00	0.00	0.00
1943	ST W10X30		(AISC SECTIONS)		
		PASS	LRFD-H1-1A-C	0.224	43
		156.82 C	0.00	0.00	0.00
1944	ST W10X30		(AISC SECTIONS)		
		PASS	LRFD-H1-1A-C	0.429	43
		301.13 C	0.00	0.00	0.00
1945	ST W10X30		(AISC SECTIONS)		
		PASS	LRFD-H1-1A-C	0.413	43
		289.46 C	0.00	0.00	0.00
1981	ST W12X50		(AISC SECTIONS)		

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                       PASS    LRFD-H1-1B-T      0.641        42
                   81.10 T        18.57       -79.60        1.50
  1982  ST   W12X50                (AISC SECTIONS)
                       PASS    LRFD-H1-1B-T      0.355        42
                   44.13 T         0.43        71.13        0.00
  1983  ST   W18X86                (AISC SECTIONS)
                       PASS    LRFD-H1-1B-T      0.223        42
                   14.89 T         0.54      -148.21        0.00
  1984  ST   W18X86                (AISC SECTIONS)
                       PASS    LRFD-H1-1B-C      0.190        44
                   54.10 C        -7.18       -95.15        0.00
  1985  ST   W10X30                (AISC SECTIONS)
                       PASS    LRFD-H1-1A-C      0.304        42
                  210.15 C         0.00        -0.56        1.47
  1986  ST   W10X30                (AISC SECTIONS)
                       PASS    LRFD-H1-1A-C      0.228        43
                  160.03 C         0.00         0.00        0.00
  1987  ST   W12X50                (AISC SECTIONS)
                       PASS    LRFD-H1-1B-T      0.290        44
                   35.45 T        -2.33       -52.86        0.00
```



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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
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  1988  ST   W12X50                (AISC SECTIONS)
                       PASS    LRFD-H1-1B-C      0.623        42
                    4.53 C        18.57       -79.60        0.00
  1989  ST   W10X30                (AISC SECTIONS)
                       PASS    LRFD-H1-1B-C      0.071        43
                   99.39 C         0.00         0.00        0.00
```

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1990  ST   W10X30                  (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.057        43
                   144.42 T          0.00           0.00        3.54
1995  ST   W12X50                  (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.707        44
                     3.31 T        -23.99         -95.98        0.00
1996  ST   W12X50                  (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.702        44
                     3.44 T        -24.05         -94.41        0.00
2005  ST   W12X50                  (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.061        41
                     0.01 C         -0.06         -14.69        0.00
2006  ST   W12X50                  (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.056        40
                     1.48 C         -0.03         -13.54        0.00
2007  ST   W8X21                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.061        44
                    18.13 C         -0.02          -1.68        4.06
2008  ST   W8X21                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.058        47
                    12.95 C          0.01          -1.68        2.06
2009  ST   W8X21                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.110        44
                    36.82 C         -0.03          -1.77        4.53
2010  ST   W8X21                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.101        43
                    43.18 C          0.01          -0.68        0.00
2011  ST   W8X21                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.068        44
                    18.82 C          0.00          -2.07        4.06
2012  ST   W8X21                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.056        43
                    19.99 C          0.00          -0.80        0.00
2013  ST   W8X21                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.100        44
                    35.76 C          0.00          -1.43        4.53
2014  ST   W8X21                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.091        43
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                      42.37 C          0.01          -0.25        0.00
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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

  2015  ST   W8X21                  (AISC SECTIONS)
                          PASS     LRFD-H1-1B-C       0.269        44
                      24.05 C         -0.01         -11.85        4.45
  2016  ST   W8X21                  (AISC SECTIONS)
                          PASS     LRFD-H1-1B-C       0.311        44
                      40.02 C         -0.01         -12.39        4.45
  2017  ST   W8X21                  (AISC SECTIONS)
                          PASS     LRFD-H1-1B-T       0.253        43
                      15.51 T         -0.01         -13.06        4.85
  2018  ST   W8X21                  (AISC SECTIONS)
                          PASS     LRFD-H1-1B-C       0.294        44
                      26.32 C         -0.02         -12.91        4.45
  2019  ST   W12X50                 (AISC SECTIONS)
                          PASS     LRFD-H1-1B-T       0.370        44
                       3.03 T          0.04         -89.97        0.00
  2020  ST   W12X50                 (AISC SECTIONS)
                          PASS     LRFD-H1-1B-T       0.386        44
                       2.98 T         -0.05         -94.06        0.00
  2021  ST   W8X21                  (AISC SECTIONS)
                          PASS     LRFD-H1-1B-T       0.248        44
                      10.35 T         -0.02         -12.92        0.00
  2022  ST   W8X21                  (AISC SECTIONS)
                          PASS     LRFD-H1-1B-C       0.265        42
                      21.14 C          0.01         -11.94        0.00
  2023  ST   W8X21                  (AISC SECTIONS)
```

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                        PASS     LRFD-H1-1B-T       0.265        44
                    23.62 T         -0.02        -13.41        0.00
  2024  ST   W8X21                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.257        44
                    11.62 T         -0.01        -13.37        0.00
  2029  ST   W12X50                  (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.722        44
                     4.95 T        -24.22        -98.71        0.00
  2030  ST   W12X50                  (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.578        44
                     3.98 T        -23.81        -64.94        0.00
  2037  ST   W8X21                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.261        44
                    19.51 C         -0.01         -5.07        4.45
  2038  ST   W8X21                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.255        43
                    30.00 T          0.00         -5.42        4.85
  2039  ST   W8X21                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.293        44
                    20.46 C         -0.01         -5.75        4.45
```



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                         FX            MY             MZ       LOCATION
=======================================================================

  2040  ST   W8X21                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.293        43
                    30.95 T          0.00         -6.28        4.85
  2041  ST   W8X21                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.234        44
                    11.75 T          0.00         -5.17        0.00
```

2042	ST	W8X21			(AISC SECTIONS)		
				PASS	LRFD-H1-1B-T	0.255	44
			29.70 T	-0.01	-5.42	0.00	
2043	ST	W8X21			(AISC SECTIONS)		
				PASS	LRFD-H1-1B-T	0.265	44
			8.98 T	-0.01	-5.91	0.00	
2044	ST	W8X21			(AISC SECTIONS)		
				PASS	LRFD-H1-1B-T	0.294	44
			31.52 T	-0.01	-6.28	0.00	
2045	ST	W8X21			(AISC SECTIONS)		
				PASS	LRFD-H1-1B-C	0.193	44
			35.52 C	-0.01	-2.80	4.45	
2046	ST	W8X21			(AISC SECTIONS)		
				PASS	LRFD-H1-1A-C	0.295	44
			56.81 C	0.02	-1.83	4.85	
2047	ST	W8X21			(AISC SECTIONS)		
				PASS	LRFD-H1-1B-C	0.198	44
			34.68 C	-0.02	-2.95	4.45	
2048	ST	W8X21			(AISC SECTIONS)		
				PASS	LRFD-H1-1A-C	0.348	44
			55.70 C	-0.02	-3.28	4.45	
2049	ST	W8X21			(AISC SECTIONS)		
				PASS	LRFD-H1-1B-C	0.159	43
			46.62 C	0.01	-1.53	0.00	
2050	ST	W8X21			(AISC SECTIONS)		
				PASS	LRFD-H1-1A-C	0.308	43
			59.98 C	0.02	-1.83	0.00	
2051	ST	W8X21			(AISC SECTIONS)		
				PASS	LRFD-H1-1B-T	0.160	44
			56.96 T	-0.04	-2.86	0.00	
2052	ST	W8X21			(AISC SECTIONS)		
				PASS	LRFD-H1-1A-C	0.326	43
			67.15 C	0.02	-1.59	0.00	
2053	ST	W14X68			(AISC SECTIONS)		
				PASS	LRFD-H1-1B-T	0.309	44
			10.79 T	-17.05	-59.35	0.00	
2054	ST	W12X35			(AISC SECTIONS)		
				PASS	LRFD-H1-1B-T	0.175	42

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                    9.44 T         1.56        -25.15        0.00
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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/

                         FX            MY             MZ       LOCATION

=======================================================================

  2055  ST   W8X21                    (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.068        42
                       1.16 C         0.00          -4.92        0.90
  2059  ST   W18X86                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.232        44
                     137.91 C       -28.40         -32.40        0.87
  2061  ST   W18X86                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.261        43
                      50.26 C       -35.22         -34.15        0.95
  2062  ST   W18X86                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.254        43
                     126.60 C       -36.11         -18.37        0.95
  2063  ST   W12X35                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.166        42
                      30.75 T         2.28         -17.53        2.20
  2064  ST   W18X86                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.285        43
                      79.59 C       -38.36         -35.14        0.95
  2065  ST   W12X35                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.172        43
                       6.48 T        -4.64         -10.00        2.20
  2066  ST   W12X50                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.400        43
                      41.35 C         0.64         100.89        0.00
  2067  ST   W12X50                   (AISC SECTIONS)
```

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                    PASS     LRFD-H1-1B-C       0.624        44
                41.40 C        17.41        102.30       1.30
  2069  ST   W8X21                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.100        42
                 1.36 T         0.00         -6.72       1.10
  2070  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.262        44
                21.20 T        -7.48        -42.26       0.00
  2072  ST   W8X21                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.102        42
                 0.40 C         0.00         -6.85       1.10
  2073  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.344        44
                31.66 C        -8.74        -58.83       0.98
  2075  ST   W8X21                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.103        42
                 0.03 T         0.00         -6.97       1.10
  2076  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.280        43
                13.48 T       -10.39        -37.33       1.35
```



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                         FX            MY             MZ       LOCATION
=======================================================================

  2078  ST   W8X21                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.103        42
                 0.01 C         0.00         -6.97       1.10
  2079  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.268        43
                39.41 C         6.22         46.75       0.00
```

2081	ST	W8X21		(AISC SECTIONS)			
				PASS	LRFD-H1-1B-C	0.103	42
			0.05 C	0.00	-6.97	1.10	
2082	ST	W8X21		(AISC SECTIONS)			
				PASS	LRFD-H1-1B-C	0.160	42
			1.71 C	0.00	-10.78	1.30	
2083	ST	W8X21		(AISC SECTIONS)			
				PASS	LRFD-H1-1B-C	0.284	44
			0.19 C	-5.16	-2.10	1.52	
2084	ST	W12X35		(AISC SECTIONS)			
				PASS	LRFD-H1-1B-T	0.206	42
			0.25 T	-1.80	-30.42	0.00	
2085	ST	W12X35		(AISC SECTIONS)			
				PASS	LRFD-H1-1B-T	0.161	42
			0.25 T	0.38	-28.34	0.00	
2086	ST	W12X35		(AISC SECTIONS)			
				PASS	LRFD-H1-1B-T	0.372	42
			45.40 T	-1.87	-58.22	0.00	
2087	ST	W12X35		(AISC SECTIONS)			
				PASS	LRFD-H1-1B-T	0.307	42
			45.38 T	0.41	-52.84	0.00	
2089	ST	W12X35		(AISC SECTIONS)			
				PASS	LRFD-H1-1B-T	0.223	42
			0.05 T	-1.54	-30.42	3.50	
2090	ST	W18X86		(AISC SECTIONS)			
				PASS	LRFD-H1-1B-C	0.260	44
			47.08 C	-35.22	-34.13	0.00	
2091	ST	W10X30		(AISC SECTIONS)			
				PASS	LRFD-H1-1B-C	0.391	44
			23.68 C	-5.08	-29.39	1.33	
2092	ST	W14X68		(AISC SECTIONS)			
				PASS	LRFD-H1-1B-C	0.381	44
			48.54 C	1.34	120.57	1.45	
2093	ST	W14X68		(AISC SECTIONS)			
				PASS	LRFD-H1-1B-T	0.415	44
			12.53 T	-21.73	-82.76	0.00	
2094	ST	W18X86		(AISC SECTIONS)			
				PASS	LRFD-H1-1B-C	0.393	44

	193.66 C	30.90	98.44	1.45

ALL UNITS ARE - KN METE (UNLESS OTHERWISE NOTED)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
2095 ST	W12X35		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.243	42
		27.09 T	-0.81	-40.21	1.80
2096 ST	W12X35		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.644	44
		130.04 C	4.25	85.59	2.60
2097 ST	W12X35		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.367	42
		50.96 T	-1.62	-58.22	1.70
2098 ST	W12X35		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.458	42
		0.48 C	18.79	-0.02	1.45
2099 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.313	44
		18.74 T	-8.62	-51.98	0.00
2100 ST	W10X30		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.322	43
		8.64 C	4.80	20.85	0.00
2101 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.288	44
		59.80 C	0.10	69.87	2.88
2103 ST	W10X30		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.021	47
		0.12 C	-0.54	-0.48	1.35
2106 ST	W12X50		(AISC SECTIONS)		

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                    PASS     LRFD-H1-1B-C       0.332        43
                43.16 C         0.33         83.18        0.00
  2107  ST   W14X68                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.516        44
                44.65 C       -25.73       -104.37        0.00
  2108  ST   W10X30                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.311        44
                28.93 C         0.19         35.01        2.88
  2109  ST   W10X30                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.295        44
                20.26 C        -2.48        -25.89        0.00
  2110  ST   W8X21                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.155        40
                 0.01 T         0.00        -10.30        1.20
  2111  ST   W10X30                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.172        43
                11.34 T        -0.10        -21.96        1.81
  2113  ST   W10X30                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.173        44
                14.31 T        -0.10        -21.95        0.00
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ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
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  2114  ST   W10X30                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.091        48
                 0.40 C         0.54         -8.99        1.20
  2115  ST   W12X50                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.579        44
                13.38 C       -10.60        -82.76        0.00
```

2116	ST	W10X30			(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C		0.328	44
			8.31 C	0.33		38.08	2.88
2117	ST	W10X30			(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C		0.288	44
			8.88 C	-0.60		-33.17	0.00
2118	ST	W8X21			(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C		0.155	40
			0.00 C	0.00		-10.30	1.20
2119	ST	W10X30			(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T		0.614	43
			3.44 T	-8.23		-32.85	2.50
2120	ST	W10X30			(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T		0.615	44
			6.66 T	-8.23		-32.85	0.00
2121	ST	W18X86			(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C		0.162	43
			53.46 C	17.55		35.37	0.00
2124	ST	W12X35			(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C		0.419	43
			40.67 C	11.92		-15.40	0.00
2125	ST	W12X35			(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T		0.077	41
			2.92 T	0.00		-12.81	1.35
2126	ST	W12X50			(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T		0.843	42
			20.08 T	6.74		-198.92	0.00
2127	ST	W12X50			(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C		0.543	44
			75.22 C	39.94		0.01	2.50
2129	ST	W12X50			(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T		0.347	43
			10.34 T	-0.09		-90.76	2.56
2131	ST	W12X50			(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T		0.574	44
			3.13 T	-0.72		-146.34	0.00
2132	ST	W12X50			(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T		0.566	43

11.54 T -0.72 -146.31 2.56

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
2133 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.228	42
		10.22 C	0.50	-57.70	2.56
2134 ST	W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.163	47
		0.16 C	-0.60	-8.83	1.20
2135 ST	W12X65		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.051	44
		9.65 T	-4.18	-7.02	0.96
2229 ST	W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.063	42
		28.10 T	0.00	-1.08	2.43
2230 ST	W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.063	41
		13.92 T	0.00	-1.26	2.43
2231 ST	W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.069	45
		11.27 C	0.00	-1.08	2.43
2232 ST	W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.071	43
		28.94 C	0.00	-0.33	0.40
2233 ST	W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.063	42
		28.09 T	0.00	-1.08	2.43
2234 ST	W8X21		(AISC SECTIONS)		

		PASS	LRFD-H1-1B-T	0.063	40
		13.87 T	0.00	-1.26	2.43
2235	ST W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.069	45
		11.25 C	0.00	-1.08	2.43
2236	ST W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.076	43
		38.61 C	0.00	0.00	0.00
2237	ST W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.124	44
		31.88 C	-0.02	-3.06	4.53
2238	ST W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.108	43
		34.73 C	0.03	-1.88	0.00
2239	ST W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.131	44
		33.54 C	-0.02	-3.26	4.53
2240	ST W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.109	43
		35.91 C	0.03	-1.85	0.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
2241	ST W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.142	42
		42.07 C	0.01	-2.95	4.12
2242	ST W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.140	42
		42.05 C	0.01	-2.83	0.82

2243	ST	W8X21		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C	0.146	42	
			46.05 C	0.01	-2.72	3.71	
2244	ST	W8X21		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C	0.143	42	
			45.95 C	0.01	-2.62	1.24	
2245	ST	W8X21		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-T	0.132	43	
			17.01 T	-0.01	-6.69	4.66	
2246	ST	W8X21		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-T	0.132	44	
			16.65 T	-0.01	-6.69	0.00	
2247	ST	W8X21		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-T	0.145	43	
			20.65 T	-0.01	-7.05	4.94	
2248	ST	W8X21		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-T	0.146	44	
			20.94 T	-0.01	-7.05	0.00	
2249	ST	W8X21		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C	0.144	44	
			13.00 C	-0.01	-6.58	4.28	
2250	ST	W8X21		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-T	0.129	44	
			7.23 T	-0.01	-6.84	0.00	
2251	ST	W8X21		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C	0.134	44	
			5.59 C	-0.02	-6.43	4.53	
2252	ST	W8X21		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-T	0.132	44	
			10.97 T	-0.01	-6.64	0.00	
2253	ST	W8X21		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-T	0.293	43	
			48.40 T	-0.01	-14.04	4.94	
2254	ST	W8X21		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-T	0.293	44	
			45.10 T	-0.03	-14.08	0.00	
2255	ST	W8X21		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-T	0.290	43	

	41.42 T	0.00	-14.11	4.94

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MEMBER	TABLE	RESULT/	CRITICAL COND/	RATIO/	LOADING/
		FX	MY	MZ	LOCATION
2256	ST W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.294	44
		44.05 T	-0.04	-14.13	0.00
2257	ST W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.301	44
		23.81 C	-0.03	-13.29	4.53
2258	ST W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.291	44
		43.60 T	0.01	-14.09	0.00
2259	ST W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.291	43
		41.31 T	-0.03	-14.08	4.94
2260	ST W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.288	44
		38.27 T	0.01	-14.07	0.00
2269	ST W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.130	42
		48.61 C	-0.01	-2.11	3.54
2270	ST W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.118	44
		31.96 C	-0.01	-3.17	4.32
2271	ST W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.104	44
		28.92 C	-0.02	-2.69	4.32
2272	ST W8X21		(AISC SECTIONS)		

		PASS	LRFD-H1-1B-C	0.134	42
		47.31 C	-0.02	-2.48	3.54
2273	ST W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.131	42
		48.80 C	0.00	-2.19	1.18
2274	ST W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.101	43
		36.33 C	0.02	-1.74	0.00
2275	ST W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.089	43
		33.14 C	0.02	-1.46	0.00
2276	ST W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.135	42
		47.45 C	0.00	-2.53	1.18
2277	ST W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.034	48
		26.92 T	0.00	-1.02	2.36
2278	ST W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.070	43
		37.66 C	0.00	0.00	0.00

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
2279	ST W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.083	43
		44.62 C	0.00	0.00	0.00
2280	ST W8X21		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.034	43
		18.61 C	0.00	0.00	0.00

2281	ST	W8X21			(AISC SECTIONS)		
				PASS	LRFD-H1-1B-T	0.033	48
			25.11 T	0.00		-1.02	2.36
2282	ST	W8X21			(AISC SECTIONS)		
				PASS	LRFD-H1-1B-C	0.071	43
			38.18 C	0.00		0.00	0.00
2283	ST	W8X21			(AISC SECTIONS)		
				PASS	LRFD-H1-1B-C	0.086	43
			46.12 C	0.00		0.00	0.00
2284	ST	W8X21			(AISC SECTIONS)		
				PASS	LRFD-H1-1B-C	0.035	43
			18.96 C	0.00		0.00	0.00
2285	LD	L30306			(AISC SECTIONS)		
				PASS	LRFD-H1-1A-C	0.207	43
			30.04 C	0.00		0.00	0.00
2286	LD	L30306			(AISC SECTIONS)		
				PASS	LRFD-H1-1A-C	0.325	43
			47.23 C	0.00		0.00	0.00
2287	LD	L30306			(AISC SECTIONS)		
				PASS	LRFD-H1-1A-C	0.573	43
			74.43 C	0.00		0.00	0.00
2288	LD	L30306			(AISC SECTIONS)		
				PASS	LRFD-H1-1B-T	0.070	42
			37.12 T	0.00		-0.36	1.70
2289	LD	L30306			(AISC SECTIONS)		
				PASS	LRFD-H1-1A-C	0.219	43
			40.72 C	0.00		0.00	0.00
2290	ST	W12X50			(AISC SECTIONS)		
				PASS	LRFD-H1-1A-C	0.516	44
			389.77 C	13.15		46.74	1.70
2291	ST	W12X50			(AISC SECTIONS)		
				PASS	LRFD-H1-1B-C	0.451	44
			14.32 C	-13.75		-69.00	0.00
2292	ST	W12X50			(AISC SECTIONS)		
				PASS	LRFD-H1-1B-C	0.328	44
			90.12 C	7.46		54.22	2.50
2293	ST	W12X50			(AISC SECTIONS)		
				PASS	LRFD-H1-1B-C	0.264	44

	48.89 C	9.00	35.36	1.55

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MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
2295 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.386	44
		164.40 C	-16.28	-31.93	2.75
2296 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.331	43
		93.17 C	19.23	13.98	0.00
2297 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.209	43
		26.93 C	-11.78	-12.82	1.55
2298 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1A-C	0.810	43
		329.30 C	23.75	80.25	0.00
2301 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.424	44
		232.06 C	23.00	15.14	2.50
2302 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.448	43
		238.96 C	28.52	1.80	0.00
2303 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.199	43
		24.43 C	13.61	4.02	0.00
2304 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.171	43
		7.05 C	-12.27	2.31	0.50
2305 ST	W12X50		(AISC SECTIONS)		

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                    PASS     LRFD-H1-1B-C       0.215        44
                25.40 C         8.28         18.99        1.45
  2310  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.435        44
                23.38 T       -26.81        -21.00        0.00
  2311  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.146        44
                25.54 C         5.14         18.38        2.85
  2313  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.459        44
                41.18 T        -7.70        -92.38        0.00
  2314  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.442        44
                 2.73 T        -1.45       -109.81        0.00
  2315  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.708        42
                 4.26 C        52.51         -5.45        0.00
  2317  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.368        44
                35.04 T        -6.10        -72.70        0.00
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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
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  2318  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.348        44
                 9.74 T        -1.23        -87.40        0.00
  2319  ST   W12X50                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.273        44
                 8.62 T        -7.32        -45.70        0.00
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2321	ST	W12X50		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C	0.390	44	
			49.83 C	2.43	89.30	2.85	
2322	ST	W12X50		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-T	0.351	44	
			21.59 T	-0.09	-91.50	0.00	
2326	ST	W12X50		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C	0.160	44	
			6.26 C	-2.82	-25.43	4.35	
2327	ST	W12X50		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C	0.233	43	
			12.01 C	4.32	36.53	0.00	
2328	ST	W12X50		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C	0.127	44	
			4.10 C	-3.25	-17.33	3.75	
2329	ST	W12X50		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C	0.159	42	
			3.86 C	4.74	-20.17	1.50	
2330	ST	W12X50		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C	0.141	43	
			0.12 C	-6.58	-11.49	1.80	
2331	ST	W12X50		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C	0.192	44	
			35.57 C	6.13	26.36	2.85	
2332	ST	W12X50		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C	0.183	42	
			1.21 C	-5.60	-23.06	3.50	
2333	ST	W12X50		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-T	0.311	44	
			9.24 T	-18.16	-19.01	0.00	
2334	ST	W12X50		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C	0.141	44	
			0.33 C	-6.58	-11.49	0.00	
2335	ST	W8X18		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-T	0.180	45	
			12.20 T	1.71	-4.35	0.41	
2336	ST	W12X50		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C	0.116	44	

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                    4.91 C          1.42          20.28        1.50
```



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ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

  2337  ST   W12X50                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.184        42
                       2.72 T         -5.60        -23.06        0.00
  2338  ST   W8X18                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.121        42
                       3.50 C          0.03         -7.26        1.43
  2339  ST   W8X18                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.173        43
                       5.16 T         -2.19         -2.37        0.41
  2340  ST   W8X18                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.282        42
                       2.31 T         -0.51        -15.55        0.00
  2342  ST   W8X18                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.122        42
                       5.64 T         -0.02         -7.26        0.00
  2343  ST   W8X18                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.286        42
                       7.84 T         -0.51        -15.55        0.10
  2344  ST   W8X18                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.193        42
                       3.32 C          0.21        -11.07        0.10
  2345  ST   W8X18                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.259        42
                       7.84 T          0.08        -15.50        0.91
  2346  ST   W8X18                   (AISC SECTIONS)
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                     PASS     LRFD-H1-1B-C       0.191        42
                  3.32 C        -0.36       -10.39        0.91
  2347  ST   C10X15                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.045        42
                  3.77 T         0.00        -1.91        1.12
  2348  ST   C10X15                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.048        42
                  6.70 T         0.00        -1.92        1.12
  2349  ST   W12X35                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.498        42
                 71.67 T         1.91       -49.39        0.00
  2350  ST   W12X50                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.171        44
                  1.45 C         4.80        22.61        5.00
  2351  ST   W8X18                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.771        42
                  1.99 C         8.13       -17.68        0.41
  2352  ST   W8X18                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.590        42
                  5.41 T        -2.67       -26.55        0.10
```



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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

  2353  ST   W8X18                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.568        42
                  2.88 C        -2.13       -27.29        0.10
  2354  ST   W8X18                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.590        42
                  5.41 T        -2.67       -26.55        0.00
```

2355	ST	W8X18		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C	0.772	42	
			2.46 C	8.13	-17.68	0.00	
2356	ST	W8X18		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-T	0.207	42	
			5.41 T	-0.78	-9.74	0.00	
2357	ST	W8X18		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C	0.222	42	
			3.35 C	0.88	-10.41	0.10	
2358	ST	W8X18		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C	0.222	42	
			3.35 C	0.88	-10.41	0.00	
2359	ST	W8X18		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-T	0.134	44	
			5.77 T	-1.29	-3.29	0.00	
2360	ST	W12X50		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C	0.104	44	
			43.62 C	1.62	18.99	1.42	
2361	ST	W12X50		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C	0.243	44	
			10.60 C	1.52	58.38	1.42	
2362	ST	W12X50		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C	0.120	44	
			3.03 C	1.76	25.48	1.42	
2363	ST	W8X18		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-T	0.086	42	
			9.04 T	0.00	-4.88	0.90	
2364	ST	W8X18		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C	0.123	42	
			1.03 C	-0.03	-7.53	1.13	
2365	ST	W8X18		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C	0.123	42	
			1.45 C	0.01	-7.53	0.38	
2366	ST	W8X18		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C	0.093	42	
			48.98 C	0.00	-3.39	0.75	
2367	ST	C10X15		(AISC SECTIONS)			
			PASS	LRFD-H1-1B-C	0.083	42	

	9.43 C	0.00	-2.56	1.27

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MEMBER TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
2368 ST C10X15		(AISC SECTIONS)		
	PASS	LRFD-H1-1B-T	0.060	42
	0.21 T	0.00	-2.55	1.27
2369 ST W12X35		(AISC SECTIONS)		
	PASS	LRFD-H1-1B-C	0.546	42
	28.97 C	-1.88	-56.58	0.00
2370 ST W12X50		(AISC SECTIONS)		
	PASS	LRFD-H1-1B-C	0.193	44
	19.17 C	1.24	35.97	1.50
2371 ST W8X18		(AISC SECTIONS)		
	PASS	LRFD-H1-1B-T	0.316	43
	4.88 T	-2.54	-10.02	0.41
2372 ST W8X18		(AISC SECTIONS)		
	PASS	LRFD-H1-1B-C	0.375	42
	4.69 C	0.57	-20.99	0.00
2373 ST W8X18		(AISC SECTIONS)		
	PASS	LRFD-H1-1B-T	0.479	44
	18.12 T	-2.47	-19.92	0.00
2374 ST W8X18		(AISC SECTIONS)		
	PASS	LRFD-H1-1B-T	0.627	43
	3.39 T	-6.99	-12.87	0.91
2376 ST W8X18		(AISC SECTIONS)		
	PASS	LRFD-H1-1B-T	0.627	44
	4.54 T	-6.99	-12.87	0.00
2377 ST C10X15		(AISC SECTIONS)		

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                    PASS     LRFD-H1-1B-C       0.348        44
                 7.33 C          1.96         -1.82       1.03
  2378  ST   C10X15                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.352        44
                 9.55 C          2.00         -1.55       1.03
  2381  ST   W8X18                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.473        43
                 8.39 T         -2.47        -19.92       0.91
  2383  ST   W12X50                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.156        44
                 7.73 T         -7.14        -12.83       0.00
  2385  ST   W8X18                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.225        44
                12.25 C          3.61          0.04       0.10
  2387  ST   W8X18                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.586        43
                10.17 T         -7.62         -7.76       0.91
  2388  ST   W8X18                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.587        44
                10.70 T         -7.62         -7.76       0.00
```



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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY              MZ       LOCATION
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  2390  ST   C10X15                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.737        43
                20.13 T         -3.93         -5.61       1.25
  2391  ST   C10X15                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.749        43
                27.37 T         -3.97         -5.66       1.25
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2392  ST   W12X35                   (AISC SECTIONS)
                          PASS     LRFD-H1-1B-T       0.582        44
                     100.51 T         -6.47         -45.17        0.00
2393  ST   W8X18                    (AISC SECTIONS)
                          PASS     LRFD-H1-1B-C       0.343        43
                      13.34 C          5.58           0.00        0.00
2394  ST   W8X18                    (AISC SECTIONS)
                          PASS     LRFD-H1-1B-T       0.298        44
                      11.08 T         -4.58           1.03        0.00
2397  ST   C10X15                   (AISC SECTIONS)
                          PASS     LRFD-H1-1B-T       0.384        44
                       8.04 T         -2.02          -3.46        0.00
2398  ST   C10X15                   (AISC SECTIONS)
                          PASS     LRFD-H1-1B-C       0.513        43
                      18.54 C          2.91           2.28        0.00
2399  ST   W12X35                   (AISC SECTIONS)
                          PASS     LRFD-H1-1B-T       0.428        43
                      22.98 T         -0.78         -57.96        4.75
2400  ST   W12X35                   (AISC SECTIONS)
                          PASS     LRFD-H1-1B-C       0.642        44
                      35.68 C         -7.76         -50.80        1.60
2401  ST   W12X50                   (AISC SECTIONS)
                          PASS     LRFD-H1-1B-C       0.229        44
                       9.50 C          5.31          32.64        5.00
2402  ST   W8X18                    (AISC SECTIONS)
                          PASS     LRFD-H1-1B-T       0.632        43
                      13.96 T         -8.21          -8.23        0.41
2403  ST   W8X18                    (AISC SECTIONS)
                          PASS     LRFD-H1-1B-T       0.255        42
                       2.80 T          0.36         -14.42        0.00
2404  ST   W8X18                    (AISC SECTIONS)
                          PASS     LRFD-H1-1B-C       0.373        44
                      16.09 C          4.88           4.32        0.10
2405  ST   W8X18                    (AISC SECTIONS)
                          PASS     LRFD-H1-1B-T       0.238        42
                       2.80 T          0.33         -13.43        0.00
2406  ST   W8X18                    (AISC SECTIONS)
                          PASS     LRFD-H1-1B-T       0.076        42
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                    2.80 T          0.10          -4.25        0.00
```



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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX           MY             MZ       LOCATION
=======================================================================


  2407  ST   W8X18                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.633        44
                       15.26 T         -8.21          -8.23        0.00
  2408  ST   W12X50                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.374        44
                       31.37 C          4.29          81.99        1.42
  2409  ST   W8X18                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.009        43
                       13.53 T          0.00           0.00        1.00
  2410  ST   W8X18                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.203        44
                        8.46 T         -3.19          -0.44        0.00
  2411  ST   W18X86                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.428        44
                      299.06 C        -39.64        -104.07        0.00
  2412  ST   W12X50                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.489        44
                      303.76 C          7.88          79.29        2.50
  2413  ST   W12X50                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.495        44
                       11.31 T         -0.57        -128.48        0.00
  2414  ST   W12X35                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.333        44
                       14.79 T         -0.78         -57.96        0.00
  2415  ST   W12X50                  (AISC SECTIONS)
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                    PASS     LRFD-H1-1B-C       0.266        44
                 3.46 C          1.25          52.18        1.75
  2416  ST   W8X18                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.608        44
                 0.96 C          8.20           7.29        0.41
  2417  ST   W8X18                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.670        43
                 2.60 T         -2.39         -32.72        0.10
  2418  ST   W8X18                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.678        44
                 4.32 T         -2.53         -32.62        0.00
  2419  ST   W8X18                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.745        43
                 2.02 T         -7.90         -16.94        0.91
  2420  ST   W8X18                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.746        44
                 2.76 T         -7.90         -16.94        0.00
  2421  ST   W8X18                   (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.677        43
                 2.48 T         -2.53         -32.62        0.91
```



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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

  2422  ST   C10X15                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.395        44
                39.72 C          2.09          -1.48        1.03
  2423  ST   C10X15                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.371        44
                 9.10 C          2.14          -1.46        1.03
```

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2424  ST   W8X18                     (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.165        43
                     1.86 T         -0.68          -7.67        0.41
2425  ST   W8X18                     (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.566        44
                     5.36 T         -2.36         -26.22        0.00
2426  ST   W8X18                     (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.564        43
                     1.85 T         -2.36         -26.22        0.10
2427  ST   W8X18                     (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.531        44
                     2.63 T         -1.41         -27.67        0.00
2428  ST   W8X18                     (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.483        44
                     0.97 T         -4.62         -12.82        0.00
2429  ST   W8X18                     (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.525        43
                     1.86 T         -2.20         -24.40        0.91
2430  ST   W8X21                     (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.592        44
                    11.82 T         -0.39         -42.31        0.00
2431  ST   W8X21                     (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.316        43
                     7.52 C          0.38          21.81        0.00
2445  ST   W8X21                     (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.348        43
                    35.35 C          3.65          10.76        0.00
2446  ST   W8X21                     (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.416        43
                    13.32 C          3.89          15.98        0.00
2447  ST   C10X15                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.554        43
                    31.16 T         -3.01          -3.19        1.03
2448  ST   C10X15                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.548        43
                    19.22 T         -3.05          -3.04        1.03
2449  ST   W12X50                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.343        44
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15.31 C 1.84 83.47 1.42

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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

  2450  ST   W8X18                    (AISC SECTIONS)
                           PASS     SHEAR-Y            0.056        42
                        0.15 T          0.00          0.00        0.00
  2451  ST   W12X50                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.327        44
                       29.56 C          0.68         82.25        1.42
  2452  ST   W12X50                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.449        44
                       20.29 C          0.31        116.51        1.42
  2453  ST   W8X18                    (AISC SECTIONS)
                           PASS     SHEAR-Y            0.056        42
                        1.47 C          0.00          0.00        0.00
  2454  ST   W8X18                    (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.076        42
                        0.99 C          0.00         -4.62        0.87
  2455  ST   L30306                   (AISC SECTIONS)
                           PASS     COMPRESSION        0.266        43
                       28.68 C          0.00          0.00        0.00
  2456  ST   L30306                   (AISC SECTIONS)
                           PASS     COMPRESSION        0.219        43
                       23.61 C          0.00          0.00        0.00
  2457  ST   L30306                   (AISC SECTIONS)
                           PASS     COMPRESSION        0.198        43
                       17.82 C          0.00          0.00        0.00
  2458  ST   L30306                   (AISC SECTIONS)
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                    PASS     COMPRESSION        0.128        43
                11.55 C         0.00           0.00        0.00
 2459  ST   L30306                  (AISC SECTIONS)
                    PASS     COMPRESSION        0.228        43
                24.59 C         0.00           0.00        0.00
 2460  ST   L30306                  (AISC SECTIONS)
                    PASS     COMPRESSION        0.243        45
                26.16 C         0.00           0.00        0.00
 2461  ST   L30306                  (AISC SECTIONS)
                    PASS     COMPRESSION        0.146        47
                15.77 C         0.00           0.00        0.00
 2462  ST   L30306                  (AISC SECTIONS)
                    PASS     COMPRESSION        0.068        43
                 7.29 C         0.00           0.00        0.00
 2463  ST   L30306                  (AISC SECTIONS)
                    PASS     COMPRESSION        0.186        43
                20.02 C         0.00           0.00        0.00
 2464  ST   L30306                  (AISC SECTIONS)
                    PASS     COMPRESSION        0.366        43
                31.77 C         0.00           0.00        0.00
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MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

 2465  ST   L30306                  (AISC SECTIONS)
                    PASS     COMPRESSION        0.179        43
                15.52 C         0.00           0.00        0.00
 2466  ST   L30306                  (AISC SECTIONS)
                    PASS     COMPRESSION        0.107        43
                11.57 C         0.00           0.00        0.00
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2467  ST   L30306                  (AISC SECTIONS)
                        PASS     COMPRESSION       0.100        43
                    10.76 C          0.00          0.00        0.00
2468  ST   L30306                  (AISC SECTIONS)
                        PASS     COMPRESSION       0.114        43
                    12.27 C          0.00          0.00        0.00
2469  ST   L30306                  (AISC SECTIONS)
                        PASS     COMPRESSION       0.136        43
                    14.70 C          0.00          0.00        0.00
2473  ST   C10X15                  (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T      0.284        44
                    36.23 T         -1.07         -4.99        0.00
2474  ST   C10X15                  (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T      0.275        44
                    15.54 T         -1.15         -4.71        0.00
2475  ST   C10X15                  (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T      0.358        42
                    15.81 T          1.00        -10.32        0.00
2476  ST   C10X15                  (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C      0.377        42
                    14.01 C          1.06        -10.64        0.00
2477  ST   C10X15                  (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T      0.218        44
                    19.75 T         -0.82         -4.22        0.00
2478  ST   C10X15                  (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T      0.221        44
                    14.26 T         -0.88         -4.06        0.00
2479  ST   C10X15                  (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C      0.246        43
                    43.08 C          1.05         -2.12        0.00
2480  ST   C10X15                  (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C      0.233        43
                    21.02 C          1.11         -2.11        0.00
2485  ST   C10X15                  (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T      0.374        43
                    21.58 T         -1.38         -7.66        1.25
2486  ST   C10X15                  (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T      0.391        43
```

```
                    32.37 T        -1.44          -7.62        1.25
```



```
ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

  2487  ST   C10X15                    (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.569        43
                      6.03 C          3.46          -1.02        0.00
  2488  ST   C10X15                    (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.601        43
                     27.07 C          3.49          -1.16        0.00
  2489  ST   C10X15                    (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.210        42
                     36.67 T         -0.25          -8.04        1.02
  2490  ST   C10X15                    (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.165        44
                     16.37 T         -0.60          -3.25        0.00
  2491  ST   C10X15                    (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.185        44
                     33.93 C         -0.49          -4.15        0.94
  2492  ST   C10X15                    (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.167        44
                     13.95 C          0.74          -2.04        1.02
  2493  ST   C10X15                    (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.290        44
                     38.03 C         -1.14          -4.16        0.94
  2494  ST   C10X15                    (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.291        43
                     25.47 T         -1.26          -4.09        1.02
  2495  ST   C10X15                    (AISC SECTIONS)
```

```
                     PASS     LRFD-H1-1B-T       0.320        44
                 34.00 T        -1.31          -4.95        0.00
  2496  ST   C10X15                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.302        44
                 19.83 C         1.54           2.28        1.02
  2497  ST   C10X15                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.438        44
                 16.64 T        -2.35          -3.17        0.00
  2498  ST   C10X15                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.439        44
                 13.74 T        -2.39          -3.03        0.00
  2499  ST   C10X15                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.482        43
                 40.97 C         2.62          -1.61        0.00
  2500  ST   C10X15                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.466        43
                 20.15 C         2.66          -1.57        0.00
  2509  ST   W12X50                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.235        44
                 14.72 C         5.32          33.80        2.50
```



```
ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

  2510  ST   W18X86                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.227        43
                155.29 C        15.08          73.49        0.00
  2511  ST   W18X86                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.148        44
                 71.19 C        -5.84         -69.68        2.75
```

2512	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.262	44
			23.18 C	1.87	48.48	2.50
2513	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.239	43
			32.40 C	5.32	33.80	0.00
2514	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.258	43
			10.32 C	1.87	48.48	0.00
2515	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.142	44
			1.71 C	-5.53	-74.68	0.00
2516	ST	W18X86		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.151	44
			28.56 C	-7.84	-69.04	0.00
2517	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.074	43
			103.45 C	0.00	0.00	0.00
2518	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.080	43
			112.30 C	0.00	0.00	0.00
2519	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.199	44
			37.45 T	-1.99	-34.46	0.00
2520	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.232	44
			25.53 T	-3.44	-38.08	0.00
2521	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.035	43
			87.95 T	0.00	0.00	3.54
2522	ST	W10X30		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.037	43
			94.44 T	0.00	0.00	3.54
2526	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.240	43
			8.86 T	-0.06	-37.63	5.00
2527	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.176	43

2.11 T -0.09 -27.61 5.00

ALL UNITS ARE - KN METE (UNLESS OTHERWISE NOTED)

```
MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

  2528  ST   W12X50                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.240        44
                        7.53 T         -0.06         -37.63        0.00
  2529  ST   W12X50                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.176        44
                        2.48 T         -0.09         -27.61        0.00
  2530  ST   W12X50                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.028        42
                       10.09 C          0.00          -4.65        3.25
  2531  ST   W12X50                  (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.025        40
                        0.01 T          0.00          -5.24        3.25
  2532  ST   W6X16                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.112        42
                       31.77 C          0.00          -2.65        0.00
  2533  ST   W6X16                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.064        43
                       33.57 T         -0.35          -0.39        2.50
  2534  ST   W6X16                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.114        43
                       29.62 C          0.25           2.01        0.00
  2535  LD   L30306                  (AISC SECTIONS)
                           PASS     TENSION            0.218        42
                      132.45 T          0.00           0.00        0.00
  2536  LD   L30306                  (AISC SECTIONS)
```

```
                    PASS     COMPRESSION        0.456        42
                78.65 C         0.00           0.00        0.00
  2537  LD   L30306                  (AISC SECTIONS)
                    PASS     COMPRESSION        0.344        44
                59.36 C         0.00           0.00        3.54
  2538  LD   L30306                  (AISC SECTIONS)
                    PASS     TENSION            0.169        43
               102.62 T         0.00           0.00        3.54
  2539  ST   W12X50                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.475        43
                96.98 C        -4.85        -101.76        2.50
  2540  ST   W12X50                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.446        41
                89.70 C        -1.52         -53.81        0.00
  2541  ST   W12X65                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.521        42
                60.50 T       -33.05         -77.98        0.00
  2542  ST   W12X50                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.097        44
                25.87 T        -4.87          -6.10        0.00
```



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ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

  2543  ST   W12X50                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.145        43
               149.29 C         6.07          -5.66        0.00
  2544  ST   W8X21                   (AISC SECTIONS)
                    PASS     COMPRESSION        0.045        43
                15.82 C         0.00           0.00        0.00
```

```
2545  ST   W8X21                    (AISC SECTIONS)
                        PASS     COMPRESSION        0.036        43
                    12.64 C         0.00            0.00         0.00
2546  ST   W14X68                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.802        42
                   120.31 T        53.28          159.46         2.60
2547  ST   W12X35                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.090        47
                    32.43 C        -1.84           -2.11         2.62
2549  ST   W12X35                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.134        48
                     2.17 C         2.74           -7.39         2.71
2550  ST   W18X86                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.241        44
                    34.10 C       -36.11          -18.20         0.00
2551  ST   W18X86                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.223        44
                     4.25 C       -30.14          -32.88         0.00
2554  ST   W12X50                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.430        43
                    15.15 C         0.01           80.19         0.00
2555  ST   W12X50                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.475        44
                     9.12 C         0.01           89.57         2.88
2556  ST   W12X35                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.016        48
                     2.30 T         0.49           -0.56         1.35
2557  ST   W12X35                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.174        44
                    11.16 T        -4.64          -10.00         0.00
2559  ST   W12X50                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.184        43
                     9.64 T        -6.02          -27.36         1.35
2561  ST   W12X35                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.166        42
                    31.63 T         2.28          -17.53         0.00
2562  ST   W12X50                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.185        42
```

5.60 T   -1.15   -44.71   0.00

ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
2564 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.280	42
		5.60 T	-0.52	-72.06	0.00
2566 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.326	44
		3.98 T	-10.36	-50.13	0.00
2568 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.326	43
		5.35 T	-10.36	-50.13	1.35
2569 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.297	43
		7.47 T	-9.76	-44.52	1.35
2570 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.318	43
		1.41 C	-9.53	-36.64	2.70
2571 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.465	44
		38.03 C	-8.90	-64.03	1.80
2572 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.101	48
		1.92 C	4.78	-6.99	4.00
2573 ST	W12X50		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.611	44
		9.37 C	17.89	71.05	2.65
2574 ST	W12X50		(AISC SECTIONS)		

```
                    PASS     LRFD-H1-1B-C       0.895        44
                45.56 C        17.64        123.51        2.65
 2575  ST   W12X50                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.308        47
                 1.82 C        -4.15        -47.76        3.33
 2576  ST   W8X21                     (AISC SECTIONS)
                    PASS     COMPRESSION        0.045        43
                15.95 C         0.00          0.00        0.00
 2577  ST   W8X21                     (AISC SECTIONS)
                    PASS     COMPRESSION        0.036        43
                12.74 C         0.00          0.00        0.00
 2578  ST   W8X21                     (AISC SECTIONS)
                    PASS     COMPRESSION        0.026        43
                 9.28 C         0.00          0.00        0.00
 2579  ST   W8X21                     (AISC SECTIONS)
                    PASS     COMPRESSION        0.025        43
                 8.88 C         0.00          0.00        0.00
 2580  ST   W8X21                     (AISC SECTIONS)
                    PASS     COMPRESSION        0.036        43
                12.67 C         0.00          0.00        0.00
```


```
ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

 2581  ST   W8X21                     (AISC SECTIONS)
                    PASS     COMPRESSION        0.034        43
                12.20 C         0.00          0.00        0.00
 2582  ST   W12X35                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.181        44
                45.56 C         0.01         27.16        3.00
```

```
  2583  ST   W10X30                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-C       0.229        44
                      9.26 C          0.00          27.18        2.88
  2584  ST   W12X65                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.316        44
                     25.39 T         -1.97         -90.35        0.00
  2585  ST   W10X30                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-C       0.370        43
                     50.99 C          0.08          40.51        0.00
  2588  ST   W12X50                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-C       0.359        44
                     32.79 C          0.17          65.74        2.88


  ************** END OF TABULATED RESULT OF DESIGN **************


 2228. CHECK CODE MEMB 2723 TO 2726
```



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                      STAAD.Pro CODE CHECKING - (LRFD 3RD EDITION)
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ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

  2723  ST   W12X50                   (AISC SECTIONS)
```

```
                     PASS     LRFD-H1-1B-T       0.383        43
                  3.26 T         -0.16        -92.87        4.00
 2724  ST   W12X50                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.384        43
                  3.40 T          0.08        -93.41        4.00
 2725  ST   W12X50                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.383        44
                  3.26 T         -0.18        -92.85        0.00
 2726  ST   W12X50                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.384        44
                  3.39 T          0.07        -93.35        0.00


 ************** END OF TABULATED RESULT OF DESIGN **************



2229. CHECK CODE MEMB 2685 TO 2718
```



```
                   STAAD.Pro CODE CHECKING - (LRFD 3RD EDITION)
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ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================


 2685  ST   W12X35                   (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.240        44
```

```
                    117.41 T        -3.73        -14.61        0.00
2686  ST   W12X35                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.232        44
                     92.95 T        -3.73        -14.66        0.00
2687  ST   W12X50                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.101        40
                      0.00 T         0.00        -19.15        4.00
2688  ST   W12X35                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.261        44
                     85.23 T        -4.98        -14.80        0.00
2689  ST   W12X35                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.252        44
                     58.98 T        -4.95        -14.76        0.00
2690  ST   W12X50                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.101        40
                      0.01 T         0.00        -19.15        4.00
2691  ST   W12X50                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.133        43
                      1.75 T        -0.04        -24.96        4.00
2692  ST   W12X50                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.124        43
                      1.79 T         0.00        -23.48        4.00
2693  ST   W12X35                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.276        44
                    201.97 T        -4.40        -14.16        0.00
2694  ST   W12X35                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.266        44
                    175.16 T        -4.39        -14.13        0.00
2695  ST   W12X50                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.101        40
                      0.00 T         0.00        -19.15        4.00
2696  ST   W12X35                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.256        44
                    170.12 T        -3.82        -14.01        0.00
2697  ST   W12X35                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.243        44
                    140.29 T        -3.78        -13.83        0.00
2698  ST   W12X50                   (AISC SECTIONS)
```

```
                    PASS     LRFD-H1-1B-T       0.101        40
                 0.01 T          0.00        -19.15        4.00
  2699  ST   W12X50                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.125        43
                 1.13 T         -0.14        -23.24        4.00
  2700  ST   W12X50                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.126        43
                 1.09 T          0.06        -23.64        4.00
```



```
ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

  2701  ST   W12X50                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.101        41
                 0.08 T          0.00        -19.15        4.00
  2702  ST   W12X50                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.101        41
                 0.11 C          0.00        -19.15        4.00
  2703  ST   W12X50                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.119        40
                 0.09 T          0.05        -22.36        4.00
  2704  ST   W12X50                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.118        41
                 0.20 T          0.01        -22.26        4.00
  2705  ST   W12X35                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.683        44
               103.73 T         -7.62        -53.52        0.00
  2706  ST   W12X50                    (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.101        41
                 0.09 C          0.00        -19.15        4.00
```

2707	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.581	42
			49.22 T	-0.12	-65.01	3.25
2708	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.581	42
			49.22 T	-0.12	-65.01	0.00
2709	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.324	43
			54.55 T	-6.11	-18.18	3.25
2710	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.324	44
			53.27 T	-6.11	-18.18	0.00
2711	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.317	44
			34.68 T	-6.08	-18.21	0.00
2712	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.101	40
			0.01 T	0.00	-19.15	4.00
2713	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.124	44
			1.78 T	-0.01	-23.48	0.00
2714	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.133	44
			1.74 T	-0.03	-24.98	0.00
2715	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.124	44
			1.15 T	-0.13	-23.21	0.00

ALL UNITS ARE - KN METE (UNLESS OTHERWISE NOTED)

MEMBER	TABLE	RESULT/	CRITICAL COND/	RATIO/	LOADING/
		FX	MY	MZ	LOCATION

===

```
  2716  ST   W12X50                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-T       0.126        44
                        1.11 T          0.07         -23.62       0.00
  2717  ST   W12X50                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.119        41
                        0.10 C          0.06         -22.43       0.00
  2718  ST   W12X50                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.118        41
                        0.00 C          0.01         -22.42       0.00


  ************** END OF TABULATED RESULT OF DESIGN **************



 2230. CHECK CODE MEMB 2663 TO 2684 2719 TO 2722
```



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                         STAAD.Pro CODE CHECKING - (LRFD 3RD EDITION)
                         ***********************


ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================


  2663  ST   W12X35                   (AISC SECTIONS)
                           PASS     LRFD-H1-1B-C       0.216        44
                       44.93 C         -3.73         -17.12       2.98
```

2664	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.282	43
		145.16 C	5.47	-11.62	0.00	
2665	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.285	43
		148.40 C	5.54	-11.65	0.00	
2666	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.235	43
		85.37 C	4.39	-11.94	0.00	
2667	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.226	43
		70.74 C	4.33	-11.75	0.00	
2668	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.101	40
		0.03 T	0.00	-19.14	4.00	
2669	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.101	40
		0.03 T	0.00	-19.14	4.00	
2670	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.215	43
		49.88 C	4.16	-14.71	0.00	
2671	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.640	44
		12.99 T	-7.79	-51.61	0.00	
2672	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.101	40
		0.02 C	0.00	-19.14	4.00	
2673	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.101	40
		0.06 T	0.00	-19.14	4.00	
2674	ST	W12X50		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-T	0.101	40
		0.07 T	0.00	-19.14	4.00	
2675	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1A-C	0.396	43
		237.15 C	4.30	-12.54	0.00	
2676	ST	W12X35		(AISC SECTIONS)		
			PASS	LRFD-H1-1B-C	0.249	43

```
                    134.21 C          3.82         -12.45        0.00
  2677  ST   W12X35                   (AISC SECTIONS)
                         PASS     LRFD-H1-1A-C       0.378        43
                    218.46 C          4.26         -12.59        0.00
  2678  ST   W12X35                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.250        44
                    135.35 T         -3.82         -14.78        0.00
```



```
ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

  2679  ST   W12X50                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.101        40
                      0.02 T          0.00         -19.14        4.00
  2680  ST   W12X50                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.101        40
                      0.02 T          0.00         -19.14        4.00
  2681  ST   W12X50                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.128        43
                      2.01 T         -0.11         -30.69        4.00
  2682  ST   W12X50                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.132        43
                      1.98 T         -0.14         -31.58        4.00
  2683  ST   W12X50                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.123        43
                      0.90 T         -0.01         -30.03        4.00
  2684  ST   W12X50                   (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.121        43
                      0.92 T         -0.10         -29.21        4.00
  2719  ST   W12X50                   (AISC SECTIONS)
```

```
                       PASS     LRFD-H1-1B-T       0.132        44
                    2.03 T         -0.14        -31.58        0.00
 2720  ST   W12X50                   (AISC SECTIONS)
                       PASS     LRFD-H1-1B-T       0.128        44
                    2.03 T         -0.11        -30.69        0.00
 2721  ST   W12X50                   (AISC SECTIONS)
                       PASS     LRFD-H1-1B-T       0.121        44
                    1.03 T         -0.10        -29.21        0.00
 2722  ST   W12X50                   (AISC SECTIONS)
                       PASS     LRFD-H1-1B-T       0.123        44
                    1.01 T         -0.01        -30.03        0.00


 ************** END OF TABULATED RESULT OF DESIGN **************



2231. CHECK CODE MEMB 2664 TO 2667 2671 2675 TO 2678
  STAAD SPACE                                             -- PAGE NO.  270



                     STAAD.Pro CODE CHECKING - (LRFD 3RD EDITION)
                     ***********************



ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY              MZ       LOCATION
=======================================================================


 2664  ST   W12X35                   (AISC SECTIONS)
                       PASS     LRFD-H1-1B-C       0.282        43
```

```
                  145.16 C         5.47        -11.62        0.00
 2665  ST   W12X35                 (AISC SECTIONS)
                       PASS     LRFD-H1-1B-C       0.285        43
                  148.40 C         5.54        -11.65        0.00
 2666  ST   W12X35                 (AISC SECTIONS)
                       PASS     LRFD-H1-1B-C       0.235        43
                   85.37 C         4.39        -11.94        0.00
 2667  ST   W12X35                 (AISC SECTIONS)
                       PASS     LRFD-H1-1B-C       0.226        43
                   70.74 C         4.33        -11.75        0.00
 2671  ST   W12X35                 (AISC SECTIONS)
                       PASS     LRFD-H1-1B-T       0.640        44
                   12.99 T        -7.79        -51.61        0.00
 2675  ST   W12X35                 (AISC SECTIONS)
                       PASS     LRFD-H1-1A-C       0.396        43
                  237.15 C         4.30        -12.54        0.00
 2676  ST   W12X35                 (AISC SECTIONS)
                       PASS     LRFD-H1-1B-C       0.249        43
                  134.21 C         3.82        -12.45        0.00
 2677  ST   W12X35                 (AISC SECTIONS)
                       PASS     LRFD-H1-1A-C       0.378        43
                  218.46 C         4.26        -12.59        0.00
 2678  ST   W12X35                 (AISC SECTIONS)
                       PASS     LRFD-H1-1B-T       0.250        44
                  135.35 T        -3.82        -14.78        0.00


 ************** END OF TABULATED RESULT OF DESIGN **************


2232. CHECK CODE MEMB 2604 TO 2631 2633 TO 2662
```


STAAD.Pro CODE CHECKING - (LRFD 3RD EDITION)

****

ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
2604 ST	W12X35		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.284	43
		31.55 C	10.94	0.06	0.00
2605 ST	W18X86		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.154	44
		16.49 T	-5.05	-83.05	0.00
2606 ST	W14X68		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.428	42
		116.00 C	-6.04	-120.06	0.00
2607 ST	W12X35		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.254	44
		12.78 T	0.31	-39.66	0.00
2608 ST	W12X30		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.354	43
		20.60 T	7.32	8.68	0.92
2609 ST	W12X30		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-T	0.088	43
		1.29 T	-2.66	-1.57	1.18
2610 ST	W12X35		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.920	43
		5.99 C	32.69	22.60	0.00
2611 ST	W12X35		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.281	43
		22.23 C	4.81	24.75	0.00
2612 ST	W12X30		(AISC SECTIONS)		
		PASS	LRFD-H1-1B-C	0.233	43

```
                 12.12 C         0.51         14.06        0.00
  2613  ST   W12X30                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.087        43
                  5.05 T        -2.60         -1.49        1.18
  2614  ST   W12X30                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.228        43
                  7.41 T        -7.32         -1.70        1.00
  2615  ST   W12X35                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.259        44
                  6.52 T        -8.80         -6.84        0.00
  2616  ST   W12X30                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-T       0.228        43
                 24.07 T        -7.09         -1.84        1.00
  2617  ST   W12X35                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.120        44
                 38.58 C        -0.32        -14.88        3.21
  2618  ST   W12X30                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.327        44
                 10.29 C         9.70          2.57        1.00
  2619  ST   W18X86                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.045        44
                  2.74 C        -1.67        -23.74        0.00
```


```
ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

  2620  ST   W12X35                  (AISC SECTIONS)
                     PASS     LRFD-H1-1B-C       0.090        44
                 13.60 C        -0.21         13.98        2.65
  2621  ST   W12X30                  (AISC SECTIONS)
```

```
                         PASS     LRFD-H1-1B-C      0.533         43
                      7.13 C          3.56         28.02        0.00
2622  ST   W12X35                     (AISC SECTIONS)
                         PASS     LRFD-H1-1B-C      0.086         43
                      1.88 C          0.22        -14.06        2.65
2623  ST   W12X35                     (AISC SECTIONS)
                         PASS     LRFD-H1-1B-C      0.078         44
                     28.79 C         -0.05        -11.33        2.43
2624  ST   W12X30                     (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T      0.107         44
                     10.72 T         -2.48         -4.45        0.00
2625  ST   W12X35                     (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T      0.063         43
                      2.83 T         -0.04        -10.75        2.65
2626  ST   W12X30                     (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T      0.425         43
                      6.36 T         -2.52        -23.04        3.85
2627  ST   W12X35                     (AISC SECTIONS)
                         PASS     LRFD-H1-1B-C      0.072         44
                     24.13 C          0.18          9.93        2.65
2628  ST   W12X30                     (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T      0.092         44
                      8.59 T         -2.49         -2.21        0.00
2629  ST   W12X30                     (AISC SECTIONS)
                         PASS     LRFD-H1-1B-C      0.144         44
                     30.05 C          3.67          2.01        3.85
2630  ST   W12X30                     (AISC SECTIONS)
                         PASS     LRFD-H1-1B-C      0.119         44
                      7.12 C          3.59          1.11        3.85
2631  ST   W12X30                     (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T      0.431         43
                      1.05 T          4.58         19.60        0.00
2633  ST   W12X35                     (AISC SECTIONS)
                         PASS     LRFD-H1-1B-C      0.634         43
                     13.96 C         23.44         10.74        0.00
2634  ST   W12X35                     (AISC SECTIONS)
                         PASS     LRFD-H1-1B-C      0.815         44
                     13.66 C         25.07         27.95        1.40
```

```
  2635  ST   W12X35                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.655        42
                    23.33 T         11.57         -51.32        1.25
```



```
ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

  2636  ST   W12X35                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.148        43
                     0.53 T         -4.49          -6.07        3.85
  2637  ST   W12X35                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.708        43
                     7.66 T         -7.05         -74.95        1.25
  2638  ST   W12X35                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.143        44
                     2.70 T         -4.49          -6.07        0.00
  2639  ST   W12X30                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.242        44
                     9.26 C          7.90          -1.09        1.85
  2640  ST   W12X30                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.234        44
                     2.14 C          7.56          -1.90        1.85
  2641  ST   W12X30                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.240        43
                     4.63 C          7.90          -1.08        0.00
  2642  ST   W12X30                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.238        43
                    11.98 C          7.56          -1.90        0.00
  2643  ST   W12X30                    (AISC SECTIONS)
                        PASS     LRFD-H1-1B-T       0.349        43
```

```
                   0.89 T          7.89           7.77        0.00
  2644  ST   W12X30                   (AISC SECTIONS)
                      PASS     LRFD-H1-1B-C       0.325        43
                   5.59 C          9.70           2.57        0.00
  2645  ST   W12X30                   (AISC SECTIONS)
                      PASS     LRFD-H1-1B-T       0.342        44
                   8.05 T         -8.00          -6.93        0.00
  2646  ST   W12X30                   (AISC SECTIONS)
                      PASS     LRFD-H1-1B-T       0.386        44
                   7.43 T         -9.73          -6.50        0.00
  2647  ST   W12X40                   (AISC SECTIONS)
                      PASS     LRFD-H1-1B-T       0.012        41
                  11.49 T          0.00          -1.80        0.71
  2648  ST   W12X40                   (AISC SECTIONS)
                      PASS     LRFD-H1-1B-C       0.012        41
                  11.53 C          0.00          -1.80        0.71
  2649  ST   W12X40                   (AISC SECTIONS)
                      PASS     LRFD-H1-1B-C       0.012        41
                  12.18 C          0.00          -1.80        0.71
  2650  ST   W12X40                   (AISC SECTIONS)
                      PASS     LRFD-H1-1B-T       0.012        41
                  12.19 T          0.00          -1.80        0.71
```


```
ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================

  2651  ST   W12X30                   (AISC SECTIONS)
                      PASS     LRFD-H1-1B-T       0.090        44
                   6.16 T         -2.66          -1.57        0.00
  2652  ST   W12X30                   (AISC SECTIONS)
```

```
                         PASS     LRFD-H1-1B-T       0.086        44
                      1.29 T        -2.60          -1.49        0.00
2653  ST   W12X30                     (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.055        43
                     15.86 T        -1.41           1.18        1.18
2654  ST   W12X30                     (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.053        43
                      4.55 T        -1.41           1.50        1.18
2655  ST   W12X30                     (AISC SECTIONS)
                         PASS     LRFD-H1-1B-C       0.211        43
                      0.31 C        -4.27          -5.71        1.49
2656  ST   W12X30                     (AISC SECTIONS)
                         PASS     LRFD-H1-1B-C       0.358        43
                      1.09 C        -9.14          -5.97        1.49
2657  ST   W12X40                     (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.007        41
                      7.00 T         0.00          -1.12        0.83
2658  ST   W12X40                     (AISC SECTIONS)
                         PASS     LRFD-H1-1B-C       0.007        41
                      5.67 C         0.00          -1.12        0.83
2659  ST   W12X30                     (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.215        44
                      8.62 T        -4.27          -5.70        0.00
2660  ST   W12X30                     (AISC SECTIONS)
                         PASS     LRFD-H1-1B-C       0.385        44
                      9.68 C        -9.68          -6.46        0.17
2661  ST   W12X40                     (AISC SECTIONS)
                         PASS     LRFD-H1-1B-C       0.008        41
                      7.01 C         0.00          -1.12        0.83
2662  ST   W12X40                     (AISC SECTIONS)
                         PASS     LRFD-H1-1B-T       0.007        41
                      5.63 T         0.00          -1.12        0.83


************** END OF TABULATED RESULT OF DESIGN **************
```

2233. CHECK CODE MEMB 2594 TO 2599 2601 2602 2632

STAAD.Pro CODE CHECKING - (LRFD 3RD EDITION)

****

ALL UNITS ARE - KN METE (UNLESS OTHERWISE NOTED)

```
MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================


  2594  ST   W10X30                  (AISC SECTIONS)
                          PASS     LRFD-H1-1B-T       0.536        43
                      13.42 T         -7.45         -35.76        2.90
  2595  ST   W12X35                  (AISC SECTIONS)
                          PASS     LRFD-H1-1B-T       0.401        43
                       3.78 T        -10.92         -23.12        2.90
  2596  ST   W10X30                  (AISC SECTIONS)
                          PASS     LRFD-H1-1B-T       0.529        43
                       6.66 T         -7.48         -35.16        2.90
  2597  ST   W12X35                  (AISC SECTIONS)
                          PASS     LRFD-H1-1B-T       0.404        43
                       4.53 T        -10.95         -23.39        2.90
  2598  ST   W10X30                  (AISC SECTIONS)
                          PASS     LRFD-H1-1B-T       0.534        44
                      10.17 T         -7.45         -35.76        0.00
  2599  ST   W12X35                  (AISC SECTIONS)
                          PASS     LRFD-H1-1B-T       0.402        44
                       4.59 T        -10.92         -23.13        0.00
  2601  ST   W10X30                  (AISC SECTIONS)
```

```
                    PASS     LRFD-H1-1B-T       0.528        44
                 3.40 T         -7.48        -35.17        0.00
 2602  ST   W12X35                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-T       0.404        44
                 6.41 T        -10.95        -23.39        0.00
 2632  ST   W12X35                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.970        44
                41.28 C         28.14         50.31        1.35


 ************** END OF TABULATED RESULT OF DESIGN **************



 2234. CHECK CODE MEMB 2589 2590 2593 2600 2603 2727 TO 2734
```



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                    STAAD.Pro CODE CHECKING - (LRFD 3RD EDITION)
                    ***********************



ALL UNITS ARE - KN   METE (UNLESS OTHERWISE NOTED)

MEMBER     TABLE       RESULT/   CRITICAL COND/     RATIO/     LOADING/
                         FX            MY             MZ       LOCATION
=======================================================================


 2589  ST   W10X30                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.327        43
                40.73 C          0.07         36.14        0.00
 2590  ST   W18X86                  (AISC SECTIONS)
                    PASS     LRFD-H1-1B-C       0.222        43
```

```
                    42.46 C        26.07        43.74        0.00
2593  ST   W10X30                  (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.483        44
                    12.07 C         0.07        30.09        2.88
2600  ST   W8X21                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.155        40
                     0.00 C         0.00       -10.30        1.20
2603  ST   W8X21                   (AISC SECTIONS)
                        PASS     LRFD-H1-1B-C       0.155        40
                     0.00 C         0.00       -10.30        1.20
2727  LD   L40406                  (AISC SECTIONS)
                        PASS     COMPRESSION        0.055        43
                    14.85 C         0.00         0.00        0.00
2728  LD   L40406                  (AISC SECTIONS)
                        PASS     COMPRESSION        0.147        43
                    29.03 C         0.00         0.00        0.00
2729  LD   L40406                  (AISC SECTIONS)
                        PASS     COMPRESSION        0.037        43
                    13.30 C         0.00         0.00        0.00
2730  LD   L40406                  (AISC SECTIONS)
                        PASS     COMPRESSION        0.109        43
                    26.72 C         0.00         0.00        0.00
2731  LD   L40406                  (AISC SECTIONS)
                        PASS     COMPRESSION        0.039        43
                    10.48 C         0.00         0.00        0.00
2732  LD   L40406                  (AISC SECTIONS)
                        PASS     COMPRESSION        0.112        43
                    22.04 C         0.00         0.00        0.00
2733  LD   L40406                  (AISC SECTIONS)
                        PASS     COMPRESSION        0.042        43
                    14.80 C         0.00         0.00        0.00
2734  LD   L40406                  (AISC SECTIONS)
                        PASS     COMPRESSION        0.084        43
                    20.62 C         0.00         0.00        0.00


************** END OF TABULATED RESULT OF DESIGN **************
```

2235. STEEL MEMBER TAKE OFF LIST 482 TO 506 509 512 515 518 521 524 527 530 TO 589 -

STEEL TAKE-OFF

PROFILE		LENGTH(METE)	WEIGHT(KN)

2236. 591 TO 631 633 TO 694 696 TO 703 705 TO 708 710 TO 723 725 TO 738 -
2237. 740 TO 753 755 TO 762 877 879 881 883 885 887 889 TO 891 1009 1011 1013 1015 -
2238. 1017 1019 1021 TO 1023 1027 TO 1035 1051 TO 1053 1055 1056 1061 TO 1065 1067 -
2239. 1070 1073 TO 1081 1083 1085 TO 1087 1089 TO 1107 1109 TO 1114 1165 1174 1183 -
2240. 1253 1438 TO 1456 1465 TO 1484 1493 TO 1525 1528 1531 1533 1543 1544 1584 -
2241. 1594 1597 1599 1600 1605 TO 1611 1613 1615 TO 1621 1623 1625 TO 1631 1633 -
2242. 1639 TO 1646 1651 TO 1669 1685 1686 1689 TO 1727 1729 TO 1772 1777 1778 1781 -
2243. 1782 TO 1784 1787 1788 1793 1794 1797 TO 1800 1803 TO 1849 1851 TO 1853 1855 -
2244. 1856 TO 1865 1869 1870 1872 1873 1879 1880 1883 TO 1924 1926 TO 1945 1981 -
2245. 1982 TO 1990 1995 1996 2005 TO 2024 2029 2030 2037 TO 2055 2059 2061 TO 2067 -
2246. 2069 2070 2072 2073 2075 2076 2078 2079 2081 TO 2087 2089 TO 2101 2103 2106 -
2247. 2107 TO 2111 2113 TO 2121 2124 TO 2127 2129 2131 TO 2135 2229 TO 2260 2269 -
2248. 2270 TO 2293 2295 TO 2298 2301 TO 2305 2310 2311 2313 TO 2315 2317 TO 2319 -
2249. 2321 2322 2326 TO 2340 2342 TO 2374 2376 TO 2378 2381 2383 2385 2387 2388 -
2250. 2390 TO 2394 2397 TO 2431 2445 TO 2469 2473 TO 2522 2526 TO 2547 -
2251. 2549 TO 2551 2554 TO 2557 2559 2561 2562 2564 2566 2568 TO 2585 2588 TO 2590 -
2252. 2593 TO 2734

ST	W18X86	441.75	553.903
ST	W12X50	1210.47	881.874
ST	W14X68	99.95	99.072
ST	W12X65	163.60	154.865
ST	W12X35	482.00	246.049
ST	W8X21	490.23	149.664
ST	W6X16	127.50	29.952
LD	L35358	48.18	15.520
LD	L30306	197.02	41.187
ST	W12X30	77.96	33.964

ST W10X30	220.25	96.494
ST W8X18	38.10	9.932
ST C10X15	44.63	9.932
ST L30306	31.86	3.331
ST W12X40	12.33	7.212
LD L40406	36.29	10.285
PRISMATIC STEEL	10.94	6.305

	TOTAL =	2349.539

TOTAL VOLUME OF PRISMATIC STEEL SECTIONS = 0.08 CUBIC METE

MEMBER	PROFILE	LENGTH (METE)	WEIGHT (KN)
482	ST W18X86	5.20	6.520
483	ST W18X86	1.50	1.881
484	ST W18X86	1.50	1.881
485	ST W12X50	8.00	5.828
486	ST W12X50	8.00	5.828
487	ST W14X68	8.00	7.930
488	ST W18X86	5.20	6.520
489	ST W18X86	3.00	3.762
490	ST W18X86	2.50	3.135

491	ST W18X86	4.00	5.016
492	ST W18X86	1.50	1.881
493	ST W12X50	8.00	5.828
494	ST W18X86	5.20	6.520
495	ST W18X86	1.50	1.881
496	ST W18X86	1.50	1.881
497	ST W12X50	8.00	5.828
498	ST W12X50	8.00	5.828
499	ST W12X50	8.00	5.828
500	ST W18X86	5.20	6.520

501	ST	W18X86	3.00	3.762
502	ST	W18X86	2.50	3.135
503	ST	W18X86	4.00	5.016
504	ST	W18X86	1.50	1.881
505	ST	W12X50	8.00	5.828
506	ST	W12X65	8.00	7.573
509	ST	W12X65	8.00	7.573
512	ST	W12X50	8.00	5.828
515	ST	W12X50	8.00	5.828
518	ST	W12X50	8.00	5.828
521	ST	W12X50	8.00	5.828
524	ST	W12X50	2.65	1.931
527	ST	W12X50	2.65	1.931
530	ST	W18X86	4.20	5.266
531	ST	W18X86	4.20	5.266
532	ST	W12X50	2.75	2.003
533	ST	W12X50	2.75	2.003
534	ST	W18X86	3.00	3.762
535	ST	W18X86	2.50	3.135
536	ST	W18X86	2.50	3.135
537	ST	W18X86	3.00	3.762
538	ST	W18X86	2.50	3.135
539	ST	W18X86	2.50	3.135
540	ST	W14X68	8.00	7.930
541	ST	W12X50	8.00	5.828
542	ST	W14X68	2.50	2.478
543	ST	W18X86	2.50	3.135
544	ST	W12X50	2.75	2.003
545	ST	W18X86	2.50	3.135
546	ST	W12X50	2.75	2.003
547	ST	W18X86	1.00	1.254
548	ST	W12X50	2.75	2.003
549	ST	W18X86	1.00	1.254
550	ST	W12X50	2.75	2.003
551	ST	W18X86	1.50	1.881
552	ST	W12X50	2.75	2.003
553	ST	W18X86	1.50	1.881
554	ST	W12X50	2.75	2.003

555	ST	W18X86	0.50	0.627
556	ST	W18X86	0.50	0.627
557	ST	W12X50	4.75	3.461
558	ST	W18X86	4.20	5.266
559	ST	W18X86	4.20	5.266
560	ST	W18X86	3.00	3.762
561	ST	W18X86	2.50	3.135
562	ST	W18X86	3.00	3.762

563	ST	W18X86	2.50	3.135
564	ST	W14X68	4.00	3.965
565	ST	W12X50	8.00	5.828
566	ST	W12X65	2.50	2.367
567	ST	W18X86	3.00	3.762
568	ST	W18X86	3.00	3.762
569	ST	W12X50	3.85	2.805
570	ST	W12X35	1.25	0.638
571	ST	W12X35	2.50	1.276
572	ST	W12X35	5.25	2.680
573	ST	W12X35	2.63	1.340
574	ST	W12X35	2.63	1.340
575	ST	W12X35	5.25	2.680
576	ST	W12X35	2.63	1.340
577	ST	W12X35	2.63	1.340
578	ST	W18X86	1.70	2.132
579	ST	W18X86	4.20	5.266
580	ST	W18X86	1.50	1.881
581	ST	W18X86	1.25	1.567
582	ST	W18X86	3.00	3.762
583	ST	W18X86	2.50	3.135
584	ST	W14X68	4.00	3.965
585	ST	W12X50	8.00	5.828
586	ST	W12X65	2.50	2.367
587	ST	W18X86	1.50	1.881
588	ST	W18X86	1.55	1.944
589	ST	W14X68	3.50	3.469
591	ST	W18X86	4.20	5.266

592	ST	W18X86	1.50	1.881
593	ST	W18X86	1.25	1.567
594	ST	W18X86	3.00	3.762
595	ST	W18X86	2.50	3.135
596	ST	W12X65	4.00	3.786
597	ST	W12X50	8.00	5.828
598	ST	W12X65	2.50	2.367
599	ST	W18X86	1.50	1.881
600	ST	W18X86	1.55	1.944
601	ST	W12X35	3.50	1.787
602	ST	W12X35	2.62	1.340
603	ST	W12X35	1.50	0.766
604	ST	W12X35	2.62	1.340
605	ST	W12X35	2.62	1.340
606	ST	W12X35	5.25	2.680
607	ST	W12X35	2.62	1.340
608	ST	W12X35	3.25	1.659
609	ST	W12X35	5.25	2.680
610	ST	W12X35	1.50	0.766
611	ST	W12X35	5.25	2.680
612	ST	W12X35	1.80	0.919
613	ST	W12X35	1.40	0.715
614	ST	W18X86	4.20	5.266
615	ST	W18X86	4.20	5.266
616	ST	W18X86	1.50	1.881
617	ST	W18X86	2.50	3.135
618	ST	W18X86	1.50	1.881
619	ST	W18X86	2.50	3.135

620	ST	W12X65	8.00	7.573
621	ST	W12X50	8.00	5.828
622	ST	W12X65	2.50	2.367
623	ST	W18X86	1.55	1.944
624	ST	W18X86	1.55	1.944
625	ST	W12X65	5.12	4.847
626	ST	W12X35	2.70	1.378
627	ST	W12X35	2.70	1.378

628	ST	W12X35	2.70	1.378
629	ST	W12X35	2.70	1.378
630	ST	W12X35	2.70	1.378
631	ST	W12X35	2.70	1.378
633	ST	W12X35	2.70	1.378
634	ST	W18X86	0.50	0.627
635	ST	W12X35	2.70	1.378
636	ST	W18X86	4.20	5.266
637	ST	W18X86	4.20	5.266
638	ST	W18X86	1.50	1.881
639	ST	W18X86	2.50	3.135
640	ST	W18X86	1.50	1.881
641	ST	W18X86	2.50	3.135
642	ST	W14X68	8.00	7.930
643	ST	W12X50	8.00	5.828
644	ST	W12X65	2.50	2.367
645	ST	W18X86	2.50	3.135
646	ST	W18X86	2.50	3.135
647	ST	W12X50	5.12	3.730
648	ST	W18X86	4.20	5.266
649	ST	W18X86	4.20	5.266
650	ST	W18X86	3.00	3.762
651	ST	W18X86	2.50	3.135
652	ST	W18X86	3.00	3.762
653	ST	W18X86	2.50	3.135
654	ST	W12X50	8.00	5.828
655	ST	W12X50	8.00	5.828
656	ST	W12X65	2.50	2.367
657	ST	W18X86	2.50	3.135
658	ST	W18X86	2.50	3.135
659	ST	W12X50	8.00	5.828
660	ST	W18X86	4.20	5.266
661	ST	W18X86	4.20	5.266
662	ST	W18X86	3.00	3.762
663	ST	W18X86	2.50	3.135
664	ST	W18X86	3.00	3.762
665	ST	W18X86	2.50	3.135
666	ST	W12X50	8.00	5.828

667	ST	W12X50	8.00	5.828
668	ST	W12X65	2.50	2.367
669	ST	W18X86	2.50	3.135
670	ST	W18X86	2.50	3.135
671	ST	W12X50	8.00	5.828
672	ST	W18X86	4.20	5.266
673	ST	W18X86	4.20	5.266
674	ST	W18X86	3.00	3.762
675	ST	W18X86	2.50	3.135
676	ST	W18X86	3.00	3.762

677	ST	W18X86	2.50	3.135
678	ST	W12X50	8.00	5.828
679	ST	W12X50	8.00	5.828
680	ST	W12X65	2.50	2.367
681	ST	W18X86	2.50	3.135
682	ST	W18X86	2.50	3.135
683	ST	W12X50	8.00	5.828
684	ST	W18X86	4.20	5.266
685	ST	W18X86	4.20	5.266
686	ST	W18X86	1.50	1.881
687	ST	W18X86	1.25	1.567
688	ST	W18X86	3.00	3.762
689	ST	W18X86	2.50	3.135
690	ST	W14X68	4.00	3.965
691	ST	W12X50	8.00	5.828
692	ST	W12X65	2.50	2.367
693	ST	W18X86	1.50	1.881
694	ST	W18X86	2.50	3.135
696	ST	W12X50	2.05	1.494
697	ST	W12X50	2.50	1.821
698	ST	W12X35	2.75	1.404
699	ST	W12X35	2.75	1.404
700	ST	W12X50	2.05	1.494
701	ST	W12X50	2.50	1.821
702	ST	W12X35	2.75	1.404
703	ST	W12X35	2.75	1.404

705	ST	W12X50	2.05	1.494
706	ST	W12X50	2.50	1.821
707	ST	W12X35	2.75	1.404
708	ST	W12X35	2.75	1.404
710	ST	W12X50	2.05	1.494
711	ST	W14X68	2.50	2.478
712	ST	W12X35	5.50	2.808
713	ST	W12X35	5.50	2.808
714	ST	W12X35	1.45	0.740
715	ST	W12X50	2.05	1.494
716	ST	W12X50	2.50	1.821
717	ST	W12X35	2.75	1.404
718	ST	W12X35	2.75	1.404
719	ST	W12X65	1.00	0.947
720	ST	W12X50	2.05	1.494
721	ST	W12X50	2.50	1.821
722	ST	W12X35	5.50	2.808
723	ST	W12X35	5.50	2.808
725	ST	W12X50	2.05	1.494
726	ST	W14X68	2.50	2.478
727	ST	W12X50	2.75	2.003
728	ST	W12X50	2.75	2.003
729	ST	W12X50	1.00	0.729
730	ST	W12X50	2.05	1.494
731	ST	W12X50	2.50	1.821
732	ST	W12X50	2.75	2.003
733	ST	W12X50	2.75	2.003
734	ST	W18X86	1.50	1.881
735	ST	W18X86	1.50	1.881
736	ST	W12X35	1.45	0.740

737	ST	W18X86	1.50	1.881
738	ST	W18X86	1.50	1.881
740	ST	W18X86	1.50	1.881
741	ST	W18X86	1.50	1.881
742	ST	W12X50	8.00	5.828
743	ST	W18X86	6.70	8.401

744	ST	W18X86	6.70	8.401
745	ST	W18X86	1.50	1.881
746	ST	W18X86	1.25	1.567
747	ST	W18X86	3.00	3.762
748	ST	W18X86	2.50	3.135
749	ST	W12X50	4.00	2.914
750	ST	W12X50	8.00	5.828
751	ST	W12X65	8.00	7.573
752	ST	W18X86	1.50	1.881
753	ST	W18X86	2.50	3.135
755	ST	W18X86	1.50	1.881
756	ST	W18X86	1.50	1.881
757	ST	W12X50	8.00	5.828
758	ST	W12X35	6.50	3.318
759	ST	W12X35	6.50	3.318
760	ST	W12X35	3.25	1.659
761	ST	W12X35	3.25	1.659
762	ST	W12X35	6.50	3.318
877	ST	W18X86	1.00	1.254
879	ST	W18X86	1.00	1.254
881	ST	W18X86	1.25	1.567
883	ST	W18X86	1.25	1.567
885	ST	W18X86	1.50	1.881
887	ST	W18X86	1.50	1.881
889	ST	W12X50	6.50	4.736
890	ST	W12X35	6.50	3.318
891	ST	W12X35	6.50	3.318
1009	ST	W18X86	0.05	0.063
1011	ST	W18X86	1.50	1.881
1013	ST	W18X86	1.25	1.567
1015	ST	W18X86	1.25	1.567
1017	ST	W18X86	1.50	1.881
1019	ST	W18X86	1.50	1.881
1021	ST	W14X68	6.50	6.443
1022	ST	W12X35	6.50	3.318
1023	ST	W12X35	6.50	3.318
1027	ST	W12X50	2.50	1.821
1028	ST	W18X86	4.20	5.266

1029	ST	W18X86	3.00	3.762
1030	ST	W12X50	2.50	1.821
1031	ST	W12X50	2.75	2.003
1032	ST	W12X50	2.75	2.003
1033	ST	W12X50	8.00	5.828
1034	ST	W14X68	8.00	7.930
1035	ST	W12X50	1.30	0.947
1051	ST	W14X68	0.35	0.347
1052	ST	W12X35	1.62	0.827
1053	ST	W12X35	1.30	0.664
1055	ST	W12X35	0.50	0.255
1056	ST	W8X21	3.50	1.069

1061	ST	W12X35	1.30	0.664
1062	ST	W8X21	3.50	1.069
1063	ST	W12X50	1.30	0.947
1064	ST	W12X35	1.30	0.664
1065	ST	W8X21	3.50	1.069
1067	ST	W12X35	0.80	0.408
1070	ST	W12X35	0.60	0.306
1073	ST	W8X21	3.50	1.069
1074	ST	W14X68	1.00	0.991
1075	ST	W12X35	1.00	0.510
1076	ST	W8X21	1.80	0.550
1077	ST	W14X68	0.37	0.367
1078	ST	W12X35	0.65	0.332
1079	ST	W8X21	1.80	0.550
1080	ST	W14X68	0.65	0.644
1081	ST	W12X35	0.65	0.332
1083	ST	W12X50	0.37	0.270
1085	ST	W12X35	1.40	0.715
1086	ST	W12X50	0.90	0.656
1087	ST	W12X35	1.40	0.715
1089	ST	W12X35	1.30	0.664
1090	ST	W12X35	1.30	0.664
1091	ST	W12X35	1.30	0.664
1092	ST	W8X21	3.85	1.175

1093	ST	W12X35	1.30	0.664
1094	ST	W8X21	0.90	0.275
1095	ST	W12X35	1.25	0.638
1096	ST	W12X35	1.25	0.638
1097	ST	W8X21	3.85	1.175
1098	ST	W12X35	1.25	0.638
1099	ST	W8X21	0.90	0.275
1100	ST	W12X35	1.30	0.664
1101	ST	W12X35	1.30	0.664
1102	ST	W8X21	3.85	1.175
1103	ST	W12X35	1.30	0.664
1104	ST	W8X21	0.90	0.275
1105	ST	W12X50	3.25	2.368
1106	ST	W12X35	1.25	0.638
1107	ST	W12X35	1.35	0.689
1109	ST	W12X35	1.35	0.689
1110	ST	W12X35	3.85	1.965
1111	ST	W12X35	1.40	0.715
1112	ST	W12X35	1.40	0.715
1113	ST	W12X35	3.85	1.965
1114	ST	W12X50	1.30	0.947
1165	ST	W12X35	0.35	0.179
1174	ST	W12X50	1.30	0.947
1183	ST	W12X50	1.02	0.743
1253	ST	W18X86	4.20	5.266
1438	ST	W12X50	2.75	2.003
1439	ST	W12X50	2.75	2.003
1440	ST	W12X50	4.00	2.914
1441	ST	W12X50	2.75	2.003
1442	ST	W6X16	2.50	0.587
1443	ST	W12X50	2.75	2.003
1444	ST	W6X16	2.50	0.587

1445	ST	W12X50	2.75	2.003
1446	ST	W12X50	2.75	2.003
1447	ST	W12X50	8.00	5.828
1448	ST	W6X16	2.50	0.587

1449	ST	W6X16	2.50	0.587
1450	ST	W12X50	2.75	2.003
1451	ST	W12X50	2.75	2.003
1452	ST	W12X50	4.00	2.914
1453	ST	W12X50	2.75	2.003
1454	ST	W6X16	2.50	0.587
1455	ST	W12X50	2.75	2.003
1456	ST	W6X16	2.50	0.587
1465	ST	W12X50	2.75	2.003
1466	ST	W12X50	2.75	2.003
1467	ST	W6X16	3.00	0.705
1468	ST	W12X50	2.75	2.003
1469	ST	W12X50	2.75	2.003
1470	ST	W6X16	3.00	0.705
1471	ST	W12X50	8.00	5.828
1472	ST	W12X50	2.75	2.003
1473	ST	W12X50	2.75	2.003
1474	ST	W6X16	3.00	0.705
1475	ST	W12X50	2.75	2.003
1476	ST	W12X50	2.75	2.003
1477	ST	W6X16	3.00	0.705
1478	ST	W12X50	2.75	2.003
1479	ST	W12X50	2.75	2.003
1480	ST	W6X16	3.00	0.705
1481	ST	W12X50	2.75	2.003
1482	ST	W12X50	2.75	2.003
1483	ST	W6X16	3.00	0.705
1484	ST	W12X65	8.00	7.573
1493	ST	W12X50	2.90	2.113
1494	ST	W12X50	2.90	2.113
1495	ST	W12X50	4.00	2.914
1496	ST	W12X50	2.90	2.113
1497	ST	W12X50	2.90	2.113
1498	ST	W12X65	5.12	4.847
1499	ST	W12X50	2.90	2.113
1500	ST	W12X50	2.90	2.113
1501	ST	W12X50	4.00	2.914
1502	ST	W14X68	2.50	2.478

1503	ST	W12X50	2.50	1.821
1504	ST	W12X50	4.00	2.914
1505	ST	W14X68	2.50	2.478
1506	ST	W12X50	2.50	1.821
1507	ST	W12X50	8.00	5.828
1508	ST	W14X68	2.50	2.478
1509	ST	W12X50	2.50	1.821
1510	ST	W12X50	4.00	2.914
1511	ST	W12X50	2.05	1.493
1512	ST	W12X50	2.05	1.493
1513	ST	W12X50	4.00	2.914
1514	ST	W12X50	2.05	1.494
1515	ST	W12X50	2.05	1.494
1516	ST	W12X50	8.00	5.828

1517	ST	W12X50	2.05	1.494
1518	ST	W12X50	2.05	1.494
1519	ST	W12X50	4.00	2.914
1520	ST	W12X50	2.75	2.003
1521	ST	W12X50	2.75	2.003
1522	ST	W12X50	8.00	5.828
1523	ST	W12X50	2.75	2.003
1524	ST	W12X50	2.75	2.003
1525	ST	W12X50	8.00	5.828
1528	ST	W18X86	2.50	3.135
1531	ST	W18X86	2.50	3.135
1533	ST	W18X86	2.50	3.135
1543	ST	W12X35	2.50	1.276
1544	ST	W12X35	1.81	0.924
1584	ST	W12X35	2.70	1.378
1594	ST	W12X35	2.75	1.404
1597	ST	W12X35	1.81	0.924
1599	ST	W12X35	2.88	1.470
1600	ST	W12X35	2.88	1.470
1605	ST	W12X50	2.50	1.821
1606	ST	W12X50	2.50	1.821
1607	ST	W6X16	3.00	0.705

1608	ST	W12X50	2.50	1.821
1609	ST	W12X50	2.50	1.821
1610	ST	W6X16	3.00	0.705
1611	ST	W14X68	2.50	2.478
1613	ST	W12X50	2.50	1.821
1615	ST	W12X50	2.50	1.821
1616	ST	W12X50	2.50	1.821
1617	ST	W6X16	3.00	0.705
1618	ST	W12X50	2.50	1.821
1619	ST	W12X50	2.50	1.821
1620	ST	W6X16	3.00	0.705
1621	ST	W14X68	2.50	2.478
1623	ST	W12X50	2.50	1.821
1625	ST	W12X50	2.50	1.821
1626	ST	W12X50	2.50	1.821
1627	ST	W6X16	3.00	0.705
1628	ST	W12X50	2.50	1.821
1629	ST	W12X50	2.50	1.821
1630	ST	W6X16	3.00	0.705
1631	ST	W14X68	2.50	2.478
1633	ST	W12X50	2.50	1.821
1639	LD	L35358	3.91	1.258
1640	LD	L35358	3.91	1.258
1641	LD	L35358	3.91	1.258
1642	LD	L35358	3.91	1.258
1643	LD	L30306	3.91	0.816
1644	LD	L30306	3.91	0.816
1645	LD	L30306	3.91	0.816
1646	LD	L30306	3.91	0.816
1651	LD	L30306	3.72	0.777
1652	LD	L30306	3.72	0.777
1653	LD	L30306	3.72	0.777
1654	LD	L30306	3.72	0.777
1655	LD	L30306	3.72	0.777

1656	LD	L30306	3.72	0.777
1657	LD	L30306	3.72	0.777

1658	LD	L30306	3.72	0.777
1659	LD	L35358	4.07	1.311
1660	LD	L35358	4.07	1.311
1661	LD	L35358	4.07	1.311
1662	LD	L35358	4.07	1.311
1663	LD	L35358	4.07	1.311
1664	LD	L35358	4.07	1.311
1665	LD	L35358	4.07	1.311
1666	LD	L35358	4.07	1.311
1667	ST	W12X50	8.00	5.828
1668	ST	W12X50	8.00	5.828
1669	ST	W12X65	2.50	2.367
1685	ST	W14X68	4.00	3.965
1686	ST	W14X68	1.40	1.388
1689	ST	W12X65	4.00	3.786
1690	ST	W12X30	6.60	2.875
1691	ST	W12X30	6.60	2.875
1692	ST	W12X30	7.63	3.325
1693	ST	W12X30	7.63	3.325
1694	ST	W12X50	2.90	2.113
1695	ST	W12X65	2.90	2.745
1696	ST	W12X50	8.00	5.828
1697	ST	W12X50	2.05	1.494
1698	ST	W12X50	2.05	1.494
1699	ST	W12X50	8.00	5.828
1700	ST	W12X35	1.45	0.740
1701	ST	W12X35	1.45	0.740
1702	ST	W12X50	8.00	5.828
1703	ST	W12X50	2.05	1.494
1704	ST	W12X50	2.05	1.494
1705	ST	W12X50	8.00	5.828
1706	ST	W12X50	2.05	1.494
1707	ST	W12X50	2.05	1.494
1708	ST	W12X65	2.50	2.367
1709	ST	W12X35	1.45	0.740
1710	ST	W12X35	1.45	0.740
1711	ST	W12X50	8.00	5.828
1712	ST	W12X50	2.90	2.113

1713	ST	W6X16	2.50	0.587
1714	ST	W12X65	2.90	2.745
1715	ST	W6X16	2.50	0.587
1716	ST	W6X16	2.50	0.587
1717	ST	W6X16	2.50	0.587
1718	ST	W12X50	2.90	2.113
1719	ST	W6X16	2.50	0.587
1720	ST	W12X65	2.90	2.745
1721	ST	W6X16	2.50	0.587
1722	LD	L30306	3.83	0.800
1723	LD	L30306	3.83	0.800
1724	LD	L30306	3.83	0.800
1725	LD	L30306	3.83	0.800
1726	LD	L30306	3.83	0.800
1727	LD	L30306	3.83	0.800
1729	LD	L30306	3.83	0.800

1730	LD	L30306	3.83	0.800
1731	ST	W12X50	2.05	1.493
1732	ST	W12X50	2.05	1.493
1733	ST	W6X16	3.00	0.705
1734	ST	W12X50	2.05	1.493
1735	ST	W12X50	2.05	1.493
1736	ST	W6X16	3.00	0.705
1737	ST	W12X50	2.05	1.493
1738	ST	W6X16	2.50	0.587
1739	ST	W12X50	2.05	1.493
1740	ST	W6X16	2.50	0.587
1741	ST	W6X16	3.00	0.705
1742	ST	W6X16	3.00	0.705
1743	ST	W6X16	2.50	0.587
1744	ST	W6X16	2.50	0.587
1745	ST	W12X50	2.05	1.494
1746	ST	W12X50	2.05	1.494
1747	ST	W6X16	3.00	0.705
1748	ST	W12X50	2.05	1.494
1749	ST	W12X50	2.05	1.494

1750	ST	W6X16	3.00	0.705
1751	ST	W12X50	2.05	1.494
1752	ST	W6X16	2.50	0.587
1753	ST	W12X50	2.05	1.494
1754	ST	W6X16	2.50	0.587
1755	LD	L30306	3.23	0.676
1756	LD	L30306	3.23	0.676
1757	LD	L30306	3.23	0.676
1758	LD	L30306	3.23	0.676
1759	LD	L30306	3.23	0.676
1760	LD	L30306	3.23	0.676
1761	LD	L30306	3.23	0.676
1762	LD	L30306	3.23	0.676
1763	LD	L30306	3.63	0.760
1764	LD	L30306	3.63	0.760
1765	LD	L30306	3.63	0.760
1766	LD	L30306	3.63	0.760
1767	LD	L30306	3.63	0.760
1768	LD	L30306	3.63	0.760
1769	LD	L30306	3.63	0.760
1770	LD	L30306	3.63	0.760
1771	ST	W10X30	4.14	1.814
1772	ST	W10X30	4.30	1.882
1777	ST	W10X30	4.30	1.882
1778	ST	W10X30	4.30	1.882
1781	ST	W10X30	4.37	1.916
1782	ST	W10X30	4.37	1.916
1783	ST	W10X30	4.37	1.916
1784	ST	W10X30	4.22	1.849
1787	ST	W10X30	4.14	1.814
1788	ST	W10X30	4.30	1.882
1793	ST	W10X30	4.30	1.882
1794	ST	W10X30	4.30	1.882
1797	ST	W10X30	4.37	1.916
1798	ST	W10X30	4.37	1.916
1799	ST	W10X30	4.37	1.916

1800	ST	W10X30	4.22	1.849
1803	ST	W12X35	3.25	1.659
1804	ST	W14X68	4.00	3.965
1805	ST	W12X50	4.00	2.914
1806	ST	W12X35	3.25	1.659
1807	ST	W12X35	3.25	1.659
1808	ST	W12X50	5.15	3.755
1809	ST	W12X50	5.15	3.755
1810	ST	W12X50	5.15	3.755
1811	ST	W12X50	5.15	3.755
1812	ST	W12X35	1.45	0.740
1813	ST	W12X35	1.45	0.740
1814	ST	W6X16	1.50	0.352
1815	ST	W12X35	1.45	0.740
1816	ST	W12X35	1.45	0.740
1817	ST	W6X16	1.50	0.352
1818	ST	W6X16	1.50	0.352
1819	ST	W6X16	1.50	0.352
1820	ST	W12X35	1.45	0.740
1821	ST	W12X35	1.45	0.740
1822	ST	W6X16	1.50	0.352
1823	ST	W12X35	1.45	0.740
1824	ST	W12X35	1.45	0.740
1825	ST	W6X16	1.50	0.352
1826	ST	W12X35	1.45	0.740
1827	ST	W12X35	1.45	0.740
1828	ST	W6X16	1.50	0.352
1829	ST	W12X35	1.45	0.740
1830	ST	W12X35	1.45	0.740
1831	ST	W6X16	1.50	0.352
1832	ST	W12X35	1.45	0.740
1833	ST	W12X35	1.45	0.740
1834	ST	W6X16	1.50	0.352
1835	ST	W12X35	1.45	0.740
1836	ST	W12X35	1.45	0.740
1837	ST	W6X16	1.50	0.352
1838	ST	W12X35	1.45	0.740
1839	ST	W12X35	1.45	0.740

1840	ST	W6X16	1.50	0.352
1841	ST	W12X35	1.45	0.740
1842	ST	W12X35	1.45	0.740
1843	ST	W6X16	1.50	0.352
1844	ST	W12X35	1.45	0.740
1845	ST	W12X35	1.45	0.740
1846	ST	W6X16	1.50	0.352
1847	ST	W12X35	1.45	0.740
1848	ST	W12X35	1.45	0.740
1849	ST	W6X16	1.50	0.352
1851	LD	L30306	2.09	0.436
1852	LD	L30306	2.09	0.436
1853	LD	L30306	2.09	0.436
1855	LD	L30306	2.09	0.436
1856	LD	L30306	2.09	0.436
1857	LD	L30306	2.09	0.436
1858	LD	L30306	2.09	0.436
1859	LD	L30306	2.09	0.436

1860	LD	L30306	2.09	0.436
1861	LD	L30306	2.09	0.436
1862	LD	L30306	2.09	0.436
1863	LD	L30306	2.09	0.436
1864	LD	L30306	2.09	0.436
1865	LD	L30306	2.09	0.436
1869	ST	W12X35	1.45	0.740
1870	ST	W12X35	1.45	0.740
1872	LD	L30306	2.09	0.436
1873	LD	L30306	2.09	0.436
1879	ST	W12X50	1.00	0.729
1880	ST	W12X50	1.00	0.729
1883	ST	W18X86	2.50	3.135
1884	ST	W18X86	2.50	3.135
1885	ST	W18X86	2.50	3.135
1886	ST	W18X86	2.50	3.135
1887	ST	W18X86	2.50	3.135
1888	ST	W18X86	2.50	3.135

1889	ST	W18X86	2.50	3.135
1890	ST	W18X86	2.50	3.135
1891	ST	W18X86	2.50	3.135
1892	ST	W18X86	2.50	3.135
1893	ST	W18X86	2.50	3.135
1894	ST	W18X86	2.50	3.135
1895	ST	W18X86	2.50	3.135
1896	ST	W18X86	2.50	3.135
1897	ST	W18X86	2.50	3.135
1898	ST	W18X86	2.50	3.135
1899	ST	W18X86	2.50	3.135
1900	ST	W18X86	2.50	3.135
1901	ST	W18X86	2.50	3.135
1902	ST	W18X86	2.50	3.135
1903	ST	W14X68	3.00	2.974
1904	ST	W12X65	3.00	2.840
1905	ST	W12X65	3.00	2.840
1906	ST	W12X65	3.00	2.840
1907	ST	W12X65	3.00	2.840
1908	ST	W12X65	3.00	2.840
1909	ST	W12X65	3.00	2.840
1910	ST	W12X65	3.00	2.840
1911	ST	W12X65	3.00	2.840
1912	ST	W12X65	3.00	2.840
1913	ST	W12X65	5.50	5.206
1914	ST	W12X65	5.50	5.206
1915	ST	W14X68	2.50	2.478
1916	ST	W12X65	2.50	2.367
1917	ST	W12X65	2.50	2.367
1918	ST	W12X65	2.50	2.367
1919	ST	W12X65	2.50	2.367
1920	ST	W12X65	2.50	2.367
1921	ST	W12X65	2.50	2.367
1922	ST	W12X65	2.50	2.367
1923	ST	W12X65	2.50	2.367
1924	ST	W12X65	2.50	2.367
1926	ST	W10X30	3.54	1.549
1927	ST	W10X30	3.54	1.549

1928	ST	W10X30	3.54	1.549
1929	ST	W10X30	3.54	1.549
1930	ST	W10X30	3.54	1.549
1931	ST	W10X30	3.54	1.549
1932	ST	W10X30	3.54	1.549
1933	ST	W10X30	3.54	1.549
1934	ST	W10X30	3.54	1.549
1935	ST	W10X30	3.54	1.549
1936	ST	W10X30	3.54	1.549
1937	ST	W10X30	3.54	1.549
1938	ST	W10X30	3.54	1.549
1939	ST	W10X30	3.54	1.549
1940	ST	W10X30	3.54	1.549
1941	ST	W10X30	3.54	1.549
1942	ST	W10X30	3.54	1.549
1943	ST	W10X30	3.54	1.549
1944	ST	W10X30	3.54	1.549
1945	ST	W10X30	3.54	1.549
1981	ST	W12X50	1.50	1.093
1982	ST	W12X50	1.50	1.093
1983	ST	W18X86	2.50	3.135
1984	ST	W18X86	2.50	3.135
1985	ST	W10X30	3.54	1.549
1986	ST	W10X30	3.54	1.549
1987	ST	W12X50	2.50	1.821
1988	ST	W12X50	2.50	1.821
1989	ST	W10X30	3.54	1.549
1990	ST	W10X30	3.54	1.549
1995	ST	W12X50	4.00	2.914
1996	ST	W12X50	4.00	2.914
2005	ST	W12X50	4.00	2.914
2006	ST	W12X50	4.00	2.914
2007	ST	W8X21	4.43	1.352
2008	ST	W8X21	4.94	1.508
2009	ST	W8X21	4.94	1.508
2010	ST	W8X21	4.94	1.508

2011	ST	W8X21	4.43	1.352
2012	ST	W8X21	4.94	1.508
2013	ST	W8X21	4.94	1.508
2014	ST	W8X21	4.94	1.508
2015	ST	W8X21	4.85	1.482
2016	ST	W8X21	4.85	1.482
2017	ST	W8X21	4.85	1.482
2018	ST	W8X21	4.85	1.482
2019	ST	W12X50	4.00	2.914
2020	ST	W12X50	4.00	2.914
2021	ST	W8X21	4.85	1.482
2022	ST	W8X21	4.85	1.482
2023	ST	W8X21	4.85	1.482
2024	ST	W8X21	4.85	1.482
2029	ST	W12X50	4.00	2.914
2030	ST	W12X50	4.00	2.914
2037	ST	W8X21	4.85	1.482
2038	ST	W8X21	4.85	1.482
2039	ST	W8X21	4.85	1.482
2040	ST	W8X21	4.85	1.482

2041	ST	W8X21	4.85	1.482
2042	ST	W8X21	4.85	1.482
2043	ST	W8X21	4.85	1.482
2044	ST	W8X21	4.85	1.482
2045	ST	W8X21	4.85	1.482
2046	ST	W8X21	4.85	1.482
2047	ST	W8X21	4.85	1.482
2048	ST	W8X21	4.85	1.482
2049	ST	W8X21	4.85	1.482
2050	ST	W8X21	4.85	1.482
2051	ST	W8X21	4.85	1.482
2052	ST	W8X21	4.85	1.482
2053	ST	W14X68	1.25	1.239
2054	ST	W12X35	1.25	0.638
2055	ST	W8X21	1.80	0.550
2059	ST	W18X86	0.95	1.191

2061	ST	W18X86	0.95	1.191
2062	ST	W18X86	0.95	1.191
2063	ST	W12X35	2.20	1.123
2064	ST	W18X86	0.95	1.191
2065	ST	W12X35	2.20	1.123
2066	ST	W12X50	1.35	0.984
2067	ST	W12X50	1.30	0.947
2069	ST	W8X21	2.20	0.672
2070	ST	W12X50	1.30	0.947
2072	ST	W8X21	2.20	0.672
2073	ST	W12X50	1.07	0.780
2075	ST	W8X21	2.20	0.672
2076	ST	W12X50	1.35	0.984
2078	ST	W8X21	2.20	0.672
2079	ST	W12X50	1.35	0.984
2081	ST	W8X21	2.20	0.672
2082	ST	W8X21	2.60	0.794
2083	ST	W8X21	2.60	0.794
2084	ST	W12X35	1.50	0.766
2085	ST	W12X35	1.50	0.766
2086	ST	W12X35	1.50	0.766
2087	ST	W12X35	1.50	0.766
2089	ST	W12X35	3.50	1.787
2090	ST	W18X86	0.50	0.627
2091	ST	W10X30	1.45	0.635
2092	ST	W14X68	1.45	1.437
2093	ST	W14X68	0.35	0.347
2094	ST	W18X86	1.45	1.818
2095	ST	W12X35	1.80	0.919
2096	ST	W12X35	2.60	1.327
2097	ST	W12X35	1.70	0.868
2098	ST	W12X35	1.45	0.740
2099	ST	W12X50	0.28	0.204
2100	ST	W10X30	2.50	1.095
2101	ST	W12X50	2.88	2.098
2103	ST	W10X30	2.70	1.183
2106	ST	W12X50	2.56	1.865
2107	ST	W14X68	0.28	0.278

2108	ST	W10X30	2.88	1.262
2109	ST	W10X30	2.50	1.095

2110	ST	W8X21	2.88	0.879
2111	ST	W10X30	1.81	0.793
2113	ST	W10X30	1.81	0.793
2114	ST	W10X30	2.88	1.262
2115	ST	W12X50	2.88	2.098
2116	ST	W10X30	2.88	1.262
2117	ST	W10X30	2.50	1.095
2118	ST	W8X21	2.88	0.879
2119	ST	W10X30	2.50	1.095
2120	ST	W10X30	2.75	1.205
2121	ST	W18X86	2.50	3.135
2124	ST	W12X35	2.75	1.404
2125	ST	W12X35	3.25	1.659
2126	ST	W12X50	0.28	0.204
2127	ST	W12X50	2.50	1.821
2129	ST	W12X50	2.56	1.865
2131	ST	W12X50	2.88	2.098
2132	ST	W12X50	2.56	1.865
2133	ST	W12X50	2.56	1.865
2134	ST	W8X21	2.88	0.879
2135	ST	W12X65	2.88	2.726
2229	ST	W8X21	4.85	1.482
2230	ST	W8X21	4.85	1.482
2231	ST	W8X21	4.85	1.482
2232	ST	W8X21	4.85	1.482
2233	ST	W8X21	4.85	1.482
2234	ST	W8X21	4.85	1.482
2235	ST	W8X21	4.85	1.482
2236	ST	W8X21	4.85	1.482
2237	ST	W8X21	4.94	1.508
2238	ST	W8X21	4.94	1.508
2239	ST	W8X21	4.94	1.508
2240	ST	W8X21	4.94	1.508
2241	ST	W8X21	4.94	1.508

2242	ST	W8X21	4.94	1.508
2243	ST	W8X21	4.94	1.508
2244	ST	W8X21	4.94	1.508
2245	ST	W8X21	4.66	1.424
2246	ST	W8X21	4.66	1.424
2247	ST	W8X21	4.94	1.508
2248	ST	W8X21	4.94	1.508
2249	ST	W8X21	4.66	1.424
2250	ST	W8X21	4.66	1.424
2251	ST	W8X21	4.94	1.508
2252	ST	W8X21	4.94	1.508
2253	ST	W8X21	4.94	1.508
2254	ST	W8X21	4.94	1.508
2255	ST	W8X21	4.94	1.508
2256	ST	W8X21	4.94	1.508
2257	ST	W8X21	4.94	1.508
2258	ST	W8X21	4.94	1.508
2259	ST	W8X21	4.94	1.508
2260	ST	W8X21	4.94	1.508
2269	ST	W8X21	4.72	1.440
2270	ST	W8X21	4.72	1.440
2271	ST	W8X21	4.72	1.440

2272	ST	W8X21	4.72	1.440
2273	ST	W8X21	4.72	1.440
2274	ST	W8X21	4.72	1.440
2275	ST	W8X21	4.72	1.440
2276	ST	W8X21	4.72	1.440
2277	ST	W8X21	4.72	1.440
2278	ST	W8X21	4.72	1.440
2279	ST	W8X21	4.72	1.440
2280	ST	W8X21	4.72	1.440
2281	ST	W8X21	4.72	1.440
2282	ST	W8X21	4.72	1.440
2283	ST	W8X21	4.72	1.440
2284	ST	W8X21	4.72	1.440
2285	LD	L30306	3.85	0.806

2286	LD	L30306	3.85	0.806
2287	LD	L30306	4.07	0.851
2288	LD	L30306	3.40	0.711
2289	LD	L30306	3.40	0.711
2290	ST	W12X50	1.70	1.239
2291	ST	W12X50	3.00	2.186
2292	ST	W12X50	2.50	1.821
2293	ST	W12X50	1.55	1.129
2295	ST	W12X50	3.00	2.186
2296	ST	W12X50	2.50	1.821
2297	ST	W12X50	1.55	1.129
2298	ST	W12X50	4.20	3.060
2301	ST	W12X50	2.50	1.821
2302	ST	W12X50	2.50	1.821
2303	ST	W12X50	0.95	0.692
2304	ST	W12X50	0.50	0.364
2305	ST	W12X50	1.45	1.056
2310	ST	W12X50	1.43	1.038
2311	ST	W12X50	2.85	2.076
2313	ST	W12X50	1.43	1.038
2314	ST	W12X50	2.85	2.076
2315	ST	W12X50	1.43	1.038
2317	ST	W12X50	2.85	2.076
2318	ST	W12X50	1.43	1.038
2319	ST	W12X50	2.85	2.076
2321	ST	W12X50	2.85	2.076
2322	ST	W12X50	1.43	1.038
2326	ST	W12X50	4.75	3.461
2327	ST	W12X50	1.00	0.729
2328	ST	W12X50	5.00	3.643
2329	ST	W12X50	1.50	1.093
2330	ST	W12X50	1.80	1.311
2331	ST	W12X50	2.85	2.076
2332	ST	W12X50	3.50	2.550
2333	ST	W12X50	1.43	1.038
2334	ST	W12X50	4.70	3.424
2335	ST	W8X18	0.41	0.108
2336	ST	W12X50	1.50	1.093

2337	ST	W12X50	1.50	1.093
2338	ST	W8X18	1.43	0.371
2339	ST	W8X18	0.41	0.108
2340	ST	W8X18	1.42	0.371

2342	ST	W8X18	1.42	0.371
2343	ST	W8X18	0.10	0.026
2344	ST	W8X18	0.10	0.026
2345	ST	W8X18	0.91	0.238
2346	ST	W8X18	0.91	0.238
2347	ST	C10X15	2.23	0.497
2348	ST	C10X15	2.23	0.497
2349	ST	W12X35	5.00	2.552
2350	ST	W12X50	5.00	3.643
2351	ST	W8X18	0.41	0.108
2352	ST	W8X18	0.10	0.026
2353	ST	W8X18	0.10	0.026
2354	ST	W8X18	0.91	0.238
2355	ST	W8X18	0.91	0.238
2356	ST	W8X18	0.41	0.108
2357	ST	W8X18	0.10	0.026
2358	ST	W8X18	0.91	0.238
2359	ST	W8X18	0.41	0.108
2360	ST	W12X50	1.42	1.038
2361	ST	W12X50	1.42	1.038
2362	ST	W12X50	1.42	1.038
2363	ST	W8X18	1.80	0.469
2364	ST	W8X18	1.50	0.391
2365	ST	W8X18	1.50	0.391
2366	ST	W8X18	1.50	0.391
2367	ST	C10X15	2.53	0.563
2368	ST	C10X15	2.53	0.563
2369	ST	W12X35	1.50	0.766
2370	ST	W12X50	1.50	1.093
2371	ST	W8X18	0.41	0.108
2372	ST	W8X18	0.10	0.026
2373	ST	W8X18	0.10	0.026

2374	ST	W8X18	0.91	0.238
2376	ST	W8X18	0.41	0.108
2377	ST	C10X15	1.03	0.228
2378	ST	C10X15	1.03	0.228
2381	ST	W8X18	0.91	0.238
2383	ST	W12X50	0.50	0.364
2385	ST	W8X18	0.10	0.026
2387	ST	W8X18	0.91	0.238
2388	ST	W8X18	0.41	0.108
2390	ST	C10X15	1.25	0.278
2391	ST	C10X15	1.25	0.278
2392	ST	W12X35	0.25	0.128
2393	ST	W8X18	0.41	0.108
2394	ST	W8X18	0.91	0.238
2397	ST	C10X15	0.25	0.056
2398	ST	C10X15	0.25	0.056
2399	ST	W12X35	4.75	2.425
2400	ST	W12X35	1.75	0.893
2401	ST	W12X50	5.00	3.643
2402	ST	W8X18	0.41	0.108
2403	ST	W8X18	0.10	0.026
2404	ST	W8X18	0.10	0.026
2405	ST	W8X18	0.91	0.238
2406	ST	W8X18	0.41	0.108

2407	ST	W8X18	0.91	0.238
2408	ST	W12X50	1.42	1.038
2409	ST	W8X18	1.00	0.261
2410	ST	W8X18	0.50	0.130
2411	ST	W18X86	2.50	3.135
2412	ST	W12X50	2.50	1.821
2413	ST	W12X50	1.43	1.038
2414	ST	W12X35	1.75	0.893
2415	ST	W12X50	1.75	1.275
2416	ST	W8X18	0.41	0.108
2417	ST	W8X18	0.10	0.026
2418	ST	W8X18	0.10	0.026

2419	ST	W8X18	0.91	0.238
2420	ST	W8X18	0.41	0.108
2421	ST	W8X18	0.91	0.238
2422	ST	C10X15	1.03	0.228
2423	ST	C10X15	1.03	0.228
2424	ST	W8X18	0.41	0.108
2425	ST	W8X18	0.10	0.026
2426	ST	W8X18	0.10	0.026
2427	ST	W8X18	0.91	0.238
2428	ST	W8X18	0.41	0.108
2429	ST	W8X18	0.91	0.238
2430	ST	W8X21	1.50	0.458
2431	ST	W8X21	1.50	0.458
2445	ST	W8X21	1.70	0.519
2446	ST	W8X21	1.70	0.519
2447	ST	C10X15	1.03	0.228
2448	ST	C10X15	1.03	0.228
2449	ST	W12X50	1.42	1.038
2450	ST	W8X18	1.50	0.391
2451	ST	W12X50	1.42	1.038
2452	ST	W12X50	1.42	1.038
2453	ST	W8X18	1.50	0.391
2454	ST	W8X18	1.75	0.456
2455	ST	L30306	2.07	0.216
2456	ST	L30306	2.07	0.216
2457	ST	L30306	2.26	0.236
2458	ST	L30306	2.26	0.236
2459	ST	L30306	2.07	0.216
2460	ST	L30306	2.07	0.216
2461	ST	L30306	2.07	0.216
2462	ST	L30306	2.07	0.216
2463	ST	L30306	2.07	0.216
2464	ST	L30306	2.30	0.240
2465	ST	L30306	2.30	0.240
2466	ST	L30306	2.07	0.216
2467	ST	L30306	2.07	0.216
2468	ST	L30306	2.07	0.216
2469	ST	L30306	2.07	0.216

2473	ST	C10X15	1.03	0.228
2474	ST	C10X15	1.03	0.228
2475	ST	C10X15	1.25	0.278
2476	ST	C10X15	1.25	0.278
2477	ST	C10X15	1.03	0.228
2478	ST	C10X15	1.03	0.228

2479	ST	C10X15	1.03	0.228
2480	ST	C10X15	1.03	0.228
2481		PRI SMAT	0.91	0.525
2482		PRI SMAT	0.91	0.525
2483		PRI SMAT	0.91	0.525
2484		PRI SMAT	0.91	0.525
2485	ST	C10X15	1.25	0.278
2486	ST	C10X15	1.25	0.278
2487	ST	C10X15	1.25	0.278
2488	ST	C10X15	1.25	0.278
2489	ST	C10X15	1.02	0.228
2490	ST	C10X15	1.02	0.228
2491	ST	C10X15	1.02	0.228
2492	ST	C10X15	1.02	0.228
2493	ST	C10X15	1.02	0.228
2494	ST	C10X15	1.02	0.228
2495	ST	C10X15	1.02	0.228
2496	ST	C10X15	1.02	0.228
2497	ST	C10X15	1.02	0.228
2498	ST	C10X15	1.02	0.228
2499	ST	C10X15	1.02	0.228
2500	ST	C10X15	1.02	0.228
2501		PRI SMAT	0.91	0.525
2502		PRI SMAT	0.91	0.525
2503		PRI SMAT	0.91	0.525
2504		PRI SMAT	0.91	0.525
2505		PRI SMAT	0.91	0.525
2506		PRI SMAT	0.91	0.525
2507		PRI SMAT	0.91	0.525
2508		PRI SMAT	0.91	0.525

2509	ST	W12X50	2.50	1.821
2510	ST	W18X86	4.20	5.266
2511	ST	W18X86	3.00	3.762
2512	ST	W12X50	2.50	1.821
2513	ST	W12X50	1.50	1.093
2514	ST	W12X50	1.50	1.093
2515	ST	W18X86	2.50	3.135
2516	ST	W18X86	2.50	3.135
2517	ST	W10X30	3.54	1.549
2518	ST	W10X30	3.54	1.549
2519	ST	W12X50	2.50	1.821
2520	ST	W12X50	2.50	1.821
2521	ST	W10X30	3.54	1.549
2522	ST	W10X30	3.54	1.549
2526	ST	W12X50	5.00	3.643
2527	ST	W12X50	5.00	3.643
2528	ST	W12X50	5.00	3.643
2529	ST	W12X50	5.00	3.643
2530	ST	W12X50	6.50	4.736
2531	ST	W12X50	6.50	4.736
2532	ST	W6X16	2.50	0.587
2533	ST	W6X16	2.50	0.587
2534	ST	W6X16	2.50	0.587
2535	LD	L30306	3.54	0.739
2536	LD	L30306	3.54	0.739
2537	LD	L30306	3.54	0.739

2538	LD	L30306	3.54	0.739
2539	ST	W12X50	2.50	1.821
2540	ST	W12X50	1.90	1.384
2541	ST	W12X65	1.90	1.799
2542	ST	W12X50	1.90	1.384
2543	ST	W12X50	1.90	1.384
2544	ST	W8X21	4.10	1.252
2545	ST	W8X21	4.10	1.252
2546	ST	W14X68	2.60	2.577
2547	ST	W12X35	5.25	2.680

2549	ST	W12X35	6.50	3.318
2550	ST	W18X86	3.00	3.762
2551	ST	W18X86	3.00	3.762
2554	ST	W12X50	5.12	3.730
2555	ST	W12X50	2.88	2.098
2556	ST	W12X35	2.70	1.378
2557	ST	W12X35	0.50	0.255
2559	ST	W12X50	1.35	0.984
2561	ST	W12X35	0.50	0.255
2562	ST	W12X50	1.30	0.947
2564	ST	W12X50	1.30	0.947
2566	ST	W12X50	1.35	0.984
2568	ST	W12X50	1.35	0.984
2569	ST	W12X50	1.35	0.984
2570	ST	W12X50	2.70	1.967
2571	ST	W12X50	2.70	1.967
2572	ST	W12X50	8.00	5.828
2573	ST	W12X50	2.65	1.931
2574	ST	W12X50	2.65	1.931
2575	ST	W12X50	8.00	5.828
2576	ST	W8X21	4.10	1.252
2577	ST	W8X21	4.10	1.252
2578	ST	W8X21	4.10	1.252
2579	ST	W8X21	4.10	1.252
2580	ST	W8X21	4.10	1.252
2581	ST	W8X21	4.10	1.252
2582	ST	W12X35	3.00	1.531
2583	ST	W10X30	2.88	1.262
2584	ST	W12X65	2.88	2.726
2585	ST	W10X30	3.00	1.314
2588	ST	W12X50	2.88	2.098
2589	ST	W10X30	3.00	1.314
2590	ST	W18X86	3.00	3.762
2593	ST	W10X30	2.88	1.262
2594	ST	W10X30	2.90	1.271
2595	ST	W12X35	2.90	1.480
2596	ST	W10X30	2.90	1.271
2597	ST	W12X35	2.90	1.480

2598	ST	W10X30	2.90	1.271
2599	ST	W12X35	2.90	1.480
2600	ST	W8X21	2.88	0.879
2601	ST	W10X30	2.90	1.271
2602	ST	W12X35	2.90	1.480
2603	ST	W8X21	2.88	0.879
2604	ST	W12X35	3.50	1.787
2605	ST	W18X86	3.50	4.389

2606	ST	W14X68	0.25	0.248
2607	ST	W12X35	3.50	1.787
2608	ST	W12X30	1.00	0.436
2609	ST	W12X30	1.18	0.514
2610	ST	W12X35	0.90	0.459
2611	ST	W12X35	3.50	1.787
2612	ST	W12X30	1.18	0.514
2613	ST	W12X30	1.18	0.514
2614	ST	W12X30	1.00	0.436
2615	ST	W12X35	3.50	1.787
2616	ST	W12X30	1.00	0.436
2617	ST	W12X35	3.50	1.787
2618	ST	W12X30	1.00	0.436
2619	ST	W18X86	2.65	3.323
2620	ST	W12X35	2.65	1.353
2621	ST	W12X30	3.85	1.677
2622	ST	W12X35	2.65	1.353
2623	ST	W12X35	2.65	1.353
2624	ST	W12X30	2.75	1.198
2625	ST	W12X35	2.65	1.353
2626	ST	W12X30	3.85	1.677
2627	ST	W12X35	2.65	1.353
2628	ST	W12X30	2.75	1.198
2629	ST	W12X30	3.85	1.677
2630	ST	W12X30	3.85	1.677
2631	ST	W12X30	3.85	1.677
2632	ST	W12X35	1.35	0.689
2633	ST	W12X35	0.90	0.459

2634	ST	W12X35	1.40	0.715
2635	ST	W12X35	1.25	0.638
2636	ST	W12X35	3.85	1.965
2637	ST	W12X35	1.25	0.638
2638	ST	W12X35	0.90	0.459
2639	ST	W12X30	1.85	0.806
2640	ST	W12X30	1.85	0.806
2641	ST	W12X30	1.00	0.436
2642	ST	W12X30	1.00	0.436
2643	ST	W12X30	1.85	0.806
2644	ST	W12X30	0.18	0.078
2645	ST	W12X30	1.00	0.436
2646	ST	W12X30	1.00	0.436
2647	ST	W12X40	1.41	0.827
2648	ST	W12X40	1.41	0.827
2649	ST	W12X40	1.41	0.827
2650	ST	W12X40	1.41	0.827
2651	ST	W12X30	0.39	0.170
2652	ST	W12X30	0.39	0.170
2653	ST	W12X30	1.18	0.514
2654	ST	W12X30	1.18	0.514
2655	ST	W12X30	1.49	0.649
2656	ST	W12X30	1.49	0.649
2657	ST	W12X40	1.67	0.976
2658	ST	W12X40	1.67	0.976
2659	ST	W12X30	1.18	0.514
2660	ST	W12X30	0.18	0.078
2661	ST	W12X40	1.67	0.976

2662	ST	W12X40	1.67	0.976
2663	ST	W12X35	3.25	1.659
2664	ST	W12X35	2.63	1.340
2665	ST	W12X35	2.63	1.340
2666	ST	W12X35	2.63	1.340
2667	ST	W12X35	2.63	1.340
2668	ST	W12X50	8.00	5.828
2669	ST	W12X50	8.00	5.828

2670	ST	W12X35	3.25	1.659
2671	ST	W12X35	3.25	1.659
2672	ST	W12X50	8.00	5.828
2673	ST	W12X50	8.00	5.828
2674	ST	W12X50	8.00	5.828
2675	ST	W12X35	2.75	1.404
2676	ST	W12X35	2.75	1.404
2677	ST	W12X35	2.75	1.404
2678	ST	W12X35	2.75	1.404
2679	ST	W12X50	8.00	5.828
2680	ST	W12X50	8.00	5.828
2681	ST	W12X50	4.00	2.914
2682	ST	W12X50	4.00	2.914
2683	ST	W12X50	4.00	2.914
2684	ST	W12X50	4.00	2.914
2685	ST	W12X35	2.75	1.404
2686	ST	W12X35	2.75	1.404
2687	ST	W12X50	8.00	5.828
2688	ST	W12X35	2.75	1.404
2689	ST	W12X35	2.75	1.404
2690	ST	W12X50	8.00	5.828
2691	ST	W12X50	4.00	2.914
2692	ST	W12X50	4.00	2.914
2693	ST	W12X35	2.63	1.340
2694	ST	W12X35	2.63	1.340
2695	ST	W12X50	8.00	5.828
2696	ST	W12X35	2.63	1.340
2697	ST	W12X35	2.63	1.340
2698	ST	W12X50	8.00	5.828
2699	ST	W12X50	4.00	2.914
2700	ST	W12X50	4.00	2.914
2701	ST	W12X50	8.00	5.828
2702	ST	W12X50	8.00	5.828
2703	ST	W12X50	4.00	2.914
2704	ST	W12X50	4.00	2.914
2705	ST	W12X35	1.50	0.766
2706	ST	W12X50	8.00	5.828
2707	ST	W12X35	3.25	1.659

2708	ST	W12X35	3.25	1.659
2709	ST	W12X35	3.25	1.659
2710	ST	W12X35	3.25	1.659
2711	ST	W12X35	3.25	1.659
2712	ST	W12X50	8.00	5.828
2713	ST	W12X50	4.00	2.914
2714	ST	W12X50	4.00	2.914
2715	ST	W12X50	4.00	2.914
2716	ST	W12X50	4.00	2.914
2717	ST	W12X50	4.00	2.914

2718	ST	W12X50	4.00	2.914
2719	ST	W12X50	4.00	2.914
2720	ST	W12X50	4.00	2.914
2721	ST	W12X50	4.00	2.914
2722	ST	W12X50	4.00	2.914
2723	ST	W12X50	4.00	2.914
2724	ST	W12X50	4.00	2.914
2725	ST	W12X50	4.00	2.914
2726	ST	W12X50	4.00	2.914
2727	LD	L40406	4.45	1.261
2728	LD	L40406	5.20	1.475
2729	LD	L40406	3.82	1.082
2730	LD	L40406	4.67	1.325
2731	LD	L40406	4.45	1.261
2732	LD	L40406	5.20	1.475
2733	LD	L40406	3.82	1.082
2734	LD	L40406	4.67	1.325
			TOTAL =	2349.539

************ END OF DATA FROM INTERNAL STORAGE ************

2253. STEEL TAKE OFF LIST 482 TO 506 509 512 515 518 521 524 527 530 TO 589 591 -

STEEL TAKE-OFF

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2254. 592 TO 631 633 TO 694 696 TO 703 705 TO 708 710 TO 723 725 TO 738 740 TO 753 -
2255. 755 TO 762 877 879 881 883 885 887 889 TO 891 1009 1011 1013 1015 1017 1019 -
2256. 1021 TO 1023 1027 TO 1035 1051 TO 1053 1055 1056 1061 TO 1065 1067 1070 1073 -
2257. 1074 TO 1081 1083 1085 TO 1087 1089 TO 1107 1109 TO 1114 1165 1174 1183 1253 -
2258. 1438 TO 1456 1465 TO 1484 1493 TO 1525 1528 1531 1533 1543 1544 1584 1594 -
2259. 1597 1599 1600 1605 TO 1611 1613 1615 TO 1621 1623 1625 TO 1631 1633 1639 -
2260. 1640 TO 1646 1651 TO 1669 1685 1686 1689 TO 1727 1729 TO 1772 1777 1778 1781 -
2261. 1782 TO 1784 1787 1788 1793 1794 1797 TO 1800 1803 TO 1849 1851 TO 1853 1855 -
2262. 1856 TO 1865 1869 1870 1872 1873 1879 1880 1883 TO 1924 1926 TO 1945 1981 -
2263. 1982 TO 1990 1995 1996 2005 TO 2024 2029 2030 2037 TO 2055 2059 2061 TO 2067 -
2264. 2069 2070 2072 2073 2075 2076 2078 2079 2081 TO 2087 2089 TO 2101 2103 2106 -
2265. 2107 TO 2111 2113 TO 2121 2124 TO 2127 2129 2131 TO 2135 2229 TO 2260 2269 -
2266. 2270 TO 2293 2295 TO 2298 2301 TO 2305 2310 2311 2313 TO 2315 2317 TO 2319 -
2267. 2321 2322 2326 TO 2340 2342 TO 2374 2376 TO 2378 2381 2383 2385 2387 2388 -
2268. 2390 TO 2394 2397 TO 2431 2445 TO 2469 2473 TO 2522 2526 TO 2547 -
2269. 2549 TO 2551 2554 TO 2557 2559 2561 2562 2564 2566 2568 TO 2585 2588 TO 2590 -
2270. 2593 TO 2734
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PROFILE	LENGTH(METE)	WEIGHT(KN)
ST W18X86	441.75	553.903
ST W12X50	1210.47	881.874
ST W14X68	99.95	99.072
ST W12X65	163.60	154.865
ST W12X35	482.00	246.049
ST W8X21	490.23	149.664
ST W6X16	127.50	29.952
LD L35358	48.18	15.520
LD L30306	197.02	41.187
ST W12X30	77.96	33.964
ST W10X30	220.25	96.494
ST W8X18	38.10	9.932
ST C10X15	44.63	9.932
ST L30306	31.86	3.331

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 ST  W12X40                      12.33            7.212
 LD  L40406                      36.29           10.285
 PRISMATIC STEEL                 10.94            6.305
                                          ----------------
                                   TOTAL =      2349.539

 TOTAL VOLUME OF PRISMATIC STEEL SECTIONS =         0.08 CUBIC METE


 ************ END OF DATA FROM INTERNAL STORAGE ************


2271. LOAD LIST 20 TO 28
2272. PRINT JOINT DISPLACEMENTS LIST 305 306 315 316 333 334 343 344 353 354 369 -
2273. 370 TO 374 381 TO 386 388 390 TO 396 398 400 TO 406 415 416 427 TO 432 443 -
2274. 444 618 619 628 834 874 876 928 930 946 948 1055 1056 1174 1176 1302 TO 1305 -
2275. 1307 1308 1313 1317 TO 1320 1329 1334 TO 1347 1352 TO 1365 1368 1369 1380 -
2276. 1381
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JOINT DISPLACEMENT (CM   RADIANS)   STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
305	20	-0.1355	-1.0044	0.1105	-0.0002	0.0002	-0.0015
	21	-0.2457	-1.2287	0.3768	0.0000	0.0003	-0.0012
	22	-0.4947	-1.2230	0.1252	-0.0001	0.0002	-0.0014
	23	2.1277	-0.5736	5.3661	0.0021	0.0033	-0.0011
	24	-2.3067	-1.4638	-5.1105	-0.0024	-0.0029	-0.0026
	25	1.0688	-0.9797	0.1388	-0.0002	-0.0003	-0.0019
	26	-1.3398	-1.0292	0.0823	-0.0002	0.0006	-0.0012
	27	0.9600	-1.1874	2.9205	0.0010	-0.0001	-0.0020
	28	-1.2310	-0.8214	-2.6995	-0.0014	0.0004	-0.0011

306	20	-0.1426	-1.7161	-0.0824	-0.0003	0.0001	0.0007
	21	-0.2567	-2.1016	-0.1051	-0.0002	0.0003	0.0006
	22	-0.5069	-1.8150	-0.9137	-0.0006	0.0002	0.0011
	23	2.1197	-0.9961	9.1369	0.0034	0.0032	0.0015
	24	-2.3139	-2.5303	-9.3261	-0.0041	-0.0029	0.0002
	25	1.0607	-1.7358	-0.0121	-0.0003	-0.0003	0.0010
	26	-1.3459	-1.6964	-0.1527	-0.0004	0.0006	0.0003
	27	0.9537	-1.9786	2.9412	0.0009	0.0004	0.0010
	28	-1.2388	-1.4536	-3.1059	-0.0015	-0.0002	0.0003
315	20	-0.1636	-0.9053	0.1132	0.0002	0.0001	-0.0003
	21	-0.2674	-0.9653	0.3795	0.0004	0.0003	-0.0003
	22	0.1932	-0.8933	0.1279	0.0003	0.0002	-0.0004
	23	2.5432	-0.5091	5.3678	0.0025	0.0028	0.0003
	24	-2.7935	-1.3070	-5.1068	-0.0020	-0.0026	-0.0009
	25	0.9702	-0.8727	0.1417	0.0002	0.0006	-0.0005
	26	-1.2975	-0.9378	0.0848	0.0002	-0.0004	0.0000
	27	0.7058	-0.6880	2.9233	0.0014	-0.0002	-0.0005
	28	-1.0331	-1.1226	-2.6968	-0.0010	0.0004	0.0000
316	20	-0.1682	-1.6207	-0.0705	0.0002	0.0001	-0.0004
	21	-0.2733	-1.9720	-0.0851	0.0000	0.0003	-0.0005
	22	0.1899	-1.6392	-0.9047	0.0002	0.0002	-0.0006
	23	2.5392	-0.8867	9.1485	0.0039	0.0028	0.0003
	24	-2.7986	-2.4377	-9.3123	-0.0036	-0.0025	-0.0013
	25	0.9645	-1.6216	-0.0001	0.0002	0.0006	-0.0001
	26	-1.3008	-1.6197	-0.1410	0.0001	-0.0004	-0.0008
	27	0.7010	-1.3823	2.9535	0.0013	0.0005	-0.0001
	28	-1.0373	-1.8591	-3.0946	-0.0010	-0.0002	-0.0008
333	20	-0.1517	-1.3853	-0.1437	-0.0004	-0.0008	-0.0003
	21	-0.2592	-1.4612	-0.1485	-0.0004	-0.0009	-0.0004
	22	-0.4755	-1.6243	-0.0046	-0.0006	-0.0018	-0.0010
	23	2.1873	-0.5715	8.5847	0.0030	0.0036	0.0008
	24	-2.3843	-2.3344	-8.9271	-0.0041	-0.0051	-0.0017
	25	1.0397	-1.2320	-0.1737	-0.0004	-0.0008	-0.0001
	26	-1.3432	-1.5386	-0.1138	-0.0004	-0.0007	-0.0004
	27	0.9443	-1.5399	2.6214	0.0006	-0.0010	-0.0003
	28	-1.2478	-1.2307	-2.9089	-0.0015	-0.0005	-0.0003
334	20	-0.1753	-1.3979	-0.1341	0.0000	0.0007	-0.0003
	21	-0.2634	-1.4796	-0.1369	-0.0001	0.0008	-0.0006

	22	0.2005	-1.6123	0.0115	-0.0001	0.0000	-0.0007

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	23	2.6081	-0.5526	8.5955	0.0036	0.0042	0.0011
	24	-2.8904	-2.4017	-8.9150	-0.0035	-0.0027	-0.0017
	25	0.9473	-1.2388	-0.1630	0.0000	0.0009	-0.0002
	26	-1.2978	-1.5570	-0.1053	0.0000	0.0005	-0.0005
	27	0.6923	-1.0101	2.6322	0.0010	0.0015	-0.0003
	28	-1.0428	-1.7857	-2.9004	-0.0011	0.0000	-0.0004
343	20	-0.1439	-1.2667	-1.1338	-0.0011	-0.0008	0.0001
	21	-0.2466	-1.3550	-1.3026	-0.0011	-0.0009	0.0001
	22	-0.4636	-1.3373	-2.9378	-0.0023	-0.0020	-0.0001
	23	2.2145	-0.4873	5.0469	0.0019	0.0035	0.0008
	24	-2.3923	-2.2050	-7.4566	-0.0048	-0.0050	-0.0008
	25	1.0522	-1.5367	-1.1347	-0.0010	-0.0008	0.0006
	26	-1.3401	-0.9967	-1.1329	-0.0012	-0.0007	-0.0004
	27	0.9580	-1.7720	1.5406	0.0002	-0.0010	0.0006
	28	-1.2458	-0.7613	-3.8081	-0.0025	-0.0006	-0.0004
344	20	-0.1683	-1.3409	-1.1206	-0.0003	0.0006	0.0000
	21	-0.2510	-1.4465	-1.2881	-0.0003	0.0006	0.0001
	22	0.2079	-1.7651	-2.9133	-0.0005	-0.0007	-0.0002
	23	2.6348	-0.4502	5.0643	0.0031	0.0039	0.0003
	24	-2.9048	-2.4390	-7.4381	-0.0033	-0.0026	-0.0002
	25	0.9582	-1.6049	-1.1221	-0.0003	0.0008	0.0005
	26	-1.2948	-1.0768	-1.1191	-0.0002	0.0004	-0.0005
	27	0.7043	-1.2571	1.5532	0.0009	0.0012	0.0005
	28	-1.0409	-1.4246	-3.7944	-0.0014	0.0000	-0.0004
353	20	-0.1607	-1.6967	-1.2295	-0.0004	0.0006	-0.0001
	21	-0.2380	-1.8789	-1.4161	-0.0006	0.0007	-0.0001

	22	0.2163	-2.3495	-2.4582	-0.0003	-0.0004	-0.0003
	23	2.6563	-1.0243	4.3363	0.0017	0.0043	0.0001
	24	-2.9134	-2.7646	-6.9237	-0.0021	-0.0029	-0.0005
	25	0.9689	-1.8238	-1.3201	-0.0005	0.0008	0.0002
	26	-1.2903	-1.5696	-1.1390	-0.0003	0.0004	-0.0005
	27	0.7162	-1.4586	1.1551	0.0003	0.0014	0.0003
	28	-1.0375	-1.9347	-3.6142	-0.0011	-0.0001	-0.0005
354	20	-0.1372	-1.2596	-1.2452	-0.0012	-0.0002	0.0000
	21	-0.2358	-1.3407	-1.4348	-0.0013	-0.0002	0.0002
	22	-0.4505	-1.8205	-2.4811	-0.0019	-0.0012	-0.0012
	23	2.2335	-1.3507	4.3221	0.0008	0.0026	0.0001
	24	-2.3940	-1.6740	-6.9470	-0.0035	-0.0031	-0.0013
	25	1.0613	-1.2963	-1.3370	-0.0013	-0.0003	0.0004
	26	-1.3357	-1.2230	-1.1534	-0.0010	-0.0001	-0.0004
	27	0.9680	-1.3393	1.1398	-0.0004	-0.0004	0.0003
	28	-1.2424	-1.1799	-3.6302	-0.0020	-0.0001	-0.0003
369	20	-0.0746	-1.2925	0.1099	0.0001	0.0000	-0.0002
	21	-0.0733	-1.4209	0.0471	0.0001	0.0000	-0.0002
	22	0.3349	-0.9912	3.9886	0.0042	-0.0010	0.0000
	23	2.2900	-0.8471	3.8306	0.0035	0.0010	0.0004
	24	-2.3800	-1.8858	-3.5997	-0.0032	-0.0010	-0.0009
	25	0.8687	-1.2479	0.6948	0.0008	0.0000	-0.0006

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	26	-1.0178	-1.3370	-0.4749	-0.0005	0.0000	0.0001
	27	0.6332	-0.9441	2.8606	0.0026	0.0002	-0.0006
	28	-0.7824	-1.6409	-2.6407	-0.0023	-0.0001	0.0001
370	20	-0.2067	-1.3019	0.1347	0.0000	0.0000	0.0003
	21	-0.2643	-1.4322	0.0624	0.0000	0.0000	0.0004

	22	0.1650	-0.9998	5.0617	0.0041	-0.0009	0.0004
	23	2.5484	-0.8561	4.7472	0.0037	0.0011	0.0014
	24	-2.9000	-1.8971	-4.4639	-0.0036	-0.0010	-0.0008
	25	0.9432	-1.2570	0.8858	0.0007	0.0001	-0.0004
	26	-1.3567	-1.3469	-0.6164	-0.0006	0.0000	0.0009
	27	0.6826	-0.9528	3.5188	0.0025	0.0002	-0.0004
	28	-1.0961	-1.6511	-3.2494	-0.0024	-0.0002	0.0009
371	20	-0.0720	-1.3865	0.1112	0.0002	0.0000	-0.0005
	21	-0.0733	-1.4744	0.0482	0.0001	0.0000	-0.0004
	22	-0.4338	-2.0109	3.9923	0.0042	-0.0010	-0.0005
	23	1.8290	-1.0335	3.8329	0.0036	0.0010	0.0002
	24	-1.9175	-1.8969	-3.5994	-0.0032	-0.0010	-0.0011
	25	0.8913	-1.4726	0.6978	0.0008	0.0000	-0.0010
	26	-1.0353	-1.3005	-0.4754	-0.0005	0.0000	0.0001
	27	0.7569	-1.7032	2.8636	0.0026	0.0002	-0.0011
	28	-0.9009	-1.0699	-2.6412	-0.0023	-0.0001	0.0002
372	20	-0.1244	-1.4020	0.1631	0.0002	0.0000	0.0002
	21	-0.1742	-1.4918	0.0909	0.0001	0.0000	0.0003
	22	-0.4958	-2.0304	5.1205	0.0043	-0.0010	0.0004
	23	2.1242	-1.0480	4.7901	0.0038	0.0011	0.0012
	24	-2.3109	-1.9148	-4.4498	-0.0034	-0.0011	-0.0008
	25	1.1176	-1.4881	0.9256	0.0008	0.0000	-0.0006
	26	-1.3664	-1.3159	-0.5993	-0.0005	0.0000	0.0009
	27	1.0077	-1.7193	3.5629	0.0027	0.0002	-0.0006
	28	-1.2564	-1.0847	-3.2367	-0.0023	-0.0002	0.0010
373	20	-0.1414	-1.3088	0.1345	0.0000	0.0001	-0.0002
	21	-0.2007	-1.4401	0.0515	0.0000	0.0001	-0.0002
	22	0.2241	-1.0050	6.0029	0.0034	-0.0009	-0.0004
	23	2.6346	-0.8622	5.6161	0.0033	0.0013	0.0001
	24	-2.8649	-1.9054	-5.3305	-0.0033	-0.0011	-0.0005
	25	1.0027	-1.2634	1.0323	0.0005	0.0001	0.0002
	26	-1.2855	-1.3542	-0.7634	-0.0005	0.0000	-0.0006
	27	0.7575	-0.9587	4.1066	0.0022	0.0003	0.0002
	28	-1.0402	-1.6588	-3.8376	-0.0022	-0.0002	-0.0006
374	20	-0.0484	-1.4131	0.1970	0.0001	0.0000	-0.0003
	21	-0.0984	-1.5039	0.1141	0.0000	0.0000	-0.0003
	22	-0.4307	-2.0441	6.0881	0.0034	-0.0010	-0.0005
	23	2.2192	-1.0580	5.6898	0.0034	0.0013	0.0000

	24	-2.2720	-1.9279	-5.2790	-0.0032	-0.0013	-0.0008
	25	1.1820	-1.4993	1.1031	0.0006	0.0000	0.0001
	26	-1.2788	-1.3270	-0.7090	-0.0005	0.0000	-0.0007
	27	1.0817	-1.7309	4.1803	0.0022	0.0002	0.0001
	28	-1.1785	-1.0953	-3.7862	-0.0021	-0.0002	-0.0006

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
381	20	-0.1165	-1.6443	0.0973	-0.0001	0.0000	0.0003
	21	-0.1111	-1.7919	0.0362	-0.0002	0.0000	0.0004
	22	0.3146	-1.1843	5.2086	0.0046	-0.0010	0.0005
	23	2.2306	-1.2525	3.7060	0.0032	0.0010	0.0010
	24	-2.4067	-2.0951	-3.4957	-0.0033	-0.0010	-0.0004
	25	0.8154	-1.5557	0.6525	0.0004	0.0000	-0.0001
	26	-1.0484	-1.7329	-0.4579	-0.0006	0.0000	0.0006
	27	0.5899	-1.3496	2.6862	0.0022	0.0001	0.0000
	28	-0.8228	-1.9390	-2.4916	-0.0023	-0.0001	0.0005
382	20	-0.1964	-1.6544	0.0742	0.0001	0.0001	0.0002
	21	-0.2520	-1.8049	-0.0027	0.0002	0.0001	0.0003
	22	0.1734	-1.1970	6.3162	0.0037	0.0008	0.0002
	23	2.5652	-1.2626	4.4976	0.0030	0.0013	0.0014
	24	-2.8979	-2.1062	-4.3306	-0.0027	-0.0011	-0.0011
	25	0.9306	-1.5662	0.7471	0.0005	0.0002	-0.0004
	26	-1.3234	-1.7425	-0.5988	-0.0003	0.0000	0.0007
	27	0.6647	-1.3598	3.2086	0.0020	0.0005	-0.0004
	28	-1.0576	-1.9490	-3.0603	-0.0017	-0.0002	0.0007
383	20	-0.1227	-1.7337	0.1015	0.0000	0.0000	0.0001
	21	-0.1233	-1.8249	0.0440	0.0000	0.0000	0.0002
	22	-0.5115	-2.2750	5.2139	0.0047	-0.0011	0.0000
	23	1.7527	-1.3186	3.7104	0.0033	0.0010	0.0008

	24	-1.9442	-2.2182	-3.4916	-0.0032	-0.0010	-0.0006
	25	0.8206	-1.7578	0.6575	0.0005	0.0000	-0.0004
	26	-1.0660	-1.7095	-0.4545	-0.0005	0.0000	0.0006
	27	0.6882	-2.0254	2.6908	0.0023	0.0001	-0.0005
	28	-0.9336	-1.4419	-2.4878	-0.0022	-0.0001	0.0007
384	20	-0.1047	-1.7466	0.0763	-0.0004	0.0001	-0.0001
	21	-0.1509	-1.8399	-0.0009	-0.0006	0.0001	0.0000
	22	-0.4324	-2.2876	6.3197	0.0031	-0.0030	-0.0001
	23	2.1476	-1.3314	4.5004	0.0025	0.0013	0.0009
	24	-2.3012	-2.2324	-4.3288	-0.0032	-0.0011	-0.0010
	25	1.1312	-1.7711	0.7501	0.0000	0.0002	-0.0009
	26	-1.3405	-1.7221	-0.5974	-0.0007	0.0000	0.0007
	27	1.0278	-2.0391	3.2119	0.0015	0.0005	-0.0010
	28	-1.2372	-1.4542	-3.0593	-0.0022	-0.0002	0.0008
385	20	-0.1711	-1.6608	0.0431	0.0000	0.0001	-0.0002
	21	-0.2283	-1.8125	-0.0512	-0.0001	0.0001	-0.0003
	22	0.2338	-1.2075	7.0401	0.0026	-0.0008	-0.0005
	23	2.5937	-1.2705	5.1691	0.0025	0.0015	0.0004
	24	-2.8836	-2.1122	-5.0605	-0.0025	-0.0014	-0.0008
	25	0.9668	-1.5731	0.8001	0.0003	0.0002	0.0000
	26	-1.3091	-1.7484	-0.7139	-0.0003	0.0000	-0.0004
	27	0.7341	-1.3671	3.6269	0.0016	0.0004	-0.0002
	28	-1.0764	-1.9544	-3.5408	-0.0016	-0.0002	-0.0002
386	20	-0.0996	-1.7540	0.0359	-0.0003	0.0001	0.0001
	21	-0.1513	-1.8475	-0.0614	-0.0003	0.0001	0.0001
	22	-0.4880	-2.2925	7.0281	0.0022	-0.0010	0.0002

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	23	2.1605	-1.3403	5.1617	0.0022	0.0019	0.0005

	24	-2.3084	-2.2394	-5.0679	-0.0028	-0.0017	-0.0005
	25	1.1309	-1.7786	0.7925	0.0000	0.0002	0.0005
	26	-1.3302	-1.7294	-0.7207	-0.0006	0.0000	-0.0004
	27	1.0222	-2.0461	3.6184	0.0012	0.0004	0.0005
	28	-1.2214	-1.4619	-3.5466	-0.0018	-0.0002	-0.0004
388	20	-0.0769	-1.5993	0.5932	0.0005	0.0000	0.0000
	21	-0.0704	-1.6668	0.5938	0.0006	-0.0001	0.0000
	22	-0.3629	-1.7170	-0.6047	-0.0006	-0.0009	0.0005
	23	1.7389	-1.3844	1.7384	0.0015	0.0021	0.0010
	24	-1.8455	-1.9008	-0.5049	-0.0004	-0.0022	-0.0009
	25	0.8387	-1.6045	0.6109	0.0006	-0.0001	-0.0004
	26	-0.9926	-1.5941	0.5755	0.0005	0.0000	0.0005
	27	0.7333	-1.7868	1.3582	0.0012	0.0001	-0.0002
	28	-0.8872	-1.4119	-0.1717	-0.0001	-0.0002	0.0003
390	20	-0.0587	-1.5598	0.5889	0.0011	0.0000	0.0000
	21	-0.0435	-1.6959	0.5889	0.0011	0.0000	0.0000
	22	0.2825	-1.4267	-0.6118	0.0001	-0.0007	-0.0004
	23	2.2346	-1.4546	1.7339	0.0019	0.0014	0.0012
	24	-2.2969	-1.7208	-0.5091	0.0003	-0.0013	-0.0013
	25	0.8355	-1.5349	0.6057	0.0011	0.0002	-0.0005
	26	-0.9529	-1.5847	0.5721	0.0011	-0.0002	0.0005
	27	0.5731	-1.5054	1.3519	0.0016	0.0003	-0.0004
	28	-0.6906	-1.6142	-0.1741	0.0006	-0.0003	0.0004
391	20	-0.1195	-1.5895	0.8834	0.0008	0.0000	0.0003
	21	-0.1135	-1.7296	0.9055	0.0008	0.0000	0.0005
	22	0.3091	-1.4501	-0.7418	-0.0005	-0.0012	0.0003
	23	2.2229	-1.4802	2.3308	0.0018	0.0011	0.0011
	24	-2.4060	-1.7560	-0.4966	0.0000	-0.0011	-0.0005
	25	0.8066	-1.5633	0.9019	0.0008	0.0000	-0.0001
	26	-1.0456	-1.6156	0.8650	0.0008	0.0000	0.0007
	27	0.5761	-1.5320	1.8211	0.0013	0.0001	-0.0001
	28	-0.8151	-1.6469	-0.0542	0.0003	-0.0002	0.0007
392	20	-0.1811	-1.6046	1.0681	0.0005	0.0001	0.0002
	21	-0.2312	-1.7465	1.0791	0.0005	0.0000	0.0003
	22	0.1995	-1.4670	-0.8704	-0.0005	-0.0049	0.0002
	23	2.5616	-1.4948	2.7394	0.0015	0.0053	0.0014
	24	-2.8656	-1.7729	-0.5207	-0.0004	-0.0052	-0.0010
	25	0.9306	-1.5784	1.0842	0.0005	0.0001	-0.0004

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	26	-1.2928	-1.6307	1.0521	0.0005	0.0000	0.0007
	27	0.6656	-1.5458	2.1161	0.0010	0.0003	-0.0003
	28	-1.0277	-1.6633	0.0202	0.0001	-0.0002	0.0007
393	20	-0.1238	-1.6202	0.8765	0.0009	0.0000	0.0000
	21	-0.1235	-1.6887	0.8966	0.0009	0.0000	0.0002
	22	-0.5090	-1.7474	-0.7402	-0.0004	-0.0009	-0.0001
	23	1.7355	-1.4034	2.3213	0.0018	0.0009	0.0009
	24	-1.9312	-1.9254	-0.5009	0.0000	-0.0010	-0.0009
	25	0.8130	-1.6252	0.8947	0.0009	0.0000	-0.0007

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	26	-1.0605	-1.6153	0.8583	0.0009	0.0000	0.0007
	27	0.6873	-1.8093	1.8129	0.0013	0.0001	-0.0007
	28	-0.9348	-1.4312	-0.0598	0.0004	-0.0002	0.0008
394	20	-0.0930	-1.6298	1.0702	0.0006	0.0001	-0.0001
	21	-0.1391	-1.6993	1.0818	0.0005	0.0001	0.0001
	22	-0.3993	-1.7621	-0.8575	-0.0003	0.0012	-0.0002
	23	2.1522	-1.4122	2.7471	0.0016	0.0016	0.0011
	24	-2.2860	-1.9374	-0.5220	-0.0003	-0.0014	-0.0012
	25	1.1368	-1.6349	1.0866	0.0006	0.0003	-0.0009
	26	-1.3228	-1.6247	1.0538	0.0006	0.0000	0.0007
	27	1.0366	-1.8199	2.1223	0.0011	0.0005	-0.0009
	28	-1.2225	-1.4396	0.0181	0.0001	-0.0003	0.0008
395	20	-0.2063	-1.6159	1.1958	0.0006	0.0001	0.0001
	21	-0.2677	-1.7592	1.1895	0.0006	0.0001	0.0001
	22	0.2196	-1.4778	-0.9249	0.0002	-0.0010	-0.0002
	23	2.5730	-1.5056	3.1180	0.0017	0.0014	0.0006
	24	-2.9326	-1.7861	-0.6300	-0.0003	-0.0012	-0.0005
	25	0.9328	-1.5900	1.2134	0.0007	0.0002	0.0002

	26	-1.3453	-1.6419	1.1782	0.0006	0.0000	0.0000
	27	0.7068	-1.5564	2.3720	0.0011	0.0004	-0.0001
	28	-1.1194	-1.6755	0.0196	0.0001	-0.0002	0.0002
396	20	-0.1223	-1.6383	1.1906	0.0002	0.0001	0.0002
	21	-0.1710	-1.7089	1.1845	0.0001	0.0001	0.0002
	22	-0.5025	-1.7763	-0.9314	-0.0005	-0.0008	0.0007
	23	2.1427	-1.4202	3.1109	0.0011	0.0012	0.0008
	24	-2.3330	-1.9481	-0.6356	-0.0008	-0.0010	-0.0004
	25	1.1109	-1.6435	1.2083	0.0002	0.0002	0.0006
	26	-1.3555	-1.6330	1.1730	0.0002	0.0000	-0.0002
	27	0.9959	-1.8294	2.3668	0.0007	0.0004	0.0007
	28	-1.2404	-1.4472	0.0145	-0.0003	-0.0002	-0.0003
398	20	-0.0660	-1.4078	0.6312	0.0005	-0.0001	0.0001
	21	-0.0591	-1.4730	0.6480	0.0005	-0.0001	0.0001
	22	-0.3700	-1.3682	0.2236	0.0001	-0.0010	0.0008
	23	1.6955	-1.2177	1.6640	0.0014	0.0020	0.0018
	24	-1.7817	-1.6883	-0.3467	-0.0004	-0.0022	-0.0016
	25	0.8183	-1.4294	0.6309	0.0005	-0.0002	-0.0006
	26	-0.9503	-1.3861	0.6314	0.0005	0.0000	0.0009
	27	0.7148	-1.5647	1.2087	0.0011	0.0001	-0.0004
	28	-0.8468	-1.2508	0.0536	-0.0001	-0.0003	0.0007
400	20	-0.0100	-1.1773	0.6275	0.0009	0.0000	0.0004
	21	0.0180	-1.2456	0.6445	0.0010	0.0000	0.0004
	22	0.3322	-1.2321	0.2206	0.0006	-0.0007	-0.0002
	23	2.2302	-1.1168	1.6591	0.0017	0.0013	0.0024
	24	-2.1972	-1.2946	-0.3492	0.0002	-0.0013	-0.0016
	25	0.8638	-1.2043	0.6255	0.0009	0.0002	-0.0004
	26	-0.8837	-1.1503	0.6294	0.0009	-0.0002	0.0012
	27	0.6128	-1.2349	1.2035	0.0014	0.0003	-0.0004
	28	-0.6327	-1.1197	0.0514	0.0004	-0.0003	0.0012

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
401	20	-0.1545	-1.1957	0.8695	0.0008	0.0000	0.0003
	21	-0.1573	-1.2660	0.8932	0.0008	0.0000	0.0005
	22	0.2670	-1.2534	0.3276	0.0005	-0.0010	0.0003
	23	2.2088	-1.1329	2.1884	0.0017	0.0010	0.0010
	24	-2.4619	-1.3170	-0.3755	0.0000	-0.0010	-0.0004
	25	0.7769	-1.2255	0.8724	0.0008	0.0001	0.0000
	26	-1.0858	-1.1659	0.8665	0.0008	0.0000	0.0007
	27	0.5363	-1.2566	1.6351	0.0013	0.0002	0.0000
	28	-0.8452	-1.1348	0.1039	0.0003	-0.0001	0.0007
402	20	-0.1858	-1.2027	1.0671	0.0007	0.0001	0.0001
	21	-0.2341	-1.2737	1.0967	0.0008	0.0001	0.0002
	22	0.2156	-1.2620	0.5031	0.0007	-0.0019	0.0001
	23	2.5390	-1.1408	2.5876	0.0016	0.0017	0.0012
	24	-2.8529	-1.3244	-0.3636	0.0000	-0.0016	-0.0011
	25	0.9192	-1.2328	1.0748	0.0008	0.0001	-0.0005
	26	-1.2908	-1.1727	1.0594	0.0007	0.0000	0.0006
	27	0.6596	-1.2634	1.9403	0.0012	0.0003	-0.0005
	28	-1.0312	-1.1421	0.1939	0.0003	-0.0002	0.0006
403	20	-0.1311	-1.4270	0.8724	0.0008	0.0000	0.0000
	21	-0.1300	-1.4938	0.8984	0.0009	0.0000	0.0001
	22	-0.4989	-1.3871	0.3309	0.0006	-0.0009	-0.0003
	23	1.7384	-1.2361	2.1890	0.0017	0.0011	0.0008
	24	-1.9501	-1.7103	-0.3701	0.0000	-0.0010	-0.0008
	25	0.8170	-1.4510	0.8750	0.0008	0.0001	-0.0007
	26	-1.0793	-1.4030	0.8699	0.0008	0.0000	0.0006
	27	0.6981	-1.5866	1.6364	0.0013	0.0002	-0.0007
	28	-0.9604	-1.2674	0.1084	0.0003	-0.0001	0.0007
404	20	-0.0829	-1.4379	1.0669	0.0004	0.0002	0.0000
	21	-0.1246	-1.5065	1.0954	0.0003	0.0002	0.0001
	22	-0.3722	-1.3992	0.5040	0.0003	0.0017	-0.0001
	23	2.1527	-1.2468	2.5943	0.0013	0.0013	0.0011
	24	-2.2643	-1.7230	-0.3687	-0.0003	-0.0009	-0.0012
	25	1.1439	-1.4621	1.0741	0.0004	0.0003	-0.0008
	26	-1.3097	-1.4136	1.0596	0.0004	0.0000	0.0007
	27	1.0399	-1.5980	1.9433	0.0008	0.0005	-0.0008

	28	-1.2057	-1.2777	0.1904	0.0001	-0.0002	0.0007
405	20	-0.2095	-1.2078	1.2116	0.0007	0.0001	0.0001
	21	-0.2710	-1.2787	1.2369	0.0007	0.0001	0.0001
	22	0.2144	-1.2683	0.6263	0.0007	-0.0010	0.0000
	23	2.5800	-1.1463	2.9526	0.0016	0.0013	0.0005
	24	-2.9464	-1.3302	-0.4250	-0.0001	-0.0011	-0.0002
	25	0.9299	-1.2378	1.2217	0.0007	0.0002	0.0002
	26	-1.3489	-1.1777	1.2015	0.0007	0.0000	0.0001
	27	0.7035	-1.2683	2.1901	0.0011	0.0003	0.0000
	28	-1.1224	-1.1472	0.2331	0.0003	-0.0002	0.0002
406	20	-0.1466	-1.4437	1.2022	0.0004	0.0001	0.0004
	21	-0.1973	-1.5127	1.2257	0.0004	0.0001	0.0004
	22	-0.5058	-1.4054	0.6138	0.0002	-0.0008	0.0009

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	23	2.1248	-1.2529	2.9415	0.0011	0.0012	0.0008
	24	-2.3678	-1.7301	-0.4350	-0.0005	-0.0011	0.0000
	25	1.0913	-1.4681	1.2121	0.0004	0.0002	0.0007
	26	-1.3846	-1.4193	1.1923	0.0003	0.0000	0.0001
	27	0.9768	-1.6041	2.1804	0.0007	0.0003	0.0008
	28	-1.2700	-1.2833	0.2240	0.0000	-0.0002	0.0000
415	20	-0.2119	-1.1019	-0.1178	0.0001	0.0001	0.0001
	21	-0.2734	-1.1609	-0.1904	0.0001	0.0001	0.0001
	22	0.2106	-1.0690	0.4816	0.0004	-0.0009	0.0001
	23	2.5803	-0.4779	3.5188	0.0021	0.0013	0.0004
	24	-2.9519	-1.7575	-3.7362	-0.0018	-0.0011	-0.0002
	25	0.9269	-0.8774	-0.0253	0.0002	0.0002	0.0001
	26	-1.3508	-1.3263	-0.2104	0.0001	0.0000	0.0001
	27	0.7003	-0.7352	1.9146	0.0010	0.0003	0.0000

	28	-1.1242	-1.4685	-2.1502	-0.0008	-0.0002	0.0003
416	20	-0.1471	-1.0482	-0.1257	-0.0003	0.0001	0.0004
	21	-0.1980	-1.0777	-0.1980	-0.0003	0.0001	0.0004
	22	-0.5021	-1.2572	0.4678	-0.0001	-0.0009	0.0010
	23	2.1285	-0.3741	3.5097	0.0016	0.0013	0.0006
	24	-2.3725	-1.7663	-3.7452	-0.0023	-0.0011	0.0001
	25	1.0930	-0.8318	-0.0334	-0.0002	0.0002	0.0006
	26	-1.3871	-1.2646	-0.2179	-0.0003	0.0000	0.0001
	27	0.9785	-1.0745	1.9064	0.0007	0.0003	0.0007
	28	-1.2727	-1.0218	-2.1577	-0.0012	-0.0002	0.0000
427	20	-0.1687	-1.3733	0.0867	0.0001	0.0000	-0.0001
	21	-0.1655	-1.4599	0.0310	0.0001	0.0000	0.0001
	22	-0.5270	-1.9943	3.3356	0.0041	-0.0008	0.0002
	23	1.7256	-1.0214	3.2884	0.0035	0.0011	0.0003
	24	-1.9973	-1.8817	-3.1056	-0.0033	-0.0010	-0.0004
	25	0.7825	-1.4594	0.5769	0.0007	0.0000	-0.0002
	26	-1.1200	-1.2872	-0.4035	-0.0005	0.0000	0.0001
	27	0.6399	-1.6895	2.4595	0.0026	0.0002	-0.0003
	28	-0.9774	-1.0571	-2.2862	-0.0023	-0.0001	0.0001
428	20	-0.0996	-1.7204	0.0900	0.0000	0.0000	0.0001
	21	-0.0989	-1.8108	0.0390	0.0000	0.0000	0.0001
	22	-0.4600	-2.2626	4.4618	0.0049	-0.0009	0.0006
	23	1.7982	-1.3057	3.1863	0.0034	0.0015	0.0005
	24	-1.9335	-2.2039	-2.9923	-0.0033	-0.0015	-0.0003
	25	0.8548	-1.7448	0.5643	0.0006	0.0000	0.0003
	26	-1.0539	-1.6961	-0.3843	-0.0005	0.0000	0.0000
	27	0.7166	-2.0121	2.3195	0.0024	0.0002	0.0004
	28	-0.9157	-1.4288	-2.1396	-0.0023	-0.0002	-0.0001
429	20	-0.1623	-1.2827	0.0928	0.0001	0.0000	-0.0001
	21	-0.1555	-1.4099	0.0363	0.0001	0.0000	0.0001
	22	0.2735	-0.9830	3.3431	0.0041	-0.0008	-0.0002
	23	2.1991	-0.8381	3.2948	0.0035	0.0009	0.0003
	24	-2.4552	-1.8744	-3.1001	-0.0033	-0.0009	-0.0004
	25	0.7750	-1.2387	0.5843	0.0007	0.0000	-0.0002

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	26	-1.0996	-1.3268	-0.3988	-0.0005	0.0000	0.0001
	27	0.5353	-0.9353	2.4674	0.0026	0.0002	-0.0002
	28	-0.8599	-1.6302	-2.2819	-0.0023	-0.0001	0.0001
430	20	-0.0951	-1.6321	0.1090	0.0000	0.0000	0.0001
	21	-0.0912	-1.7780	0.0582	0.0000	0.0000	0.0001
	22	0.3382	-1.1704	4.4805	0.0049	-0.0009	-0.0003
	23	2.2746	-1.2402	3.2050	0.0034	0.0009	0.0006
	24	-2.3972	-2.0824	-2.9733	-0.0033	-0.0009	-0.0004
	25	0.8439	-1.5436	0.5825	0.0005	0.0000	0.0001
	26	-1.0341	-1.7206	-0.3645	-0.0005	0.0000	0.0000
	27	0.6015	-1.3373	2.3381	0.0024	0.0002	-0.0001
	28	-0.7917	-1.9269	-2.1201	-0.0023	-0.0002	0.0003
431	20	-0.2915	-1.1853	-0.4692	-0.0001	0.0001	0.0001
	21	-0.3942	-1.3022	-0.6407	-0.0003	0.0001	0.0004
	22	0.1016	-1.3235	-0.6565	0.0000	-0.0008	0.0003
	23	2.4995	-0.3274	6.5320	0.0030	0.0014	0.0005
	24	-3.0383	-2.1004	-7.4665	-0.0031	-0.0012	-0.0002
	25	0.8302	-1.4264	-0.4365	-0.0001	0.0003	0.0003
	26	-1.4133	-0.9442	-0.5019	-0.0001	-0.0001	0.0000
	27	0.6230	-1.1414	2.2419	0.0009	0.0000	0.0002
	28	-1.2061	-1.2292	-3.1802	-0.0012	0.0002	0.0001
432	20	-0.2352	-1.0531	-0.4768	-0.0004	0.0001	0.0007
	21	-0.2959	-1.1121	-0.6503	-0.0004	0.0001	0.0007
	22	-0.6004	-1.0097	-0.6646	-0.0006	-0.0010	0.0006
	23	2.0402	-0.4525	6.5219	0.0026	0.0014	0.0010
	24	-2.4692	-1.7191	-7.4732	-0.0036	-0.0012	0.0005
	25	0.9869	-1.3011	-0.4443	-0.0004	0.0002	0.0008
	26	-1.4573	-0.8051	-0.5093	-0.0004	0.0000	0.0005
	27	0.8676	-1.4994	2.2339	0.0007	0.0000	0.0009
	28	-1.3379	-0.6068	-3.1875	-0.0015	0.0001	0.0005
443	20	-0.2995	-0.8606	-0.5634	-0.0003	0.0001	0.0007

	21	-0.4045	-0.9949	-0.7547	-0.0005	0.0002	0.0006
	22	0.0923	-0.9880	-0.1853	-0.0003	-0.0009	0.0007
	23	2.4906	-0.3005	5.7201	0.0019	0.0014	0.0010
	24	-3.0455	-1.4321	-6.8370	-0.0026	-0.0012	0.0005
	25	0.8216	-0.9821	-0.6584	-0.0004	0.0002	0.0008
	26	-1.4207	-0.7391	-0.4684	-0.0003	0.0000	0.0006
	27	0.6143	-0.7912	1.8279	0.0005	0.0008	0.0007
	28	-1.2133	-0.9300	-2.9547	-0.0012	-0.0006	0.0008
444	20	-0.2361	-0.5399	-0.5642	-0.0004	0.0001	0.0007
	21	-0.2969	-0.5507	-0.7556	-0.0005	0.0001	0.0007
	22	-0.5997	-0.5613	-0.1861	-0.0004	-0.0007	0.0009
	23	2.0392	-0.1186	5.7177	0.0019	0.0014	0.0010
	24	-2.4700	-0.9727	-6.8362	-0.0027	-0.0012	0.0004
	25	0.9864	-0.6309	-0.6592	-0.0004	0.0003	0.0009
	26	-1.4586	-0.4490	-0.4692	-0.0003	-0.0001	0.0004
	27	0.8673	-0.7894	1.8270	0.0004	0.0008	0.0010
	28	-1.3394	-0.2904	-2.9555	-0.0012	-0.0006	0.0004

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
618	20	-0.1663	-1.6214	-1.1631	0.0005	0.0003	-0.0014
	21	-0.2476	-1.7597	-1.3360	0.0004	0.0004	-0.0016
	22	0.2101	-2.1939	-2.8320	0.0012	-0.0007	-0.0022
	23	2.6408	-0.9364	4.9182	0.0029	0.0017	-0.0003
	24	-2.9075	-2.6609	-7.3939	-0.0010	-0.0010	-0.0033
	25	0.9610	-1.7999	-1.1882	0.0004	0.0005	-0.0010
	26	-1.2937	-1.4430	-1.1381	0.0006	0.0001	-0.0019
	27	0.7074	-1.4554	1.4872	0.0012	0.0007	-0.0010
	28	-1.0401	-1.7875	-3.8135	-0.0002	-0.0001	-0.0019
619	20	0.0230	-1.8481	-1.1629	0.0005	0.0003	-0.0001

	21	-0.0459	-1.9460	-1.3358	0.0004	0.0003	-0.0002
	22	0.0497	-2.6541	-2.8328	0.0012	-0.0009	-0.0007
	23	3.4309	-1.7307	4.9166	0.0028	0.0016	0.0008
	24	-3.2993	-2.6627	-7.3918	-0.0011	-0.0010	-0.0014
	25	1.2090	-1.9963	-1.1878	0.0004	0.0005	0.0002
	26	-1.1630	-1.7000	-1.1380	0.0006	0.0001	-0.0004
	27	1.1203	-1.8670	1.4865	0.0012	0.0006	0.0003
	28	-1.0743	-1.8293	-3.8123	-0.0002	0.0000	-0.0006
628	20	-0.1702	-1.5718	-1.0517	0.0004	0.0007	0.0011
	21	-0.2543	-1.6772	-1.2076	0.0002	0.0009	0.0011
	22	0.2061	-2.0994	-2.6887	0.0005	0.0021	0.0015
	23	2.6283	-0.8875	5.7132	0.0023	0.0056	0.0033
	24	-2.9014	-2.5944	-7.9289	-0.0010	-0.0040	-0.0004
	25	0.9551	-1.7781	-1.0467	0.0003	0.0008	0.0005
	26	-1.2955	-1.3655	-1.0566	0.0005	0.0007	0.0016
	27	0.7010	-1.4522	1.7407	0.0011	0.0015	0.0007
	28	-1.0413	-1.6913	-3.8440	-0.0004	0.0000	0.0014
834	20	-0.0715	-1.8004	0.0978	-0.0016	0.0001	-0.0002
	21	-0.1225	-1.9147	0.0069	-0.0017	0.0001	-0.0002
	22	-0.4541	-2.4006	6.5281	-0.0003	-0.0008	-0.0001
	23	2.1865	-1.3857	5.3305	0.0012	0.0013	-0.0001
	24	-2.2830	-2.3232	-5.1145	-0.0045	-0.0011	-0.0003
	25	1.1583	-1.8559	0.9229	-0.0015	0.0002	-0.0001
	26	-1.3012	-1.7449	-0.7273	-0.0018	0.0000	-0.0003
	27	1.0559	-2.1148	3.8584	-0.0006	0.0004	-0.0002
	28	-1.1988	-1.4860	-3.6627	-0.0027	-0.0002	-0.0002
874	20	-0.1283	-1.5987	0.8821	0.0010	0.0000	0.0001
	21	-0.1246	-1.7432	0.9057	0.0010	0.0000	0.0000
	22	0.2974	-1.5131	-0.4649	-0.0002	-0.0011	-0.0002
	23	2.2177	-1.5078	2.2236	0.0020	0.0011	0.0003
	24	-2.4186	-1.7466	-0.3906	0.0000	-0.0010	-0.0001
	25	0.7981	-1.5776	0.8971	0.0010	0.0000	0.0001
	26	-1.0548	-1.6198	0.8671	0.0009	0.0000	0.0000
	27	0.5643	-1.5699	1.7814	0.0016	0.0002	0.0000
	28	-0.8210	-1.6275	-0.0171	0.0003	-0.0002	0.0001
876	20	-0.1256	-1.6396	0.8821	0.0010	0.0000	0.0000
	21	-0.1249	-1.7027	0.9057	0.0010	0.0000	0.0000
	22	-0.5064	-1.7144	-0.4649	-0.0002	-0.0011	0.0002

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	23	1.7326	-1.4419	2.2236	0.0020	0.0010	0.0002
	24	-1.9325	-1.9270	-0.3906	0.0000	-0.0011	-0.0002
	25	0.8118	-1.6396	0.8971	0.0010	0.0000	0.0000
	26	-1.0630	-1.6397	0.8671	0.0009	0.0000	0.0000
	27	0.6882	-1.8090	1.7814	0.0016	0.0002	0.0001
	28	-0.9395	-1.4703	-0.0171	0.0004	-0.0002	-0.0001
928	20	-0.1158	-1.6781	0.2943	0.0002	-0.0010	-0.0001
	21	-0.1100	-1.8204	0.2550	0.0002	-0.0011	-0.0001
	22	0.3158	-1.2994	3.7222	0.0035	0.0073	-0.0005
	23	2.2285	-1.3665	3.4680	0.0058	0.0038	0.0003
	24	-2.4036	-2.0483	-2.8509	-0.0053	-0.0057	-0.0005
	25	0.8141	-1.6067	0.7154	0.0006	-0.0003	-0.0002
	26	-1.0458	-1.7494	-0.1268	-0.0002	-0.0016	0.0000
	27	0.5885	-1.4465	2.8599	0.0021	-0.0004	-0.0004
	28	-0.8202	-1.9096	-2.2714	-0.0017	-0.0015	0.0002
930	20	-0.1229	-1.7506	0.2943	0.0003	-0.0009	0.0000
	21	-0.1233	-1.8324	0.2550	0.0002	-0.0010	0.0000
	22	-0.5128	-2.1859	3.7222	0.0035	0.0073	0.0005
	23	1.7469	-1.3974	3.4680	0.0058	0.0038	0.0003
	24	-1.9391	-2.1785	-2.8508	-0.0052	-0.0057	-0.0004
	25	0.8175	-1.7712	0.7154	0.0007	-0.0003	0.0000
	26	-1.0633	-1.7301	-0.1268	-0.0001	-0.0016	0.0000
	27	0.6865	-2.0158	2.8599	0.0022	-0.0004	0.0001
	28	-0.9322	-1.4855	-2.2713	-0.0016	-0.0015	-0.0001
946	20	-0.0717	-1.6838	0.1061	0.0001	0.0000	-0.0009
	21	-0.0716	-1.7689	0.0435	0.0000	0.0000	-0.0009
	22	-0.4401	-2.3056	4.2846	0.0044	-0.0010	-0.0008

	23	1.8218	-1.3019	3.7626	0.0035	0.0010	-0.0007
	24	-1.9105	-2.2014	-3.5379	-0.0033	-0.0010	-0.0009
	25	0.8840	-1.7738	0.6827	0.0007	0.0000	-0.0008
	26	-1.0274	-1.5938	-0.4704	-0.0005	0.0000	-0.0009
	27	0.7489	-2.0160	2.8156	0.0025	0.0002	-0.0009
	28	-0.8923	-1.3517	-2.6033	-0.0024	-0.0002	-0.0008
948	20	-0.0714	-1.5824	0.1061	0.0001	0.0000	-0.0008
	21	-0.0676	-1.7091	0.0435	0.0000	0.0000	-0.0008
	22	0.3430	-1.2243	4.2846	0.0044	-0.0010	-0.0007
	23	2.2847	-1.1404	3.7625	0.0035	0.0010	-0.0007
	24	-2.3693	-2.1517	-3.5379	-0.0033	-0.0010	-0.0010
	25	0.8673	-1.5384	0.6827	0.0007	0.0000	-0.0008
	26	-1.0100	-1.6264	-0.4704	-0.0005	0.0000	-0.0009
	27	0.6354	-1.2494	2.8156	0.0025	0.0002	-0.0009
	28	-0.7781	-1.9155	-2.6033	-0.0024	-0.0002	-0.0008
1055	20	-0.0941	-1.0854	-1.1859	-0.0010	0.0001	-0.0004
	21	-0.1532	-1.1056	-1.3605	-0.0011	0.0000	-0.0005
	22	-0.4953	-1.5499	-1.7315	-0.0015	-0.0005	-0.0006
	23	2.1847	-1.1431	3.6870	0.0011	0.0025	-0.0003
	24	-2.3371	-1.4448	-6.1945	-0.0033	-0.0023	-0.0006
	25	1.1681	-1.1327	-1.2992	-0.0010	-0.0003	-0.0002

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	26	-1.3564	-1.0381	-1.0725	-0.0010	0.0005	-0.0007
	27	1.0638	-1.1926	0.8955	0.0000	-0.0002	-0.0002
	28	-1.2521	-0.9782	-3.2672	-0.0019	0.0004	-0.0006
1056	20	-0.0923	-1.4090	0.1879	0.0001	0.0000	-0.0005
	21	-0.1505	-1.4994	0.1092	0.0001	0.0000	-0.0005
	22	-0.4909	-2.0393	5.7453	0.0038	-0.0010	-0.0005

	23	2.1848	-1.0545	5.3623	0.0036	0.0012	-0.0002
	24	-2.3320	-1.9232	-4.9708	-0.0033	-0.0012	-0.0006
	25	1.1709	-1.4952	1.0436	0.0007	0.0000	-0.0002
	26	-1.3556	-1.3229	-0.6677	-0.0004	0.0000	-0.0007
	27	1.0666	-1.7266	3.9598	0.0024	0.0002	-0.0002
	28	-1.2513	-1.0914	-3.5839	-0.0022	-0.0002	-0.0007
1174	20	-0.0611	-0.7657	-1.1854	-0.0010	0.0001	0.0003
	21	-0.1242	-0.7546	-1.3601	-0.0011	0.0001	0.0004
	22	-0.5914	-1.0978	-1.7313	-0.0014	-0.0004	0.0007
	23	1.9600	-0.2077	3.6869	0.0012	0.0017	0.0009
	24	-2.0167	-1.6862	-6.1936	-0.0034	-0.0014	0.0002
	25	1.0567	-0.8187	-1.2985	-0.0010	-0.0004	0.0001
	26	-1.1788	-0.7126	-1.0723	-0.0010	0.0006	0.0005
	27	0.9917	-1.1450	0.8959	0.0000	-0.0002	0.0001
	28	-1.1138	-0.3863	-3.2667	-0.0019	0.0005	0.0004
1176	20	-0.0708	-0.9071	-1.2467	-0.0011	0.0002	0.0000
	21	-0.1471	-0.9417	-1.4368	-0.0012	0.0003	0.0001
	22	-0.6147	-1.2661	-2.4828	-0.0018	-0.0006	-0.0002
	23	1.9712	-0.3190	4.3240	0.0012	0.0018	0.0002
	24	-2.0463	-1.9326	-6.9516	-0.0036	-0.0015	-0.0004
	25	1.0801	-0.9000	-1.3389	-0.0012	0.0001	-0.0001
	26	-1.2217	-0.9142	-1.1545	-0.0010	0.0004	0.0001
	27	1.0061	-1.2463	1.1391	-0.0002	0.0001	-0.0001
	28	-1.1477	-0.5679	-3.6325	-0.0020	0.0004	0.0001
1302	20	-0.2094	-1.4329	0.1792	0.0076	-0.0002	-0.0009
	21	-0.2675	-1.5946	0.1127	0.0105	-0.0002	-0.0011
	22	0.1653	-1.1128	5.4997	0.0096	-0.0025	-0.0007
	23	2.5498	-0.9855	4.8800	0.0088	0.0009	-0.0007
	24	-2.9061	-2.0225	-4.5067	0.0064	-0.0012	-0.0010
	25	0.9390	-1.3872	1.0003	0.0080	-0.0004	-0.0009
	26	-1.3578	-1.4786	-0.6420	0.0071	0.0001	-0.0009
	27	0.6784	-1.0881	3.6626	0.0087	-0.0005	-0.0009
	28	-1.0971	-1.7777	-3.3042	0.0065	0.0002	-0.0009
1303	20	-0.1269	-1.5822	0.1789	-0.0081	-0.0001	-0.0012
	21	-0.1769	-1.7029	0.1124	-0.0113	-0.0001	-0.0014
	22	-0.4946	-2.2279	5.5049	-0.0081	-0.0029	-0.0013
	23	2.1241	-1.2132	4.8795	-0.0069	0.0010	-0.0010
	24	-2.3160	-2.1008	-4.5067	-0.0093	-0.0011	-0.0013

	25	1.1149	-1.6649	1.0025	-0.0082	-0.0004	-0.0012
	26	-1.3686	-1.4996	-0.6447	-0.0080	0.0003	-0.0013
	27	1.0051	-1.9016	3.6643	-0.0076	-0.0005	-0.0012
	28	-1.2588	-1.2629	-3.3065	-0.0087	0.0004	-0.0012

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
1304	20	-0.1435	-1.3876	0.1467	0.0006	0.0000	-0.0007
	21	-0.2025	-1.5276	0.0606	0.0006	0.0000	-0.0008
	22	0.2240	-1.0606	6.1239	0.0018	-0.0010	-0.0005
	23	2.6302	-0.9408	5.5310	0.0018	0.0014	-0.0005
	24	-2.8651	-1.9771	-5.2203	-0.0006	-0.0014	-0.0008
	25	0.9996	-1.3393	1.0268	0.0008	0.0001	-0.0007
	26	-1.2866	-1.4360	-0.7333	0.0004	-0.0002	-0.0008
	27	0.7551	-1.0400	4.0529	0.0014	0.0004	-0.0007
	28	-1.0421	-1.7353	-3.7594	-0.0002	-0.0005	-0.0007
1305	20	-0.0524	-1.5154	0.1489	-0.0003	0.0003	-0.0009
	21	-0.1026	-1.6146	0.0627	-0.0003	0.0003	-0.0010
	22	-0.4348	-2.1441	6.1259	0.0009	-0.0006	-0.0009
	23	2.2135	-1.1477	5.5331	0.0009	0.0018	-0.0008
	24	-2.2738	-2.0332	-5.2181	-0.0015	-0.0012	-0.0010
	25	1.1779	-1.5967	1.0293	-0.0001	0.0005	-0.0009
	26	-1.2827	-1.4341	-0.7315	-0.0005	0.0001	-0.0010
	27	1.0773	-1.8336	4.0553	0.0005	0.0008	-0.0009
	28	-1.1821	-1.1972	-3.7576	-0.0011	-0.0002	-0.0009
1307	20	-0.1364	-1.4167	0.1567	-0.0004	0.0000	0.0006
	21	-0.2206	-1.5075	0.0599	-0.0005	0.0000	0.0008
	22	-0.4664	-2.0484	6.9391	0.0021	-0.0010	0.0004
	23	2.5891	-1.0607	6.5480	0.0022	0.0015	0.0026
	24	-2.7345	-1.9323	-6.2147	-0.0031	-0.0015	-0.0018

	25	0.9454	-1.5029	1.1959	0.0000	0.0000	0.0011
	26	-1.2183	-1.3304	-0.8825	-0.0008	0.0000	0.0000
	27	0.8811	-1.7350	4.7238	0.0013	0.0002	0.0010
	28	-1.1540	-1.0984	-4.4104	-0.0021	-0.0002	0.0002
1308	20	-0.1845	-1.3100	0.1593	0.0003	0.0001	0.0003
	21	-0.2796	-1.4414	0.0625	0.0002	0.0001	0.0005
	22	0.2634	-1.0054	6.9416	0.0029	-0.0008	0.0000
	23	2.9961	-0.8627	6.5495	0.0030	0.0015	0.0021
	24	-3.2653	-1.9074	-6.2109	-0.0024	-0.0012	-0.0017
	25	0.8923	-1.2645	1.1985	0.0007	0.0001	0.0004
	26	-1.2614	-1.3555	-0.8798	-0.0001	0.0001	0.0002
	27	0.6330	-0.9595	4.7263	0.0020	0.0004	0.0005
	28	-1.0020	-1.6605	-4.4077	-0.0015	-0.0002	0.0001
1313	20	-0.0927	-1.3548	-0.0865	-0.0001	-0.0054	-0.0011
	21	-0.1510	-1.4322	-0.1829	-0.0001	-0.0057	-0.0014
	22	-0.4918	-1.9758	4.3294	0.0028	-0.0282	-0.0015
	23	2.1847	-1.0953	4.7057	0.0029	0.0120	0.0008
	24	-2.3329	-1.8431	-4.8913	-0.0032	-0.0233	-0.0018
	25	1.1704	-1.4337	0.5854	0.0004	-0.0090	-0.0013
	26	-1.3558	-1.2758	-0.7585	-0.0005	-0.0017	-0.0010
	27	1.0661	-1.6334	3.3748	0.0020	-0.0116	-0.0019
	28	-1.2515	-1.0761	-3.5478	-0.0021	0.0008	-0.0003
1317	20	-0.1518	-1.0793	0.1123	0.0007	0.0000	-0.0007
	21	-0.2486	-1.1921	0.3786	0.0009	-0.0001	-0.0006
	22	0.0257	-1.1347	0.1270	0.0010	-0.0012	-0.0007

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	23	2.7363	-0.9175	5.3674	0.0013	0.0021	-0.0002
	24	-2.9566	-1.2539	-5.1083	0.0001	-0.0021	-0.0014

	25	1.1599	-1.0496	0.1407	0.0007	0.0005	-0.0010
	26	-1.4634	-1.1089	0.0840	0.0007	-0.0006	-0.0004
	27	0.7757	-1.0346	2.9226	0.0010	0.0004	-0.0010
	28	-1.0792	-1.1239	-2.6980	0.0004	-0.0004	-0.0004
1318	20	-0.1518	-1.9456	-0.0745	0.0012	0.0000	-0.0001
	21	-0.2486	-2.2841	-0.0918	0.0012	-0.0001	-0.0001
	22	0.0257	-2.0875	-0.9077	0.0018	-0.0012	-0.0001
	23	2.7369	-1.7087	9.1457	0.0027	0.0021	0.0007
	24	-2.9572	-2.3637	-9.3179	0.0001	-0.0021	-0.0007
	25	1.1598	-1.9510	-0.0041	0.0012	0.0006	0.0003
	26	-1.4634	-1.9403	-0.1449	0.0012	-0.0006	-0.0004
	27	0.7763	-1.9034	2.9497	0.0017	0.0003	0.0003
	28	-1.0799	-1.9879	-3.0986	0.0007	-0.0003	-0.0004
1319	20	-0.1547	-1.1577	0.1114	-0.0003	0.0000	-0.0011
	21	-0.2759	-1.3290	0.3777	-0.0001	-0.0001	-0.0009
	22	-0.3364	-1.3088	0.1261	0.0000	-0.0012	-0.0010
	23	2.5902	-0.9844	5.3670	0.0003	0.0025	-0.0007
	24	-2.8147	-1.3521	-5.1096	-0.0009	-0.0025	-0.0020
	25	1.1891	-1.1300	0.1398	-0.0003	-0.0003	-0.0014
	26	-1.4985	-1.1854	0.0831	-0.0003	0.0003	-0.0008
	27	0.8828	-1.1679	2.9217	0.0000	0.0004	-0.0015
	28	-1.1922	-1.1474	-2.6988	-0.0006	-0.0004	-0.0008
1320	20	-0.1547	-2.0136	-0.0785	-0.0008	0.0000	0.0003
	21	-0.2759	-2.3724	-0.0985	-0.0007	-0.0001	0.0003
	22	-0.3364	-2.2183	-0.9107	-0.0011	-0.0012	0.0005
	23	2.5906	-1.7852	9.1419	0.0002	0.0025	0.0011
	24	-2.8152	-2.4424	-9.3227	-0.0023	-0.0025	-0.0002
	25	1.1891	-2.0244	-0.0081	-0.0008	-0.0003	0.0007
	26	-1.4985	-2.0027	-0.1488	-0.0009	0.0003	-0.0001
	27	0.8822	-2.0757	2.9455	-0.0004	0.0003	0.0006
	28	-1.1916	-1.9515	-3.1024	-0.0013	-0.0003	-0.0001
1329	20	-0.1360	-1.7560	-0.0791	-0.0005	0.0000	0.0002
	21	-0.2199	-1.8495	-0.1889	-0.0005	0.0000	0.0003
	22	-0.4676	-2.2951	7.5537	0.0015	-0.0010	-0.0002
	23	2.5872	-1.3416	5.7263	0.0016	0.0015	0.0022
	24	-2.7326	-2.2422	-5.8588	-0.0026	-0.0014	-0.0022
	25	0.9461	-1.7807	0.7496	-0.0003	0.0000	0.0007
	26	-1.2182	-1.7314	-0.9078	-0.0007	0.0000	-0.0004

	27	0.8813	-2.0485	3.9064	0.0007	0.0003	0.0005
	28	-1.1534	-1.4636	-4.0646	-0.0017	-0.0002	-0.0002
1334	20	-0.0607	-1.5773	-0.7480	0.0007	0.0002	-0.0002
	21	-0.0714	-1.6832	-0.9771	0.0006	0.0003	-0.0003
	22	0.4308	-2.1049	-2.1988	0.0012	-0.0005	-0.0004
	23	2.6884	-0.8936	7.0618	0.0027	0.0021	0.0001
	24	-2.6913	-2.5987	-8.1969	-0.0004	-0.0015	-0.0006
	25	0.9925	-1.7842	-0.7939	0.0006	0.0004	-0.0001

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	26	-1.1139	-1.3704	-0.7021	0.0008	0.0001	-0.0003
	27	0.6975	-1.4583	2.4475	0.0013	0.0007	0.0000
	28	-0.8189	-1.6963	-3.9435	0.0001	-0.0002	-0.0004
1335	20	-0.0613	-1.6985	-1.1756	0.0003	0.0004	-0.0001
	21	-0.0721	-1.8807	-1.4431	0.0002	0.0004	-0.0002
	22	0.4302	-2.3516	-2.1700	0.0009	-0.0003	-0.0003
	23	2.6881	-1.0238	5.5538	0.0022	0.0024	0.0002
	24	-2.6924	-2.7690	-7.6313	-0.0008	-0.0014	-0.0006
	25	0.9919	-1.8258	-1.3249	0.0002	0.0006	0.0000
	26	-1.1146	-1.5712	-1.0263	0.0004	0.0003	-0.0002
	27	0.6968	-1.4597	1.5886	0.0008	0.0010	0.0001
	28	-0.8194	-1.9373	-3.9398	-0.0002	-0.0001	-0.0003
1336	20	0.0255	-1.7942	-1.2383	-0.0003	0.0001	0.0003
	21	-0.0430	-1.9250	-1.4264	-0.0004	0.0002	0.0002
	22	0.0557	-2.7161	-2.4713	-0.0003	-0.0004	0.0002
	23	3.4389	-1.6492	4.3274	0.0008	0.0017	0.0010
	24	-3.3024	-2.6869	-6.9363	-0.0011	-0.0014	-0.0004
	25	1.2123	-1.8868	-1.3294	-0.0004	0.0002	0.0004
	26	-1.1612	-1.7016	-1.1472	-0.0001	0.0001	0.0002

	27	1.1242	-1.6808	1.1463	0.0000	0.0005	0.0006
	28	-1.0731	-1.9077	-3.6230	-0.0005	-0.0002	0.0000
1337	20	-0.0453	-1.7990	-1.1753	0.0002	0.0004	0.0002
	21	-0.0599	-1.9300	-1.4428	0.0001	0.0004	0.0002
	22	0.1658	-2.7196	-2.1691	0.0008	-0.0003	0.0000
	23	3.0881	-1.6580	5.5544	0.0019	0.0023	0.0010
	24	-3.0189	-2.6863	-7.6307	-0.0006	-0.0014	-0.0006
	25	1.0627	-1.8920	-1.3246	0.0001	0.0006	0.0004
	26	-1.1533	-1.7061	-1.0260	0.0003	0.0003	0.0001
	27	0.8613	-1.6883	1.5888	0.0007	0.0010	0.0006
	28	-0.9519	-1.9098	-3.9395	-0.0002	-0.0001	-0.0001
1338	20	0.0214	-1.8826	-1.0513	0.0007	0.0007	0.0005
	21	-0.0476	-1.9568	-1.2072	0.0006	0.0008	0.0004
	22	0.0454	-2.6083	-2.6874	0.0007	0.0019	0.0005
	23	3.4258	-1.6814	5.7131	0.0024	0.0049	0.0012
	24	-3.2971	-2.7509	-7.9278	-0.0007	-0.0033	-0.0001
	25	1.2070	-2.0602	-1.0463	0.0005	0.0008	0.0002
	26	-1.1641	-1.7050	-1.0563	0.0008	0.0007	0.0007
	27	1.1177	-1.9815	1.7406	0.0013	0.0013	0.0004
	28	-1.0748	-1.7837	-3.8432	0.0000	0.0001	0.0005
1339	20	-0.0456	-1.8833	-0.7483	0.0006	0.0002	0.0001
	21	-0.0603	-1.9573	-0.9775	0.0005	0.0003	0.0000
	22	0.1655	-2.6083	-2.1991	0.0011	-0.0005	-0.0002
	23	3.0880	-1.6785	7.0615	0.0026	0.0021	0.0008
	24	-3.0196	-2.7549	-8.1971	-0.0005	-0.0015	-0.0007
	25	1.0623	-2.0614	-0.7942	0.0006	0.0004	0.0002
	26	-1.1536	-1.7052	-0.7024	0.0007	0.0001	0.0000
	27	0.8608	-1.9827	2.4472	0.0012	0.0007	0.0004
	28	-0.9520	-1.7839	-3.9438	0.0001	-0.0002	-0.0002

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = SPACE

JOINT LOAD X-TRANS Y-TRANS Z-TRANS X-ROTAN Y-ROTAN Z-ROTAN

1340	20	-0.0604	-1.6282	-0.8444	0.0006	0.0006	-0.0002
	21	-0.0711	-1.7667	-1.0811	0.0005	0.0006	-0.0003
	22	0.4312	-2.2045	-2.1027	0.0013	-0.0001	-0.0004
	23	2.6882	-0.9490	6.5890	0.0026	0.0025	0.0002
	24	-2.6906	-2.6658	-7.9420	-0.0005	-0.0013	-0.0007
	25	0.9928	-1.8044	-0.9302	0.0006	0.0007	-0.0001
	26	-1.1136	-1.4521	-0.7586	0.0007	0.0004	-0.0003
	27	0.6980	-1.4606	2.2085	0.0012	0.0012	0.0000
	28	-0.8187	-1.7959	-3.8973	0.0001	-0.0001	-0.0004
1341	20	-0.0460	-1.8520	-0.8448	0.0005	0.0006	0.0001
	21	-0.0607	-1.9499	-1.0815	0.0004	0.0006	0.0000
	22	0.1651	-2.6592	-2.1030	0.0011	-0.0001	-0.0002
	23	3.0878	-1.7378	6.5887	0.0024	0.0025	0.0008
	24	-3.0201	-2.6646	-7.9424	-0.0006	-0.0013	-0.0007
	25	1.0620	-1.9972	-0.9306	0.0004	0.0007	0.0002
	26	-1.1539	-1.7067	-0.7589	0.0006	0.0004	0.0000
	27	0.8603	-1.8675	2.2081	0.0010	0.0012	0.0004
	28	-0.9523	-1.8364	-3.8977	0.0000	-0.0001	-0.0002
1342	20	-0.1054	-1.6979	-1.2468	0.0002	0.0005	-0.0002
	21	-0.1465	-1.8802	-1.4820	0.0001	0.0005	-0.0003
	22	0.3358	-2.3509	-2.3808	0.0006	-0.0003	-0.0004
	23	2.6714	-1.0236	4.9974	0.0021	0.0024	0.0002
	24	-2.7874	-2.7680	-7.4236	-0.0010	-0.0013	-0.0007
	25	0.9796	-1.8252	-1.3724	0.0001	0.0006	-0.0001
	26	-1.1904	-1.5707	-1.1212	0.0003	0.0003	-0.0003
	27	0.7022	-1.4593	1.3696	0.0008	0.0011	0.0000
	28	-0.9130	-1.9366	-3.8632	-0.0004	-0.0002	-0.0003
1343	20	-0.0148	-1.7978	-1.2462	0.0002	0.0005	0.0001
	21	-0.0528	-1.9287	-1.4813	0.0001	0.0005	0.0001
	22	0.1174	-2.7187	-2.3809	0.0008	-0.0003	-0.0002
	23	3.2342	-1.6562	4.9959	0.0022	0.0024	0.0009
	24	-3.1363	-2.6860	-7.4216	-0.0010	-0.0013	-0.0008
	25	1.1275	-1.8908	-1.3718	0.0001	0.0006	0.0003
	26	-1.1571	-1.7049	-1.1206	0.0003	0.0003	0.0000
	27	0.9748	-1.6867	1.3698	0.0008	0.0011	0.0005
	28	-1.0045	-1.9090	-3.8621	-0.0004	-0.0002	-0.0002

1344	20	-0.1059	-1.5761	-0.8967	0.0006	0.0003	-0.0003
	21	-0.1470	-1.6821	-1.0959	0.0005	0.0003	-0.0004
	22	0.3365	-2.1037	-2.4619	0.0010	-0.0004	-0.0005
	23	2.6663	-0.8923	6.4383	0.0026	0.0022	0.0001
	24	-2.7820	-2.5978	-8.0979	-0.0005	-0.0016	-0.0007
	25	0.9788	-1.7830	-0.9227	0.0005	0.0004	-0.0001
	26	-1.1905	-1.3692	-0.8707	0.0007	0.0001	-0.0004
	27	0.7020	-1.4571	2.1448	0.0012	0.0007	-0.0001
	28	-0.9137	-1.6952	-3.9382	0.0000	-0.0002	-0.0004
1345	20	-0.1044	-1.6263	-0.9891	0.0005	0.0004	-0.0001
	21	-0.1452	-1.7650	-1.1984	0.0004	0.0005	-0.0003
	22	0.3377	-2.2018	-2.4161	0.0012	-0.0002	-0.0003

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	23	2.6676	-0.9457	5.8993	0.0027	0.0023	0.0002
	24	-2.7807	-2.6644	-7.7576	-0.0008	-0.0014	-0.0006
	25	0.9806	-1.8031	-1.0503	0.0004	0.0006	0.0000
	26	-1.1893	-1.4495	-0.9278	0.0006	0.0003	-0.0003
	27	0.7040	-1.4592	1.9149	0.0011	0.0010	0.0000
	28	-0.9127	-1.7934	-3.8930	-0.0001	-0.0002	-0.0003
1346	20	-0.0170	-1.8829	-0.8960	0.0006	0.0003	0.0001
	21	-0.0551	-1.9569	-1.0951	0.0004	0.0003	0.0000
	22	0.1149	-2.6080	-2.4613	0.0010	-0.0004	-0.0002
	23	3.2298	-1.6786	6.4390	0.0026	0.0022	0.0008
	24	-3.1357	-2.7541	-8.0977	-0.0006	-0.0016	-0.0007
	25	1.1243	-2.0610	-0.9220	0.0005	0.0004	0.0002
	26	-1.1584	-1.7048	-0.8700	0.0006	0.0001	0.0000
	27	0.9709	-1.9823	2.1452	0.0012	0.0007	0.0004
	28	-1.0050	-1.7835	-3.9372	-0.0001	-0.0002	-0.0002

1347	20	-0.0172	-1.8504	-0.9887	0.0005	0.0004	0.0001
	21	-0.0553	-1.9483	-1.1980	0.0004	0.0005	0.0000
	22	0.1148	-2.6577	-2.4157	0.0012	-0.0002	-0.0002
	23	3.2310	-1.7357	5.8996	0.0027	0.0023	0.0008
	24	-3.1374	-2.6633	-7.7573	-0.0008	-0.0014	-0.0007
	25	1.1245	-1.9962	-1.0499	0.0005	0.0006	0.0002
	26	-1.1588	-1.7045	-0.9275	0.0006	0.0003	0.0000
	27	0.9709	-1.8667	1.9152	0.0011	0.0010	0.0004
	28	-1.0053	-1.8341	-3.8926	0.0000	-0.0002	-0.0002
1352	20	-0.0611	-1.6540	-0.9012	0.0006	0.0009	-0.0002
	21	-0.0719	-1.8041	-1.1430	0.0004	0.0010	-0.0004
	22	0.4304	-2.2497	-2.0904	0.0012	0.0002	-0.0004
	23	2.6882	-0.9775	6.3781	0.0024	0.0031	0.0001
	24	-2.6921	-2.6981	-7.8559	-0.0004	-0.0011	-0.0007
	25	0.9921	-1.8180	-1.0023	0.0005	0.0011	-0.0001
	26	-1.1143	-1.4899	-0.8002	0.0006	0.0007	-0.0004
	27	0.6970	-1.4683	2.0901	0.0010	0.0017	-0.0001
	28	-0.8191	-1.8396	-3.8926	0.0001	0.0001	-0.0004
1353	20	-0.0453	-1.8475	-0.9013	0.0004	0.0009	0.0001
	21	-0.0599	-1.9541	-1.1431	0.0003	0.0010	0.0000
	22	0.1657	-2.6845	-2.0904	0.0010	0.0002	-0.0002
	23	3.0880	-1.7453	6.3780	0.0022	0.0031	0.0008
	24	-3.0189	-2.6605	-7.8559	-0.0005	-0.0011	-0.0008
	25	1.0627	-1.9797	-1.0023	0.0003	0.0011	0.0002
	26	-1.1533	-1.7154	-0.8003	0.0005	0.0007	-0.0001
	27	0.8613	-1.8310	2.0900	0.0009	0.0017	0.0004
	28	-0.9519	-1.8640	-3.8926	0.0000	0.0001	-0.0003
1354	20	-0.0615	-1.6891	-1.1328	0.0004	0.0008	-0.0001
	21	-0.0724	-1.8603	-1.3971	0.0003	0.0009	-0.0002
	22	0.4300	-2.3222	-2.1982	0.0010	0.0001	-0.0003
	23	2.6882	-1.0162	5.7361	0.0022	0.0029	0.0002
	24	-2.6930	-2.7481	-7.7137	-0.0005	-0.0012	-0.0006
	25	0.9917	-1.8295	-1.2666	0.0003	0.0010	0.0000

JOINT DISPLACEMENT (CM   RADIANS)   STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	26	-1.1148	-1.5486	-0.9989	0.0005	0.0006	-0.0003
	27	0.6964	-1.4693	1.6874	0.0009	0.0015	0.0001
	28	-0.8195	-1.9088	-3.9529	-0.0001	0.0001	-0.0003
1355	20	-0.0450	-1.8240	-1.1325	0.0003	0.0008	0.0002
	21	-0.0596	-1.9464	-1.3969	0.0002	0.0009	0.0001
	22	0.1661	-2.7153	-2.1976	0.0009	0.0001	-0.0001
	23	3.0881	-1.7080	5.7367	0.0020	0.0029	0.0010
	24	-3.0183	-2.6738	-7.7135	-0.0005	-0.0012	-0.0007
	25	1.0630	-1.9308	-1.2664	0.0002	0.0010	0.0003
	26	-1.1530	-1.7172	-0.9987	0.0004	0.0006	0.0001
	27	0.8618	-1.7465	1.6875	0.0007	0.0015	0.0005
	28	-0.9517	-1.9016	-3.9526	-0.0001	0.0001	-0.0001
1356	20	-0.0203	-1.7321	-1.1751	0.0003	0.0001	0.0000
	21	-0.0281	-1.9014	-1.4425	0.0002	0.0000	-0.0001
	22	0.3999	-2.4499	-2.1692	0.0010	-0.0007	-0.0003
	23	2.7862	-1.2150	5.5550	0.0018	0.0019	0.0004
	24	-2.6945	-2.7325	-7.6312	-0.0003	-0.0017	-0.0006
	25	1.0483	-1.8505	-1.3243	0.0002	0.0002	0.0001
	26	-1.0889	-1.6137	-1.0258	0.0004	-0.0001	-0.0002
	27	0.7929	-1.5344	1.5894	0.0007	0.0004	0.0002
	28	-0.8335	-1.9297	-3.9395	0.0000	-0.0003	-0.0003
1357	20	-0.0056	-1.6983	-0.8447	0.0007	0.0001	-0.0001
	21	-0.0114	-1.8263	-1.0815	0.0006	0.0001	-0.0002
	22	0.4168	-2.3351	-2.1030	0.0013	-0.0006	-0.0003
	23	2.7826	-1.1845	6.5886	0.0025	0.0019	0.0003
	24	-2.6644	-2.6577	-7.9424	-0.0002	-0.0016	-0.0007
	25	1.0628	-1.8662	-0.9306	0.0006	0.0002	0.0000
	26	-1.0739	-1.5304	-0.7589	0.0008	-0.0001	-0.0003
	27	0.8135	-1.5794	2.2080	0.0011	0.0005	0.0001
	28	-0.8246	-1.8172	-3.8975	0.0002	-0.0003	-0.0003
1358	20	-0.0863	-1.7799	-1.1749	0.0002	0.0001	0.0001
	21	-0.1039	-1.9240	-1.4424	0.0001	0.0000	0.0000

	22	0.1959	-2.6329	-2.1688	0.0009	-0.0007	-0.0001
	23	2.9747	-1.5036	5.5553	0.0017	0.0019	0.0008
	24	-3.0016	-2.7132	-7.6309	-0.0003	-0.0016	-0.0006
	25	1.0063	-1.8818	-1.3242	0.0001	0.0002	0.0003
	26	-1.1789	-1.6780	-1.0256	0.0003	-0.0001	0.0000
	27	0.7652	-1.6347	1.5895	0.0005	0.0004	0.0004
	28	-0.9379	-1.9251	-3.9393	-0.0001	-0.0003	-0.0001
1359	20	-0.1007	-1.8070	-0.8449	0.0005	0.0001	0.0000
	21	-0.1203	-1.9154	-1.0817	0.0004	0.0001	-0.0001
	22	0.1795	-2.5537	-2.1032	0.0011	-0.0006	-0.0003
	23	2.9711	-1.5624	6.5885	0.0023	0.0019	0.0006
	24	-3.0238	-2.6629	-7.9426	-0.0004	-0.0016	-0.0007
	25	0.9921	-1.9604	-0.9308	0.0004	0.0002	0.0001
	26	-1.1935	-1.6535	-0.7591	0.0006	-0.0001	-0.0001
	27	0.7449	-1.7738	2.2079	0.0010	0.0005	0.0003
	28	-0.9463	-1.8401	-3.8977	0.0000	-0.0003	-0.0003

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
1360	20	-0.0608	-1.6018	-0.7740	0.0007	0.0003	-0.0002
	21	-0.0716	-1.7218	-1.0047	0.0006	0.0004	-0.0003
	22	0.4306	-2.1498	-2.1414	0.0012	-0.0003	-0.0004
	23	2.6884	-0.9202	6.8885	0.0026	0.0022	0.0002
	24	-2.6916	-2.6296	-8.0851	-0.0004	-0.0014	-0.0006
	25	0.9924	-1.7958	-0.8366	0.0006	0.0005	-0.0001
	26	-1.1140	-1.4078	-0.7114	0.0008	0.0002	-0.0003
	27	0.6973	-1.4621	2.3672	0.0012	0.0009	0.0000
	28	-0.8190	-1.7416	-3.9152	0.0002	-0.0002	-0.0004
1361	20	-0.0455	-1.8728	-0.7742	0.0006	0.0003	0.0001
	21	-0.0601	-1.9571	-1.0049	0.0005	0.0004	0.0000

	22	0.1656	-2.6331	-2.1416	0.0011	-0.0003	-0.0002
	23	3.0880	-1.7153	6.8883	0.0025	0.0022	0.0008
	24	-3.0193	-2.7105	-8.0853	-0.0005	-0.0014	-0.0007
	25	1.0625	-2.0371	-0.8368	0.0005	0.0005	0.0002
	26	-1.1534	-1.7085	-0.7116	0.0007	0.0002	0.0000
	27	0.8610	-1.9367	2.3671	0.0011	0.0009	0.0004
	28	-0.9520	-1.8089	-3.9154	0.0001	-0.0002	-0.0002
1362	20	-0.0608	-1.6087	-0.7902	0.0007	0.0004	-0.0002
	21	-0.0716	-1.7332	-1.0223	0.0006	0.0005	-0.0003
	22	0.4307	-2.1634	-2.1306	0.0013	-0.0003	-0.0003
	23	2.6883	-0.9275	6.8160	0.0026	0.0023	0.0002
	24	-2.6915	-2.6388	-8.0481	-0.0004	-0.0014	-0.0006
	25	0.9924	-1.7983	-0.8584	0.0006	0.0006	-0.0001
	26	-1.1140	-1.4190	-0.7219	0.0008	0.0003	-0.0003
	27	0.6974	-1.4620	2.3298	0.0012	0.0010	0.0000
	28	-0.8189	-1.7553	-3.9101	0.0002	-0.0001	-0.0003
1363	20	-0.0455	-1.8679	-0.7904	0.0006	0.0004	0.0001
	21	-0.0602	-1.9556	-1.0225	0.0005	0.0005	0.0000
	22	0.1656	-2.6399	-2.1309	0.0011	-0.0003	-0.0002
	23	3.0880	-1.7235	6.8158	0.0025	0.0023	0.0008
	24	-3.0194	-2.6970	-8.0483	-0.0005	-0.0014	-0.0007
	25	1.0624	-2.0277	-0.8586	0.0005	0.0006	0.0002
	26	-1.1535	-1.7082	-0.7221	0.0007	0.0003	0.0000
	27	0.8609	-1.9200	2.3296	0.0011	0.0010	0.0004
	28	-0.9520	-1.8159	-3.9103	0.0001	-0.0001	-0.0002
1364	20	-0.0360	-1.6739	-0.7484	0.0009	0.0000	-0.0001
	21	-0.0453	-1.7695	-0.9776	0.0008	-0.0001	-0.0002
	22	0.3720	-2.2612	-2.1993	0.0014	-0.0008	-0.0003
	23	2.7975	-1.1725	7.0611	0.0029	0.0018	0.0003
	24	-2.7413	-2.6145	-8.1969	-0.0003	-0.0018	-0.0006
	25	1.0339	-1.8720	-0.7943	0.0008	0.0001	0.0000
	26	-1.1058	-1.4757	-0.7025	0.0009	-0.0002	-0.0002
	27	0.7760	-1.6220	2.4470	0.0014	0.0003	0.0001
	28	-0.8480	-1.7257	-3.9438	0.0003	-0.0004	-0.0003
1365	20	-0.0068	-1.7105	-0.8447	0.0007	-0.0002	-0.0001
	21	-0.0130	-1.8366	-1.0815	0.0006	-0.0002	-0.0002
	22	0.4024	-2.3581	-2.1030	0.0013	-0.0010	-0.0003

JOINT DISPLACEMENT (CM   RADIANS)   STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
	23	2.8003	-1.2245	6.5887	0.0024	0.0017	0.0003
	24	-2.6828	-2.6581	-7.9424	-0.0002	-0.0020	-0.0007
	25	1.0641	-1.8770	-0.9306	0.0006	-0.0001	0.0000
	26	-1.0776	-1.5440	-0.7589	0.0007	-0.0003	-0.0002
	27	0.8183	-1.6000	2.2081	0.0011	0.0001	0.0001
	28	-0.8319	-1.8210	-3.8975	0.0002	-0.0005	-0.0003
1368	20	-0.0704	-1.7997	-0.7485	0.0008	0.0000	0.0000
	21	-0.0865	-1.8838	-0.9777	0.0007	-0.0001	-0.0001
	22	0.2242	-2.4654	-2.1994	0.0013	-0.0008	-0.0003
	23	2.9531	-1.4986	7.0610	0.0028	0.0018	0.0006
	24	-2.9441	-2.6670	-8.1970	-0.0004	-0.0018	-0.0007
	25	1.0209	-1.9867	-0.7944	0.0007	0.0001	0.0001
	26	-1.1617	-1.6127	-0.7026	0.0009	-0.0002	-0.0001
	27	0.7822	-1.8326	2.4469	0.0013	0.0003	0.0002
	28	-0.9231	-1.7667	-3.9439	0.0002	-0.0004	-0.0003
1369	20	-0.0995	-1.7981	-0.8449	0.0005	-0.0002	0.0000
	21	-0.1186	-1.9084	-1.0816	0.0004	-0.0002	-0.0001
	22	0.1940	-2.5341	-2.1031	0.0011	-0.0010	-0.0003
	23	2.9517	-1.5287	6.5886	0.0023	0.0017	0.0006
	24	-3.0036	-2.6629	-7.9426	-0.0004	-0.0020	-0.0007
	25	0.9908	-1.9530	-0.9307	0.0004	-0.0001	0.0001
	26	-1.1898	-1.6432	-0.7590	0.0006	-0.0003	-0.0001
	27	0.7400	-1.7566	2.2079	0.0010	0.0001	0.0003
	28	-0.9390	-1.8397	-3.8977	0.0000	-0.0005	-0.0003
1380	20	-0.1506	-1.2761	0.3976	0.0003	0.0017	0.0002
	21	-0.1539	-1.3408	0.3868	0.0003	0.0018	0.0002
	22	0.2700	-1.2871	0.3696	0.0004	-0.0001	0.0004
	23	2.2259	-0.9798	2.0703	0.0016	0.0067	0.0014

	24	-2.4711	-1.6166	-1.2301	-0.0009	-0.0031	-0.0010
	25	0.7865	-1.1787	0.4309	0.0004	0.0016	0.0006
	26	-1.0878	-1.3735	0.3642	0.0003	0.0018	-0.0003
	27	0.5445	-1.1235	1.7818	0.0012	0.0004	0.0010
	28	-0.8457	-1.4287	-0.9866	-0.0005	0.0030	-0.0006
1381	20	-0.1276	-1.3650	0.3976	0.0004	0.0017	0.0007
	21	-0.1273	-1.4131	0.3868	0.0004	0.0019	0.0008
	22	-0.4895	-1.4465	0.3696	0.0004	-0.0001	0.0003
	23	1.7515	-1.0129	2.0703	0.0017	0.0067	0.0020
	24	-1.9561	-1.7841	-1.2301	-0.0009	-0.0031	-0.0005
	25	0.8283	-1.2687	0.4309	0.0004	0.0016	0.0011
	26	-1.0835	-1.4613	0.3642	0.0003	0.0018	0.0003
	27	0.7103	-1.4576	1.7817	0.0012	0.0004	0.0009
	28	-0.9655	-1.2724	-0.9866	-0.0005	0.0031	0.0005

************** END OF LATEST ANALYSIS RESULT **************

2277. LOAD LIST 20 TO 28

2278. PRINT SUPPORT REACTION LIST 1095 TO 1121 1181 1182 1249 1252 1298

SUPPORT REACTIONS -UNIT KN METE STRUCTURE TYPE = SPACE

JOINT	LOAD	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM Z
1095	20	3.40	400.61	-1.84	0.00	0.00	0.00
	21	3.52	488.83	-1.55	0.00	0.00	0.00
	22	3.89	422.72	8.54	0.00	0.01	0.00
	23	14.47	594.22	50.68	0.00	0.01	0.00

	24	-7.60	228.06	-54.18	0.00	-0.02	0.00
	25	-3.87	405.67	-1.92	0.00	0.00	0.00
	26	10.68	395.54	-1.77	0.00	-0.01	0.00
	27	-0.79	463.88	-20.94	0.00	-0.01	0.00
	28	7.59	337.34	17.25	0.00	0.01	0.00
1096	20	5.86	238.45	-3.21	0.00	0.00	0.00
	21	5.78	290.18	-2.75	0.00	0.00	0.00
	22	6.77	288.34	0.18	0.00	0.00	0.00
	23	18.02	349.11	23.17	0.00	0.03	0.00
	24	-6.24	134.22	-29.52	0.00	-0.04	0.00
	25	-2.18	231.92	-3.29	0.00	0.01	0.00
	26	13.90	244.99	-3.13	0.00	-0.02	0.00
	27	1.00	282.29	-19.43	0.00	0.01	0.00
	28	10.72	194.62	13.00	0.00	-0.01	0.00
1097	20	3.45	379.34	4.75	0.00	0.00	0.00
	21	4.54	459.88	5.09	0.00	0.00	0.00
	22	1.93	385.13	15.14	0.00	0.01	0.00
	23	17.43	573.41	57.29	0.00	0.01	0.00
	24	-10.34	204.02	-47.59	0.00	-0.02	0.00
	25	-3.76	380.16	4.64	0.00	-0.01	0.00
	26	10.66	378.52	4.86	0.00	0.00	0.00
	27	-0.57	322.24	-14.42	0.00	-0.01	0.00
	28	7.47	436.44	23.93	0.00	0.01	0.00
1098	20	6.05	216.23	3.84	0.00	0.00	0.00
	21	6.97	230.34	4.31	0.00	0.00	0.00
	22	4.50	213.77	7.24	0.00	0.00	0.00
	23	21.49	313.19	30.23	0.00	0.03	0.00
	24	-9.18	120.60	-22.46	0.00	-0.04	0.00
	25	-1.88	207.87	3.76	0.00	-0.02	0.00
	26	13.99	224.59	3.93	0.00	0.01	0.00
	27	1.45	163.35	-12.45	0.00	0.01	0.00
	28	10.66	269.12	20.14	0.00	-0.02	0.00
1099	20	-7.02	321.49	-9.15	0.00	0.00	0.00
	21	-10.60	337.75	-9.64	0.00	0.00	0.00
	22	-11.39	375.97	-14.73	0.00	0.01	0.00
	23	19.03	551.94	71.43	0.00	0.07	0.00
	24	-35.77	121.21	-90.03	0.00	-0.07	0.00
	25	-22.79	281.35	-9.12	0.00	0.00	0.00

	26	8.76	361.62	-9.18	0.00	0.00	0.00
	27	-20.58	356.95	-35.60	0.00	0.00	0.00
	28	6.55	286.03	17.29	0.00	0.00	0.00
1100	20	2.90	327.80	8.83	0.00	0.00	0.00
	21	0.96	345.77	8.41	0.00	0.00	0.00
	22	6.07	376.58	3.36	0.00	0.01	0.00

SUPPORT REACTIONS -UNIT KN METE STRUCTURE TYPE = SPACE

JOINT	LOAD	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM Z
	23	48.63	572.78	89.48	0.00	0.05	0.00
	24	-39.88	119.26	-72.03	0.00	-0.05	0.00
	25	-12.36	286.79	8.91	0.00	0.00	0.00
	26	18.17	368.82	8.75	0.00	0.00	0.00
	27	-7.50	230.98	-17.66	0.00	0.00	0.00
	28	13.31	424.62	35.32	0.00	0.00	0.00
1101	20	-29.83	300.19	0.13	0.00	0.00	0.00
	21	-37.79	321.05	1.61	0.00	0.00	0.00
	22	-7.16	314.62	13.02	0.00	0.01	0.00
	23	85.37	526.97	33.53	0.00	0.05	0.00
	24	-136.36	110.02	-33.34	0.00	-0.05	0.00
	25	-87.94	366.41	0.21	0.00	0.00	0.00
	26	28.28	233.96	0.04	0.00	0.00	0.00
	27	-92.04	423.22	-18.68	0.00	0.00	0.00
	28	32.37	177.15	18.93	0.00	0.00	0.00
1102	20	-0.14	318.76	18.67	0.00	0.00	0.00
	21	-2.67	343.71	20.19	0.00	0.00	0.00
	22	1.81	416.51	31.71	0.00	0.01	0.00
	23	129.55	584.98	52.02	0.00	0.03	0.00
	24	-122.04	98.29	-14.58	0.00	-0.03	0.00
	25	-49.38	383.75	18.81	0.00	0.00	0.00

	26	49.11	253.77	18.53	0.00	0.00	0.00
	27	-36.41	299.23	-0.13	0.00	0.00	0.00
	28	36.14	338.29	37.46	0.00	0.00	0.00
1103	20	-2.54	291.29	-14.86	0.00	0.21	0.00
	21	-3.89	308.97	-15.88	0.00	0.18	0.00
	22	4.27	413.95	-3.29	0.00	0.53	0.00
	23	24.65	385.84	48.57	0.00	1.37	0.00
	24	-25.07	308.48	-78.14	0.00	-0.61	0.00
	25	-15.16	301.27	-18.22	0.00	-0.19	0.00
	26	10.08	281.31	-11.50	0.00	0.61	0.00
	27	-16.50	310.51	-48.74	0.00	0.22	0.00
	28	11.42	272.07	19.02	0.00	0.19	0.00
1104	20	1.04	395.39	13.06	0.00	0.00	0.00
	21	0.67	436.53	12.89	0.00	0.00	0.00
	22	1.50	547.40	24.37	0.00	0.02	0.00
	23	12.22	648.94	58.35	0.00	0.03	0.00
	24	-9.37	231.89	-28.51	0.00	-0.03	0.00
	25	-3.26	426.38	12.27	0.00	0.00	0.00
	26	5.35	364.40	13.84	0.00	0.00	0.00
	27	-2.13	338.81	-9.21	0.00	0.00	0.00
	28	4.22	451.97	35.32	0.00	0.01	0.00
1105	20	0.37	258.52	-11.50	0.00	-0.05	0.00
	21	1.21	263.55	-12.15	0.00	-0.04	0.00
	22	1.62	365.61	-8.70	0.00	-0.10	0.00
	23	7.38	341.10	43.84	0.00	0.14	0.00
	24	-10.75	268.67	-67.26	0.00	-0.30	0.00
	25	-2.54	269.61	-8.27	0.00	0.03	0.00

SUPPORT REACTIONS -UNIT KN METE STRUCTURE TYPE = SPACE

JOINT	LOAD	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM Z

	26	3.29	247.43	-14.74	0.00	-0.13	0.00
	27	0.40	284.78	-34.73	0.00	-0.06	0.00
	28	0.35	232.26	11.72	0.00	-0.04	0.00
1106	20	-1.21	356.62	14.84	0.00	0.00	0.00
	21	-1.71	391.10	13.96	0.00	0.00	0.00
	22	-6.10	465.07	23.21	0.00	0.02	0.00
	23	5.93	559.43	62.35	0.00	0.03	0.00
	24	-9.82	242.55	-30.61	0.00	-0.03	0.00
	25	-4.83	360.79	17.08	0.00	0.00	0.00
	26	2.41	352.46	12.61	0.00	0.00	0.00
	27	-3.84	286.15	-3.51	0.00	-0.01	0.00
	28	1.41	427.10	33.20	0.00	0.01	0.00
1107	20	1.54	324.01	-4.75	0.00	-0.01	0.00
	21	1.44	343.85	-4.74	0.00	-0.01	0.00
	22	3.18	472.80	-45.24	0.00	0.01	0.00
	23	6.83	446.93	36.51	0.00	0.02	0.00
	24	-5.97	239.16	-46.07	0.00	-0.03	0.00
	25	-0.59	345.39	-11.04	0.00	-0.01	0.00
	26	3.67	302.64	1.54	0.00	0.00	0.00
	27	1.40	401.31	-36.71	0.00	-0.01	0.00
	28	1.68	246.72	27.20	0.00	0.00	0.00
1108	20	-2.79	306.45	4.03	0.00	0.01	0.00
	21	-3.70	336.57	4.07	0.00	0.02	0.00
	22	-9.67	235.62	-36.11	0.00	0.04	0.00
	23	3.24	450.91	45.04	0.00	0.05	0.00
	24	-10.79	197.77	-36.91	0.00	-0.03	0.00
	25	-5.91	296.41	-2.25	0.00	0.02	0.00
	26	0.34	316.49	10.31	0.00	0.00	0.00
	27	-4.96	221.99	-27.75	0.00	0.01	0.00
	28	-0.62	390.92	35.81	0.00	0.01	0.00
1109	20	1.13	409.91	-7.95	0.00	0.00	0.00
	21	0.97	431.18	-8.36	0.00	0.00	0.00
	22	0.21	544.81	-66.28	0.00	0.02	0.00
	23	8.01	528.28	31.37	0.00	0.04	0.00
	24	-5.72	307.69	-47.30	0.00	-0.04	0.00
	25	-2.26	416.12	-14.07	0.00	0.00	0.00
	26	4.51	403.69	-1.83	0.00	0.00	0.00
	27	-2.42	481.83	-37.24	0.00	0.00	0.00

	28	4.67	337.98	21.33	0.00	0.00	0.00
1110	20	1.10	389.12	7.87	0.00	0.00	0.00
	21	0.91	423.38	7.53	0.00	0.00	0.00
	22	1.66	273.07	-50.45	0.00	0.02	0.00
	23	9.87	499.95	47.27	0.00	0.03	0.00
	24	-7.76	291.99	-31.52	0.00	-0.03	0.00
	25	-1.87	367.21	1.71	0.00	0.00	0.00
	26	4.07	411.02	14.03	0.00	0.00	0.00
	27	-0.04	316.01	-21.61	0.00	0.00	0.00
	28	2.24	462.23	37.35	0.00	0.00	0.00

SUPPORT REACTIONS -UNIT KN METE STRUCTURE TYPE = SPACE

JOINT	LOAD	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM Z
1111	20	-1.32	385.81	-20.62	0.00	0.00	0.00
	21	-1.36	402.06	-22.25	0.00	0.00	0.00
	22	-1.99	410.63	13.52	0.00	0.02	0.00
	23	5.80	458.88	1.43	0.00	0.04	0.00
	24	-8.53	333.36	-43.02	0.00	-0.04	0.00
	25	-5.05	387.28	-20.10	0.00	0.00	0.00
	26	2.41	384.34	-21.14	0.00	0.00	0.00
	27	-5.03	431.70	-32.42	0.00	0.00	0.00
	28	2.39	339.91	-8.82	0.00	0.00	0.00
1112	20	-1.20	372.50	8.15	0.00	0.00	0.00
	21	-1.25	404.44	8.48	0.00	0.00	0.00
	22	-1.06	342.65	51.77	0.00	0.01	0.00
	23	7.43	409.80	43.16	0.00	0.03	0.00
	24	-10.03	348.38	-26.70	0.00	-0.03	0.00
	25	-4.39	366.98	7.75	0.00	0.00	0.00
	26	2.00	378.01	8.55	0.00	0.00	0.00
	27	-2.80	360.22	-15.45	0.00	-0.01	0.00

	28	0.40	384.78	31.75	0.00	0.01	0.00
1113	20	-1.39	338.82	-16.99	0.00	0.00	0.00
	21	-1.51	354.36	-17.54	0.00	0.00	0.00
	22	0.47	329.36	-10.42	0.00	0.02	0.00
	23	8.76	407.03	2.57	0.00	0.04	0.00
	24	-11.94	292.05	-37.05	0.00	-0.04	0.00
	25	-6.52	342.81	-17.13	0.00	0.00	0.00
	26	3.75	334.82	-16.84	0.00	0.00	0.00
	27	-5.69	376.27	-27.72	0.00	0.00	0.00
	28	2.92	301.36	-6.25	0.00	0.01	0.00
1114	20	-0.58	282.53	3.92	0.00	0.00	0.00
	21	-0.76	298.59	4.25	0.00	0.00	0.00
	22	-1.94	294.74	17.22	0.00	0.01	0.00
	23	11.02	309.67	34.79	0.00	0.02	0.00
	24	-12.52	268.71	-27.05	0.00	-0.03	0.00
	25	-5.48	287.64	4.39	0.00	0.00	0.00
	26	4.33	277.41	3.46	0.00	0.00	0.00
	27	-5.08	294.82	-13.11	0.00	-0.01	0.00
	28	3.93	270.23	20.96	0.00	0.01	0.00
1115	20	4.77	250.83	-7.60	0.00	0.00	0.00
	21	8.11	258.25	-7.61	0.00	0.00	0.00
	22	8.02	296.89	-10.91	0.00	0.02	0.00
	23	83.40	424.24	16.12	0.00	0.04	0.00
	24	-76.67	86.99	-31.33	0.00	-0.04	0.00
	25	-30.81	198.55	-8.37	0.00	0.00	0.00
	26	40.35	303.10	-6.83	0.00	0.00	0.00
	27	-21.36	257.80	-24.71	0.00	0.00	0.00
	28	30.89	243.85	9.51	0.00	0.01	0.00
1116	20	18.56	264.09	7.60	0.00	0.00	0.00
	21	25.00	278.81	7.60	0.00	0.00	0.00
	22	2.35	254.37	4.39	0.00	0.02	0.00

SUPPORT REACTIONS -UNIT KN METE STRUCTURE TYPE = SPACE

JOINT	LOAD	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM Z
	23	103.57	422.08	31.31	0.00	0.03	0.00
	24	-68.99	112.88	-16.10	0.00	-0.02	0.00
	25	-17.31	209.82	6.75	0.00	0.00	0.00
	26	54.43	318.37	8.45	0.00	0.00	0.00
	27	-16.55	174.86	-9.72	0.00	0.00	0.00
	28	53.66	353.32	24.92	0.00	0.01	0.00
1117	20	-2.74	247.85	-6.87	0.00	0.00	0.00
	21	0.18	260.30	-6.41	0.00	0.00	0.00
	22	-7.50	239.70	-6.75	0.00	0.02	0.00
	23	59.06	408.42	42.99	0.00	0.04	0.00
	24	-67.75	102.18	-56.69	0.00	-0.04	0.00
	25	-34.43	307.77	-7.10	0.00	0.00	0.00
	26	28.96	187.93	-6.65	0.00	0.00	0.00
	27	-30.99	356.18	-28.21	0.00	0.00	0.00
	28	25.52	139.52	14.47	0.00	0.00	0.00
1118	20	5.55	276.46	8.57	0.00	0.00	0.00
	21	11.71	301.69	9.06	0.00	0.00	0.00
	22	-8.24	309.47	8.69	0.00	0.02	0.00
	23	75.35	498.08	58.52	0.00	0.04	0.00
	24	-67.48	68.01	-41.31	0.00	-0.04	0.00
	25	-23.53	334.68	8.42	0.00	0.00	0.00
	26	34.64	218.23	8.71	0.00	0.00	0.00
	27	-13.84	265.09	-12.77	0.00	0.00	0.00
	28	24.94	287.82	29.90	0.00	0.01	0.00
1119	20	-3.10	130.57	-3.54	0.00	0.00	0.00
	21	-3.35	133.20	-4.02	0.00	0.00	0.00
	22	-1.62	135.63	-7.15	0.00	0.01	0.00
	23	5.77	234.78	22.20	0.00	0.01	0.00
	24	-12.46	29.14	-29.34	0.00	-0.01	0.00
	25	-7.90	152.84	-3.36	0.00	0.00	0.00
	26	1.69	108.30	-3.72	0.00	0.00	0.00
	27	-7.66	191.04	-16.15	0.00	-0.01	0.00
	28	1.45	70.09	9.07	0.00	0.01	0.00
1120	20	-1.70	202.38	1.85	0.00	0.00	0.00

	21	-1.74	232.56	1.37	0.00	0.00	0.00
	22	-2.75	231.02	-1.76	0.00	0.02	0.00
	23	5.48	339.55	27.56	0.00	0.02	0.00
	24	-9.21	67.94	-23.93	0.00	-0.02	0.00
	25	-4.53	231.44	2.03	0.00	0.00	0.00
	26	1.12	173.32	1.66	0.00	0.00	0.00
	27	-3.46	185.31	-10.84	0.00	0.00	0.00
	28	0.05	219.45	14.54	0.00	0.00	0.00
1121	20	-0.22	181.16	16.12	0.00	0.00	0.00
	21	-0.23	205.07	17.22	0.00	0.00	0.00
	22	-0.22	257.49	28.53	0.00	0.00	0.00
	23	3.08	260.12	34.54	0.00	0.03	0.00
	24	-3.51	104.41	-1.82	0.00	-0.04	0.00
	25	-0.21	177.98	15.07	0.00	-0.02	0.00

SUPPORT REACTIONS -UNIT KN METE STRUCTURE TYPE = SPACE

JOINT	LOAD	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM Z
	26	-0.23	184.35	17.17	0.00	0.01	0.00
	27	-0.01	125.97	1.29	0.00	-0.01	0.00
	28	-0.43	236.36	30.95	0.00	0.01	0.00
1181	20	1.46	214.13	-15.62	0.00	0.22	0.00
	21	0.17	221.97	-16.51	0.00	0.20	0.00
	22	10.61	294.71	-14.32	0.00	0.51	0.00
	23	22.36	454.23	9.40	0.00	1.36	0.00
	24	-17.01	73.79	-44.76	0.00	-0.59	0.00
	25	-9.16	212.31	-18.21	0.00	-0.15	0.00
	26	12.08	215.94	-13.03	0.00	0.59	0.00
	27	-8.47	295.06	-31.01	0.00	0.27	0.00
	28	11.39	133.19	-0.22	0.00	0.17	0.00
1182	20	-1.99	179.27	-7.94	0.00	-0.05	0.00

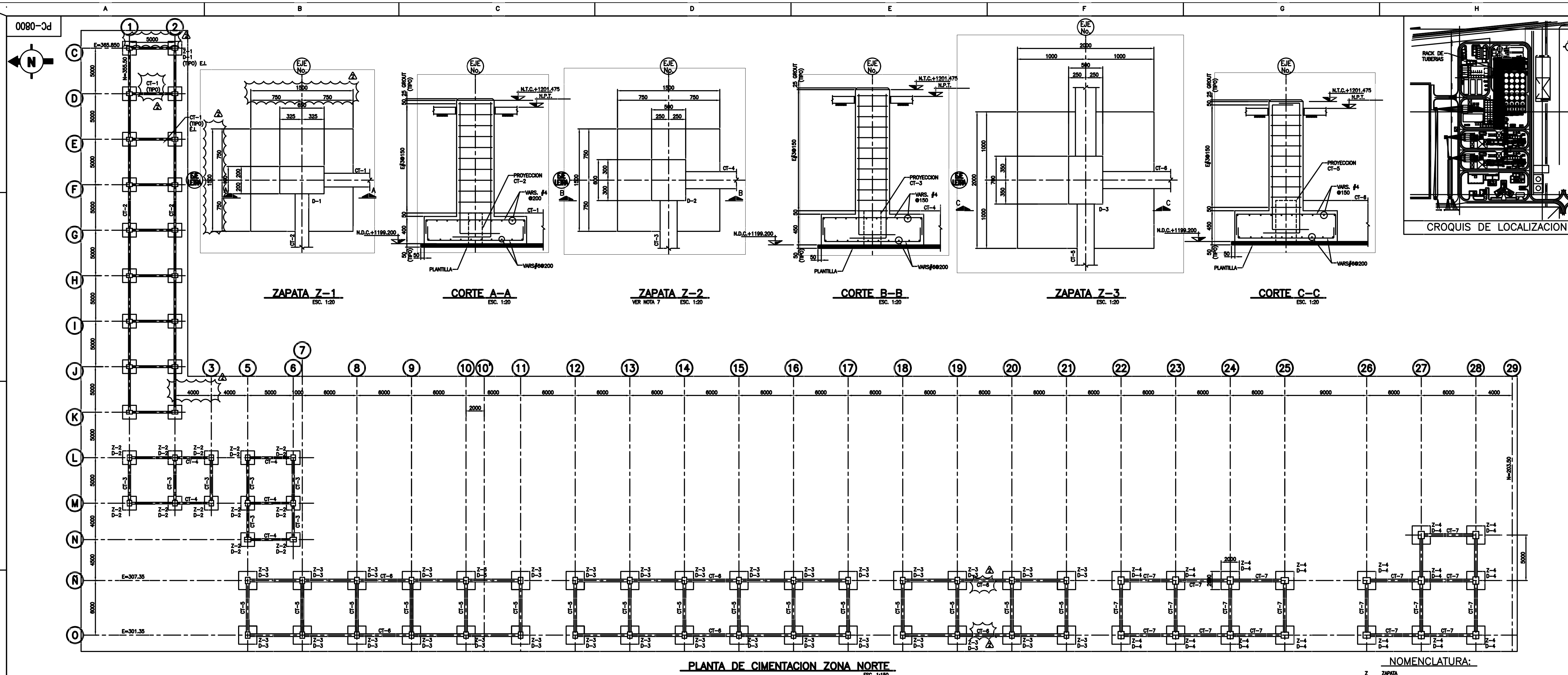
	21	-2.25	176.98	-7.98	0.00	-0.04	0.00
	22	0.00	254.76	-10.43	0.00	-0.10	0.00
	23	5.29	392.82	9.80	0.00	0.13	0.00
	24	-10.84	47.48	-27.14	0.00	-0.29	0.00
	25	-6.20	191.73	-6.66	0.00	0.03	0.00
	26	2.22	166.81	-9.21	0.00	-0.13	0.00
	27	-5.66	268.54	-16.75	0.00	-0.06	0.00
	28	1.68	90.00	0.87	0.00	-0.04	0.00
1298	20	0.13	125.95	9.31	0.00	-0.01	0.00
	21	0.13	134.52	10.04	0.00	-0.01	0.00
	22	-0.24	156.52	18.13	0.00	0.00	0.00
	23	3.81	191.94	24.83	0.00	0.03	0.00
	24	-3.60	61.96	-5.89	0.00	-0.04	0.00
	25	-0.38	128.45	9.92	0.00	-0.02	0.00
	26	0.64	123.45	8.71	0.00	0.01	0.00
	27	-0.45	91.00	1.33	0.00	-0.02	0.00
	28	0.70	160.90	17.30	0.00	0.01	0.00

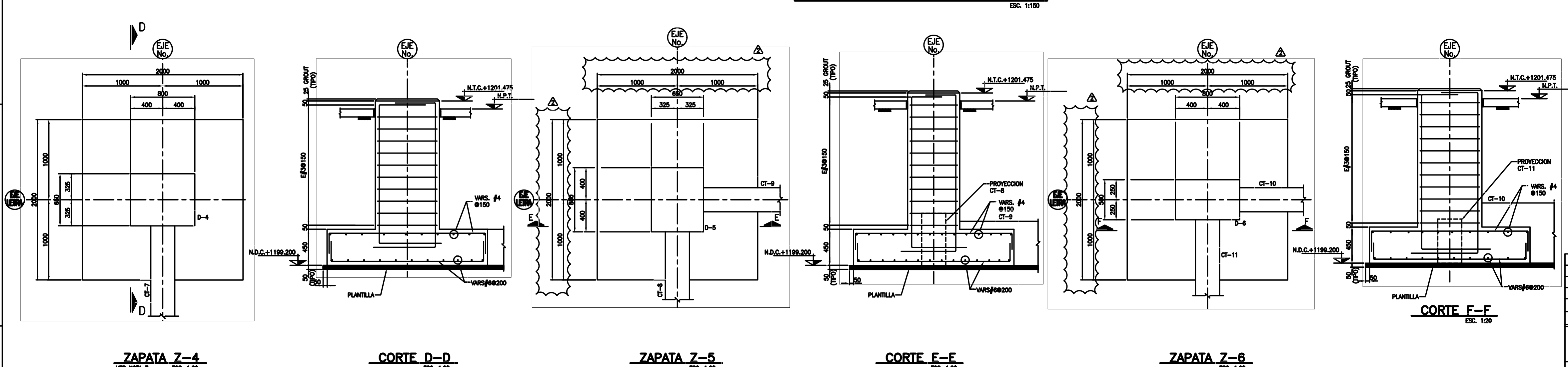
************** END OF LATEST ANALYSIS RESULT **************

2279. FINISH

*********** END OF THE STAAD.Pro RUN ***********

**** DATE= SEP 5,2018 TIME= 19:57:19 ****





NOMENCLATURA:

Z	ZAPATA
CT.	CONTRATRABE
D	DADO
N.D.C.	NIVEL DESPLANTE DE CIMENTACION
N.P.T.	NIVEL DE PISO TERMINADO
N.T.C.	NIVEL TOPE DE CONCRETO
E.I.	EXCEPTO INDICADO
	REVISION

CALIDAD DE MATERIALES:

CONCRETO PARA ZAPATAS Y DADOS — f'c = 24.5 MPa. = 250 kg/cm2.
CONCRETO PARA PLANTILLA — f'c = 10.0 MPa. = 100 kg/cm2.
ACERO DE REFUERZO — Fy = 412 MPa. = 4200 kg/cm2.
ANCLAJE — A-36

NOTAS:

1.- DIMENSIONES EN MILIMETROS.
2.- NIVELES EN METROS.
3.- LAS COTAS DE NIVEL ESTAN REFERIDAS AL PUNTO DE REFERENCIA CON EL SISTEMA DE COORDENADAS LOCALES.
4.- VER ANCLAJES Y TRASLAPES DE VARILLAS EN PLANO: CFE-PM27005-SRJC-PC-0885.
5.- VER NOTAS GENERALES PARA ESTRUCTURA DE CONCRETO EN PLANO: CFE-PM27005-SRJC-PC-0870.
6.- TRABAJAR ESTE PLANO EN CONJUNTO CON LOS PLANOS DE REFERENCIA.
7.- PARA ORIENTACION DE DADO VER EN PLANTA.

REV.	FECHA	DESCRIPCION	REVISO	APROBO
2	25/10/11	APROBADO PARA CONSTRUCCION. CAMBIOS DONDE SE INDICA		
1	21/10/11	SE REVISA POR CAMBIOS DE GEOMETRIA Y CARGAS		
0	23/08/11	APROBADO PARA CONSTRUCCION		

REVISIONES

PLANOS REFERENCIA

CFE-PM27005-SRJC-PC-0801	RACK DE TUBERIAS CIMENTACION PLANTAS 2 DE 2
CFE-PM27005-SRJC-PC-0802	RACK DE TUBERIAS CIMENTANTACION DETALLES
CFE-PM27005-SRJC-PC-0870	NOTAS GENERALES DE CONCRETO
CFE-PM27005-SRJC-PC-0885	DETALLES TIPO DE DOBLEZ DE VARILLAS

ESTADO DE DOCUMENTO COMO SE ANOTA

1 ☒ SOLO PARA INFORMACION
2 ☐ CONFORME SIN COMENTARIOS
3 ☐ CONFORME CON COMENTARIOS
4 ☐ NO CONFORME
5 ☐ TAL COMO SE CONSTRUYO

FECHA DE RECEPCION :
Revisado por Ing. Supervisor
Fecha:
IMPORTANTE :
NO. DE CONTROL

PROYECTO: PLANTA DE CICLO COMBINADO

TITULO: RACK DE TUBERIAS
CIMENTACION PLANTA 1 DE 2

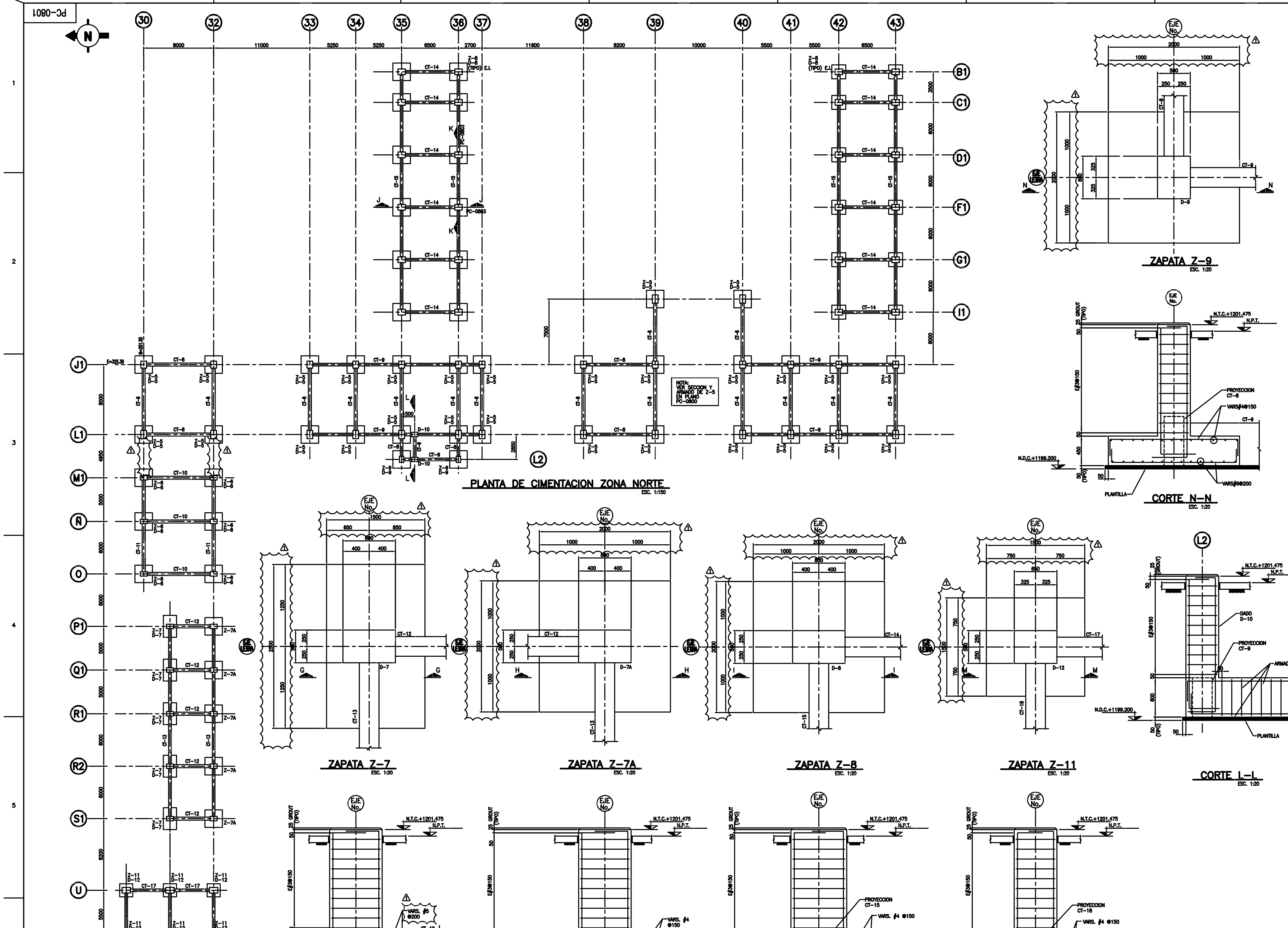
APROBADO	GVZ
COMPROBADO	GVZ
REALIZADO	GVZ
ESCALA	INDICADA

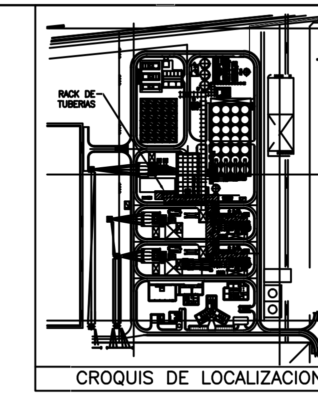
ORDEN DE COMPRA
ITEM

TITULO: RACK DE TUBERIAS
CIMENTACION PLANTAS 1 DE 2

DOCUMENTO DE PROYECTO No. PM27005-SRJC-PC-0800 — REV. No. 2

DOCUMENTO SUMINISTRADOR No.
REV. No.





NOMENCLATURA:

Z	ZAPATA
CT.	CONTRATRABE
D	DADO
N.D.C.	NIVEL DESPLANTE DE CIMENTACION
N.P.T.	NIVEL DE PISO TERMINADO
N.T.C.	NIVEL TOPE DE CONCRETO
E.I.	EXCEPTO INDICADO
	REVISION

CALIDAD DE MATERIALES:

CONCRETO PARA ZAPATAS Y DADOS —— f'c = 24.5 MPa. = 250 kg/cm2.
CONCRETO PARA PLANTILLA —— f'c = 10.0 MPa. = 100 kg/cm2.
ACERO DE REFUERZO —— Fy = 412 MPa. = 4200 kg/cm2.
ANCLAJE —— A-36

NOTAS:

1.- DIMENSIONES EN MILIMETROS.
2.- NIVELES EN METROS.
3.- LAS COTAS DE NIVEL ESTAN REFERIDAS AL PUNTO DE REFERENCIA CON EL SISTEMA DE COORDENADAS LOCALES.
4.- VER ANCLAJES Y TRASLAPES DE VARILLAS EN PLANO: CFE-PM27005-SRJC-PC-0885.
5.- VER NOTAS GENERALES PARA ESTRUCTURA DE CONCRETO EN PLANO: CFE-PM27005-SRJC-PC-0870.
6.- TRABAJAR ESTE PLANO EN CONJUNTO CON LOS PLANOS DE REFERENCIA.

PLANOS REFERENCIA

PM27005-SRJC-PC-0800	RACK DE TUBERIAS CIMENTACION PLANTAS 1 DE 2
PM27005-SRJC-PC-0802	RACK DE TUBERIAS CIMENTANTACION DETALLES
PM27005-SRJC-PC-0870	NOTAS GENERALES DE CONCRETO
PM27005-SRJC-PC-0885	DETALLES TIPO DE DOBLEZ DE VARILLAS

REV.	FECHA	DESCRIPCION	REVISO	APROBO
1	24/10/11	APROBADO PARA CONSTRUCCION. CAMBIOS DONDE SE INDICA		
0	22/08/11	APROBADO PARA CONSTRUCCION		

REVISIONES

ESTADO DE DOCUMENTO COMO SE ANOTA
1 ☒ SOLO PARA INFORMACION
2 ☐ CONFORME SIN COMENTARIOS
3 ☐ CONFORME CON COMENTARIOS
4 ☐ NO CONFORME
5 ☐ TAL COMO SE CONSTRUYO

FECHA DE RECEPCION :
Revisado por Ing. Supervisor
Fecha:
IMPORTANTE :
NO. DE CONTROL

PROYECTO: PLANTA DE CICLO COMBINADO

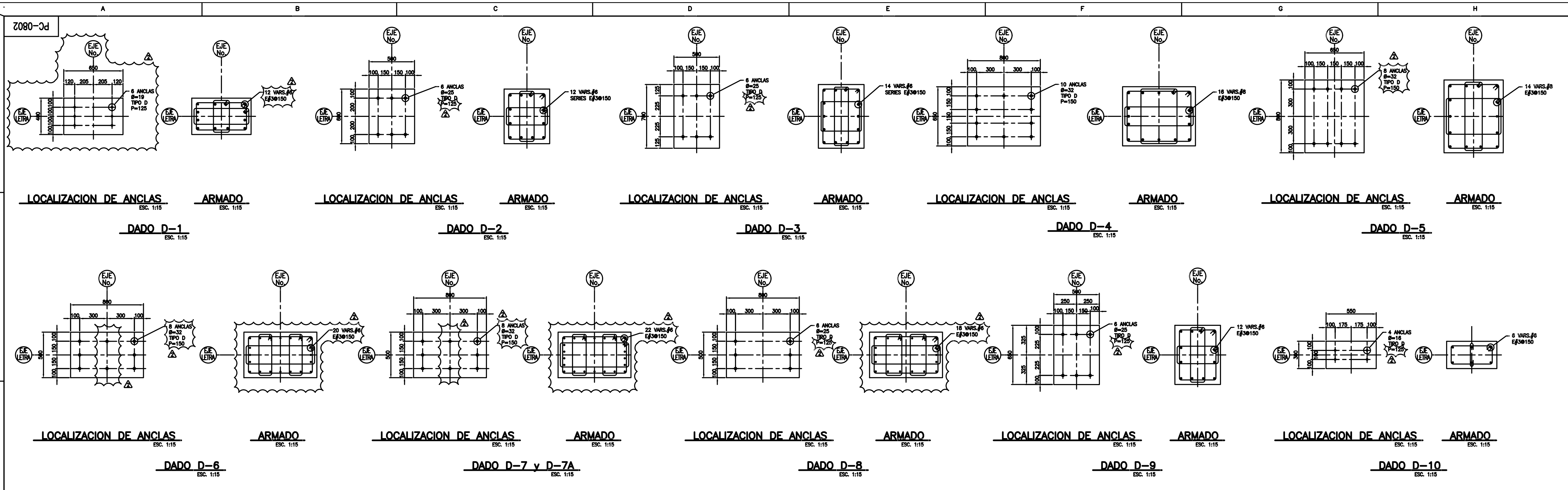
TITULO: RACK DE TUBERIAS CIMENTACION PLANTA 2 DE 2

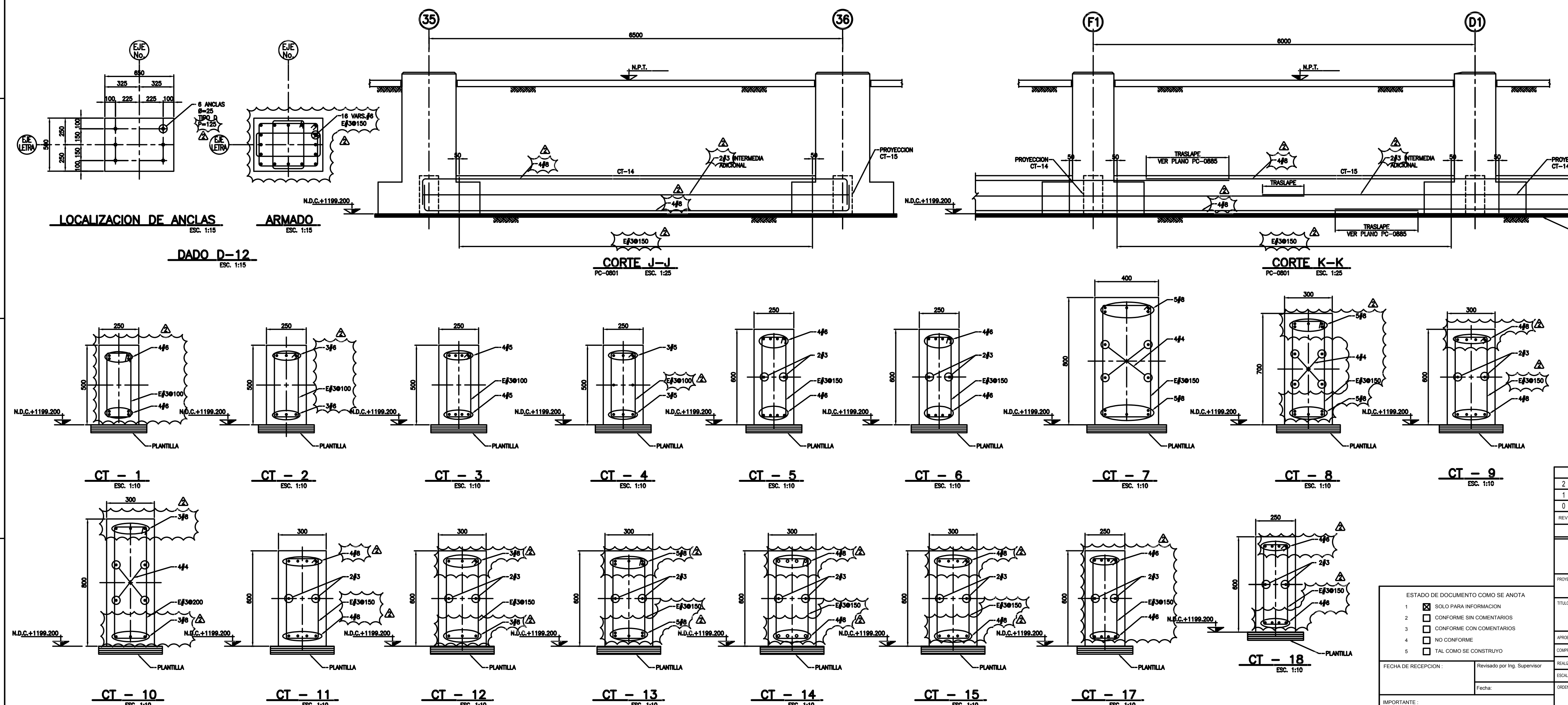
APROBADO GVZ
COMPROBADO GVZ
REALIZADO GVZ
ESCALA INDICADA
ORDEN DE COMPRA
ITEM

TITULO: RACK DE TUBERIAS CIMENTACION PLANTAS 2 DE 2

DOCUMENTO DE PROYECTO No. PM27005-SRJC-PC-0801 REV. No. 1
DOCUMENTO SUMINISTRADOR No. REV. No.

PC-0802





NOMENCLATURA:

Z	ZAPATA
CT	CONTRATRABE
D	DADO
NDC	NIVEL DESPLANTE DE CIMENTACION
NPT	NIVEL PISO TERMINADO
NTC	NIVEL TOPE DE CONCRETO
EI	EXCEPTO INDICADO
P	PROYECCION
	REVISION

CALIDAD DE MATERIALES:

CONCRETO PARA ZAPATAS Y DADOS — f'c = 24.5 MPa. = 250 kg/cm2.
CONCRETO PARA PLANTILLA — f'c = 10.0 MPa. = 100 kg/cm2.
ACERO DE REFUERZO — Fy = 412 MPa. = 4200 kg/cm2.
ANCLAJE — A-36

NOTAS:

1.- DIMENSIONES EN MILIMETROS.
2.- NIVELES EN METROS.
3.- LAS COTAS DE NIVEL ESTAN REFERIDAS AL PUNTO DE REFERENCIA CON EL SISTEMA DE COORDENADAS LOCALES.
4.- VER ANCLAJES Y TRASLAPES DE VARILLAS EN PLANO PC-1885.
5.- VER NOTAS GENERALES PARA ESTRUCTURA DE CONCRETO EN PLANO PC-0870
6.- TRABAJAR ESTE PLANO EN CONJUNTO CON LOS PLANOS DE REFERENCIA.
7.- VER DETALLES DE ANCLAS EN PC-0880

PLANOS REFERENCIA

PM27005-SRJC-PC-0800	RACK DE TUBERIAS CIMENTACION PLANTAS 1 DE 2
PM27005-SRJC-PC-0801	RACK DE TUBERIAS CIMENTACION PLANTAS 2 DE 2
PM27005-SRJC-PC-0870	NOTAS GENERALES DE CONCRETO
PM27005-SRJC-PC-0880	DETALLES TIPO DE ANCLAS
PM27005-SRJC-PC-0885	DETALLES TIPO DE DOBLEZ DE VARILLAS

REV.	FECHA	DESCRIPCION	REVISO	APROBO
2	26/10/11	APROBADO PARA CONSTRUCCION REVISADO DONDE SE INDICA		
1	17/10/11	SE REVISA POR CAMBIOS DE GEOMETRIA Y CARGAS		
0	01/09/11	APROBADO PARA CONSTRUCCION		

REVISIONES

ESTADO DE DOCUMENTO COMO SE ANOTA
1 ☒ SOLO PARA INFORMACION
2 ☐ CONFORME SIN COMENTARIOS
3 ☐ CONFORME CON COMENTARIOS
4 ☐ NO CONFORME
5 ☐ TAL COMO SE CONSTRUYO

FECHA DE RECEPCION :
Revisado por Ing. Supervisor
Fecha:
IMPORTANTE :
NO. DE CONTROL

PROYECTO: PLANTA DE CICLO COMBINADO

TITULO: RACK DE TUBERIAS CIMENTACION DETALLES

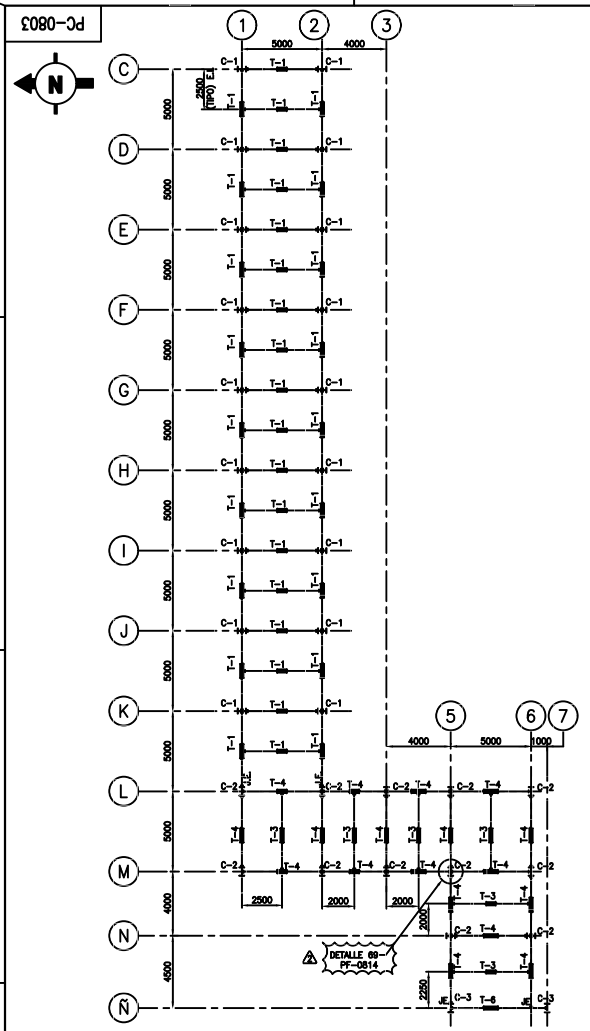
APROBADO
COMPROBADO
REALIZADO GVZ
ESCALA INDICADA
ORDEN DE COMPRA
ITEM

TITULO: RACK DE TUBERIAS CIMENTACION DETALLES

DOCUMENTO DE PROYECTO No. PM27005-SRJC-PC-0802 — REV. No. 2

DOCUMENTO SUMINISTRADOR No. — REV. No.

DIN A-0



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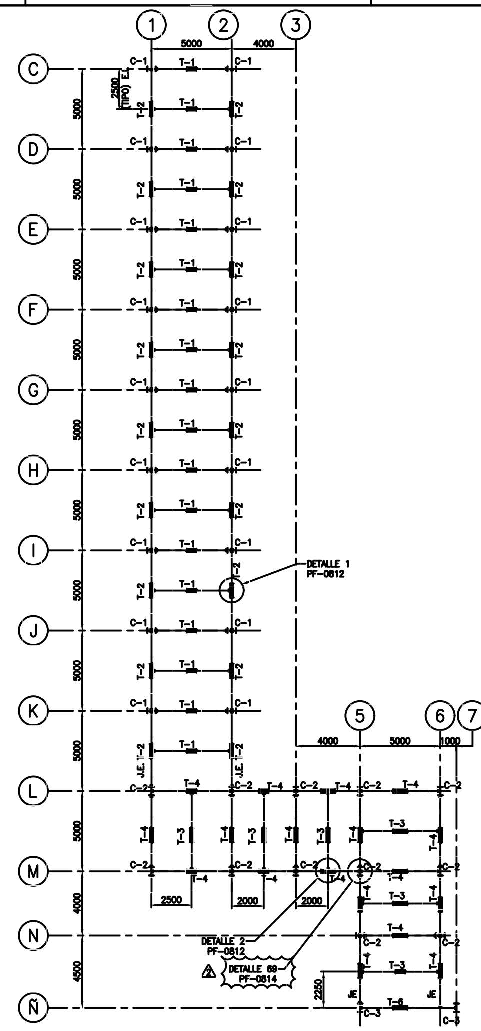

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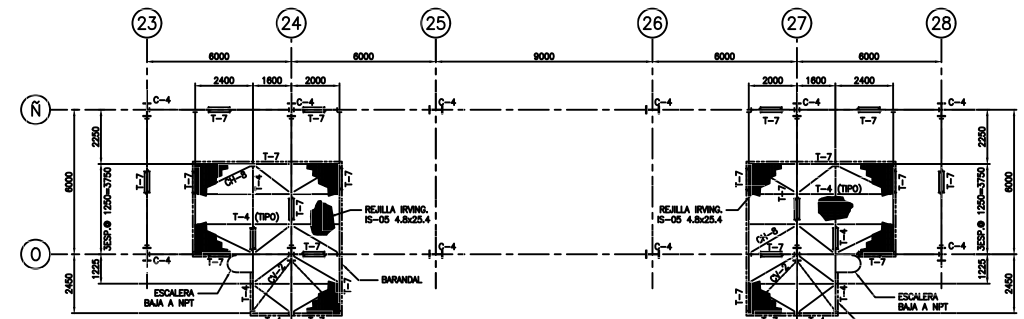

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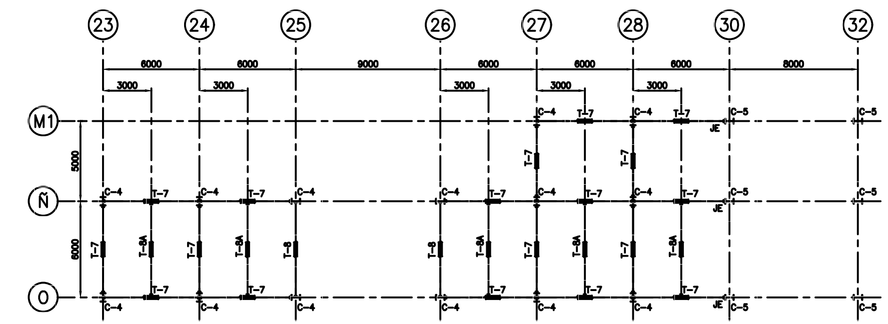

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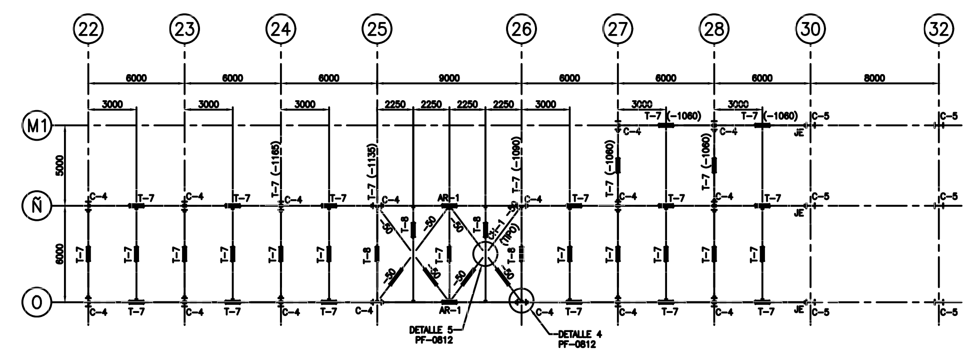

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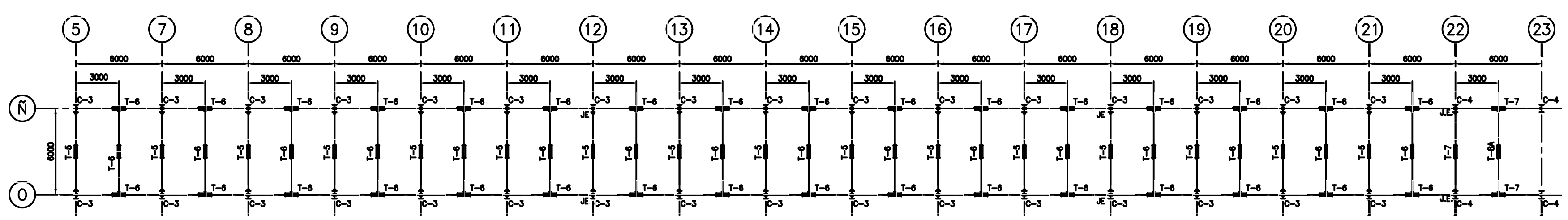

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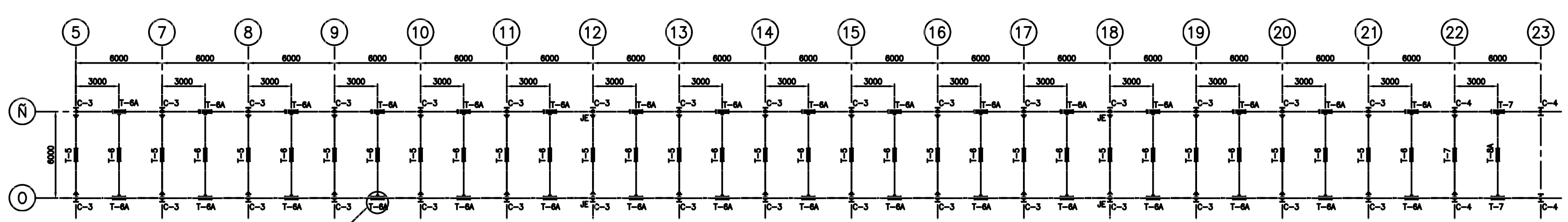

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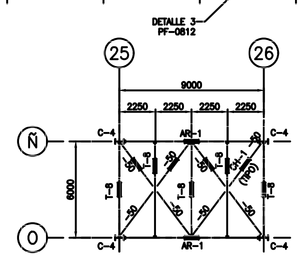

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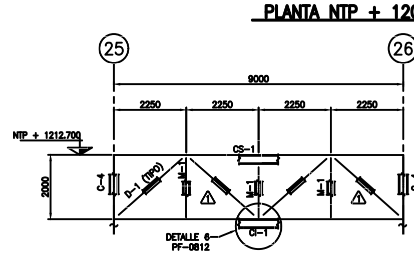

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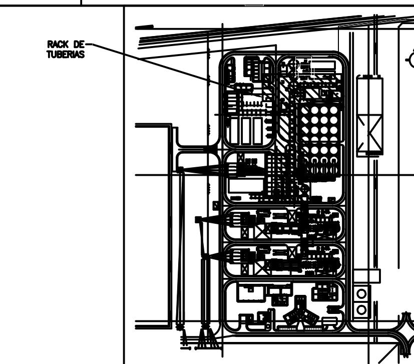


CROQUIS DE LOCALIZACION

TABLA DE PERFILES

MARCA	PERFIL	PESO k/m	d	bf	tf	tw
C-1	IR.-305	59.8	303	203	13.1	7.5
C-2	IR.-305	79	306	254	14.6	8.8
C-3	IR.-356	110.4	360	256	19.9	11.4
C-4	IR.-457	144.3	472	283	22.08	13.5
T-1	IR.-254	38.5	262	147	11.2	6.6
T-2	IR.-305	52.2	318	167	13.2	7.6
T-3	IR.-203	31.2	210	134	10.2	6.4
T-4	IR.-254	49.2	247	202	11.0	7.4
T-5	IR.-305	74.4	310	205	16.3	9.4
T-6	IR.-305	52.2	318	167	13.2	7.6
T-6A	IR.-356	63.8	347	203	13.5	7.8
T-7	IR.-305	74.4	310	205	16.3	9.4
T-8	IR.-305	44.5	313	166	11.2	6.6
T-8A	IR.-254	38.5	262	147	11.2	6.6
CS-1	IR.-305	44.5	313	166	11.2	6.6
Ci-1	IR.-305	44.5	313	166	11.2	6.6
CH-1	2Li 76x10	21.44	-	-	-	-
D-1	2Li 76x10	21.44	-	-	-	-
M-1	IR-152	24	160	102	10.3	6.6
CV-1	2Li 102x10	29.16	-	-	-	-
CV-2	IR.-203	31.2	210	134	10.2	6.4
CV-3	IR-254	44.8	266	148	13.0	7.6
CH-8	Li-64x10	8.78	-	-	-	-

NOMENCLATURA

C.S.	CUERDA SUPERIOR
C.I.	CUERDA INFERIOR
AR	ARMADURA
PB	PLACA BASE
D	DIAGONAL
M	MONTANTE
NPT	NIVEL PISO TERMINADO
NTP	NIVEL TOPE DE PERFIL
NDE	NIVEL DESPLANTE DE ESTRUCTURA
C	COLUMNA
T	TRABE
CH	CONTRAVENTEO HORIZONTAL
CV	CONTRAVIENTO VERTICAL
M	CONEXION A MOMENTO
-50	MM ABAJO DEL NIVEL TOPE DE ESTRUCTURA
	REVISION GENERAL

NOTAS:

1.- PARA NOTAS GENERALES, ABREVIATURAS Y SIMBOLOGIA VER PLANO CFE-PM27005-SRJC-PC-0875.
2.- DIMENSIONES EN MILIMETROS.
3.- NIVELES Y COORDENADAS EN METROS.
4.- TODAS LAS DIMENSIONES SON SIMETRICAS CON RESPECTO A LAS LINEAS DEL CENTRO, EXCEPTO QUE SE INDIQUE LO CONTRARIO.
5.- ACERO ESTRUCTURAL ASTM A-36.
6.- TORNILLERIA ASTM A-325 TIPO 1 GALVANIZADOS ò TIPO 3.
7.- ESTE PLANO ES DE DISEÑO Y EN BASE A ESTE SE DEBEN ELABORAR PLANOS DE TALLER QUE CUMPLAN CON LOS REQUISITOS DEL AISC-LRDF Y AWS COMO MINIMO.
8.- LA DESCRIPCIÓN DE LOS PERFILES CORRESPONDE CON LA INDICADA EN EL "MANUAL DE CONSTRUCCIÓN EN ACERO" DEL INSTITUTO MEXICANO DE LA CONSTRUCCIÓN EN ACERO (IMCA)
9.- NO TOMAR MEDIDAS A ESCALA, LAS COTAS RIGEN AL DIBUJO
10.- TRABAJAR ESTE PLANO EN CONJUNTO CON LOS PLANOS DE REFERENCIA
11.- VER CONEXIONES A CORTANTE Y A MOMENTO DE LA ESTRUTURA PRINCIPAL EN PLANO PF-0811

PLANOS DE REFERENCIA

PM27005-SRJC-PF-0804	RACK DE TUBERIAS-ESTRUCTURA ELEVACION RACK DE P.T.A. Y RACK DE SERVICIOS
PM27005-SRJC-PC-0805	RACK DE TUBERIAS-ESTRUCTURA PLANTAS Y ELEVACIONES RACK AEROCONDENSADOR
PM27005-SRJC-PC-0806	RACK DE TUBERIAS-ESTRUCTURA PLANTAS RACK PRINCIPAL Y RACK TREN 1 Y 2
PM27005-SRJC-PF-0807	RACK DE TUBERIAS-ESTRUCTURA ELEVACION RACK PRINCIPAL Y RACK TREN 1 Y 2
PM27005-SRJC-PF-0808	RACK DE TUBERIAS-ESTRUCTURA ELEVACIONES RACK PRINCIPAL
PM27005-SRJC-PF-0811	RACK DE TUBERIAS-ESTRUCTURA CONEXIONES TIPO Y PLACAS BASE
PM27005-SRJC-PF-0812	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 1
PM27005-SRJC-PF-0813	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 2
PM27005-SRJC-PF-0814	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 3

REV.	FECHA	DESCRIPCION	REVISO	APROBO
2	28/10/11	APROBADO PARA CONSTRUCCION REVISADO SEGUN SE INDICA		
1	21/10/11	APROBADO PARA CONSTRUCCION REVISADO SEGÚN SE INDICA		
0	23/08/11	APROBADO PARA CONSTRUCCION		

R E V I S I O N E S

ESTADO DE DOCUMENTO COMO SE ANOTA

1 ☒ SOLO PARA INFORMACION
2 ☐ CONFORME SIN COMENTARIOS
3 ☐ CONFORME CON COMENTARIOS
4 ☐ NO CONFORME
5 ☐ TAL COMO SE CONSTRUYO

FECHA DE RECEPCION :
Revisado por Ing. Supervisor
Fecha:
IMPORTANTE :
NO. DE CONTROL

PROYECTO: PLANTA DE CICLO COMBINADO

TITULO: RACK DE TUBERIAS ESTRUCTURA PLANTAS RACK DE P.T.A Y RACK DE SERVICIOS

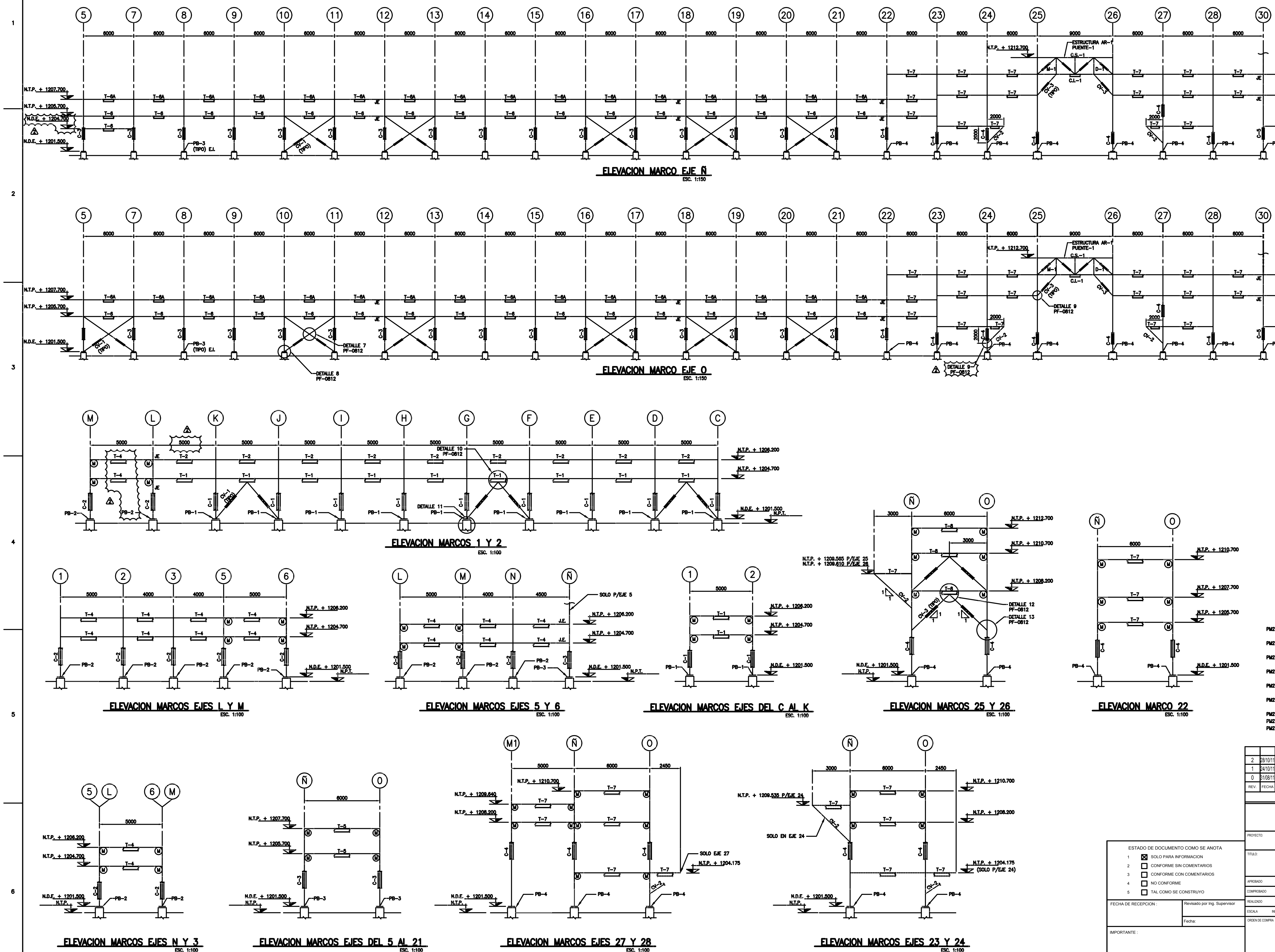
APROBADO
COMPROBADO
REALIZADO GVZ
ESCALA INDICADA
ORDEN DE COMPRA
ITEM

TITULO: RACK DE TUBERIAS ESTRUCTURA PLANTAS RACK DE P.T.A Y RACK DE SERVICIOS

DOCUMENTO DE PROYECTO No. PM27005-SRJC-PF-0803 REV. No. 2

DOCUMENTO SUMINISTRADOR No. REV. No.

PF-0804



NOMENCLATURA

C.S.	CUERDA SUPERIOR
C.I.	CUERDA INFERIOR
AR	ARMADURA
PB	PLACA BASE
D	DIAGONAL
M	MONTANTE
NPT	NIVEL PISO TERMINADO
NTP	NIVEL TOPE DE PERFIL
NDE	NIVEL DESPLANTE DE ESTRUCTURA
C	COLUMNA
T	TRABE
CH	CONTRAVENTEO HORIZONTAL
CV	CONTRAVIENTO VERTICAL
M	CONEXION A MOMENTO
JE	JUNTA DE EXPANSION
	REVISION

NOTAS:

1.- PARA NOTAS GENERALES, ABREVIATURAS Y SIMBOLOGIA VER PLANO CFE-PM27005-SRJC-PC-0875.
2.- DIMENSIONES EN MILIMETROS.
3.- NIVELES Y COORDENADAS EN METROS.
4.- TODAS LAS DIMENSIONES SON SIMETRICAS CON RESPECTO A LAS LINEAS DEL CENTRO, EXCEPTO QUE SE INDIQUE LO CONTRARIO.
5.- ACERO ESTRUCTURAL ASTM A-36.
6.- TORNILLERIA ASTM A-325 TIPO 1 GALVANIZADOS ó TIPO 3.
7.- ESTE PLANO ES DE DISEÑO Y EN BASE A ESTE SE DEBEN ELABORAR PLANOS DE TALLER QUE CUMPLAN CON LOS REQUISITOS DEL AISC-LRDF Y AWS COMO MINIMO.
8.- LA DESCRIPCIÓN DE LOS PERFILES CORRESPONDE CON LA INDICADA EN EL "MANUAL DE CONSTRUCCIÓN EN ACERO" DEL INSTITUTO MEXICANO DE LA CONSTRUCCIÓN EN ACERO (IMCA)
9.- NO TOMAR MEDIDAS A ESCALA, LAS COTAS RIGEN AL DIBUJO
10.- TRABAJAR ESTE PLANO EN CONJUNTO CON LOS PLANOS DE REFERENCIA
11.- VER CONEXIONES A CORTANTE Y A MOMENTO DE LA ESTRUTURA PRINCIPAL EN PLANO PF-0811

PLANOS DE REFERENCIA

PM27005-SRJC-PF-0803	RACK DE TUBERIAS-ESTRUCTURA PLANTAS RACK DE P.T.A. Y RACK DE SERVICIOS
PM27005-SRJC-PC-0805	RACK DE TUBERIAS-ESTRUCTURA PLANTAS Y ELEVACIONES RACK AEROCONDENSADOR
PM27005-SRJC-PC-0806	RACK DE TUBERIAS-ESTRUCTURA PLANTAS RACK PRINCIPAL Y RACK TREN 1 Y 2
PM27005-SRJC-PF-0807	RACK DE TUBERIAS-ESTRUCTURA ELEVACION RACK PRINCIPAL Y RACK TREN 1 Y 2
PM27005-SRJC-PF-0808	RACK DE TUBERIAS-ESTRUCTURA ELEVACIONES RACK PRINCIPAL
PM27005-SRJC-PF-0811	RACK DE TUBERIAS-ESTRUCTURA CONEXIONES TIPO Y PLACAS BASE
PM27005-SRJC-PF-0812	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 1
PM27005-SRJC-PF-0813	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 2
PM27005-SRJC-PF-0814	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 3

REV.	FECHA	DESCRIPCION	REVISO	APROBO
2	28/10/11	APROBADO PARA CONSTRUCCION REVISADO DONDE SE INDICA		
1	24/10/11	APROBADO PARA CONSTRUCCION REVISADO DONDE SE INDICA		
0	31/08/11	PARA REVISION INTERNA		

R E V I S I O N E S

ESTADO DE DOCUMENTO COMO SE ANOTA
1 ☒ SOLO PARA INFORMACION
2 ☐ CONFORME SIN COMENTARIOS
3 ☐ CONFORME CON COMENTARIOS
4 ☐ NO CONFORME
5 ☐ TAL COMO SE CONSTRUYO

FECHA DE RECEPCION :
Revisado por Ing. Supervisor
Fecha:
IMPORTANTE :
NO. DE CONTROL

PROYECTO: PLANTA DE CICLO COMBINADO

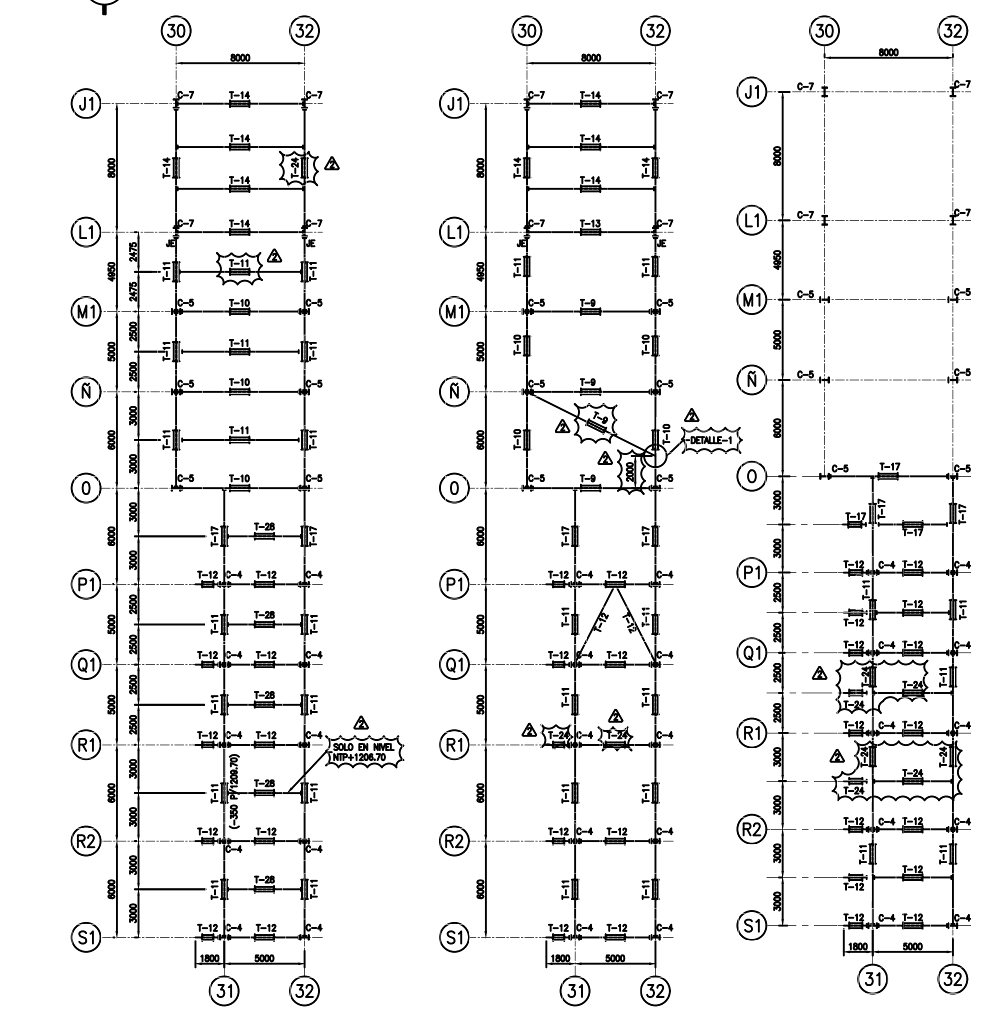
TITULO: RACK DE TUBERIAS ESTRUCTURA ELEVACION RACK P.T.A. Y RACK DE SERVICIOS

APROBADO
COMPROBADO
REALIZADO GVZ
ESCALA INDICADA

TITULO: RACK DE TUBERIAS ESTRUCTURA ELEVACION RACK P.T.A. Y RACK DE SERVICIOS

ORDEN DE COMPRA
ITEM
DOCUMENTO DE PROYECTO No. PM27005-SRJC-PF-0804
REV. No. 2
DOCUMENTO SUMINISTRADOR No.
REV. No.

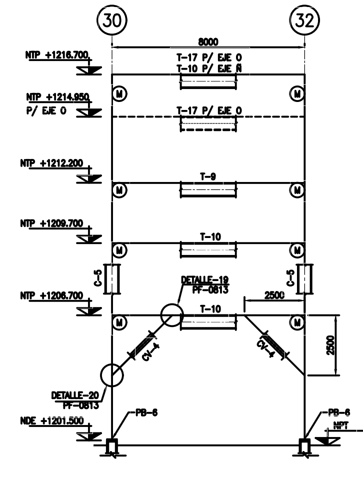
PF-0805



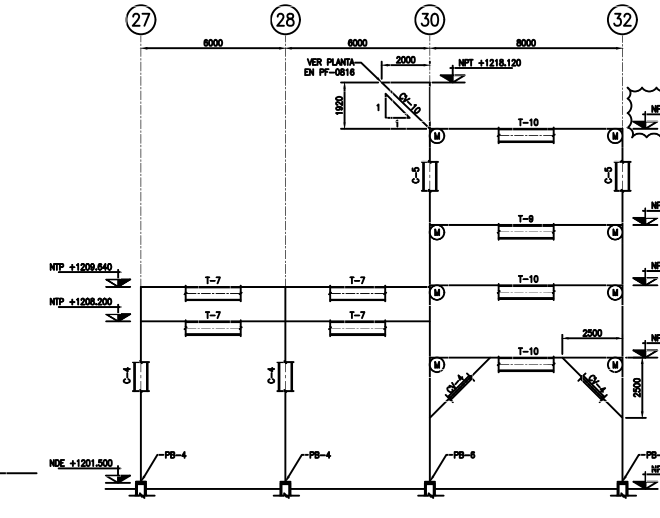
PLANTA NIVELES NTP +1206.70 Y N.T.P. 1209.70
ESC. 1:150

PLANTA NIVEL NTP +1212.20
ESC. 1:150

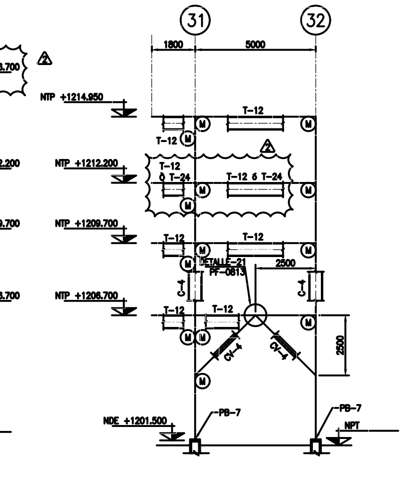
PLANTA NIVEL NTP +1214.950
ESC. 1:150



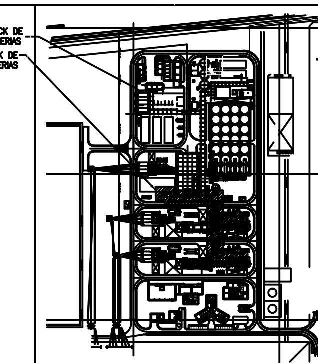
ELEVACION MARCO EJES Ñ Y O
ESC. 1:100



ELEVACION MARCO EJES M1
ESC. 1:100

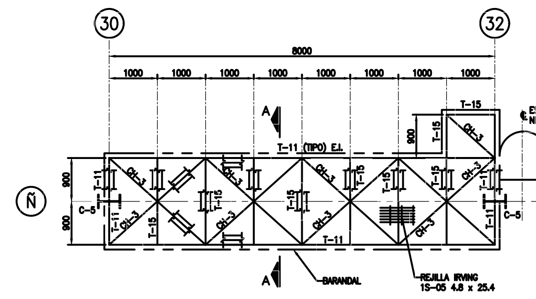


ELEVACION MARCO EJES P1, Q1, R1, R2 Y S1
ESC. 1:100

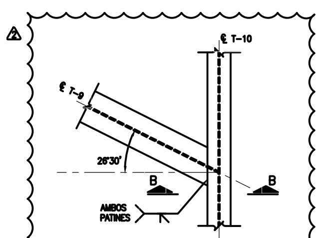


CROQUIS DE LOCALIZACION

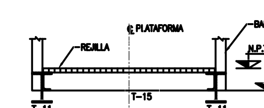
TABLA DE PERFILES						
MARCA	PERFIL	PESO k/m	d	bf	tf	tw
C-5	IR.-457	128.10	467	282	19.6	12.2
C-4	IR.-457	112.9	463	280	17.3	10.8
C-12	IR.-305	86.1	310	254	16.3	9.1
C-14	IR.-305	44.8	313	166	11.2	6.6
T-9	IR.-457	144.30	472	283	22.1	13.6
T-10	IR.-457	96.70	466	193	19.1	11.4
T-11	IR.-305	74.4	310	205	16.3	9.4
T-12	IR.-305	74.4	310	205	16.3	9.4
T-13	IR.-356	101.3	357	255	18.3	10.5
T-14	IR.-305	74.4	310	205	16.3	9.4
T-24	IR.-305	96.7	308	305	15.4	9.9
T-17	IR.-356	110.4	360	256	19.9	11.4
T-18	IR.-356	110.4	360	256	19.9	11.4
T-28	IR.-254	44.8	266	148	13.0	7.6
CV-4	IR.-254	44.8	266	148	13.0	7.6
CV-10	2 LI 102x10					
CH-2	IR.-203	31.2	210	134	10.2	6.4
CH-3	LI.-64x10	–	64	10	–	–
C-13	CE.-203	27.9	203	64	–	–
T-15	CE.-203	27.9	203	64	–	–



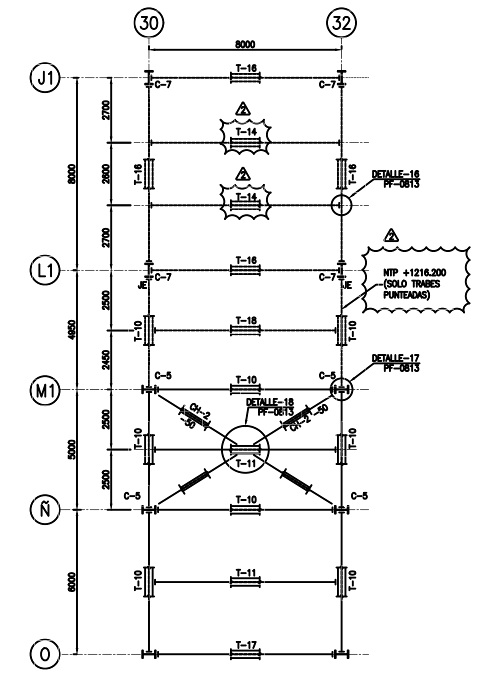
PLANTA PLATAFORMA N.P.T. 1213.750
ESC. 1:50



DETALLE 1
ESC. 1:20



CORTE A-A
ESC. 1:25



PLANTA NIVEL NTP +1216.700
ESC. 1:100

NOMENCLATURA

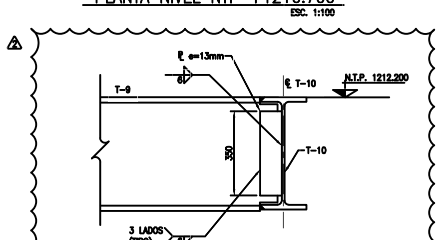
CH	CONTRAVIENTO HORIZONTAL
M	CONEXION A MOMENTO
NPT	NIVEL PISO TERMINADO
NTP	NIVEL TOPE DE PERFIL
C	COLUMNA
T	TRABE
CV	CONTRAVIENTO VERTICAL
NDE	NIVEL DE DESPLANTE ESTRUCTURAL
PB	PLANTA BASE
	REVISION

NOTAS:

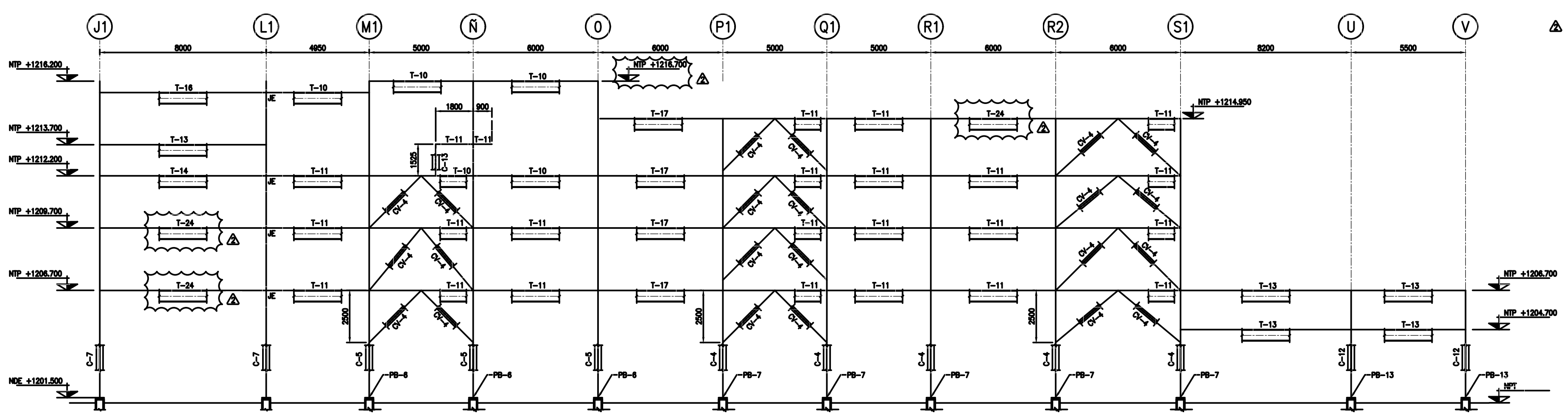
1.- PARA NOTAS GENERALES, ABREVIATURAS Y SIMBOLOGIA VER PLANO CFE-PM27005-SRJC-PC-0875.
2.- DIMENSIONES EN MILIMETROS.
3.- NIVELES Y COORDENADAS EN METROS.
4.- TODAS LAS DIMENSIONES SON SIMETRICAS CON RESPECTO A LAS LINEAS DEL CENTRO, EXCEPTO QUE SE INDIQUE LO CONTRARIO.
5.- ACERO ESTRUCTURAL ASTM A-36.
6.- TORNILLERIA ASTM A-325 TIPO 1 GALVANIZADOS ò TIPO 3.
7.- ESTE PLANO ES DE DISEÑO Y EN BASE A ESTE SE DEBEN ELABORAR PLANOS DE TALLER QUE CUMPLAN CON LOS REQUISITOS DEL AISC-LRDF Y AWS COMO MINIMO.
8.- LA DESCRIPCIÓN DE LOS PERFILES CORRESPONDE CON LA INDICADA EN EL "MANUAL DE CONSTRUCCIÓN EN ACERO" DEL INSTITUTO MEXICANO DE LA CONSTRUCCIÓN EN ACERO (IMCA)
9.- NO TOMAR MEDIDAS A ESCALA, LAS COTAS RIGEN AL DIBUJO
10.- TRABAJAR ESTE PLANO EN CONJUNTO CON LOS PLANOS DE REFERENCIA
11.- VER CONEXIONES A CORTANTE Y A MOMENTO DE LA ESTRUCTURA PRINCIPAL EN PLANO PF-0811

PLANOS DE REFERENCIA

PM27005-SRJC-PF-0803	RACK DE TUBERIAS-ESTRUCTURAS PLANTAS RACK DE P.T.A. Y RACK DE SERVICIOS
PM27005-SRJC-PF-0804	RACK DE TUBERIAS-ESTRUCTURAS ELEVACION RACK DE P.T.A. Y RACK DE SERVICIOS
PM27005-SRJC-PF-0806	RACK DE TUBERIAS-ESTRUCTURAS PLANTAS RACK PRINCIPAL Y RACK TREN 1 Y 2
PM27005-SRJC-PF-0807	RACK DE TUBERIAS-ESTRUCTURAS ELEVACION RACK PRINCIPAL Y RACK TREN 1 Y 2
PM27005-SRJC-PF-0808	RACK DE TUBERIAS-ESTRUCTURAS ELEVACIONES RACK PRINCIPAL
PM27005-SRJC-PF-0811	RACK DE TUBERIAS-ESTRUCTURA CONEXIONES TIPO Y PLACAS BASE
PM27005-SRJC-PF-0812	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 1
PM27005-SRJC-PF-0813	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 2
PM27005-SRJC-PF-0814	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 3



CORTE B-B
ESC. 1:25



ELEVACION MARCO 32
ESC. 1:100

REV.	FECHA	DESCRIPCION	REVISO	APROBO
2	05/12/11	APROBADO PARA CONSTRUCCION REVISADO DONDE SE INDICA		
1	27/10/11	APROBADO PARA CONSTRUCCION REVISADO DONDE SE INDICA		
0	31/08/11	APROBADO PARA CONSTRUCCION		

R E V I S I O N E S

ESTADO DE DOCUMENTO COMO SE ANOTA
1 ☒ SOLO PARA INFORMACION
2 ☐ CONFORME SIN COMENTARIOS
3 ☐ CONFORME CON COMENTARIOS
4 ☐ NO CONFORME
5 ☐ TAL COMO SE CONSTRUYO

FECHA DE RECEPCION :
Revisado por Ing. Supervisor
Fecha:
IMPORTANTE :
NO. DE CONTROL

PROYECTO: PLANTA DE CICLO COMBINADO

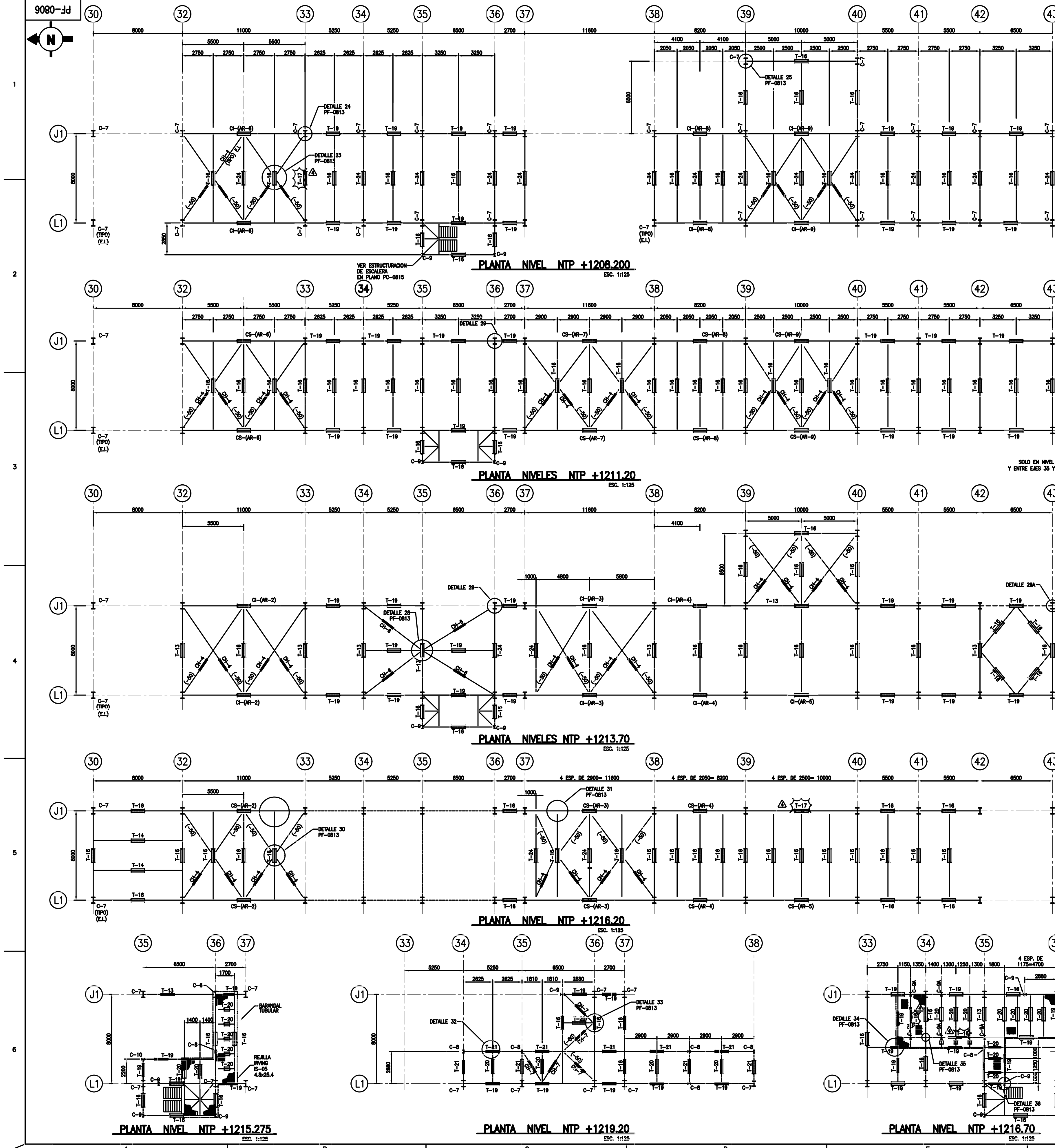
TITULO: RACK DE TUBERIAS - ESTRUCTURA PLANTAS Y ELEVACIONES RACK AEROCONDENSADOR

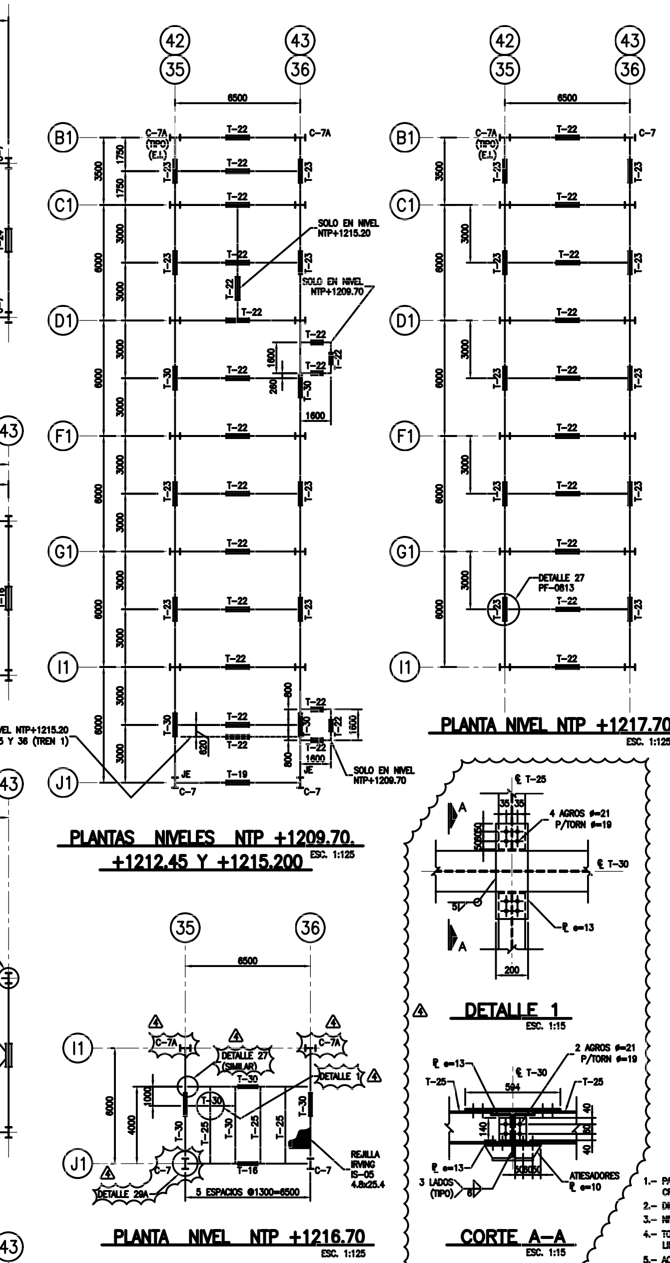
APROBADO
COMPROBADO
REALIZADO GVZ
ESCALA INDICADA
ORDEN DE COMPRA
ITEM

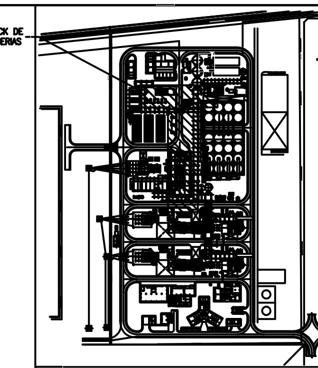
TITULO: RACK DE TUBERIAS - ESTRUCTURA PLANTAS Y ELEVACIONES RACK AEROCONDENSADOR

DOCUMENTO DE PROYECTO No. PM27005-SRJC-PF-0805 REV. No. 2
DOCUMENTO SUMINISTRADOR No. REV. No.

DIN A-0







CROQUIS DE LOCALIZACION

TABLA DE PERFILES

MARCA	PERFIL	PESO k/m	d	bf	tf	tw
C-7	IR.-457	128.10	467	281	19.56	12.19
C-7A	IR.-457	144.30	472	283	22.09	13.59
C-7B	IR.-305	59.81	303	203	13.1	7.5
C-8	IR.-254	44.8	266	148	13.0	7.6
C-9	IR.-305	74.40	310	205	16.3	9.4
C-9A	IR.-305	52.2	318	167	13.2	7.6
C-10	IR.-203	31.2	210	134	10.2	6.4
T-16	IR.-305	74.40	310	205	16.3	9.4
T-30	IR.-305	79.00	306	254	14.6	8.8
T-13	IR.-356	101.3	357	255	18.3	10.5
T-32	IR.-305	74.40	310	205	16.3	9.5
T-19	IR.-305	52.2	318	167	13.2	7.6
T-20	IR.-203	31.2	210	134	10.2	6.4
T-21	IR.-254	44.8	266	148	13.0	7.6
T-22	IR.-305	59.8	303	203	13.1	7.5
T-23	IR.-305	59.8	303	203	13.1	7.5
T-24	IR.-305	96.7	308	305	15.4	9.9
T-25	IR.-203	35.9	201	165	10.2	6.2
CH-4	IR.-203	31.2	210	134	10.2	6.4
CV-5	IR.-254	44.8	266	148	13.0	7.6
CV-6	IR.-203	312	210	134	10.2	6.4
CV-8A	2LI.-102x10	29.16				
CH-6	IR.-305	44.5	313	166	11.2	6.6
CH-7	2LI.-76x10	21.44				

ARMADURAS AR-2, AL AR-6, AR-8, y AR-9

MARCA	PERFIL	PESO k/m	d	bf	tf	tw
C.S.	IR.-305	74.4	310	205	16.3	9.4
C.I.	IR.-305	74.4	310	205	16.3	9.4
D	2LI.-76x10	21.44				
M	IR.-152	24	160	102	10.3	6.6

AR-7

MARCA	PERFIL	PESO k/m	d	bf	tf	tw
C.S.	IR.-305	52.2	318	167	132	7.6
C.I.	IR.-305	52.2	318	167	132	7.6
D	LI.-64x10	11.16				
M	IR.-152	24	160	102	10.3	6.6

NOMENCLATURA

C.S.	CUERDA SUPERIOR
C.I.	CUERDA INFERIOR
AR	ARMADURA
PB	PLACA BASE
D	DIAGONAL
M	MONTANTE
NPT	NIVEL PISO TERMINADO
NTP	NIVEL TOPE DE PERFIL
NDE	NIVEL DESPLANTE DE ESTRUCTURA
C	COLUMNA
T	TRABE
CH	CONTRAVENTEO HORIZONTAL
CV	CONTRAVIENTO VERTICAL
M	CONEXION A MOMENTO
E.I.	EXCEPTO INDICADO
	REVISION
(-50)	-50mm ABAJO DEL NTP

NOTAS:

1.- PARA NOTAS GENERALES, ABREVIATURAS Y SIMBOLOGIA VER PLANO CFE-PM27005-SRJC-PC-0875.
2.- DIMENSIONES EN MILIMETROS.
3.- NIVELES Y COORDENADAS EN METROS.
4.- TODAS LAS DIMENSIONES SON SIMETRICAS CON RESPECTO A LAS LINEAS DEL CENTRO, EXCEPTO QUE SE INDIQUE LO CONTRARIO.
5.- ACERO ESTRUCTURAL ASTM A-36.
6.- TORNILLERIA ASTM A-325 TIPO 1 GALVANIZADOS ó TIPO 3.
7.- ESTE PLANO ES DE DISEÑO Y EN BASE A ESTE SE DEBEN ELABORAR PLANOS DE TALLER QUE CUMPLAN CON LOS REQUISITOS DEL AISC-LRDF Y AWS COMO MINIMO.
8.- LA DESCRIPCIÓN DE LOS PERFILES CORRESPONDE CON LA INDICADA EN EL "MANUAL DE CONSTRUCCIÓN EN ACERO" DEL INSTITUTO MEXICANO DE LA CONSTRUCCIÓN EN ACERO (IMCA)
9.- NO TOMAR MEDIDAS A ESCALA, LAS COTAS RIGEN AL DIBUJO
10.- TRABAJAR ESTE PLANO EN CONJUNTO CON LOS PLANOS DE REFERENCIA
11.- VER CONEXIONES A CORTANTE Y A MOMENTO DE LA ESTRUTURA PRINCIPAL EN PLANO PF-0811
12.- LOS CONTRAVIENTOS HORIZONTALES SE PONDRAN 50mm ABAJO DEL NTP

PLANOS DE REFERENCIA

PM27005-SRJC-PF-0803	RACK DE TUBERIAS-ESTRUCTURA PLANTAS RACK DE P.T.A. Y RACK DE SERVICIOS
PM27005-SRJC-PF-0804	RACK DE TUBERIAS-ESTRUCTURA PLANTAS RACK DE P.T.A. Y RACK DE SERVICIOS
PM27005-SRJC-PC-0805	RACK DE TUBERIAS-ESTRUCTURA PLANTAS Y ELEVACIONES RACK AEROCONDENSADOR
PM27005-SRJC-PF-0807	RACK DE TUBERIAS-ESTRUCTURA ELEVACION RACK PRINCIPAL Y RACK TREN 1 Y 2
PM27005-SRJC-PF-0808	RACK DE TUBERIAS-ESTRUCTURA ELEVACIONES RACK PRINCIPAL
PM27005-SRJC-PF-0811	RACK DE TUBERIAS-ESTRUCTURA CONEXIONES TIPO Y PLACAS BASE
PM27005-SRJC-PF-0812	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 1
PM27005-SRJC-PF-0813	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 2
PM27005-SRJC-PF-0814	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 3

REV.	FECHA	DESCRIPCION	REVISO	APROBO
4	15/12/11	APROBADO PARA CONSTRUCCION REVISADO DONDE SE INDICA		
3	06/12/11	APROBADO PARA CONSTRUCCION REVISADO DONDE SE INDICA		
2	28/10/11	APROBADO PARA CONSTRUCCION SE INCORPORAN COMENTARIOS DE CFE		
1	14/10/11	APROBADO PARA CONSTRUCCION REVISADO DONDE SE INDICA		
0	24/08/11	APROBADO PARA CONSTRUCCION		

R E V I S I O N E S

ESTADO DE DOCUMENTO COMO SE ANOTA
1 ☒ SOLO PARA INFORMACION
2 ☐ CONFORME SIN COMENTARIOS
3 ☐ CONFORME CON COMENTARIOS
4 ☐ NO CONFORME
5 ☐ TAL COMO SE CONSTRUYO

FECHA DE RECEPCION :
Revisado por Ing. Supervisor
Fecha:
IMPORTANTE :
NO. DE CONTROL

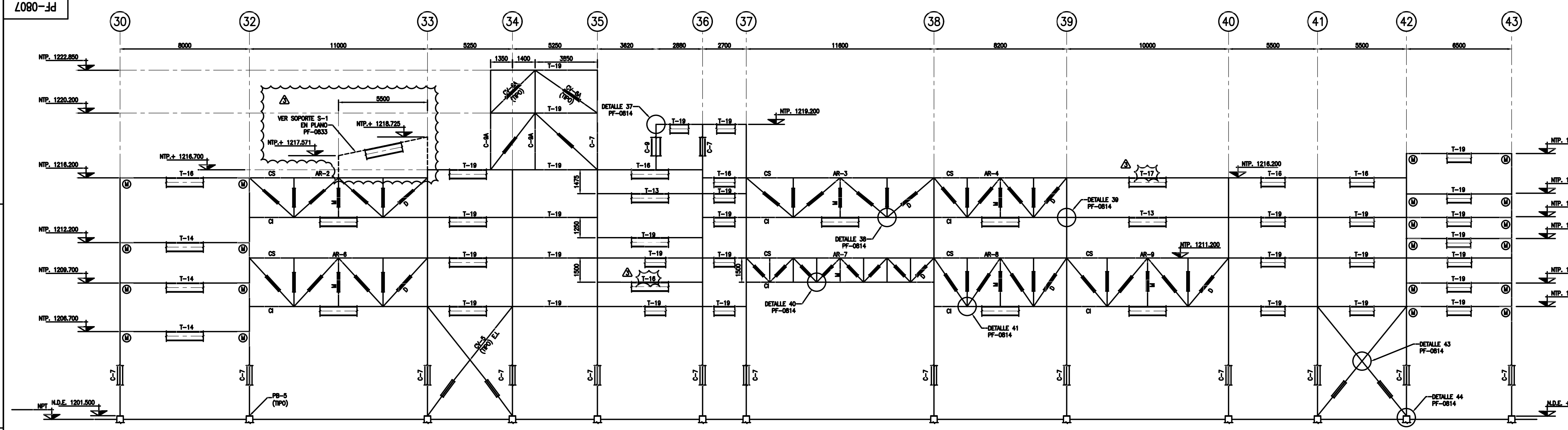
PROYECTO: PLANTA DE CICLO COMBINADO

TITULO: RACK DE TUBERIAS ESTRUCTURA PLANTAS RACK PRINCIPAL Y RACK TREN 1 Y 2

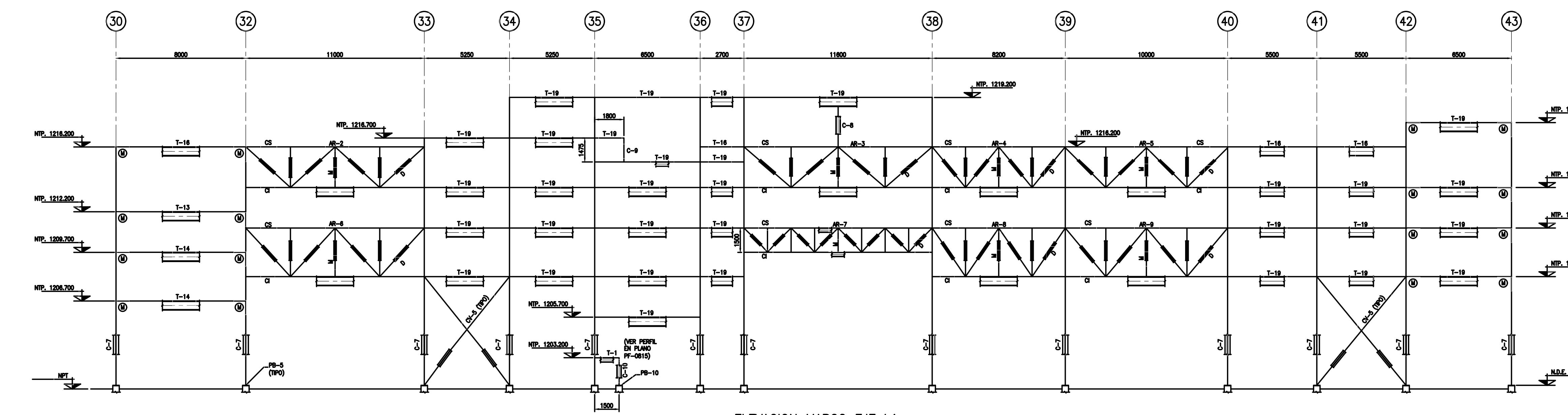
APROBADO
COMPROBADO
REALIZADO GVZ
ESCALA 1:125
ORDEN DE COMPRA
ITEM

TITULO: RACK DE TUBERIAS ESTRUCTURA PLANTAS RACK PRINCIPAL Y RACK TREN 1 Y 2

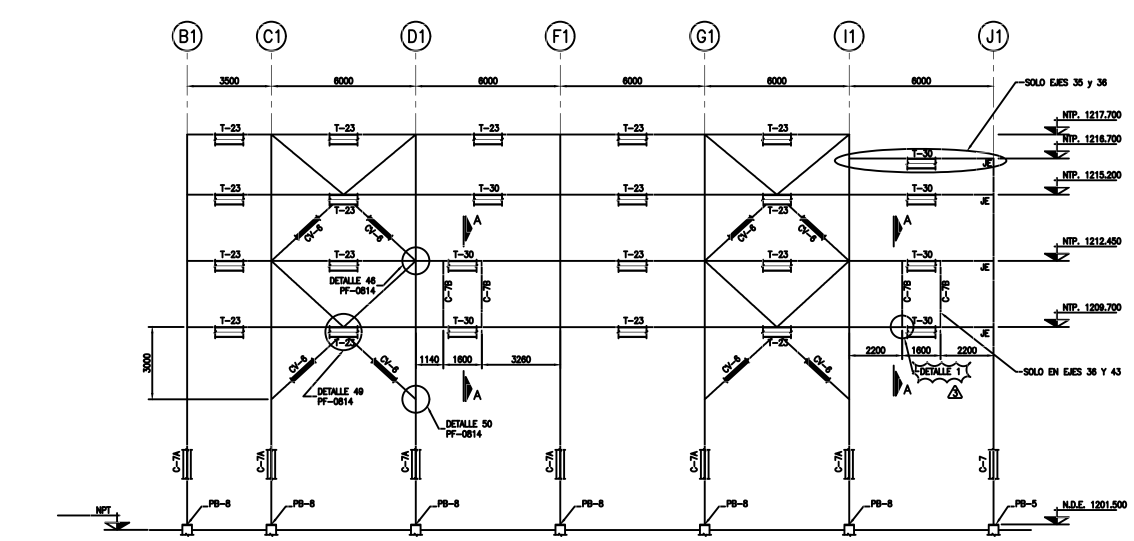
DOCUMENTO DE PROYECTO No. PM27005-SRJC-PF-0806
REV. No. 4
DOCUMENTO SUMINISTRADOR No.
REV. No.



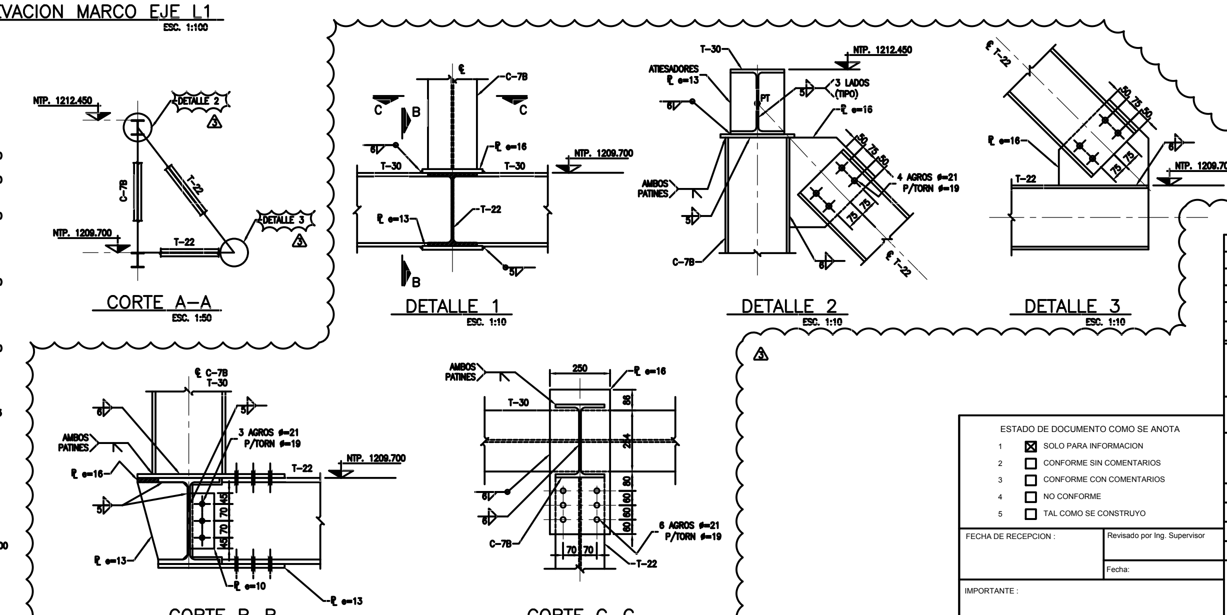
ELEVACION MARCO EJE J1
ESC. 1:100



ELEVACION MARCO EJE L1
ESC. 1:100



ELEVACION MARCO EJES 35, 36, 42 Y 43
ESC. 1:100



CORTE A–A (ESC. 1:50) · DETALLE 1 (ESC. 1:10) · DETALLE 2 (ESC. 1:10) · DETALLE 3 (ESC. 1:10) · CORTE B–B (ESC. 1:10) · CORTE C–C (ESC. 1:10)

NOMENCLATURA

NDC	NIVEL DESPLANTE DE ESTRUCTURA
NPT	NIVEL PISO TERMINADO
NTP	NIVEL TOPE DE PERFIL
C	COLUMNA
T	TRABE
CV	CONTRAVIENTO
E.I.	EXCEPTO INDICADO
PT	PUNTO DE TRABAJO
JE	JUNTA EXPANSION
(M)	CONEXION A MOMENTO
	REVISION

NOTAS:

1.– PARA NOTAS GENERALES, ABREVIATURAS Y SIMBOLOGIA VER PLANO CFE-PM27005-SRJC-PC-0875.
2.– DIMENSIONES EN MILIMETROS.
3.– NIVELES Y COORDENADAS EN METROS.
4.– TODAS LAS DIMENSIONES SON SIMETRICAS CON RESPECTO A LAS LINEAS DEL CENTRO, EXCEPTO QUE SE INDIQUE LO CONTRARIO.
5.– ACERO ESTRUCTURAL ASTM A-36.
6.– TORNILLERIA ASTM A-325 TIPO 1 GALVANIZADOS ó TIPO 3.
7.– ESTE PLANO ES DE DISEÑO Y EN BASE A ESTE SE DEBEN ELABORAR PLANOS DE TALLER QUE CUMPLAN CON LOS REQUISITOS DEL AISC-LRDF Y AWS COMO MINIMO.
8.– LA DESCRIPCIÓN DE LOS PERFILES CORRESPONDE CON LA INDICADA EN EL "MANUAL DE CONSTRUCCIÓN EN ACERO" DEL INSTITUTO MEXICANO DE LA CONSTRUCCIÓN EN ACERO (IMCA)
9.– NO TOMAR MEDIDAS A ESCALA, LAS COTAS RIGEN AL DIBUJO
10.– TRABAJAR ESTE PLANO EN CONJUNTO CON LOS PLANOS DE REFERENCIA

PLANOS DE REFERENCIA

PM27005-SRJC-PF-0803	RACK DE TUBERIAS-ESTRUCTURA PLANTAS RACK DE P.T.A. Y RACK DE SERVICIOS
PM27005-SRJC-PF-0804	RACK DE TUBERIAS-ESTRUCTURA PLANTAS RACK DE P.T.A. Y RACK DE SERVICIOS
PM27005-SRJC-PC-0805	RACK DE TUBERIAS-ESTRUCTURA PLANTAS Y ELEVACIONES RACK AEROCONDENSADOR
PM27005-SRJC-PC-0806	RACK DE TUBERIAS-ESTRUCTURA PLANTAS RACK PRINCIPAL Y RACK TREN 1 Y 2
PM27005-SRJC-PF-0808	RACK DE TUBERIAS-ESTRUCTURA ELEVACIONES RACK PRINCIPAL
PM27005-SRJC-PF-0811	RACK DE TUBERIAS-ESTRUCTURA CONEXIONES TIPO Y PLACAS BASE
PM27005-SRJC-PF-0812	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 1
PM27005-SRJC-PF-0813	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 2
PM27005-SRJC-PF-0814	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 3

REV.	FECHA	DESCRIPCION	REVISO	APROBO
3	15/12/11	APROBADO PARA CONSTRUCCION REVISADO DONDE SE INDICA		
2	06/12/11	APROBADO PARA CONSTRUCCION REVISADO DONDE SE INDICA		
1	14/10/11	APROBADO PARA CONSTRUCCION REVISADO DONDE SE INDICA		
0	31/08/11	APROBADO PARA CONSTRUCCION		

REVISIONES

ESTADO DE DOCUMENTO COMO SE ANOTA
1 ☒ SOLO PARA INFORMACION
2 ☐ CONFORME SIN COMENTARIOS
3 ☐ CONFORME CON COMENTARIOS
4 ☐ NO CONFORME
5 ☐ TAL COMO SE CONSTRUYO

FECHA DE RECEPCION : | Revisado por Ing. Supervisor | Fecha:

IMPORTANTE :

NO. DE CONTROL

PROYECTO: PLANTA DE CICLO COMBINADO

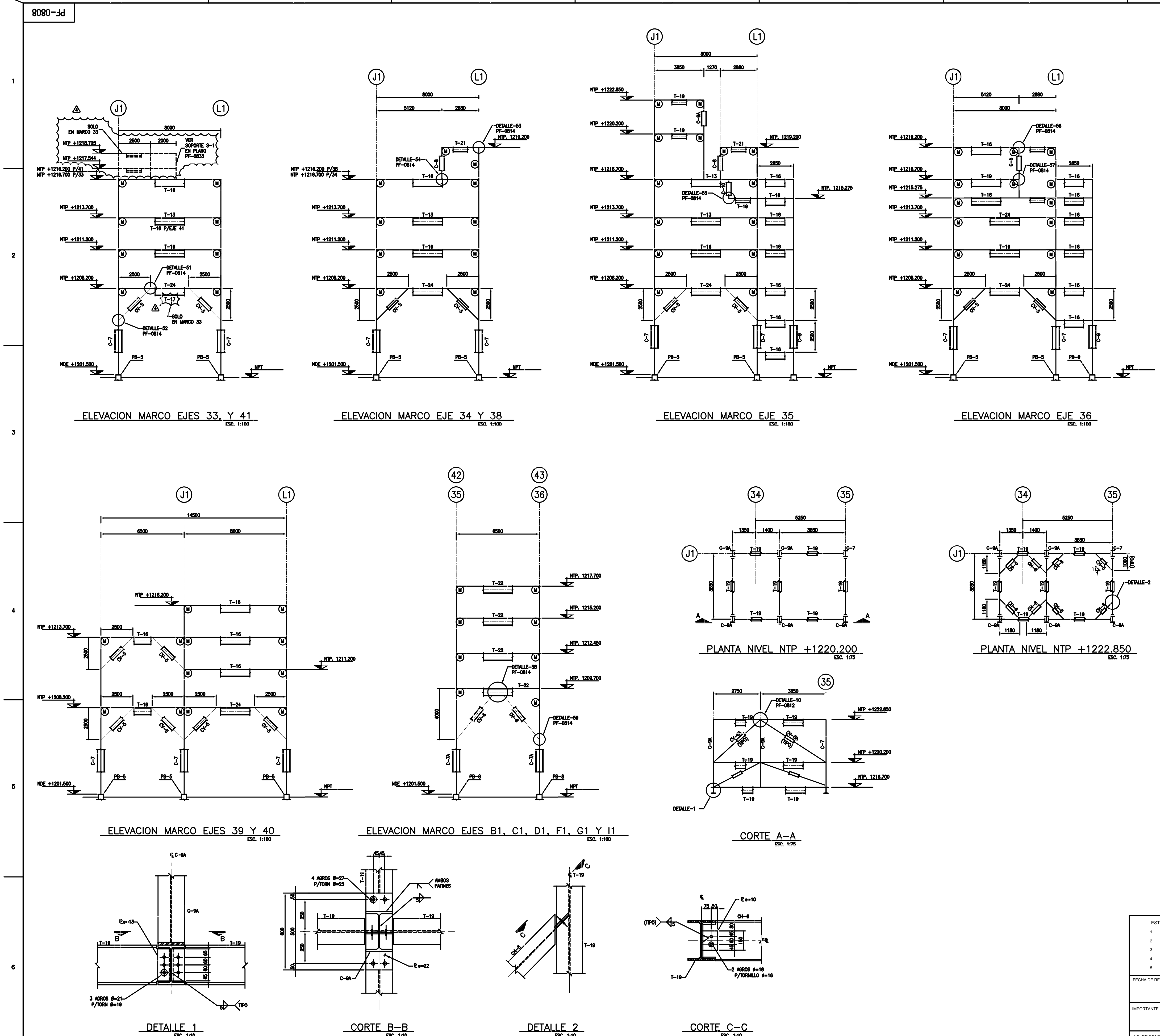
TITULO: RACK DE TUBERIAS ESTRUCTURA ELEVACIONES RACK PRINCIPAL Y RACK TREN 1 Y 2

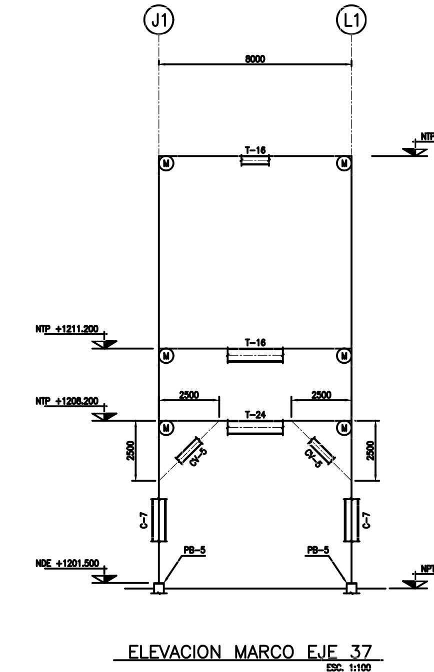
APROBADO	
COMPROBADO	
REALIZADO	GVZ
ESCALA	INDICADA
ORDEN DE COMPRA	ITEM

TITULO: RACK DE TUBERIAS ESTRUCTURA ELEVACION RACK PRINCIPAL Y RACK TREN 1 Y 2

DOCUMENTO DE PROYECTO No.: PM27005-SRJC-PF-0807 — REV. No. 3

DOCUMENTO SUMINISTRADOR No. — REV. No.





NOMENCLATURA

C.S.	CUERDA SUPERIOR
C.I.	CUERDA INFERIOR
AR	ARMADURA
PB	PLACA BASE
D	DIAGONAL
M	MONTANTE
NPT	NIVEL PISO TERMINADO
NTP	NIVEL TOPE DE PERFIL
NDE	NIVEL DESPLANTE DE ESTRUCTURA
C	COLUMNA
T	TRABE
CH	CONTRAVENTEO HORIZONTAL
CV	CONTRAVIENTO VERTICAL
M	CONEXION A MOMENTO
	REVISION

NOTAS:

1.– PARA NOTAS GENERALES, ABREVIATURAS Y SIMBOLOGIA VER PLANO CFE-PM27005-SRJC-PC-0875.
2.– DIMENSIONES EN MILIMETROS.
3.– NIVELES Y COORDENADAS EN METROS.
4.– TODAS LAS DIMENSIONES SON SIMETRICAS CON RESPECTO A LAS LINEAS DEL CENTRO, EXCEPTO QUE SE INDIQUE LO CONTRARIO.
5.– ACERO ESTRUCTURAL ASTM A-36.
6.– TORNILLERIA ASTM A-325 TIPO 1 GALVANIZADOS ò TIPO 3.
7.– ESTE PLANO ES DE DISEÑO Y EN BASE A ESTE SE DEBEN ELABORAR PLANOS DE TALLER QUE CUMPLAN CON LOS REQUISITOS DEL AISC-LRDF Y AWS COMO MINIMO.
8.– LA DESCRIPCIÓN DE LOS PERFILES CORRESPONDE CON LA INDICADA EN EL "MANUAL DE CONSTRUCCIÓN EN ACERO" DEL INSTITUTO MEXICANO DE LA CONSTRUCCIÓN EN ACERO (IMCA)
9.– NO TOMAR MEDIDAS A ESCALA, LAS COTAS RIGEN AL DIBUJO
10.– TRABAJAR ESTE PLANO EN CONJUNTO CON LOS PLANOS DE REFERENCIA
11.– VER CONEXIONES A CORTANTE Y A MOMENTO DE LA ESTRUTURA PRINCIPAL EN PLANO PF-0811

PLANOS DE REFERENCIA

PM27005-SRJC-PF-0803	RACK DE TUBERIAS-ESTRUCTURA PLANTAS RACK DE P.T.A. Y RACK DE SERVICIOS
PM27005-SRJC-PF-0804	RACK DE TUBERIAS-ESTRUCTURA PLANTAS RACK DE P.T.A. Y RACK DE SERVICIOS
PM27005-SRJC-PC-0805	RACK DE TUBERIAS-ESTRUCTURA PLANTAS Y ELEVACIONES RACK AEROCONDENSADOR
PM27005-SRJC-PC-0806	RACK DE TUBERIAS-ESTRUCTURA PLANTAS RACK PRINCIPAL Y RACK TREN 1 Y 2
PM27005-SRJC-PF-0807	RACK DE TUBERIAS-ESTRUCTURA ELEVACION RACK PRINCIPAL Y RACK TREN 1 Y 2
PM27005-SRJC-PF-0811	RACK DE TUBERIAS-ESTRUCTURA CONEXIONES TIPO Y PLACAS BASE
PM27005-SRJC-PF-0812	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 1
PM27005-SRJC-PF-0813	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 2
PM27005-SRJC-PF-0814	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 3

REV.	FECHA	DESCRIPCION	REVISO	APROBO
4	15/12/11	APROBADO PARA CONSTRUCCION REVISADO DONDE SE INDICA		
3	05/12/11	APROBADO PARA CONSTRUCCION REVISADO DONDE SE INDICA		
2	28/10/11	APROBADO PARA CONSTRUCCION REVISADO DONDE SE INDICA		
1	26/10/11	APROBADO PARA CONSTRUCCION REVISADO DONDE SE INDICA		
0	31/08/11	APROBADO PARA CONSTRCCUION		

R E V I S I O N E S

ESTADO DE DOCUMENTO COMO SE ANOTA

1 ☒ SOLO PARA INFORMACION
2 ☐ CONFORME SIN COMENTARIOS
3 ☐ CONFORME CON COMENTARIOS
4 ☐ NO CONFORME
5 ☐ TAL COMO SE CONSTRUYO

FECHA DE RECEPCION :

Revisado por Ing. Supervisor

Fecha:

IMPORTANTE :

NO. DE CONTROL

PROYECTO: PLANTA DE CICLO COMBINADO

TITULO: RACK DE TUBERIAS ESTRUCTURA ELEVACIONES RACK PRINCIPAL

APROBADO

COMPROBADO

REALIZADO GVZ

ESCALA 1:100

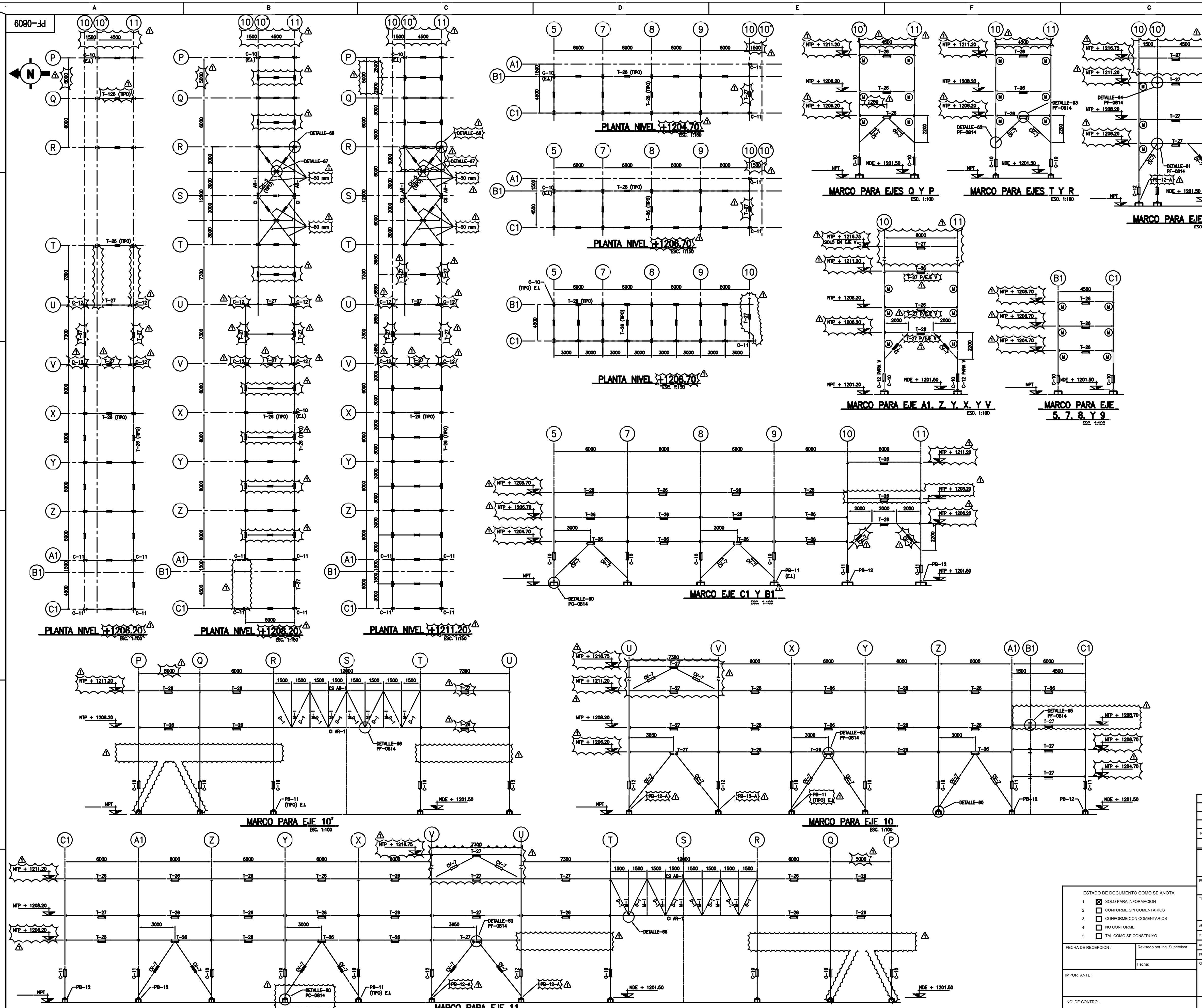
ORDEN DE COMPRA

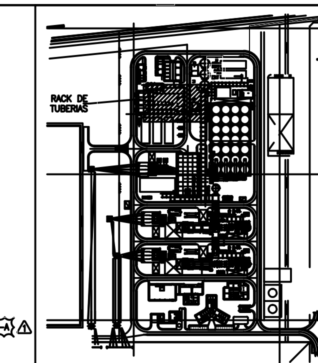
ITEM

TITULO: RACK DE TUBERIAS ESTRUCTURA ELEVACIONES RACK PRINCIPAL

DOCUMENTO DE PROYECTO No. PM27005-SRJC-PF-0808 REV. No. 4

DOCUMENTO SUMINISTRADOR No. REV. No.





CROQUIS DE LOCALIZACION

TABLA DE PERFILES

MARCA	PERFIL	PESO k/m	d	bf	tf	tw
C-10	IR.-457	144.3	472	283	22.1	13.6
C-11	IR.-457	177.8	482	286	26.9	16.6
C-12	IR.-610	285.71	650	329	38.1	22.2
T-26	IR.-356	79.0	354	205	16.8	9.4
T-27	IR.-457	144.3	472	283	22.1	13.6
CV-7	IR.-254	44.8	266	148	13.0	7.6

AR-1

MARCA	PERFIL	PESO k/m	d	bf	tf	tw
C.S.-1	IR.-356	79.0	354	205	16.8	9.4
C.I.-1	IR.-356	79.0	354	205	16.8	9.4
CH-5	IR.-203	26.6	207	133	8.4	5.8
M-1	IR.-152	22.4	152	152	6.6	5.8
D-1	2LI.-76x10	9.08				

NOMENCLATURA

C.S.	CUERDA SUPERIOR
C.I.	CUERDA INFERIOR
AR	ARMADURA
PB	PLACA BASE
D	DIAGONAL
M	MONTANTE
NPT	NIVEL PISO TERMINADO
NTP	NIVEL TOPE DE PERFIL
NDE	NIVEL DESPLANTE DE ESTRUCTURA
C	COLUMNA
T	TRABE
CH	CONTRAVENTEO HORIZONTAL
CV	CONTRAVIENTO VERTICAL
M	CONEXION A MOMENTO
-50 mm	POR DEBAJO DEL NIVEL TOPE DE ESTRUCTURA
	REVISION

NOTAS:

1.- PARA NOTAS GENERALES, ABREVIATURAS Y SIMBOLOGIA VER PLANO CFE-PM27005-SRJC-PC-0875.
2.- DIMENSIONES EN MILIMETROS.
3.- NIVELES Y COORDENADAS EN METROS.
4.- TODAS LAS DIMENSIONES SON SIMETRICAS CON RESPECTO A LAS LINEAS DEL CENTRO, EXCEPTO QUE SE INDIQUE LO CONTRARIO.
5.- ACERO ESTRUCTURAL ASTM A-36.
6.- TORNILLERIA ASTM A-325 TIPO 1 GALVANIZADOS ò TIPO 3.
7.- ESTE PLANO ES DE DISEÑO Y EN BASE A ESTE SE DEBEN ELABORAR PLANOS DE TALLER QUE CUMPLAN CON LOS REQUISITOS DEL AISC-LRDF Y AWS COMO MINIMO.
8.- LA DESCRIPCIÓN DE LOS PERFILES CORRESPONDE CON LA INDICADA EN EL "MANUAL DE CONSTRUCCIÓN EN ACERO" DEL INSTITUTO MEXICANO DE LA CONSTRUCCIÓN EN ACERO (IMCA)
9.- NO TOMAR MEDIDAS A ESCALA, LAS COTAS RIGEN AL DIBUJO
10.- TRABAJAR ESTE PLANO EN CONJUNTO CON LOS PLANOS DE REFERENCIA
11.- VER CONEXIONES A CORTANTE Y A MOMENTO DE LA ESTRUTURA PRINCIPAL EN PLANO PF-0811

PLANOS DE REFERENCIA

PM27005-SRJC-PF-0803	RACK DE TUBERIAS - ESTRUCTURA PLANTAS RACK DE P.T.A Y RACK DE SERVICIOS
PM27005-SRJC-PF-0804	RACK DE TUBERIAS-ESTRUCTURA PLANTAS RACK DE P.T.A Y RACK DE SERVICIOS
PM27005-SRJC-PC-0805	RACK DE TUBERIAS-ESTRUCTURA PLANTAS Y ELEVACIONES RACK AEROCONDENSADOR
PM27005-SRJC-PC-0806	RACK DE TUBERIAS-ESTRUCTURA PLANTAS RACK PRINCIPAL Y RACK TREN 1 Y 2
PM27005-SRJC-PF-0807	RACK DE TUBERIAS-ESTRUCTURA ELEVACION RACK PRINCIPAL Y RACK TREN 1 Y 2
PM27005-SRJC-PF-0808	RACK DE TUBERIAS-ESTRUCTURA ELEVACIONES RACK PRINCIPAL
PM27005-SRJC-PF-0810	RACK DE TUBERIAS-CIMENTACION RACK DEL AEREOENFRIADOR AUXILIAR
PM27005-SRJC-PF-0811	RACK DE TUBERIAS-ESTRUCTURA CONEXIONES TIPO Y PLACAS BASE
PM27005-SRJC-PF-0812	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 1
PM27005-SRJC-PF-0813	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 2
PM27005-SRJC-PF-0814	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 3

REVISIONES

REV.	FECHA	DESCRIPCION	REVISO	APROBO
1	27/10/11	APROBADO PARA CONSTRUCCION REVISADO SEGUN DONDE SE INDICA		
0	31/08/11	APROBADO PARA CONSTRUCCION		

ESTADO DE DOCUMENTO COMO SE ANOTA

1 ☒ SOLO PARA INFORMACION
2 ☐ CONFORME SIN COMENTARIOS
3 ☐ CONFORME CON COMENTARIOS
4 ☐ NO CONFORME
5 ☐ TAL COMO SE CONSTRUYO

FECHA DE RECEPCION :
Revisado por Ing. Supervisor
Fecha:
IMPORTANTE :
NO. DE CONTROL

PROYECTO: PLANTA DE CICLO COMBINADO

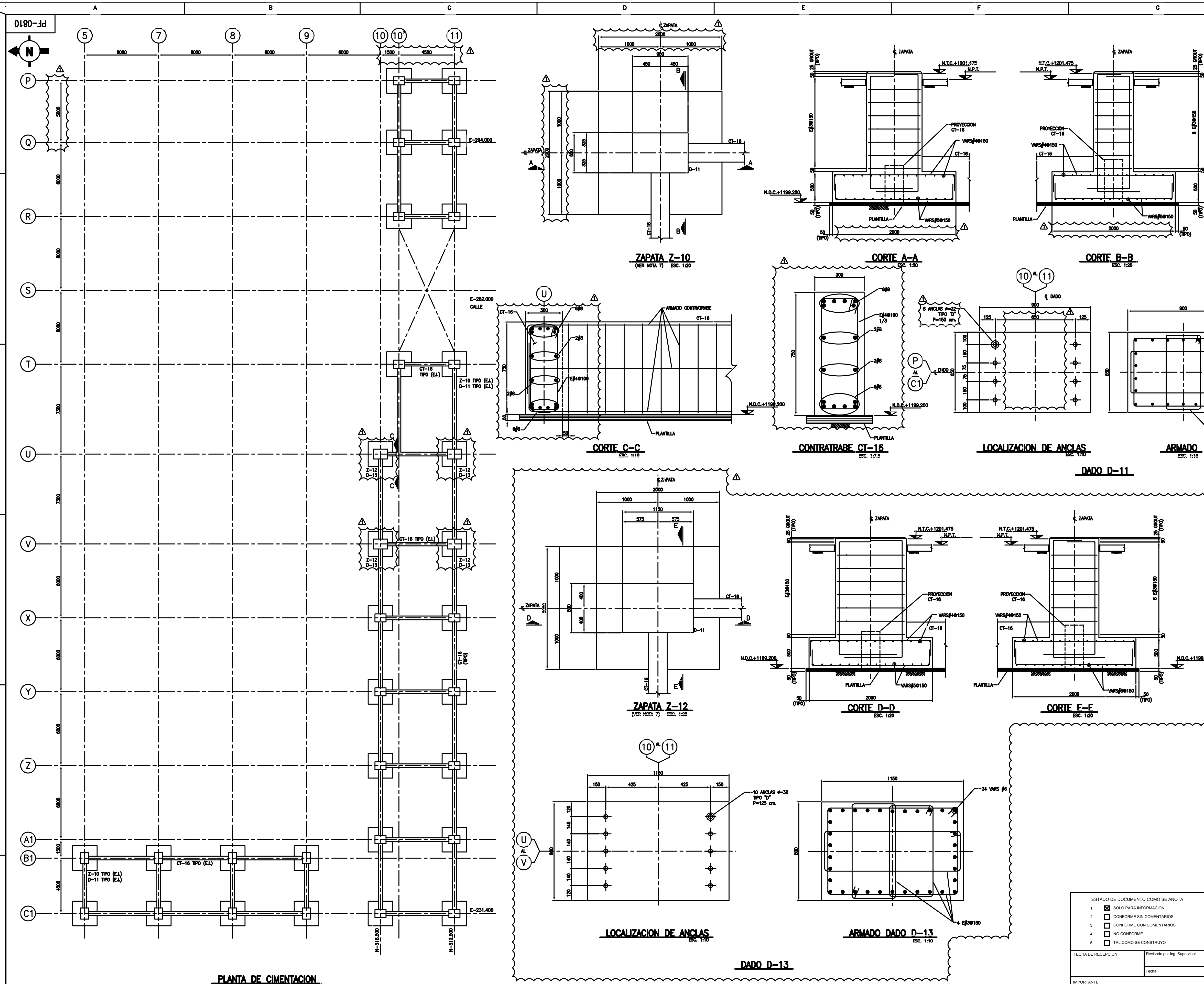
TITULO: RACK DE TUBERIAS ESTRUCTURA RACK DEL AEROENFRIADOR AUXILIAR

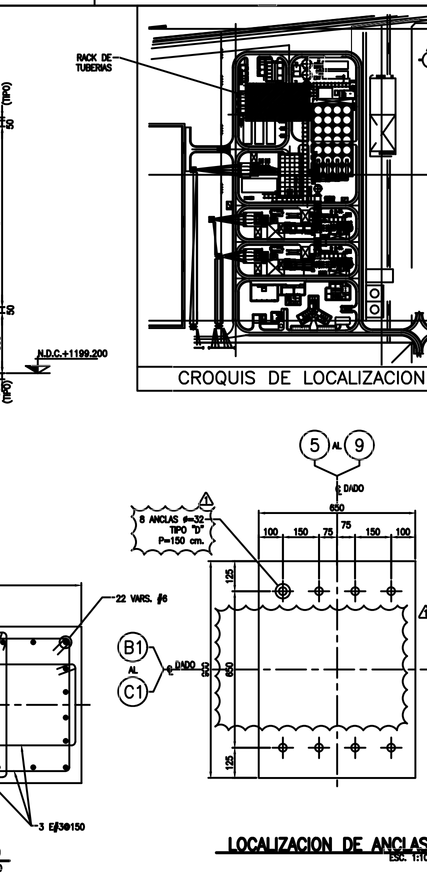
APROBADO
COMPROBADO
REALIZADO GVZ
ESCALA INDICADA
ORDEN DE COMPRA
ITEM

TITULO: RACK DE TUBERIAS ESTRUCTURA RACK DEL AEROENFRIADOR AUXILIAR

DOCUMENTO DE PROYECTO No. PM27005-SRJC-PF-0809 REV. No. 1
DOCUMENTO SUMINISTRADOR No. REV. No.

DIN A-0





NOMENCLATURA:

Z	ZAPATA
CT.	CONTRATRABE
D	DADO
N.D.C.	NIVEL DESPLANTE DE CIMENTACION
N.P.T.	NIVEL DE PISO TERMINADO
N.T.C.	NIVEL TOPE DE CONCRETO
E.I.	EXCEPTO INDICADO

CALIDAD DE MATERIALES:

CONCRETO PARA ZAPATAS Y DADOS ——— f'c = 24.5 MPa. = 250 kg/cm2.
CONCRETO PARA PLANTILLA ——— f'c = 9.8 MPa. = 100 kg/cm2.
ACERO DE REFUERZO ——— Fy = 412 MPa. = 4200 kg/cm2.
ANCLAJE ——— A-36

NOTAS:

1.- DIMENSIONES EN MILIMETROS.
2.- NIVELES EN METROS.
3.- LAS COTAS DE NIVEL ESTAN REFERIDAS AL PUNTO DE REFERENCIA CON EL SISTEMA DE COORDENADAS LOCALES.
4.- VER ANCLAJES Y TRASLAPES DE VARILLAS EN PLANO: CFE-PM27005-SRJC-PC-0885.
5.- VER NOTAS GENERALES PARA ESTRUCTURA DE CONCRETO EN PLANO: CFE-PM27005-SRJC-PC-0870.
6.- TRABAJAR ESTE PLANO EN CONJUNTO CON LOS PLANOS DE REFERENCIA.
7.- LA ORIENTACION DEL DADO SE REALIZARA DE ACUERDO A LA ORIENTACION DE LA COLUMNA Y PLACA BASE VER PLANO PC-0811.

PLANOS REFERENCIA

PM27005-SRJC-PC-0800	RACK DE TUBERIAS CIMENTACION PLANTAS 1 DE 2
PM27005-SRJC-PC-0801	RACK DE TUBERIAS CIMENTACION PLANTAS 2 DE 2
PM27005-SRJC-PC-0870	NOTAS GENERALES DE CONCRETO
PM27005-SRJC-PC-0880	DETALLES TIPO DE ANCLAS
PM27005-SRJC-PC-0885	DETALLES TIPO DE DOBLEZ DE VARILLAS

REV.	FECHA	DESCRIPCION	REVISO	APROBO
1	27/10/11	APROBADO PARA CONSTRUCCION REVISADO DONDE SE INDICA		
0	23/08/11	APROBADO PARA CONSTRUCCION		

R E V I S I O N E S

ESTADO DE DOCUMENTO COMO SE ANOTA
1 ☒ SOLO PARA INFORMACION
2 ☐ CONFORME SIN COMENTARIOS
3 ☐ CONFORME CON COMENTARIOS
4 ☐ NO CONFORME
5 ☐ TAL COMO SE CONSTRUYO

FECHA DE RECEPCION :
Revisado por Ing. Supervisor
Fecha:
IMPORTANTE :
NO. DE CONTROL

PROYECTO: PLANTA DE CICLO COMBINADO

TITULO: RACK DE TUBERIAS CIMENTACION
RACK DEL AEROENFRIADOR AUXILIAR

APROBADO
COMPROBADO
REALIZADO GVZ
ESCALA INDICADA
ORDEN DE COMPRA
ITEM

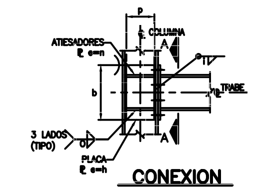
TITULO: RACK DE TUBERIAS CIMENTACION
RACK DEL AEROENFRIADOR AUXILIAR

DOCUMENTO DE PROYECTO No. PM27005-SRJC-PF-0810 REV. No. 1
DOCUMENTO SUMINISTRADOR No. REV. No.

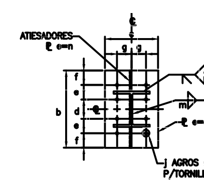
PF-0811

CONEXIONES A MOMENTO EN MARCOS PRINCIPALES

COLUMNA	TRABE	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	OBSERVACIONES
IR 305x59.80	IR 254x38.5	19	400	203	180	70	40	45			8	22	19	5	13	5		EJES DEL C AL K
IR 305x79	IR 254x49.2	22	400	254	140	90	40	70	25	5	8	25	22	5	16	5	213	EJES DEL 1 AL 6 Y EJE N
IR 356x110.4	IR 305x74.4	29	500	256	200	100	50	70			8	27	25	5	19	6		EJES DEL 5 AL 22
IR 457x144.30	IR 305x44.5	29	550	280	210	100	70	70			8	25	22	5	16	6		EJES DEL 23 AL 28
IR 457x144.30	IR 305x74.4	29	550	280	210	100	70	70			8	25	22	5	16	6		EJES DEL P1 AL S1 Y EJES DEL 23 AL 28
IR 457x128.10	IR 457x144.30	29	700	280	330	115	70	70			8	32	28	5	16	6		EJES J1 Y L1
IR 457x105.3	IR 305x74.4	25	500	205	195	100	52.5	70			8	21	19	5	16	6		EJES DEL M1 AL O
IR 457x128.10	IR 305x74.4	25	500	205	195	100	52.5	70			8	32	28	5	16	5	364	EJES DEL 32 AL 43
IR 457x144.30	IR 305x59.8	25	500	280	160	100	70	70			8	21	19	5	13	5		EJES DEL 32 AL 43
IR 457x128.10	IR 356x101.3	32	600	281	320	120	70	70	16	6	8	38	32	6	16	6		EJES DEL B1 AL J1
IR 457x144.30	IR 356x79.0	32	600	270	210	120	75	70			8	38	32	6	16	6		RACK DE ENFRIAMINETO
IR 457x144.30	IR 457x144.30	32	700	280	320	120	70	70			8	38	32	6	16	6		RACK DE ENFRIAMINETO
IR 610x285	IR 457x144.30	32	900	280	480	140	70	70			8	38	32	6	16	8		RACK DE ENFRIAMINETO
IR 457x128.10	IR 305x96.7	25	550	310	210	120	70	70	16	6	8	30	28	5	16	6		RACK DE ENFRIAMINETO N.-S.
IR 457x128.10	IR 305x52.2	25	550	280	210	100	70	70			8	21	19	6	13	5		RACK DE ENFRIAMINETO N.-S.



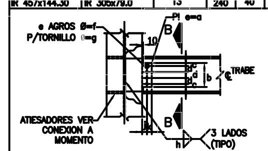
CONEXION A MOMENTO
SIN/ESC.



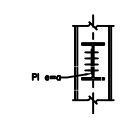
CORTE A-A
SIN/ESC.

CONEXIONES A CORTANTE EN MARCOS PRINCIPALES

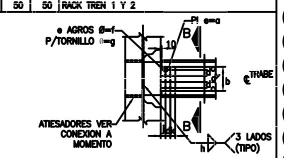
	COLUMNA	TRABE	a	b	c	d	e	f	g	h	j	k	OBSERVACIONES
	IR 305x59.8	IR 254x38.5	13	200	50	50	3	18	16	6	50	50	EJES 1 Y 2 (NIV. 1204.700)
	IR 305x79	IR 254x49.2	13	190	35	60	3	24	22	6	50	50	EJES L Y M
	IR 356x110.40	IR 305x52.20	13	230	45	70	3	18	16	6	50	50	EJES Ñ, O, DEL 5 AL 22 (NIV. 1205.700)
	IR 457x144.30	IR 305x44.5	13	230	45	70	3	24	22	6	50	50	EJES Ñ Y O DEL 5 AL 22 (AR-1)
	IR 457x144.30	IR 305x74.4	13	230	45	70	3	21	19	6	50	50	EJES 35, 36, 42, Y 43, EJES Ñ Y O DEL 22 AL 30
	IR 457x144.30	IR 305x59.8	13	240	40	75	3	27	25	6	50	50	EJES 35, 36, 42 Y 43 TREN 1 Y TREN 2)
	IR 457x128.10	IR 305x74.4	13	230	45	70	3	24	22	6	50	50	EJES RACK PRINCIPAL ESTE-OESTE
	IR 457x144.30	IR 457x144.30	13	250	50	75	4	27	25	6	50	50	RACK AEROENFRIADOR
	IR 457x112.9	IR 305x74.4	13	230	45	70	3	24	22	6	50	50	RACK PRINCIPAL ESTE-OESTE DE O S1
*	IR 457x144.30	IR 356x79.0	13	250	45	75	6	27	25	6	50	75	AEROENFRIADOR
	IR 305x59.80	IR 305x52.20	13	230	45	70	3	18	16	6	50	50	EJES 1 Y 2 (NIV. 1206.200)
	IR 356x110.40	IR 356x63.80	13	250	50	75	3	21	19	6	50	50	EJES Ñ Y O DE 5 AL 22 (NIV.1207.700)
	IR 457x112.90	IR 356x110.40	13	250	50	75	3	21	19	6	50	50	EJES 31 Y 32 ENTRE O Y P1
	IR 457x128.10	IR 457x96.70	13	370	65	80	4	27	25	6	50	75	RACK PRINCIPAL ESTE-OESTE N1 A O (30 Y 32)
	IR 305x86.10	IR 356x101.30	13	280	60	80	3	27	25	6	50	75	RACK ELECTRICO, EJES 29, 31 Y 32
	IR 457x128.10	IR 305x52.20	13	230	45	70	3	24	22	6	50	50	RACK PRINCIPAL N-S EJES J1 Y L1
	IR 457x128.10	IR 305x74.40	13	230	40	75	3	27	25	6	50	75	RACK PRINCIPAL N-S
	IR 254x44.80	IR 254x44.8	13	200	50	50	3	18	16	6	50	50	RACK PRINCIPAL N-S
	IR 457x144.30	IR 305x79.0	13	240	40	75	3	27	25	6	50	50	RACK TREN 1 Y 2



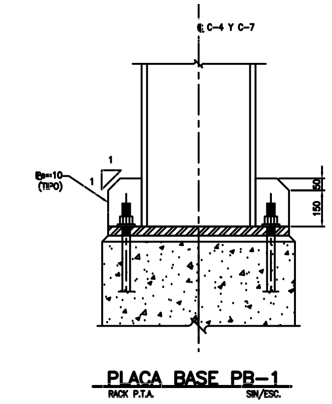
CONEXION A CORTANTE
SIN/ESC.



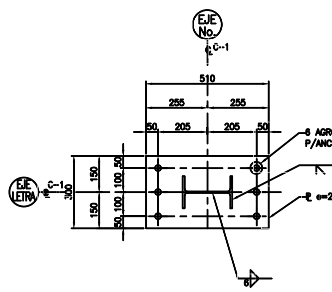
CORTE B-B
SIN/ESC.



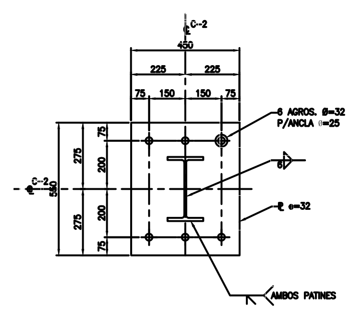
* CONEXION A CORTANTE
SIN/ESC.



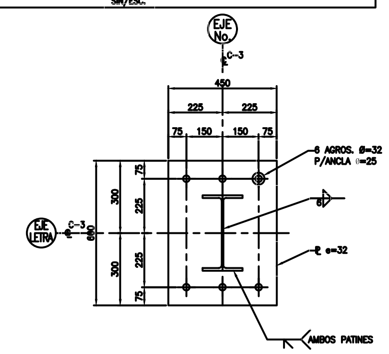
PLACA BASE PB-1
RACK P.T.A. SIN/ESC.



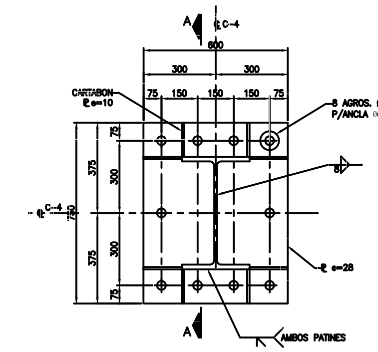
PLACA BASE PB-1
RACK P.T.A. SIN/ESC.



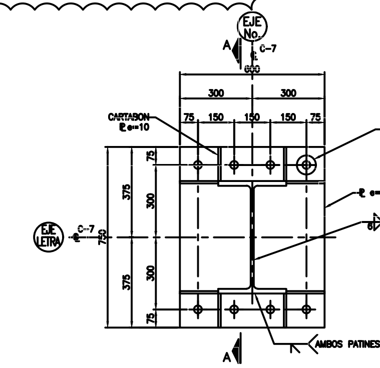
PLACA BASE PB-2
RACK DE SERVICIOS SIN/ESC.



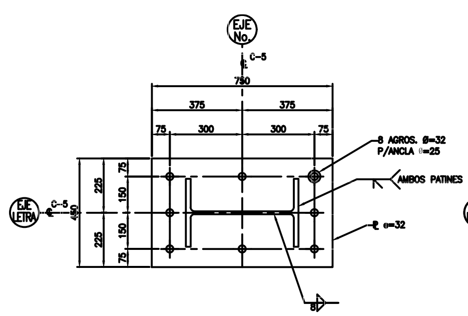
PLACA BASE PB-3
RACK DE SERVICIOS SIN/ESC.



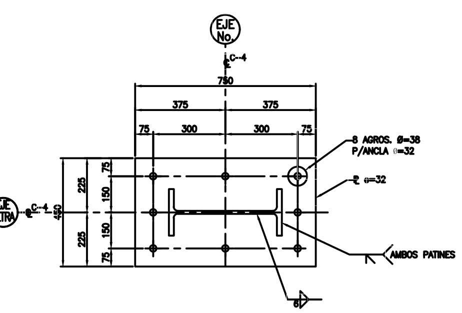
PLACA BASE PB-4
RACK DE SERVICIOS SIN/ESC.



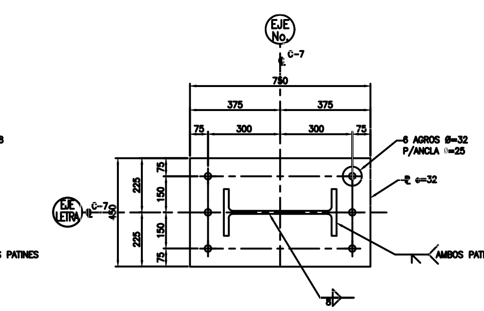
PLACA BASE PB-5
RACK PRINCIPAL (N-S) SIN/ESC.



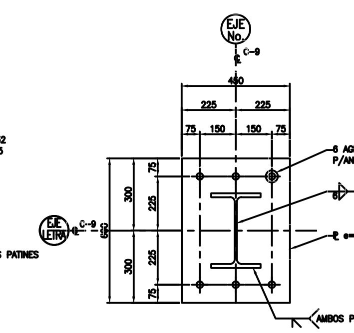
PLACA BASE PB-6
RACK PRINCIPAL (E-W) SIN/ESC.



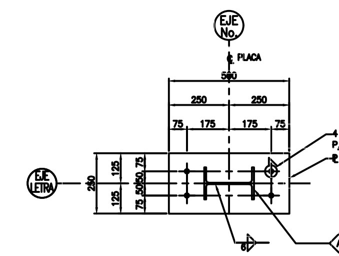
PLACA BASE PB-7
RACK PRINCIPAL (E-W) SIN/ESC.



PLACA BASE PB-8
RACK TREN 1 Y TREN 2 SIN/ESC.



PLACA BASE PB-9
ESCALERAS SIN/ESC.



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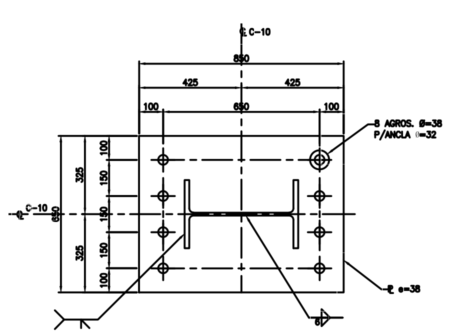
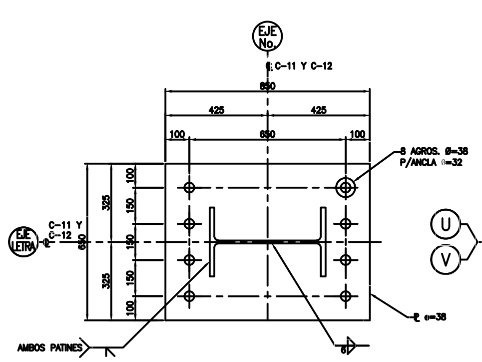
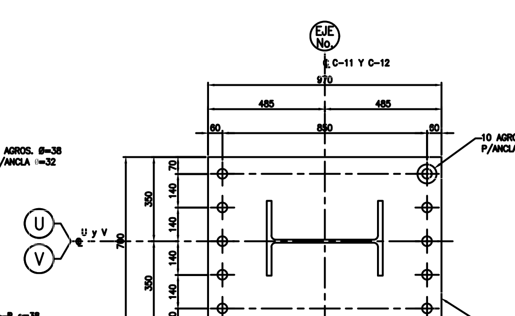
ESCALERAS SIN/ESC.



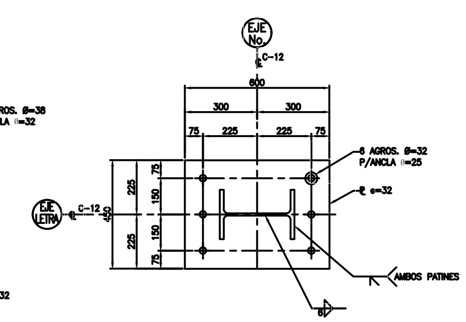
PLACA BASE PB-11
RACK AEROENFRIADOR SIN/ESC.



PLACA BASE PB-12
RACK AEROENFRIADOR SIN/ESC.



PLACA BASE PB-12A
RACK AEROENFRIADOR SIN/ESC.



PLACA BASE PB-13
RACK AEROENFRIADOR (E-W) SIN/ESC.

NOMENCLATURA

C.S.	CUERDA SUPERIOR
C.I.	CUERDA INFERIOR
AR	ARMADURA
PB	PLACA BASE
D	DIAGONAL
M	MONTANTE
NPT	NIVEL PISO TERMINADO
NTP	NIVEL TOPE DE PERFIL
NDE	NIVEL DESPLANTE DE ESTRUCTURA
C	COLUMNA
T	TRABE
CH	CONTRAVENTEO HORIZONTAL
CV	CONTRAVIENTO VERTICAL
M	CONEXION A MOMENTO
JE	JUNTA DE EXPANSION
	REVISION
	PENDIENTE

NOTAS:

1.- PARA NOTAS GENERALES, ABREVIATURAS Y SIMBOLOGIA VER PLANO CFE-PM27005-SRJC-PC-0875.
2.- DIMENSIONES EN MILIMETROS.
3.- NIVELES Y COORDENADAS EN METROS.
4.- TODAS LAS DIMENSIONES SON SIMETRICAS CON RESPECTO A LAS LINEAS DEL CENTRO, EXCEPTO QUE SE INDIQUE LO CONTRARIO.
5.- ACERO ESTRUCTURAL ASTM A-36.
6.- TORNILLERIA ASTM A-325 TIPO 1 GALVANIZADOS ò TIPO 3.
7.- ESTE PLANO ES DE DISEÑO Y EN BASE A ESTE SE DEBEN ELABORAR PLANOS DE TALLER QUE CUMPLAN CON LOS REQUISITOS DEL AISC-LRDF Y AWS COMO MINIMO.
8.- LA DESCRIPCIÓN DE LOS PERFILES CORRESPONDE CON LA INDICADA EN EL "MANUAL DE CONSTRUCCIÓN EN ACERO" DEL INSTITUTO MEXICANO DE LA CONSTRUCCIÓN EN ACERO (IMCA).
9.- NO TOMAR MEDIDAS A ESCALA, LAS COTAS RIGEN AL DIBUJO.
10.- TRABAJAR ESTE PLANO EN CONJUNTO CON LOS PLANOS DE REFERENCIA.
11.- ORIENTACION DE LA PLACA DE ACUERDO A ORIENTACION DE DADO Y COLUMNA VER EN PLANOS CORRESPONDIENTES.

PLANOS DE REFERENCIA

PM27005-SRJC-PF-0803	RACK DE TUBERIAS-ESTRUCTURA PLANTAS RACK DE P.T.A. Y RACK DE SERVICIOS
PM27005-SRJC-PC-0805	RACK DE TUBERIAS-ESTRUCTURA PLANTAS Y ELEVACIONES RACK AEROCONDENSADOR
PM27005-SRJC-PC-0806	RACK DE TUBERIAS-ESTRUCTURA PLANTAS RACK PRINCIPAL Y RACK TREN 1 Y 2
PM27005-SRJC-PF-0807	RACK DE TUBERIAS-ESTRUCTURA ELEVACION RACK PRINCIPAL Y RACK TREN 1 Y 2
PM27005-SRJC-PF-0808	RACK DE TUBERIAS-ESTRUCTURA ELEVACIONES RACK PRINCIPAL
PM27005-SRJC-PF-0812	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 1
PM27005-SRJC-PF-0813	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 2
PM27005-SRJC-PF-0814	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 3

REV.	FECHA	DESCRIPCION	REVISO	APROBO
2	12/12/11	APROBADO PARA CONSTRUCCION REVISADO DONDE SE INDICA		
1	28/10/11	APROBADO PARA CONSTRUCCION REVISADO DONDE SE INDICA		
0	01/09/11	APROBADO PARA CONSTRUCCION		

REVISIONES

ESTADO DE DOCUMENTO COMO SE ANOTA
1 ☒ SOLO PARA INFORMACION
2 ☐ CONFORME SIN COMENTARIOS
3 ☐ CONFORME CON COMENTARIOS
4 ☐ NO CONFORME
5 ☐ TAL COMO SE CONSTRUYO

FECHA DE RECEPCION :
Revisado por Ing. Supervisor
Fecha:

IMPORTANTE :
La revision de CFE no releva al PROVEEDOR de su responsabilidad de acuerdo a lo establecido en el contrato.

NO. DE CONTROL DE CFE :

PROYECTO: PLANTA DE CICLO COMBINADO

TITULO: RACK DE TUBERIAS CONEXIONES TIPO Y PLACAS BASE

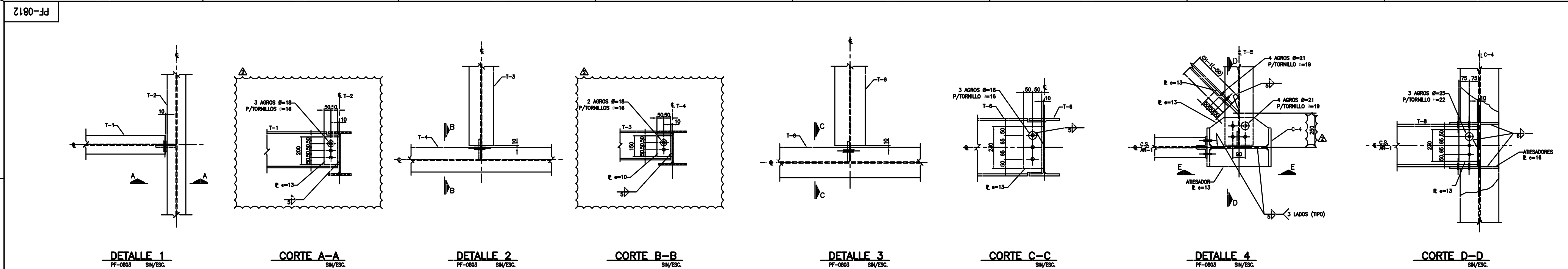
APROBADO JLL / RHC
COMPROBADO GPVR
REALIZADO AME / GVZ
ESCALA INDICADA
ORDEN DE COMPRA
ITEM

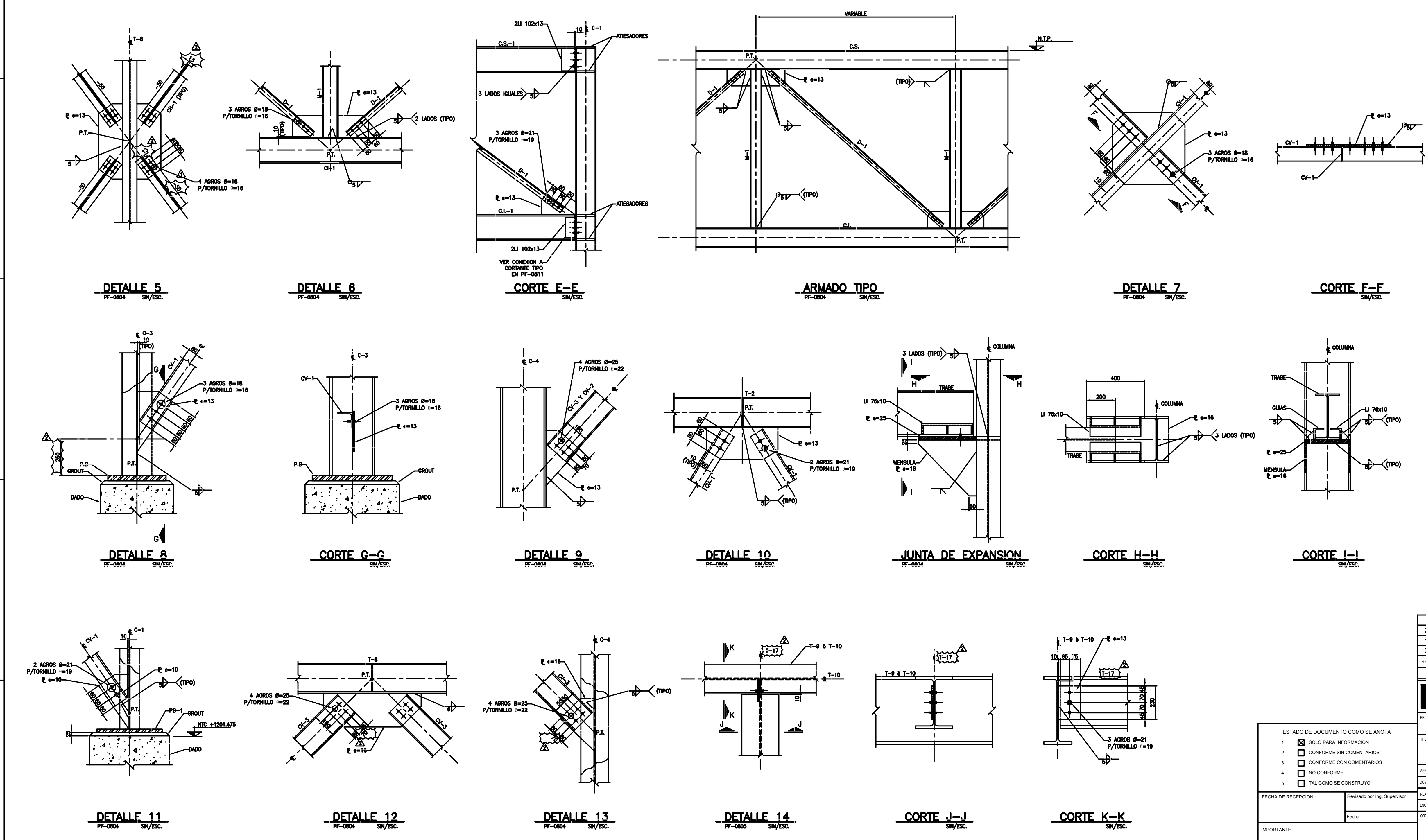
TITULO: RACK DE TUBERIAS CONEXIONES TIPO Y PLACAS BASE

DOCUMENTO DE PROYECTO No. PM27005-SRJC-PF-0811 REV. No. 2
DOCUMENTO SUMINISTRADOR No. REV. No.

DIN A-0

PF-0812





NOMENCLATURA

C.S.	CUERDA SUPERIOR
C.I.	CUERDA INFERIOR
AR	ARMADURA
PB	PLACA BASE
D	DIAGONAL
M	MONTANTE
NPT	NIVEL PISO TERMINADO
NTP	NIVEL TOPE DE PERFIL
NDE	NIVEL DESPLANTE DE ESTRUCTURA
C	COLUMNA
T	TRABE
CH	CONTRAVENTEO HORIZONTAL
CV	CONTRAVIENTO VERTICAL
M	CONEXION A MOMENTO
JE	JUNTA DE EXPANSION
−50	ABAJO DEL NIVEL TOPE DE ESTRUCTURA
	REVISION

NOTAS:

1.- PARA NOTAS GENERALES, ABREVIATURAS Y SIMBOLOGIA VER PLANO CFE-PM27005-SRJC-PC-0875.
2.- DIMENSIONES EN MILIMETROS.
3.- NIVELES Y COORDENADAS EN METROS.
4.- TODAS LAS DIMENSIONES SON SIMETRICAS CON RESPECTO A LAS LINEAS DEL CENTRO, EXCEPTO QUE SE INDIQUE LO CONTRARIO.
5.- ACERO ESTRUCTURAL ASTM A-36.
6.- TORNILLERIA ASTM A-325 TIPO 1 GALVANIZADOS ò TIPO 3.
7.- ESTE PLANO ES DE DISEÑO Y EN BASE A ESTE SE DEBEN ELABORAR PLANOS DE TALLER QUE CUMPLAN CON LOS REQUISITOS DEL AISC-LRDF Y AWS COMO MINIMO.
8.- LA DESCRIPCIÓN DE LOS PERFILES CORRESPONDE CON LA INDICADA EN EL "MANUAL DE CONSTRUCCIÓN EN ACERO" DEL INSTITUTO MEXICANO DE LA CONSTRUCCIÓN EN ACERO (IMCA)
9.- NO TOMAR MEDIDAS A ESCALA, LAS COTAS RIGEN AL DIBUJO
10.- TRABAJAR ESTE PLANO EN CONJUNTO CON LOS PLANOS DE REFERENCIA

PLANOS DE REFERENCIA

PM27005-SRJC-PF-0803	RACK DE TUBERIAS-ESTRUCTURA PLANTAS RACK DE P.T.A. Y RACK DE SERVICIOS
PM27005-SRJC-PC-0805	RACK DE TUBERIAS-ESTRUCTURA PLANTAS Y ELEVACIONES RACK AEROCONDENSADOR
PM27005-SRJC-PC-0806	RACK DE TUBERIAS-ESTRUCTURA PLANTAS RACK PRINCIPAL Y RACK TREN 1 Y 2
PM27005-SRJC-PF-0807	RACK DE TUBERIAS-ESTRUCTURA ELEVACION RACK PRINCIPAL Y RACK TREN 1 Y 2
PM27005-SRJC-PF-0808	RACK DE TUBERIAS-ESTRUCTURA ELEVACIONES RACK PRINCIPAL
PM27005-SRJC-PF-0811	RACK DE TUBERIAS-ESTRUCTURA CONEXIONES TIPO Y PLACAS BASE
PM27005-SRJC-PF-0813	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 2
PM27005-SRJC-PF-0814	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 3

REV.	FECHA	DESCRIPCION	REVISO	APROBO
2	05/01/12	APROBADO PARA CONSTRUCCION REVISADO DONDE SE INDICA		
1	28/10/11	APROBADO PARA CONSTRUCCION REVISADO SEGUN SE INDICA		
0	31/08/11	APROBADO PARA CONSTRUCCION		

R E V I S I O N E S

[redacted]

ESTADO DE DOCUMENTO COMO SE ANOTA
1 ☒ SOLO PARA INFORMACION
2 ☐ CONFORME SIN COMENTARIOS
3 ☐ CONFORME CON COMENTARIOS
4 ☐ NO CONFORME
5 ☐ TAL COMO SE CONSTRUYO

FECHA DE RECEPCION :
Revisado por Ing. Supervisor
Fecha:
IMPORTANTE :
NO. DE CONTROL

PROYECTO: PLANTA DE CICLO COMBINADO

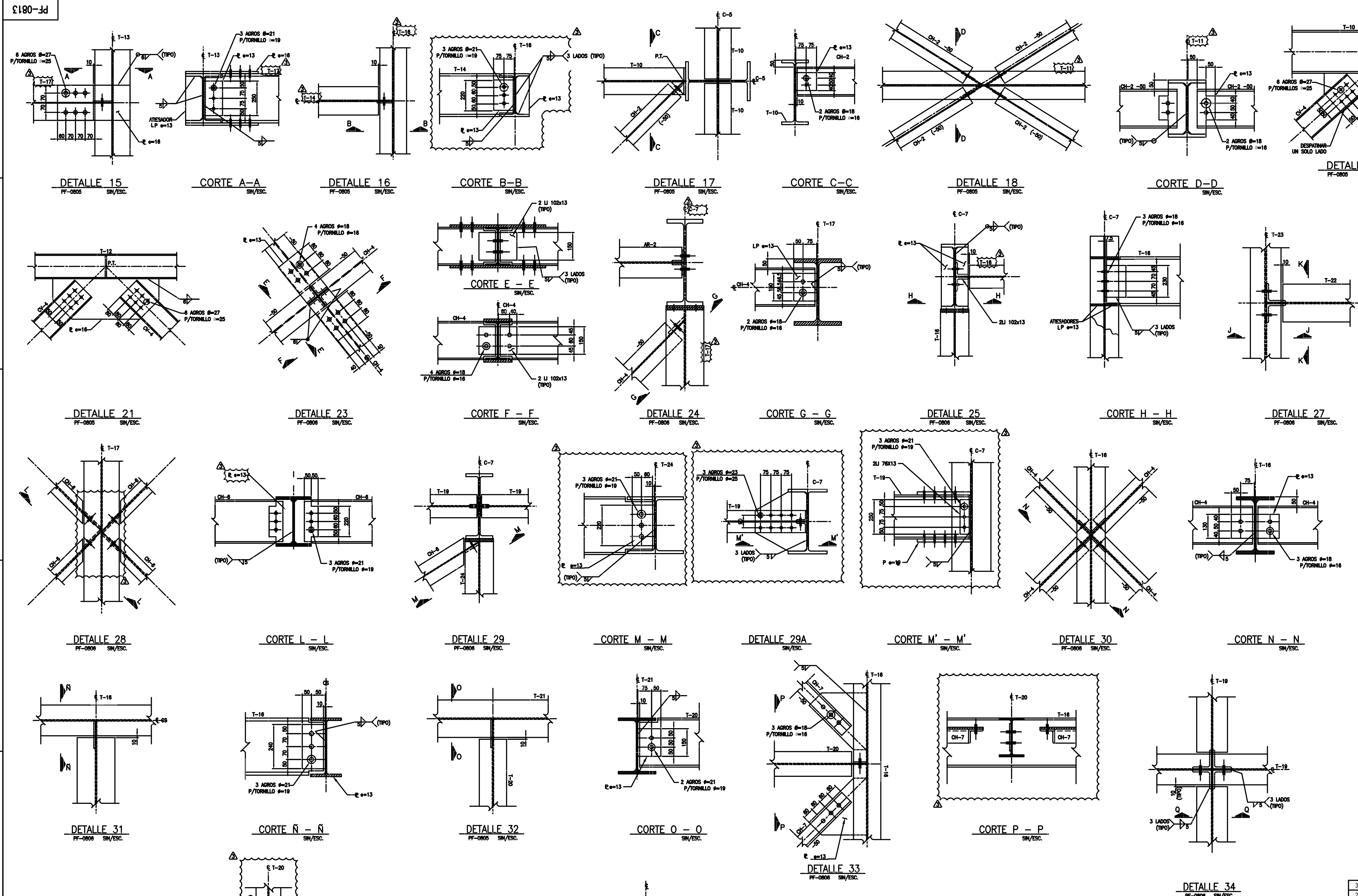
TITULO: RACK DE TUBERIAS
ESTRUCTURA CORTES Y DETALLES 1

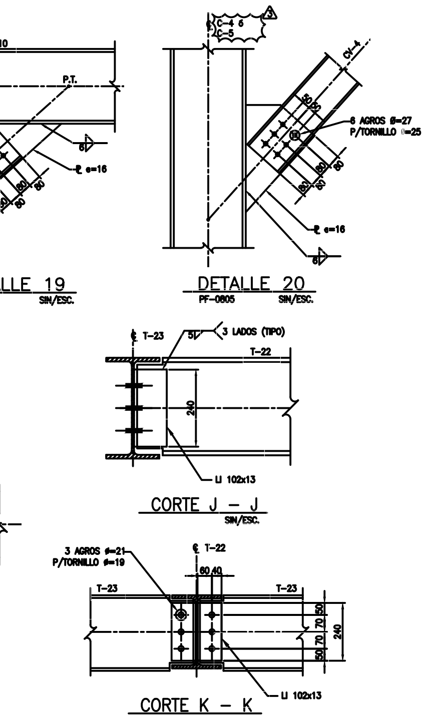
APROBADO
COMPROBADO
REALIZADO GVZ
ESCALA INDICADA
ORDEN DE COMPRA
ITEM

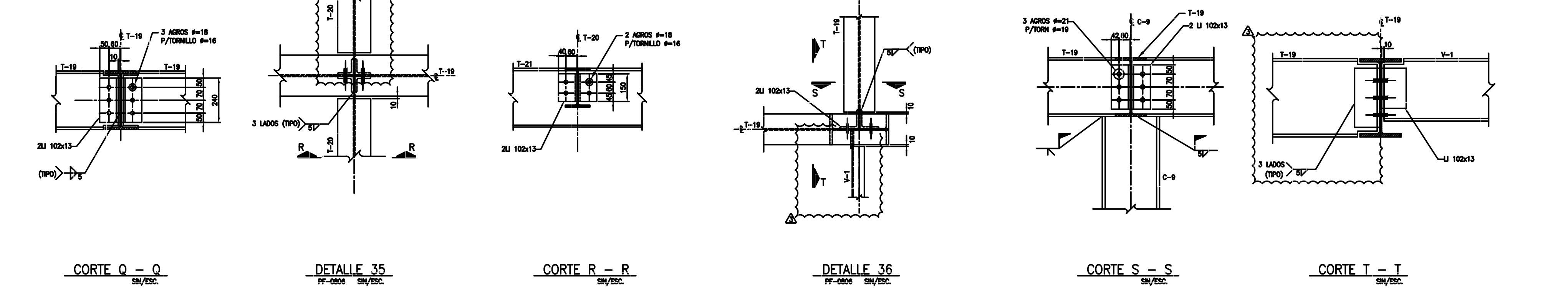
TITULO: RACK DE TUBERIAS
ESTRUCTURA CORTES Y DETALLES 1

DOCUMENTO DE PROYECTO No. PM27005-SRJC-PF-0812 REV. No. 2
DOCUMENTO SUMINISTRADOR No. REV. No.

DIN A-0







NOMENCLATURA

SIN/ESC.

C.S.	CUERDA SUPERIOR
C.I.	CUERDA INFERIOR
AR	ARMADURA
PB	PLACA BASE
D	DIAGONAL
M	MONTANTE
NPT	NIVEL PISO TERMINADO
NTP	NIVEL TOPE DE PERFIL
NDE	NIVEL DESPLANTE DE ESTRUCTURA
C	COLUMNA
T	TRABE
CH	CONTRAVENTEO HORIZONTAL
CV	CONTRAVIENTO VERTICAL
M	CONEXION A MOMENTO
JE	JUNTA DE EXPANSION
–50	ABAJO DEL NIVEL TOPE DE ESTRUCTURA
	REVISION

NOTAS:

1.– PARA NOTAS GENERALES, ABREVIATURAS Y SIMBOLOGIA VER PLANO CFE–PM27005–SRJC–PC–0875.
2.– DIMENSIONES EN MILIMETROS.
3.– NIVELES Y COORDENADAS EN METROS.
4.– TODAS LAS DIMENSIONES SON SIMETRICAS CON RESPECTO A LAS LINEAS DEL CENTRO, EXCEPTO QUE SE INDIQUE LO CONTRARIO.
5.– ACERO ESTRUCTURAL ASTM A–36.
6.– TORNILLERIA ASTM A–325 TIPO 1 GALVANIZADOS ó TIPO 3.
7.– ESTE PLANO ES DE DISEÑO Y EN BASE A ESTE SE DEBEN ELABORAR PLANOS DE TALLER QUE CUMPLAN CON LOS REQUISITOS DEL AISC–LRDF Y AWS COMO MINIMO.
8.– LA DESCRIPCIÓN DE LOS PERFILES CORRESPONDE CON LA INDICADA EN EL "MANUAL DE CONSTRUCCIÓN EN ACERO" DEL INSTITUTO MEXICANO DE LA CONSTRUCCIÓN EN ACERO (IMCA)
9.– NO TOMAR MEDIDAS A ESCALA, LAS COTAS RIGEN AL DIBUJO
10.– TRABAJAR ESTE PLANO EN CONJUNTO CON LOS PLANOS DE REFERENCIA

PLANOS DE REFERENCIA

PM27005–SRJC–PF–0803	RACK DE TUBERIAS–ESTRUCTURA PLANTAS RACK DE P.T.A. Y RACK DE SERVICIOS
PM27005–SRJC–PC–0805	RACK DE TUBERIAS–ESTRUCTURA PLANTAS Y ELEVACIONES RACK AEROCONDENSADOR
PM27005–SRJC–PC–0806	RACK DE TUBERIAS–ESTRUCTURA PLANTAS RACK PRINCIPAL Y RACK TREN 1 Y 2
PM27005–SRJC–PF–0807	RACK DE TUBERIAS–ESTRUCTURA ELEVACION RACK PRINCIPAL Y RACK TREN 1 Y 2
PM27005–SRJC–PF–0808	RACK DE TUBERIAS–ESTRUCTURA ELEVACIONES RACK PRINCIPAL
PM27005–SRJC–PF–0811	RACK DE TUBERIAS–ESTRUCTURA CONEXIONES TIPO Y PLACAS BASE
PM27005–SRJC–PF–0812	RACK DE TUBERIAS–ESTRUCTURA CORTES Y DETALLES 1
PM27005–SRJC–PF–0814	RACK DE TUBERIAS–ESTRUCTURA CORTES Y DETALLES 3

REV.	FECHA	DESCRIPCION	REVISO	APROBO
3	06/01/12	APROBADO PARA CONSTRUCCION REVISADO DONDE SE INDICA		
2	15/12/11	APROBADO PARA CONSTRUCCION REVISADO SEGUN SE INDICA		
1	28/10/11	APROBADO PARA CONSTRUCCION REVISADO SEGUN SE INDICA		
0	31/08/11	PARA REVISION INTERNA		

REVISIONES

ESTADO DE DOCUMENTO COMO SE ANOTA

1 ☒ SOLO PARA INFORMACION
2 ☐ CONFORME SIN COMENTARIOS
3 ☐ CONFORME CON COMENTARIOS
4 ☐ NO CONFORME
5 ☐ TAL COMO SE CONSTRUYO

FECHA DE RECEPCION :

Revisado por Ing. Supervisor

Fecha:

IMPORTANTE :

NO. DE CONTROL

PROYECTO: PLANTA DE CICLO COMBINADO

TITULO: RACK DE TUBERIAS
ESTRUCTURA CORTES Y DETALLES 2

APROBADO
COMPROBADO
REALIZADO GVZ
ESCALA INDICADA

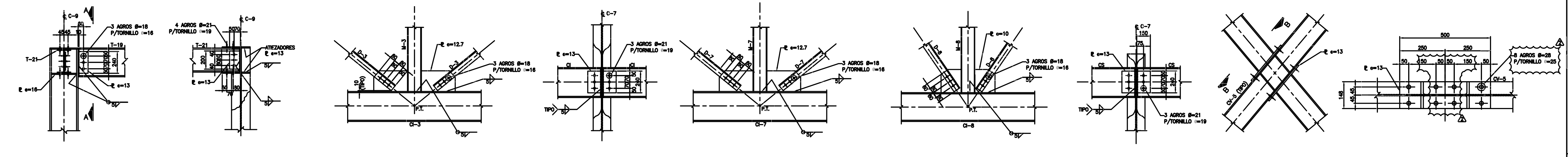
TITULO: RACK DE TUBERIAS
ESTRUCTURA CORTES Y DETALLES 2

ORDEN DE COMPRA | ITEM

DOCUMENTO DE PROYECTO No. PM27005-SRJC-PF-0813 | REV. No. 3

DOCUMENTO SUMINISTRADOR No. | REV. No.

PF-0814



DETALLE 37 PF-0807 SIN/ESC.

CORTE A – A PF-0807 SIN/ESC.

DETALLE 38 PF-0807 SIN/ESC.

DETALLE 39 PF-0807 SIN/ESC.

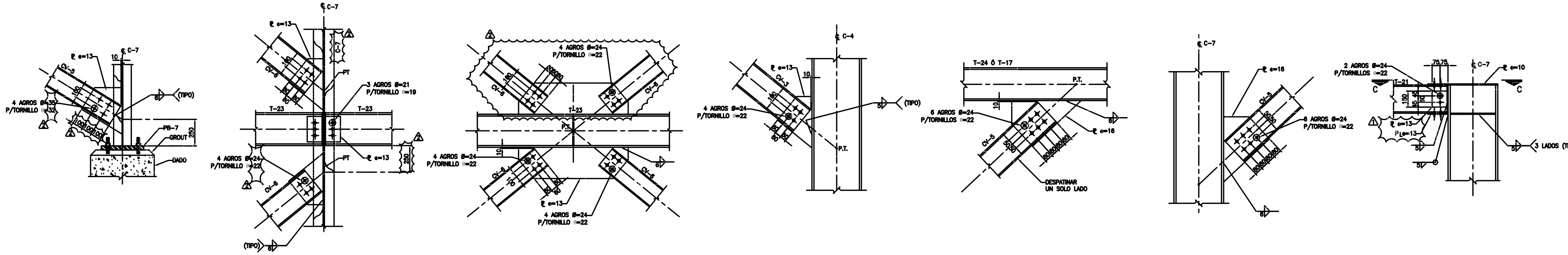
DETALLE 40 PF-0807 SIN/ESC.

DETALLE 41 PF-0807 SIN/ESC.

DETALLE 42 PF-0807 SIN/ESC.

DETALLE 43 PF-0807 SIN/ESC.

CORTE B–B



DETALLE 44 PF-0807 SIN/ESC.

DETALLE 46 PF-0807 SIN/ESC.

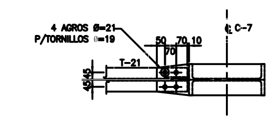
DETALLE 49 PF-0807 SIN/ESC.

DETALLE 50 PF-0807 SIN/ESC.

DETALLE 51 PF-0808 SIN/ESC.

DETALLE 52 PF-0808 SIN/ESC.

DETALLE 53 PF-0808 SIN/ESC.



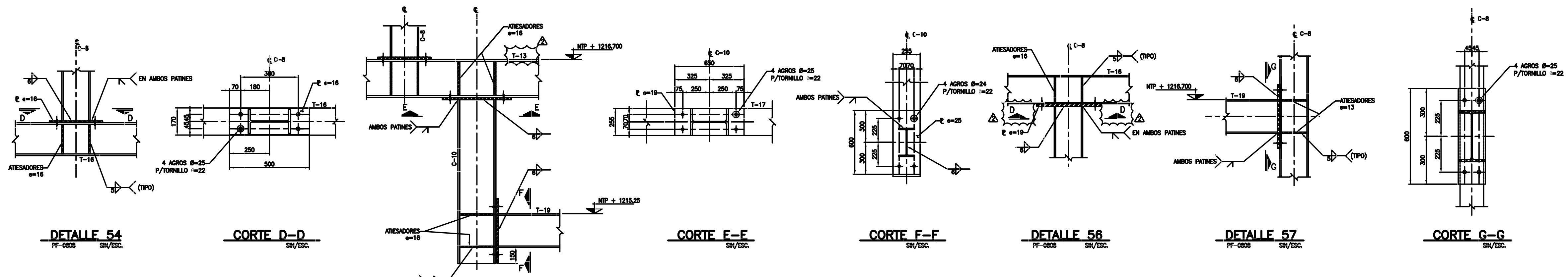
CORTE C–C SIN/ESC.

NOMENCLATURA

C.S.	CUERDA SUPERIOR
C.I.	CUERDA INFERIOR
AR	ARMADURA
PB	PLACA BASE
D	DIAGONAL
M	MONTANTE
NPT	NIVEL PISO TERMINADO
NTP	NIVEL TOPE DE PERFIL
NDE	NIVEL DESPLANTE DE ESTRUCTURA
C	COLUMNA
T	TRABE
CH	CONTRAVENTEO HORIZONTAL
CV	CONTRAVIENTO VERTICAL
M	CONEXION A MOMENTO
JE	JUNTA DE EXPANSION
–50	ABAJO DEL NIVEL TOPE DE ESTRUCTURA
	REVISION

NOTAS:

1.– PARA NOTAS GENERALES, ABREVIATURAS Y SIMBOLOGIA VER PLANO CFE-PM27005-SRJC-PC-0875.
2.– DIMENSIONES EN MILIMETROS.
3.– NIVELES Y COORDENADAS EN METROS.
4.– TODAS LAS DIMENSIONES SON SIMETRICAS CON RESPECTO A LAS LINEAS DEL CENTRO, EXCEPTO QUE SE INDIQUE LO CONTRARIO.
5.– ACERO ESTRUCTURAL ASTM A-36.
6.– TORNILLERIA ASTM A-325 TIPO 1 GALVANIZADOS ó TIPO 3.
7.– ESTE PLANO ES DE DISEÑO Y EN BASE A ESTE SE DEBEN ELABORAR PLANOS DE TALLER QUE CUMPLAN CON LOS REQUISITOS DEL AISC-LRDF Y AWS COMO MINIMO.
8.– LA DESCRIPCIÓN DE LOS PERFILES CORRESPONDE CON LA INDICADA EN EL "MANUAL DE CONSTRUCCIÓN EN ACERO" DEL INSTITUTO MEXICANO DE LA CONSTRUCCIÓN EN ACERO (IMCA)
9.– NO TOMAR MEDIDAS A ESCALA, LAS COTAS RIGEN AL DIBUJO
10.– TRABAJAR ESTE PLANO EN CONJUNTO CON LOS PLANOS DE REFERENCIA



DETALLE 54 PF-0808 SIN/ESC.

CORTE D–D SIN/ESC.

DETALLE 55 PF-0808 SIN/ESC.

CORTE E–E SIN/ESC.

CORTE F–F SIN/ESC.

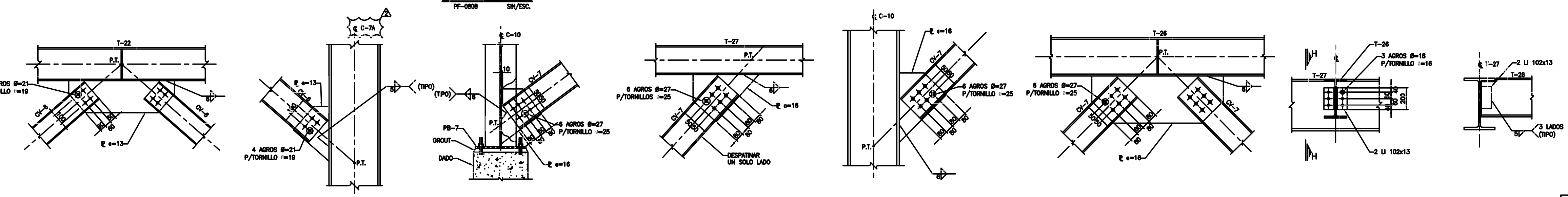
DETALLE 56 PF-0808 SIN/ESC.

DETALLE 57 PF-0808 SIN/ESC.

CORTE G–G SIN/ESC.

PLANOS DE REFERENCIA

PM27005-SRJC-PF-0803	RACK DE TUBERIAS–ESTRUCTURA PLANTAS RACK DE P.T.A. Y RACK DE SERVICIOS
PM27005-SRJC-PC-0805	RACK DE TUBERIAS–ESTRUCTURA PLANTAS Y ELEVACIONES RACK AEROCONDENSADOR
PM27005-SRJC-PC-0806	RACK DE TUBERIAS–ESTRUCTURA PLANTAS RACK PRINCIPAL Y RACK TREN 1 Y 2
PM27005-SRJC-PF-0807	RACK DE TUBERIAS–ESTRUCTURA ELEVACION RACK PRINCIPAL Y RACK TREN 1 Y 2
PM27005-SRJC-PF-0808	RACK DE TUBERIAS–ESTRUCTURA ELEVACIONES RACK PRINCIPAL
PM27005-SRJC-PF-0811	RACK DE TUBERIAS–ESTRUCTURA CONEXIONES TIPO Y PLACAS BASE
PM27005-SRJC-PF-0812	RACK DE TUBERIAS–ESTRUCTURA CORTES Y DETALLES 1
PM27005-SRJC-PF-0813	RACK DE TUBERIAS–ESTRUCTURA CORTES Y DETALLES 2



DETALLE 58 PF-0808 SIN/ESC.

DETALLE 59 PF-0808 SIN/ESC.

DETALLE 60 PF-0809 SIN/ESC.

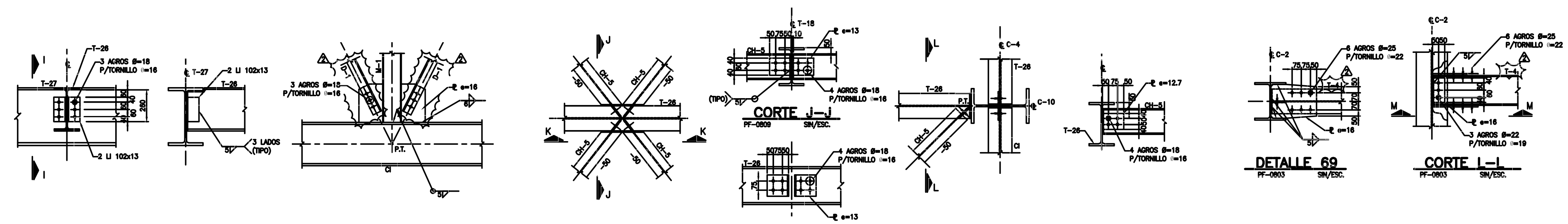
DETALLE 61 PF-0809 SIN/ESC.

DETALLE 62 PF-0809 SIN/ESC.

DETALLE 63 PF-0809 SIN/ESC.

DETALLE 64 PF-0809 SIN/ESC.

CORTE H–H PF-0809 SIN/ESC.



DETALLE 65 PF-0809 SIN/ESC.

CRTE I–I PF-0809 SIN/ESC.

DETALLE 66 PF-0809 SIN/ESC.

DETALLE 67 PF-0809 SIN/ESC.

CORTE J–J PF-0809 SIN/ESC.

CORTE K–K PF-0809 SIN/ESC.

DETALLE 68 PF-0809 SIN/ESC.

CORTE L–L PF-0809 SIN/ESC.

DETALLE 69 PF-0803 SIN/ESC.

CORTE L–L PF-0803 SIN/ESC.

REV.	FECHA	DESCRIPCION	REVISO	APROBO
2	06/01/12	APROBADO PARA CONSTRUCCION REVISADO DONDE SE INDICA		
1	28/10/11	APROBADO PARA CONSTRUCCION REVISADO DONDE SE INDICA		
0	31/08/11	APROBADO PARA CONSTRUCCION		

R E V I S I O N E S

[redacted]

PROYECTO: PLANTA DE CICLO COMBINADO

TITULO: RACK DE TUBERIAS ESTRUCTURA CORTES Y DETALLES 3

ESTADO DE DOCUMENTO COMO SE ANOTA

1 ☐ SOLO PARA INFORMACION
2 ☐ CONFORME SIN COMENTARIOS
3 ☐ CONFORME CON COMENTARIOS
4 ☐ NO CONFORME
5 ☐ TAL COMO SE CONSTRUYO

FECHA DE RECEPCION :

Revisado por Ing. Supervisor

Fecha:

IMPORTANTE :

NO. DE CONTROL

APROBADO	
COMPROBADO	
REALIZADO	GVZ
ESCALA	INDICADA
ORDEN DE COMPRA	ITEM

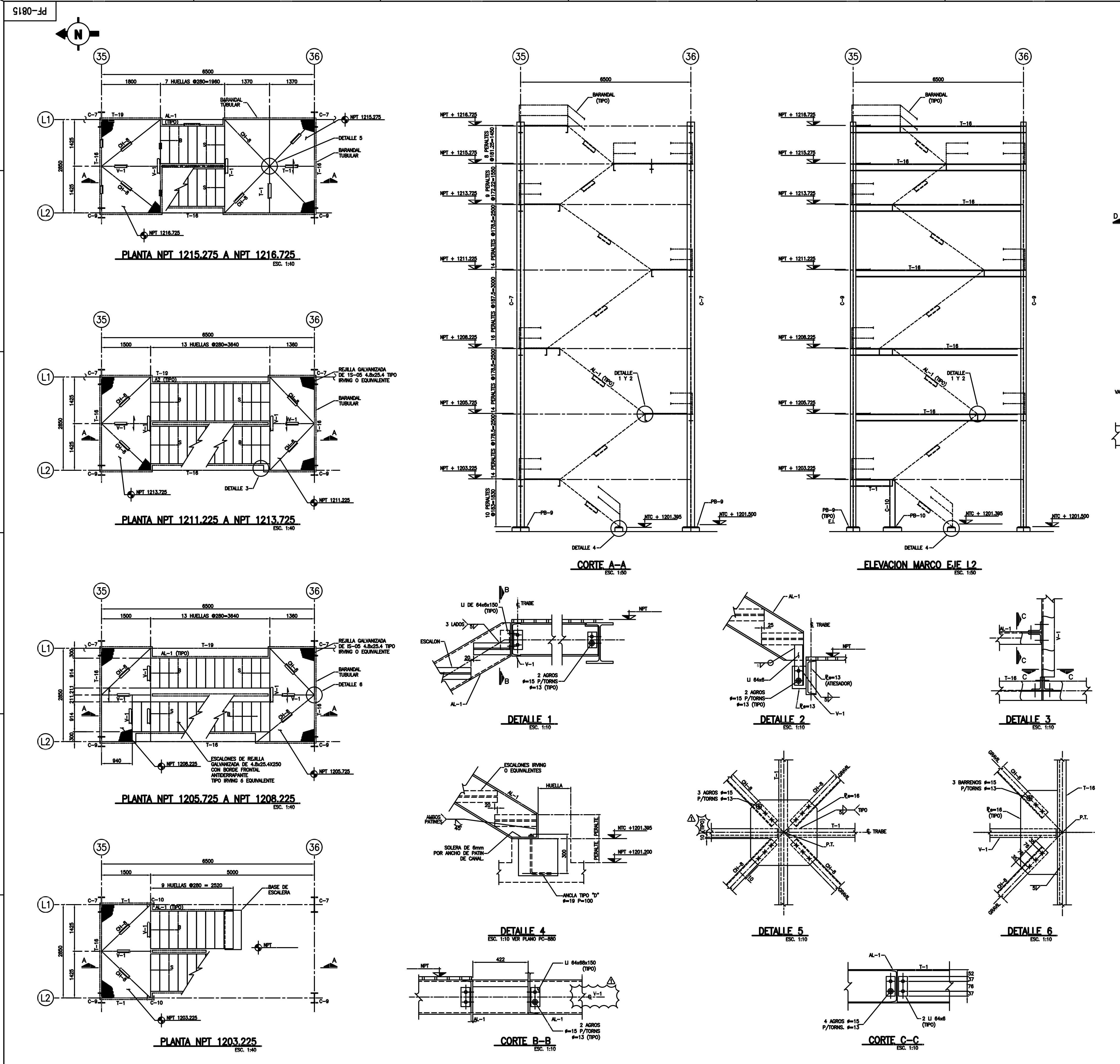
TITULO: RACK DE TUBERIAS ESTRUCTURA CORTES Y DETALLES 3

DOCUMENTO DE PROYECTO No. PM27005-SRJC-PF-0814 REV. No. 2

DOCUMENTO SUMINISTRADOR No. REV. No.

DIN A-0

PF-0815



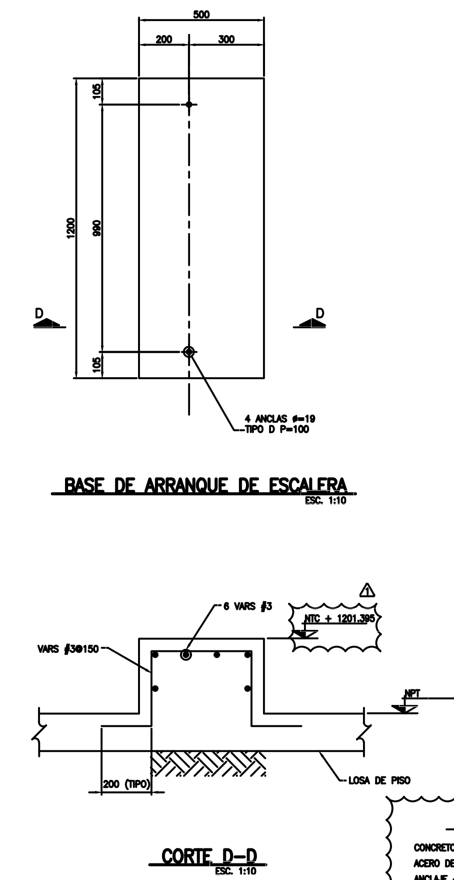


TABLA DE PERFILES

MARCA	PERFIL	PESO k/m	d	bf	tf	tw
C-9	IR-305	59.8	303	203	13.1	7.5
C-10	IR-203	26.6	207	133	8	6.1
T-1	IR-203	26.6	207	133	8	6.1
AL-1	CE-254	22.76	254	66	11.1	6.1
CH-8	LI-64x6	18.30				
V-1	CE-254	22.76	254	66	11.1	6.1

CALIDAD DE MATERIALES:

CONCRETO PARA ZAPATAS Y DADOS —— f'c = 24.5 MPa. = 250 kg/cm2.
ACERO DE REFUERZO —— Fy = 412 MPa. = 4200 kg/cm2.
ANCLAJE —— A-36

NOMENCLATURA:

NTP	NIVEL TOPE DE PERFIL
NPT	NIVEL PISO TERMINADO
C	COLUMNA
T	TRABE
AL	ALFARDA
CH	CONTRAVENTEO HORIZONTAL
CV	CONTRAVENTEO VERTICAL
V	VIGA
	REVISION

NOTAS:

1.- DIMENSIONES EN MILIMETROS, NIVELES EN METROS.
2.- VER NOTAS GENERALES, ABREVIATURAS Y SIMBOLOGIA, EN PLANO CFE-PM27005-SRJC-PC-0875.
3.- TODAS LAS DIMENSIONES SON SIMETRICAS CON RESPECTO A LAS LINEAS DE CENTRO, EXCEPTO QUE SE INDIQUE LO CONTRARIO.
4.- ACERO ESTRUCTURAL ASTM A-36.
5.- TORNILLERIA ASTM A-325 TIPO 1 ó 3 GALVANIZADO.
6.- NO TOMAR MEDIDAS A ESCALA LAS COTAS RIGEN AL DIBUJO.
7.- TRABAJAR ESTE PLANO EN CONJUNTO CON LOS PLANOS DE REFERENCIA.
8.- ESTE PLANO ES DE DISEÑO Y EN BASE A ESTE SE DEBERAN DESARROLLAR LOS PLANOS DE FABRICACION Y MONTAJE Y DEBERAN CUMPLIR CON LOS REQUERIMIENTOS DEL AISC Y LA AWS COMO MINIMO.
9.- EL BARANDAL SERA DE TUBO ø=32 CEDULA 40 VER PLANO CFE-PM27005-SRJC-PC-0900.
1 10.- VER PERFILES FALTANTES EN PLANO PF-0806

PLANOS REFERENCIA

PM27005-SRJC-PF-0806 — RACK DE TUBERIAS-ESTRUCTURA PLANTAS RACK PRINCIPAL Y RACK TREN 1 Y 2
1 PM27005-SRJC-PC-0900 — DETALLES TIPO DE BARANDALES

REV.	FECHA	DESCRIPCION	REVISO	APROBO
1	25/10/11	APROBADO PARA CONSTRUCCION REVISADO DONDE SE INDICA		
0	26/08/11	APROBADO PARA CONSTRUCCION		

R E V I S I O N E S

ESTADO DE DOCUMENTO COMO SE ANOTA
1 ☒ SOLO PARA INFORMACION
2 ☐ CONFORME SIN COMENTARIOS
3 ☐ CONFORME CON COMENTARIOS
4 ☐ NO CONFORME
5 ☐ TAL COMO SE CONSTRUYO

FECHA DE RECEPCION :
Revisado por Ing. Supervisor
Fecha:
IMPORTANTE :
NO. DE CONTROL

PROYECTO: PLANTA DE CICLO COMBINADO

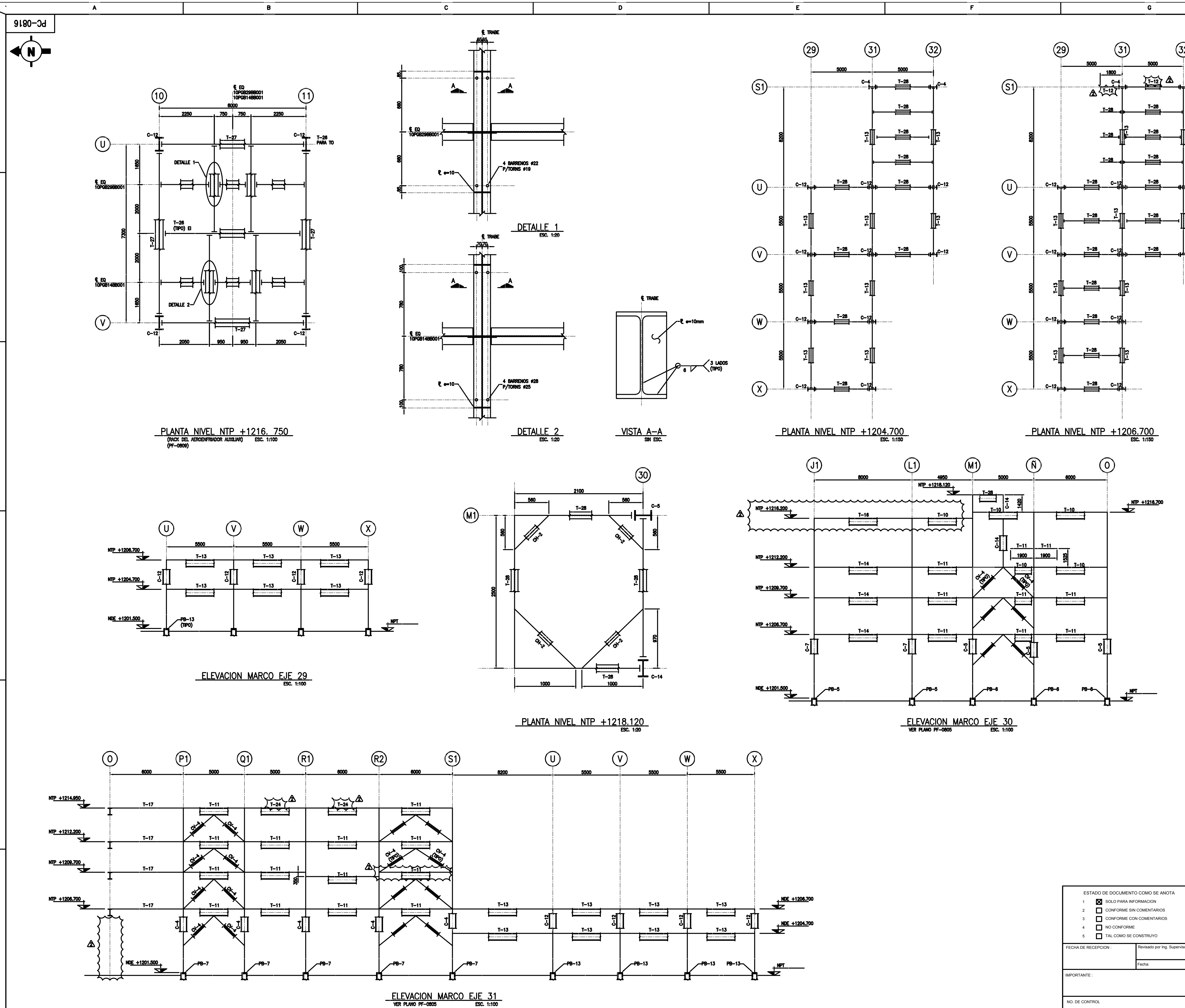
TITULO: RACK DE TUBERIAS
ESTRUCTURA ESCALERA RACK PRINCIPAL

APROBADO
COMPROBADO
REALIZADO GVZ
ESCALA INDICADA
ORDEN DE COMPRA
ITEM

TITULO: RACK DE TUBERIAS
ESTRUCTURA ESCALERA RACK PRINCIPAL

DOCUMENTO DE PROYECTO No. PM27005-SRJC-PF-0815 — REV. No. 1
DOCUMENTO SUMINISTRADOR No. — REV. No.

DIN A-0



NOMENCLATURA

CH	CONTRAVIENTO HORIZONTAL
M	CONEXION A MOMENTO
NPT	NIVEL PISO TERMINADO
NTP	NIVEL TOPE DE PERFIL
C	COLUMNA
T	TRABE
CV	CONTRAVIENTO VERTICAL
NDE	NIVEL DE DESPLANTE ESTRUCTURAL
PB	PLANTA BASE
EI	EXCEPTO INDICADO
	REVISION

NOTAS:

1.- PARA NOTAS GENERALES, ABREVIATURAS Y SIMBOLOGIA VER PLANO CFE-PM27005-SRJC-PC-0875.
2.- DIMENSIONES EN MILIMETROS.
3.- NIVELES Y COORDENADAS EN METROS.
4.- TODAS LAS DIMENSIONES SON SIMETRICAS CON RESPECTO A LAS LINEAS DEL CENTRO, EXCEPTO QUE SE INDIQUE LO CONTRARIO.
5.- ACERO ESTRUCTURAL ASTM A-36.
6.- TORNILLERIA ASTM A-325 TIPO 1 GALVANIZADOS ò TIPO 3.
7.- ESTE PLANO ES DE DISEÑO Y EN BASE A ESTE SE DEBEN ELABORAR PLANOS DE TALLER QUE CUMPLAN CON LOS REQUISITOS DEL AISC-LRDF Y AWS COMO MINIMO.
8.- LA DESCRIPCIÓN DE LOS PERFILES CORRESPONDE CON LA INDICADA EN EL "MANUAL DE CONSTRUCCIÓN EN ACERO" DEL INSTITUTO MEXICANO DE LA CONSTRUCCIÓN EN ACERO (IMCA)
9.- NO TOMAR MEDIDAS A ESCALA, LAS COTAS RIGEN AL DIBUJO
10.- TRABAJAR ESTE PLANO EN CONJUNTO CON LOS PLANOS DE REFERENCIA
11.- VER CONEXIONES A CORTANTE Y A MOMENTO DE LA ESTRUCTURA PRINCIPAL EN PLANO PF-0811
12.- VER TABLA DE PERFILES EN PLANO PF-0805

PLANOS DE REFERENCIA

PM27005-SRJC-PF-0803	RACK DE TUBERIAS-ESTRUCTURAS PLANTAS RACK DE P.T.A. Y RACK DE SERVICIOS
PM27005-SRJC-PF-0804	RACK DE TUBERIAS-ESTRUCTURAS ELEVACION RACK DE P.T.A. Y RACK DE SERVICIOS
PM27005-SRJC-PF-0806	RACK DE TUBERIAS-ESTRUCTURAS PLANTAS RACK PRINCIPAL Y RACK TREN 1 Y 2
PM27005-SRJC-PF-0807	RACK DE TUBERIAS-ESTRUCTURAS ELEVACION RACK PRINCIPAL Y RACK TREN 1 Y 2
PM27005-SRJC-PF-0808	RACK DE TUBERIAS-ESTRUCTURAS ELEVACIONES RACK PRINCIPAL
PM27005-SRJC-PF-0811	RACK DE TUBERIAS-ESTRUCTURA CONEXIONES TIPO Y PLACAS BASE
PM27005-SRJC-PF-0812	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 1
PM27005-SRJC-PF-0813	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 2
PM27005-SRJC-PF-0814	RACK DE TUBERIAS-ESTRUCTURA CORTES Y DETALLES 3

REV.	FECHA	DESCRIPCION	REVISO	APROBO
2	05/12/11	APROBADO PARA CONSTRUCCION REVISADO DONDE SE INDICA		
1	28/10/11	APROBADO PARA CONSTRUCCION REVISADO DONDE SE INDICA		
0	26/08/11	APROBADO PARA CONSTRUCCION		

REVISIONES

ESTADO DE DOCUMENTO COMO SE ANOTA

1 ☒ SOLO PARA INFORMACION
2 ☐ CONFORME SIN COMENTARIOS
3 ☐ CONFORME CON COMENTARIOS
4 ☐ NO CONFORME
5 ☐ TAL COMO SE CONSTRUYO

FECHA DE RECEPCION :
Revisado por Ing. Supervisor
Fecha:
IMPORTANTE :
NO. DE CONTROL

PROYECTO: PLANTA DE CICLO COMBINADO

TITULO: RACK DE TUBERIAS EDIFICIO ELECTRICO PLANTAS Y ELEVACIONES

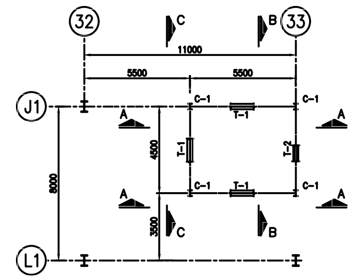
APROBADO	
COMPROBADO	
REALIZADO	GVZ
ESCALA	INDICADA
ORDEN DE COMPRA	ITEM

TITULO: RACK DE TUBERIAS EDIFICIO ELECTRICO PLANTAS Y ELEVACIONES

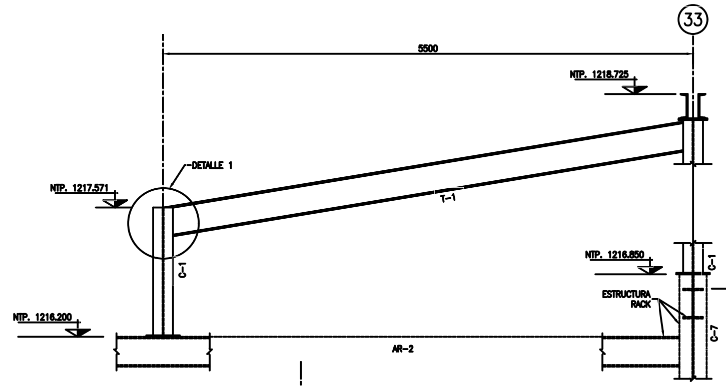
DOCUMENTO DE PROYECTO No. PM27005-SRJC-PF-0816 — REV. No. 2

DOCUMENTO SUMINISTRADOR No. — REV. No.

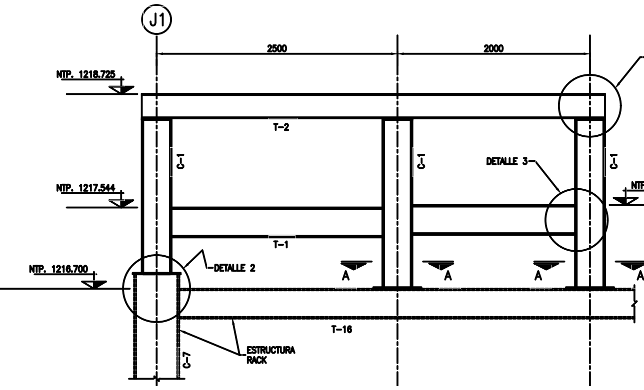
PF-0835



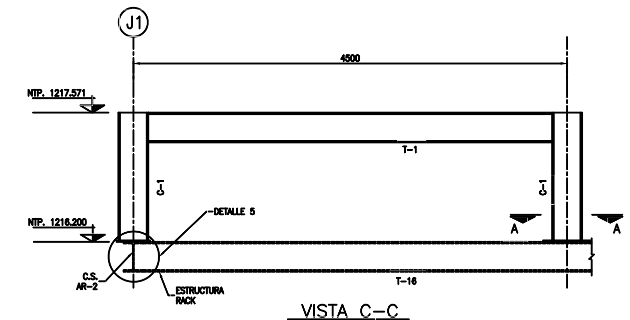
PLANTA SOPORTE S-1
ESC. 1:25



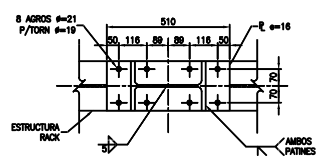
VISTA A-A
ESC. 1:25



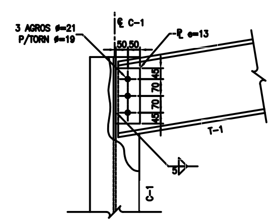
VISTA B-B
ELEVACION MARCO EJE 33 ESC. 1:25



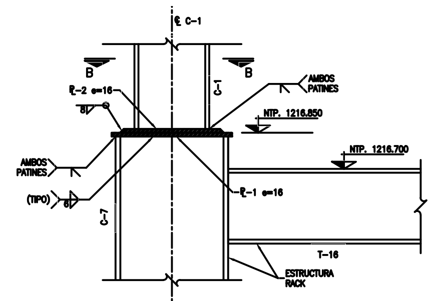
VISTA C-C
ELEVACION N. 188.000 ESC. 1:25



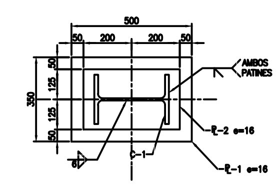
CORTE A-A
ESC. 1:25



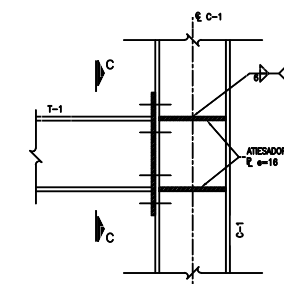
DETALLE 1
ESC. 1:10



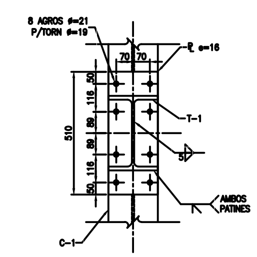
DETALLE 2
ESC. 1:10



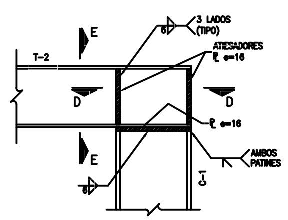
CORTE B-B
ESC. 1:25



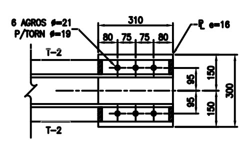
DETALLE 3
ESC. 1:10



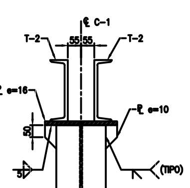
CORTE C-C
ESC. 1:25



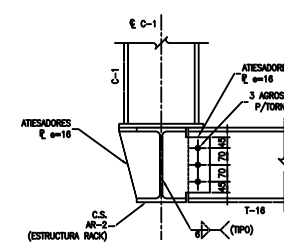
DETALLE 4
ESC. 1:10



CORTE D-D
ESC. 1:25



CORTE E-E
ESC. 1:25



DETALLE 5
ESC. 1:10

TABLA DE PERFILES

MARCA	PERFIL	PESO k/m	d	bf	tf	tw
C-1	IR.-305	74.40	310	205	16.3	9.4
T-1	IR.-305	74.40	310	205	16.3	9.4
T-2	CE.-254	37.20	254	73	11.07	13.36

NOTAS:

1.- PARA NOTAS GENERALES, ABREVIATURAS Y SIMBOLOGIA VER PLANO CFE-PM27005-SRJC-PC-0875.
2.- DIMENSIONES EN MILIMETROS.
3.- NIVELES Y COORDENADAS EN METROS.
4.- TODAS LAS DIMENSIONES SON SIMETRICAS CON RESPECTO A LAS LINEAS DEL CENTRO, EXCEPTO QUE SE INDIQUE LO CONTRARIO.
5.- ACERO ESTRUCTURAL ASTM A-36.
6.- TORNILLERIA ASTM A-325 TIPO 1 GALVANIZADOS ò TIPO 3.
7.- ESTE PLANO ES DE DISEÑO Y EN BASE A ESTE SE DEBEN ELABORAR PLANOS DE TALLER QUE CUMPLAN CON LOS REQUISITOS DEL AISC-LRDF Y AWS COMO MINIMO.
8.- LA DESCRIPCIÓN DE LOS PERFILES CORRESPONDE CON LA INDICADA EN EL "MANUAL DE CONSTRUCCIÓN EN ACERO" DEL INSTITUTO MEXICANO DE LA CONSTRUCCIÓN EN ACERO (IMCA)
9.- NO TOMAR MEDIDAS A ESCALA, LAS COTAS RIGEN AL DIBUJO
10.- TRABAJAR ESTE PLANO EN CONJUNTO CON LOS PLANOS DE REFERENCIA

PLANOS DE REFERENCIA

PM27005-SRJC-PC-0806	RACK DE TUBERIAS-ESTRUCTURA PLANTAS RACK PRINCIPAL Y RACK TREN 1 Y 2
PM27005-SRJC-PF-0807	RACK DE TUBERIAS-ESTRUCTURA ELEVACION RACK PRINCIPAL Y RACK TREN 1 Y 2
PM27005-SRJC-PF-0808	RACK DE TUBERIAS-ESTRUCTURA ELEVACIONES RACK PRINCIPAL

REV.	FECHA	DESCRIPCION	REVISO	APROBO
A1	15/12/11	PARA REVISION INTERNA		

R E V I S I O N E S

ESTADO DE DOCUMENTO COMO SE ANOTA
1 ☒ SOLO PARA INFORMACION
2 ☐ CONFORME SIN COMENTARIOS
3 ☐ CONFORME CON COMENTARIOS
4 ☐ NO CONFORME
5 ☐ TAL COMO SE CONSTRUYO

FECHA DE RECEPCION :
Revisado por Ing. Supervisor
Fecha:
IMPORTANTE :
NO. DE CONTROL

PROYECTO: PLANTA DE CICLO COMBINADO

TITULO: SOPORTES SECUNDARIOS ESTRUCTURA ELEVACIONES HOJA 1

APROBADO
COMPROBADO
REALIZADO GVZ
ESCALA INDICADA
ORDEN DE COMPRA
ITEM

TITULO: SOPORTES SECUNDARIOS ESTRUCTURA ELEVACIONES HOJA 1

DOCUMENTO DE PROYECTO No. PM27005-SRJC-PF-0835 REV. No. A1
DOCUMENTO SUMINISTRADOR No. REV. No.