CONSORCIO
CONURMA – RINCÓN - LÓPEZ
NIT. 901615033-1

INFORME DE REFORZAMIENTO GRUPO II EDIFICIO CAPILLA

REALIZAR LA CONTRATACIÓN DE LAS CONSULTORÍAS PARA LA EJECUCIÓN DE LOS ESTUDIOS TÉCNICOS Y PROYECTOS DE RESTAURACIÓN DE VARIOS INMUEBLES QUE HACEN PARTE DEL COMPLEJO HOSPITALARIO SAN JUAN DE DIOS EN LA CIUDAD DE BOGOTÁ, DE ACUERDO CON LO ESTABLECIDO PARA CADA GRUPO

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CONSORCIO CONURMA – RINCÓN – LÓPEZ
CONTRATO DE CONSULTORÍA NÚMERO 3020-2022

CONSORCIO RESTAURO SJD
CONTRATO DE INTERVENTORÍA No. 3055 DE 2022

ARQ. CARLOS AMÉZQUITA
DIRECCIÓN DE PATRIMONIO Y MEMORIA
MINISTERIO DE CULTURA

ENERO DE 2024

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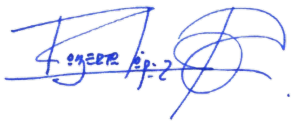
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0.0	14-12-2022		Versión inicial
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2.0	28-02-2023		Actualización General, Cimentación y No estructurales.
3.0	22-03-2023		Actualización por observaciones de interventoría
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ESTADO DE REVISIÓN Y APROBACIÓN CONSULTORÍA

ELABORÓ	Nombre	Iván Mauricio Guevara R.
	Cargo	Diseñador Estructural Principal
	Firma	
	Fecha	Enero de 2024
REVISÓ	Nombre	Arq. John Edwin Morales.
	Cargo	Coordinadora Edificios Capilla y Convento.
	Firma	
	Fecha	Enero de 2024
APROBÓ	Nombre	Arq. Roberto López Sánchez.
	Cargo	Director de Consultoría Grupo 2
	Firma	
	Fecha	Enero de 2024

ESTADO DE REVISIÓN Y APROBACIÓN INTERVENTORÍA

REVISÓ	Nombre	Enrique Castrillón
	Cargo	Asesor Estructural de la Interventoría.
	Firma	
	Fecha	Enero de 2024
REVISÓ	Nombre	Manuela Giraldo.
	Cargo	Coordinadora Interventoría Edificios Capilla y Convento
	Firma	
	Fecha	Enero de 2024
APROBÓ	Nombre	Juan Diego Quintero
	Cargo	Director de Interventoría
	Firma	
	Fecha	Enero de 2024

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1 INTRODUCCIÓN

En cumplimiento de la ley 735 de 2002, "Por la cual se declaran monumentos nacionales, el Hospital San Juan de Dios y el Instituto Materno Infantil; se adoptan medidas para la educación universitaria y se dictan otras disposiciones", establece en su artículo 2 que "El Gobierno Nacional por intermedio del Departamento Nacional de Planeación, el Ministerio de Cultura, el Ministerio de Educación Nacional, acometerá las obras de remodelación, restauración y conservación del bien mencionado y que para el cumplimento de la ley, fue creada la junta de conservación del monumento nacional integrada por los ministros de Salud, Cultura y Educación Nacional, Alcalde Mayor de Bogotá D.C. y el Gobernador de Cundinamarca o sus delegados."

Acorde a lo anterior y para continuar con el proceso de recuperación del Complejo Hospitalario San Juan de Dios, se realiza el contrato de consultoría 3020 - 2022 para **REALIZAR LA CONTRATACIÓN DE LAS CONSULTORÍAS PARA LA EJECUCIÓN DE LOS ESTUDIOS TÉCNICOS Y PROYECTOS DE RESTAURACIÓN DE VARIOS INMUEBLES QUE HACEN PARTE DEL COMPLEJO HOSPITALARIO SAN JUAN DE DIOS EN LA CIUDAD DE BOGOTÁ.**

Teniendo en cuenta lo anterior, en el presente documento se desarrollarán los siguientes aspectos

- ✓ Estudio de Reforzamiento estructural, evaluación y valoración del comportamiento de la edificación.
- ✓ Descripción de las obras para el reforzamiento estructural de la infraestructura existente.
- ✓ Diseños detallados de las obras para el reforzamiento estructural de la infraestructura existente.

2 OBJETIVOS

2.1 Objetivo General.

El objetivo principal corresponde a realizar los estudios técnicos y proyectos de restauración de varios inmuebles que hacen parte del Complejo Hospitalario San Juan de Dios en la Ciudad de Bogotá

Los proyectos se enmarcan en el contexto relativo a que los inmuebles del Grupo 2, específicamente del edificio Capilla que hace parte de un Bien de Interés Cultural del ámbito Nacional, por consiguiente, los productos a desarrollar deberán tener como eje transversal el componente patrimonial, implementando los diferentes conceptos normativos y teóricos que se requieren acorde a esta característica.

2.2 Objetivos específicos.

De acuerdo con los requerimientos técnicos del presente contrato dentro del presenta informe se desarrollarán las siguientes actividades.

- Presentar el análisis sísmico de los elementos de reforzamiento que buscaran llevar a la edificación a un estado óptimo de cumplimiento de los requisitos dados por el Reglamento Colombiano de Construcción Sismo Resistente NSR-10, tomando como base los resultados obtenidos de las campañas exploratorias realizadas y de los informes de vulnerabilidad sísmica.

- Generar los detalles y cálculos necesarios para establecer las alternativas de reforzamiento de los elementos que presentar sobre esfuerzo o de la propuesta estructural a contemplar.

- Identificar las intervenciones a realizar sobre cada uno de los elementos de acuerdo con los análisis de las campañas de exploración y resultados de los análisis de vulnerabilidad generados para la edificación.

3 LOCALIZACIÓN GENERAL.

El Complejo Hospitalario San Juan de Dios, se localiza en la ciudad de Bogotá, en la Carrera 10 No. 1 – 59 SUR, con límites al Norte con la Calle 1 (Av. Hortua) y el barrio San Bernardo, al Sur con la Calle 2 sur y el Barrio Policarpa, al oriente con la Carrera 8C y el barrio Modelo Sur, al occidente con la Av Caracas.

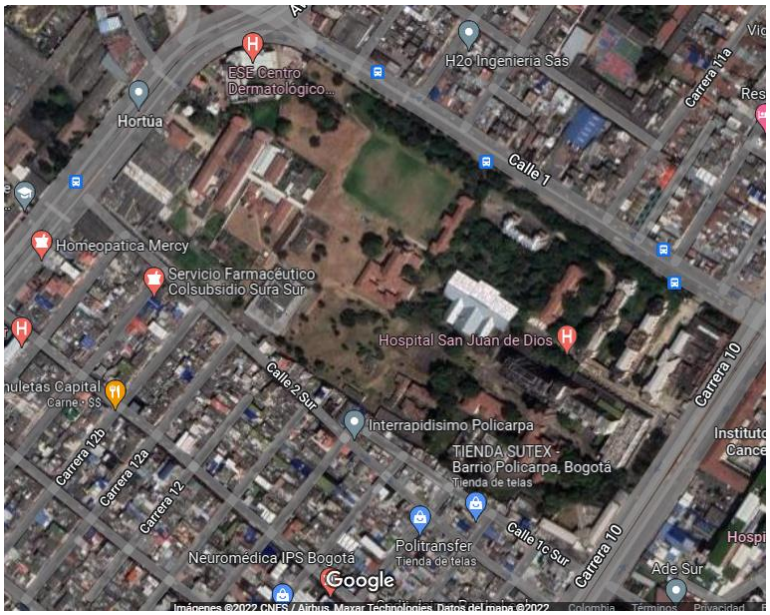


Ilustración 1 localización general - Fuente: Google Maps.

Dentro de las instalaciones del Complejo Hospitalario San Juan De Dios se encuentran ubicadas las estructuras que conforman el Grupo 2 de la Siguiente Manera:



Plan General de Sectores y Subsectores		Subsector
1	Edificio Capilla - convento	SN01-ED10-11
2	Edificio Jardín Infantil	SN06-ED25 SN06-AL03

Ilustración 2 localización Grupo 2 - Fuente: PEMP -Junta de conservación del Monumento N° 50.

4 DESCRIPCIÓN GENERAL

4.1 CAPILLA

La estructura de la capilla fue construida entre los años 1926 y 1930, la estructura se expresa hacia el exterior en ladrillo a la vista, la cual tiene una sola nave que remata por el costado norte en un ábside flanqueado por dos torres, siendo a su vez el volumen que constituye la nave, enmarcado por dos primas de menor altura en los cuales se ubican la sacristía y otros servicios litúrgicos.

Esta forma de relación entre los volúmenes antes mencionados produjo originalmente una composición simétrica en planta y alzado que solo fue rota por la modificación posterior del volumen oriental.

El coro está ubicado en el costado Sur de la Nave y el entrepiso de este descansa en tres arcos rebajados, siendo el de mayor luz el que corresponde con el eje de simetría del volumen, el cual se apoya a su vez en dos columnas.

La cimentación se encuentra constituida por un cimiento ciclópeo en piedra regular con pega en argamasa (cal, arena y relleno); cuenta con dos sobrecimientos: el primero en bloque de roca de forma regular y el segundo en ladrillo tolete y remata en un sillar perimetral en piedra.

La estructura portante vertical, se encuentra conformada por muros de mampostería (muros de carga). La fachada está constituida por ladrillo a la vista, con aparejo en soga-Tizón y se presume que el entrepiso del coro es en vigas de madera.

Con base en lo anterior y dados los requerimientos del Reglamento Colombiano de Construcción Sismo Resistente NSR-10, se estableció que el reforzamiento debe ser constituido por un sistema de pórticos en concreto junto con un sistema de péndulo invertido en un sentido, que brinden al sistema

un grado de disipación sísmica acorde con los requerimientos para la zona de amenaza sísmica intermedia en el cual se encuentra localizada la edificación.

De acuerdo con lo anterior se definieron pórticos en concreto con secciones de columnas de 40x40cm y 50x50cm junto con vigas de 20x60cm y 30x40cm, además de pantallas de 30 y 40 cm de espesor, que se encargaran de la distribución de cargas.

Adicionalmente y como objeto de intervención y conservación de los elementos arquitectónicos de la edificación, se utilizarán los muros existentes como elementos No estructurales del nuevo sistema de resistencia sísmica, para lo cual se generarán adecuaciones que permitan una correcta vinculación de estos elementos a la nueva estructura propuesta.

4.1.1 Descripción de la propuesta de intervención.

De acuerdo con los análisis realizados en la etapa de vulnerabilidad estructural del edifico Capilla, se determinó la necesidad de intervenir la edificación, para lo cual se propone el cambio del sistema de resistencia sísmica actual por un sistema combinado de pórticos y pantallas resistentes a momento.

Para la propuesta de intervención se generan nuevas columnas de 0.40x0.40m y 0.50x0.050 m, que estará vinculada en los muros de mampostería existentes en una longitud de aproximadamente 0.20 m con el fin de posterior mente vincular los muros actuales como elementos no estructurales del nuevo sistema de resistencia.

A su vez se generan vigas en ambos sentidos que permita conformar pórticos de resistencia sísmica, sin embargo es de aclarar que en la zona central de la antigua capilla debido a las luces y la conformación arquitectónica no es posible generar vigas que conformen un sistema combinado de pórticos y pantallas resistentes a momentos en el sentido corto de la edificación, razón por la cual dichos elementos serán analizados como péndulos invertidos, los cuales también contaran con una longitud de vinculación de aproximadamente 0.20m en los muros y elementos actuales, de esta manera y como parte del proceso de conservación patrimonial se plantea la conservación de todos los elementos de fachada por o cual, todas las adecuaciones antes mencionadas se manera de manera interna en la estructura.

En la zona de cubierta se conformara viga perimetral para conformación de diafragma de sistema de resistencia, dichos elementos se construirán por debajo del nivel de llegada de los elementos tipo tirantes que conforman las cerchas en madera de la cubierta existente, es de aclarar que las secciones y tipo de madera utilizadas actualmente presenta un bueno comportamiento estructural y por lo tanto no se prevé ningún tipo de reforzamiento, los trabajos a realizar sobre los elementos de madera consistirá en el reemplazo y adecuación por condiciones fitosanitarias.

A nivel de cimentación, se plantea zapatas que permitan al nuevo sistema de resistencia trasladar las cargas al suelo portante, lo anterior se genera a un nivel de desplante de 1.20 m de acuerdo con las recomendaciones del estudio de suelos, a su vez se contempla que la cimentación de los muros existentes trabaje soportando un 75% (valor establecido de acuerdo a la longitud de vinculación de

columnas y vigas en elementos existentes) del peso propio de los muros actuales ya que estos elementos se considera como no estructurales del nuevo sistema de resistencia, con lo cual se plantea la conformación de vigas de amarre que permitan vincular la cimentación existente con los nuevos elementos de cimentación y de esta manera evitar asentamientos diferenciales entre el nuevo sistema de resistencia y el sistema actual.

4.2 CARACTERÍSTICAS DEL USO Y SUELO

De acuerdo con el decreto 523 de 2010 "Microzonificación sísmica de Bogotá" el perfil del suelo encontrado corresponde al tipo Aluvial 50 y Piedemonte B. El cual se encuentra en zona de transición definida en el literal 5.6 "En los límites de cada zona se establece una franja de transición de 100 metros, tomando 50 metros a cada lado de los limites definidos. En esta franja de transición se debe tomar, dependiente del periodo de vibración de la edificación, la aceleración de diseño promedio que resulte de la aplicación de los espectros de diseño de las zonas adyacentes".

Las estructuras se clasifican dentro del Grupo de Uso III: Edificaciones de Atención a la Comunidad (I=1.25), conforme A.2.5 de NSR-10.

Para el análisis sísmico se consideró el perfil de suelo Piedemonte B, ya que establece las condiciones más desfavorables.

4.3 MATERIALES

4.3.1 Estructura Existente

Para la evaluación de la estructura existente se realizaron diversos ensayos de campo con el fin de obtener las resistencias de los materiales que componen la estructura. Los resultados de estos ensayos se pueden consultar en el documento "INFORME FINAL ENSAYOS DE CAMPO COMPLEJO HOSPITALARIO SAN JUAN DE DIOS". Las resistencias consideradas que se muestran a continuación se obtienen del promedio de estos resultados.

- Elementos de mampostería:
    - Ensayo de Muretes

N° Ensayo	Ubicación	Tipo de Toma	Tipo elemento	Resistencia del Murete	Observaciones
1	CAPILLA	-	MURETE	7.3 MPa	Sin Observaciones
2	CAPILLA	-	MURETE	4.2 MPa	

Tabla 1 Resultados del ensayo de muretes en la Capilla.

    - Ensayo de Compresión en Piezas

N° Ensayo	Ubicación	Tipo de Toma	Tipo elemento	Resistencia de la unidad	Observaciones
1	CAPILLA	-	PIEZAS	36.2 MPa	Sin Observaciones
2	CAPILLA	-	PIEZAS	12.2 MPa	

Tabla 2 Resultados del ensayo de compresión en piezas en la Capilla.

Teniendo en cuenta los resultados de los ensayos realizados a los elementos de mampostería se consideran las siguientes resistencias:

Resistencia especificada a compresión de la unidad de mampostería maciza	F´cu = 21.43. MPa	-
Resistencia Nominal a la compresión de la Mampostería maciza	F´m = 9.35 MPa	E = 7500 Mpa

Tabla 3 Resistencia de mampostería.

- Acero de Refuerzo con una Resistencia de fluencia de 420 Mpa (4200 Kg/cm2), y un módulo de elasticidad de 200000 Mpa (2000000 Kg/cm2) que cumpla las especificaciones ASTM A706.

- Malla electrosoldada con alambres corrugados que cumplan NTC 2310 (ASTM A497M) con fy = 485 Mpa, se permite el uso de alambre liso que cumpla NTC 4002 (ASTM A82M) con fy = 485 Mpa.

4.3.2 Estructura Nueva

Para la modelación matemática de la estructura se utilizaron las siguientes resistencias de materiales.

- Elementos de concreto:

Vigas, Columnas y Placas	F´c = 24.5 MPa	E = 23263.81 MPa
Concreto de Limpieza	F´c = 14 MPa	E = 17585.8 Mpa

Tabla 4 Resistencia de concreto sistema de reforzamiento.

- Acero de Refuerzo con una Resistencia de fluencia de 420 Mpa (4200 Kg/cm2), y un módulo de elasticidad de 200000 Mpa (2000000 Kg/cm2) que cumpla las especificaciones ASTM A706.

- Malla electrosoldada con alambres corrugados que cumplan NTC 2310 (ASTM A497M) con fy = 485 Mpa, se permite el uso de alambre liso que cumpla NTC 4002 (ASTM A82M) con fy = 485 Mpa.

- Para el análisis de cargas muertas se utilizaron los siguientes pesos específicos:

Concreto	2.40 T/m3
Mampostería maciza	1.85 T/m3
Acero de refuerzo	7.80 T/m3

Tabla 5 Peso de los materiales

4.4 NORMAS DE DISEÑO

Se han considerado las siguientes normas en el análisis y diseño estructural:

- Reglamento Colombiano de Construcción Sismo Resistente NSR-10. Ley 400 de 1997 (Modificada por la Ley 1229 de 2008 y el Decreto 019 de 2012), Decreto 926 del 19 marzo de 2010, Decreto 092 de 17 enero de 2011 y Decreto 340 del 13 de febrero de 2012.
- Building Code Requirements for Reinforced Concrete, ACI-318.
- ACI 350M-06, Code Requirements for Environmental Engineering Concrete Structures (ACI 350M-06) And Commentary
- ACI 350.3-06, Seismic Design of Liquid-Containing Concrete Structures and Commentary.

5 INFORMACIÓN PRELIMINAR

5.1 ETAPA 1

"Debe verificarse que la intervención esté cubierta por el alcance dado en A.10.1.3."

En el numeral A.10.1.3 de NSR-10 se establece que los requisitos del capítulo A.10 pueden ser utilizados en el diagnóstico de la vulnerabilidad sísmica, el diseño, actualizaciones al reglamento y/o la alteración de la estructura de edificaciones existentes antes de la vigencia de la actual norma sismo-resistente del territorio nacional. Por lo anterior, las estructuras que conforman el Complejo Hospitalario San Juan de Dios se encuentran dentro del mencionado alcance, y requieren de la actualización al reglamento.

El propósito de este análisis es establecer que las estructuras estén en capacidad de resistir eventos sísmicos de magnitud baja sin daño en elementos estructurales y no estructurales, eventos sísmicos de magnitud moderada sin daño estructural, pero con algún daño en elementos no estructurales y eventos sísmicos de magnitud alta sin que se presente colapso de la estructura.

5.2 ETAPA 2

"Debe recopilarse y estudiarse la información existente acerca del diseño geotécnico y estructural, así como del proceso de construcción de la edificación original y sus posteriores modificaciones y deben hacerse exploraciones en la edificación, todo esto de acuerdo con A.10.2"

La información recopilada y estudiada acerca del edificio de Capilla, en cuanto a su diseño, construcción original y posteriores ampliaciones, debe basarse en los planos estructurales y memorias de diseño estructural originales.

Con base en lo anterior, se han llevado a cabo visitas técnicas de reconocimiento a las instalaciones del Hospital San Juan de Dios, para contar con una inspección visual y generar un análisis cualitativo del estado actual de la estructura. Durante las visitas técnicas efectuadas ha sido posible:

- Recorrer los exteriores e interiores (en zonas permitidas) de la estructura, y a partir de una primera inspección visual, establecer las posibles afectaciones generales en elementos estructurales y no estructurales, tales como: Fisuramientos, humedad, filtraciones, pandeo en placas.
- Tomar fotografías para documentación y/o registro fotográfico del estado actual de la estructura. A partir de lo anterior, fue posible obtener fotografías significativas para la determinación de patologías en diferentes elementos estructurales y no estructurales.

El estudio de toda la información recopilada, tanto original como la obtenida a partir de pruebas o ensayos recientes, permite una revisión más eficiente y acertada de las estructuras requeridas bajo un enfoque de vulnerabilidad estructural; y el diagnostico final permite definir el tipo de intervención

más conveniente, aportando las técnicas adecuadas para su preparación y la consiguiente rehabilitación de la unidad constructiva de cada edificación.

5.2.1 Planos Estructurales

A partir de la información recolectada se generaron esquemas básicos de la distribución de espacios, los cuales fueron utilizados como base para el desarrollo de los elementos de levantamiento estructural.

5.2.2 Memorias de cálculo y estudios de Suelos

A partir de la información recolectada no se encontraron memorias de cálculo o estudios de suelos que permitan identificar la conformación inicial de cada estructura.

5.3 ETAPA 3

"El estado del sistema estructural debe calificarse con respecto a: (a) la calidad del diseño de la estructura original y su sistema de cimentación y de la construcción de la misma y (b) el estado de mantenimiento y conservación. Esta calificación debe hacerse de acuerdo con los requisitos de A.10.2."

A partir de la información recopilada, relacionada como: planos estructurales de la construcción, registros fotográficos y determinación de patologías mediante inspección visual, se tienen las siguientes calificaciones del estado actual del sistema estructural de las edificaciones objeto del presente estudio:

- Calidad Del Diseño Y La Construcción De La Estructura Original
  - BUENA

- Estado De La Estructura
  - BUENA

6 EVALUACIÓN DE LA ESTRUCTURAS EXISTENTES

La evaluación de las estructuras existentes se realiza a partir de la información presentada dentro del informe de vulnerabilidad estructural del edificio Capilla, el cual permitió evidenciar que el sistema de resistencia sísmica que posee actualmente la edificación no es apto para la zona de amenaza sísmica donde se ubica, adicionalmente se encontraron índices de sobre esfuerzo mayores a la unidad sobre los elementos de mampostería simple.

7 INTERVENCIÓN DEL SISTEMA ESTRUCTURAL

Una vez finalizados los análisis de vulnerabilidad y de acuerdo con la información recopilada y los resultados de los diferentes análisis, se plantean alternativas de reforzamiento que le permitan al sistema estructural tener la suficiente capacidad de resistir los esfuerzos actuantes calculados. La determinación de la alternativa de intervención estructural debe ser evaluada no sólo a la luz de los requerimientos estructurales actualizados al reglamento vigente, sino que además se debe tener en cuenta el entorno socioeconómico de la edificación, el grado de afectación de la estructura y demás factores que puedan llegar a dificultar la puesta en marcha de la propuesta.

La propuesta de reforzamiento a implementar para el edificio del Capilla cumple con un proceso iterativo, basado en los índices de sobreesfuerzo y/o flexibilidad, debido a que las opciones de reforzamiento propuestas serán inicialmente válidas, solo si estos índices son menores a la unidad.

A continuación, se muestra una matriz de comparación entre las diferentes alternativas de reforzamiento planteadas para la estructura.

MATRIZ DE ANÁLISIS - ALTERNATIVAS DE REFORZAMIENTO ESTRUCTURAL					
ITEM	SISTEMA ESTRUCTURAL - ACTUAL	AIS-610-EP-17	NSR-10		
			MAMPOSTERIA	ACERO	CONCRETO
ZONA DE AMENAZA SÍSMICA	El sistema actual no es apto para una zona de amenaza sismica intermedia	Se permite para sistemas de reforzamiento de entramado de madera, acero, pastico o similar, tensores internos o externos, tensores verticales y anillos de zunchos	TABLA A.3-1 Sistema estructural de muros de carga - para elementos de mampostería maciza se presenta los sistemas g. mampostería confinada; i; muros de mampostería no reforzada y j muros de mampostería reforzada externamente. *Para el sistema g y j , solo se permite en zona de amenaza sísmica intermedia para estructuras de Grupo 1 y de 12 m de altura *Para sistema I, no se permite en zonas de amenazas sísmicas intermedias	Se permite para diversos sistemas de pórticos y elementos combinados	
CAPACIDAD DE DISIPACIÓN DE ENERGÍA	El sistema actual no cuenta con capacidad de disipación de energía R= 1.0	El sistema de reforzamiento genera capacidad de disipación de energía Ro = 2.5	El sistema de reforzamiento genera capacidad de disipación de energía Ro de 2.0 para muros de mampostería confinada, Ro = 1.00 sistema actual no tiene capacidad de disipación de energía y Ro de 1.5 para muros reforzados externamente	Dependiendo del sistema de reforzamiento se genera capacidad de disipacion de eneriga Ro de 5.0 en adelante	
CUMPLIMIENTO NORMATIVO	Sistema de Reforzamiento no cumple normativa, Se presentan indices de sobre esfuerzo en elementos	No cumple Normativa, solo es aplicable a edificaciones patrimoniales de uno y dos pisos de adobe y tapia pisada	No Cumple Normativa, los sistemas estructurales no son acordes con la localización de la zona de amenaza sísmica del proyecto	Cumple parametros del Reglamento	
AFECTACIÓN AL COMPONENTE PATRIMONIAL / ARQUITECTÓNICO	No se genera afectación mayor, ya que se utiliza el sistema actual de resistencia	Afectación alta, los sistemas de reforzamiento consisten en el enchaqueta miento por ambas caras del muro, en distancias y zonas específicas con lo cual se ven severamente afectadas los elementos de fachada y molduras de las edificaciones de conservación	Afectación baja a alta; Para los sistema de reforzamiento por muros confinados, se presenta afectación baja a media ya que se presenta elementos en las mismas secciones de los muros y pueden establecerse en zonas de menor afectación, para mampostería reforzada externamente se presenta afectación alta considerando las características patrimoniales de los elementos de fachada.	Afectación alta a media, los sistemas de pórticos en acero requieren de diagonales que presentan cruces con los elementos arquitectónicos de puertas y ventanas lo cual afectará el objetivo del reforzamiento a realizar, adicionalmente se deben evaluar elementos de conexiones que tiene generar mayores cruces con los elementos existentes.	Afectación Baja a media, los sistemas de pórticos de concreto o elementos combinados, genera afectación baja ya que se trabajan por una cara de los muros existentes, conservando de esta manera los elementos arquitectónicos externos, adicionalmente se plantea una vinculación de 1/3 de la sección existente de los muros por lo cual se generar afectaciones medias sobre los elementos internos los cuales serán coordinados con las especialidades de arquitectura y bienes muebles.

Tabla 6 Matriz de alternativas de reforzamiento estructural.

7.1 ETAPA 11

"La intervención estructural debe definirse de acuerdo con el tipo de modificación establecida en A.10.6 dentro de una de tres categorías: (a) Ampliaciones adosadas, (b) Ampliaciones en altura y (c) Actualización al Reglamento."

De acuerdo con los resultados obtenidos para los análisis de vulnerabilidad efectuados para el edificio Capilla, se pudo determinar que la estructura objeto del presenta análisis, no cuenta con un sistema de resistencia sísmica adecuado para la zona de amenaza intermedia en la cual se encuentra ubicado, por tal razón la idea general del reforzamiento obedece al cambio del sistema de resistencia sísmica que satisfaga los requerimientos del Reglamento Colombiano De Construcción Sismo Resistente NSR – 10.

7.1.1 ALCANCE DE LA INTERVENCIÓN.

La intervención estructural debe definirse de acuerdo con A.10.6, dentro de una de las siguientes categorías:

- Ampliaciones adosadas,
- Ampliaciones en altura,
- Actualizaciones al reglamento
- Modificaciones.

Las intervenciones para efectuar sobre el edificio Capilla del Complejo Hospitalario San Juan De Dios, se pueden clasificar dentro del tercer ítem: actualizaciones al reglamento, el cual aplica para *"(…) edificaciones donde no hay ampliación ni en el área ni en su altura y donde voluntariamente el propietario desea modificar la capacidad del sistema estructural para que sea capaz de resistir las solicitaciones que exige la presente versión del Reglamento y así obtener un mejor comportamiento sísmico de la edificación. La actualización debe hacerse siguiendo los requisitos que se dan en A.10.9*."

Por lo tanto, se establecen los siguientes tipos de intervenciones a efectuar sobre las estructuras mencionadas.

- Mantenimiento: Es la acción tendiente a la recuperación y protección de los elementos existentes sin que ello implique alguna alteración de sus características formales y funcionales.

- Consolidación: Acciones de carácter inmediato con el fin de contrarrestar el deterioro de los componentes estructurales, ocasionado por la acción del tiempo, o por la acción e intervención del hombre o la naturaleza.

- Acciones de carácter estructural en placas, muros, vigas y columnas

7.2 ETAPA 12

"El conjunto debe analizarse nuevamente incluyendo la intervención propuesta, la cual debe diseñarse para las fuerzas y esfuerzos obtenidos de este nuevo análisis. El diseño geotécnico y estructural y la construcción deben llevarse a cabo de acuerdo con los requisitos que para cada tipo de modificación establece el presente Capítulo."

La intervención estructural se encuentra definida como una actualización al reglamento, con lo cual se busca satisfacer los requerimientos de las normativas vigentes y de esta manera llevar a la estructura a un estado adecuado de acuerdo con los estándares del Reglamento Colombiano De Construcción Sismo Resistente NSR – 10.

De acuerdo con lo anterior se propone generar un sistema de resistencia sísmica compuesto por un sistema de columnas y vigas que soporten los muros existentes que pasan a considerarse elementos no estructurales, de esta manera brindar un sistema de resistencia apto para la zona de amenaza y capacidad de disipación exigidas por el Reglamento.

Las anteriores intervenciones aportaran significativamente al comportamiento global de la estructura y se diseñará de acuerdo con los requisitos que exige el NSR-10, para estructuras nuevas, a continuación, se presenta el análisis realizado para la alternativa antes mencionada.

8 ANÁLISIS DE REFORZAMIENTO

8.1 Análisis Sísmico

DEFINICION DE MOVIMIENTO SISMICO DEL DISEÑO

a.- Ubicación del proyecto: Carrera 10 # 1-59 Sur, Antonio Nariño

b.- Zona de amenaza sísmica: Intermedia

c.- Valor de Aa A_a = 0.15

d.- Valor de Av A_v = 0.20

e.- Zona de Respuesta Sísmica (Microzonificación): Piedemonte B

f.- Tipo de pérfil de suelo:

		Fa	Fv
	A		
	B		
	C		
x	D	1.95	1.70
	E		
	F		

g.- Grupo de uso III

h.- Coeficiente de importancia: I 1.25

i.- Coeficiente de amortig. crítico C.C.A: 5%

j.- Espectro de diseño: Elástico

Observaciones:
Según numeral A.6.2.1.2, el coeficiente de importancia a utilizar para el cálculo del desplazamiento horizontal I= 1 y para el diseño III= 1.25

Revisó:_____
Ejecutó:_____

CARACTERISTICAS DE LOS MATERIALES Y DE LA ESTRUCTURA

a.-	Sistema estructural:	Sistema Combinado de pantallas y pórticos de concreto - Péndulo Invertido
b.-	Material	Concreto
c.-	Capacidad de disipación de energía	Moderada (DMO)
d.-	Coeficiente de capacidad básica de modificación de respuesta	Ro (X)= 2.5 Ro (Y)= 5.0
	Coeficiente de Sobre resistencia	Ω_0= 2.0 Ω_0= 2.5
e-	Número de edificaciones	1
f-	Número de pisos	2 PISOS

Observaciones:

Revisó:_____
Ejecutó:_____

IRREGULARIDAD DE LA EDIFICACION

a.- EDIFICACIÓN: 2 PISOS

b- CONFIGURACION EN PLANTA

TIPO	DESCRIPCION		∅p
1aP	Irregularidad torsional	**X**	0.9
1bP	Irregularidad torsional extrema	**X**	0.8
2P	Retrocesos en esquinas		1.0
3P	Discontinuidades en el diafragma		1.0
4P	Desplaz. de elementos verticales		1.0
5P	Sistemas no paralelos		1.0
Φp=	0.8		

c.- CONFIGURACION EN ALTURA

TIPO	DESCRIPCION	∅a
1aA	Piso flexible (irregularidad en rigidez)	1.0
1bA	Piso flexible (irregularidad extrema en rigidez)	1.0
2A	Distribución masa	1.0
3A	Irregularidad geométrica	1.0
4A	Desplaz. dentro del plano de acción	1.0
5aA	Piso débil- discontinuidad en la resistencia	1.0
5bA	Piso débil- discontinuidad extrema resistencia	1.0
Φa=	1.0	

d.- AUSENCIA DE REDUNDANCIA ∅RX 1.00
∅Ry 1.00

e.- COEFICIENTE BASICO DE CAPACIDAD DE DISIPACION DE ENERGIA
Ro(X)= 2.5
Ro (Y)= 5.0

f.- COEFICIENTE DE CAPACIDAD DE MODIFICACION DE RESPUESTA

R= (∅a) x (∅p) x(∅r)x Ro
RX= 2.00
RY= 4.00

g.- EFECTOS ORTOGONALES EN CARGAS SISMICAS

Se deben tener en cuenta: (100 % - 30%) x, (30% - 100 %) y

h.- MEZCLA DE SISTEMAS ESTRUCTURALES

No existe, ni en planta ni en altura.

Observaciones:

Revisó:_____
Ejecutó:_____

CARACTERISTICAS DEL DISEÑO

a.- METODO DE ANALISIS SISMICO UTILIZADO

Analisis dinámico elástico espectral

b- METODO DE ANALISIS ESTRUCTURAL

Análisis matricial: Estructura principal

c- METODO DE DISEÑO

Resistencia Ultima

Observaciones:	Revisó:_____ Ejecutó:_____

ESPECTRO SISMICO

MODELO NSR-10

a. - PERIODO DE LA ESTRUCTURA

Ta= $Ct \times h^{\alpha}$

Ct= 0.047 Sistema Combinado de pantallas y pórticos de conc

α = 0.90

hn= 19.03 m

Ta= 0.67 cu= 1.34 Tdinmax 0.89 Tdin: 0.53

T= 0.53

b . - PARÁMETROS

Aa=	0.15	Av=	0.20
Fa=	1.95	Fv=	1.70
I =	1.00		
Idis=	1.25		

c. - LIMITES DEL PERIODO

To=	(0.1*Av*Fv)/(Aa*Fa)	=	0.12
Tc=	(0.48*Av*Fv)/(Aa*Fa)	=	0.56
TL=	TL (Tabla 3., Decreto 523 de 201(	=	3.00

d. - ESPECTRO PARA PERIODOS MENORES A Tc.

Sa 1 = 2.5 * Aa * Fa*I= Sa1= 0.73

e. - ESPECTRO DE ACELERACIONES EN FUNCION DE T

$Sa\ 2 = \frac{1.2 * Av * Fv * I}{T}$ Sa 2= 0.41 /T = 0.78

f. - ESPECTRO PARA PERIODOS MAYORES A T_l.

$Sa\ 3 = \frac{1.2 * Av * Fv * T_l * I}{T^2}$ Sa 3= 1.22 $/T^2$ = 4.42

g. - ESPECTRO SISMICO DE DISEÑO

Sa = 0.73 73% (g)

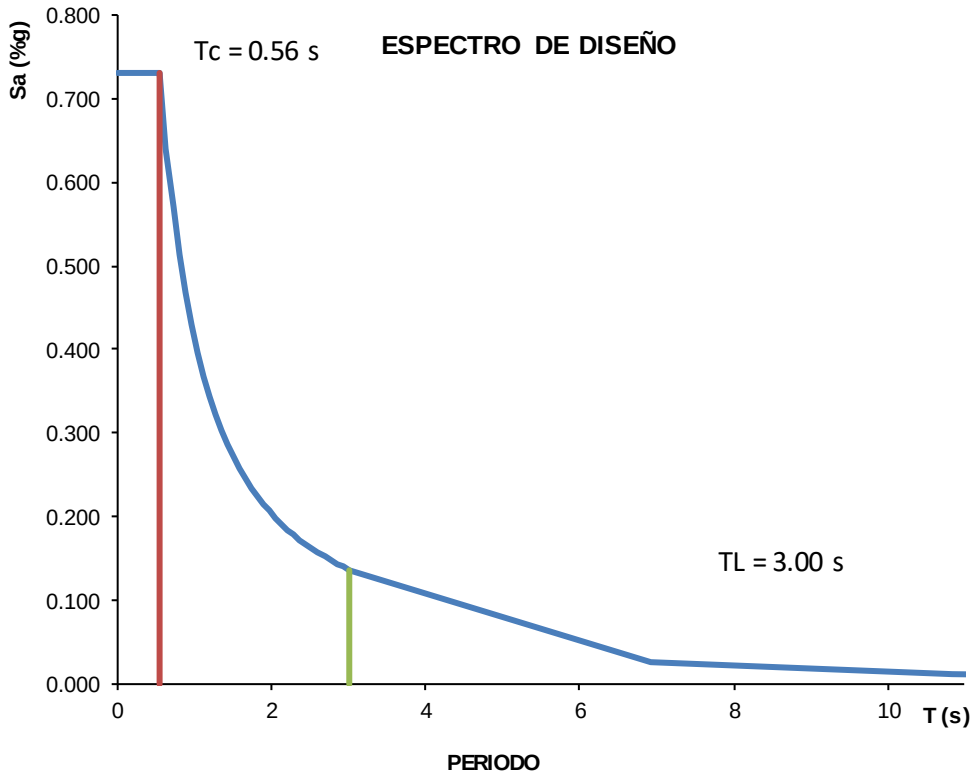
Para el diseño el espéctro sísmico según NSR-10, entonces Sa=0.73 = 73.125%(g)

Observaciones:

Revisó:_____
Ejecutó:_____

ESPECTRO SISMICO DE DISEÑO

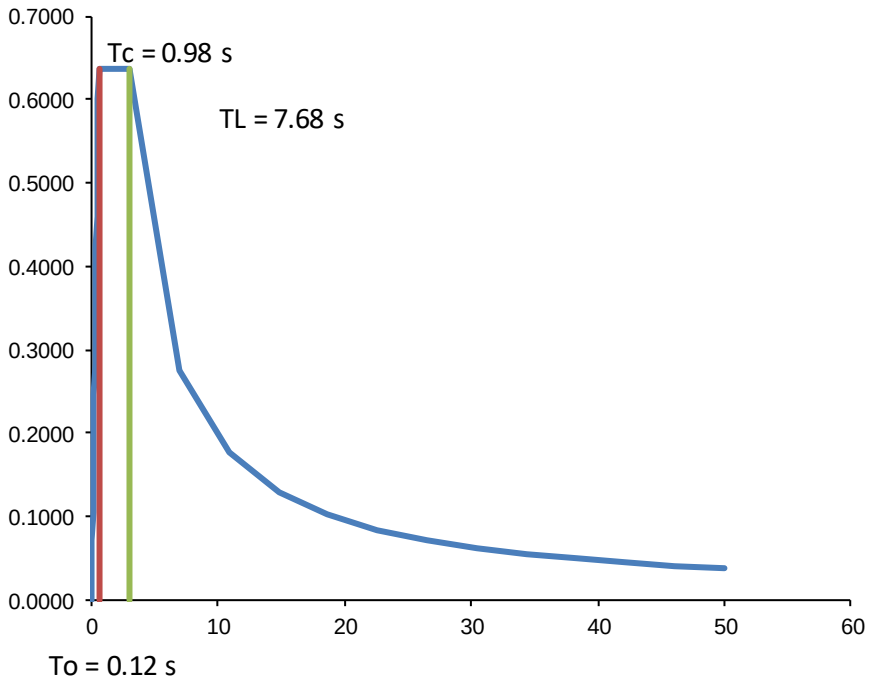
CURVAS DE ESPECTROS DE ACUERDO A LA NSR-10



Observaciones:	Revisó:_____ Ejecutó:_____

ESPECTRO ELASTICO DE VELOCIDADES (m/s) DE DISEÑO

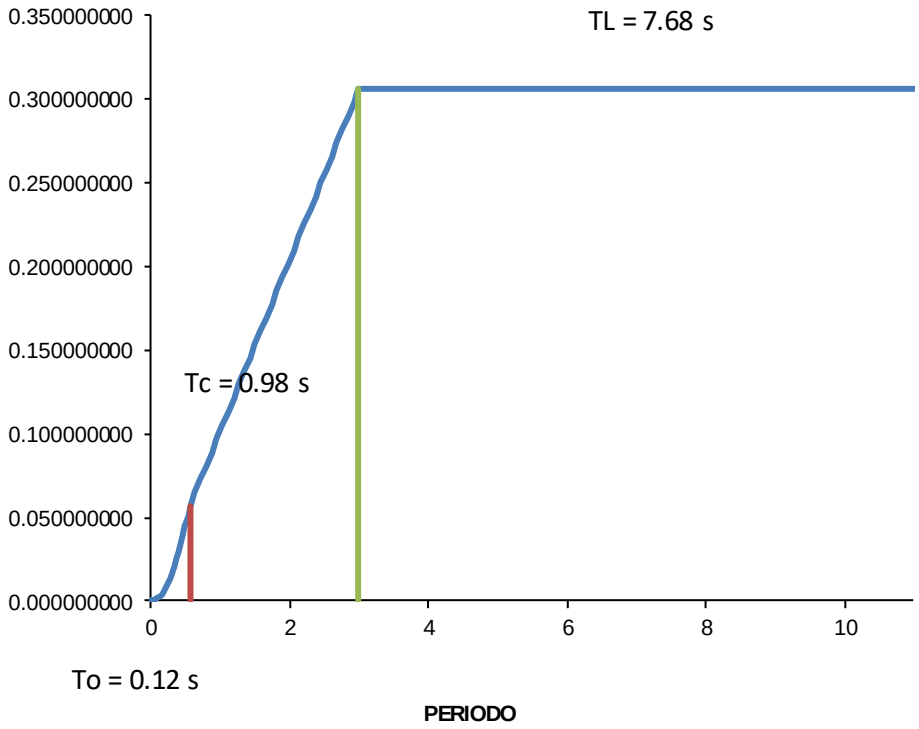
i.



Observaciones:	Revisó:_____ Ejecutó:_____

ESPECTRO ELASTICO DE DESPLAZAMIENTOS (m) DE DISEÑO

j.



Observaciones:	Revisó:_____ Ejecutó:_____

8.2 Peso de la estructura

PESO DE LA EDIFICACION

VOLUMES DE VIGAS Y COLUMNAS

PISO 1 NE+0.00 Area placa = 599.76 m²

Columnas y pantallas

ITEM	b (m)	h /L (m)	H (m)	Cant	V (m3)	Peso (t)
C40X40	0.40	0.40	3.17	22	11.17	26.81
C50X50	0.50	0.50	3.17	12	9.52	22.85
P30	0.30	1.00	3.17	4	3.81	9.14
P40	0.40	1.00	3.17	2	2.54	6.09
P40	0.40	1.30	3.17	2	3.30	7.92
Total				42	30.34	72.81

PISO 2 NE+3.17 Area placa = 599.76 m²

Columnas y Pantallas

ITEM	b (m)	h (m)	H (m)	Cant	V (m3)	Peso (t)
C40X40	0.40	0.40	1.60	22	5.63	13.51
C50X50	0.50	0.50	1.60	12	4.80	11.51
P30	0.30	1.00	1.60	4	1.92	4.61
P40	0.40	1.00	1.60	2	1.28	3.07
P40	0.40	1.30	1.60	2	1.66	3.99
Total				42	15.29	36.69

Vigas Entrepiso

ITEM	b (m)	h (m)	L (m)	V (m3)	Peso (t)
V20X60	0.20	0.60	62.57	7.51	18.02
V30X40	0.30	0.40	29.42	3.53	8.47
SOLERA	0.35	0.35	23.61	2.89	2.02
Total				13.93	28.52

iguetas Entrepiso

ITEM	b (m)	h (m)	L (m)	V (m3)	Peso (t)
VIGUETAS	0.05	0.35	231.95	4.06	2.84
Total				4.06	2.84

CORO N +4.77 Area placa = 599.76 m²

Columnas y Pantallas

ITEM	b (m)	h (m)	H (m)	Cant	V (m3)	Peso (t)
C40X40	0.40	0.40	0.83	20	2.66	6.38
C50X50	0.50	0.50	0.83	12	2.49	5.98
P30	0.30	1.00	0.83	4	1.00	2.39
P40	0.40	1.00	0.83	2	0.66	1.59
P40	0.40	1.30	0.83	2	0.86	2.07
Total				40	7.67	18.41

Vigas Entrepiso

ITEM	b (m)	h (m)	L (m)	V (m3)	Peso (t)
V20X60	0.20	0.60	71.21	8.54	20.51
Total				8.54	20.51

Viguetas Entrepiso

ITEM	b (m)	h (m)	L (m)	V (m3)	Peso (t)
VIGUETAS	0.05	0.35	157.87	2.76	1.93
Total				2.76	1.93

CUBIERTA 1 N +5.60 Area placa = 599.76 m²

Columnas

ITEM	b (m)	h (m)	H (m)	Cant	V (m3)	Peso (t)
C40X40	0.40	0.40	3.41	10	5.46	13.09
C50X50	0.50	0.50	3.41	12	10.23	24.55
P30	0.30	1.00	3.41	4	4.09	9.82
P40	0.40	1.00	3.41	2	2.73	6.55
P40	0.40	1.30	3.41	2	3.55	8.51
Total				30	26.05	62.52

Vigas Entrepiso

ITEM	b (m)	h (m)	L (m)	V (m3)	Peso (t)
V20X60	0.20	0.60	41.49	4.98	11.95
V30X40	0.30	0.40	58.68	7.04	16.90
TIRANTE	0.20	0.20	54.93	2.20	1.54
Total				14.22	30.39

Viguetas Entrepiso

ITEM	b (m)	h (m)	L (m)	V (m3)	Peso (t)
CORREA	0.00	0.00	0.00	0.00	0.00
Total				0.00	0.00

CUBIERTA 2 N +9.01 Area placa = 599.76 m²

Columnas

ITEM	b (m)	h (m)	H (m)	Cant	V (m3)	Peso (t)
C40X40	0.40	0.40	2.81	4	1.80	4.31
C40X40	0.40	0.40	1.15	2	0.37	0.88
C50X50	0.50	0.50	2.81	12	8.42	20.21
P30	0.30	1.00	2.81	4	3.37	8.08
P40	0.40	1.00	2.81	2	2.25	5.39
P40	0.40	1.30	2.81	2	2.92	7.00
Total				26	19.11	45.88

Vigas Entrepiso

ITEM	b (m)	h (m)	L (m)	V (m3)	Peso (t)
V20X60	0.20	0.60	49.63	5.96	14.29
TIRANTE	0.20	0.20	5.73	0.23	0.16
Total				6.18	14.45

Viguetas Entrepiso

ITEM	b (m)	h (m)	L (m)	V (m3)	Peso (t)
CORREA	0.00	0.00		0.00	0.00
Total				0.00	0.00

CUBIERTA - RASO N +11.82 Area placa = 599.76 m²

Columnas

ITEM	b (m)	h (m)	H (m)	Cant	V (m3)	Peso (t)
C40X40	0.40	0.40	3.81	4	2.44	5.85
P30	0.30	1.00	3.81	2	2.29	5.49
P40	0.40	1.00	3.81	2	3.05	7.32
Total				8	7.77	18.65

Vigas Entrepiso

ITEM	b (m)	h (m)	L (m)	V (m3)	Peso (t)
V20X60	0.20	0.60	98.50	11.82	28.37
TIRANTE	0.20	0.20	70.56	2.82	1.98
Total				14.64	30.35

Viguetas Entrepiso

ITEM	b (m)	h (m)	L (m)	V (m3)	Peso (t)
CORREA	0.00	0.00		0.00	0.00
Total				0.00	0.00

CUBIERTA 3 N +15.63 Area placa = 599.76 m²

Columnas

ITEM	b (m)	h (m)	H (m)	Cant	V (m3)	Peso (t)
C40X40	0.40	0.40	3.40	4	2.18	5.22
P30	0.30	1.00	3.40	2	2.04	4.90
P40	0.40	1.00	3.40	2	2.72	6.53
Total				8	6.94	16.65

Vigas Entrepiso

ITEM	b (m)	h (m)	L (m)	V (m3)	Peso (t)
PAR(IPE)			132.19	0.00	0.00
Total				0.00	0.00

Viguetas Entrepiso

ITEM	b (m)	h (m)	L (m)	V (m3)	Peso (t)
CORREA	0.10	0.10	379.75	3.80	2.66
Total				3.80	2.66

CUBIERTA 4 N +19.03 Area placa = 17.02 m²

Vigas Entrepiso

ITEM	b (m)	h (m)	L (m)	V (m3)	Peso (t)
V20X60	0.20	0.60	23.34	2.80	6.72
Total				2.80	6.72

Viguetas Entrepiso

ITEM	b (m)	h (m)	L (m)	V (m3)	Peso (t)
CORREA	0.10	0.10	0.00	0.00	0.00
Total				0.00	0.00

CALCULO DE DENSIDADES			***PISO 1***		NE+0.00	
Area de placa			599.76	m^2		
MUROS						
	Esp.(m)	Long. (m)	Area (m2)	Carga (kgf/m^3)	h (m)	Peso (t)
MUROS NO ESTRUC.						
MUROS FACHADA						
MUROS FACHADA						
					Total	0.00

MUROS NO ESTRUC.	0.000	t/m^2
MUROS CONTENCIÓN	0.000	t/m^2
DENSIDAD DE VIGAS	0.000	t/m^2
DENSIDAD DE COLUMNAS Y MUROS	0.061	t/m^2
DENSIDAD DE VIGUETAS	0.000	t/m^2

CALCULO DE DENSIDADES PISO 2 N +3.17

Area de placa 599.76 m^2

MUROS

	Esp.(m)	Long. (m)	Area (m2)	Carga (kgf/m^3)	h (m)	Peso (t)
MUROS NO ESTRUCTURALES				1850	0.00	216.12
MUROS NO ESTRUCTURALES	0.15	4.99		1850	2.43	3.36
MUROS NO ESTRUCTURALES				1850	0.00	0.00
						219.48

MUROS NO ESTRUCTURALES 0.366 t/m^2

MUROS CONTENCION 0.000 t/m2

DENSIDAD DE VIGAS 0.048 t/m^2

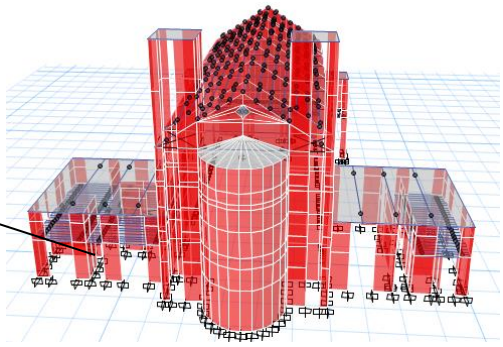
DENSIDAD DE COLUMNAS Y MUROS 0.091 t/m^2

DENSIDAD DE VIGUETAS 0.005 t/m^2

AVALUO DE CARGAS PISO 2 N +3.17

Area (m^2)

92.77



				t/m^2
Placa de concreto	0.05	x	2.40	0.12
Acabado Terrazo 25 mm sobre afinado en concreto				0.15
Cielo Raso entramado metálico suspendido afinado en yeso				0.05
				0.320

VIGAS	0.048	t/m^2
CARGA MUERTA	0.37	t/m^2
CARGA VIVA	0.20	t/m^2

DENSIDADES

VIGAS	0.048	t/m^2
COLUMNAS Y MUROS	0.091	t/m^2
VIGUETAS	0.005	t/m^2

CARGA REAL	0.72	t/m^2
CARGA ULTIMA PARA VIGUETAS	0.32	t/m^2
CARGA PARA ANALISIS SISMICO	0.52	t/m^2

CALCULO DE DENSIDADES CORO N +4.77

Area de placa 599.76 m^2

MUROS

	Esp.(m)	Long. (m)	Area (m2)	Carga (kgf/m^3)	h (m)	Peso (t)
MUROS NO ESTRUCTURALES	0.15	11.74		1850	1.20	3.91
						163.65
						167.56

MUROS NO ESTRUCTURALES 0.279 t/m^2

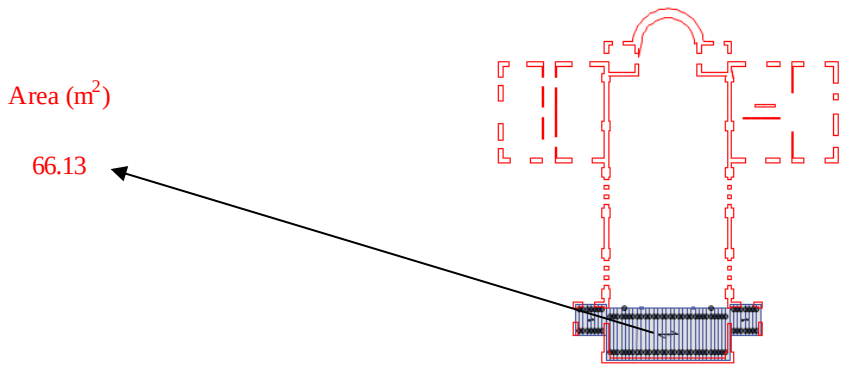
MUROS CONTENCION 0.000 t/m2

DENSIDAD DE VIGAS 0.034 t/m^2

DENSIDAD DE COLUMNAS Y MUROS 0.046 t/m^2

DENSIDAD DE VIGUETAS 0.003 t/m^2

AVALUO DE CARGAS CORO N +4.77



	t/m^2
tablero de madera 75 mm	0.04
Cielo Raso entramado metálico suspendido afinado en yeso	0.05
	0.090

VIGAS	0.034	t/m^2
CARGA MUERTA	0.40	t/m^2
CARGA VIVA	0.70	t/m^2
CARGA VIVA ADICIONAL ORGANO	0.50	t/m^2
AREA ORGANO	3	m^2

DENSIDADES

VIGAS	0.034	t/m^2
COLUMNAS Y MUROS	0.046	t/m^2
VIGUETAS	0.003	t/m^2

CARGA REAL	1.19	t/m^2
CARGA ULTIMA PARA VIGUETAS	1.12	t/m^2
CARGA PARA ANALISIS SISMICO	0.49	t/m^2

CALCULO DE DENSIDADES CUBIERTA 1 N +5.60

Area de placa 599.76 m^2

MUROS

	Esp.(m)	Long. (m)	Area (m2)	Carga (kgf/m^3)	h (m)	Peso (t)
MUROS NO ESTRUCTURALES						201.26
						201.26

MUROS NO ESTRUCTURALES 0.336 t/m^2

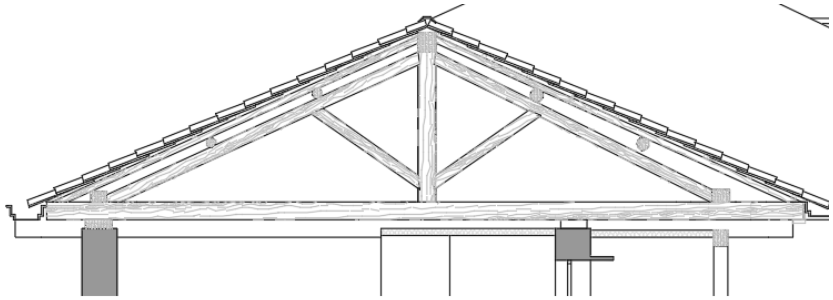
MUROS CONTENCION 0.000 t/m2

DENSIDAD DE VIGAS 0.051 t/m^2

DENSIDAD DE COLUMNAS Y MUROS 0.067 t/m^2

DENSIDAD DE VIGUETAS 0.000 t/m^2

AVALUO DE CARGAS CUBIERTA 1 N +5.60



	t/m^2
Teja de arcilla cubierta en mortero	0.080
Sistema de suspensión de madera	0.015
Tela asfaltica de una capa	0.003
Cerchas en madera	0.033
	0.131

VIGAS	0.051	t/m^2
CARGA MUERTA	0.18	t/m^2
CARGA VIVA O GRANIZO CUBIERTA <15°	0.050	t/m^2
CARGA VIVA O GRANIZO CUBIERTA >15°	0.035	t/m^2

DENSIDADES

VIGAS	0.051	t/m^2
COLUMNAS	0.067	t/m^2
VIGUETAS	0.000	t/m^2

CARGA REAL	0.35	t/m^2
CARGA ULTIMA PARA VIGUETAS	0.24	t/m^2
CARGA PARA ANALISIS SISMICO	0.30	t/m^2

CALCULO DE DENSIDADES CUBIERTA 2 N +9.01

Area de placa 599.76 m^2

MUROS

	Esp.(m)	Long. (m)	Area (m2)	Carga (kgf/m^3)	h (m)	Peso (t)
MUROS NO ESTRUCTURALES						58.58
						58.58

MUROS NO ESTRUCTURALES 0.098 t/m^2

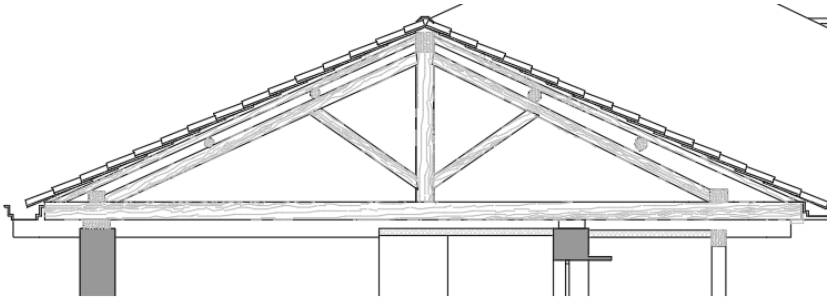
MUROS CONTENCION 0.000 t/m2

DENSIDAD DE VIGAS 0.024 t/m^2

DENSIDAD DE COLUMNAS Y MUROS 0.090 t/m^2

DENSIDAD DE VIGUETAS 0.000 t/m^2

AVALUO DE CARGAS CUBIERTA 2 N +9.01



	t/m^2
Teja de arcilla cubierta en mortero	0.080
Sistema de suspensión de madera	0.015
Tela asfaltica de una capa	0.003
Cerchas en madera	0.033
	0.131

VIGAS	0.024	t/m^2
CARGA MUERTA	0.16	t/m^2
CARGA VIVA O GRANIZO CUBIERTA <15°	0.050	t/m^2
CARGA VIVA O GRANIZO CUBIERTA >15°	0.035	t/m^2

DENSIDADES

VIGAS	0.024	t/m^2
COLUMNAS	0.090	t/m^2
VIGUETAS	0.000	t/m^2

CARGA REAL	0.32	t/m^2
CARGA ULTIMA PARA VIGUETAS	0.24	t/m^2
CARGA PARA ANALISIS SISMICO	0.27	t/m^2

CALCULO DE DENSIDADES CUBIERTA - RASO N +11.82

Area de placa 599.76 m^2

MUROS

	Esp.(m)	Long. (m)	Area (m2)	Carga (kgf/m^3)	h (m)	Peso (t)
MUROS NO ESTRUCTURALES						96.10
						96.10

MUROS NO ESTRUCTURALES 0.160 t/m^2

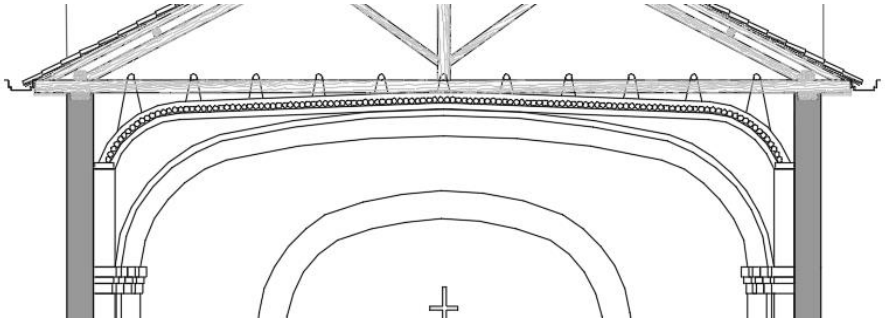
MUROS CONTENCION 0.000 t/m2

DENSIDAD DE VIGAS 0.051 t/m^2

DENSIDAD DE COLUMNAS Y MUROS 0.054 t/m^2

DENSIDAD DE VIGUETAS 0.000 t/m^2

AVALUO DE CARGAS CUBIERTA - RASO N +11.82



	t/m^2
Pañete en entramado de madera	0.08
Sistema de Suspensión de Madera	0.02
	0.095

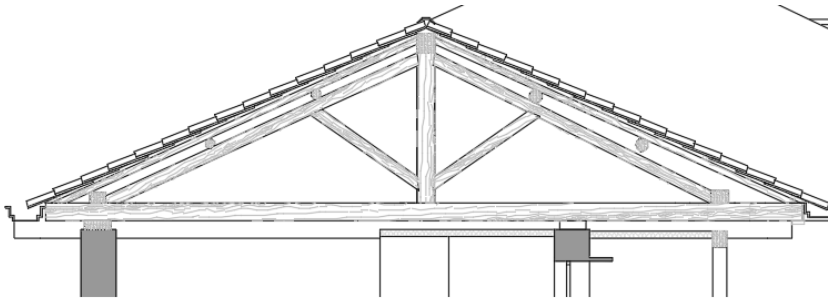
VIGAS	0.051	t/m^2
CARGA MUERTA	0.31	t/m^2
CARGA VIVA	0.00	t/m^2

DENSIDADES

VIGAS	0.051	t/m^2
COLUMNAS Y MUROS	0.054	t/m^2
VIGUETAS	0.000	t/m^2

CARGA REAL	0.41	t/m^2
CARGA ULTIMA PARA VIGUETAS	0.00	t/m^2
CARGA PARA ANALISIS SISMICO	0.41	t/m^2

AVALUO DE CARGAS CUBIERTA - RASO N +11.82



	t/m^2
Teja de arcilla cubierta en mortero	0.080
Sistema de suspensión de madera	0.015
Tela asfaltica de una capa	0.003
Cerchas en madera	0.033
	0.131

VIGAS	0.051	t/m^2
CARGA MUERTA	0.18	t/m^2
CARGA VIVA O GRANIZO CUBIERTA <15°	0.050	t/m^2
CARGA VIVA O GRANIZO CUBIERTA >15°	0.035	t/m^2

DENSIDADES

VIGAS	0.051	t/m^2
COLUMNAS	0.054	t/m^2
VIGUETAS	0.000	t/m^2

CARGA REAL	0.34	t/m^2
CARGA ULTIMA PARA VIGUETAS	0.24	t/m^2
CARGA PARA ANALISIS SISMICO	0.29	t/m^2

CALCULO DE DENSIDADES CUBIERTA 3 N +15.63

Area de placa 599.76 m^2

MUROS

	Esp.(m)	Long. (m)	Area (m2)	Carga (kgf/m^3)	h (m)	Peso (t)
MUROS NO ESTRUCTURALES						
						0.00

MUROS NO ESTRUCTURALES 0.000 t/m^2

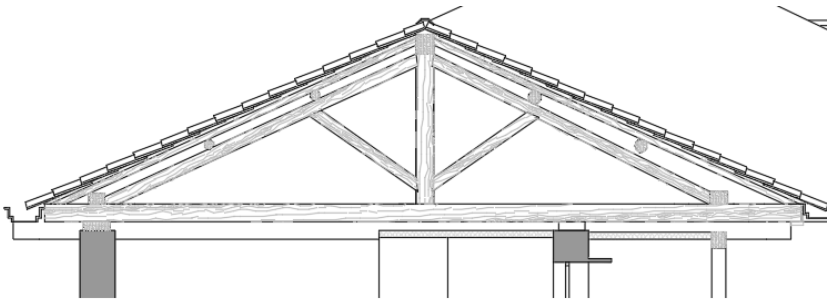
MUROS CONTENCION 0.000 t/m2

DENSIDAD DE VIGAS 0.000 t/m^2

DENSIDAD DE COLUMNAS Y MUROS 0.029 t/m^2

DENSIDAD DE VIGUETAS 0.004 t/m^2

AVALUO DE CARGAS CUBIERTA 3 N +15.63



	t/m^2
Teja de arcilla cubierta en mortero	0.080
Tela asfaltica de una capa	0.003
Cerchas en madera	0.033
	0.116

VIGAS	0.000	t/m^2
CARGA MUERTA	0.12	t/m^2
CARGA VIVA O GRANIZO CUBIERTA <15°	0.050	t/m^2
CARGA VIVA O GRANIZO CUBIERTA >15°	0.035	t/m^2

DENSIDADES

VIGAS	0.000	t/m^2
COLUMNAS	0.029	t/m^2
VIGUETAS	0.004	t/m^2

CARGA REAL	0.20	t/m^2
CARGA ULTIMA PARA VIGUETAS	0.22	t/m^2
CARGA PARA ANALISIS SISMICO	0.15	t/m^2

CALCULO DE DENSIDADES CUBIERTA 4 N +19.03

Area de placa 17.02 m^2

MUROS

	Esp.(m)	Long. (m)	Area (m2)	Carga (kgf/m^3)	h (m)	Peso (t)
MUROS NO ESTRUCTURALES	0.15	23.34		1850	2.15	13.92
						13.92

MUROS NO ESTRUCTURALES 0.818 t/m^2

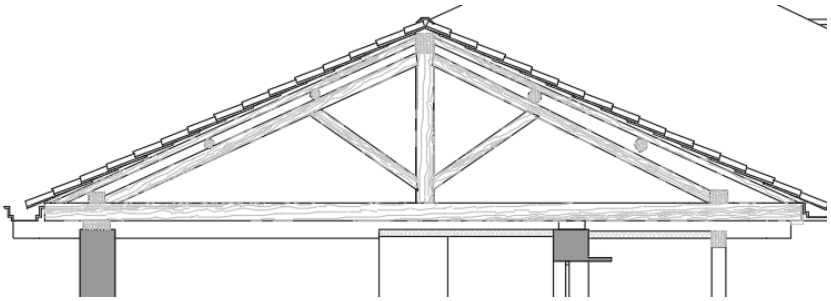
MUROS CONTENCION 0.000 t/m2

DENSIDAD DE VIGAS 0.395 t/m^2

DENSIDAD DE COLUMNAS Y MUROS 0.489 t/m^2

DENSIDAD DE VIGUETAS 0.000 t/m^2

AVALUO DE CARGAS CUBIERTA 4 N +19.03



	t/m^2
Teja de arcilla cubierta en mortero	0.080
Sistema de suspensión de madera	0.015
Tela asfaltica de una capa	0.003
Cerchas en madera	0.033
	0.131

VIGAS	0.395	t/m^2
CARGA MUERTA	0.53	t/m^2
CARGA VIVA O GRANIZO CUBIERTA <15°	0.050	t/m^2
CARGA VIVA O GRANIZO CUBIERTA >15°	0.035	t/m^2

DENSIDADES

VIGAS	0.395	t/m^2
COLUMNAS	0.489	t/m^2
VIGUETAS	0.000	t/m^2

CARGA REAL	1.46	t/m^2
CARGA ULTIMA PARA VIGUETAS	0.24	t/m^2
CARGA PARA ANALISIS SISMICO	1.41	t/m^2

8.3 Centros de Masa y Torsión

TORSION

CENTROS DE MASA Y TORSION ACCIDENTAL

CENTROS DE MASA

N +3.17

CENTRO DE MASA: **X = 18.02** **Y = 20.53**

EXCENTRICIDADA ACCIDENTAL

Dimensiones	**Excentricidad**	**Excentricidad**
N +3.17		
X= 31.92m	ex = 1.60m	e= 1.65m
Y= 32.96m	ey = 1.65m	

CENTROS DE MASA

N +4.77

CENTRO DE MASA: **X = 15.91** **Y = 5.78**

EXCENTRICIDADA ACCIDENTAL

Dimensiones	**Excentricidad**	**Excentricidad**
N +4.77		
X= 31.92m	ex = 1.60m	e= 1.65m
Y= 32.96m	ey = 1.65m	

CENTROS DE MASA

N +5.60

CENTRO DE MASA: **X = 15.85** **Y = 25.83**

EXCENTRICIDADA ACCIDENTAL

Dimensiones	**Excentricidad**	**Excentricidad**
N +5.60		
X= 31.92m	ex = 1.60m	e= 1.65m
Y= 32.96m	ey = 1.65m	

CENTROS DE MASA

N +9.01

CENTRO DE MASA:	**X = 15.92**	**Y = 6.55**

EXCENTRICIDADA ACCIDENTAL

Dimensiones	**Excentricidad**	**Excentricidad**
N +9.01		
X= 31.92m	ex = 1.60m	e= 1.65m
Y= 32.96m	ey = 1.65m	

CENTROS DE MASA

N +11.82

CENTRO DE MASA:	**X = 15.91**	**Y = 23.09**

EXCENTRICIDADA ACCIDENTAL

Dimensiones	**Excentricidad**	**Excentricidad**
N +11.82		
X= 31.92m	ex = 1.60m	e= 1.65m
Y= 32.96m	ey = 1.65m	

CENTROS DE MASA

N +15.63

CENTRO DE MASA: **X = 14.45** **Y = 32.56**

EXCENTRICIDADA ACCIDENTAL

Dimensiones	**Excentricidad**	**Excentricidad**
N +15.63		
X= 31.92m	ex = 1.60m	e= 1.65m
Y= 32.96m	ey = 1.65m	

CENTROS DE MASA

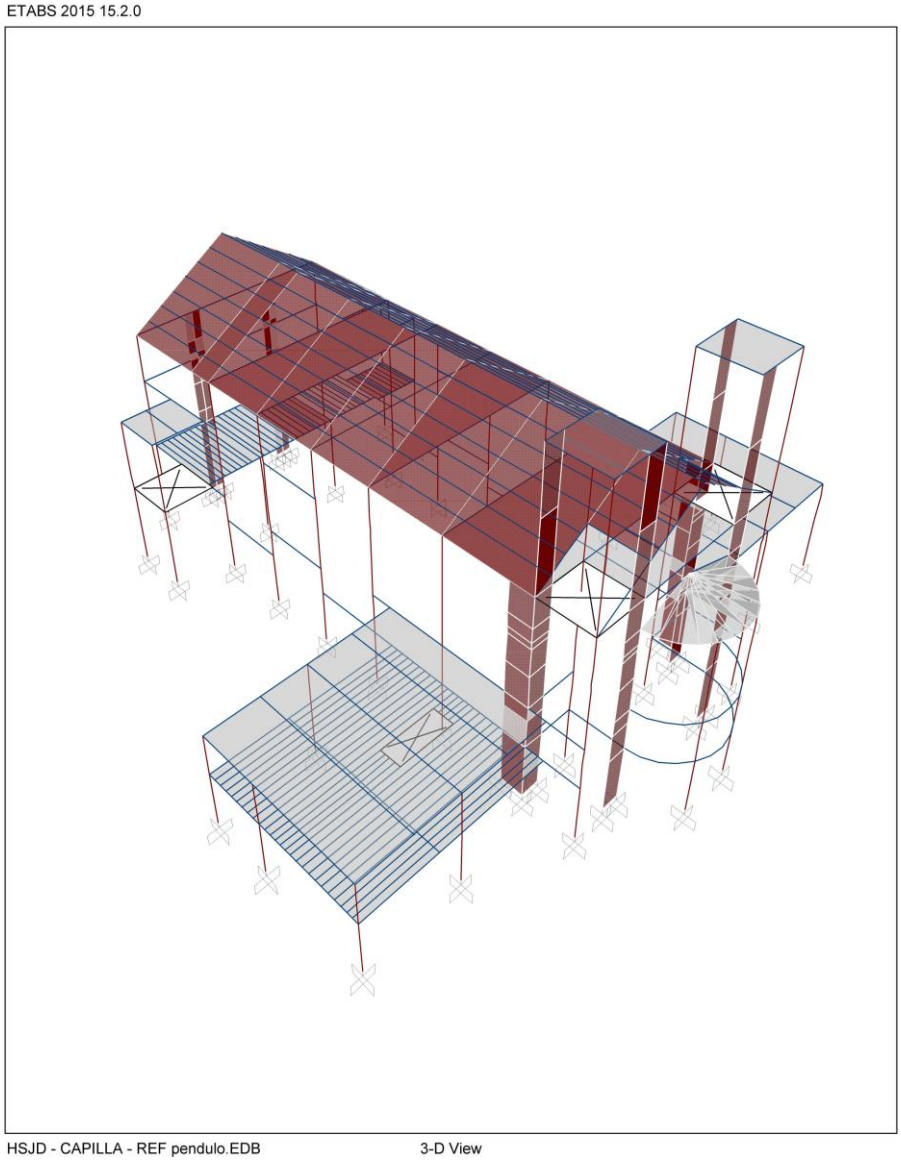
N +19.03

CENTRO DE MASA: **X = 15.94** **Y = 17.88**

EXCENTRICIDADA ACCIDENTAL

Dimensiones	**Excentricidad**	**Excentricidad**
N +19.03		
X= 31.92m	ex = 1.60m	e= 1.65m
Y= 32.96m	ey = 1.65m	

8.4 Estructuración

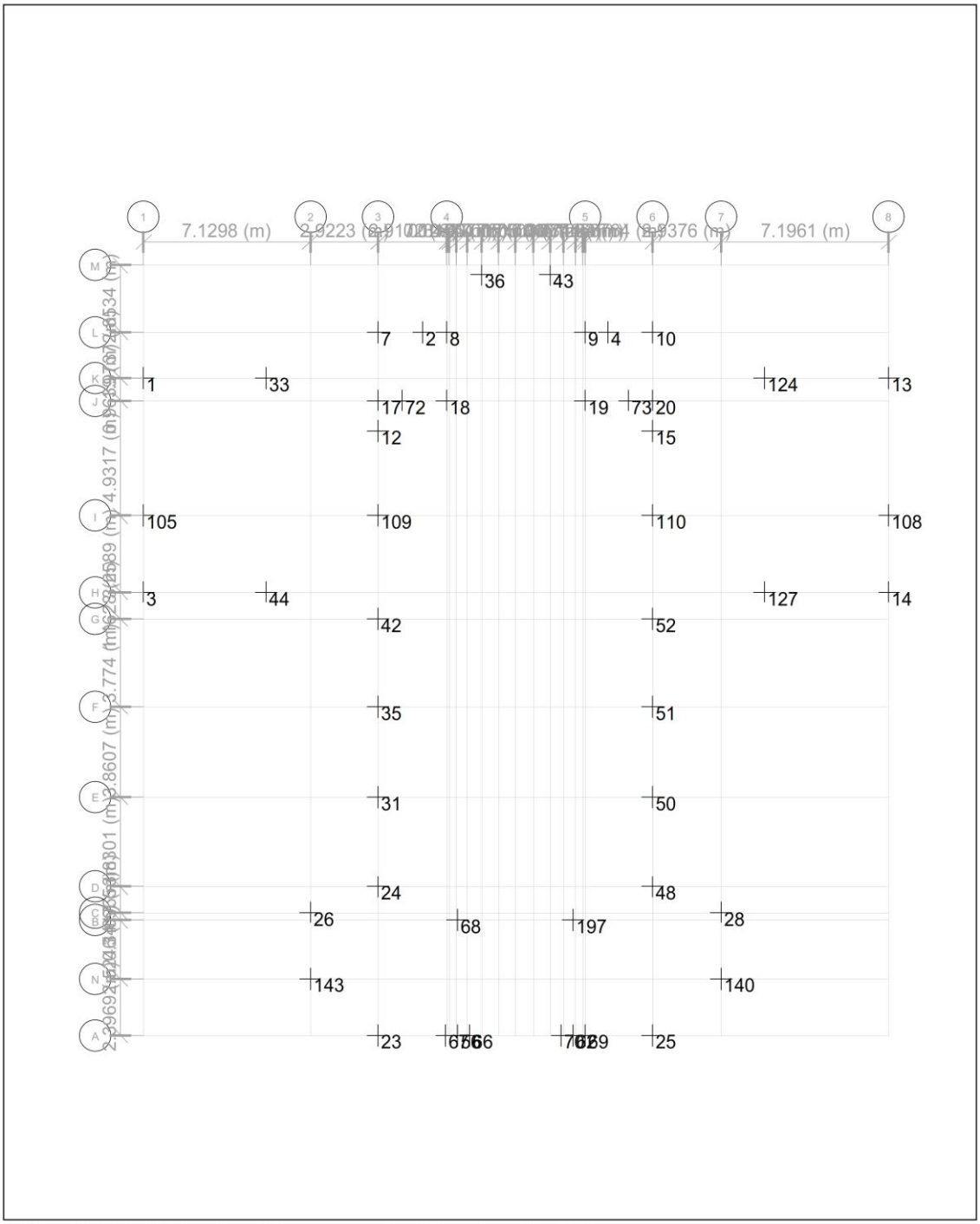


El modelo de la estructura fue hecho con el software ETABS 2015 En este programa se hizo una combinación de herramientas utilizando elementos tipo Frame para la simulación de las vigas, columnas, y elementos tipo Shell para las placas y muros.

Los apoyos de las columnas son apoyos empotrados.

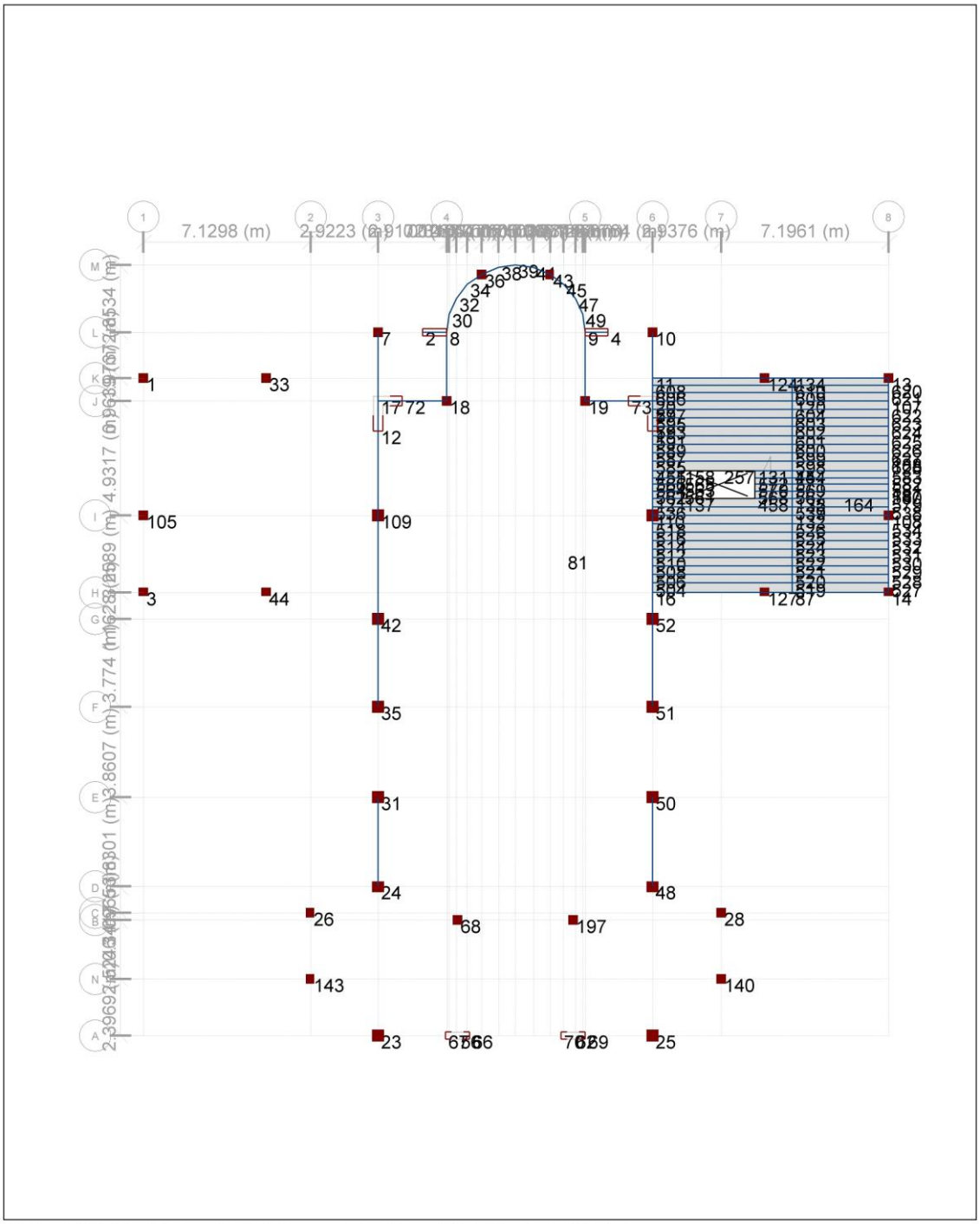
El sistema de cargas de la estructura es estático para cargas muertas y vivas, y dinámico para las fuerzas horizontales.

ETABS 2015 15.2.0



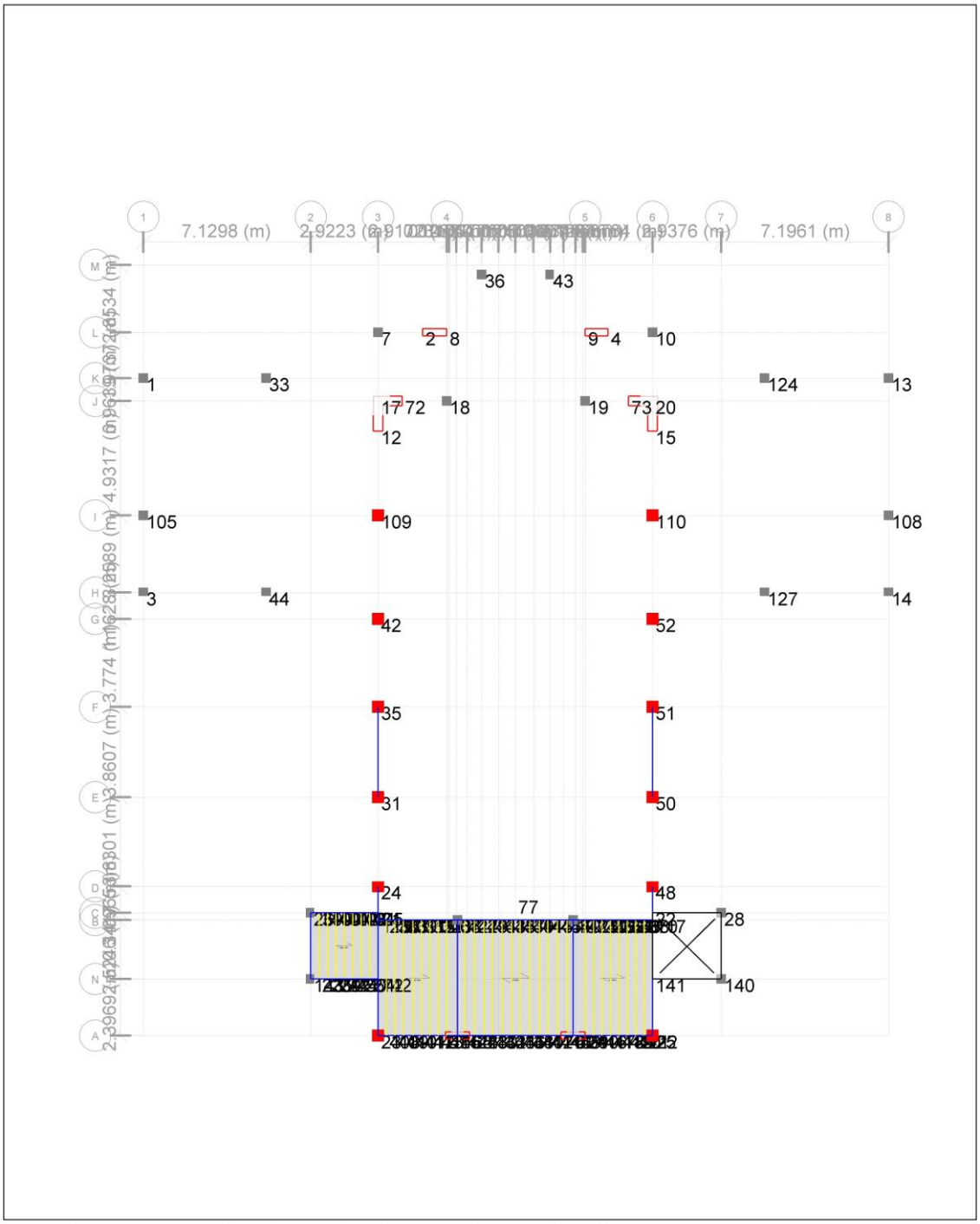
HSJD - CAPILLA - REF pendulo.EDB Plan View - Base - Z = 0 (m)

ETABS 2015 15.2.0



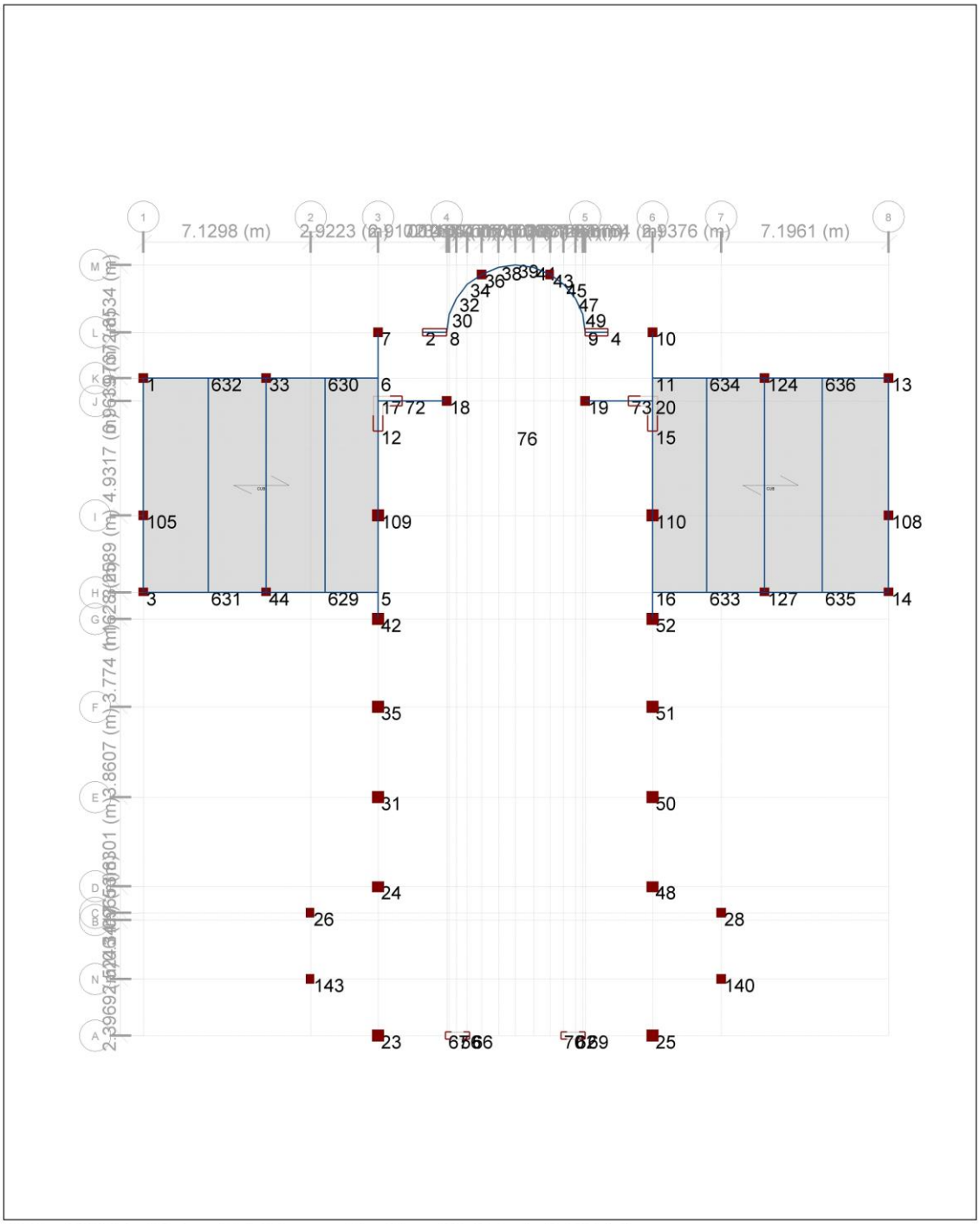
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+3.17 - Z = 3.1735 (m)

ETABS 2015 15.2.0



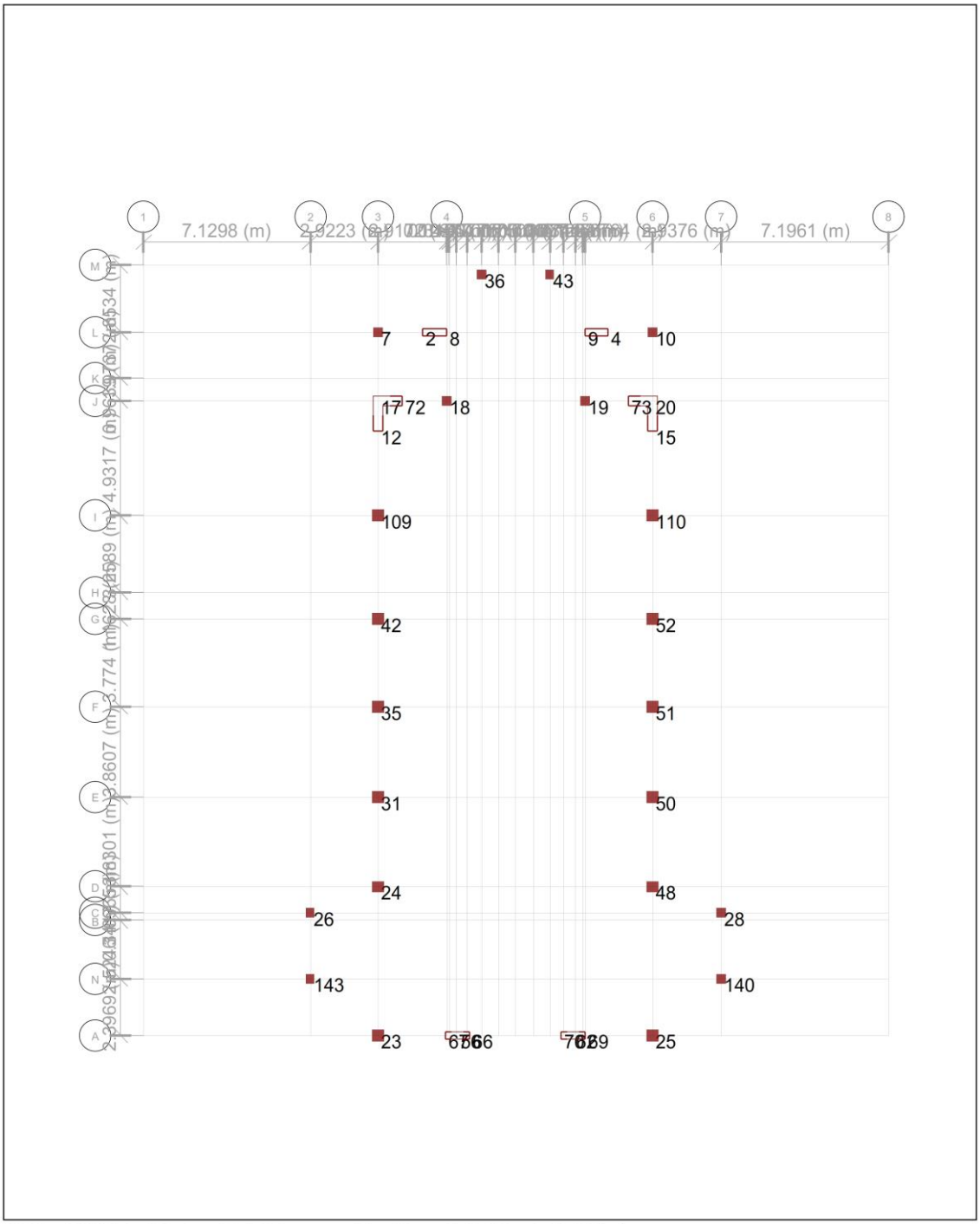
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+4.77 - Z = 4.7727 (m)

ETABS 2015 15.2.0



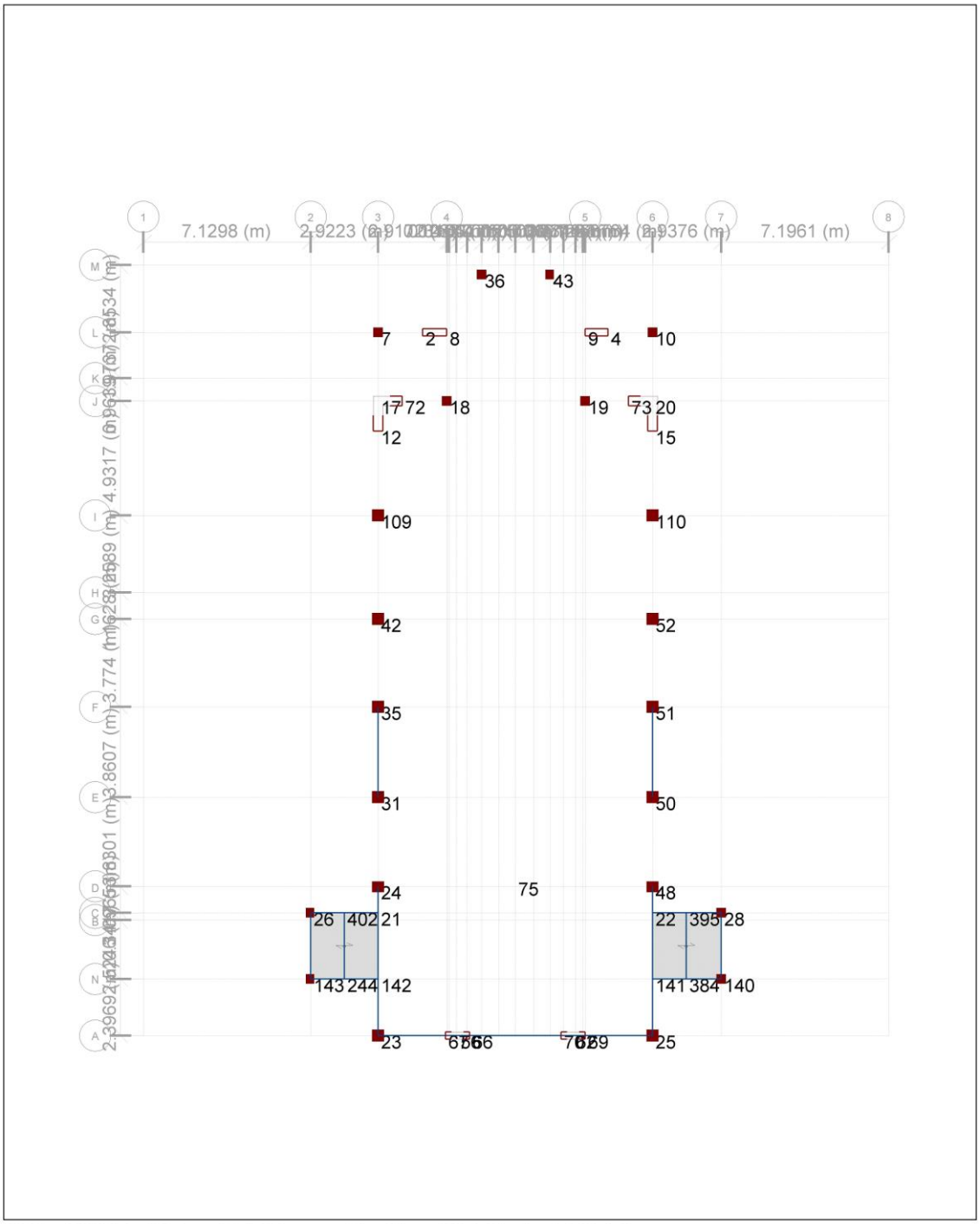
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+5.60 - Z = 5.6031 (m)

ETABS 2015 15.2.0



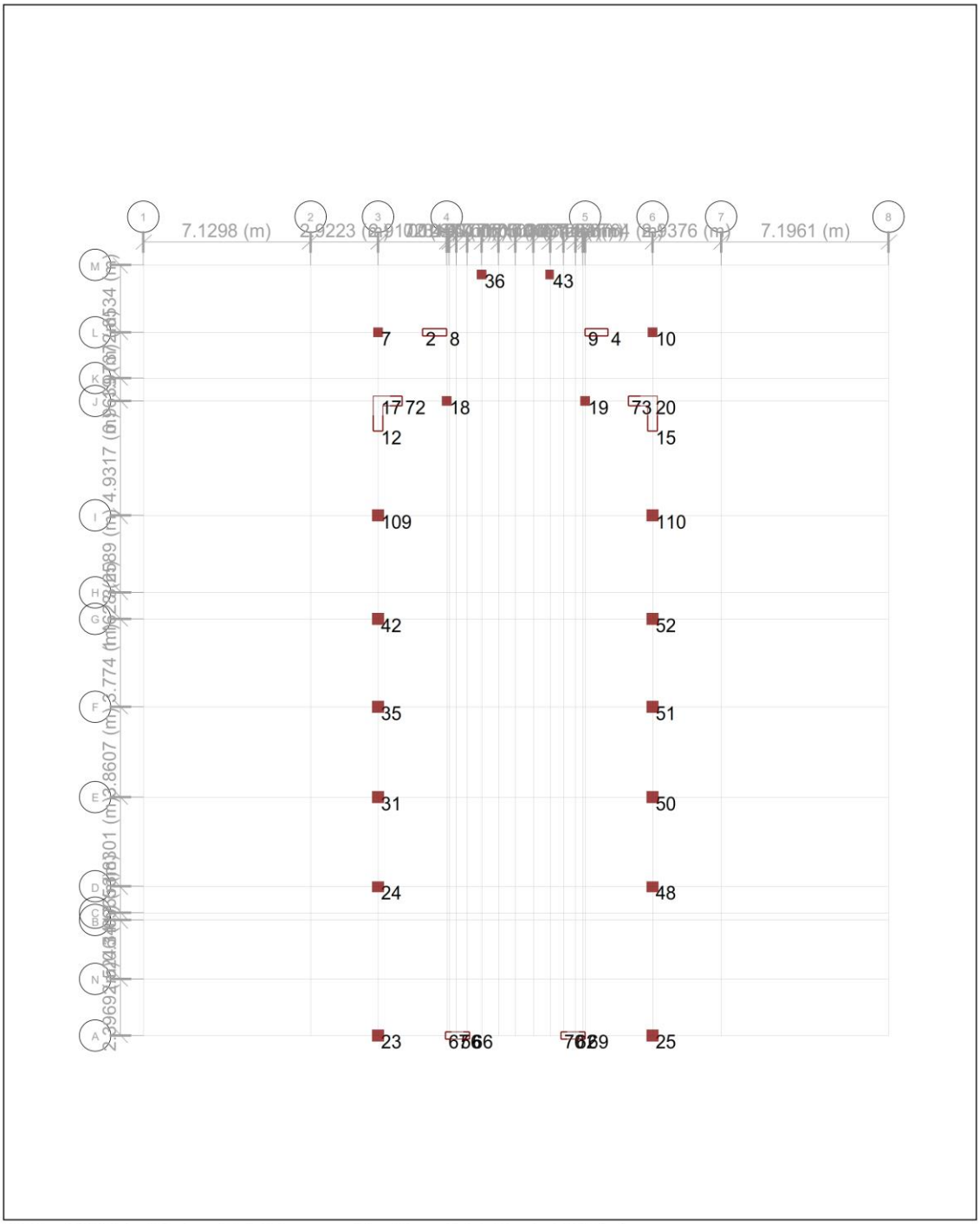
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+7.46 - Z = 7.456 (m)

ETABS 2015 15.2.0



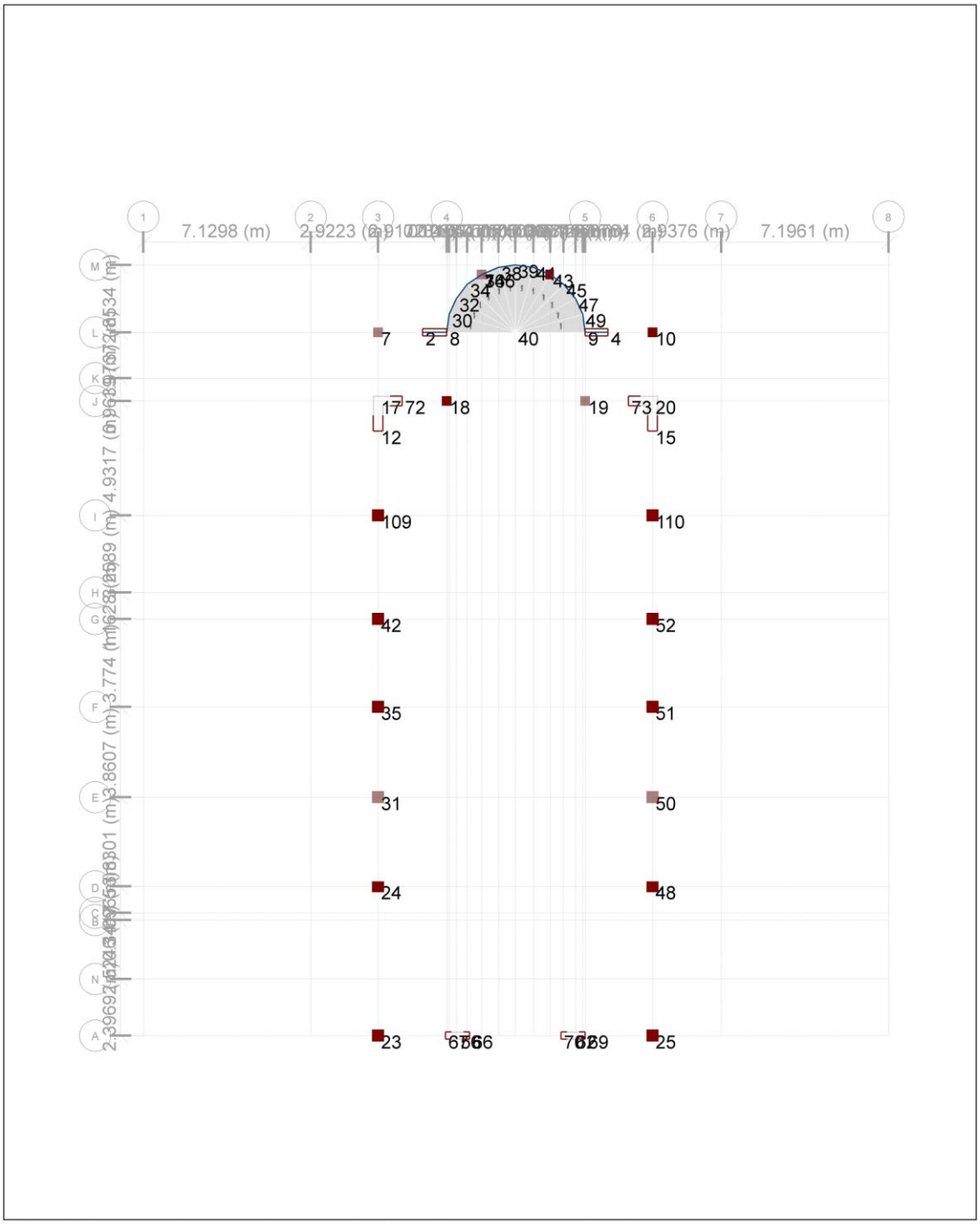
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+9.01 - Z = 9.0128 (m)

ETABS 2015 15.2.0



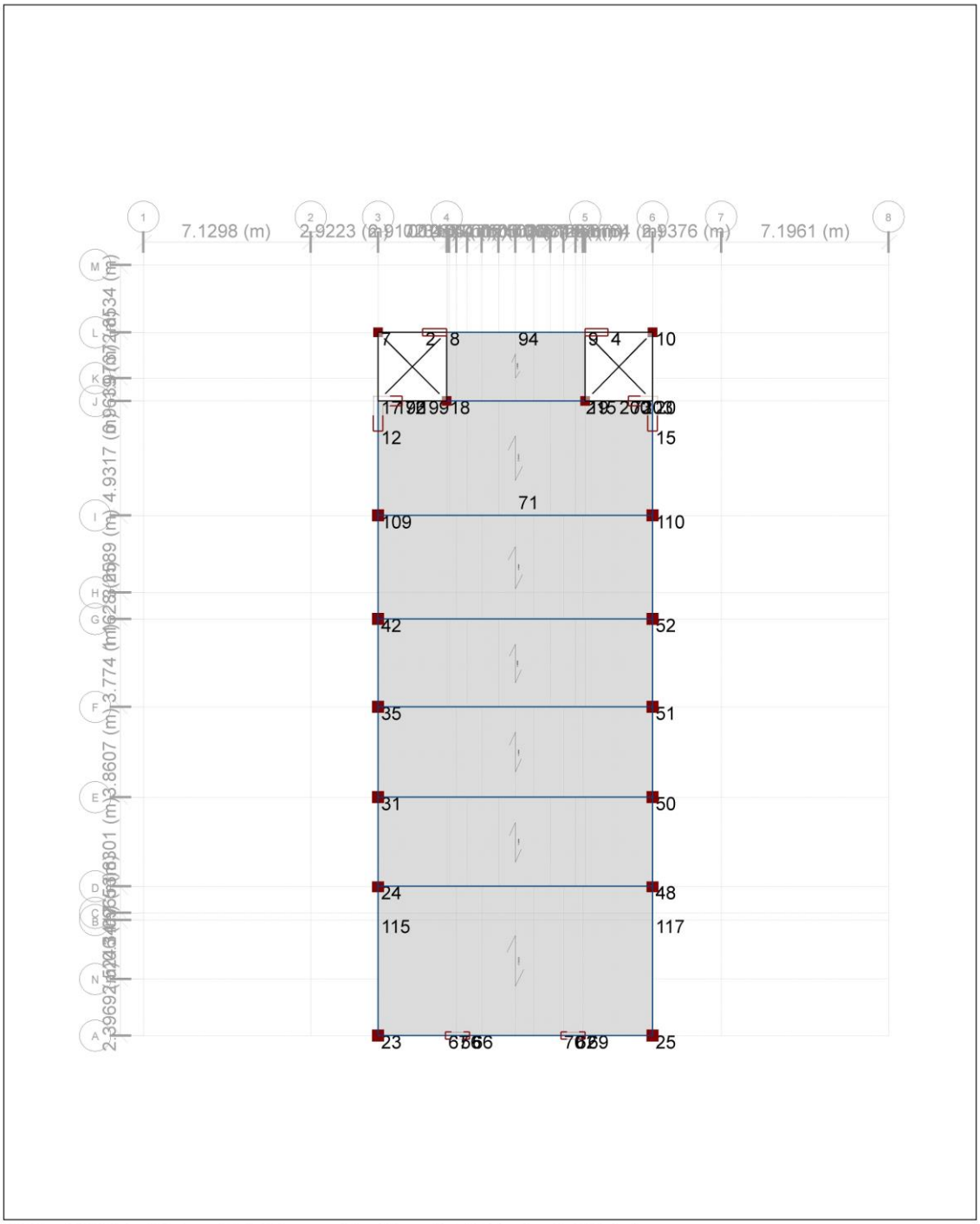
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+9.36 - Z = 9.361 (m)

ETABS 2015 15.2.0



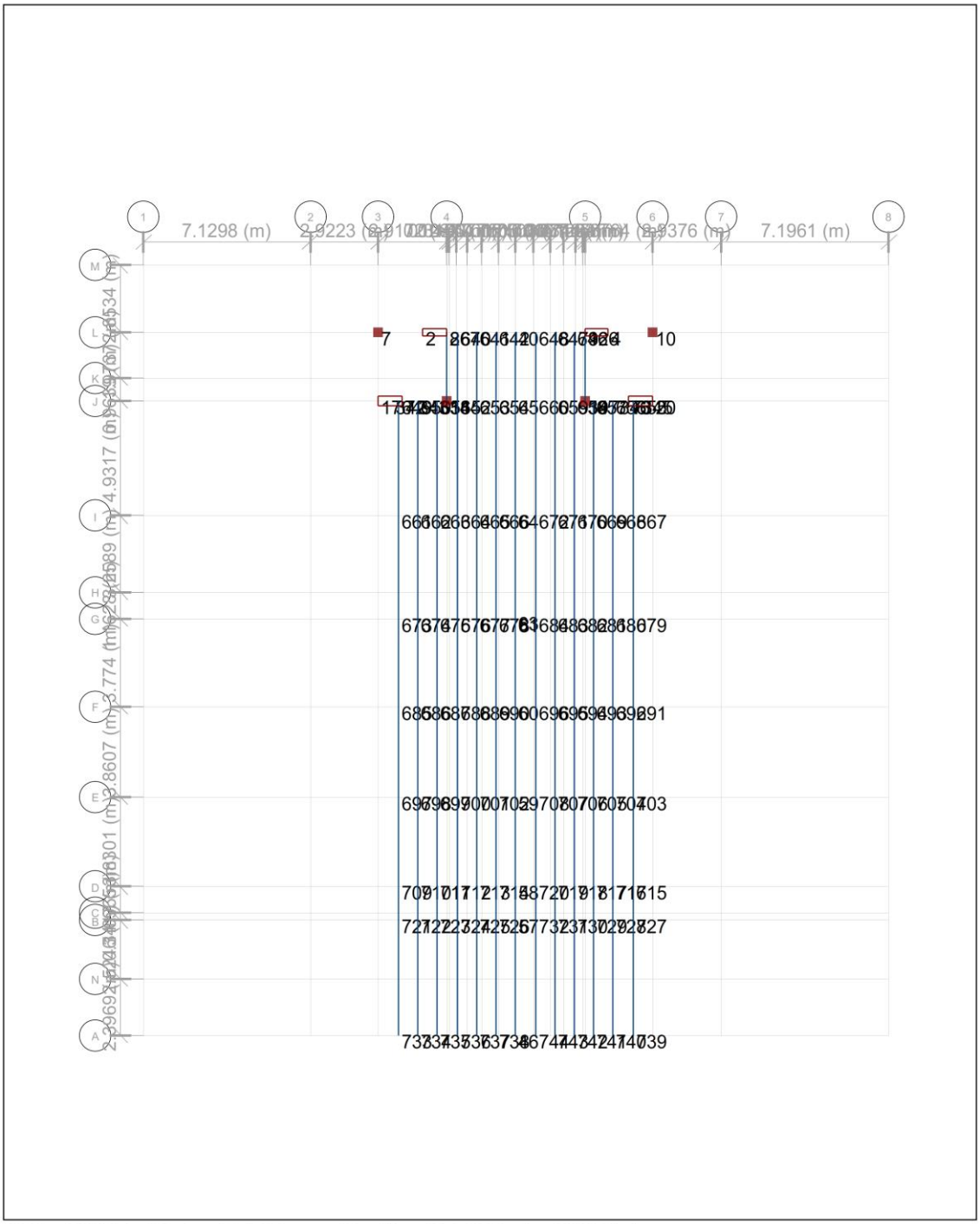
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+10.16 - Z = 10.162 (m)

ETABS 2015 15.2.0



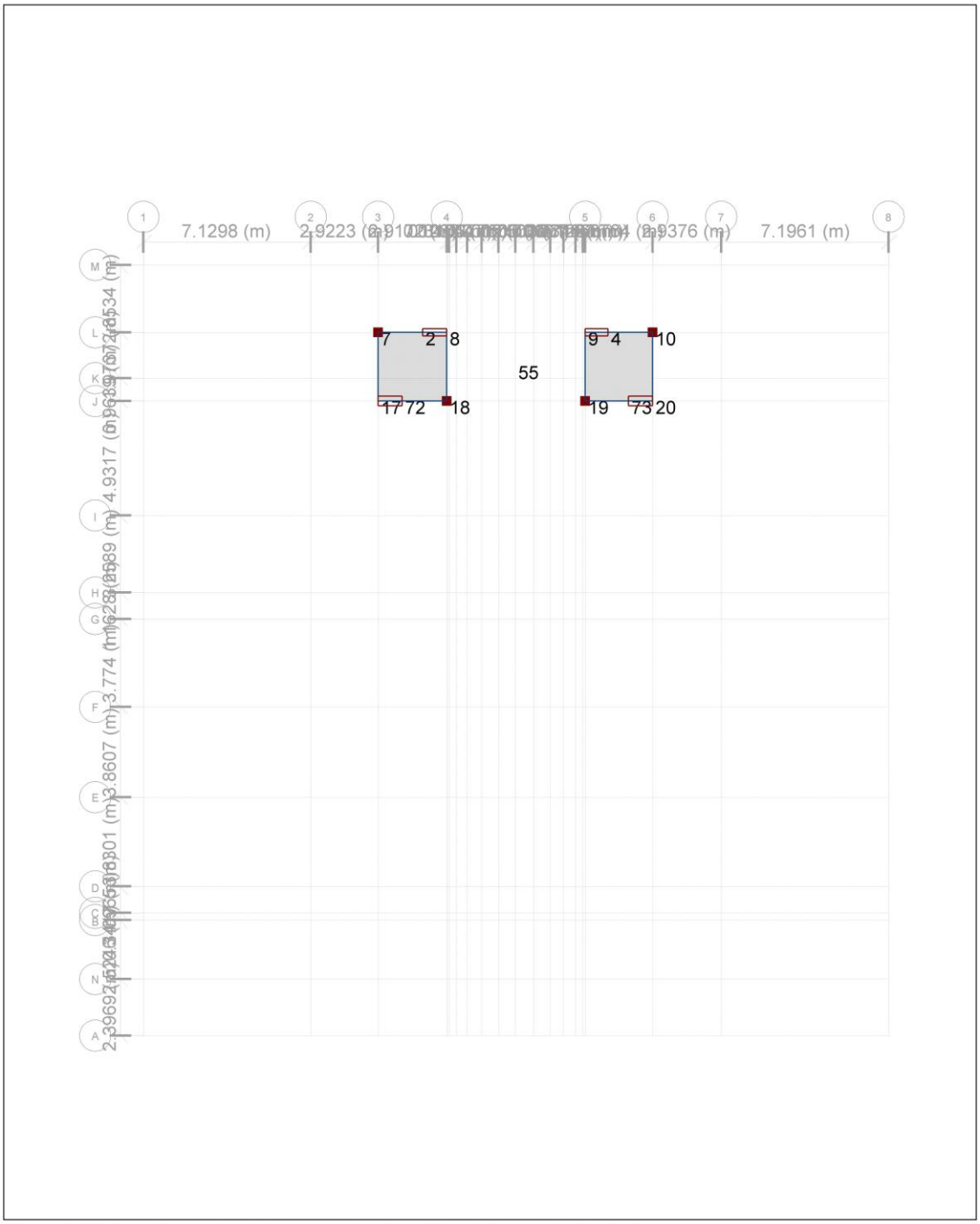
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+11.82 - Z = 11.8191 (m)

ETABS 2015 15.2.0



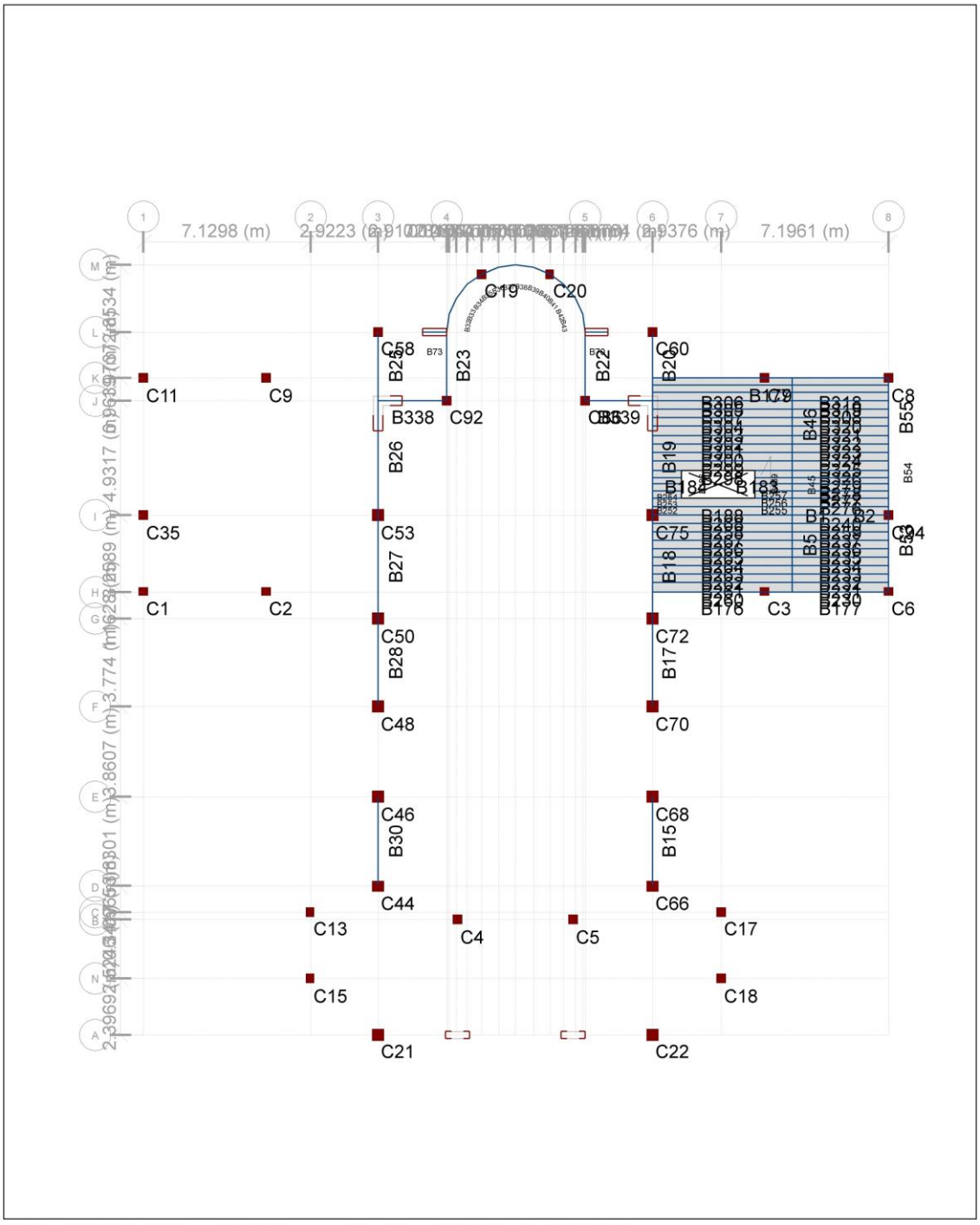
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+15.63 - Z = 15.6291 (m)

ETABS 2015 15.2.0



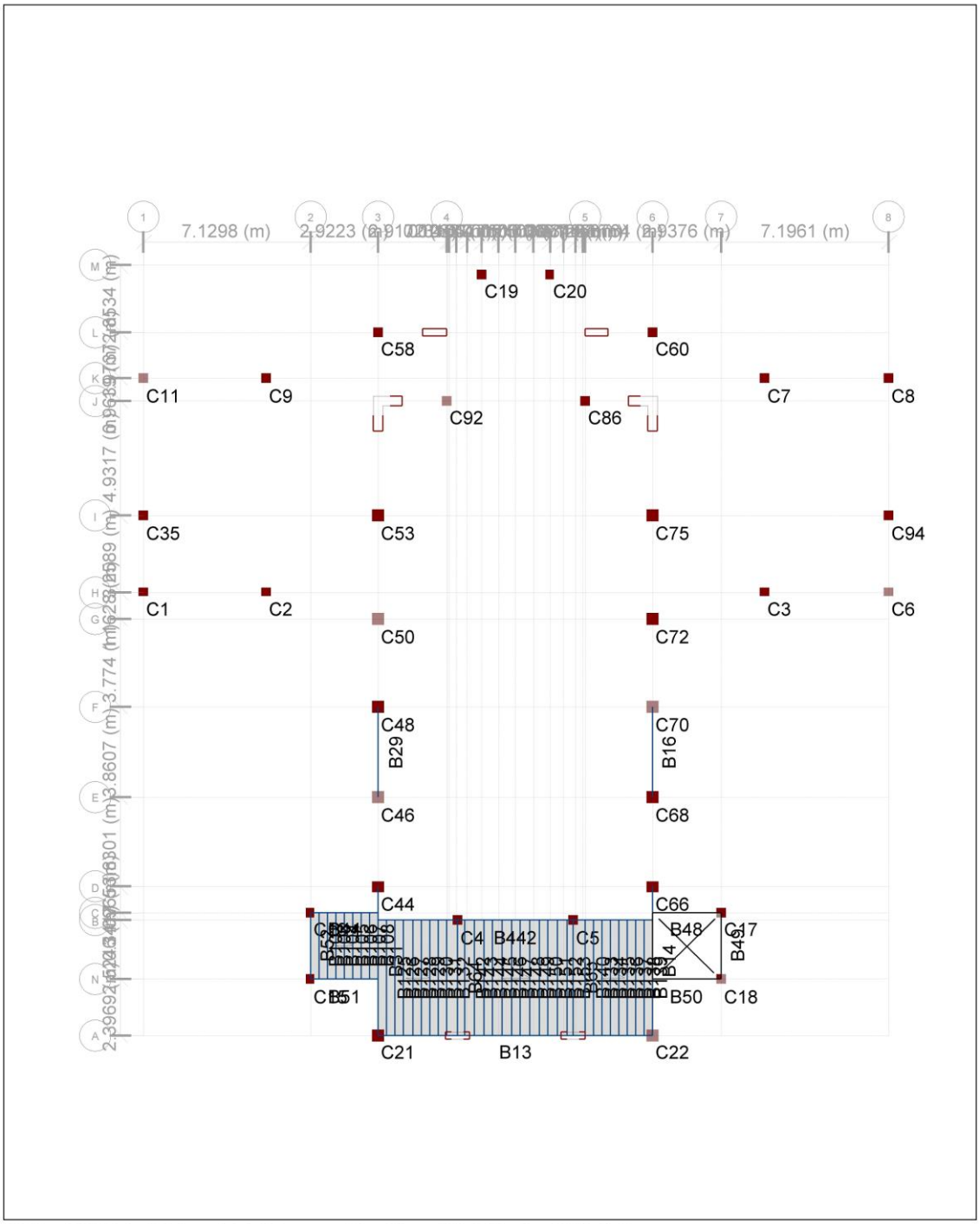
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+19.03 - Z = 19.0291 (m)

ETABS 2015 15.2.0



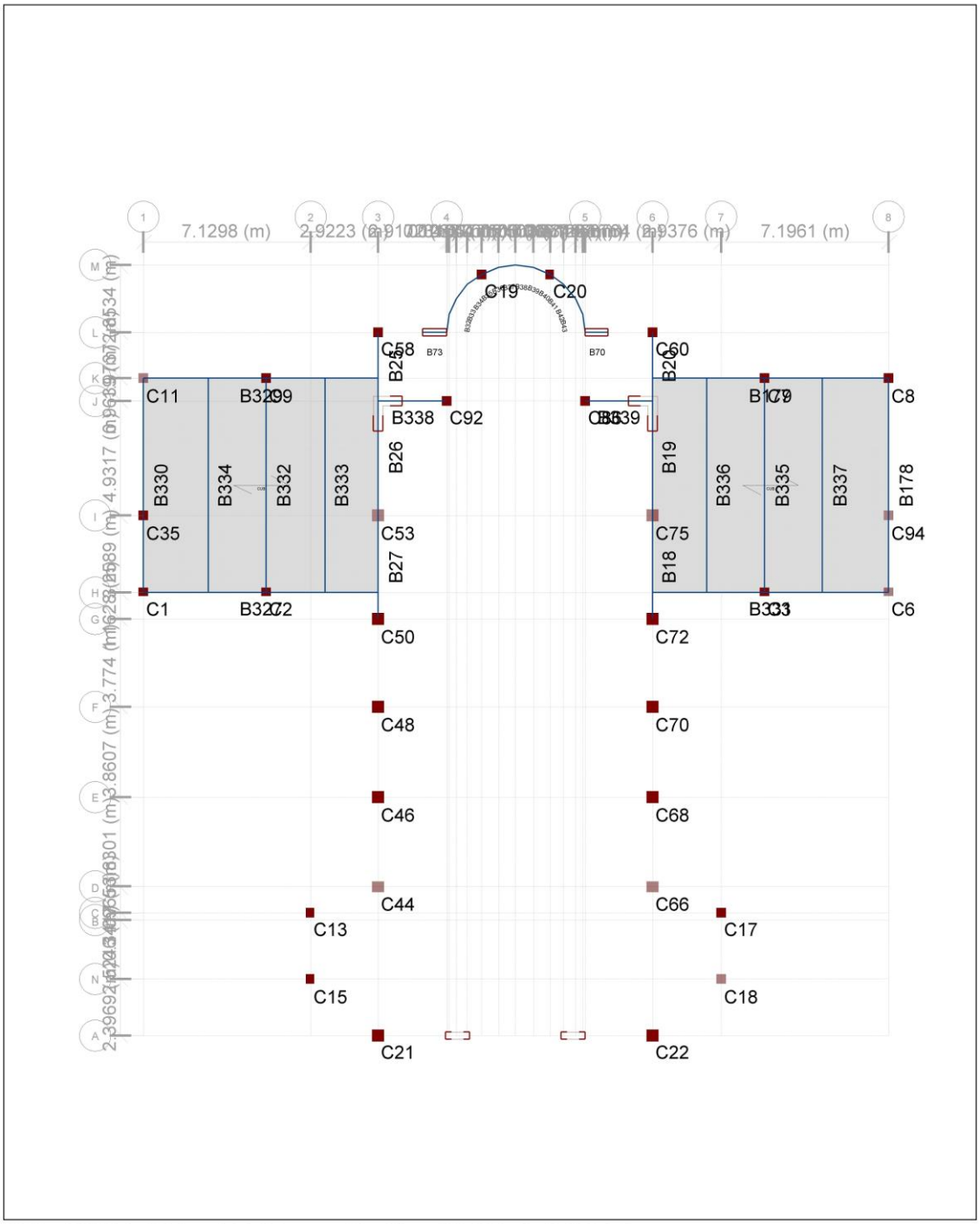
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+3.17 - Z = 3.1735 (m)

ETABS 2015 15.2.0



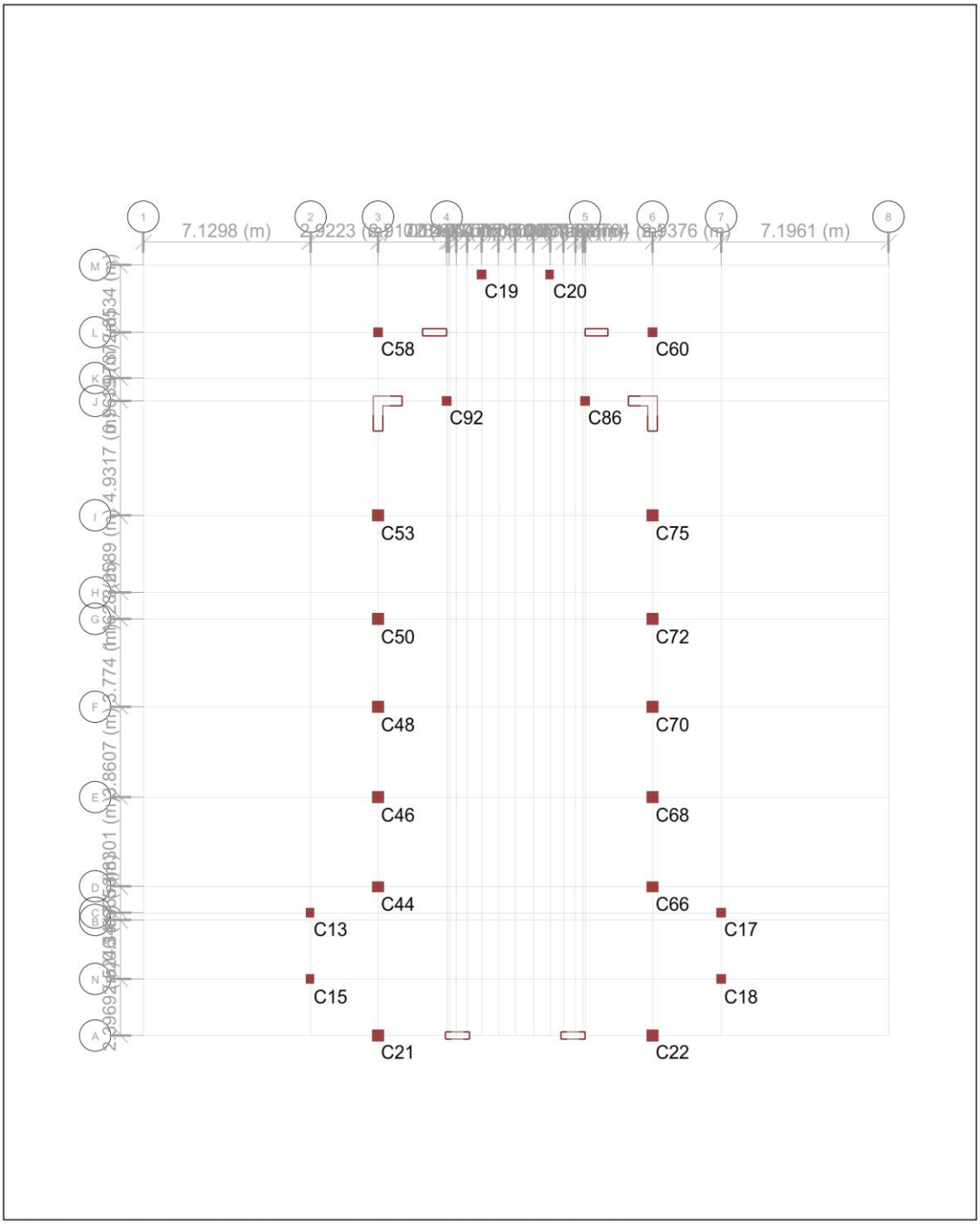
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+4.77 - Z = 4.7727 (m)

ETABS 2015 15.2.0



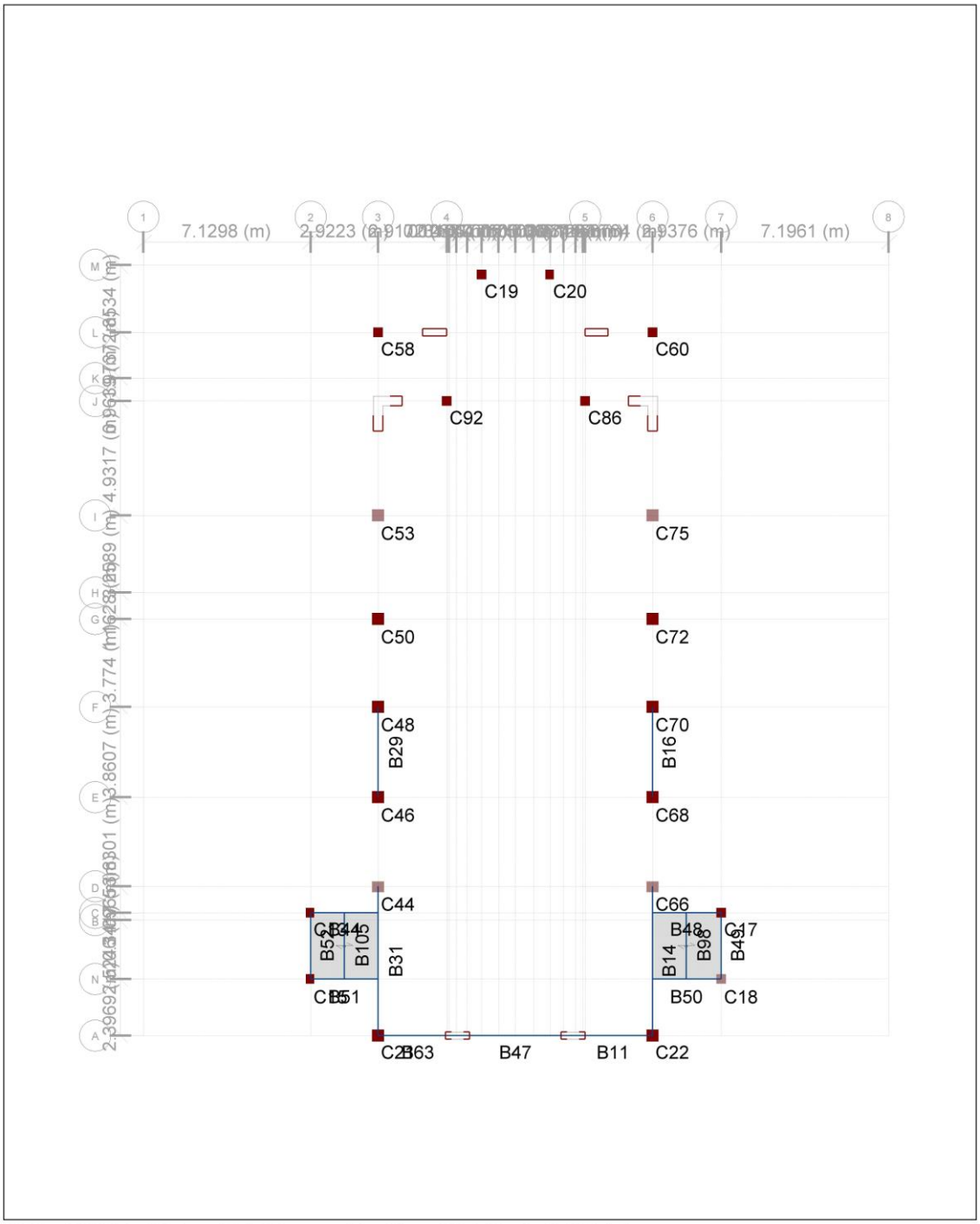
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+5.60 - Z = 5.6031 (m)

ETABS 2015 15.2.0



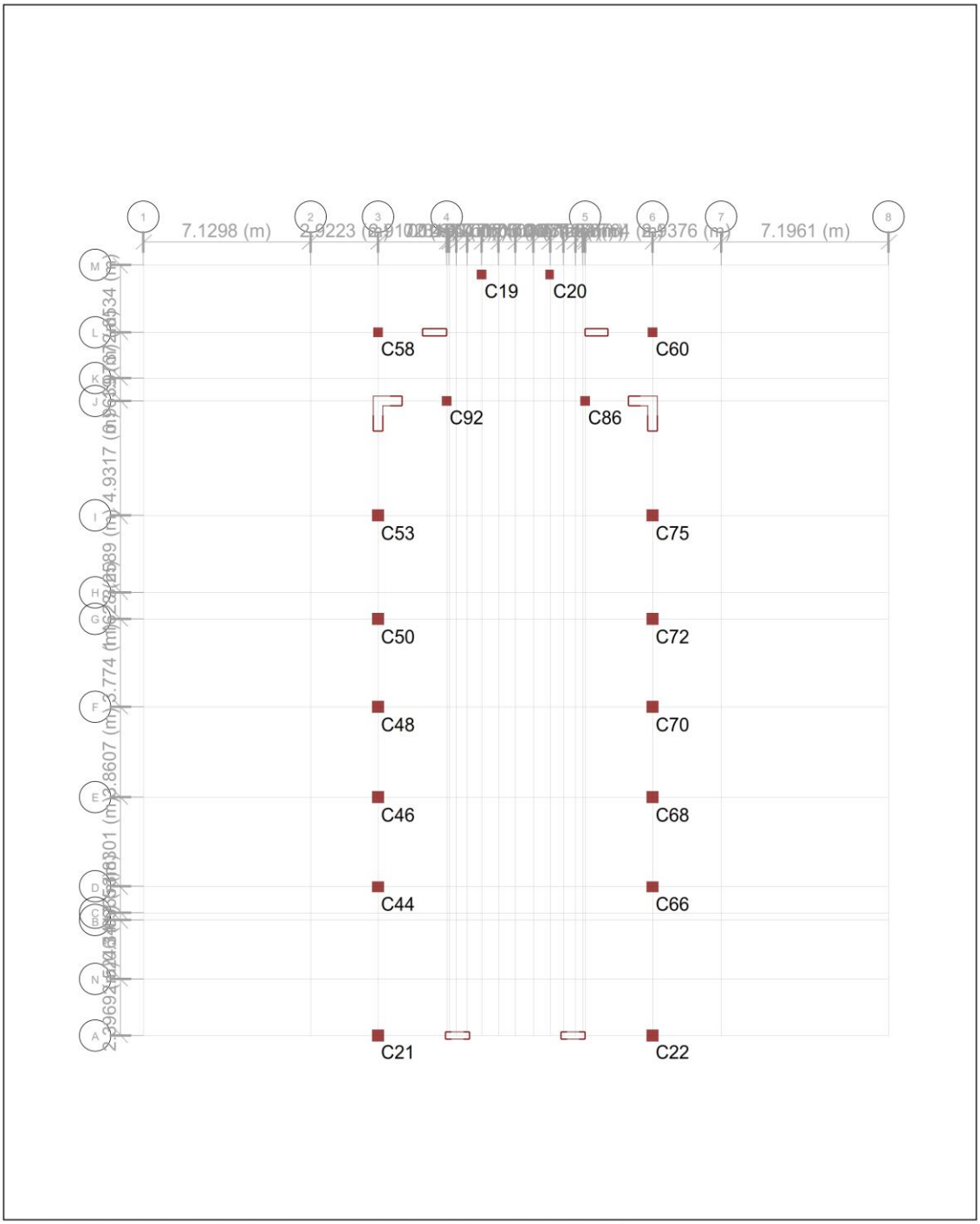
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+7.46 - Z = 7.456 (m)

ETABS 2015 15.2.0



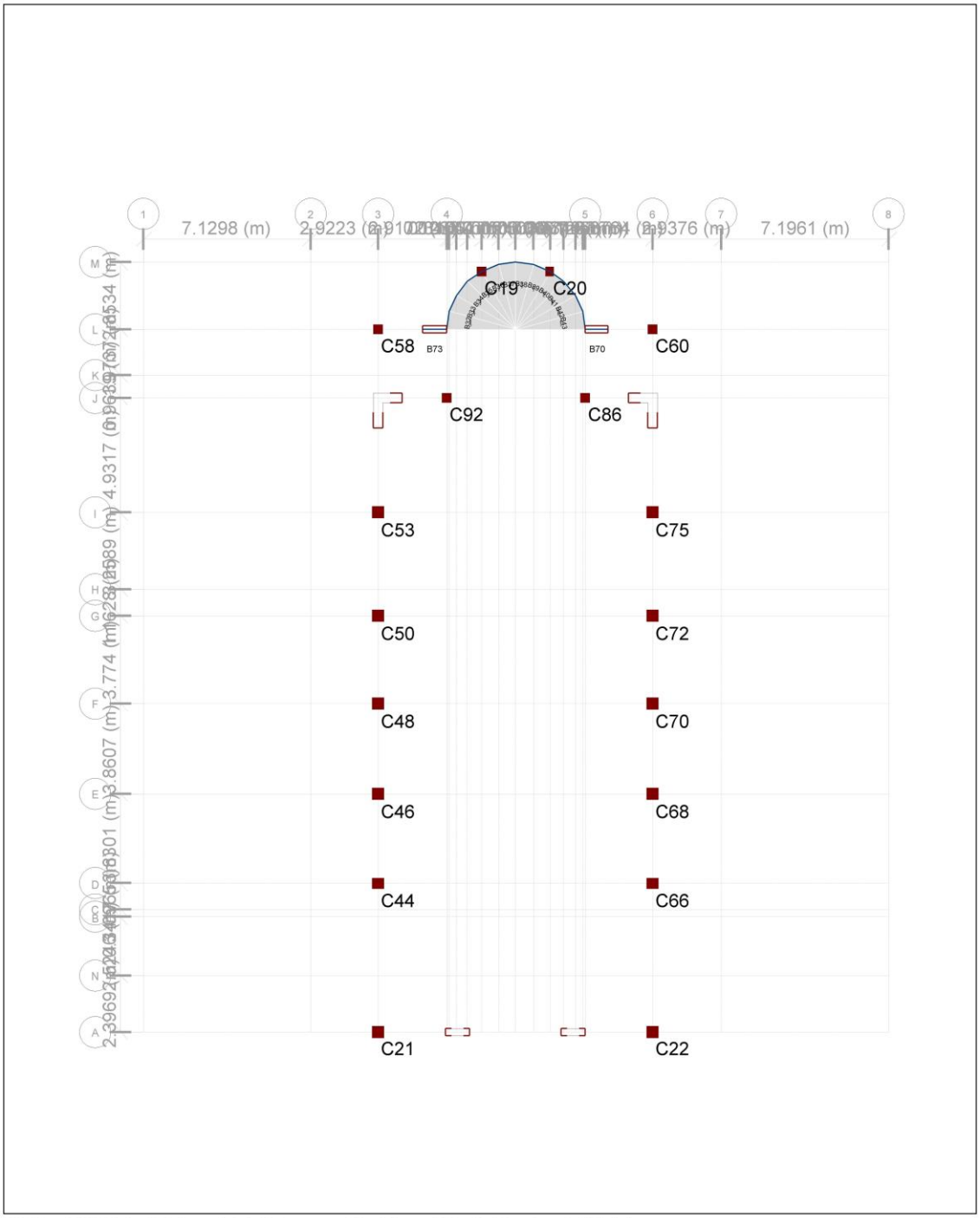
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+9.01 - Z = 9.0128 (m)

ETABS 2015 15.2.0



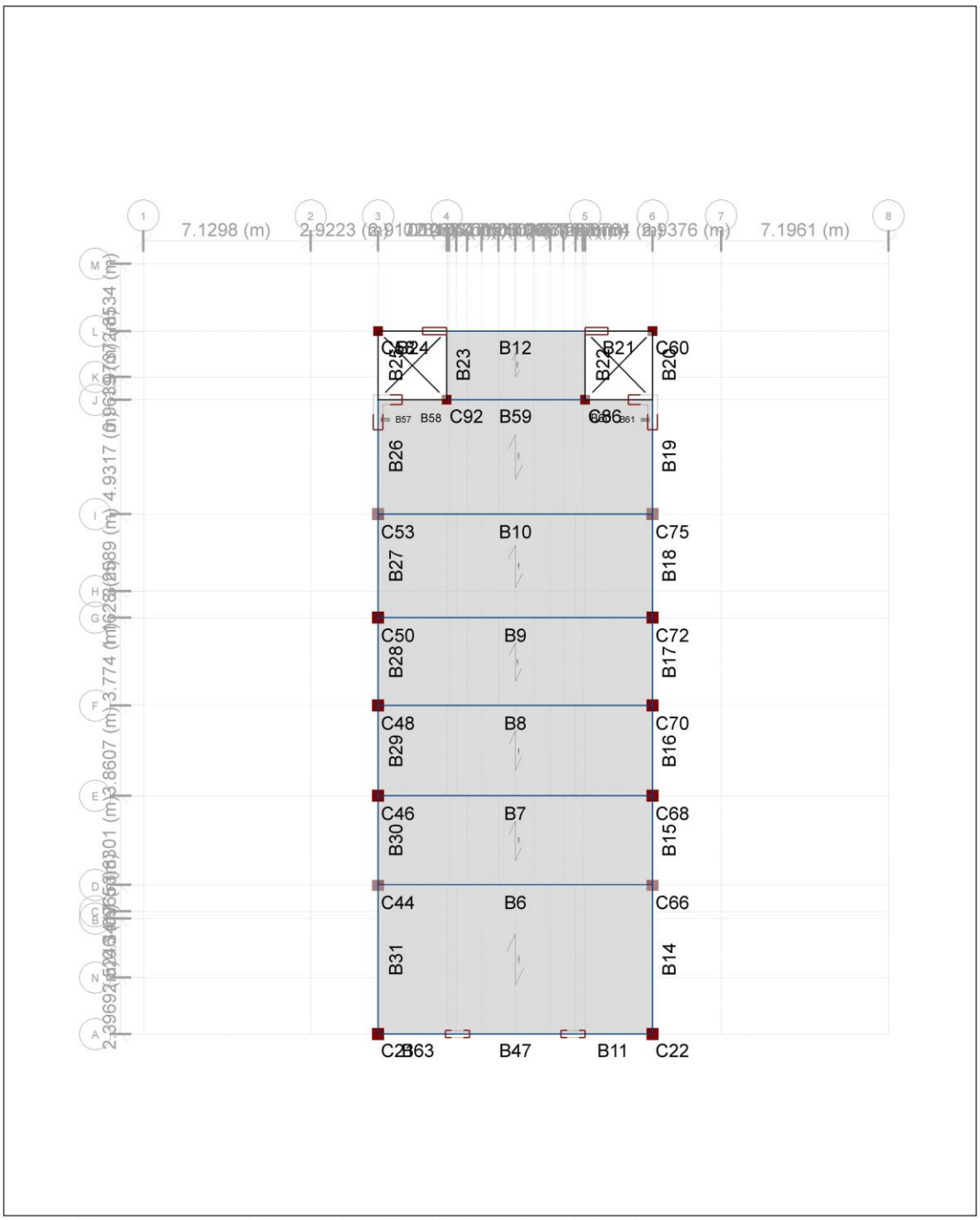
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+9.36 - Z = 9.361 (m)

ETABS 2015 15.2.0



HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+10.16 - Z = 10.162 (m)

ETABS 2015 15.2.0



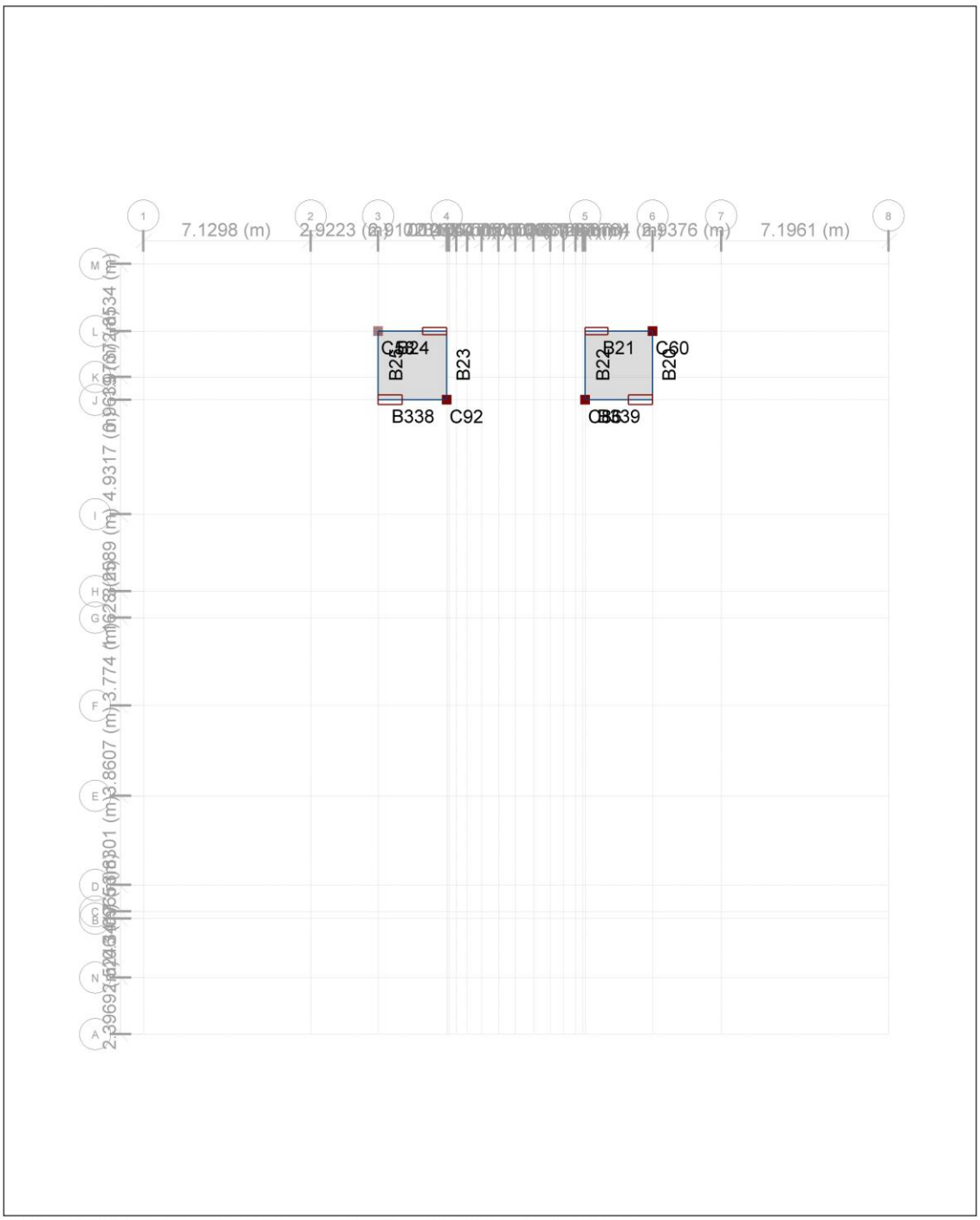
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+11.82 - Z = 11.8191 (m)

ETABS 2015 15.2.0



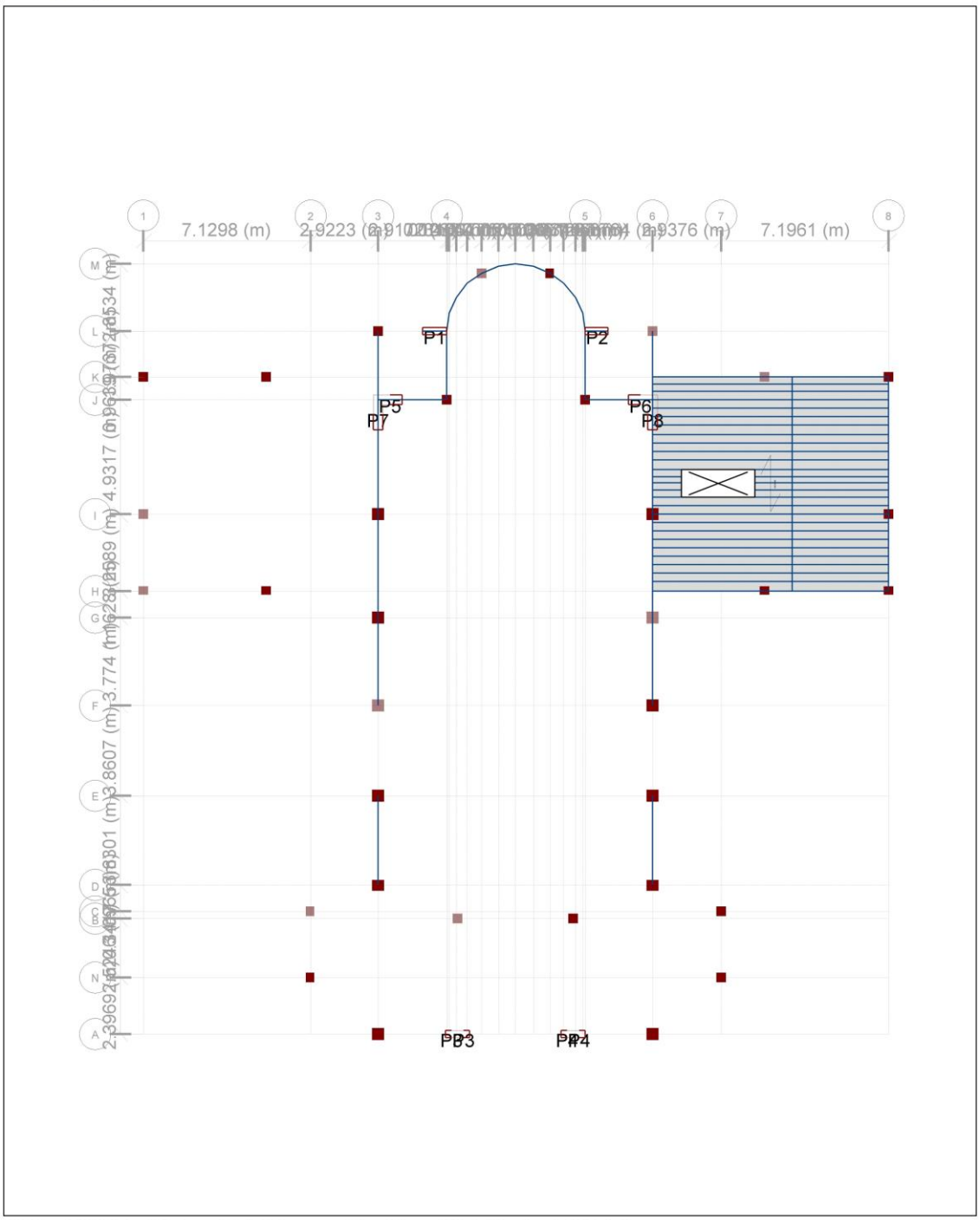
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+15.63 - Z = 15.6291 (m)

ETABS 2015 15.2.0



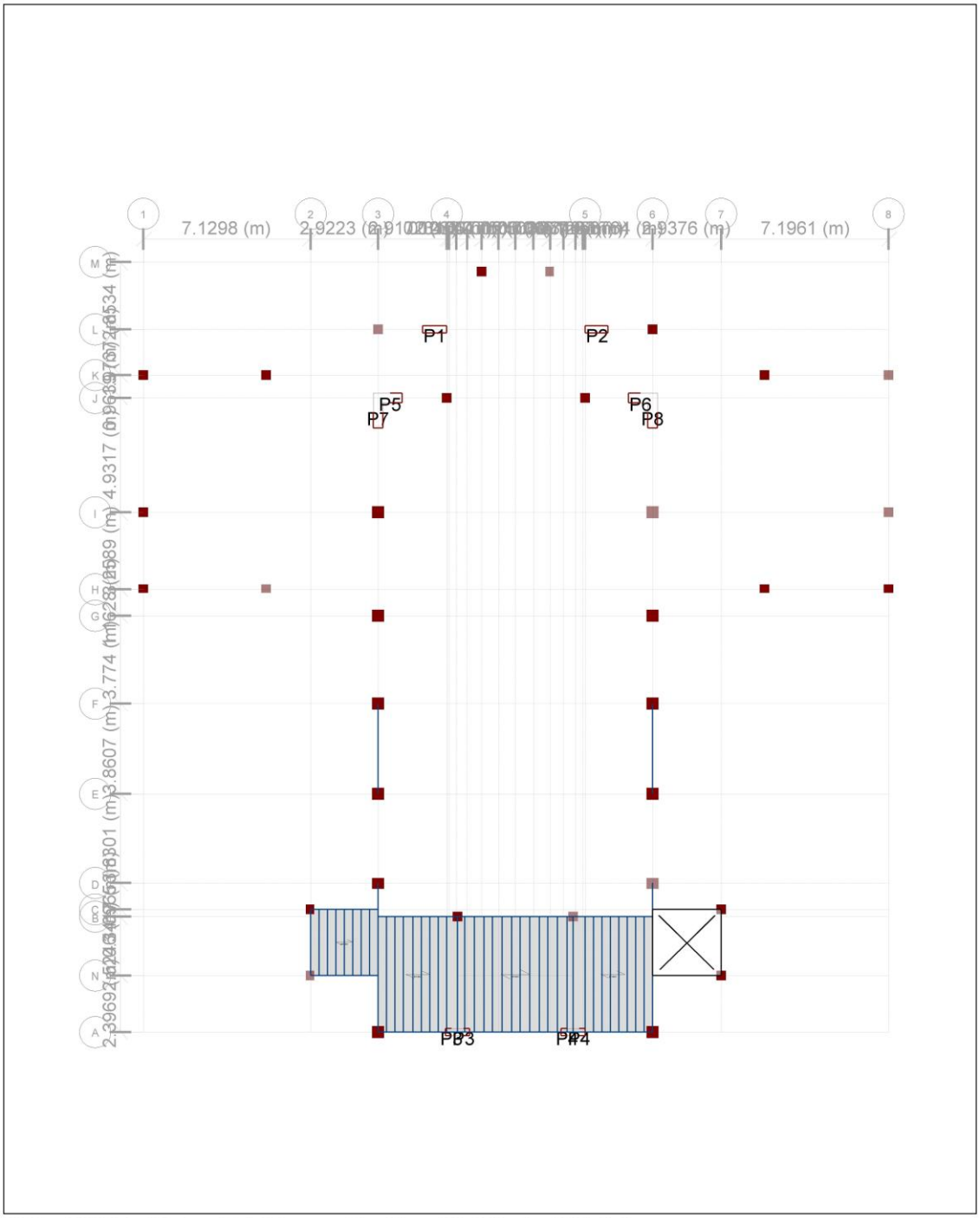
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+19.03 - Z = 19.0291 (m)

ETABS 2015 15.2.0



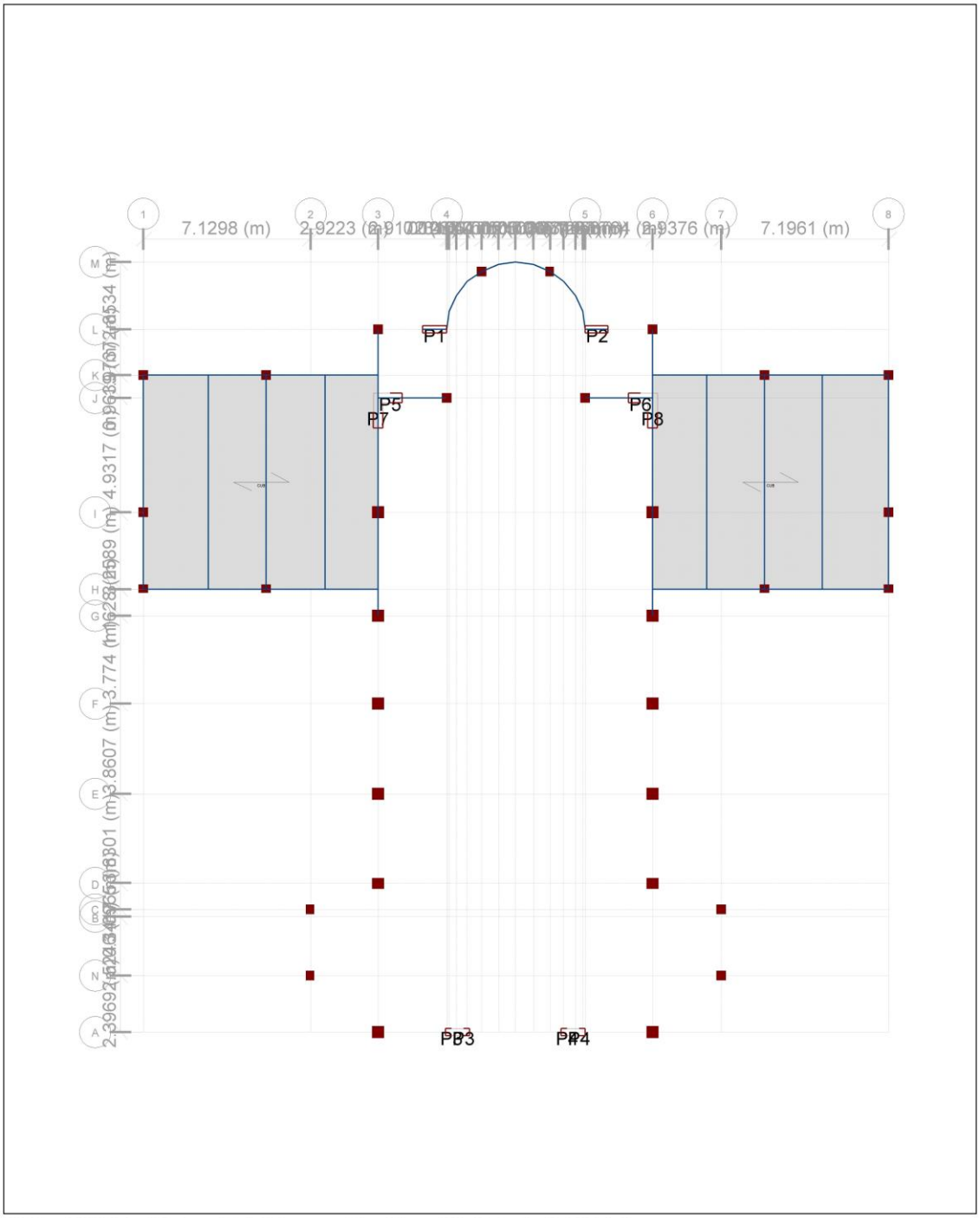
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+3.17 - Z = 3.1735 (m)

ETABS 2015 15.2.0



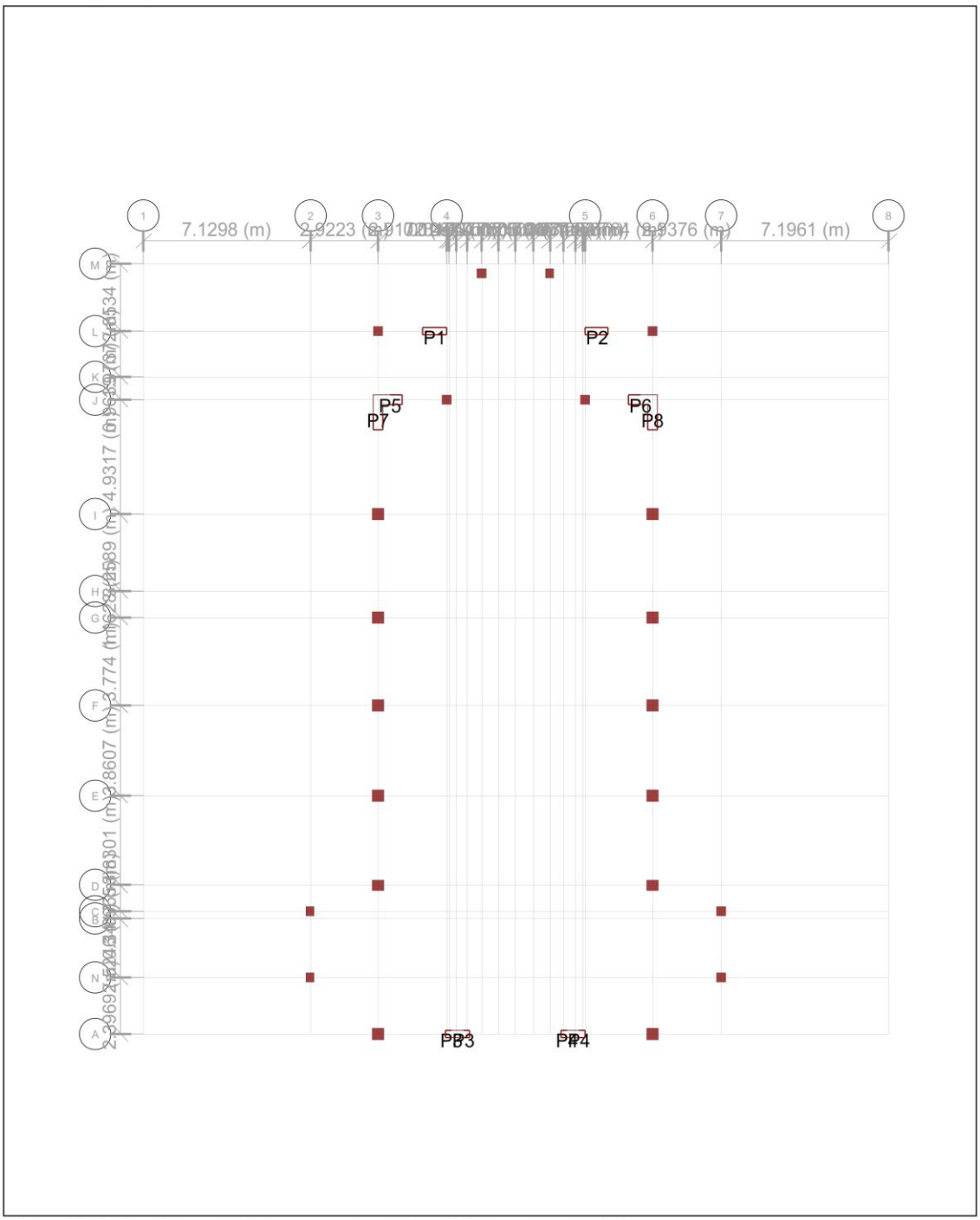
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+4.77 - Z = 4.7727 (m)

ETABS 2015 15.2.0



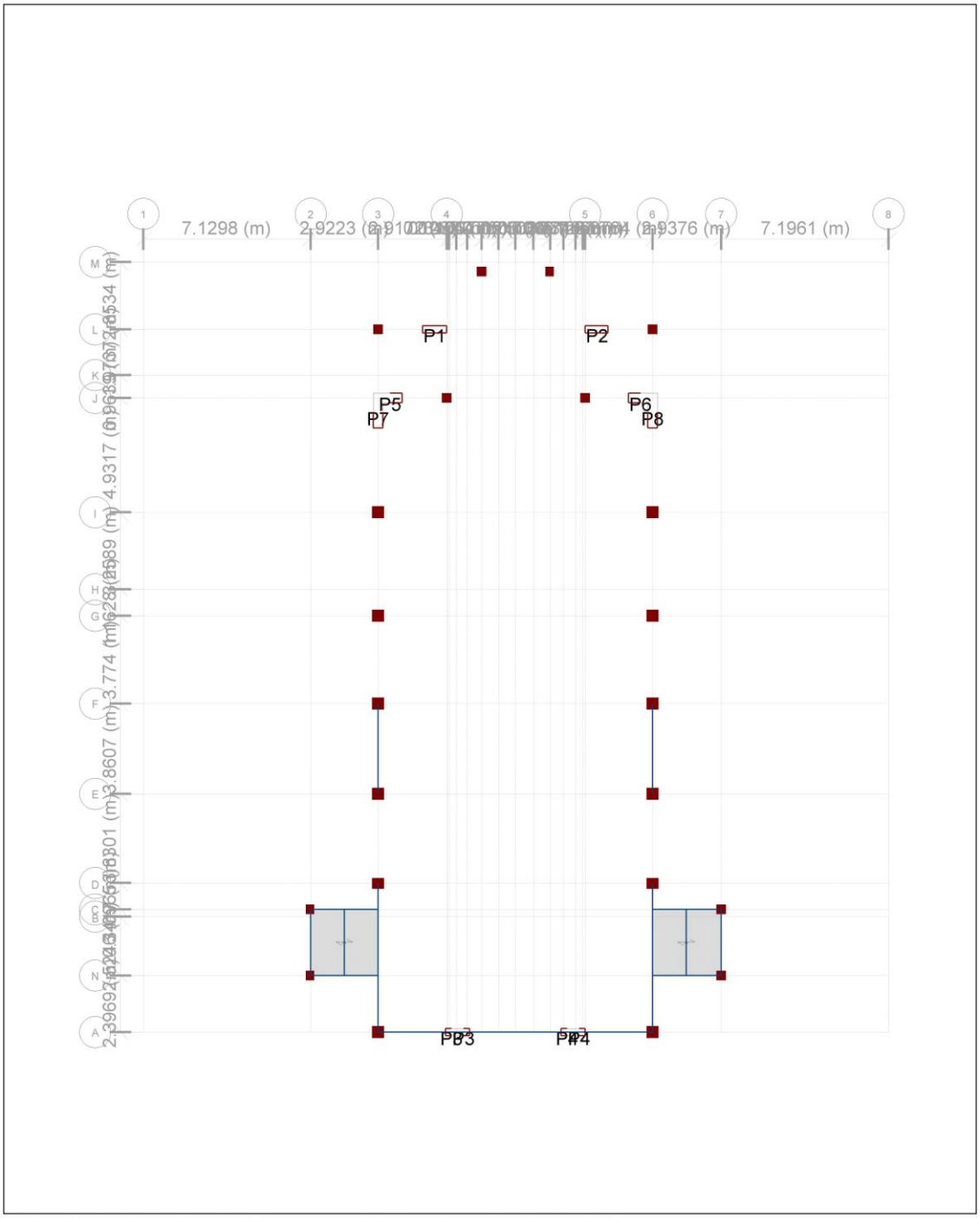
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+5.60 - Z = 5.6031 (m)

ETABS 2015 15.2.0



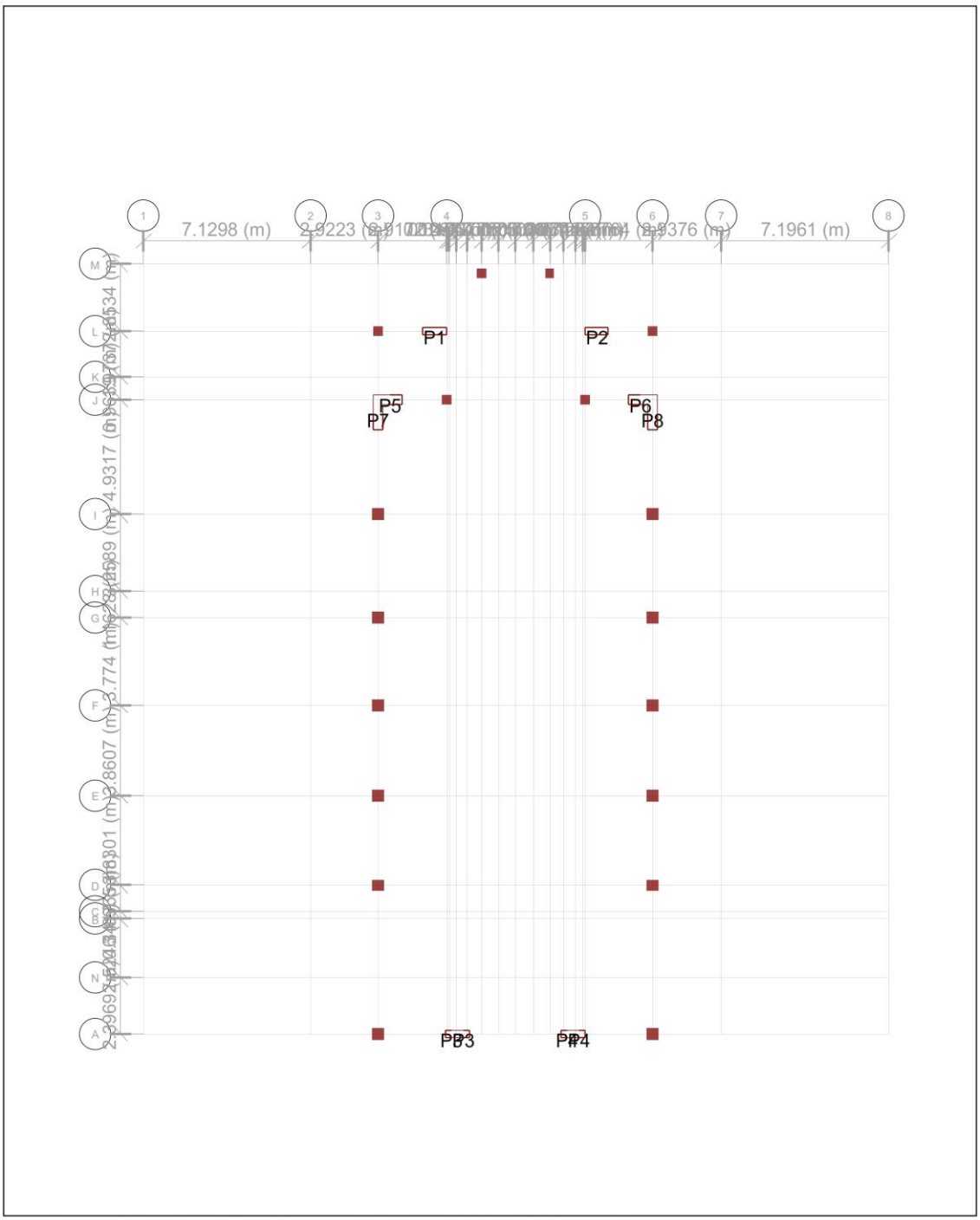
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+7.46 - Z = 7.456 (m)

ETABS 2015 15.2.0



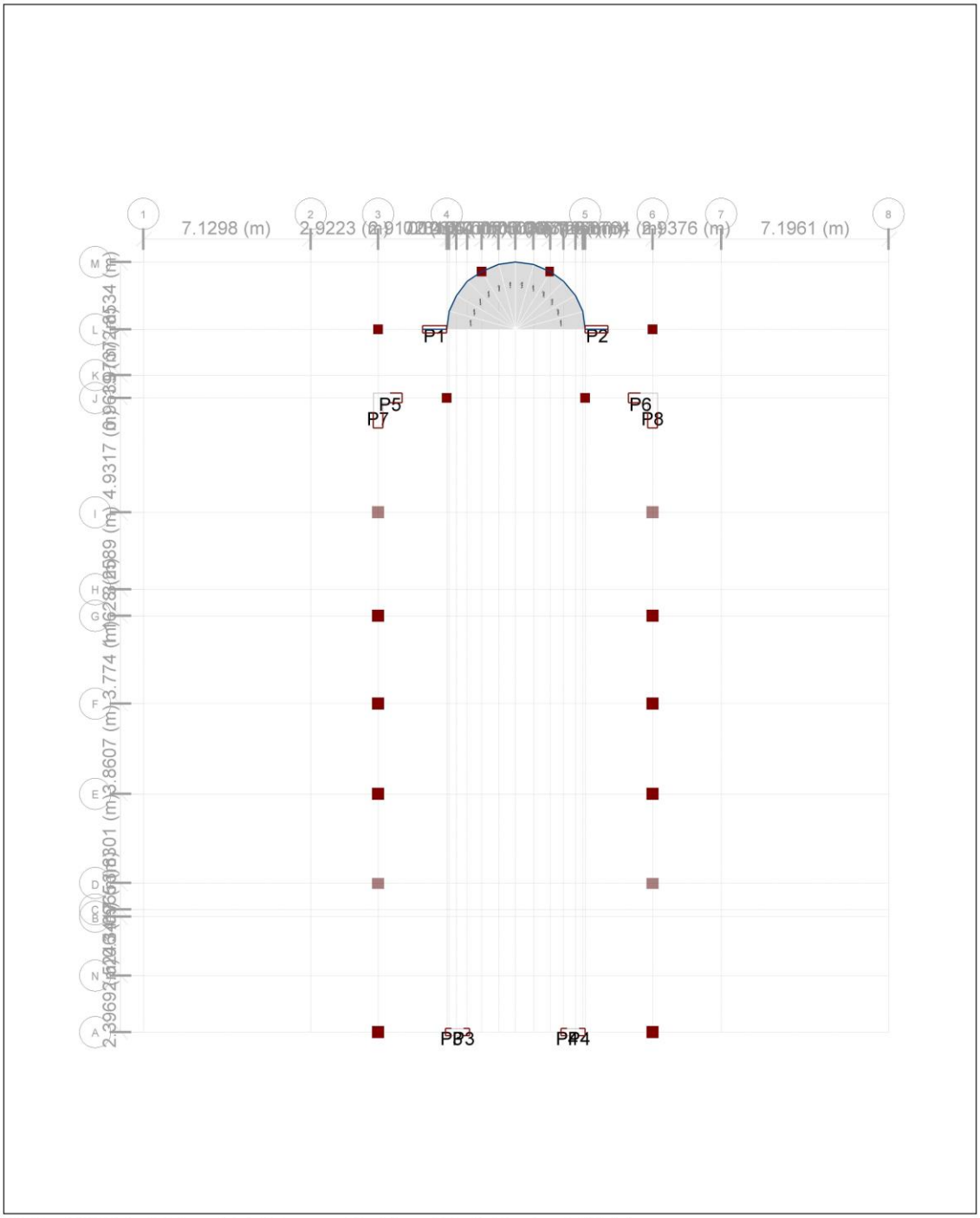
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+9.01 - Z = 9.0128 (m)

ETABS 2015 15.2.0



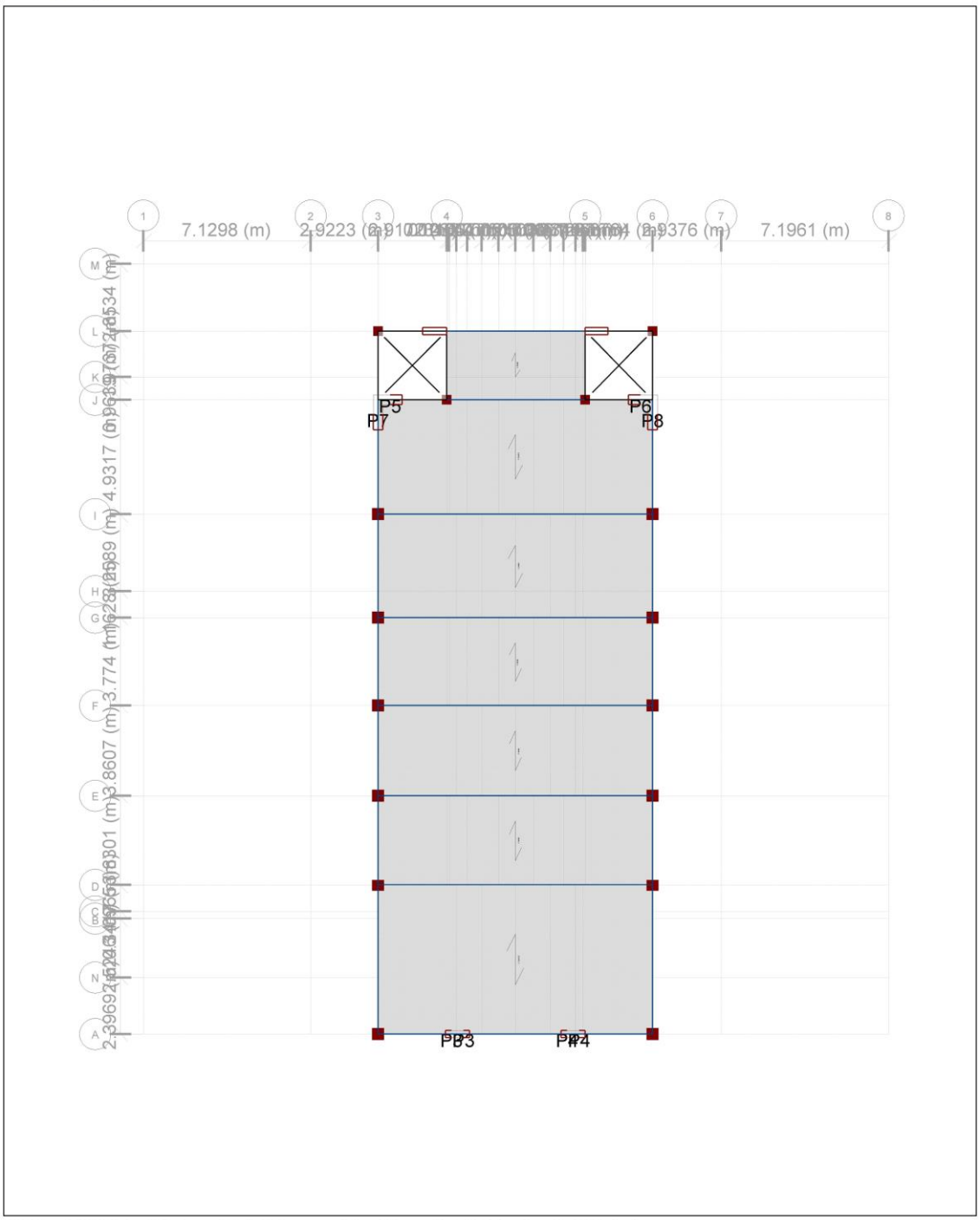
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+9.36 - Z = 9.361 (m)

ETABS 2015 15.2.0



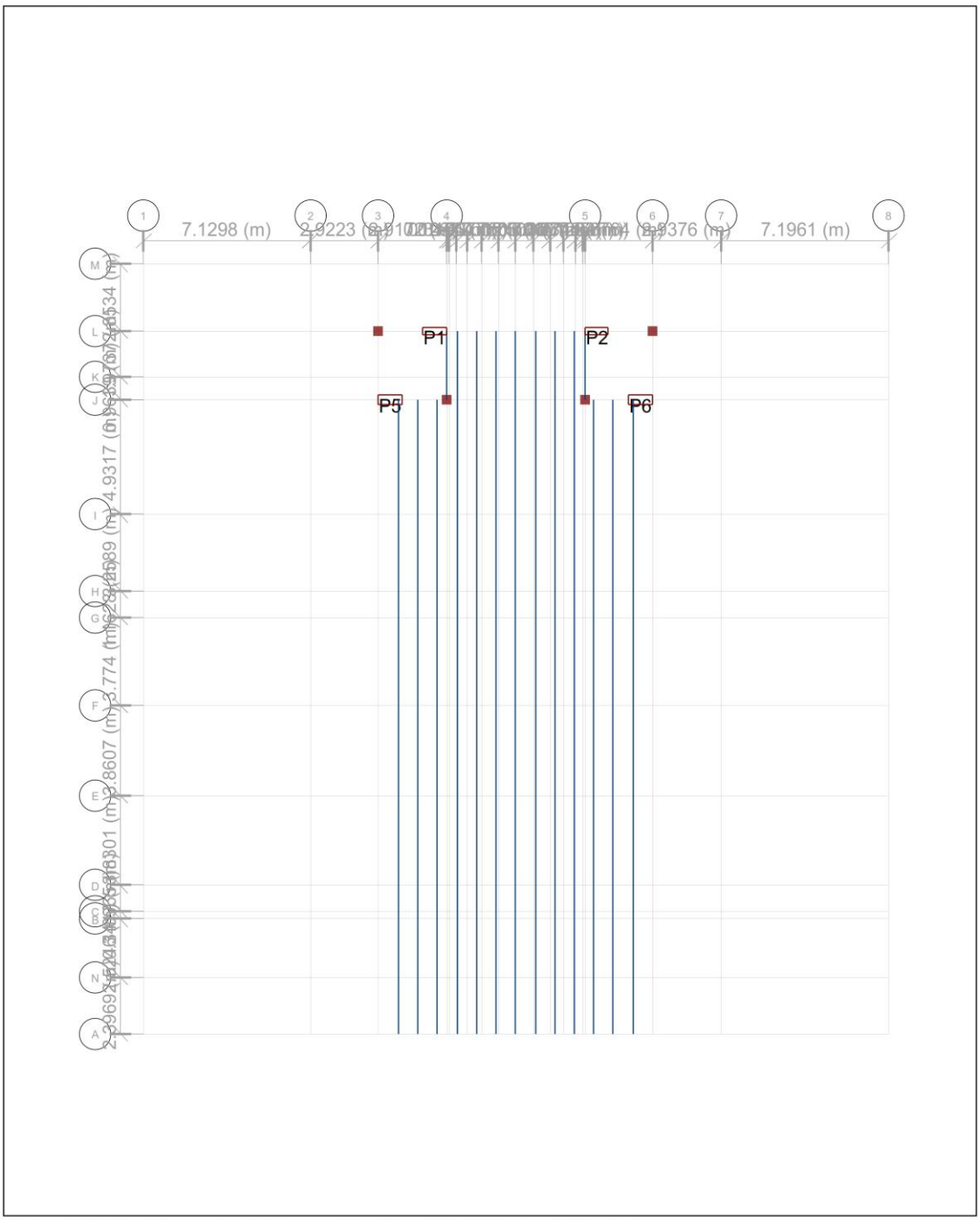
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+10.16 - Z = 10.162 (m)

ETABS 2015 15.2.0



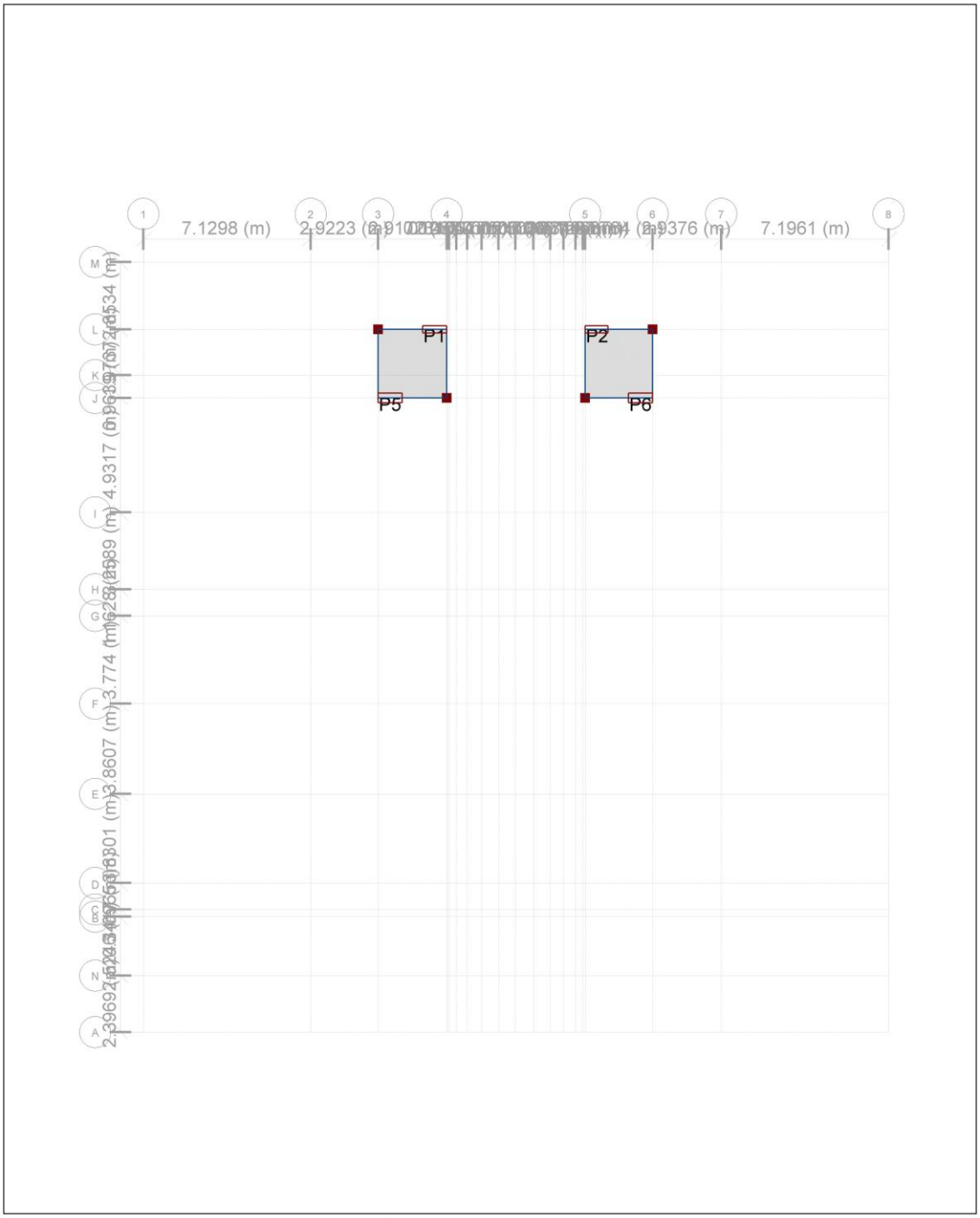
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+11.82 - Z = 11.8191 (m)

ETABS 2015 15.2.0



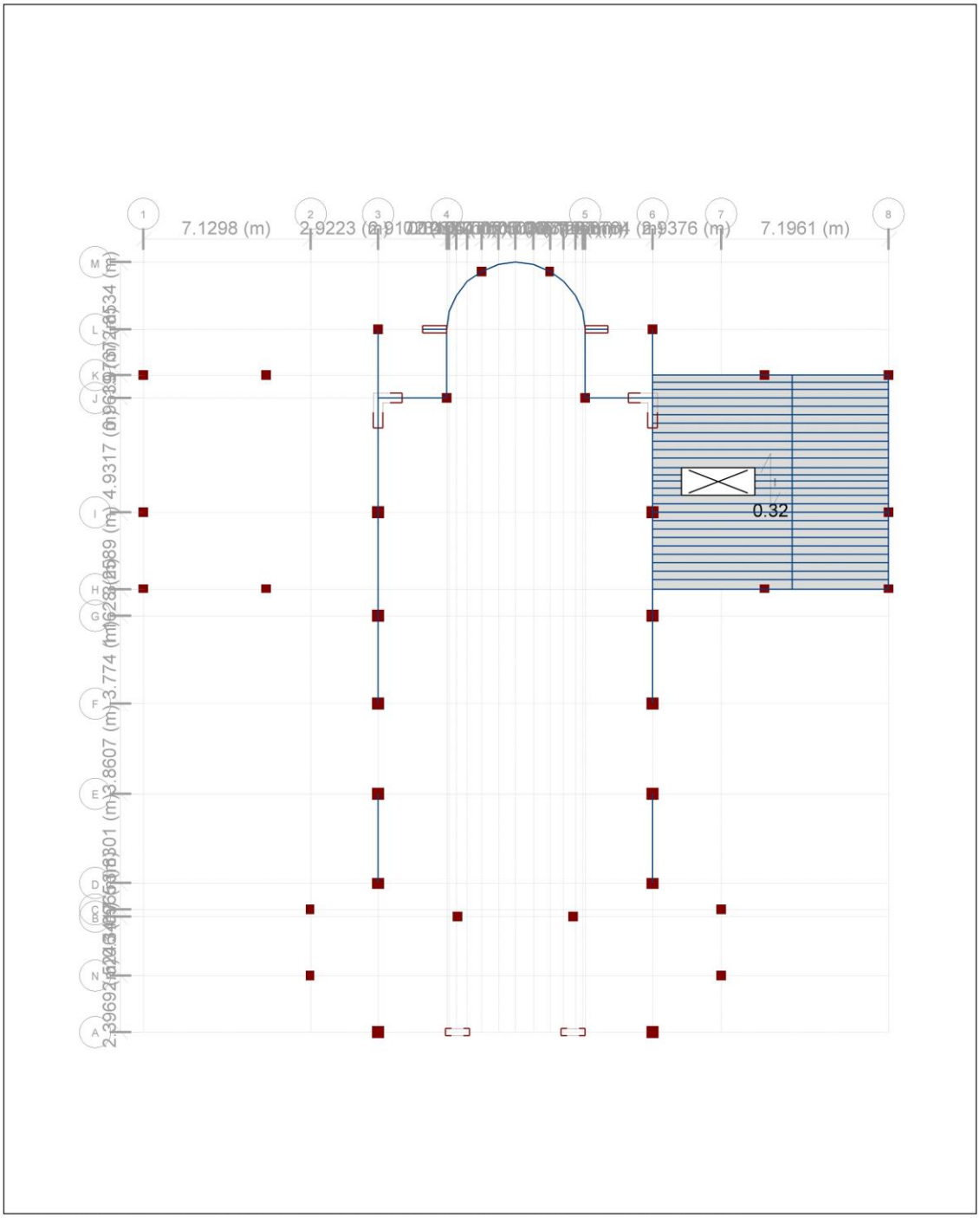
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+15.63 - Z = 15.6291 (m)

ETABS 2015 15.2.0



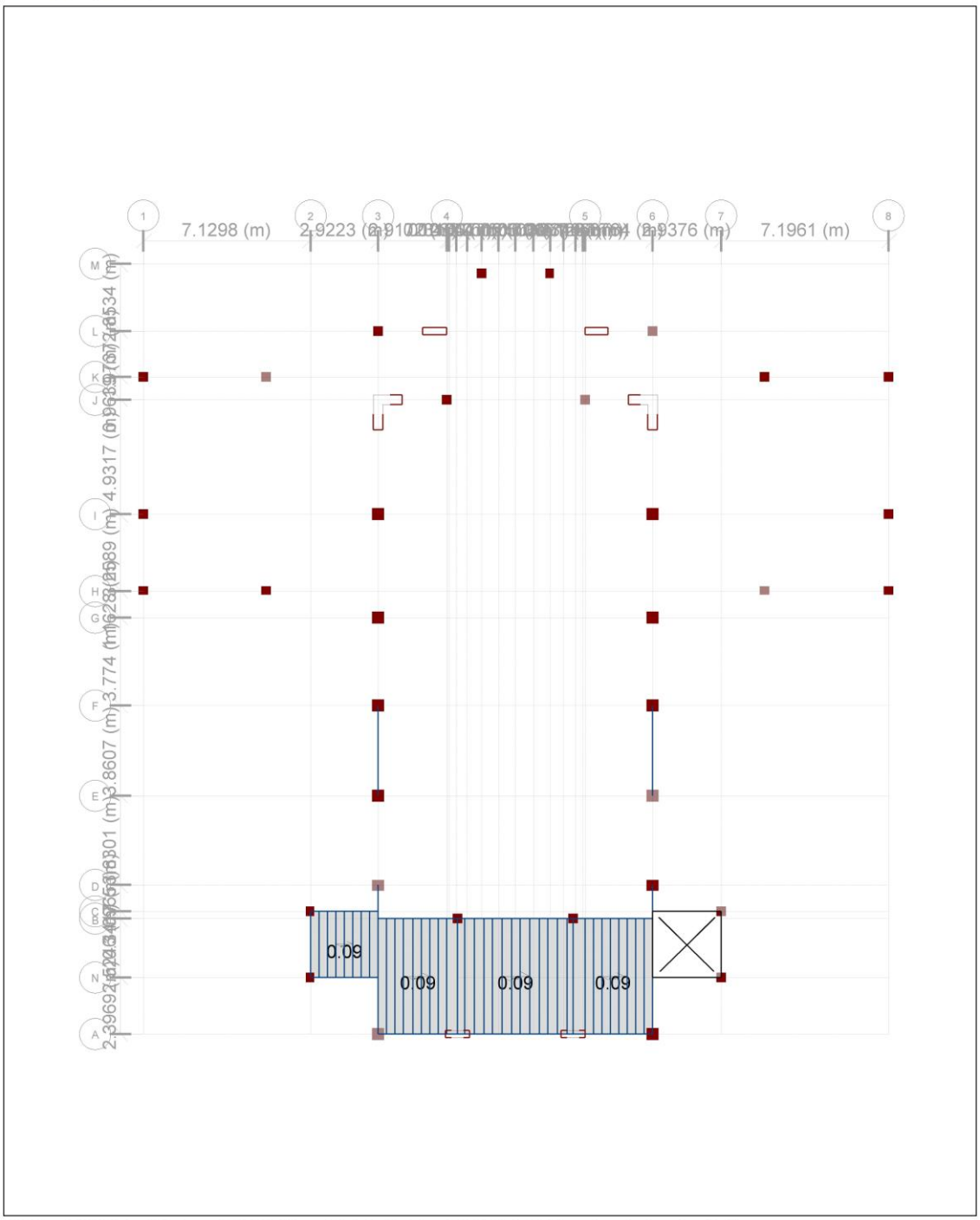
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+19.03 - Z = 19.0291 (m)

ETABS 2015 15.2.0



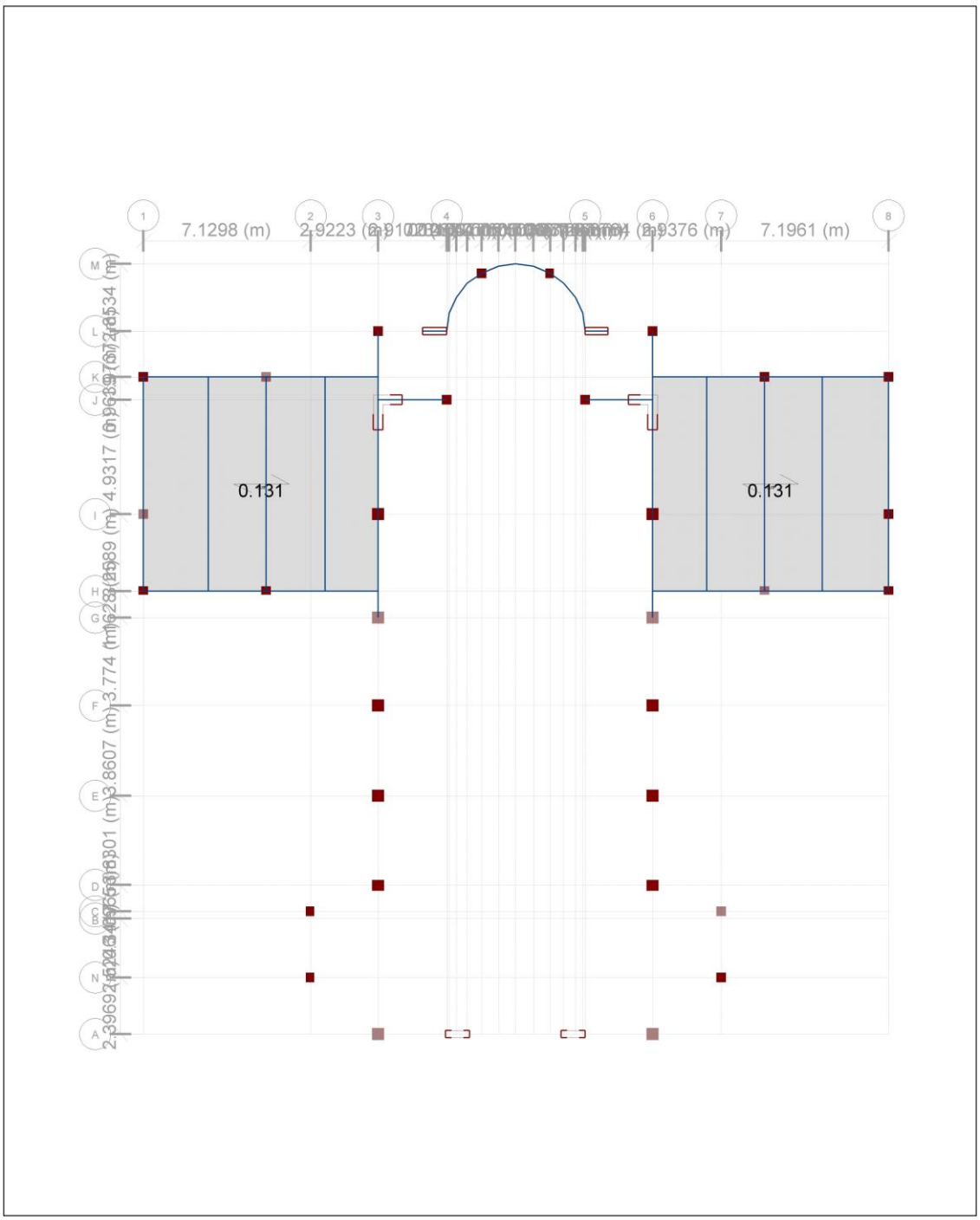
HSJD - CAPILLA - REF pendulo.EDB View - NE+3.17 - Z = 3.1735 (m) Uniform Loads Gravity (CA)

ETABS 2015 15.2.0



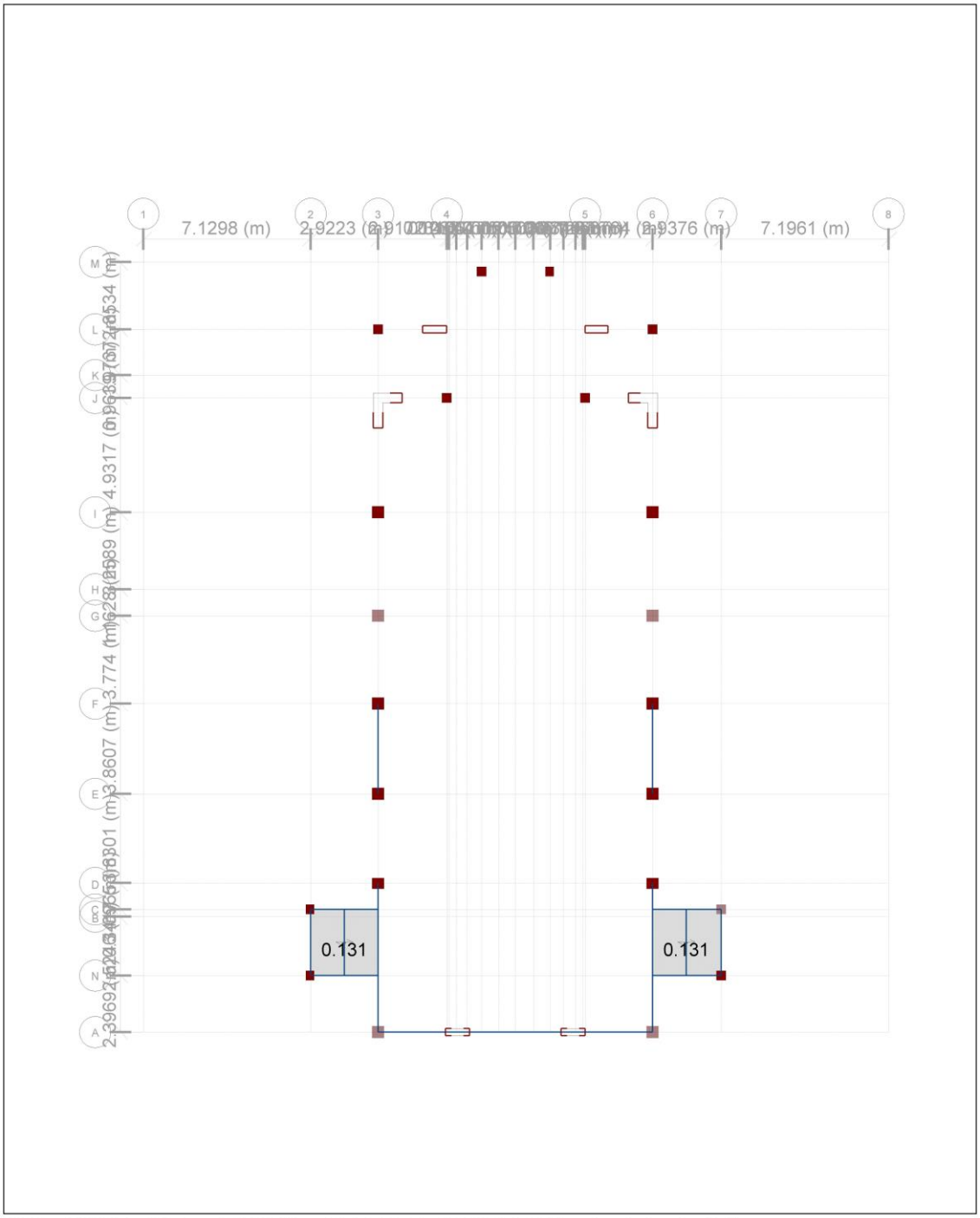
HSJD - CAPILLA - REF pendulo ETABS - View - NE+4.77 - Z = 4.7727 (m) Uniform Loads Gravity (CA)

ETABS 2015 15.2.0



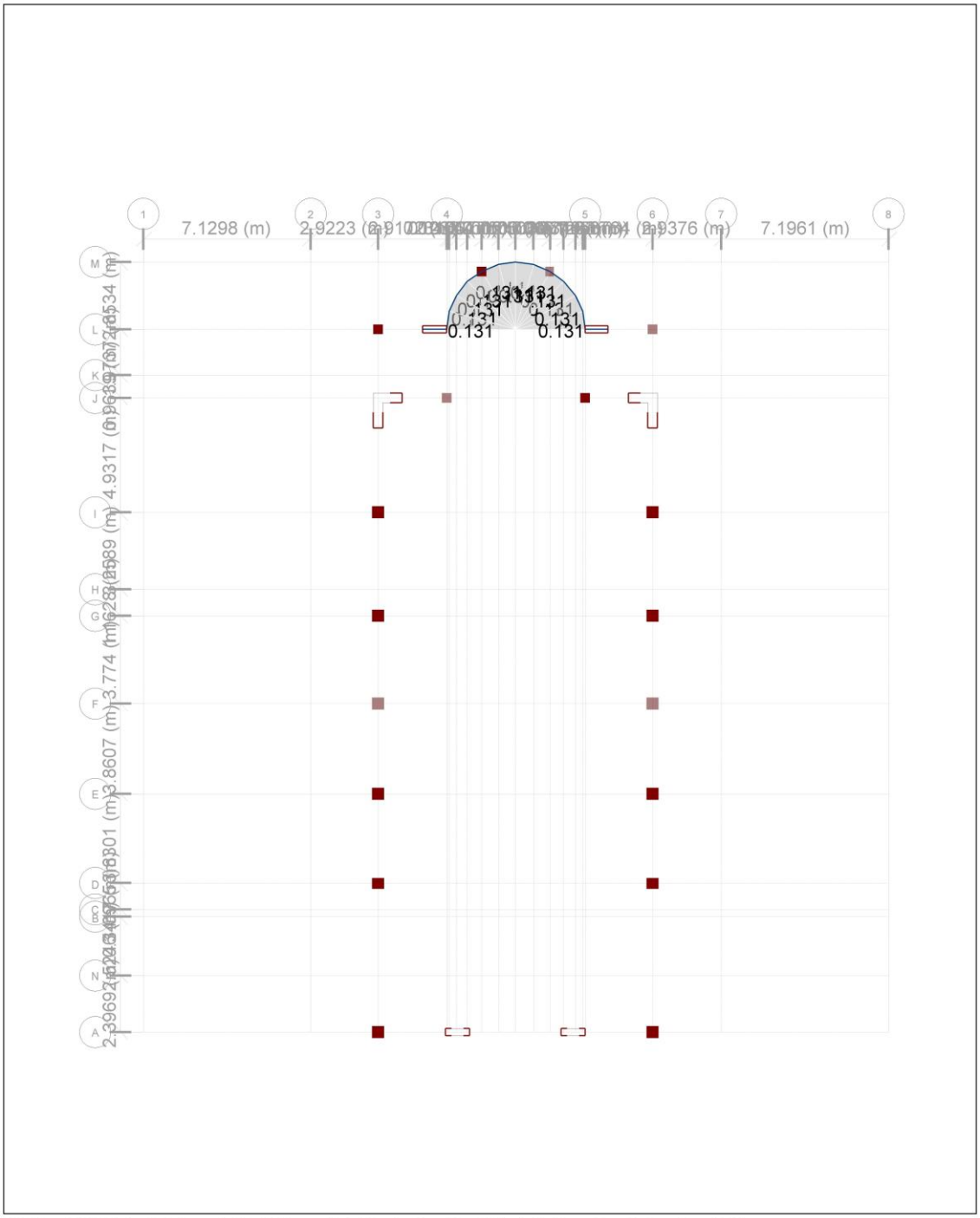
HSJD - CAPILLA - REF pendulo.EDB View - NE+5.60 - Z = 5.6031 (m) Uniform Loads Gravity (CA)

ETABS 2015 15.2.0



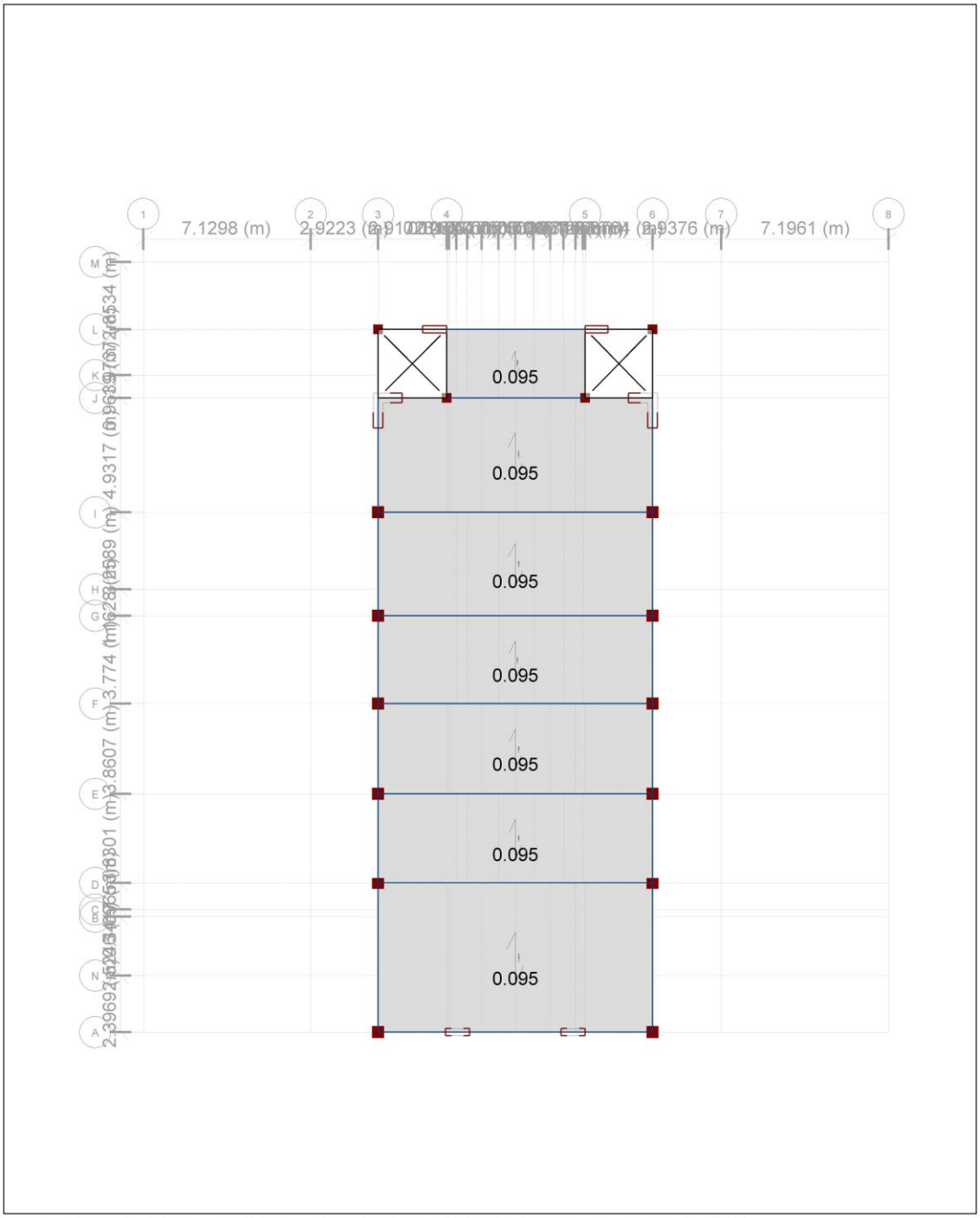
HSJD - CAPILLA - REF pendulo ETABS - View - NE+9.01 - Z = 9.0128 (m) Uniform Loads Gravity (CA)

ETABS 2015 15.2.0



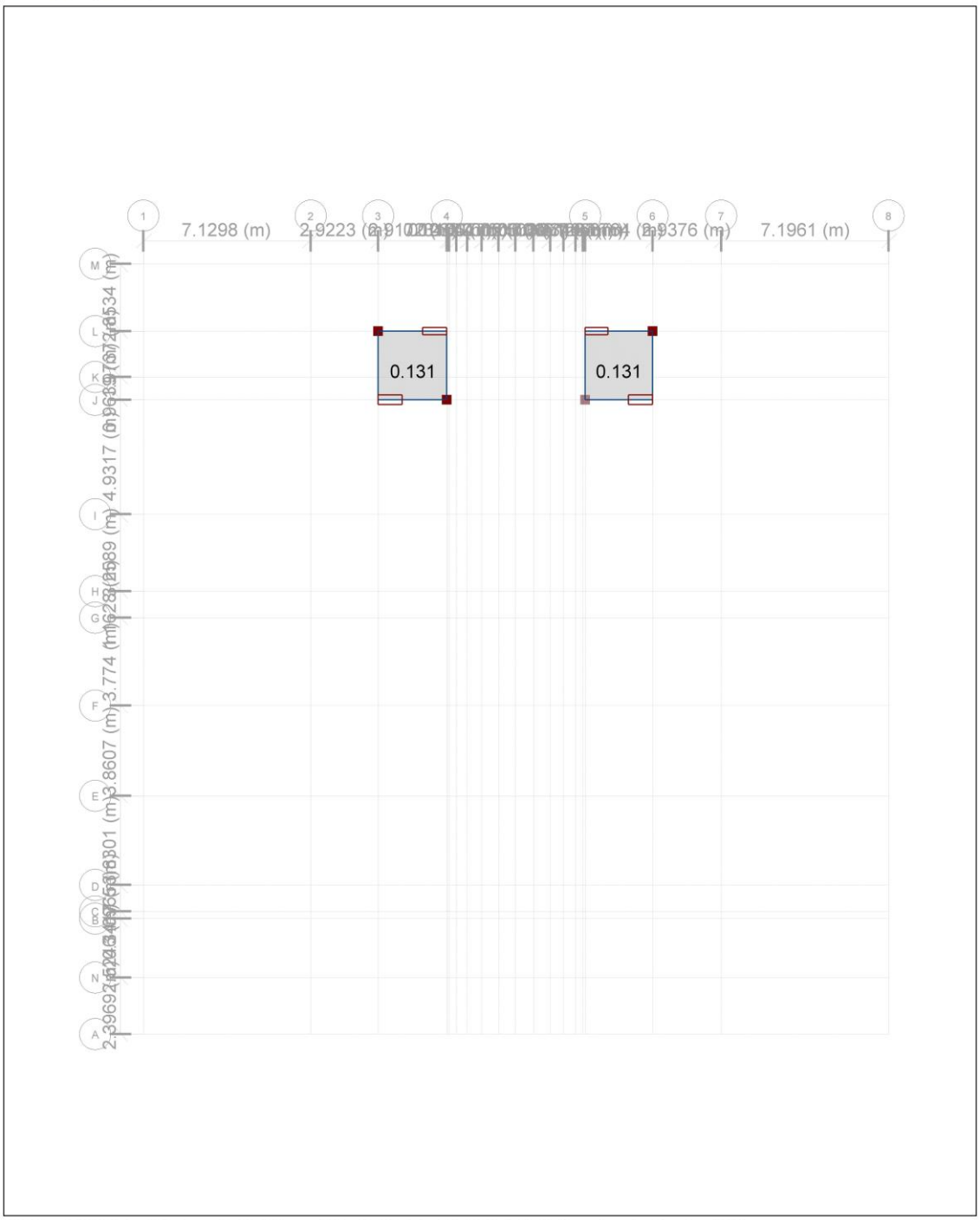
HSJD - CAPILLA - REF pendulo.EDB View - NE+10.16 - Z = 10.162 (m) Uniform Loads Gravity (CA)

ETABS 2015 15.2.0



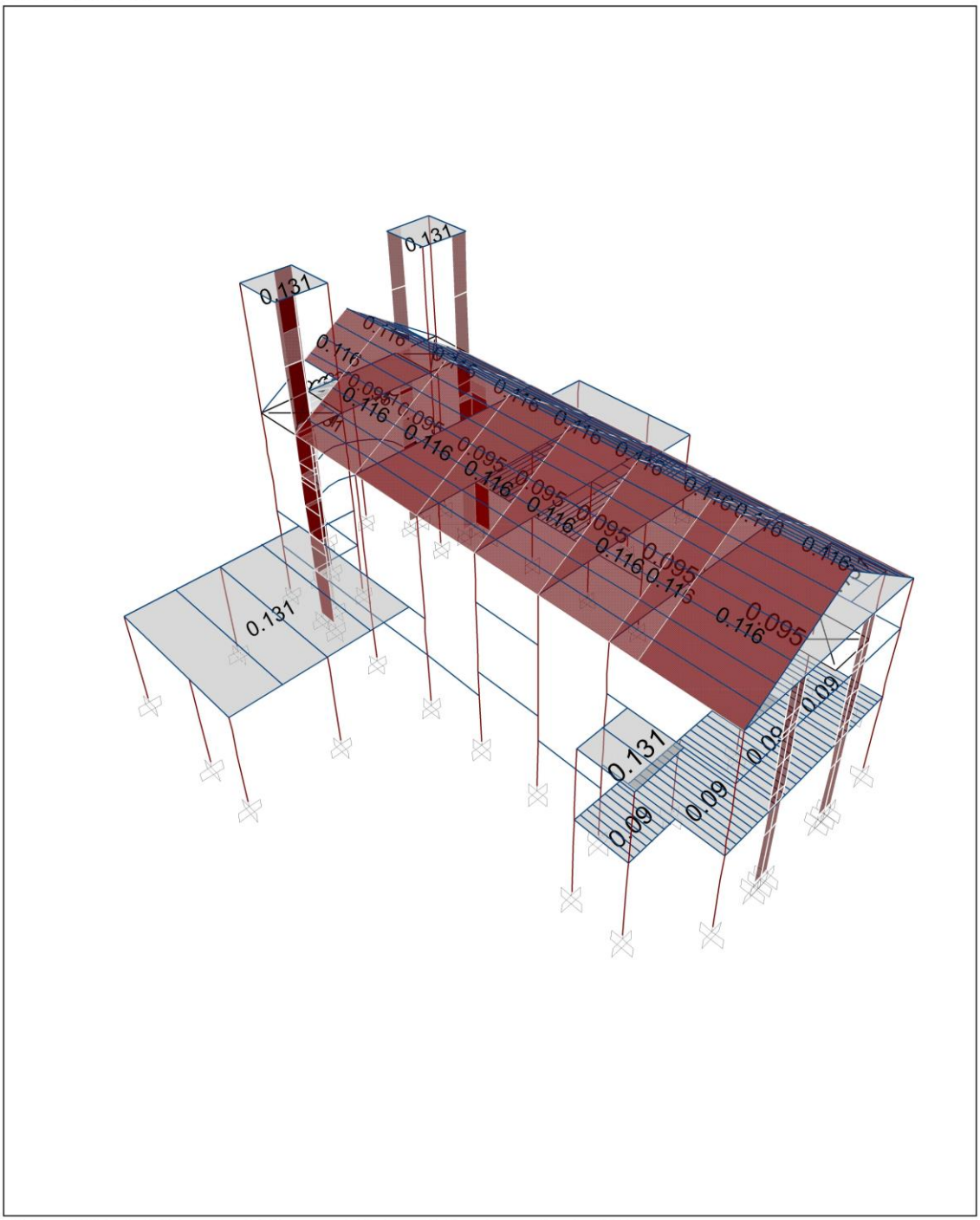
HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+11.82 - Z = 11.8191 (m) Uniform Loads Gravity (CA)

ETABS 2015 15.2.0



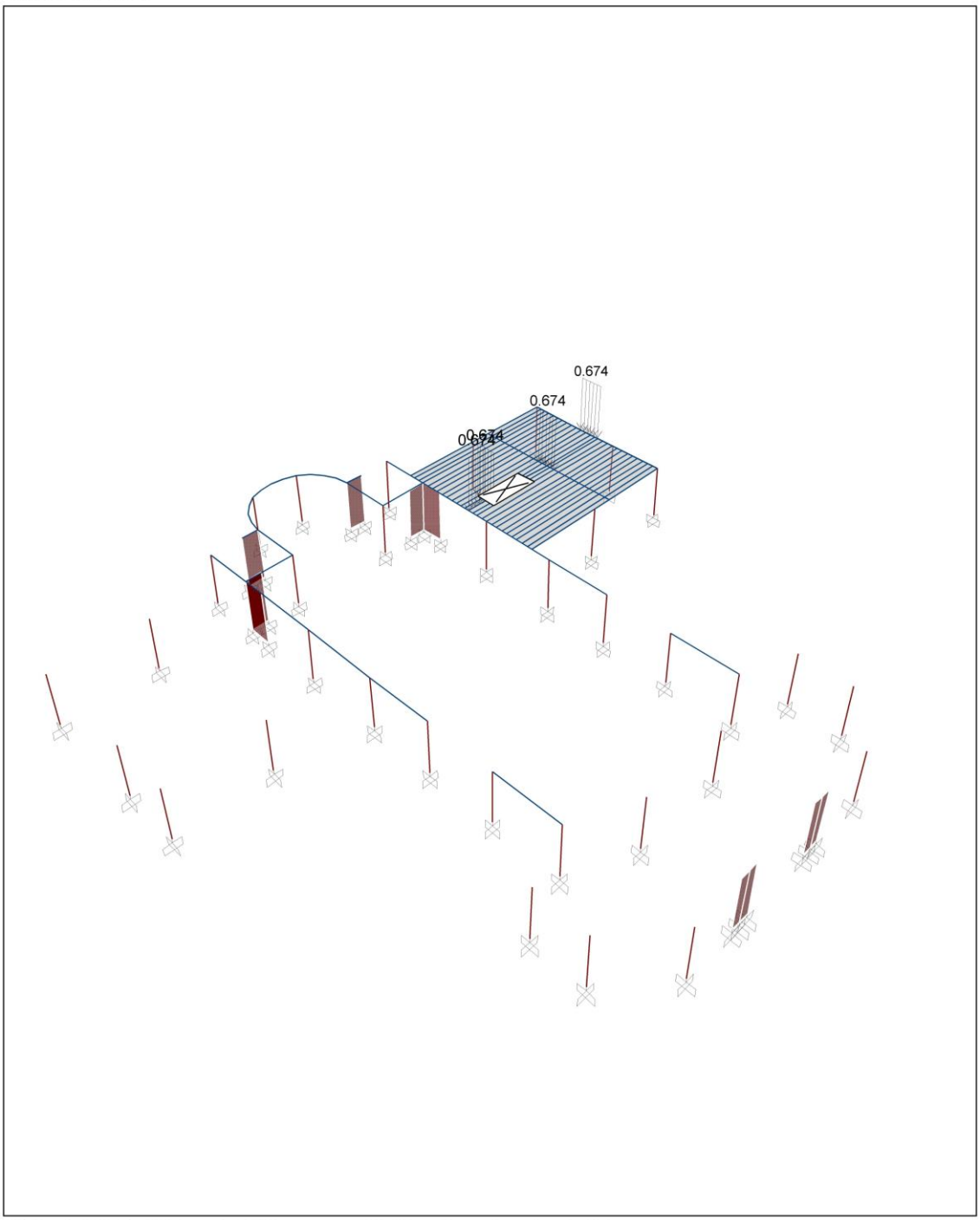
HSJD - CAPILLA - REF pendu... Plan View - NE+19.03 - Z = 19.0291 (m) Uniform Loads Gravity (CA)

ETABS 2015 15.2.0



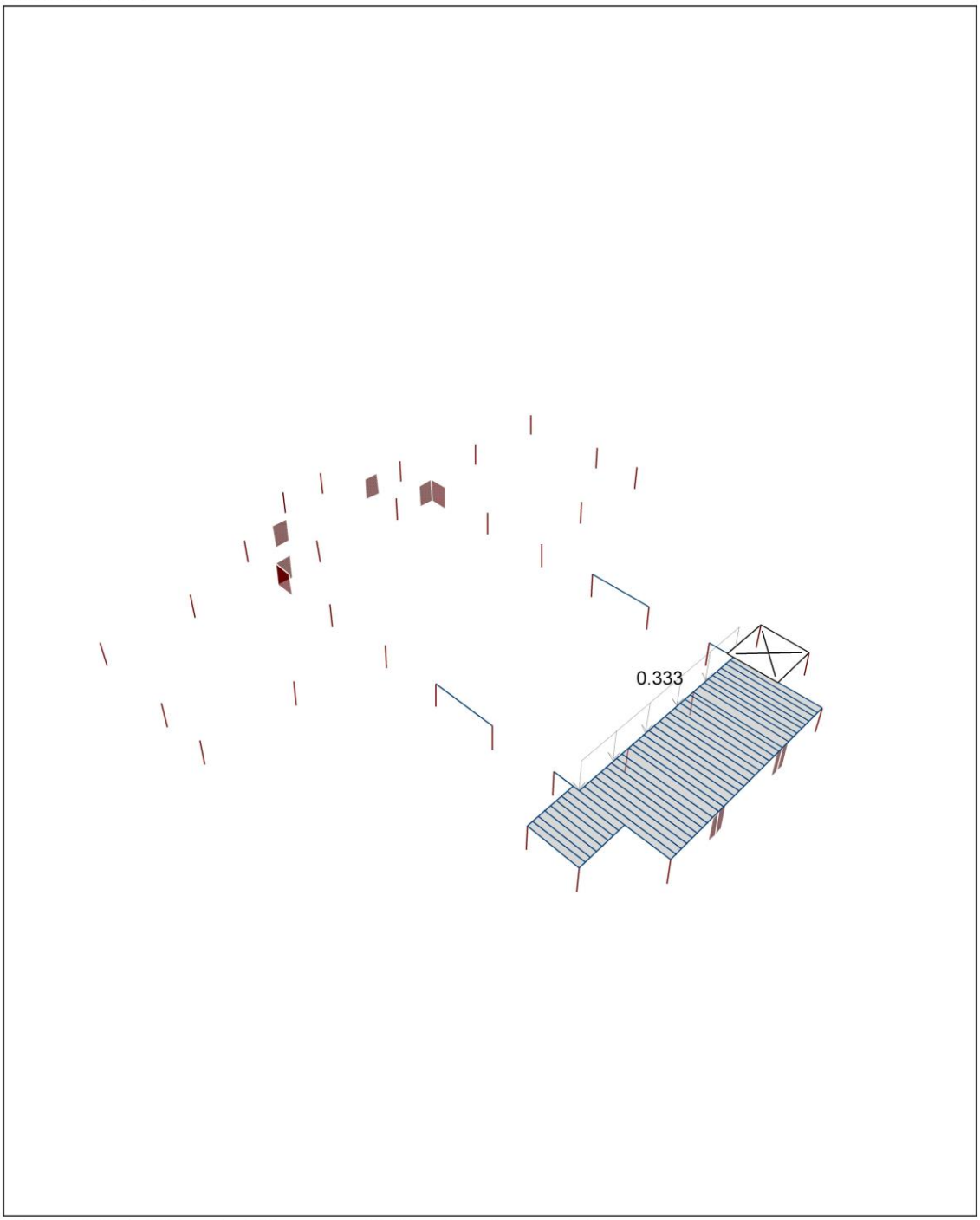
HSJD - CAPILLA - REF pendulo.EDB 3-D View Uniform Loads Gravity (CA)

ETABS 2015 15.2.0



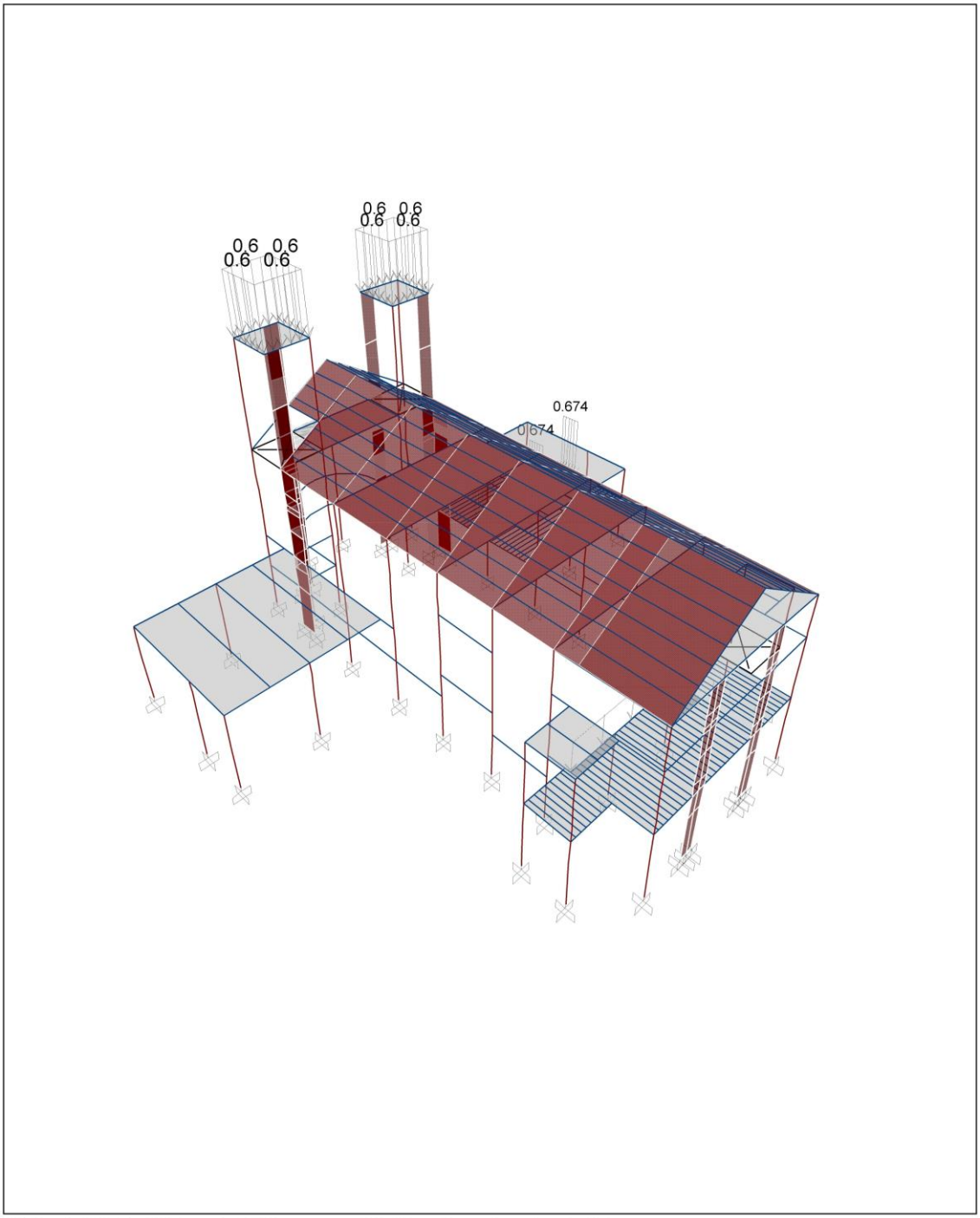
HSJD - CAPILLA - REF pendulo.EDB 3-D View Frame Span Loads (CA)

ETABS 2015 15.2.0



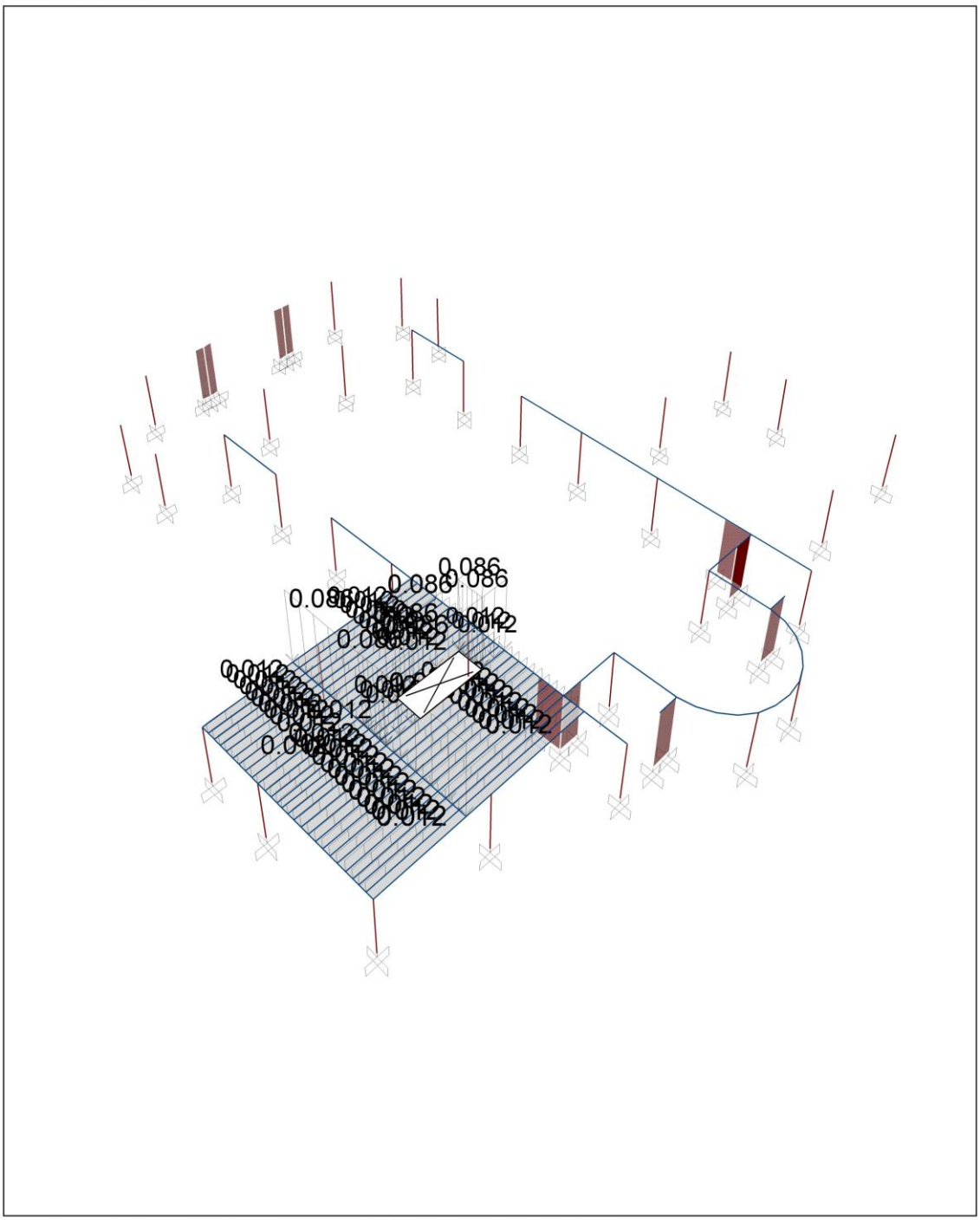
HSJD - CAPILLA - REF pendulo.EDB 3-D View Frame Span Loads (CA)

ETABS 2015 15.2.0



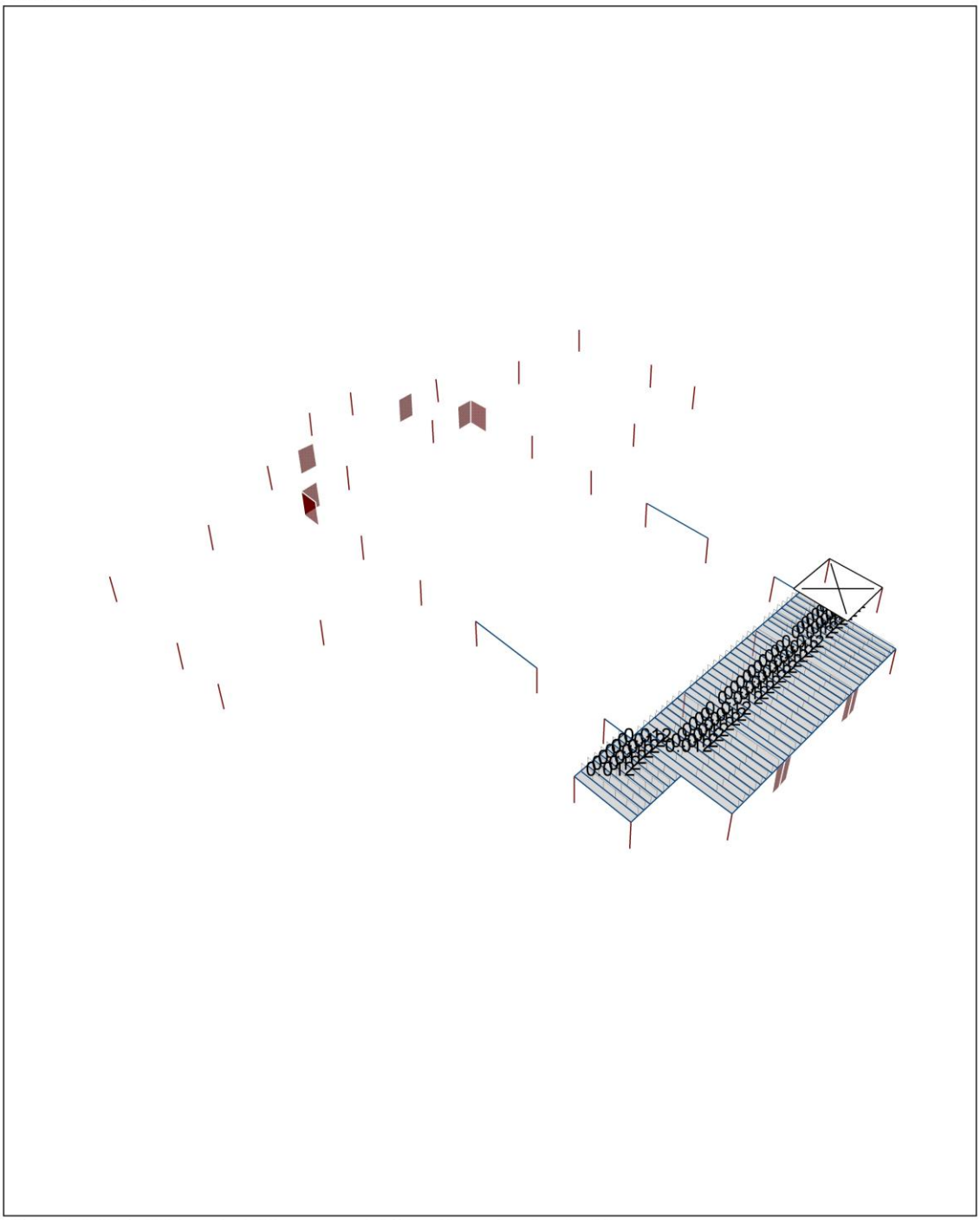
HSJD - CAPILLA - REF pendulo.EDB 3-D View Frame Span Loads (CA)

ETABS 2015 15.2.0



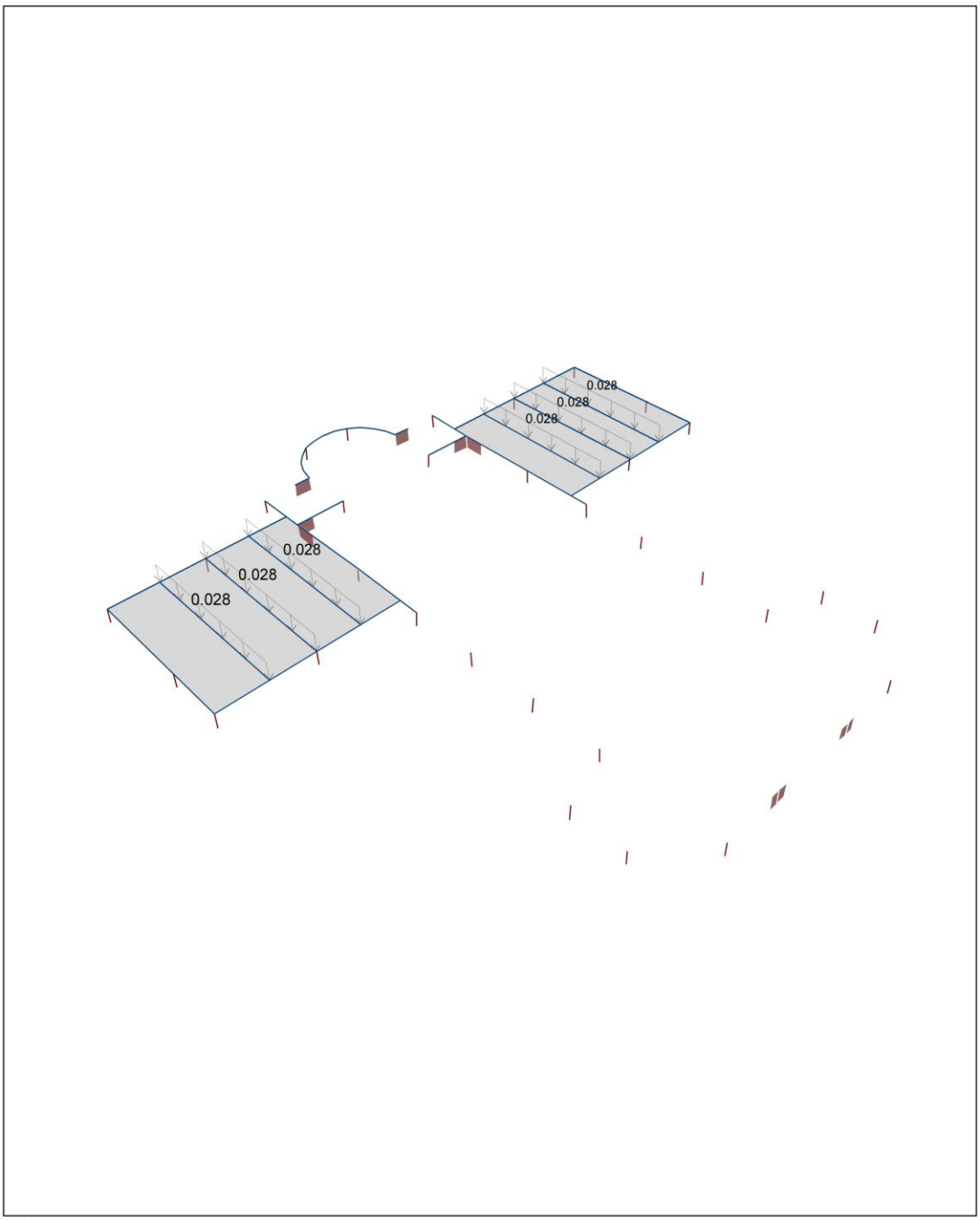
HSJD - CAPILLA - REF pendulo.EDB 3-D View Frame Span Loads (PP)

ETABS 2015 15.2.0



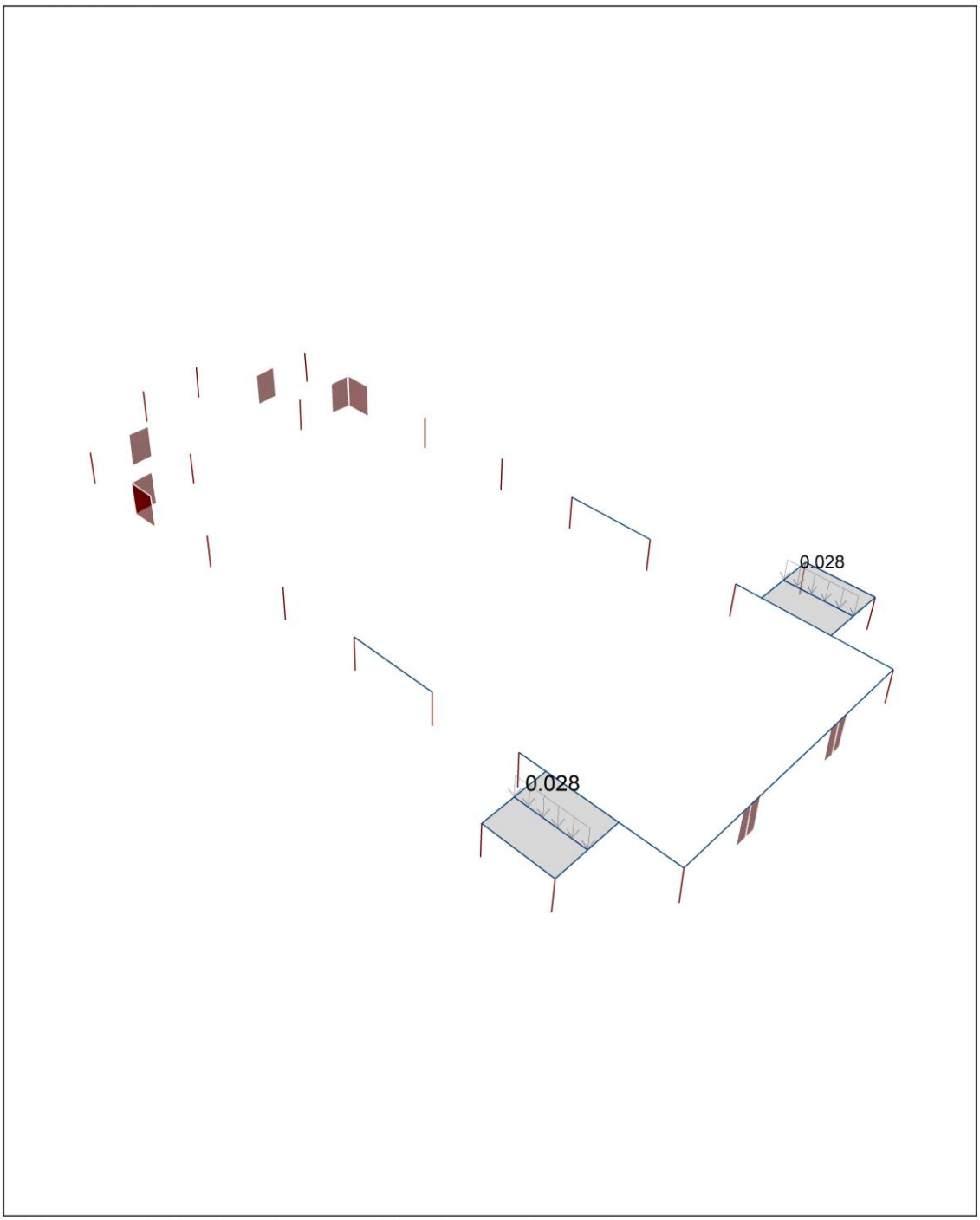
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ETABS 2015 15.2.0



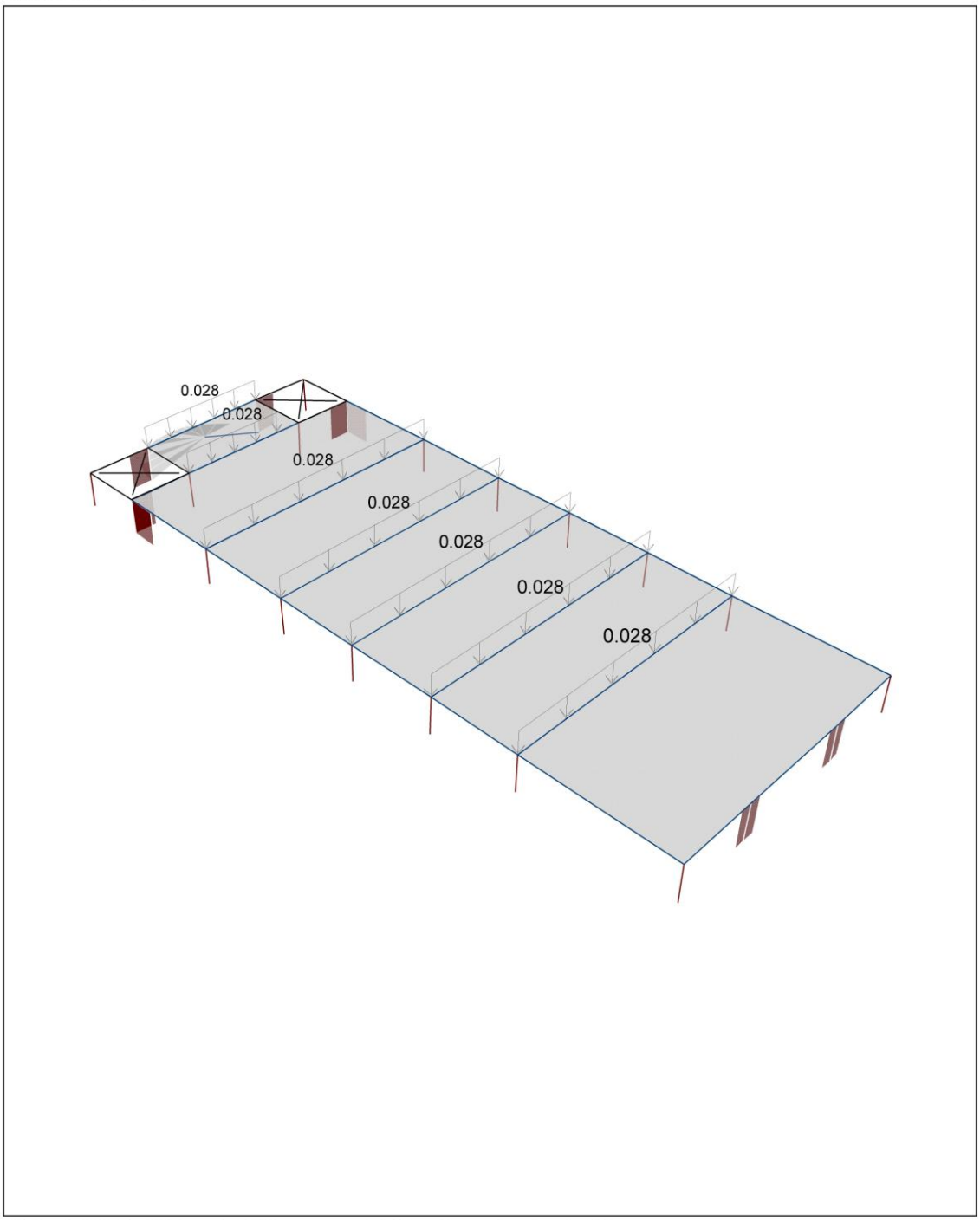
HSJD - CAPILLA - REF pendulo.EDB 3-D View Frame Span Loads (PP)

ETABS 2015 15.2.0



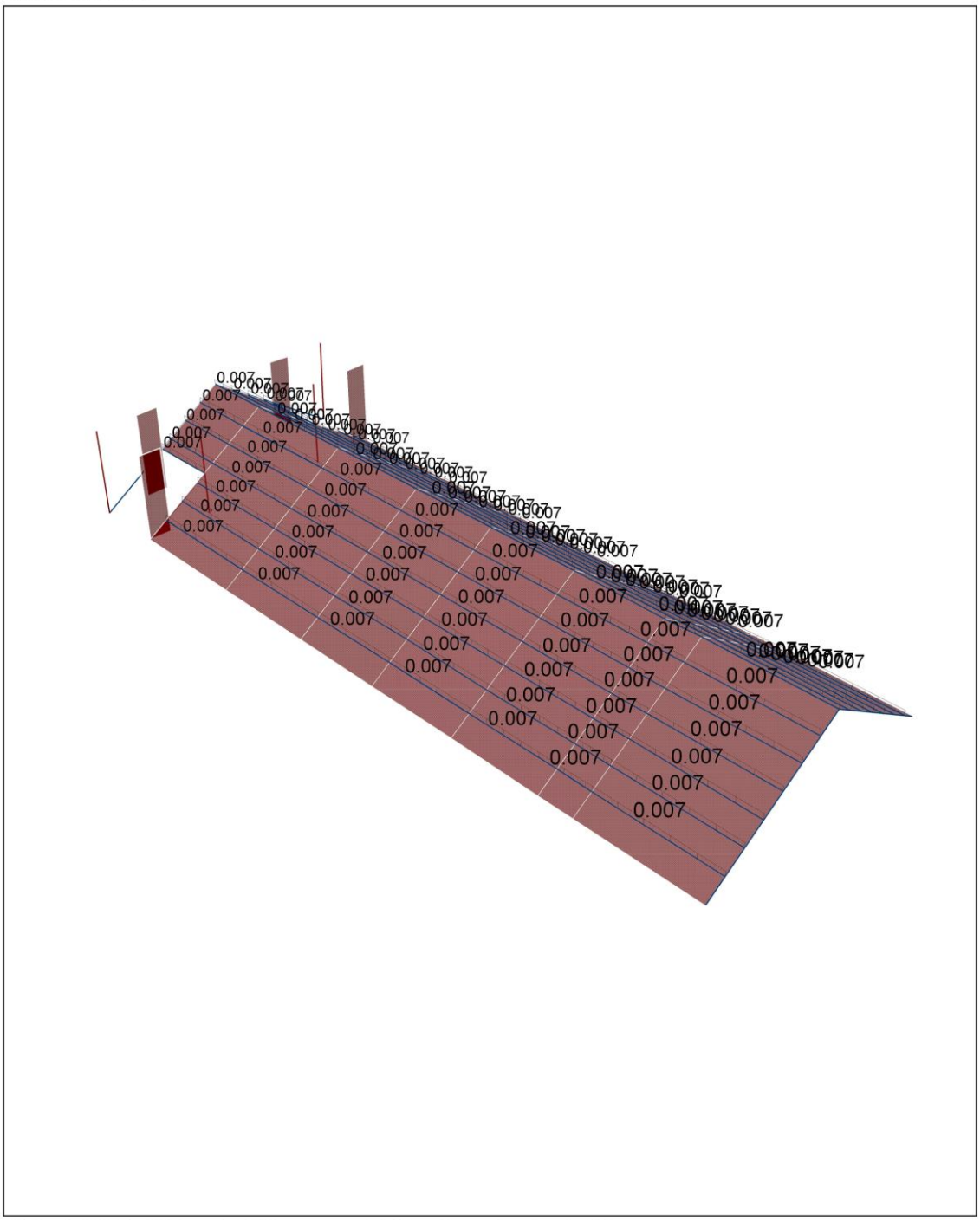
HSJD - CAPILLA - REF pendulo.EDB 3-D View Frame Span Loads (PP)

ETABS 2015 15.2.0



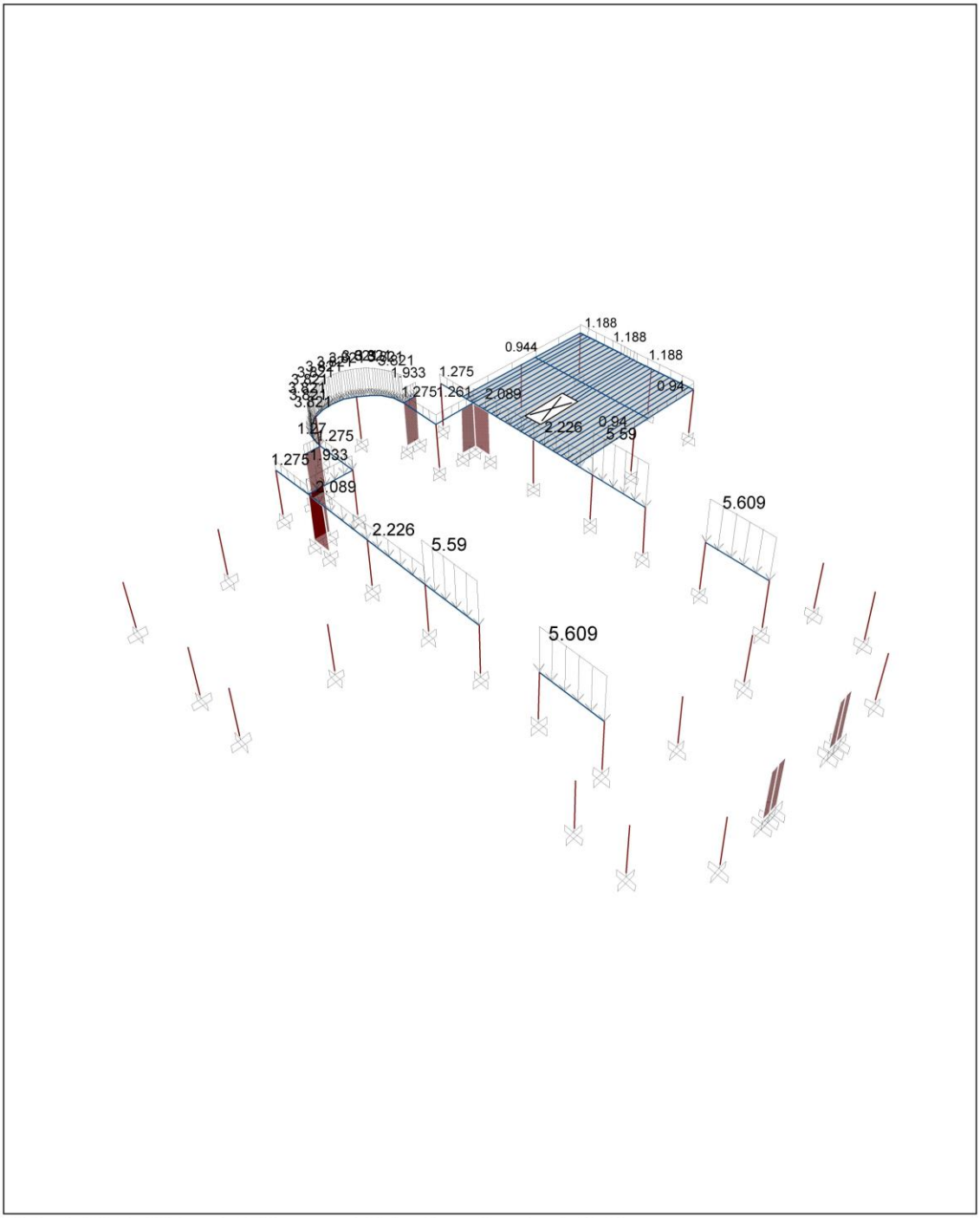
HSJD - CAPILLA - REF pendulo.EDB 3-D View Frame Span Loads (PP)

ETABS 2015 15.2.0



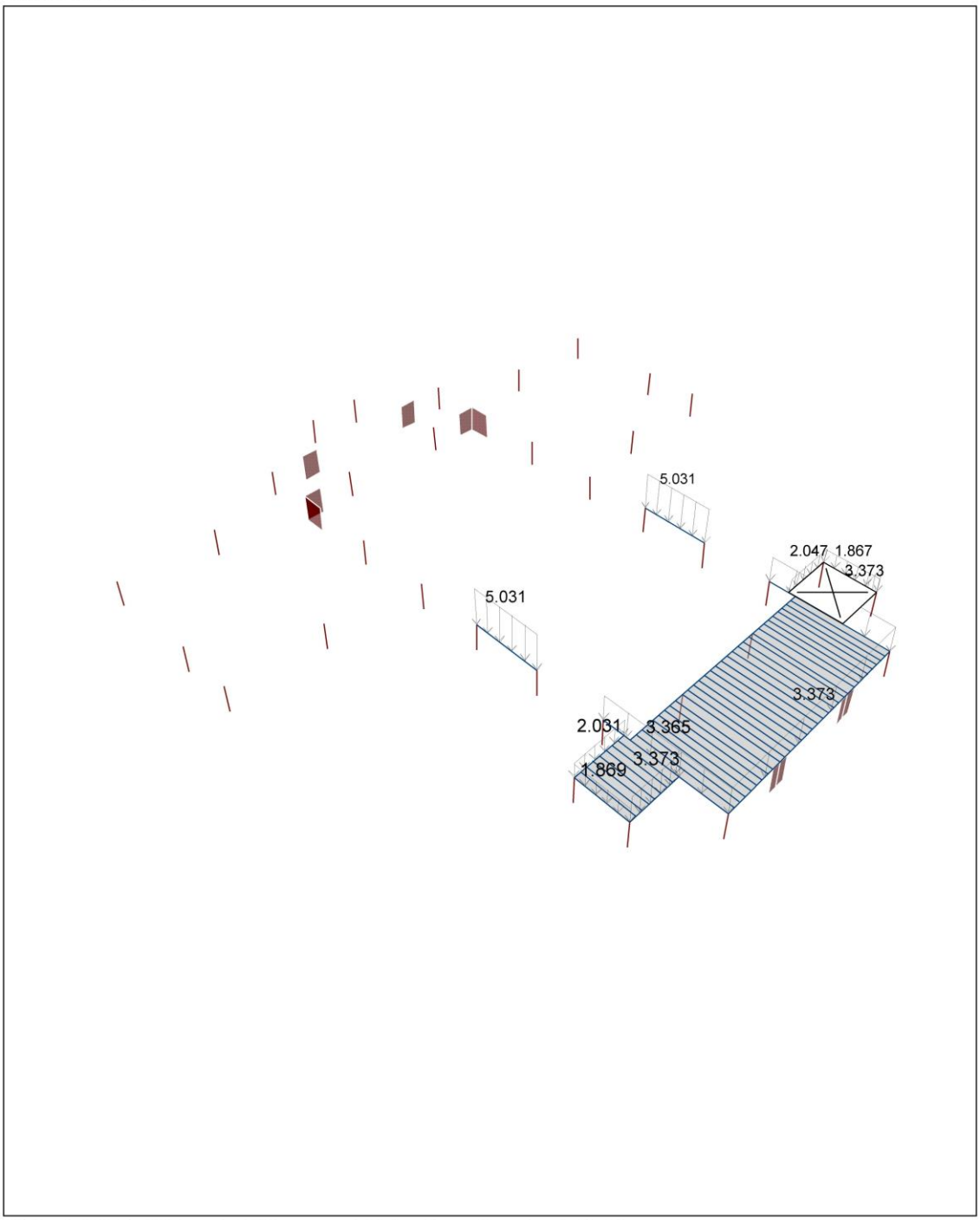
HSJD - CAPILLA - REF pendulo.EDB 3-D View Frame Span Loads (PP)

ETABS 2015 15.2.0



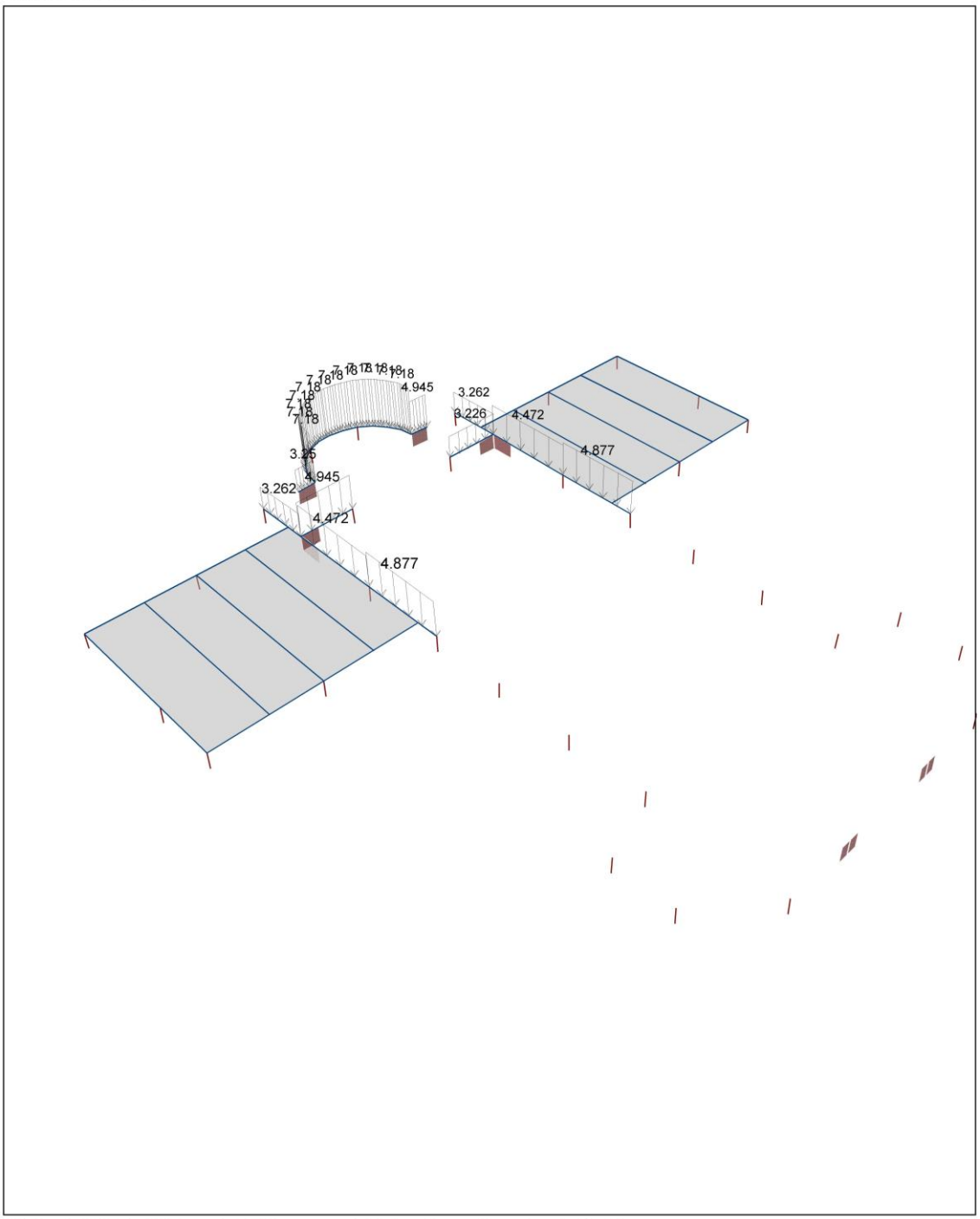
HSJD - CAPILLA - REF pendulo.EDB 3-D View Frame Span Loads (CA-M)

ETABS 2015 15.2.0



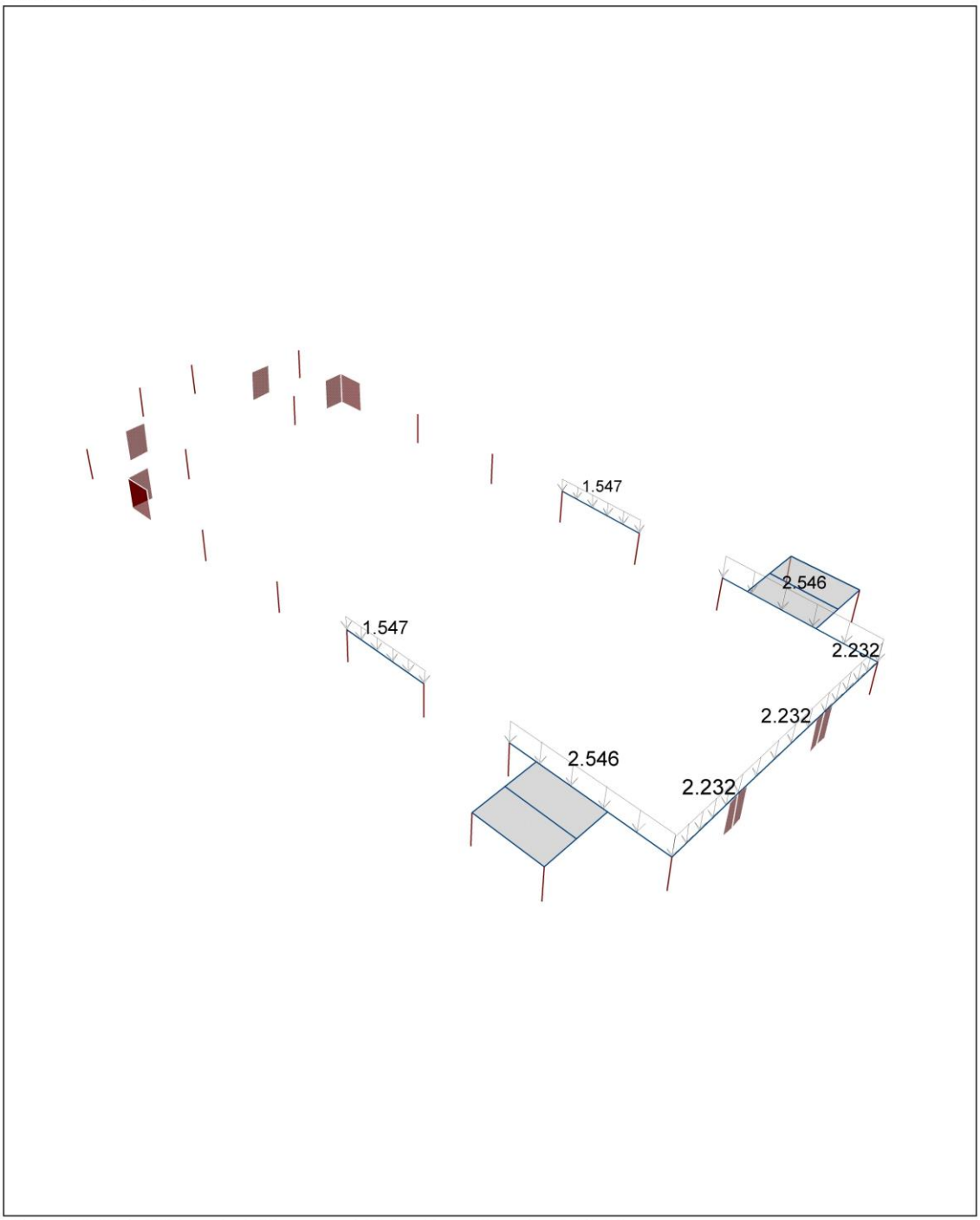
HSJD - CAPILLA - REF pendulo.EDB 3-D View Frame Span Loads (CA-M)

ETABS 2015 15.2.0



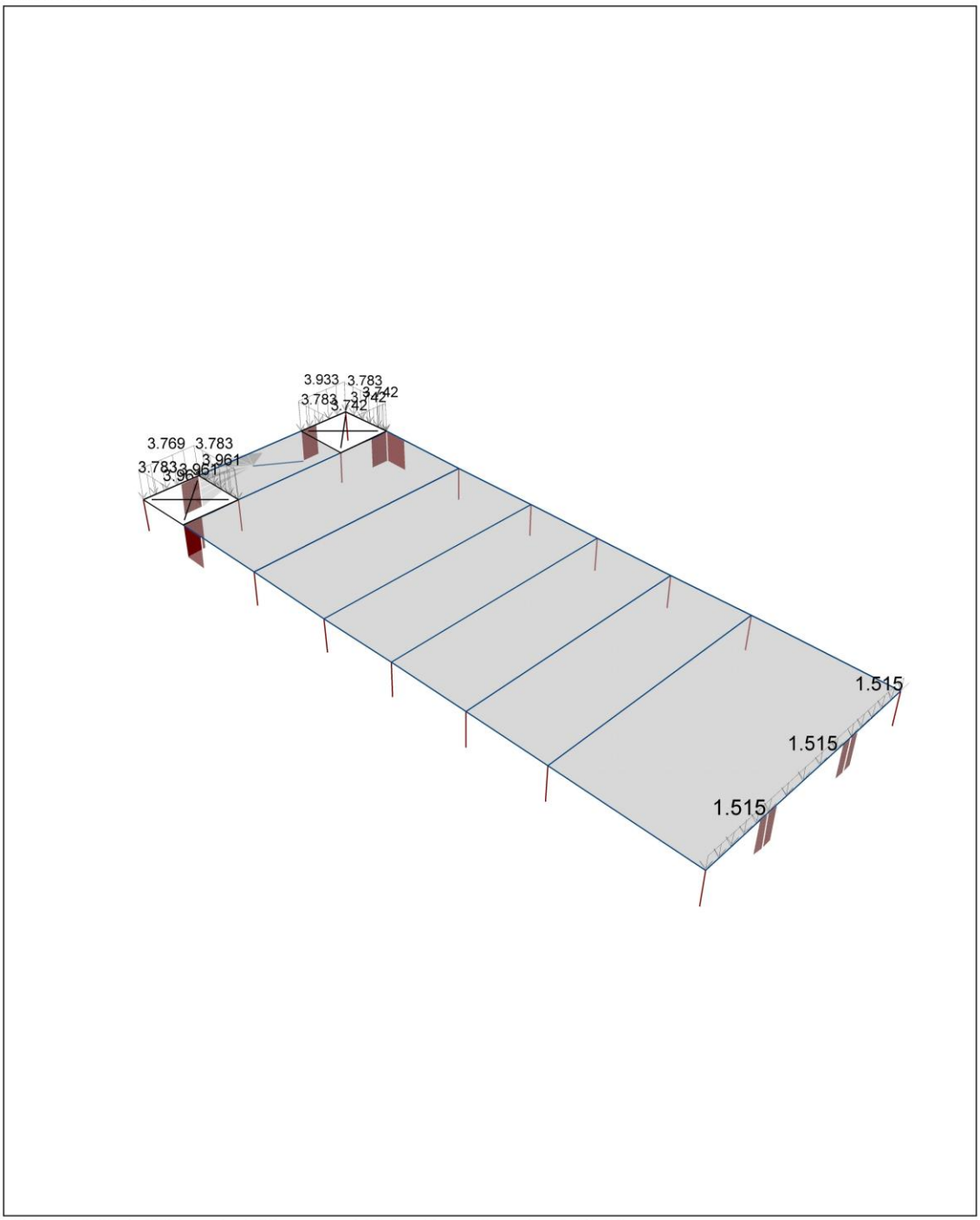
HSJD - CAPILLA - REF pendulo.EDB 3-D View Frame Span Loads (CA-M)

ETABS 2015 15.2.0



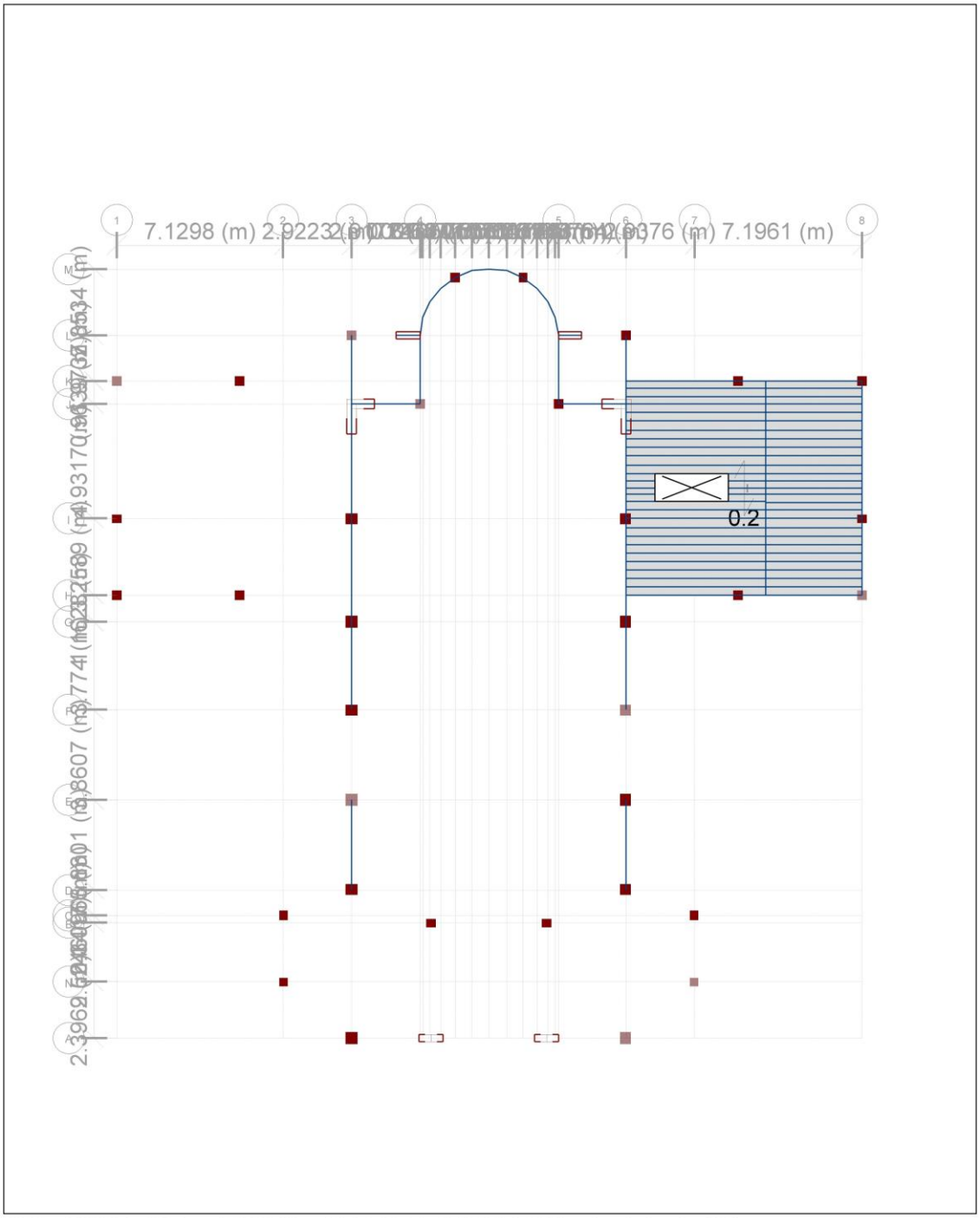
HSJD - CAPILLA - REF pendulo.EDB 3-D View Frame Span Loads (CA-M)

ETABS 2015 15.2.0



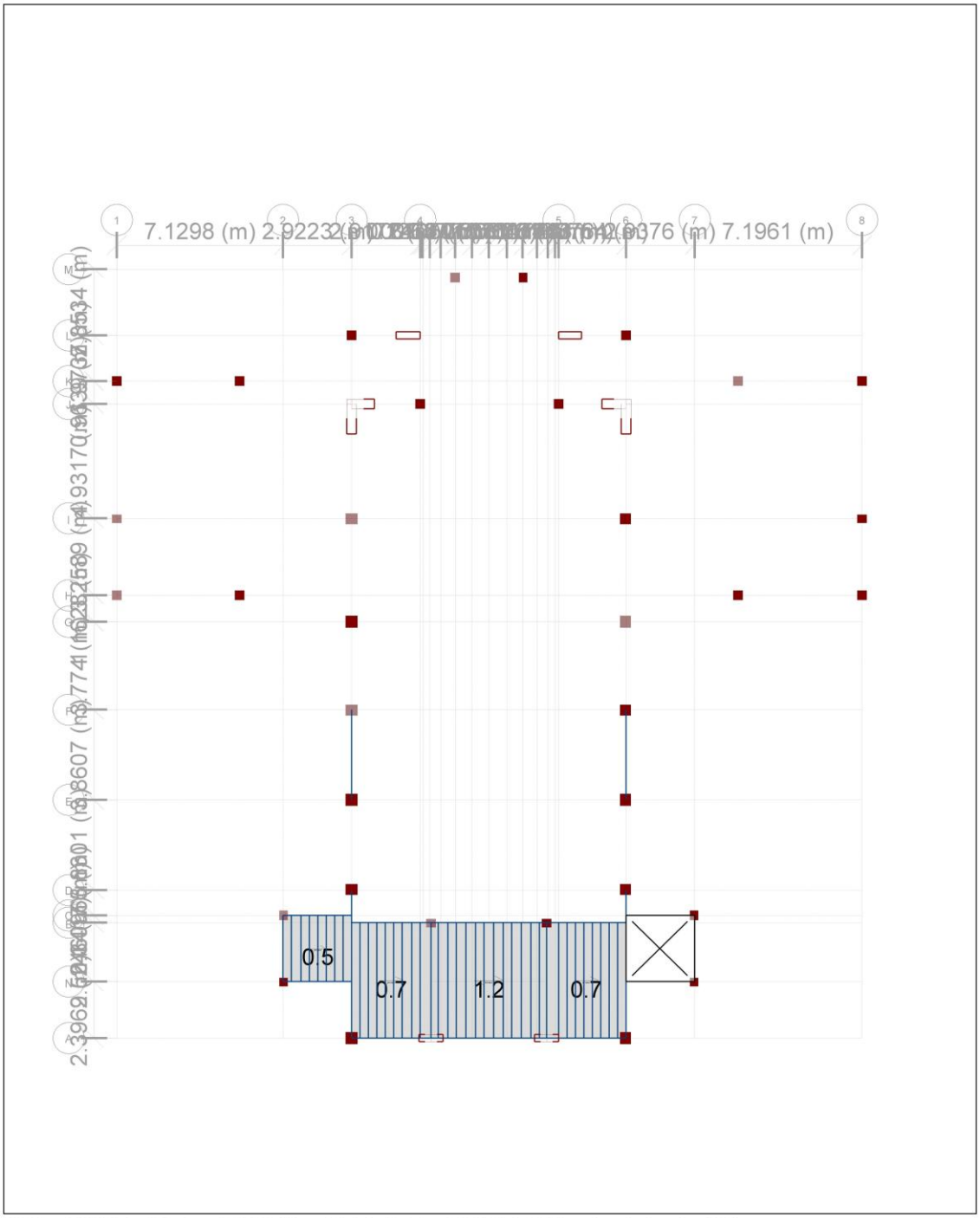
HSJD - CAPILLA - REF pendulo.EDB 3-D View Frame Span Loads (CA-M)

ETABS 2015 15.2.0



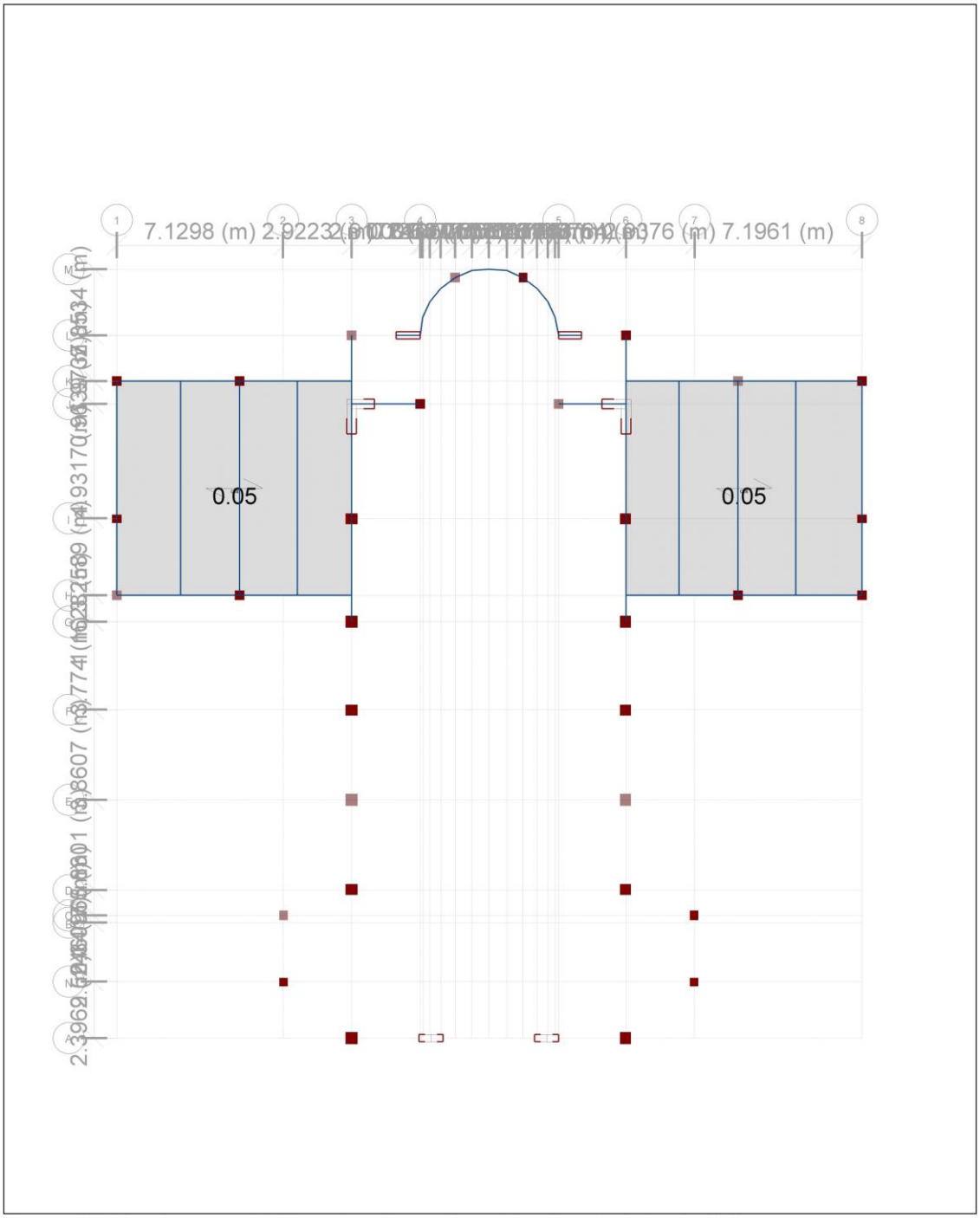
HSJD - CAPILLA - REF pendulo.EDB View - NE+3.17 - Z = 3.1735 (m) Uniform Loads Gravity (CV)

ETABS 2015 15.2.0



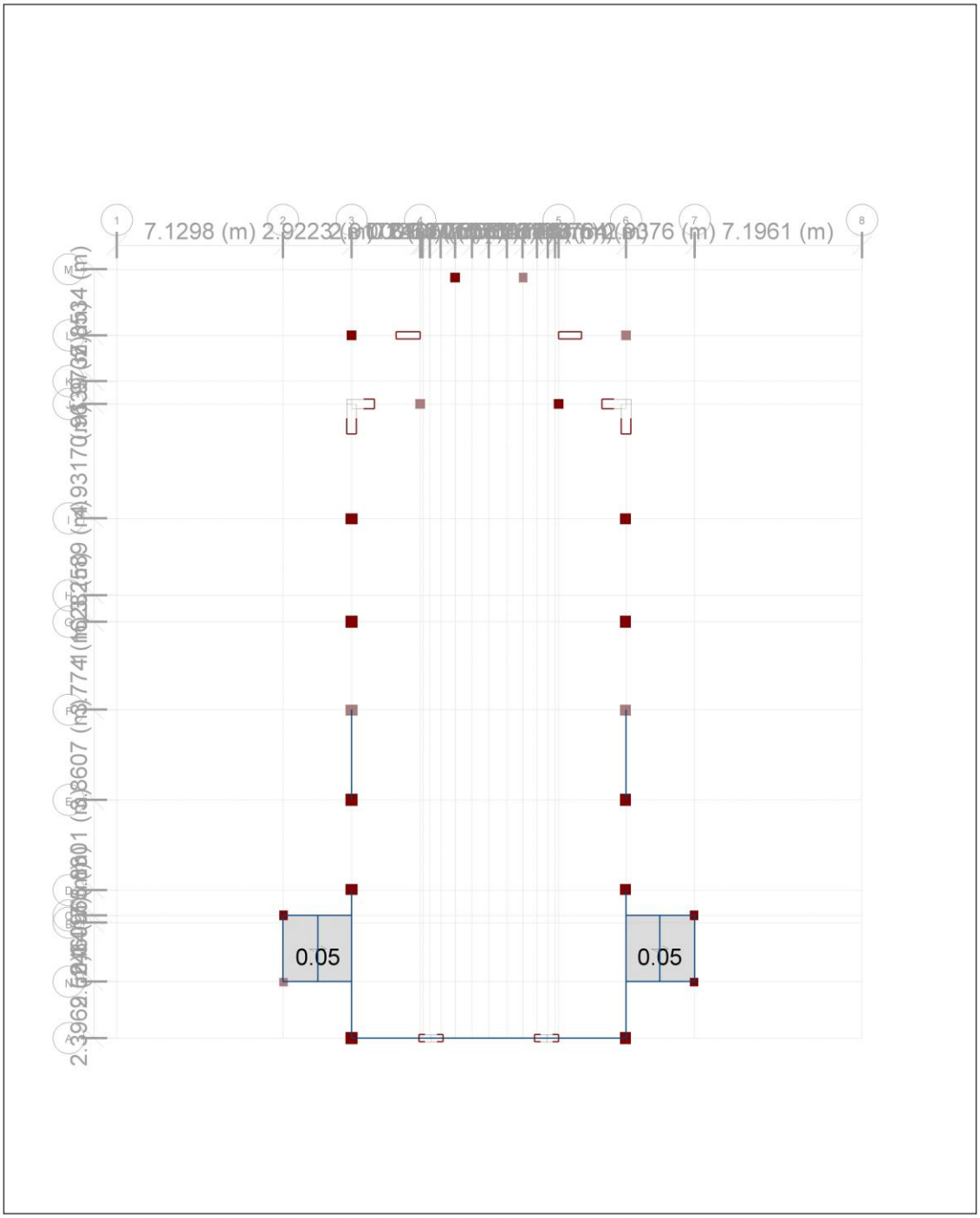
HSJD - CAPILLA - REF pendulo.EDB View - NE+4.77 - Z = 4.7727 (m) Uniform Loads Gravity (CV)

ETABS 2015 15.2.0



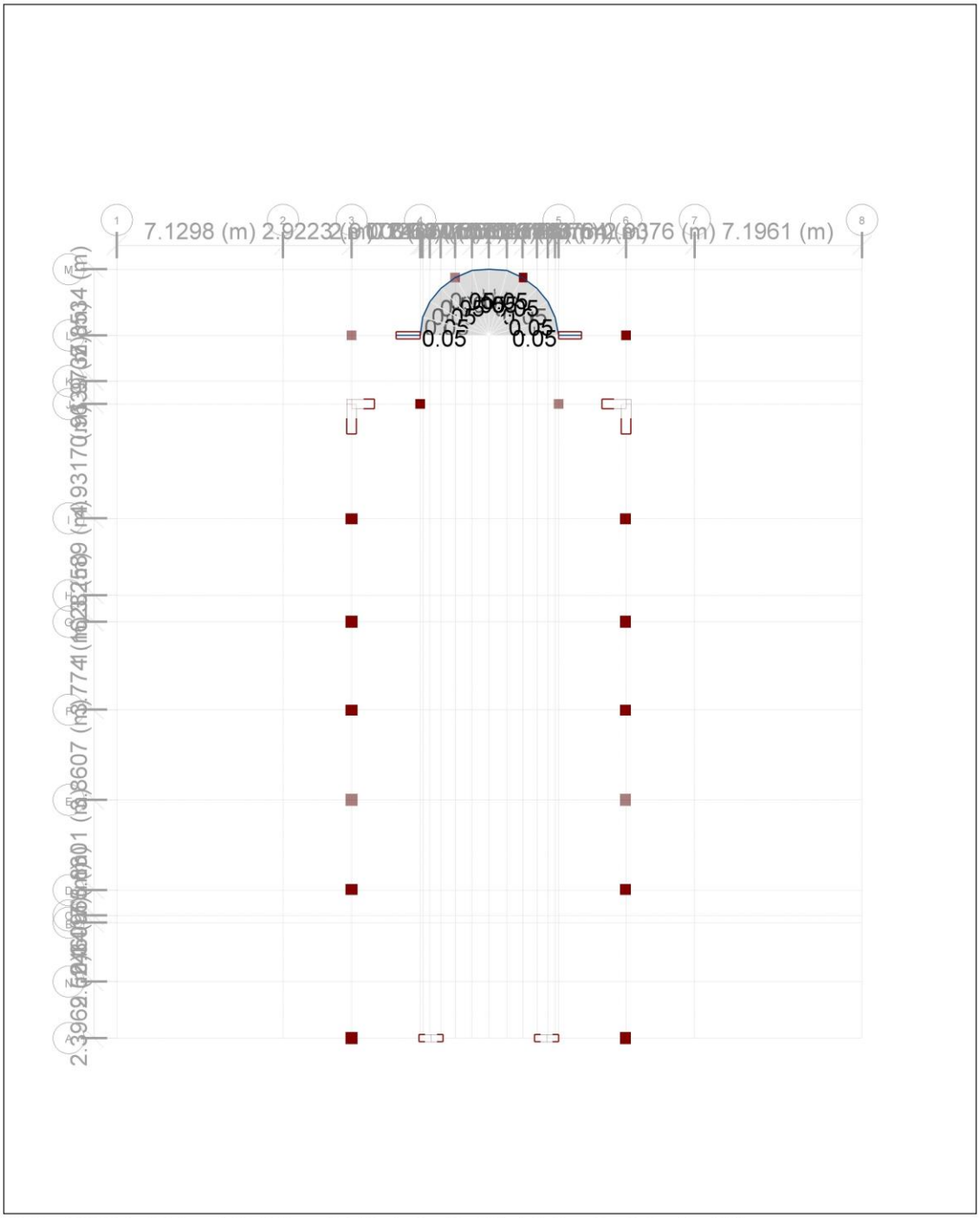
HSJD - CAPILLA - REF pendulo.EDB View - NE+5.60 - Z = 5.6031 (m) Uniform Loads Gravity (CV)

ETABS 2015 15.2.0



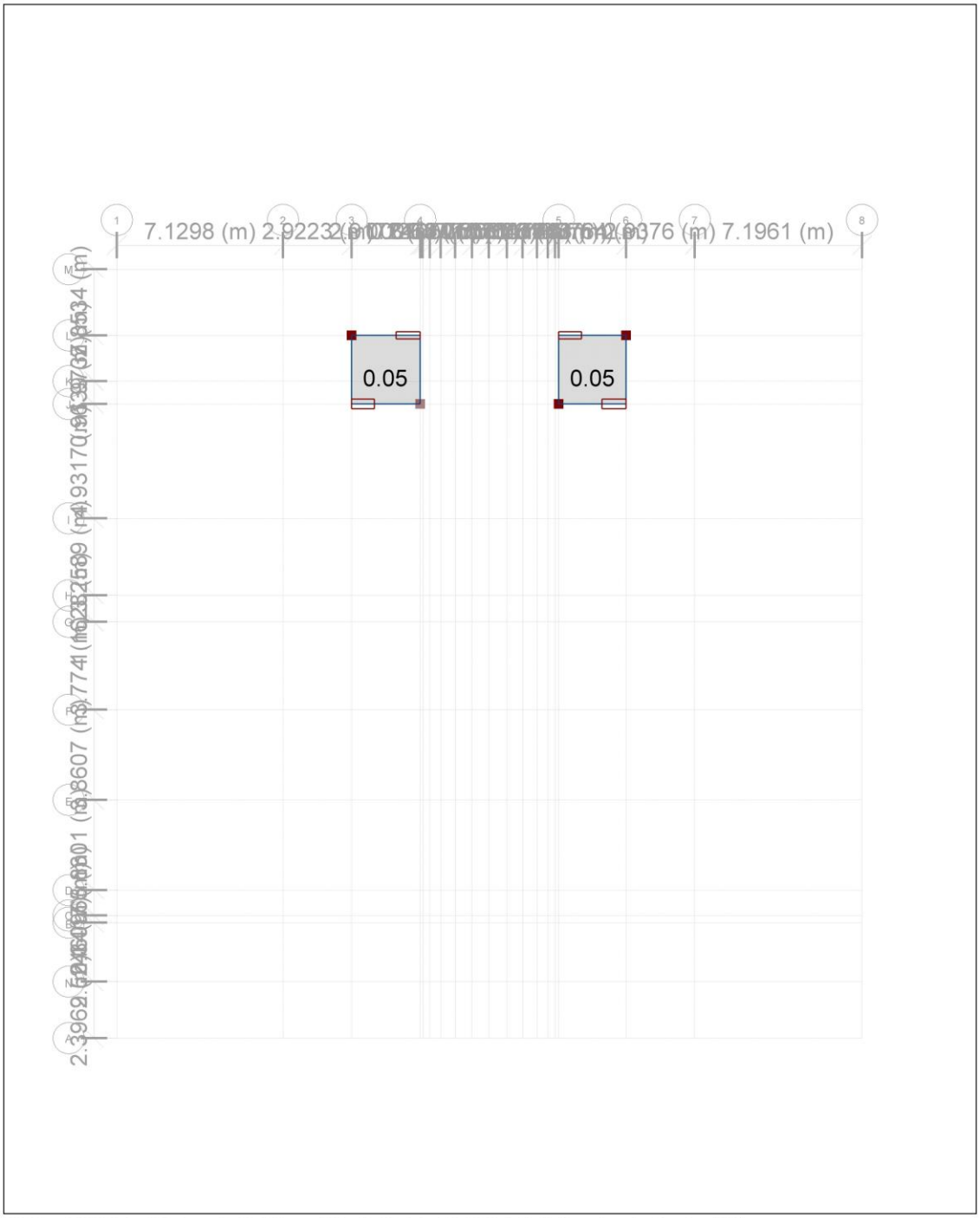
HSJD - CAPILLA - REF pendulo ETABS - NE+9.01 - Z = 9.0128 (m) Uniform Loads Gravity (CV)

ETABS 2015 15.2.0



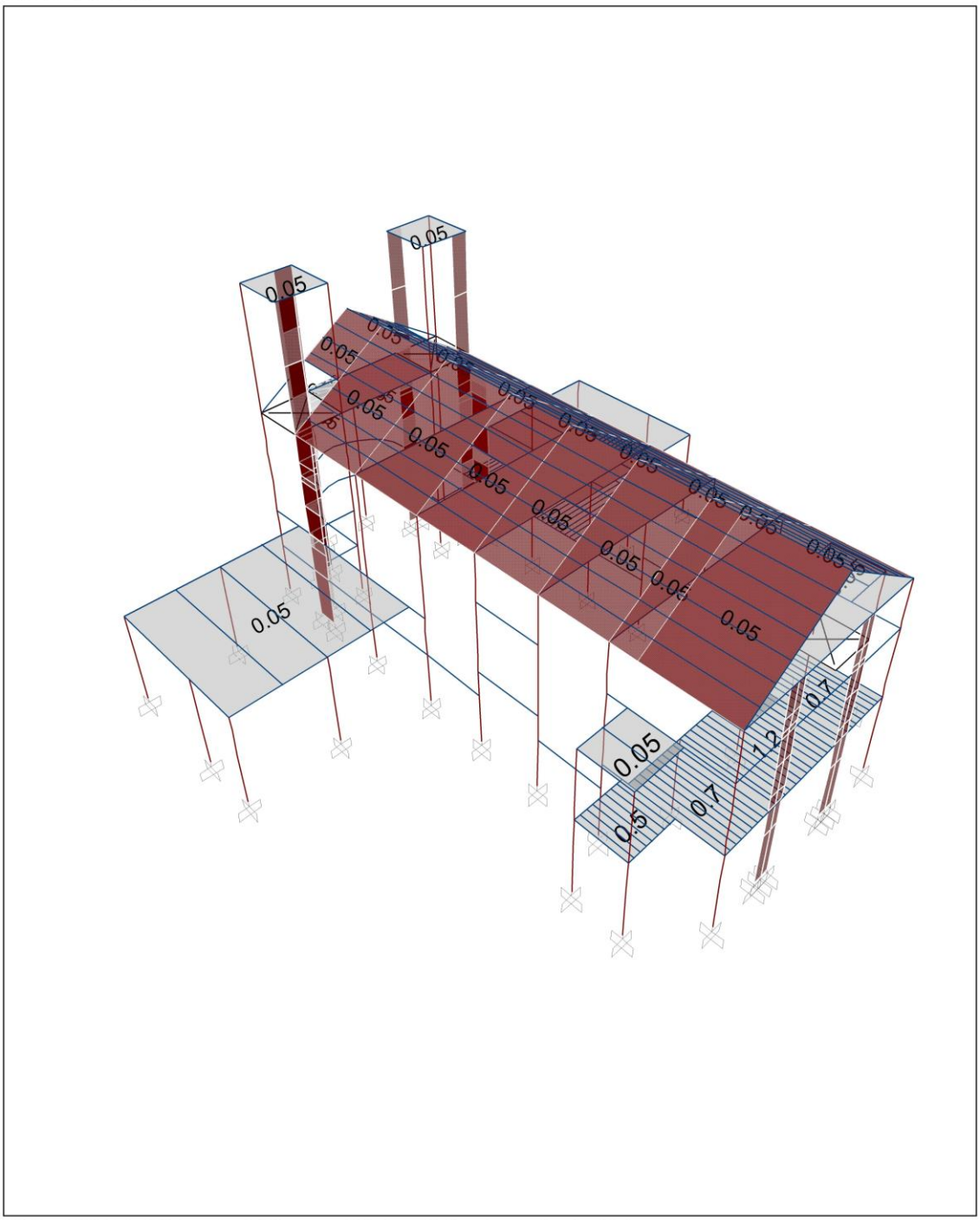
HSJD - CAPILLA - REF pendulo.EDB View - NE+10.16 - Z = 10.162 (m) Uniform Loads Gravity (CV)

ETABS 2015 15.2.0



HSJD - CAPILLA - REF pendulo.EDB Plan View - NE+19.03 - Z = 19.0291 (m) Uniform Loads Gravity (CV)

ETABS 2015 15.2.0



HSJD - CAPILLA - REF pendulo.EDB 3-D View Uniform Loads Gravity (CV)

8.5 Análisis de fuerzas Sísmicas

ANALISIS DE FUERZA SISMICA

RESUMEN DE DENSIDADES POR PISO

PISO	AREA (m2)	VIGAS (T/m^2)	PLACA (T/m^2)	VIGUETA (T/m^2)	M. NE (T/m^2)	COLUMNAS (T/m^2)	MURO CONT. (T/m^2)	CUBIERTA (T/m2)	ESCALERAS (T/m2)	TOTAL (T/m^2)	TOTAL (T)
N +19.03	17.02	0.395	0.00	0.000	0.82	0.489	0.00	0.13	0.00	1.83	31.20
N +15.63	599.76	0.000	0.00	0.004	0.00	0.029	0.00	0.08	0.00	0.11	66.84
N +11.82	599.76	0.051	0.05	0.000	0.16	0.054	0.00	0.00	0.00	0.32	192.38
N +9.01	599.76	0.024	0.00	0.000	0.10	0.090	0.00	0.00	0.00	0.22	129.43
N +5.60	599.76	0.051	0.00	0.000	0.34	0.067	0.00	0.04	0.00	0.49	296.32
N +4.77	599.76	0.034	0.01	0.003	0.28	0.046	0.00	0.00	0.00	0.37	223.50
N +3.17	599.76	0.048	0.05	0.005	0.37	0.091	0.00	0.00	0.00	0.56	335.28
N +0.00	599.76	0.000	0.00	0.000	0.00	0.061	0.00	0.00	0.00	0.06	36.41
A. Total	4215.34	**Peso a cimentación**								**0.31**	**1311.35**
		Peso modelo matematico								**0.31**	**1319.19**

Porcentaje de diferencia entre avaluo de cargas y modelo matematico 0.598% ok es menor que el 5 %

Porcentaje de participaicon de masas en los sentidos principales de la estrucutra

Sentido X 99.71% ok

Sentido Y 99.77% ok

DISTRIBUCION DE CARGAS SISMICAS

CALIF.ESTRUC. IRREGULAR
%AJUSTE V= 0.9

PISO	h (m)	h ACUM.	h^k	w (t)	wh^k	Cv (%)	Fx (t)	M (t.m)
N +19.03	3.40	19.03	19.77	31.20	616.84	0.07	64.90	106.95
N +15.63	3.81	15.63	16.20	66.84	1082.61	0.12	113.90	187.71
N +11.82	2.81	11.82	12.20	192.38	2347.89	0.26	247.02	407.09
N +9.01	3.41	9.01	9.27	129.43	1200.37	0.13	126.29	208.13
N +5.60	0.83	5.60	5.73	296.32	1697.94	0.19	178.64	294.40
N +4.77	1.60	4.77	4.87	223.50	1088.60	0.12	114.53	188.75
N +3.17	3.17	3.17	3.22	335.28	1080.09	0.12	113.64	187.27
N +0.00	0.00	0.00	0.0	36.41	0.00	0.00		
				1311.35	9114.35	1.00	958.92	1580.31

Vd_{x-x} 675.92
Vd_{y-y} 647.32

T= 0.53
W= 1311 t V= 958.9 t
k= 1.01 Sa= 0.73

AJUSTE	%	g
SENTIDO X	1.28	12.53
SENTIDO Y	1.33	13.08

8.6 Derivas Admisibles

La evaluación de los desplazamientos horizontales del edificio de Capilla se realiza conforme a los lineamientos de la NSR-10, donde en su capítulo A.6.4.1 establece que la deriva máxima para cualquier piso no puede exceder de los límites de la tabla A.6.4-1, en la cual la deriva máxima se expresa como un porcentaje de la altura de piso.

Tabla A.6.4-1
Derivas máximas como porcentaje de h_{pi}

Estructuras de:	Deriva máxima
concreto reforzado, metálicas, de madera, y de mampostería que cumplen los requisitos de A.6.4.1.3	$1.0\% \left(\Delta^{i}_{max} \leq 0.010 \ h_{pi}\right)$
de mampostería que cumplen los requisitos de A.6.4.1.4	$0.5\% \left(\Delta^{i}_{max} \leq 0.005 \ h_{pi}\right)$

DERIVAS ADMISIBLES								
NUDO		δx (cm)	δy (cm)	Δx (cm)	Δy (cm)	Δ (cm)	$\Delta_{admisible}$ (cm)	%
COMB 1 MAX								
NE+19.03	7	0.0373	0.0279	0.00	0.00	0.01	7.21	0.00
NE+15.63	7	0.0354	0.0205	0.00	0.00	0.00		
NE+11.82	7	0.0330	0.0246	0.02	0.02	0.03	6.22	0.00
NE+9.01	7	0.0275	0.0106	0.01	0.01	0.01		
NE+5.60	7	0.0176	0.0009	0.01	0.00	0.01	2.43	0.00
NE+4.77	7	0.0149	0.0001	0.01	0.00	0.01		
NE+3.17	7	0.0078	0.0002	0.01	0.00	0.01	3.17	0.00
BASE	7	0.0000	0.0000					
NE+19.03	10	0.0373	0.0233	0.00	0.01	0.01	7.21	0.00
NE+15.63	10	0.0354	0.0109	0.00	0.01	0.01		
NE+11.82	10	0.0330	0.0168	0.02	0.02	0.02	6.22	0.00
NE+9.01	10	0.0275	0.0046	0.01	0.01	0.01		
NE+5.60	10	0.0176	-0.0023	0.01	0.00	0.01	2.43	0.00
NE+4.77	10	0.0149	-0.0029	0.01	0.00	0.01		
NE+3.17	10	0.0078	-0.0016	0.01	0.00	0.01	3.17	0.00
BASE	10	0.0000	0.0000					
NE+19.03	17	0.0362	0.0279	0.01	0.00	0.01	7.21	0.00
NE+15.63	17							
NE+11.82	17	0.0310	0.0246	0.01	0.02	0.03	6.22	0.00
NE+9.01	17	0.0260	0.0106	0.01	0.01	0.01		
NE+5.60	17	0.0168	0.0009	0.01	0.00	0.01	2.43	0.00
NE+4.77	17	0.0141	0.0001	0.01	0.00	0.01		
NE+3.17	17	0.0073	0.0002	0.01	0.00	0.01	3.17	0.00
BASE	17	0.0000	0.0000					
NE+19.03	20	0.0362	0.0233	0.01	0.01	0.01	7.21	0.00
NE+15.63	20							
NE+11.82	20	0.0310	0.0168	0.01	0.02	0.02	6.22	0.00
NE+9.01	20	0.0260	0.0046	0.01	0.01	0.01		
NE+5.60	20	0.0168	-0.0023	0.01	0.00	0.01	2.43	0.00
NE+4.77	20	0.0141	-0.0029	0.01	0.00	0.01		
NE+3.17	20	0.0073	-0.0016	0.01	0.00	0.01	3.17	0.00
BASE	20	0.0000	0.0000					
NE+11.82	23	0.0129	0.0246	0.00	0.01	0.01	2.81	0.00
NE+9.01	23	0.0121	0.0106	0.00	0.01	0.01	4.24	0.00
NE+5.60	23	0.0092	0.0009	0.00	0.00	0.00		
NE+4.77	23	0.0072	0.0001	0.01	0.00	0.01	4.77	0.00
NE+3.17	23	0.0032	0.0002	0.00	0.00	0.00		
BASE	23	0.0000	0.0000					
NE+11.82	25	0.0129	0.0168	0.00	0.01	0.01	2.81	0.00
NE+9.01	25	0.0121	0.0046	0.00	0.01	0.01	4.24	0.00
NE+5.60	25	0.0092	-0.0023	0.00	0.00	0.00		
NE+4.77	25	0.0072	-0.0029	0.01	0.00	0.01	4.77	0.00
NE+3.17	25	0.0032	-0.0016	0.00	0.00	0.00		
BASE	25	0.0000	0.0000					
NE+11.82	35	0.0223	0.0246	0.00	0.01	0.01	2.81	0.01
NE+9.01	35	0.0193	0.0106	0.01	0.01	0.01	4.24	0.00
NE+5.60	35	0.0131	0.0009	0.00	0.00	0.00		
NE+4.77	35	0.0108	0.0001	0.01	0.00	0.01	1.60	0.00
NE+3.17	35	0.0054	0.0002	0.01	0.00	0.01	3.17	0.00
BASE	35	0.0000	0.0000					
NE+11.82	51	0.0223	0.0168	0.00	0.01	0.01	2.81	0.00
NE+9.01	51	0.0193	0.0046	0.01	0.01	0.01	4.24	0.00
NE+5.60	51	0.0131	-0.0023	0.00	0.00	0.00		
NE+4.77	51	0.0108	-0.0029	0.01	0.00	0.01	1.60	0.00
NE+3.17	51	0.0054	-0.0016	0.01	0.00	0.01	3.17	0.00
BASE	51	0.0000	0.0000					
NE+5.60	1	0.0170	0.0038	0.02	0.00	0.02	5.60	0.00
NE+4.77	1	0.0144	0.0027	0.01	0.00	0.01		
NE+3.17	1	0.0075	0.0017	0.01	0.00	0.01		
BASE	1	0.0000	0.0000					
NE+5.60	13	0.0170	-0.0052	0.01	0.00	0.01	2.43	0.00
NE+4.77	13	0.0144	-0.0054	0.01	0.00	0.01		
NE+3.17	13	0.0075	-0.0031	0.01	0.00	0.01	3.17	0.00
BASE	13	0.0000	0.0000					
NE+5.60	3	0.0145	0.0038	0.01	0.00	0.01	5.60	0.00
NE+4.77	3	0.0120	0.0027	0.01	0.00	0.01		
NE+3.17	3	0.0061	0.0017	0.01	0.00	0.01		
BASE	3	0.0000	0.0000					
NE+5.60	14	0.0145	-0.0052	0.01	0.00	0.01	2.43	0.00
NE+4.77	14	0.0120	-0.0054	0.01	0.00	0.01		
NE+3.17	14	0.0061	-0.0031	0.01	0.00	0.01	3.17	0.00
BASE	14	0.0000	0.0000					

COMB 2 MAX								
NE+19.03	7	10.5298	0.6532	2.72	0.12	2.72	7.21	0.38
NE+15.63	7	9.1892	0.7917	1.38	0.26	1.40		
NE+11.82	7	7.8105	0.5318	5.06	0.34	5.07	6.22	0.82
NE+9.01	7	5.6237	0.3630	2.88	0.17	2.88		
NE+5.60	7	2.7474	0.1957	1.60	0.08	1.61	2.43	0.66
NE+4.77	7	2.1772	0.1680	1.03	0.06	1.03		
NE+3.17	7	1.1445	0.1110	1.14	0.11	1.15	3.17	0.36
BASE	7	0.0000	0.0000					
NE+19.03	10	10.5298	0.7149	2.72	0.15	2.72	7.21	0.38
NE+15.63	10	9.1892	0.8355	1.38	0.27	1.41		
NE+11.82	10	7.8105	0.5624	5.06	0.37	5.08	6.22	0.82
NE+9.01	10	5.6237	0.3806	2.88	0.19	2.88		
NE+5.60	10	2.7474	0.1952	1.60	0.09	1.61	2.43	0.66
NE+4.77	10	2.1772	0.1650	1.03	0.06	1.03		
NE+3.17	10	1.1445	0.1084	1.14	0.11	1.15	3.17	0.36
BASE	10	0.0000	0.0000					
NE+19.03	17	10.4259	0.6532	2.78	0.12	2.78	7.21	0.39
NE+15.63	17							
NE+11.82	17	7.6472	0.5318	4.89	0.34	4.90	6.22	0.79
NE+9.01	17	5.5550	0.3630	2.80	0.17	2.80		
NE+5.60	17	2.7556	0.1957	1.59	0.08	1.59	2.43	0.65
NE+4.77	17	2.1940	0.1680	1.03	0.06	1.03		
NE+3.17	17	1.1684	0.1110	1.17	0.11	1.17	3.17	0.37
BASE	17	0.0000	0.0000					
NE+19.03	20	10.4259	0.7149	2.78	0.15	2.78	7.21	0.39
NE+15.63	20							
NE+11.82	20	7.6472	0.5624	4.89	0.37	4.91	6.22	0.79
NE+9.01	20	5.5550	0.3806	2.80	0.19	2.81		
NE+5.60	20	2.7556	0.1952	1.59	0.09	1.59	2.43	0.65
NE+4.77	20	2.1940	0.1650	1.03	0.06	1.03		
NE+3.17	20	1.1684	0.1084	1.17	0.11	1.17	3.17	0.37
BASE	20	0.0000	0.0000					
NE+11.82	23	6.4566	0.5318	1.27	0.17	1.28	2.81	0.46
NE+9.01	23	5.1848	0.3630	2.70	0.20	2.71	4.24	0.64
NE+5.60	23	2.9845	0.1957	0.50	0.03	0.50		
NE+4.77	23	2.4805	0.1680	2.48	0.17	2.49	4.77	0.52
NE+3.17	23	1.4701	0.1110	1.47	0.11	1.47		
BASE	23	0.0000	0.0000					
NE+11.82	25	6.4566	0.5624	1.27	0.18	1.28	2.81	0.46
NE+9.01	25	5.1848	0.3806	2.70	0.22	2.71	4.24	0.64
NE+5.60	25	2.9845	0.1952	0.50	0.03	0.50		
NE+4.77	25	2.4805	0.1650	2.48	0.17	2.49	4.77	0.52
NE+3.17	25	1.4701	0.1084	1.47	0.11	1.47		
BASE	25	0.0000	0.0000					
NE+11.82	35	6.9922	0.5318	1.68	0.17	1.69	2.81	0.60
NE+9.01	35	5.3135	0.3630	3.01	0.20	3.01	4.24	0.71
NE+5.60	35	2.8329	0.1957	0.53	0.03	0.53		
NE+4.77	35	2.3049	0.1680	1.01	0.06	1.01	1.60	0.63
NE+3.17	35	1.2983	0.1110	1.30	0.11	1.30	3.17	0.41
BASE	35	0.0000	0.0000					
NE+11.82	51	6.9922	0.5624	1.68	0.18	1.69	2.81	0.60
NE+9.01	51	5.3135	0.3806	3.01	0.22	3.02	4.24	0.71
NE+5.60	51	2.8329	0.1952	0.53	0.03	0.53		
NE+4.77	51	2.3049	0.1650	1.01	0.06	1.01	1.60	0.63
NE+3.17	51	1.2983	0.1084	1.30	0.11	1.30	3.17	0.41
BASE	51	0.0000	0.0000					
NE+5.60	1	2.7525	0.5309	2.75	0.53	2.80	5.60	0.50
NE+4.77	1	2.1882	0.4550	1.03	0.16	1.04		
NE+3.17	1	1.1603	0.3000	1.16	0.30	1.20		
BASE	1	0.0000	0.0000					
NE+5.60	13	2.7525	0.5277	1.59	0.23	1.61	2.43	0.66
NE+4.77	13	2.1882	0.4496	1.03	0.15	1.04		
NE+3.17	13	1.1603	0.2961	1.16	0.30	1.20	3.17	0.38
BASE	13	0.0000	0.0000					
NE+5.60	3	2.7962	0.5309	2.80	0.53	2.85	5.60	0.51
NE+4.77	3	2.2567	0.4550	1.01	0.16	1.02		
NE+3.17	3	1.2454	0.3000	1.25	0.30	1.28		
BASE	3	0.0000	0.0000					
NE+5.60	14	2.7962	0.5277	1.55	0.23	1.57	2.43	0.65
NE+4.77	14	2.2567	0.4496	1.01	0.15	1.02		
NE+3.17	14	1.2454	0.2961	1.25	0.30	1.28	3.17	0.40
BASE	14	0.0000	0.0000					

COMB 3 MAX								
NE+19.03	7	-10.4648	-0.5878	2.71	0.11	2.71	7.21	0.38
NE+15.63	7	-9.1275	-0.7439	1.37	0.26	1.40		
NE+11.82	7	-7.7530	-0.4791	5.04	0.29	5.04	6.22	0.81
NE+9.01	7	-5.5760	-0.3390	2.86	0.15	2.86		
NE+5.60	7	-2.7172	-0.1921	1.59	0.08	1.59	2.43	0.65
NE+4.77	7	-2.1517	-0.1665	1.02	0.06	1.02		
NE+3.17	7	-1.1312	-0.1103	1.13	0.11	1.14	3.17	0.36
BASE	7	0.0000	0.0000					
NE+19.03	10	-10.4648	-0.6576	2.71	0.13	2.72	7.21	0.38
NE+15.63	10	-9.1275	-0.8054	1.37	0.28	1.40		
NE+11.82	10	-7.7530	-0.5244	5.04	0.33	5.05	6.22	0.81
NE+9.01	10	-5.5760	-0.3679	2.86	0.17	2.86		
NE+5.60	10	-2.7172	-0.1979	1.59	0.09	1.59	2.43	0.65
NE+4.77	10	-2.1517	-0.1691	1.02	0.06	1.02		
NE+3.17	10	-1.1312	-0.1108	1.13	0.11	1.14	3.17	0.36
BASE	10	0.0000	0.0000					
NE+19.03	17	-10.3629	-0.5878	2.77	0.11	2.77	7.21	0.38
NE+15.63	17							
NE+11.82	17	-7.5933	-0.4791	4.87	0.29	4.87	6.22	0.78
NE+9.01	17	-5.5101	-0.3390	2.78	0.15	2.79		
NE+5.60	17	-2.7269	-0.1921	1.57	0.08	1.57	2.43	0.65
NE+4.77	17	-2.1700	-0.1665	1.01	0.06	1.02		
NE+3.17	17	-1.1559	-0.1103	1.16	0.11	1.16	3.17	0.37
BASE	17	0.0000	0.0000					
NE+19.03	20	-10.3629	-0.6576	2.77	0.13	2.77	7.21	0.38
NE+15.63	20							
NE+11.82	20	-7.5933	-0.5244	4.87	0.33	4.88	6.22	0.78
NE+9.01	20	-5.5101	-0.3679	2.78	0.17	2.79		
NE+5.60	20	-2.7269	-0.1979	1.57	0.09	1.57	2.43	0.65
NE+4.77	20	-2.1700	-0.1691	1.01	0.06	1.02		
NE+3.17	20	-1.1559	-0.1108	1.16	0.11	1.16	3.17	0.37
BASE	20	0.0000	0.0000					
NE+11.82	23	-6.4366	-0.4791	1.27	0.14	1.28	2.81	0.46
NE+9.01	23	-5.1662	-0.3390	2.70	0.17	2.70	4.24	0.64
NE+5.60	23	-2.9703	-0.1921	0.50	0.03	0.50		
NE+4.77	23	-2.4693	-0.1665	2.47	0.17	2.47	4.77	0.52
NE+3.17	23	-1.4650	-0.1103	1.47	0.11	1.47		
BASE	23	0.0000	0.0000					
NE+11.82	25	-6.4366	-0.5244	1.27	0.16	1.28	2.81	0.46
NE+9.01	25	-5.1662	-0.3679	2.70	0.20	2.70	4.24	0.64
NE+5.60	25	-2.9703	-0.1979	0.50	0.03	0.50		
NE+4.77	25	-2.4693	-0.1691	2.47	0.17	2.48	4.77	0.52
NE+3.17	25	-1.4650	-0.1108	1.47	0.11	1.47		
BASE	25	0.0000	0.0000					
NE+11.82	35	-6.9547	-0.4791	1.67	0.14	1.68	2.81	0.60
NE+9.01	35	-5.2813	-0.3390	2.99	0.17	3.00	4.24	0.71
NE+5.60	35	-2.8113	-0.1921	0.52	0.03	0.52		
NE+4.77	35	-2.2871	-0.1665	1.00	0.06	1.00	1.60	0.62
NE+3.17	35	-1.2894	-0.1103	1.29	0.11	1.29	3.17	0.41
BASE	35	0.0000	0.0000					
NE+11.82	51	-6.9547	-0.5244	1.67	0.16	1.68	2.81	0.60
NE+9.01	51	-5.2813	-0.3679	2.99	0.20	3.00	4.24	0.71
NE+5.60	51	-2.8113	-0.1979	0.52	0.03	0.52		
NE+4.77	51	-2.2871	-0.1691	1.00	0.06	1.00	1.60	0.62
NE+3.17	51	-1.2894	-0.1108	1.29	0.11	1.29	3.17	0.41
BASE	51	0.0000	0.0000					
NE+5.60	1	-2.7233	-0.5219	2.72	0.52	2.77	5.60	0.49
NE+4.77	1	-2.1636	-0.4487	1.02	0.15	1.03		
NE+3.17	1	-1.1475	-0.2965	1.15	0.30	1.19		
BASE	1	0.0000	0.0000					
NE+5.60	13	-2.7233	-0.5358	1.58	0.23	1.59	2.43	0.66
NE+4.77	13	-2.1636	-0.4584	1.02	0.16	1.03		
NE+3.17	13	-1.1475	-0.3013	1.15	0.30	1.19	3.17	0.37
BASE	13	0.0000	0.0000					
NE+5.60	3	-2.7718	-0.5219	2.77	0.52	2.82	5.60	0.50
NE+4.77	3	-2.2365	-0.4487	1.00	0.15	1.01		
NE+3.17	3	-1.2351	-0.2965	1.24	0.30	1.27		
BASE	3	0.0000	0.0000					
NE+5.60	14	-2.7718	-0.5358	1.54	0.23	1.55	2.43	0.64
NE+4.77	14	-2.2365	-0.4584	1.00	0.16	1.01		
NE+3.17	14	-1.2351	-0.3013	1.24	0.30	1.27	3.17	0.40
BASE	14	0.0000	0.0000					

COMB 4 MAX								
NE+19.03	7	0.3318	10.1798	0.10	4.19	4.19	7.21	0.58
NE+15.63	7	0.2770	7.7921	0.05	1.80	1.80		
NE+11.82	7	0.2320	5.9881	0.14	3.82	3.83	6.22	0.62
NE+9.01	7	0.1713	4.3938	0.08	2.23	2.23		
NE+5.60	7	0.0900	2.1654	0.05	1.20	1.20	2.43	0.49
NE+4.77	7	0.0736	1.7403	0.03	0.77	0.77		
NE+3.17	7	0.0395	0.9699	0.04	0.97	0.97	3.17	0.31
BASE	7	0.0000	0.0000					
NE+19.03	10	0.3318	10.0534	0.10	4.17	4.17	7.21	0.58
NE+15.63	10	0.2770	7.6743	0.05	1.79	1.79		
NE+11.82	10	0.2320	5.8810	0.14	3.77	3.77	6.22	0.61
NE+9.01	10	0.1713	4.3052	0.08	2.19	2.20		
NE+5.60	10	0.0900	2.1112	0.05	1.16	1.16	2.43	0.48
NE+4.77	10	0.0736	1.6944	0.03	0.75	0.75		
NE+3.17	10	0.0395	0.9478	0.04	0.95	0.95	3.17	0.30
BASE	10	0.0000	0.0000					
NE+19.03	17	0.2726	10.1798	0.10	4.19	4.19	7.21	0.58
NE+15.63	17							
NE+11.82	17	0.1741	5.9881	0.11	3.82	3.82	6.22	0.62
NE+9.01	17	0.1253	4.3938	0.06	2.23	2.23		
NE+5.60	17	0.0626	2.1654	0.04	1.20	1.20	2.43	0.49
NE+4.77	17	0.0502	1.7403	0.02	0.77	0.77		
NE+3.17	17	0.0258	0.9699	0.03	0.97	0.97	3.17	0.31
BASE	17	0.0000	0.0000					
NE+19.03	20	0.2726	10.0534	0.10	4.17	4.17	7.21	0.58
NE+15.63	20							
NE+11.82	20	0.1741	5.8810	0.11	3.77	3.77	6.22	0.61
NE+9.01	20	0.1253	4.3052	0.06	2.19	2.19		
NE+5.60	20	0.0626	2.1112	0.04	1.16	1.16	2.43	0.48
NE+4.77	20	0.0502	1.6944	0.02	0.75	0.75		
NE+3.17	20	0.0258	0.9478	0.03	0.95	0.95	3.17	0.30
BASE	20	0.0000	0.0000					
NE+11.82	23	0.3964	5.9881	0.07	1.59	1.60	2.81	0.57
NE+9.01	23	0.3284	4.3938	0.15	2.65	2.66	4.24	0.63
NE+5.60	23	0.2084	2.1654	0.03	0.43	0.43		
NE+4.77	23	0.1809	1.7403	0.18	1.74	1.75	4.77	0.37
NE+3.17	23	0.1108	0.9699	0.11	0.97	0.98		
BASE	23	0.0000	0.0000					
NE+11.82	25	0.3964	5.8810	0.07	1.58	1.58	2.81	0.56
NE+9.01	25	0.3284	4.3052	0.15	2.61	2.61	4.24	0.62
NE+5.60	25	0.2084	2.1112	0.03	0.42	0.42		
NE+4.77	25	0.1809	1.6944	0.18	1.69	1.70	4.77	0.36
NE+3.17	25	0.1108	0.9478	0.11	0.95	0.95		
BASE	25	0.0000	0.0000					
NE+11.82	35	0.1351	5.9881	0.02	1.59	1.59	2.81	0.57
NE+9.01	35	0.1199	4.3938	0.05	2.65	2.65	4.24	0.63
NE+5.60	35	0.0839	2.1654	0.01	0.43	0.43		
NE+4.77	35	0.0747	1.7403	0.03	0.77	0.77	1.60	0.48
NE+3.17	35	0.0474	0.9699	0.05	0.97	0.97	3.17	0.31
BASE	35	0.0000	0.0000					
NE+11.82	51	0.1351	5.8810	0.02	1.58	1.58	2.81	0.56
NE+9.01	51	0.1199	4.3052	0.05	2.61	2.61	4.24	0.62
NE+5.60	51	0.0839	2.1112	0.01	0.42	0.42		
NE+4.77	51	0.0747	1.6944	0.03	0.75	0.75	1.60	0.47
NE+3.17	51	0.0474	0.9478	0.05	0.95	0.95	3.17	0.30
BASE	51	0.0000	0.0000					
NE+5.60	1	0.0715	2.2151	0.07	2.22	2.22	5.60	0.40
NE+4.77	1	0.0579	1.7826	0.03	0.79	0.79		
NE+3.17	1	0.0302	0.9908	0.03	0.99	0.99		
BASE	1	0.0000	0.0000					
NE+5.60	13	0.0715	2.0678	0.04	1.14	1.14	2.43	0.47
NE+4.77	13	0.0579	1.6579	0.03	0.73	0.73		
NE+3.17	13	0.0302	0.9310	0.03	0.93	0.93	3.17	0.29
BASE	13	0.0000	0.0000					
NE+5.60	3	0.0408	2.2151	0.04	2.22	2.22	5.60	0.40
NE+4.77	3	0.0379	1.7826	0.01	0.79	0.79		
NE+3.17	3	0.0256	0.9908	0.03	0.99	0.99		
BASE	3	0.0000	0.0000					
NE+5.60	14	0.0408	2.0678	0.02	1.14	1.14	2.43	0.47
NE+4.77	14	0.0379	1.6579	0.01	0.73	0.73		
NE+3.17	14	0.0256	0.9310	0.03	0.93	0.93	3.17	0.29
BASE	14	0.0000	0.0000					

COMB 5 MAX								
NE+19.03	7	-0.2668	-10.1144	0.09	4.18	4.18	7.21	0.58
NE+15.63	7	-0.2152	-7.7444	0.04	1.81	1.81		
NE+11.82	7	-0.1745	-5.9354	0.11	3.77	3.78	6.22	0.61
NE+9.01	7	-0.1236	-4.3698	0.06	2.21	2.21		
NE+5.60	7	-0.0597	-2.1618	0.03	1.19	1.19	2.43	0.49
NE+4.77	7	-0.0481	-1.7388	0.02	0.77	0.77		
NE+3.17	7	-0.0262	-0.9691	0.03	0.97	0.97	3.17	0.31
BASE	7	0.0000	0.0000					
NE+19.03	10	-0.2668	-9.9961	0.09	4.15	4.15	7.21	0.58
NE+15.63	10	-0.2152	-7.6442	0.04	1.80	1.80		
NE+11.82	10	-0.1745	-5.8430	0.11	3.73	3.73	6.22	0.60
NE+9.01	10	-0.1236	-4.2925	0.06	2.18	2.18		
NE+5.60	10	-0.0597	-2.1139	0.03	1.16	1.16	2.43	0.48
NE+4.77	10	-0.0481	-1.6984	0.02	0.75	0.75		
NE+3.17	10	-0.0262	-0.9502	0.03	0.95	0.95	3.17	0.30
BASE	10	0.0000	0.0000					
NE+19.03	17	-0.2096	-10.1144	0.09	4.18	4.18	7.21	0.58
NE+15.63	17							
NE+11.82	17	-0.1202	-5.9354	0.09	3.77	3.77	6.22	0.61
NE+9.01	17	-0.0804	-4.3698	0.05	2.21	2.21		
NE+5.60	17	-0.0339	-2.1618	0.02	1.19	1.19	2.43	0.49
NE+4.77	17	-0.0262	-1.7388	0.01	0.77	0.77		
NE+3.17	17	-0.0133	-0.9691	0.01	0.97	0.97	3.17	0.31
BASE	17	0.0000	0.0000					
NE+19.03	20	-0.2096	-9.9961	0.09	4.15	4.15	7.21	0.58
NE+15.63	20							
NE+11.82	20	-0.1202	-5.8430	0.09	3.73	3.73	6.22	0.60
NE+9.01	20	-0.0804	-4.2925	0.05	2.18	2.18		
NE+5.60	20	-0.0339	-2.1139	0.02	1.16	1.16	2.43	0.48
NE+4.77	20	-0.0262	-1.6984	0.01	0.75	0.75		
NE+3.17	20	-0.0133	-0.9502	0.01	0.95	0.95	3.17	0.30
BASE	20	0.0000	0.0000					
NE+11.82	23	-0.3764	-5.9354	0.07	1.57	1.57	2.81	0.56
NE+9.01	23	-0.3098	-4.3698	0.14	2.63	2.63	4.24	0.62
NE+5.60	23	-0.1943	-2.1618	0.02	0.42	0.42		
NE+4.77	23	-0.1697	-1.7388	0.17	1.74	1.75	4.77	0.37
NE+3.17	23	-0.1056	-0.9691	0.11	0.97	0.97		
BASE	23	0.0000	0.0000					
NE+11.82	25	-0.3764	-5.8430	0.07	1.55	1.55	2.81	0.55
NE+9.01	25	-0.3098	-4.2925	0.14	2.59	2.60	4.24	0.61
NE+5.60	25	-0.1943	-2.1139	0.02	0.42	0.42		
NE+4.77	25	-0.1697	-1.6984	0.17	1.70	1.71	4.77	0.36
NE+3.17	25	-0.1056	-0.9502	0.11	0.95	0.96		
BASE	25	0.0000	0.0000					
NE+11.82	35	-0.0976	-5.9354	0.01	1.57	1.57	2.81	0.56
NE+9.01	35	-0.0877	-4.3698	0.03	2.63	2.63	4.24	0.62
NE+5.60	35	-0.0623	-2.1618	0.01	0.42	0.42		
NE+4.77	35	-0.0568	-1.7388	0.02	0.77	0.77	1.60	0.48
NE+3.17	35	-0.0385	-0.9691	0.04	0.97	0.97	3.17	0.31
BASE	35	0.0000	0.0000					
NE+11.82	51	-0.0976	-5.8430	0.01	1.55	1.55	2.81	0.55
NE+9.01	51	-0.0877	-4.2925	0.03	2.59	2.59	4.24	0.61
NE+5.60	51	-0.0623	-2.1139	0.01	0.42	0.42		
NE+4.77	51	-0.0568	-1.6984	0.02	0.75	0.75	1.60	0.47
NE+3.17	51	-0.0385	-0.9502	0.04	0.95	0.95	3.17	0.30
BASE	51	0.0000	0.0000					
NE+5.60	1	-0.0423	-2.2061	0.04	2.21	2.21	5.60	0.39
NE+4.77	1	-0.0333	-1.7763	0.02	0.79	0.79		
NE+3.17	1	-0.0175	-0.9873	0.02	0.99	0.99		
BASE	1	0.0000	0.0000					
NE+5.60	13	-0.0423	-2.0759	0.02	1.14	1.14	2.43	0.47
NE+4.77	13	-0.0333	-1.6668	0.02	0.73	0.73		
NE+3.17	13	-0.0175	-0.9362	0.02	0.94	0.94	3.17	0.30
BASE	13	0.0000	0.0000					
NE+5.60	3	-0.0165	-2.2061	0.02	2.21	2.21	5.60	0.39
NE+4.77	3	-0.0177	-1.7763	0.00	0.79	0.79		
NE+3.17	3	-0.0153	-0.9873	0.02	0.99	0.99		
BASE	3	0.0000	0.0000					
NE+5.60	14	-0.0165	-2.0759	0.00	1.14	1.14	2.43	0.47
NE+4.77	14	-0.0177	-1.6668	0.00	0.73	0.73		
NE+3.17	14	-0.0153	-0.9362	0.02	0.94	0.94	3.17	0.30
BASE	14	0.0000	0.0000					

COMB 6 MAX								
NE+19.03	7	10.5157	0.6511	2.72	0.12	2.72	7.21	0.38
NE+15.63	7	9.1758	0.7899	1.38	0.26	1.40		
NE+11.82	7	7.7980	0.5274	5.06	0.33	5.07	6.22	0.82
NE+9.01	7	5.6132	0.3618	2.87	0.17	2.88		
NE+5.60	7	2.7406	0.1964	1.60	0.09	1.60	2.43	0.66
NE+4.77	7	2.1714	0.1686	1.03	0.06	1.03		
NE+3.17	7	1.1414	0.1112	1.14	0.11	1.15	3.17	0.36
BASE	7	0.0000	0.0000					
NE+19.03	10	10.5157	0.7144	2.72	0.15	2.72	7.21	0.38
NE+15.63	10	9.1758	0.8369	1.38	0.28	1.41		
NE+11.82	10	7.7980	0.5605	5.06	0.36	5.07	6.22	0.82
NE+9.01	10	5.6132	0.3811	2.87	0.18	2.88		
NE+5.60	10	2.7406	0.1968	1.60	0.09	1.60	2.43	0.66
NE+4.77	10	2.1714	0.1666	1.03	0.06	1.03		
NE+3.17	10	1.1414	0.1091	1.14	0.11	1.15	3.17	0.36
BASE	10	0.0000	0.0000					
NE+19.03	17	10.4122	0.6511	2.78	0.12	2.78	7.21	0.39
NE+15.63	17							
NE+11.82	17	7.6353	0.5274	4.89	0.33	4.90	6.22	0.79
NE+9.01	17	5.5450	0.3618	2.80	0.17	2.80		
NE+5.60	17	2.7490	0.1964	1.58	0.09	1.59	2.43	0.65
NE+4.77	17	2.1884	0.1686	1.02	0.06	1.02		
NE+3.17	17	1.1655	0.1112	1.17	0.11	1.17	3.17	0.37
BASE	17	0.0000	0.0000					
NE+19.03	20	10.4122	0.7144	2.78	0.15	2.78	7.21	0.39
NE+15.63	20							
NE+11.82	20	7.6353	0.5605	4.89	0.36	4.90	6.22	0.79
NE+9.01	20	5.5450	0.3811	2.80	0.18	2.80		
NE+5.60	20	2.7490	0.1968	1.58	0.09	1.59	2.43	0.65
NE+4.77	20	2.1884	0.1666	1.02	0.06	1.02		
NE+3.17	20	1.1655	0.1091	1.17	0.11	1.17	3.17	0.37
BASE	20	0.0000	0.0000					
NE+11.82	23	6.4505	0.5274	1.27	0.17	1.28	2.81	0.46
NE+9.01	23	5.1791	0.3618	2.70	0.19	2.71	4.24	0.64
NE+5.60	23	2.9801	0.1964	0.50	0.03	0.50		
NE+4.77	23	2.4771	0.1686	2.48	0.17	2.48	4.77	0.52
NE+3.17	23	1.4686	0.1112	1.47	0.11	1.47		
BASE	23	0.0000	0.0000					
NE+11.82	25	6.4505	0.5605	1.27	0.18	1.28	2.81	0.46
NE+9.01	25	5.1791	0.3811	2.70	0.21	2.71	4.24	0.64
NE+5.60	25	2.9801	0.1968	0.50	0.03	0.50		
NE+4.77	25	2.4771	0.1666	2.48	0.17	2.48	4.77	0.52
NE+3.17	25	1.4686	0.1091	1.47	0.11	1.47		
BASE	25	0.0000	0.0000					
NE+11.82	35	6.9831	0.5274	1.68	0.17	1.69	2.81	0.60
NE+9.01	35	5.3056	0.3618	3.01	0.19	3.01	4.24	0.71
NE+5.60	35	2.8274	0.1964	0.53	0.03	0.53		
NE+4.77	35	2.3004	0.1686	1.00	0.06	1.01	1.60	0.63
NE+3.17	35	1.2961	0.1112	1.30	0.11	1.30	3.17	0.41
BASE	35	0.0000	0.0000					
NE+11.82	51	6.9831	0.5605	1.68	0.18	1.69	2.81	0.60
NE+9.01	51	5.3056	0.3811	3.01	0.21	3.01	4.24	0.71
NE+5.60	51	2.8274	0.1968	0.53	0.03	0.53		
NE+4.77	51	2.3004	0.1666	1.00	0.06	1.01	1.60	0.63
NE+3.17	51	1.2961	0.1091	1.30	0.11	1.30	3.17	0.41
BASE	51	0.0000	0.0000					
NE+5.60	1	2.7458	0.5307	2.75	0.53	2.80	5.60	0.50
NE+4.77	1	2.1825	0.4548	1.03	0.16	1.04		
NE+3.17	1	1.1573	0.2996	1.16	0.30	1.20		
BASE	1	0.0000	0.0000					
NE+5.60	13	2.7458	0.5301	1.59	0.23	1.61	2.43	0.66
NE+4.77	13	2.1825	0.4519	1.03	0.15	1.04		
NE+3.17	13	1.1573	0.2974	1.16	0.30	1.19	3.17	0.38
BASE	13	0.0000	0.0000					
NE+5.60	3	2.7902	0.5307	2.79	0.53	2.84	5.60	0.51
NE+4.77	3	2.2517	0.4548	1.01	0.16	1.02		
NE+3.17	3	1.2429	0.2996	1.24	0.30	1.28		
BASE	3	0.0000	0.0000					
NE+5.60	14	2.7902	0.5301	1.55	0.23	1.56	2.43	0.64
NE+4.77	14	2.2517	0.4519	1.01	0.15	1.02		
NE+3.17	14	1.2429	0.2974	1.24	0.30	1.28	3.17	0.40
BASE	14	0.0000	0.0000					

COMB 7 MAX								
NE+19.03	7	-10.4789	-0.5900	2.71	0.11	2.72	7.21	0.38
NE+15.63	7	-9.1409	-0.7457	1.38	0.26	1.40		
NE+11.82	7	-7.7655	-0.4835	5.04	0.29	5.05	6.22	0.81
NE+9.01	7	-5.5865	-0.3403	2.86	0.15	2.87		
NE+5.60	7	-2.7240	-0.1915	1.59	0.08	1.59	2.43	0.66
NE+4.77	7	-2.1575	-0.1659	1.02	0.06	1.02		
NE+3.17	7	-1.1342	-0.1101	1.13	0.11	1.14	3.17	0.36
BASE	7	0.0000	0.0000					
NE+19.03	10	-10.4789	-0.6581	2.71	0.13	2.72	7.21	0.38
NE+15.63	10	-9.1409	-0.8040	1.38	0.28	1.40		
NE+11.82	10	-7.7655	-0.5263	5.04	0.33	5.05	6.22	0.81
NE+9.01	10	-5.5865	-0.3674	2.86	0.17	2.87		
NE+5.60	10	-2.7240	-0.1963	1.59	0.09	1.59	2.43	0.66
NE+4.77	10	-2.1575	-0.1675	1.02	0.06	1.02		
NE+3.17	10	-1.1342	-0.1100	1.13	0.11	1.14	3.17	0.36
BASE	10	0.0000	0.0000					
NE+19.03	17	-10.3766	-0.5900	2.77	0.11	2.77	7.21	0.38
NE+15.63	17							
NE+11.82	17	-7.6052	-0.4835	4.87	0.29	4.88	6.22	0.79
NE+9.01	17	-5.5202	-0.3403	2.79	0.15	2.79		
NE+5.60	17	-2.7335	-0.1915	1.57	0.08	1.58	2.43	0.65
NE+4.77	17	-2.1755	-0.1659	1.02	0.06	1.02		
NE+3.17	17	-1.1588	-0.1101	1.16	0.11	1.16	3.17	0.37
BASE	17	0.0000	0.0000					
NE+19.03	20	-10.3766	-0.6581	2.77	0.13	2.77	7.21	0.38
NE+15.63	20							
NE+11.82	20	-7.6052	-0.5263	4.87	0.33	4.88	6.22	0.79
NE+9.01	20	-5.5202	-0.3674	2.79	0.17	2.79		
NE+5.60	20	-2.7335	-0.1963	1.57	0.09	1.58	2.43	0.65
NE+4.77	20	-2.1755	-0.1675	1.02	0.06	1.02		
NE+3.17	20	-1.1588	-0.1100	1.16	0.11	1.16	3.17	0.37
BASE	20	0.0000	0.0000					
NE+11.82	23	-6.4428	-0.4835	1.27	0.14	1.28	2.81	0.46
NE+9.01	23	-5.1720	-0.3403	2.70	0.17	2.70	4.24	0.64
NE+5.60	23	-2.9747	-0.1915	0.50	0.03	0.50		
NE+4.77	23	-2.4727	-0.1659	2.47	0.17	2.48	4.77	0.52
NE+3.17	23	-1.4665	-0.1101	1.47	0.11	1.47		
BASE	23	0.0000	0.0000					
NE+11.82	25	-6.4428	-0.5263	1.27	0.16	1.28	2.81	0.46
NE+9.01	25	-5.1720	-0.3674	2.70	0.20	2.71	4.24	0.64
NE+5.60	25	-2.9747	-0.1963	0.50	0.03	0.50		
NE+4.77	25	-2.4727	-0.1675	2.47	0.17	2.48	4.77	0.52
NE+3.17	25	-1.4665	-0.1100	1.47	0.11	1.47		
BASE	25	0.0000	0.0000					
NE+11.82	35	-6.9639	-0.4835	1.67	0.14	1.68	2.81	0.60
NE+9.01	35	-5.2893	-0.3403	3.00	0.17	3.00	4.24	0.71
NE+5.60	35	-2.8168	-0.1915	0.53	0.03	0.53		
NE+4.77	35	-2.2916	-0.1659	1.00	0.06	1.00	1.60	0.63
NE+3.17	35	-1.2916	-0.1101	1.29	0.11	1.30	3.17	0.41
BASE	35	0.0000	0.0000					
NE+11.82	51	-6.9639	-0.5263	1.67	0.16	1.68	2.81	0.60
NE+9.01	51	-5.2893	-0.3674	3.00	0.20	3.00	4.24	0.71
NE+5.60	51	-2.8168	-0.1963	0.53	0.03	0.53		
NE+4.77	51	-2.2916	-0.1675	1.00	0.06	1.00	1.60	0.63
NE+3.17	51	-1.2916	-0.1100	1.29	0.11	1.30	3.17	0.41
BASE	51	0.0000	0.0000					
NE+5.60	1	-2.7300	-0.5221	2.73	0.52	2.78	5.60	0.50
NE+4.77	1	-2.1693	-0.4490	1.02	0.15	1.03		
NE+3.17	1	-1.1505	-0.2968	1.15	0.30	1.19		
BASE	1	0.0000	0.0000					
NE+5.60	13	-2.7300	-0.5333	1.58	0.23	1.60	2.43	0.66
NE+4.77	13	-2.1693	-0.4561	1.02	0.16	1.03		
NE+3.17	13	-1.1505	-0.3000	1.15	0.30	1.19	3.17	0.37
BASE	13	0.0000	0.0000					
NE+5.60	3	-2.7778	-0.5221	2.78	0.52	2.83	5.60	0.50
NE+4.77	3	-2.2414	-0.4490	1.00	0.15	1.02		
NE+3.17	3	-1.2376	-0.2968	1.24	0.30	1.27		
BASE	3	0.0000	0.0000					
NE+5.60	14	-2.7778	-0.5333	1.54	0.23	1.56	2.43	0.64
NE+4.77	14	-2.2414	-0.4561	1.00	0.16	1.02		
NE+3.17	14	-1.2376	-0.3000	1.24	0.30	1.27	3.17	0.40
BASE	14	0.0000	0.0000					

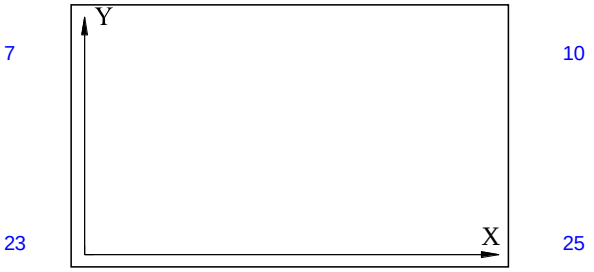
COMB 8 MAX								
NE+19.03	7	0.3177	10.1777	0.10	4.19	4.20	7.21	0.58
NE+15.63	7	0.2636	7.7904	0.04	1.81	1.81		
NE+11.82	7	0.2196	5.9837	0.14	3.82	3.82	6.22	0.61
NE+9.01	7	0.1608	4.3925	0.08	2.23	2.23		
NE+5.60	7	0.0831	2.1661	0.05	1.20	1.20	2.43	0.49
NE+4.77	7	0.0678	1.7409	0.03	0.77	0.77		
NE+3.17	7	0.0364	0.9700	0.04	0.97	0.97	3.17	0.31
BASE	7	0.0000	0.0000					
NE+19.03	10	0.3177	10.0529	0.10	4.17	4.17	7.21	0.58
NE+15.63	10	0.2636	7.6757	0.04	1.80	1.80		
NE+11.82	10	0.2196	5.8791	0.14	3.77	3.77	6.22	0.61
NE+9.01	10	0.1608	4.3057	0.08	2.19	2.19		
NE+5.60	10	0.0831	2.1128	0.05	1.16	1.17	2.43	0.48
NE+4.77	10	0.0678	1.6959	0.03	0.75	0.75		
NE+3.17	10	0.0364	0.9486	0.04	0.95	0.95	3.17	0.30
BASE	10	0.0000	0.0000					
NE+19.03	17	0.2589	10.1777	0.10	4.19	4.20	7.21	0.58
NE+15.63	17							
NE+11.82	17	0.1622	5.9837	0.11	3.82	3.82	6.22	0.61
NE+9.01	17	0.1152	4.3925	0.06	2.23	2.23		
NE+5.60	17	0.0560	2.1661	0.03	1.20	1.20	2.43	0.49
NE+4.77	17	0.0446	1.7409	0.02	0.77	0.77		
NE+3.17	17	0.0229	0.9700	0.02	0.97	0.97	3.17	0.31
BASE	17	0.0000	0.0000					
NE+19.03	20	0.2589	10.0529	0.10	4.17	4.17	7.21	0.58
NE+15.63	20							
NE+11.82	20	0.1622	5.8791	0.11	3.77	3.77	6.22	0.61
NE+9.01	20	0.1152	4.3057	0.06	2.19	2.19		
NE+5.60	20	0.0560	2.1128	0.03	1.16	1.16	2.43	0.48
NE+4.77	20	0.0446	1.6959	0.02	0.75	0.75		
NE+3.17	20	0.0229	0.9486	0.02	0.95	0.95	3.17	0.30
BASE	20	0.0000	0.0000					
NE+11.82	23	0.3902	5.9837	0.07	1.59	1.59	2.81	0.57
NE+9.01	23	0.3226	4.3925	0.15	2.65	2.66	4.24	0.63
NE+5.60	23	0.2040	2.1661	0.03	0.43	0.43		
NE+4.77	23	0.1775	1.7409	0.18	1.74	1.75	4.77	0.37
NE+3.17	23	0.1093	0.9700	0.11	0.97	0.98		
BASE	23	0.0000	0.0000					
NE+11.82	25	0.3902	5.8791	0.07	1.57	1.57	2.81	0.56
NE+9.01	25	0.3226	4.3057	0.15	2.61	2.61	4.24	0.62
NE+5.60	25	0.2040	2.1128	0.03	0.42	0.42		
NE+4.77	25	0.1775	1.6959	0.18	1.70	1.71	4.77	0.36
NE+3.17	25	0.1093	0.9486	0.11	0.95	0.95		
BASE	25	0.0000	0.0000					
NE+11.82	35	0.1260	5.9837	0.01	1.59	1.59	2.81	0.57
NE+9.01	35	0.1119	4.3925	0.04	2.65	2.65	4.24	0.63
NE+5.60	35	0.0784	2.1661	0.01	0.43	0.43		
NE+4.77	35	0.0702	1.7409	0.03	0.77	0.77	1.60	0.48
NE+3.17	35	0.0452	0.9700	0.05	0.97	0.97	3.17	0.31
BASE	35	0.0000	0.0000					
NE+11.82	51	0.1260	5.8791	0.01	1.57	1.57	2.81	0.56
NE+9.01	51	0.1119	4.3057	0.04	2.61	2.61	4.24	0.62
NE+5.60	51	0.0784	2.1128	0.01	0.42	0.42		
NE+4.77	51	0.0702	1.6959	0.03	0.75	0.75	1.60	0.47
NE+3.17	51	0.0452	0.9486	0.05	0.95	0.95	3.17	0.30
BASE	51	0.0000	0.0000					
NE+5.60	1	0.0648	2.2149	0.06	2.21	2.22	5.60	0.40
NE+4.77	1	0.0522	1.7823	0.02	0.79	0.79		
NE+3.17	1	0.0273	0.9904	0.03	0.99	0.99		
BASE	1	0.0000	0.0000					
NE+5.60	13	0.0648	2.0703	0.04	1.14	1.14	2.43	0.47
NE+4.77	13	0.0522	1.6603	0.02	0.73	0.73		
NE+3.17	13	0.0273	0.9323	0.03	0.93	0.93	3.17	0.29
BASE	13	0.0000	0.0000					
NE+5.60	3	0.0349	2.2149	0.03	2.21	2.22	5.60	0.40
NE+4.77	3	0.0330	1.7823	0.01	0.79	0.79		
NE+3.17	3	0.0231	0.9904	0.02	0.99	0.99		
BASE	3	0.0000	0.0000					
NE+5.60	14	0.0349	2.0703	0.01	1.14	1.14	2.43	0.47
NE+4.77	14	0.0330	1.6603	0.01	0.73	0.73		
NE+3.17	14	0.0231	0.9323	0.02	0.93	0.93	3.17	0.29
BASE	14	0.0000	0.0000					

COMB 9 MAX								
NE+19.03	7	-0.2809	-10.1166	0.09	4.18	4.18	7.21	0.58
NE+15.63	7	-0.2286	-7.7461	0.04	1.81	1.81		
NE+11.82	7	-0.1870	-5.9398	0.12	3.78	3.78	6.22	0.61
NE+9.01	7	-0.1341	-4.3711	0.07	2.21	2.21		
NE+5.60	7	-0.0666	-2.1612	0.04	1.19	1.19	2.43	0.49
NE+4.77	7	-0.0540	-1.7382	0.02	0.77	0.77		
NE+3.17	7	-0.0292	-0.9689	0.03	0.97	0.97	3.17	0.31
BASE	7	0.0000	0.0000					
NE+19.03	10	-0.2809	-9.9966	0.09	4.15	4.15	7.21	0.58
NE+15.63	10	-0.2286	-7.6428	0.04	1.80	1.80		
NE+11.82	10	-0.1870	-5.8449	0.12	3.73	3.73	6.22	0.60
NE+9.01	10	-0.1341	-4.2920	0.07	2.18	2.18		
NE+5.60	10	-0.0666	-2.1123	0.04	1.16	1.16	2.43	0.48
NE+4.77	10	-0.0540	-1.6969	0.02	0.75	0.75		
NE+3.17	10	-0.0292	-0.9495	0.03	0.95	0.95	3.17	0.30
BASE	10	0.0000	0.0000					
NE+19.03	17	-0.2233	-10.1166	0.09	4.18	4.18	7.21	0.58
NE+15.63	17							
NE+11.82	17	-0.1321	-5.9398	0.09	3.78	3.78	6.22	0.61
NE+9.01	17	-0.0904	-4.3711	0.05	2.21	2.21		
NE+5.60	17	-0.0405	-2.1612	0.02	1.19	1.19	2.43	0.49
NE+4.77	17	-0.0318	-1.7382	0.02	0.77	0.77		
NE+3.17	17	-0.0162	-0.9689	0.02	0.97	0.97	3.17	0.31
BASE	17	0.0000	0.0000					
NE+19.03	20	-0.2233	-9.9966	0.09	4.15	4.15	7.21	0.58
NE+15.63	20							
NE+11.82	20	-0.1321	-5.8449	0.09	3.73	3.73	6.22	0.60
NE+9.01	20	-0.0904	-4.2920	0.05	2.18	2.18		
NE+5.60	20	-0.0405	-2.1123	0.02	1.16	1.16	2.43	0.48
NE+4.77	20	-0.0318	-1.6969	0.02	0.75	0.75		
NE+3.17	20	-0.0162	-0.9495	0.02	0.95	0.95	3.17	0.30
BASE	20	0.0000	0.0000					
NE+11.82	23	-0.3826	-5.9398	0.07	1.57	1.57	2.81	0.56
NE+9.01	23	-0.3156	-4.3711	0.14	2.63	2.64	4.24	0.62
NE+5.60	23	-0.1987	-2.1612	0.03	0.42	0.42		
NE+4.77	23	-0.1731	-1.7382	0.17	1.74	1.75	4.77	0.37
NE+3.17	23	-0.1071	-0.9689	0.11	0.97	0.97		
BASE	23	0.0000	0.0000					
NE+11.82	25	-0.3826	-5.8449	0.07	1.55	1.55	2.81	0.55
NE+9.01	25	-0.3156	-4.2920	0.14	2.60	2.60	4.24	0.61
NE+5.60	25	-0.1987	-2.1123	0.03	0.42	0.42		
NE+4.77	25	-0.1731	-1.6969	0.17	1.70	1.71	4.77	0.36
NE+3.17	25	-0.1071	-0.9495	0.11	0.95	0.96		
BASE	25	0.0000	0.0000					
NE+11.82	35	-0.1067	-5.9398	0.01	1.57	1.57	2.81	0.56
NE+9.01	35	-0.0957	-4.3711	0.03	2.63	2.63	4.24	0.62
NE+5.60	35	-0.0678	-2.1612	0.01	0.42	0.42		
NE+4.77	35	-0.0614	-1.7382	0.02	0.77	0.77	1.60	0.48
NE+3.17	35	-0.0407	-0.9689	0.04	0.97	0.97	3.17	0.31
BASE	35	0.0000	0.0000					
NE+11.82	51	-0.1067	-5.8449	0.01	1.55	1.55	2.81	0.55
NE+9.01	51	-0.0957	-4.2920	0.03	2.60	2.60	4.24	0.61
NE+5.60	51	-0.0678	-2.1123	0.01	0.42	0.42		
NE+4.77	51	-0.0614	-1.6969	0.02	0.75	0.75	1.60	0.47
NE+3.17	51	-0.0407	-0.9495	0.04	0.95	0.95	3.17	0.30
BASE	51	0.0000	0.0000					
NE+5.60	1	-0.0490	-2.2063	0.05	2.21	2.21	5.60	0.39
NE+4.77	1	-0.0390	-1.7765	0.02	0.79	0.79		
NE+3.17	1	-0.0204	-0.9877	0.02	0.99	0.99		
BASE	1	0.0000	0.0000					
NE+5.60	13	-0.0490	-2.0735	0.03	1.14	1.14	2.43	0.47
NE+4.77	13	-0.0390	-1.6644	0.02	0.73	0.73		
NE+3.17	13	-0.0204	-0.9349	0.02	0.93	0.94	3.17	0.29
BASE	13	0.0000	0.0000					
NE+5.60	3	-0.0225	-2.2063	0.02	2.21	2.21	5.60	0.39
NE+4.77	3	-0.0227	-1.7765	0.00	0.79	0.79		
NE+3.17	3	-0.0178	-0.9877	0.02	0.99	0.99		
BASE	3	0.0000	0.0000					
NE+5.60	14	-0.0225	-2.0735	0.00	1.14	1.14	2.43	0.47
NE+4.77	14	-0.0227	-1.6644	0.00	0.73	0.73		
NE+3.17	14	-0.0178	-0.9349	0.02	0.93	0.94	3.17	0.29
BASE	14	0.0000	0.0000					

8.6.1 Verificación Irregularidad Torsional

VERIFICACIÓN DE LA IRREGULARIDAD TORSIONAL

Esquema Estructural - Identificación de Nudos Para Revisión de la Irregularidad Torsional Estructura Principal



REVISIÓN DE LA IRREGULARIDAD TORSIONAL

SISMO EN X Caso de Carga: 2 Δ =Deriva del análisis.

Columna Eje Vertical:

Nudo: 10 25 Nudo: 7 23

Nivel	Δ1 (cm)	Δ2 (cm)	(Δ1+Δ2) 2	x 1.2	¿Irregularidad?	Ax	Δ1 (cm)	Δ2 (cm)	(Δ1+Δ2) 2	x 1.2	¿Irregularidad?	Ax
NE+11.82	4.71	1.24	3.57		**SI**	1.74	4.71	1.23	3.56		**SI**	1.75
NE+9.01	2.70	2.69	3.23		**NO**	0.70	2.70	2.69	3.23		**NO**	0.70
NE+5.60	1.53	0.50	1.22		**SI**	1.56	1.53	0.50	1.22		**SI**	1.56
NE+4.77	0.98	2.49	2.09		**SI**	1.42	0.98	2.49	2.09		**SI**	1.42
NE+3.17	1.10	1.48	1.55		**NO**	0.91	1.10	1.48	1.55		**NO**	0.91

SISMO EN Y Caso de Carga: 4 Δ =Deriva del análisis.

Columna Eje Vertical:

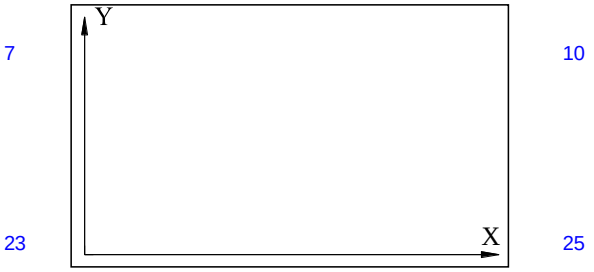
Nudo: 7 10 Nudo: 23 25

Nivel	Δ1 (cm)	Δ2 (cm)	(Δ1+Δ2) 2	x 1.2	¿Irregularidad?	Ax	Δ1 (cm)	Δ2 (cm)	(Δ1+Δ2) 2	x 1.2	¿Irregularidad?	Ax
NE+11.82	3.73	3.68	4.45		**NO**	0.70	1.55	1.53	1.85		**NO**	0.70
NE+9.01	2.18	2.15	2.60		**NO**	0.70	2.60	2.56	3.10		**NO**	0.70
NE+5.60	1.18	1.15	1.39		**NO**	0.72	0.42	0.41	0.50		**NO**	0.70
NE+4.77	0.76	0.74	0.90		**NO**	0.71	1.72	1.68	2.04		**NO**	0.71
NE+3.17	0.96	0.94	1.14		**NO**	0.71	0.96	0.94	1.14		**NO**	0.71

8.6.2 Verificación Irregularidad Torsional Extrema

VERIFICACIÓN DE LA IRREGULARIDAD TORSIONAL EXTREMA

Esquema Estructural - Identificación de Nudos Para Revisión de la Irregularidad Torsional Estructura Principal



REVISIÓN DE LA IRREGULARIDAD TORSIONAL

SISMO EN X Caso de Carga: 2 Δ =Deriva del análisis.

Columna Eje Vertical:

Nudo: 10 25 Nudo: 7 23

Nivel	Δ1 (cm)	Δ2 (cm)	(Δ1+Δ2) 2	x 1.4	¿Irregularidad?	Ax	Δ1 (cm)	Δ2 (cm)	(Δ1+Δ2) 2	x 1.4	¿Irregularidad?	Ax
NE+11.82	4.71	1.24	4.16		**SI**	1.28	4.71	1.23	4.16		**SI**	1.28
NE+9.01	2.70	2.69	3.77		**NO**	0.51	2.70	2.69	3.77		**NO**	0.51
NE+5.60	1.53	0.50	1.42		**SI**	1.15	1.53	0.50	1.42		**SI**	1.15
NE+4.77	0.98	2.49	2.43		**SI**	1.05	0.98	2.49	2.43		**SI**	1.05
NE+3.17	1.10	1.48	1.81		**NO**	0.67	1.10	1.48	1.81		**NO**	0.67

SISMO EN Y Caso de Carga: 4 Δ =Deriva del análisis.

Columna Eje Vertical:

Nudo: 7 10 Nudo: 23 25

Nivel	Δ1 (cm)	Δ2 (cm)	(Δ1+Δ2) 2	x 1.4	¿Irregularidad?	Ax	Δ1 (cm)	Δ2 (cm)	(Δ1+Δ2) 2	x 1.4	¿Irregularidad?	Ax
NE+11.82	3.73	3.68	5.19		**NO**	0.52	1.55	1.53	2.16		**NO**	0.51
NE+9.01	2.18	2.15	3.03		**NO**	0.52	2.60	2.56	3.62		**NO**	0.52
NE+5.60	1.18	1.15	1.63		**NO**	0.52	0.42	0.41	0.58		**NO**	0.52
NE+4.77	0.76	0.74	1.05		**NO**	0.52	1.72	1.68	2.38		**NO**	0.53
NE+3.17	0.96	0.94	1.33		**NO**	0.52	0.96	0.94	1.33		**NO**	0.52

8.6.3 Revisión de la separación Sísmica.

De acuerdo con lo indicado en el Reglamento Colombiano de Construcción Sismo Resistente NSR-10, Capitulo A.6.5, Para el caso de rehabilitaciones sísmicas de edificaciones existentes, se aplican los requisitos especiales que se indican en A.10.7, los cuales se indica que para el casos de la flexibilidad de la edificación se requiere que los índices de flexibilidad sean menores que la unidad, de esta manera se puede observar que para el edificio de capilla se tiene un valor máximo de 0.7575 y de 0.9753 para el caso del movimiento del Umbral de daño, los cuales son menores a la unidad y cumplen con los requisitos exigidos por el reglamento.

Adicionalmente se aclara que las edificaciones no cuentan con estructuras vecinas o colindantes que puedan generar afectación y de acuerdo con la tabla A.6.5-1 de la NSR-10, se tiene que para edificaciones de más de 3 pisos niveles como es el caso de Capilla, y dado que no se contempla edificación vecina, se requiere generar una separación sísmica de 0.01 veces la altura de la edificación nueva, con lo cual la propuesta de reforzamiento cumple con los lineamientos exigidos por la NSR-10

Tabla A.6.5-1
Separación sísmica mínima en la cubierta entre edificaciones colindantes que no hagan parte de la misma construcción

Altura de la edificación nueva	Tipo de Colindancia		
	Existe edificación vecina que no ha dejado la separación sísmica requerida		No existe edificación vecina o la que existe ha dejado la separación sísmica requerida
	Coinciden las losas de entrepiso	No coinciden las losas de entrepiso	
1 y 2 pisos	no requiere separación	no requiere separación	no requiere separación
3 pisos	no requiere separación	0.01 veces la altura de la edificación nueva (1% de h_n)	no requiere separación
Más de 3 pisos	0.02 veces la altura de la edificación nueva (2% de h_n)	0.03 veces la altura de la edificación nueva (3% de h_n)	0.01 veces la altura de la edificación nueva (1% de h_n)

8.7 Análisis Sísmico del Umbral de Daño

DEFINICION DE MOVIMIENTO SISMICO DE UMBRAL DE DAÑO

a.- Ubicación del proyecto: Carrera 10 # 1-59 Sur, Antonio Nariño

b.- Zona de amenaza sísmica: Intermedia

c.- Valor de Ad Ad = 0.06

d.- Valor de Aod Aod= 0.12

e.- Zona de Respuesta Sísmica (Microzonificación): Piedemonte B

f.- Tipo de pérfil de suelo:

		Fa	Fv
	A		
	B		
	C		
X	D	2.2	2.25
	E		
	F		

g.- Grupo de uso III

h.- Coeficiente de importancia: I 1.25

i.- Coeficiente de amortig. crítico C.C.A: 2%

j.- Espectro de diseño: Elástico

Observaciones:

Según numeral A.6.2.1.2, el coeficiente de importancia a utilizar para el cálulo del desplazamiento horizontal I= 1 y para el diseño III= 1.25

Revisó:_____
Ejecutó:_____

CARACTERISTICAS DE LOS MATERIALES
Y DE LA ESTRUCTURA

a.-	Sistema estructural:	Sistema Combinado de pantallas y pórticos de concreto - Péndulo Invertido
b.-	Material	Concreto
c.-	Capacidad de disipación de energía	Moderada (DMO)
d.-	Coeficiente de capacidad básica de modificación de respuesta	Ro (X)= 2.5 Ro (Y)= 5.0
	Coeficiente de Sobre resistencia	Ω_0= 2.0 Ω_0= 2.5
e-	Número de edificaciones	1
f-	Número de pisos	2 PISOS

Observaciones:

Revisó:_____
Ejecutó:_____

IRREGULARIDAD DE LA EDIFICACION

a.- EDIFICACION: 3 PISOS

b- CONFIGURACION EN PLANTA

TIPO	DESCRIPCION		∅p
1aP	Irregularidad torsional	X	0.9
1bP	Irregularidad torsional extrema	X	0.8
2P	Retrocesos en esquinas		1.0
3P	Discontinuidades en el diafragma		1.0
4P	Desplaz. de elementos verticales		1.0
5P	Sistemas no paralelos		1.0
Φp=	0.8		

c.- CONFIGURACION EN ALTURA

TIPO	DESCRIPCION	∅a
1aA	Piso flexible (irregularidad en rigidez)	1.0
1bA	Piso flexible (irregularidad extrema en rigidez)	1.0
2A	Distribución masa	1.0
3A	Irregularidad geométrica	1.0
4A	Desplaz. dentro del plano de acción	1.0
5aA	Piso débil- discontinuidad en la resistencia	1.0
5bA	Piso débil- discontinuidad extrema resistencia	1.0
Φa	1.0	

d.- AUSENCIA DE REDUNDANCIA

∅Rx	1.00
∅ry	1.00

e.- COEFICIENTE BASICO DE CAPACIDAD DE DISIPACION DE ENERGIA
Ro(X)= 2.5
Ro (Y)= 5.0

f.- COEFICIENTE DE CAPACIDAD DE MODIFICACION DE RESPUESTA

R= (∅a) x (∅p) x(∅r)x Ro
RX= 2.00
RY= 4.00

g.- EFECTOS ORTOGONALES EN CARGAS SISMICAS

Se deben tener en cuenta: (100 % - 30%) x, (30% - 100 %) y

h.- MEZCLA DE SISTEMAS ESTRUCTURALES

No existe, ni en planta ni en altura.

Observaciones:

Revisó:_____
Ejecutó:_____

CARACTERISTICAS DEL DISEÑO

a.- METODO DE ANALISIS SISMICO UTILIZADO

A.D.E. ANALISIS DINAMICO ELASTICO

b- METODO DE ANALISIS ESTRUCTURAL

Análisis matricial: Estructura principal

c- METODO DE DISEÑO

Resistencia Ultima

Observaciones:	Revisó:_____ Ejecutó:_____

MODELO NSR-10

a. - PERIODO DE LA ESTRUCTURA

Ta= Ct x h^{α}

Ct= 0.047 Sistema Combinado de pantallas y pórticos de concreto

α = 0.90

hn= 19.03 m.

Ta= 0.67 cu= 1.34 Tdinmax: 0.89 Tdin: 0.53

T= 0.53

b . - PARÁMETROS

Ad=	0.06	Aod=	0.12
Fa=	2.20	Fv=	2.25
I =	1.00		
Idis=	1.25		

c. - LIMITES DEL PERIODO

Tod=	(0.1*Fv)/(Fa)	=	0.10
Tcd=	(0.5*Fv)/(Fa)	=	0.51
TLd=	TLd	=	3.00

d. - ESPECTRO PARA PERIODOS MENORES A Tod.

Sa do = Sado= 1.54

e. - ESPECTRO PARA PERIODOS ENTRE Tod y Tc.

Sa d1= 3.0 * Ad * Fa = Sad1= 0.40

f. - ESPECTRO DE ACELERACIONES EN FUNCION DE T

$$Sa\ d2 = \frac{1.5 * Ad * Fv}{T}$$ Sa 2= 0.38

g. - ESPECTRO PARA PERIODOS MAYORES A TL.

$$Sa\ d3 = \frac{1.5 * Ad * Fv * T_{Ld}}{T^2}$$ Sa 3= 0.61 $/T^2$ 2.2

h. - ESPECTRO SISMICO DE DISEÑO

Sa = 0.38 38% (g)

Para el diseño el espéctro sísmico según NSR-10, entonces Sa=0.38 = 38.4980988593156% (g)

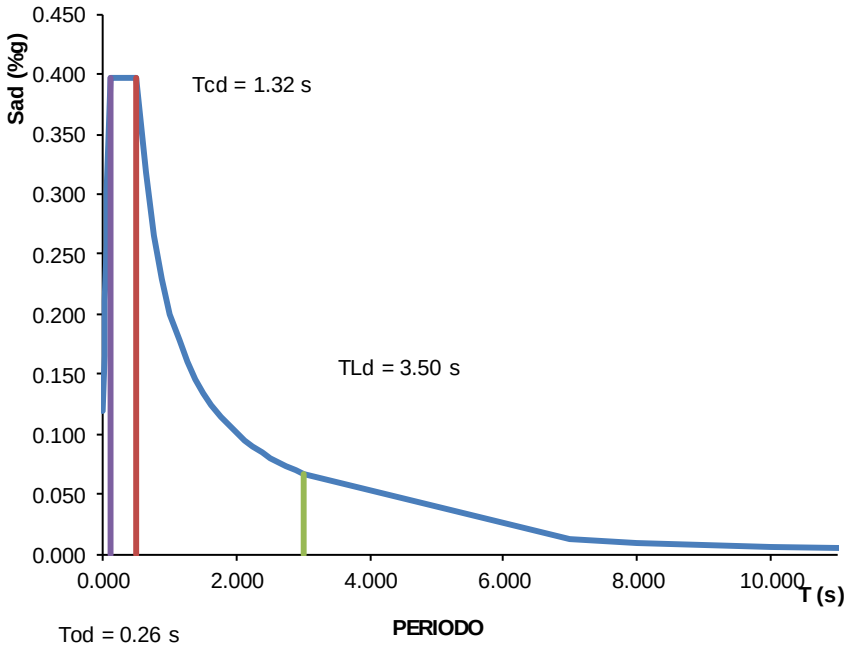
Observaciones:

Revisó:_____
Ejecutó:_____

ESPECTRO SISMICO DE UMBRAL DE DAÑO

CURVAS DE ESPECTROS DE ACUERDO A LA NSR-10

ESPECTRO DE DISEÑO



Observaciones:	Revisó:_____ Ejecutó:_____

8.8 Análisis de Fuerzas Sísmicas del Umbral de Daño

ANALISIS DE FUERZA SISMICA UMBRAL DE DAÑO

RESUMEN DE DENSIDADES POR PISO

PISO	AREA (m2)	VIGAS (T/m^2)	PLACA (T/m^2)	VIGUETA (T/m^2)	M. NE (T/m^2)	COLUMNAS (T/m^2)	MURO CIMEN. (T/m^2)	CUBIERTA (T/m2)	ESCALERAS (T/m2)	TOTAL (T/m^2)	TOTAL (T)
N +19.03	17.02	0.39	0.00	0.00	0.82	0.49	0.00	0.13	0.00	1.83	31.20
N +15.63	599.76	0.00	0.00	0.00	0.00	0.03	0.00	0.08	0.00	0.11	66.84
N +11.82	599.76	0.05	0.05	0.00	0.16	0.05	0.00	0.00	0.00	0.32	192.38
N +9.01	599.76	0.02	0.00	0.00	0.10	0.09	0.00	0.00	0.00	0.22	129.43
N +5.60	599.76	0.05	0.00	0.00	0.34	0.07	0.00	0.04	0.00	0.49	296.32
N +4.77	599.76	0.03	0.01	0.00	0.28	0.05	0.00	0.00	0.00	0.37	223.50
N +3.17	599.76	0.05	0.05	0.00	0.37	0.09	0.00	0.00	0.00	0.56	335.28
N +0.00	599.76	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.06	36.41
A. Total	1199.52	**Peso a cimentación**								**1.09**	**1311.35**

DISTRIBUCION DE CARGAS SISMICAS

CALIF.ESTRUC. IRREGULAR

%AJUSTE V= 0.9

PISO	h (m)	h ACUM.	h^k	w (t)	wh^k	Cv (%)	Fx (t)	M (t.m)
N +19.03	19.03	19.0	19.8	31.20	616.84	0.07	64.90	106.95
N +15.63	15.63	15.6	16.2	66.84	1082.61	0.12	113.90	187.71
N +11.82	11.82	11.8	12.2	192.38	2347.89	0.26	247.02	407.09
N +9.01	9.01	9.0	9.3	129.43	1200.37	0.13	126.29	208.13
N +5.60	5.60	5.6	5.7	296.32	1697.94	0.19	178.64	294.40
N +4.77	4.77	4.8	4.9	223.50	1088.60	0.12	114.53	188.75
N +3.17	3.17	3.2	3.2	335.28	1080.09	0.12	113.64	187.27
N +0.00	0.00	0.0	0.0	36.41	0.00	0.00	0.00	0.00
				1311.35	9114.35	1.00	958.92	1580.31

Vd_{x-x} 361.31

Vd_{y-y} 341.38

T= 0.53
W= 1311.35 t V= 504.8 t
k= 1.01 Sa= 0.38

AJUSTE	%	g
SENTIDO X	1.26	12.34
SENTIDO Y	1.33	13.06

8.9 Derivas Admisibles del Umbral de Daño

La evaluación de los desplazamientos horizontales para el umbral de daño del edificio de Convento se realiza conforme a los lineamientos de la NSR-10, donde en su capítulo A.12.5 establece que la deriva máxima para cualquier piso no puede exceder de los límites de la tabla A.12.5-1, en la cual la deriva máxima se expresa como un porcentaje de la altura de piso.

Tabla A.12.5-1
Derivas máximas para el umbral de daño como porcentaje de h_{pi}

Estructuras de:	Deriva máxima
concreto reforzado, metálicas, de madera, y de mampostería que cumplen los requisitos de A.12.5.3.1	$0.40\% \left(\Delta^{i}_{max} \leq 0.0040\, h_{pi}\right)$
de mampostería que cumplen los requisitos de A.12.5.3.2	$0.20\% \left(\Delta^{i}_{max} \leq 0.0020\, h_{pi}\right)$

DERIVAS UMBRAL DE DAÑO

NUDO		δx (cm)	δy (cm)	Δx (cm)	Δy (cm)	Δ (cm)	$\Delta_{admisible}$ (cm)	%
COMB 1 MAX								
NE+19.03	7	0.0373	0.0279	0.00	0.00	0.01	2.88	0.00
NE+15.63	7	0.0354	0.0205	0.00	0.00	0.00		
NE+11.82	7	0.0330	0.0246	0.02	0.02	0.03	2.49	0.01
NE+9.01	7	0.0275	0.0106	0.01	0.01	0.01		
NE+5.60	7	0.0176	0.0009	0.01	0.00	0.01	0.97	0.01
NE+4.77	7	0.0149	0.0001	0.01	0.00	0.01		
NE+3.17	7	0.0078	0.0002	0.01	0.00	0.01	1.27	0.01
BASE	7	0.0000	0.0000					
NE+19.03	10	0.0373	0.0233	0.00	0.01	0.01	2.88	0.00
NE+15.63	10	0.0354	0.0109	0.00	0.01	0.01		
NE+11.82	10	0.0330	0.0168	0.02	0.02	0.02	2.49	0.01
NE+9.01	10	0.0275	0.0046	0.01	0.01	0.01		
NE+5.60	10	0.0176	-0.0023	0.01	0.00	0.01	0.97	0.01
NE+4.77	10	0.0149	-0.0029	0.01	0.00	0.01		
NE+3.17	10	0.0078	-0.0016	0.01	0.00	0.01	1.27	0.01
BASE	10	0.0000	0.0000					
NE+19.03	17	0.0362	0.0279	0.01	0.00	0.01	2.88	0.00
NE+15.63	17							
NE+11.82	17	0.0310	0.0246	0.01	0.02	0.03	2.49	0.01
NE+9.01	17	0.0260	0.0106	0.01	0.01	0.01		
NE+5.60	17	0.0168	0.0009	0.01	0.00	0.01	0.97	0.01
NE+4.77	17	0.0141	0.0001	0.01	0.00	0.01		
NE+3.17	17	0.0073	0.0002	0.01	0.00	0.01	1.27	0.01
BASE	17	0.0000	0.0000					
NE+19.03	20	0.0362	0.0233	0.01	0.01	0.01	2.88	0.00
NE+15.63	20							
NE+11.82	20	0.0310	0.0168	0.01	0.02	0.02	2.49	0.01
NE+9.01	20	0.0260	0.0046	0.01	0.01	0.01		
NE+5.60	20	0.0168	-0.0023	0.01	0.00	0.01	0.97	0.01
NE+4.77	20	0.0141	-0.0029	0.01	0.00	0.01		
NE+3.17	20	0.0073	-0.0016	0.01	0.00	0.01	1.27	0.01
BASE	20	0.0000	0.0000					
NE+11.82	23	0.0129	0.0246	0.00	0.01	0.01	1.12	0.01
NE+9.01	23	0.0121	0.0106	0.00	0.01	0.01	1.70	0.01
NE+5.60	23	0.0092	0.0009	0.01	0.00	0.01		
NE+4.77	23	0.0072	0.0001	0.01	0.00	0.01	1.91	0.00
NE+3.17	23	0.0032	0.0002	0.00	0.00	0.00		
BASE	23	0.0000	0.0000					
NE+11.82	25	0.0129	0.0168	0.00	0.01	0.01	1.12	0.01
NE+9.01	25	0.0121	0.0046	0.00	0.01	0.01	1.70	0.01
NE+5.60	25	0.0092	-0.0023	0.01	0.00	0.01		
NE+4.77	25	0.0072	-0.0029	0.01	0.00	0.01	1.91	0.00
NE+3.17	25	0.0032	-0.0016	0.00	0.00	0.00		
BASE	25	0.0000	0.0000					
NE+11.82	35	0.0223	0.0246	0.00	0.01	0.01	1.12	0.01
NE+9.01	35	0.0193	0.0106	0.01	0.01	0.01	1.70	0.01
NE+5.60	35	0.0131	0.0009	0.01	0.00	0.01		
NE+4.77	35	0.0108	0.0001	0.01	0.00	0.01	0.64	0.01
NE+3.17	35	0.0054	0.0002	0.01	0.00	0.01	1.27	0.00
BASE	35	0.0000	0.0000					
NE+11.82	51	0.0223	0.0168	0.00	0.01	0.01	1.12	0.01
NE+9.01	51	0.0193	0.0046	0.01	0.01	0.01	1.70	0.01
NE+5.60	51	0.0131	-0.0023	0.01	0.00	0.01		
NE+4.77	51	0.0108	-0.0029	0.01	0.00	0.01	0.64	0.01
NE+3.17	51	0.0054	-0.0016	0.01	0.00	0.01	1.27	0.00
BASE	51	0.0000	0.0000					
NE+5.60	1	0.0170	0.0038	0.02	0.00	0.02	2.24	0.01
NE+4.77	1	0.0144	0.0027	0.01	0.00	0.01		
NE+3.17	1	0.0075	0.0017	0.01	0.00	0.01		
BASE	1	0.0000	0.0000					
NE+5.60	13	0.0170	-0.0052	0.01	0.00	0.01	0.97	0.01
NE+4.77	13	0.0144	-0.0054	0.01	0.00	0.01		
NE+3.17	13	0.0075	-0.0031	0.01	0.00	0.01	1.27	0.01
BASE	13	0.0000	0.0000					
NE+5.60	3	0.0145	0.0038	0.01	0.00	0.01	2.24	0.01
NE+4.77	3	0.0120	0.0027	0.01	0.00	0.01		
NE+3.17	3	0.0061	0.0017	0.01	0.00	0.01		
BASE	3	0.0000	0.0000					
NE+5.60	14	0.0145	-0.0052	0.01	0.00	0.01	0.97	0.01
NE+4.77	14	0.0120	-0.0054	0.01	0.00	0.01		
NE+3.17	14	0.0061	-0.0031	0.01	0.00	0.01	1.27	0.01
BASE	14	0.0000	0.0000					

COMB 2 MAX								
NE+19.03	7	5.7230	0.4407	1.84	0.12	1.85	2.88	0.64
NE+15.63	7	4.9921	0.4718	1.11	0.15	1.12		
NE+11.82	7	3.8790	0.3196	2.39	0.22	2.40	2.49	0.96
NE+9.01	7	3.0541	0.2097	1.56	0.11	1.57		
NE+5.60	7	1.4918	0.1029	0.87	0.05	0.87	0.97	0.90
NE+4.77	7	1.1822	0.0863	0.56	0.03	0.56		
NE+3.17	7	0.6211	0.0553	0.62	0.06	0.62	1.27	0.49
BASE	7	0.0000	0.0000					
NE+19.03	10	5.7230	0.4749	1.84	0.14	1.85	2.88	0.64
NE+15.63	10	4.9921	0.4843	1.11	0.15	1.12		
NE+11.82	10	3.8790	0.3331	2.39	0.23	2.40	2.49	0.96
NE+9.01	10	3.0541	0.2211	1.56	0.11	1.57		
NE+5.60	10	1.4918	0.1075	0.87	0.05	0.87	0.97	0.90
NE+4.77	10	1.1822	0.0893	0.56	0.03	0.56		
NE+3.17	10	0.6211	0.0571	0.62	0.06	0.62	1.27	0.49
BASE	10	0.0000	0.0000					
NE+19.03	17	5.6449	0.4407	1.84	0.12	1.85	2.88	0.64
NE+15.63	17							
NE+11.82	17	3.8003	0.3196	2.31	0.22	2.32	2.49	0.93
NE+9.01	17	3.0030	0.2097	1.52	0.11	1.52		
NE+5.60	17	1.4880	0.1029	0.86	0.05	0.86	0.97	0.88
NE+4.77	17	1.1844	0.0863	0.55	0.03	0.56		
NE+3.17	17	0.6298	0.0553	0.63	0.06	0.63	1.27	0.50
BASE	17	0.0000	0.0000					
NE+19.03	20	5.6449	0.4749	1.84	0.14	1.85	2.88	0.64
NE+15.63	20							
NE+11.82	20	3.8003	0.3331	2.31	0.23	2.32	2.49	0.93
NE+9.01	20	3.0030	0.2211	1.52	0.11	1.52		
NE+5.60	20	1.4880	0.1075	0.86	0.05	0.86	0.97	0.88
NE+4.77	20	1.1844	0.0893	0.55	0.03	0.56		
NE+3.17	20	0.6298	0.0571	0.63	0.06	0.63	1.27	0.50
BASE	20	0.0000	0.0000					
NE+11.82	23	3.3376	0.3196	0.66	0.11	0.67	1.12	0.60
NE+9.01	23	2.6772	0.2097	1.40	0.12	1.40	1.70	0.83
NE+5.60	23	1.5391	0.1029	0.78	0.05	0.78		
NE+4.77	23	1.2779	0.0863	1.28	0.09	1.28	1.91	0.67
NE+3.17	23	0.7560	0.0553	0.76	0.06	0.76		
BASE	23	0.0000	0.0000					
NE+11.82	25	3.3376	0.3331	0.66	0.11	0.67	1.12	0.60
NE+9.01	25	2.6772	0.2211	1.40	0.13	1.41	1.70	0.83
NE+5.60	25	1.5391	0.1075	0.78	0.05	0.78		
NE+4.77	25	1.2779	0.0893	1.28	0.09	1.28	1.91	0.67
NE+3.17	25	0.7560	0.0571	0.76	0.06	0.76		
BASE	25	0.0000	0.0000					
NE+11.82	35	3.7049	0.3196	0.90	0.11	0.90	1.12	0.80
NE+9.01	35	2.8098	0.2097	1.60	0.12	1.60	1.70	0.94
NE+5.60	35	1.4935	0.1029	0.81	0.05	0.81		
NE+4.77	35	1.2136	0.0863	0.53	0.03	0.53	0.64	0.83
NE+3.17	35	0.6815	0.0553	0.68	0.06	0.68	1.27	0.54
BASE	35	0.0000	0.0000					
NE+11.82	51	3.7049	0.3331	0.90	0.11	0.90	1.12	0.80
NE+9.01	51	2.8098	0.2211	1.60	0.13	1.60	1.70	0.94
NE+5.60	51	1.4935	0.1075	0.81	0.05	0.81		
NE+4.77	51	1.2136	0.0893	0.53	0.03	0.53	0.64	0.83
NE+3.17	51	0.6815	0.0571	0.68	0.06	0.68	1.27	0.54
BASE	51	0.0000	0.0000					
NE+5.60	1	1.4890	0.2835	1.49	0.28	1.52	2.24	0.68
NE+4.77	1	1.1835	0.2383	0.56	0.09	0.56		
NE+3.17	1	0.6268	0.1521	0.63	0.15	0.64		
BASE	1	0.0000	0.0000					
NE+5.60	13	1.4890	0.2841	0.86	0.13	0.87	0.97	0.90
NE+4.77	13	1.1835	0.2378	0.56	0.09	0.56		
NE+3.17	13	0.6268	0.1520	0.63	0.15	0.64	1.27	0.51
BASE	13	0.0000	0.0000					
NE+5.60	3	1.4871	0.2835	1.49	0.28	1.51	2.24	0.68
NE+4.77	3	1.1989	0.2383	0.54	0.09	0.55		
NE+3.17	3	0.6598	0.1521	0.66	0.15	0.68		
BASE	3	0.0000	0.0000					
NE+5.60	14	1.4871	0.2841	0.83	0.13	0.84	0.97	0.86
NE+4.77	14	1.1989	0.2378	0.54	0.09	0.55		
NE+3.17	14	0.6598	0.1520	0.66	0.15	0.68	1.27	0.53
BASE	14	0.0000	0.0000					

COMB 3 MAX								
NE+19.03	7	-5.6579	-0.3752	1.84	0.11	1.84	2.88	0.64
NE+15.63	7	-4.9303	-0.4241	1.11	0.16	1.12		
NE+11.82	7	-3.8227	-0.2669	2.36	0.17	2.37	2.49	0.95
NE+9.01	7	-3.0064	-0.1857	1.54	0.09	1.55		
NE+5.60	7	-1.4615	-0.0993	0.85	0.04	0.85	0.97	0.88
NE+4.77	7	-1.1568	-0.0848	0.55	0.03	0.55		
NE+3.17	7	-0.6078	-0.0545	0.61	0.05	0.61	1.27	0.48
BASE	7	0.0000	0.0000					
NE+19.03	10	-5.6579	-0.4175	1.84	0.12	1.84	2.88	0.64
NE+15.63	10	-4.9303	-0.4542	1.11	0.16	1.12		
NE+11.82	10	-3.8227	-0.2951	2.36	0.18	2.37	2.49	0.95
NE+9.01	10	-3.0064	-0.2084	1.54	0.10	1.55		
NE+5.60	10	-1.4615	-0.1102	0.85	0.05	0.86	0.97	0.88
NE+4.77	10	-1.1568	-0.0934	0.55	0.03	0.55		
NE+3.17	10	-0.6078	-0.0596	0.61	0.06	0.61	1.27	0.48
BASE	10	0.0000	0.0000					
NE+19.03	17	-5.5819	-0.3752	1.83	0.11	1.84	2.88	0.64
NE+15.63	17							
NE+11.82	17	-3.7476	-0.2669	2.29	0.17	2.29	2.49	0.92
NE+9.01	17	-2.9581	-0.1857	1.50	0.09	1.50		
NE+5.60	17	-1.4593	-0.0993	0.84	0.04	0.84	0.97	0.87
NE+4.77	17	-1.1603	-0.0848	0.54	0.03	0.54		
NE+3.17	17	-0.6173	-0.0545	0.62	0.05	0.62	1.27	0.49
BASE	17	0.0000	0.0000					
NE+19.03	20	-5.5819	-0.4175	1.83	0.12	1.84	2.88	0.64
NE+15.63	20							
NE+11.82	20	-3.7476	-0.2951	2.29	0.18	2.30	2.49	0.92
NE+9.01	20	-2.9581	-0.2084	1.50	0.10	1.50		
NE+5.60	20	-1.4593	-0.1102	0.84	0.05	0.84	0.97	0.87
NE+4.77	20	-1.1603	-0.0934	0.54	0.03	0.54		
NE+3.17	20	-0.6173	-0.0596	0.62	0.06	0.62	1.27	0.49
BASE	20	0.0000	0.0000					
NE+11.82	23	-3.3176	-0.2669	0.66	0.08	0.66	1.12	0.59
NE+9.01	23	-2.6585	-0.1857	1.39	0.10	1.40	1.70	0.82
NE+5.60	23	-1.5250	-0.0993	0.77	0.04	0.78		
NE+4.77	23	-1.2667	-0.0848	1.27	0.08	1.27	1.91	0.66
NE+3.17	23	-0.7509	-0.0545	0.75	0.05	0.75		
BASE	23	0.0000	0.0000					
NE+11.82	25	-3.3176	-0.2951	0.66	0.09	0.66	1.12	0.59
NE+9.01	25	-2.6585	-0.2084	1.39	0.12	1.40	1.70	0.82
NE+5.60	25	-1.5250	-0.1102	0.77	0.05	0.78		
NE+4.77	25	-1.2667	-0.0934	1.27	0.09	1.27	1.91	0.67
NE+3.17	25	-0.7509	-0.0596	0.75	0.06	0.75		
BASE	25	0.0000	0.0000					
NE+11.82	35	-3.6674	-0.2669	0.89	0.08	0.89	1.12	0.80
NE+9.01	35	-2.7776	-0.1857	1.58	0.10	1.59	1.70	0.93
NE+5.60	35	-1.4718	-0.0993	0.80	0.04	0.80		
NE+4.77	35	-1.1957	-0.0848	0.52	0.03	0.52	0.64	0.82
NE+3.17	35	-0.6726	-0.0545	0.67	0.05	0.67	1.27	0.53
BASE	35	0.0000	0.0000					
NE+11.82	51	-3.6674	-0.2951	0.89	0.09	0.89	1.12	0.80
NE+9.01	51	-2.7776	-0.2084	1.58	0.12	1.59	1.70	0.94
NE+5.60	51	-1.4718	-0.1102	0.80	0.05	0.80		
NE+4.77	51	-1.1957	-0.0934	0.52	0.03	0.52	0.64	0.82
NE+3.17	51	-0.6726	-0.0596	0.67	0.06	0.68	1.27	0.53
BASE	51	0.0000	0.0000					
NE+5.60	1	-1.4598	-0.2744	1.46	0.27	1.49	2.24	0.66
NE+4.77	1	-1.1590	-0.2320	0.54	0.08	0.55		
NE+3.17	1	-0.6141	-0.1486	0.61	0.15	0.63		
BASE	1	0.0000	0.0000					
NE+5.60	13	-1.4598	-0.2922	0.85	0.14	0.86	0.97	0.88
NE+4.77	13	-1.1590	-0.2467	0.54	0.09	0.55		
NE+3.17	13	-0.6141	-0.1572	0.61	0.16	0.63	1.27	0.50
BASE	13	0.0000	0.0000					
NE+5.60	3	-1.4628	-0.2744	1.46	0.27	1.49	2.24	0.66
NE+4.77	3	-1.1787	-0.2320	0.53	0.08	0.54		
NE+3.17	3	-0.6495	-0.1486	0.65	0.15	0.67		
BASE	3	0.0000	0.0000					
NE+5.60	14	-1.4628	-0.2922	0.81	0.14	0.82	0.97	0.85
NE+4.77	14	-1.1787	-0.2467	0.53	0.09	0.54		
NE+3.17	14	-0.6495	-0.1572	0.65	0.16	0.67	1.27	0.53
BASE	14	0.0000	0.0000					

COMB 4 MAX								
NE+19.03	7	0.2371	5.5597	0.07	2.29	2.29	2.88	0.80
NE+15.63	7	0.1939	4.2492	0.03	0.98	0.98		
NE+11.82	7	0.1624	3.2661	0.10	2.09	2.09	2.49	0.84
NE+9.01	7	0.1218	2.3930	0.06	1.22	1.22		
NE+5.60	7	0.0660	1.1768	0.04	0.65	0.65	0.97	0.67
NE+4.77	7	0.0541	0.9454	0.03	0.42	0.42		
NE+3.17	7	0.0288	0.5266	0.03	0.53	0.53	1.27	0.42
BASE	7	0.0000	0.0000					
NE+19.03	10	0.2371	5.4410	0.07	2.27	2.28	2.88	0.79
NE+15.63	10	0.1939	4.1394	0.03	0.97	0.97		
NE+11.82	10	0.1624	3.1667	0.10	2.04	2.04	2.49	0.82
NE+9.01	10	0.1218	2.3124	0.06	1.18	1.19		
NE+5.60	10	0.0660	1.1283	0.04	0.62	0.62	0.97	0.64
NE+4.77	10	0.0541	0.9041	0.03	0.40	0.40		
NE+3.17	10	0.0288	0.5045	0.03	0.50	0.51	1.27	0.40
BASE	10	0.0000	0.0000					
NE+19.03	17	0.2143	5.5597	0.09	2.29	2.30	2.88	0.80
NE+15.63	17							
NE+11.82	17	0.1235	3.2661	0.08	2.09	2.09	2.49	0.84
NE+9.01	17	0.0908	2.3930	0.04	1.22	1.22		
NE+5.60	17	0.0464	1.1768	0.03	0.65	0.65	0.97	0.67
NE+4.77	17	0.0372	0.9454	0.02	0.42	0.42		
NE+3.17	17	0.0187	0.5266	0.02	0.53	0.53	1.27	0.42
BASE	17	0.0000	0.0000					
NE+19.03	20	0.2143	5.4410	0.09	2.27	2.28	2.88	0.79
NE+15.63	20							
NE+11.82	20	0.1235	3.1667	0.08	2.04	2.04	2.49	0.82
NE+9.01	20	0.0908	2.3124	0.04	1.18	1.18		
NE+5.60	20	0.0464	1.1283	0.03	0.62	0.62	0.97	0.64
NE+4.77	20	0.0372	0.9041	0.02	0.40	0.40		
NE+3.17	20	0.0187	0.5045	0.02	0.50	0.50	1.27	0.40
BASE	20	0.0000	0.0000					
NE+11.82	23	0.2774	3.2661	0.05	0.87	0.87	1.12	0.78
NE+9.01	23	0.2254	2.3930	0.09	1.45	1.45	1.70	0.86
NE+5.60	23	0.1507	1.1768	0.07	0.65	0.65		
NE+4.77	23	0.1337	0.9454	0.13	0.95	0.95	1.91	0.50
NE+3.17	23	0.0839	0.5266	0.08	0.53	0.53		
BASE	23	0.0000	0.0000					
NE+11.82	25	0.2774	3.1667	0.05	0.85	0.86	1.12	0.76
NE+9.01	25	0.2254	2.3124	0.09	1.41	1.41	1.70	0.83
NE+5.60	25	0.1507	1.1283	0.07	0.62	0.63		
NE+4.77	25	0.1337	0.9041	0.13	0.90	0.91	1.91	0.48
NE+3.17	25	0.0839	0.5045	0.08	0.50	0.51		
BASE	25	0.0000	0.0000					
NE+11.82	35	0.1056	3.2661	0.02	0.87	0.87	1.12	0.78
NE+9.01	35	0.0885	2.3930	0.03	1.45	1.45	1.70	0.85
NE+5.60	35	0.0641	1.1768	0.03	0.65	0.65		
NE+4.77	35	0.0584	0.9454	0.02	0.42	0.42	0.64	0.66
NE+3.17	35	0.0380	0.5266	0.04	0.53	0.53	1.27	0.42
BASE	35	0.0000	0.0000					
NE+11.82	51	0.1056	3.1667	0.02	0.85	0.85	1.12	0.76
NE+9.01	51	0.0885	2.3124	0.03	1.41	1.41	1.70	0.83
NE+5.60	51	0.0641	1.1283	0.03	0.62	0.62		
NE+4.77	51	0.0584	0.9041	0.02	0.40	0.40	0.64	0.63
NE+3.17	51	0.0380	0.5045	0.04	0.50	0.51	1.27	0.40
BASE	51	0.0000	0.0000					
NE+5.60	1	0.0528	1.2208	0.05	1.22	1.22	2.24	0.55
NE+4.77	1	0.0427	0.9831	0.02	0.44	0.44		
NE+3.17	1	0.0220	0.5473	0.02	0.55	0.55		
BASE	1	0.0000	0.0000					
NE+5.60	13	0.0528	1.0892	0.03	0.60	0.60	0.97	0.62
NE+4.77	13	0.0427	0.8711	0.02	0.38	0.38		
NE+3.17	13	0.0220	0.4873	0.02	0.49	0.49	1.27	0.38
BASE	13	0.0000	0.0000					
NE+5.60	3	0.0340	1.2208	0.03	1.22	1.22	2.24	0.54
NE+4.77	3	0.0323	0.9831	0.01	0.44	0.44		
NE+3.17	3	0.0221	0.5473	0.02	0.55	0.55		
BASE	3	0.0000	0.0000					
NE+5.60	14	0.0340	1.0892	0.01	0.60	0.60	0.97	0.62
NE+4.77	14	0.0323	0.8711	0.01	0.38	0.38		
NE+3.17	14	0.0221	0.4873	0.02	0.49	0.49	1.27	0.38
BASE	14	0.0000	0.0000					

COMB 5 MAX								
NE+19.03	7	-0.1721	-5.4943	0.07	2.28	2.28	2.88	0.79
NE+15.63	7	-0.1321	-4.2014	0.03	0.99	0.99		
NE+11.82	7	-0.1049	-3.2135	0.07	2.04	2.04	2.49	0.82
NE+9.01	7	-0.0741	-2.3690	0.04	1.20	1.20		
NE+5.60	7	-0.0357	-1.1732	0.02	0.65	0.65	0.97	0.67
NE+4.77	7	-0.0286	-0.9439	0.01	0.42	0.42		
NE+3.17	7	-0.0155	-0.5259	0.02	0.53	0.53	1.27	0.41
BASE	7	0.0000	0.0000					
NE+19.03	10	-0.1721	-5.3836	0.07	2.26	2.26	2.88	0.78
NE+15.63	10	-0.1321	-4.1092	0.03	0.98	0.98		
NE+11.82	10	-0.1049	-3.1286	0.07	2.00	2.00	2.49	0.80
NE+9.01	10	-0.0741	-2.2997	0.04	1.17	1.17		
NE+5.60	10	-0.0357	-1.1310	0.02	0.62	0.62	0.97	0.64
NE+4.77	10	-0.0286	-0.9082	0.01	0.40	0.40		
NE+3.17	10	-0.0155	-0.5069	0.02	0.51	0.51	1.27	0.40
BASE	10	0.0000	0.0000					
NE+19.03	17	-0.1512	-5.4943	0.08	2.28	2.28	2.88	0.79
NE+15.63	17							
NE+11.82	17	-0.0696	-3.2135	0.05	2.04	2.04	2.49	0.82
NE+9.01	17	-0.0459	-2.3690	0.03	1.20	1.20		
NE+5.60	17	-0.0177	-1.1732	0.01	0.65	0.65	0.97	0.67
NE+4.77	17	-0.0131	-0.9439	0.01	0.42	0.42		
NE+3.17	17	-0.0062	-0.5259	0.01	0.53	0.53	1.27	0.41
BASE	17	0.0000	0.0000					
NE+19.03	20	-0.1512	-5.3836	0.08	2.26	2.26	2.88	0.78
NE+15.63	20							
NE+11.82	20	-0.0696	-3.1286	0.05	2.00	2.00	2.49	0.80
NE+9.01	20	-0.0459	-2.2997	0.03	1.17	1.17		
NE+5.60	20	-0.0177	-1.1310	0.01	0.62	0.62	0.97	0.64
NE+4.77	20	-0.0131	-0.9082	0.01	0.40	0.40		
NE+3.17	20	-0.0062	-0.5069	0.01	0.51	0.51	1.27	0.40
BASE	20	0.0000	0.0000					
NE+11.82	23	-0.2574	-3.2135	0.05	0.84	0.85	1.12	0.75
NE+9.01	23	-0.2068	-2.3690	0.08	1.43	1.43	1.70	0.84
NE+5.60	23	-0.1366	-1.1732	0.06	0.65	0.65		
NE+4.77	23	-0.1225	-0.9439	0.12	0.94	0.95	1.91	0.50
NE+3.17	23	-0.0788	-0.5259	0.08	0.53	0.53		
BASE	23	0.0000	0.0000					
NE+11.82	25	-0.2574	-3.1286	0.05	0.83	0.83	1.12	0.74
NE+9.01	25	-0.2068	-2.2997	0.08	1.39	1.39	1.70	0.82
NE+5.60	25	-0.1366	-1.1310	0.06	0.62	0.63		
NE+4.77	25	-0.1225	-0.9082	0.12	0.91	0.92	1.91	0.48
NE+3.17	25	-0.0788	-0.5069	0.08	0.51	0.51		
BASE	25	0.0000	0.0000					
NE+11.82	35	-0.0681	-3.2135	0.01	0.84	0.84	1.12	0.75
NE+9.01	35	-0.0563	-2.3690	0.02	1.43	1.43	1.70	0.84
NE+5.60	35	-0.0424	-1.1732	0.01	0.65	0.65		
NE+4.77	35	-0.0406	-0.9439	0.01	0.42	0.42	0.64	0.65
NE+3.17	35	-0.0291	-0.5259	0.03	0.53	0.53	1.27	0.41
BASE	35	0.0000	0.0000					
NE+11.82	51	-0.0681	-3.1286	0.01	0.83	0.83	1.12	0.74
NE+9.01	51	-0.0563	-2.2997	0.02	1.39	1.39	1.70	0.82
NE+5.60	51	-0.0424	-1.1310	0.01	0.62	0.62		
NE+4.77	51	-0.0406	-0.9082	0.01	0.40	0.40	0.64	0.63
NE+3.17	51	-0.0291	-0.5069	0.03	0.51	0.51	1.27	0.40
BASE	51	0.0000	0.0000					
NE+5.60	1	-0.0236	-1.2118	0.02	1.21	1.21	2.24	0.54
NE+4.77	1	-0.0182	-0.9768	0.01	0.43	0.43		
NE+3.17	1	-0.0092	-0.5438	0.01	0.54	0.54		
BASE	1	0.0000	0.0000					
NE+5.60	13	-0.0236	-1.0973	0.01	0.60	0.60	0.97	0.62
NE+4.77	13	-0.0182	-0.8799	0.01	0.39	0.39		
NE+3.17	13	-0.0092	-0.4925	0.01	0.49	0.49	1.27	0.39
BASE	13	0.0000	0.0000					
NE+5.60	3	-0.0097	-1.2118	0.01	1.21	1.21	2.24	0.54
NE+4.77	3	-0.0121	-0.9768	0.00	0.43	0.43		
NE+3.17	3	-0.0118	-0.5438	0.01	0.54	0.54		
BASE	3	0.0000	0.0000					
NE+5.60	14	-0.0097	-1.0973	0.00	0.60	0.60	0.97	0.62
NE+4.77	14	-0.0121	-0.8799	0.00	0.39	0.39		
NE+3.17	14	-0.0118	-0.4925	0.01	0.49	0.49	1.27	0.39
BASE	14	0.0000	0.0000					

COMB 6 MAX								
NE+19.03	7	5.7089	0.4385	1.84	0.12	1.85	2.88	0.64
NE+15.63	7	4.9787	0.4701	1.11	0.15	1.12		
NE+11.82	7	3.8668	0.3152	2.38	0.21	2.39	2.49	0.96
NE+9.01	7	3.0436	0.2084	1.56	0.10	1.56		
NE+5.60	7	1.4849	0.1035	0.87	0.05	0.87	0.97	0.89
NE+4.77	7	1.1764	0.0869	0.56	0.03	0.56		
NE+3.17	7	0.6181	0.0554	0.62	0.06	0.62	1.27	0.49
BASE	7	0.0000	0.0000					
NE+19.03	10	5.7089	0.4744	1.84	0.14	1.85	2.88	0.64
NE+15.63	10	4.9787	0.4857	1.11	0.15	1.12		
NE+11.82	10	3.8668	0.3312	2.38	0.22	2.39	2.49	0.96
NE+9.01	10	3.0436	0.2216	1.56	0.11	1.56		
NE+5.60	10	1.4849	0.1091	0.87	0.05	0.87	0.97	0.89
NE+4.77	10	1.1764	0.0909	0.56	0.03	0.56		
NE+3.17	10	0.6181	0.0579	0.62	0.06	0.62	1.27	0.49
BASE	10	0.0000	0.0000					
NE+19.03	17	5.6312	0.4385	1.84	0.12	1.85	2.88	0.64
NE+15.63	17							
NE+11.82	17	3.7887	0.3152	2.31	0.21	2.32	2.49	0.93
NE+9.01	17	2.9929	0.2084	1.51	0.10	1.52		
NE+5.60	17	1.4813	0.1035	0.85	0.05	0.86	0.97	0.88
NE+4.77	17	1.1788	0.0869	0.55	0.03	0.55		
NE+3.17	17	0.6269	0.0554	0.63	0.06	0.63	1.27	0.50
BASE	17	0.0000	0.0000					
NE+19.03	20	5.6312	0.4744	1.84	0.14	1.85	2.88	0.64
NE+15.63	20							
NE+11.82	20	3.7887	0.3312	2.31	0.22	2.32	2.49	0.93
NE+9.01	20	2.9929	0.2216	1.51	0.11	1.52		
NE+5.60	20	1.4813	0.1091	0.85	0.05	0.86	0.97	0.88
NE+4.77	20	1.1788	0.0909	0.55	0.03	0.55		
NE+3.17	20	0.6269	0.0579	0.63	0.06	0.63	1.27	0.50
BASE	20	0.0000	0.0000					
NE+11.82	23	3.3314	0.3152	0.66	0.11	0.67	1.12	0.60
NE+9.01	23	2.6714	0.2084	1.40	0.12	1.40	1.70	0.83
NE+5.60	23	1.5347	0.1035	0.78	0.05	0.78		
NE+4.77	23	1.2745	0.0869	1.27	0.09	1.28	1.91	0.67
NE+3.17	23	0.7545	0.0554	0.75	0.06	0.76		
BASE	23	0.0000	0.0000					
NE+11.82	25	3.3314	0.3312	0.66	0.11	0.67	1.12	0.60
NE+9.01	25	2.6714	0.2216	1.40	0.13	1.40	1.70	0.83
NE+5.60	25	1.5347	0.1091	0.78	0.05	0.78		
NE+4.77	25	1.2745	0.0909	1.27	0.09	1.28	1.91	0.67
NE+3.17	25	0.7545	0.0579	0.75	0.06	0.76		
BASE	25	0.0000	0.0000					
NE+11.82	35	3.6958	0.3152	0.89	0.11	0.90	1.12	0.80
NE+9.01	35	2.8018	0.2084	1.59	0.12	1.60	1.70	0.94
NE+5.60	35	1.4880	0.1035	0.81	0.05	0.81		
NE+4.77	35	1.2091	0.0869	0.53	0.03	0.53	0.64	0.83
NE+3.17	35	0.6793	0.0554	0.68	0.06	0.68	1.27	0.54
BASE	35	0.0000	0.0000					
NE+11.82	51	3.6958	0.3312	0.89	0.11	0.90	1.12	0.80
NE+9.01	51	2.8018	0.2216	1.59	0.13	1.60	1.70	0.94
NE+5.60	51	1.4880	0.1091	0.81	0.05	0.81		
NE+4.77	51	1.2091	0.0909	0.53	0.03	0.53	0.64	0.83
NE+3.17	51	0.6793	0.0579	0.68	0.06	0.68	1.27	0.54
BASE	51	0.0000	0.0000					
NE+5.60	1	1.4823	0.2833	1.48	0.28	1.51	2.24	0.67
NE+4.77	1	1.1778	0.2381	0.55	0.09	0.56		
NE+3.17	1	0.6239	0.1518	0.62	0.15	0.64		
BASE	1	0.0000	0.0000					
NE+5.60	13	1.4823	0.2866	0.86	0.13	0.87	0.97	0.89
NE+4.77	13	1.1778	0.2401	0.55	0.09	0.56		
NE+3.17	13	0.6239	0.1533	0.62	0.15	0.64	1.27	0.51
BASE	13	0.0000	0.0000					
NE+5.60	3	1.4812	0.2833	1.48	0.28	1.51	2.24	0.67
NE+4.77	3	1.1940	0.2381	0.54	0.09	0.54		
NE+3.17	3	0.6573	0.1518	0.66	0.15	0.67		
BASE	3	0.0000	0.0000					
NE+5.60	14	1.4812	0.2866	0.82	0.13	0.83	0.97	0.86
NE+4.77	14	1.1940	0.2401	0.54	0.09	0.54		
NE+3.17	14	0.6573	0.1533	0.66	0.15	0.67	1.27	0.53
BASE	14	0.0000	0.0000					

COMB 7 MAX								
NE+19.03	7	-5.6720	-0.3774	1.84	0.11	1.84	2.88	0.64
NE+15.63	7	-4.9437	-0.4259	1.11	0.15	1.12		
NE+11.82	7	-3.8349	-0.2713	2.37	0.17	2.37	2.49	0.95
NE+9.01	7	-3.0169	-0.1870	1.55	0.09	1.55		
NE+5.60	7	-1.4684	-0.0987	0.86	0.04	0.86	0.97	0.88
NE+4.77	7	-1.1626	-0.0842	0.55	0.03	0.55		
NE+3.17	7	-0.6109	-0.0543	0.61	0.05	0.61	1.27	0.48
BASE	7	0.0000	0.0000					
NE+19.03	10	-5.6720	-0.4180	1.84	0.12	1.84	2.88	0.64
NE+15.63	10	-4.9437	-0.4528	1.11	0.16	1.12		
NE+11.82	10	-3.8349	-0.2970	2.37	0.19	2.37	2.49	0.95
NE+9.01	10	-3.0169	-0.2079	1.55	0.10	1.55		
NE+5.60	10	-1.4684	-0.1086	0.86	0.05	0.86	0.97	0.88
NE+4.77	10	-1.1626	-0.0919	0.55	0.03	0.55		
NE+3.17	10	-0.6109	-0.0588	0.61	0.06	0.61	1.27	0.48
BASE	10	0.0000	0.0000					
NE+19.03	17	-5.5956	-0.3774	1.84	0.11	1.84	2.88	0.64
NE+15.63	17							
NE+11.82	17	-3.7592	-0.2713	2.29	0.17	2.30	2.49	0.92
NE+9.01	17	-2.9681	-0.1870	1.50	0.09	1.50		
NE+5.60	17	-1.4659	-0.0987	0.85	0.04	0.85	0.97	0.87
NE+4.77	17	-1.1659	-0.0842	0.55	0.03	0.55		
NE+3.17	17	-0.6202	-0.0543	0.62	0.05	0.62	1.27	0.49
BASE	17	0.0000	0.0000					
NE+19.03	20	-5.5956	-0.4180	1.84	0.12	1.84	2.88	0.64
NE+15.63	20							
NE+11.82	20	-3.7592	-0.2970	2.29	0.19	2.30	2.49	0.93
NE+9.01	20	-2.9681	-0.2079	1.50	0.10	1.51		
NE+5.60	20	-1.4659	-0.1086	0.85	0.05	0.85	0.97	0.87
NE+4.77	20	-1.1659	-0.0919	0.55	0.03	0.55		
NE+3.17	20	-0.6202	-0.0588	0.62	0.06	0.62	1.27	0.49
BASE	20	0.0000	0.0000					
NE+11.82	23	-3.3237	-0.2713	0.66	0.08	0.66	1.12	0.59
NE+9.01	23	-2.6643	-0.1870	1.39	0.10	1.40	1.70	0.82
NE+5.60	23	-1.5293	-0.0987	0.78	0.04	0.78		
NE+4.77	23	-1.2701	-0.0842	1.27	0.08	1.27	1.91	0.67
NE+3.17	23	-0.7524	-0.0543	0.75	0.05	0.75		
BASE	23	0.0000	0.0000					
NE+11.82	25	-3.3237	-0.2970	0.66	0.09	0.67	1.12	0.59
NE+9.01	25	-2.6643	-0.2079	1.39	0.12	1.40	1.70	0.82
NE+5.60	25	-1.5293	-0.1086	0.78	0.05	0.78		
NE+4.77	25	-1.2701	-0.0919	1.27	0.09	1.27	1.91	0.67
NE+3.17	25	-0.7524	-0.0588	0.75	0.06	0.75		
BASE	25	0.0000	0.0000					
NE+11.82	35	-3.6766	-0.2713	0.89	0.08	0.89	1.12	0.80
NE+9.01	35	-2.7856	-0.1870	1.59	0.10	1.59	1.70	0.94
NE+5.60	35	-1.4774	-0.0987	0.80	0.04	0.80		
NE+4.77	35	-1.2003	-0.0842	0.53	0.03	0.53	0.64	0.82
NE+3.17	35	-0.6748	-0.0543	0.67	0.05	0.68	1.27	0.53
BASE	35	0.0000	0.0000					
NE+11.82	51	-3.6766	-0.2970	0.89	0.09	0.90	1.12	0.80
NE+9.01	51	-2.7856	-0.2079	1.59	0.12	1.59	1.70	0.94
NE+5.60	51	-1.4774	-0.1086	0.80	0.05	0.80		
NE+4.77	51	-1.2003	-0.0919	0.53	0.03	0.53	0.64	0.82
NE+3.17	51	-0.6748	-0.0588	0.67	0.06	0.68	1.27	0.53
BASE	51	0.0000	0.0000					
NE+5.60	1	-1.4665	-0.2746	1.47	0.27	1.49	2.24	0.67
NE+4.77	1	-1.1646	-0.2323	0.55	0.08	0.55		
NE+3.17	1	-0.6170	-0.1490	0.62	0.15	0.63		
BASE	1	0.0000	0.0000					
NE+5.60	13	-1.4665	-0.2898	0.85	0.13	0.86	0.97	0.88
NE+4.77	13	-1.1646	-0.2443	0.55	0.09	0.55		
NE+3.17	13	-0.6170	-0.1559	0.62	0.16	0.64	1.27	0.50
BASE	13	0.0000	0.0000					
NE+5.60	3	-1.4687	-0.2746	1.47	0.27	1.49	2.24	0.67
NE+4.77	3	-1.1837	-0.2323	0.53	0.08	0.54		
NE+3.17	3	-0.6520	-0.1490	0.65	0.15	0.67		
BASE	3	0.0000	0.0000					
NE+5.60	14	-1.4687	-0.2898	0.82	0.13	0.83	0.97	0.85
NE+4.77	14	-1.1837	-0.2443	0.53	0.09	0.54		
NE+3.17	14	-0.6520	-0.1559	0.65	0.16	0.67	1.27	0.53
BASE	14	0.0000	0.0000					

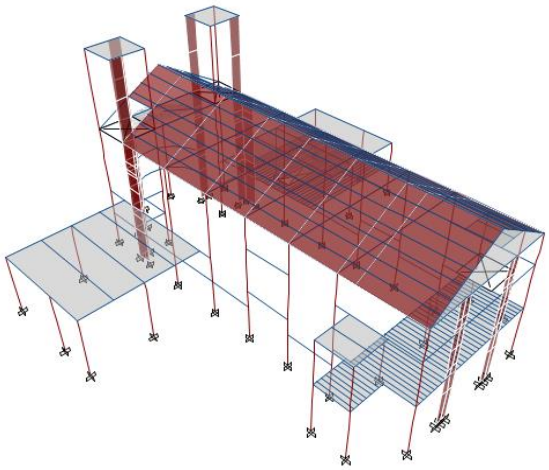
COMB 8 MAX								
NE+19.03	7	0.2230	5.5576	0.07	2.30	2.30	2.88	0.80
NE+15.63	7	0.1805	4.2474	0.03	0.99	0.99		
NE+11.82	7	0.1499	3.2617	0.09	2.08	2.09	2.49	0.84
NE+9.01	7	0.1113	2.3918	0.05	1.21	1.22		
NE+5.60	7	0.0591	1.1775	0.03	0.65	0.65	0.97	0.67
NE+4.77	7	0.0483	0.9460	0.02	0.42	0.42		
NE+3.17	7	0.0257	0.5268	0.03	0.53	0.53	1.27	0.42
BASE	7	0.0000	0.0000					
NE+19.03	10	0.2230	5.4405	0.07	2.28	2.28	2.88	0.79
NE+15.63	10	0.1805	4.1408	0.03	0.98	0.98		
NE+11.82	10	0.1499	3.1648	0.09	2.03	2.04	2.49	0.82
NE+9.01	10	0.1113	2.3129	0.05	1.18	1.18		
NE+5.60	10	0.0591	1.1299	0.03	0.62	0.63	0.97	0.64
NE+4.77	10	0.0483	0.9056	0.02	0.40	0.40		
NE+3.17	10	0.0257	0.5053	0.03	0.51	0.51	1.27	0.40
BASE	10	0.0000	0.0000					
NE+19.03	17	0.2006	5.5576	0.09	2.30	2.30	2.88	0.80
NE+15.63	17							
NE+11.82	17	0.1116	3.2617	0.07	2.08	2.09	2.49	0.84
NE+9.01	17	0.0808	2.3918	0.04	1.21	1.21		
NE+5.60	17	0.0398	1.1775	0.02	0.65	0.65	0.97	0.67
NE+4.77	17	0.0316	0.9460	0.02	0.42	0.42		
NE+3.17	17	0.0158	0.5268	0.02	0.53	0.53	1.27	0.42
BASE	17	0.0000	0.0000					
NE+19.03	20	0.2006	5.4405	0.09	2.28	2.28	2.88	0.79
NE+15.63	20							
NE+11.82	20	0.1116	3.1648	0.07	2.03	2.04	2.49	0.82
NE+9.01	20	0.0808	2.3129	0.04	1.18	1.18		
NE+5.60	20	0.0398	1.1299	0.02	0.62	0.63	0.97	0.64
NE+4.77	20	0.0316	0.9056	0.02	0.40	0.40		
NE+3.17	20	0.0158	0.5053	0.02	0.51	0.51	1.27	0.40
BASE	20	0.0000	0.0000					
NE+11.82	23	0.2712	3.2617	0.05	0.87	0.87	1.12	0.78
NE+9.01	23	0.2196	2.3918	0.09	1.45	1.45	1.70	0.85
NE+5.60	23	0.1464	1.1775	0.06	0.65	0.65		
NE+4.77	23	0.1303	0.9460	0.13	0.95	0.95	1.91	0.50
NE+3.17	23	0.0825	0.5268	0.08	0.53	0.53		
BASE	23	0.0000	0.0000					
NE+11.82	25	0.2712	3.1648	0.05	0.85	0.85	1.12	0.76
NE+9.01	25	0.2196	2.3129	0.09	1.41	1.41	1.70	0.83
NE+5.60	25	0.1464	1.1299	0.06	0.62	0.63		
NE+4.77	25	0.1303	0.9056	0.13	0.91	0.91	1.91	0.48
NE+3.17	25	0.0825	0.5053	0.08	0.51	0.51		
BASE	25	0.0000	0.0000					
NE+11.82	35	0.0965	3.2617	0.02	0.87	0.87	1.12	0.78
NE+9.01	35	0.0805	2.3918	0.03	1.45	1.45	1.70	0.85
NE+5.60	35	0.0586	1.1775	0.02	0.65	0.65		
NE+4.77	35	0.0539	0.9460	0.02	0.42	0.42	0.64	0.66
NE+3.17	35	0.0358	0.5268	0.04	0.53	0.53	1.27	0.42
BASE	35	0.0000	0.0000					
NE+11.82	51	0.0965	3.1648	0.02	0.85	0.85	1.12	0.76
NE+9.01	51	0.0805	2.3129	0.03	1.41	1.41	1.70	0.83
NE+5.60	51	0.0586	1.1299	0.02	0.62	0.63		
NE+4.77	51	0.0539	0.9056	0.02	0.40	0.40	0.64	0.63
NE+3.17	51	0.0358	0.5053	0.04	0.51	0.51	1.27	0.40
BASE	51	0.0000	0.0000					
NE+5.60	1	0.0461	1.2206	0.05	1.22	1.22	2.24	0.54
NE+4.77	1	0.0370	0.9828	0.02	0.44	0.44		
NE+3.17	1	0.0190	0.5470	0.02	0.55	0.55		
BASE	1	0.0000	0.0000					
NE+5.60	13	0.0461	1.0916	0.03	0.60	0.60	0.97	0.62
NE+4.77	13	0.0370	0.8734	0.02	0.38	0.39		
NE+3.17	13	0.0190	0.4887	0.02	0.49	0.49	1.27	0.39
BASE	13	0.0000	0.0000					
NE+5.60	3	0.0280	1.2206	0.03	1.22	1.22	2.24	0.54
NE+4.77	3	0.0274	0.9828	0.01	0.44	0.44		
NE+3.17	3	0.0196	0.5470	0.02	0.55	0.55		
BASE	3	0.0000	0.0000					
NE+5.60	14	0.0280	1.0916	0.01	0.60	0.60	0.97	0.62
NE+4.77	14	0.0274	0.8734	0.01	0.38	0.38		
NE+3.17	14	0.0196	0.4887	0.02	0.49	0.49	1.27	0.39
BASE	14	0.0000	0.0000					

COMB 9 MAX								
NE+19.03	7	-0.1862	-5.4964	0.07	2.28	2.28	2.88	0.79
NE+15.63	7	-0.1455	-4.2032	0.03	0.99	0.99		
NE+11.82	7	-0.1174	-3.2179	0.07	2.05	2.05	2.49	0.82
NE+9.01	7	-0.0846	-2.3703	0.04	1.20	1.20		
NE+5.60	7	-0.0425	-1.1726	0.02	0.65	0.65	0.97	0.67
NE+4.77	7	-0.0344	-0.9433	0.02	0.42	0.42		
NE+3.17	7	-0.0186	-0.5257	0.02	0.53	0.53	1.27	0.41
BASE	7	0.0000	0.0000					
NE+19.03	10	-0.1862	-5.3841	0.07	2.25	2.25	2.88	0.78
NE+15.63	10	-0.1455	-4.1078	0.03	0.98	0.98		
NE+11.82	10	-0.1174	-3.1306	0.07	2.00	2.00	2.49	0.81
NE+9.01	10	-0.0846	-2.2992	0.04	1.17	1.17		
NE+5.60	10	-0.0425	-1.1294	0.02	0.62	0.62	0.97	0.64
NE+4.77	10	-0.0344	-0.9066	0.02	0.40	0.40		
NE+3.17	10	-0.0186	-0.5062	0.02	0.51	0.51	1.27	0.40
BASE	10	0.0000	0.0000					
NE+19.03	17	-0.1649	-5.4964	0.08	2.28	2.28	2.88	0.79
NE+15.63	17							
NE+11.82	17	-0.0815	-3.2179	0.06	2.05	2.05	2.49	0.82
NE+9.01	17	-0.0560	-2.3703	0.03	1.20	1.20		
NE+5.60	17	-0.0243	-1.1726	0.02	0.65	0.65	0.97	0.67
NE+4.77	17	-0.0187	-0.9433	0.01	0.42	0.42		
NE+3.17	17	-0.0091	-0.5257	0.01	0.53	0.53	1.27	0.41
BASE	17	0.0000	0.0000					
NE+19.03	20	-0.1649	-5.3841	0.08	2.25	2.26	2.88	0.78
NE+15.63	20	#N/D	#N/D	#N/D	#N/D	#N/D		
NE+11.82	20	-0.0815	-3.1306	0.06	2.00	2.00	2.49	0.81
NE+9.01	20	-0.0560	-2.2992	0.03	1.17	1.17		
NE+5.60	20	-0.0243	-1.1294	0.02	0.62	0.62	0.97	0.64
NE+4.77	20	-0.0187	-0.9066	0.01	0.40	0.40		
NE+3.17	20	-0.0091	-0.5062	0.01	0.51	0.51	1.27	0.40
BASE	20	0.0000	0.0000					
NE+11.82	23	-0.2635	-3.2179	0.05	0.85	0.85	1.12	0.76
NE+9.01	23	-0.2126	-2.3703	0.09	1.43	1.43	1.70	0.84
NE+5.60	23	-0.1410	-1.1726	0.06	0.65	0.65		
NE+4.77	23	-0.1259	-0.9433	0.13	0.94	0.95	1.91	0.50
NE+3.17	23	-0.0803	-0.5257	0.08	0.53	0.53		
BASE	23	0.0000	0.0000					
NE+11.82	25	-0.2635	-3.1306	0.05	0.83	0.83	1.12	0.74
NE+9.01	25	-0.2126	-2.2992	0.09	1.39	1.40	1.70	0.82
NE+5.60	25	-0.1410	-1.1294	0.06	0.62	0.63		
NE+4.77	25	-0.1259	-0.9066	0.13	0.91	0.92	1.91	0.48
NE+3.17	25	-0.0803	-0.5062	0.08	0.51	0.51		
BASE	25	0.0000	0.0000					
NE+11.82	35	-0.0772	-3.2179	0.01	0.85	0.85	1.12	0.76
NE+9.01	35	-0.0643	-2.3703	0.02	1.43	1.43	1.70	0.84
NE+5.60	35	-0.0480	-1.1726	0.02	0.65	0.65		
NE+4.77	35	-0.0451	-0.9433	0.01	0.42	0.42	0.64	0.65
NE+3.17	35	-0.0313	-0.5257	0.03	0.53	0.53	1.27	0.41
BASE	35	0.0000	0.0000					
NE+11.82	51	-0.0772	-3.1306	0.01	0.83	0.83	1.12	0.74
NE+9.01	51	-0.0643	-2.2992	0.02	1.39	1.39	1.70	0.82
NE+5.60	51	-0.0480	-1.1294	0.02	0.62	0.62		
NE+4.77	51	-0.0451	-0.9066	0.01	0.40	0.40	0.64	0.63
NE+3.17	51	-0.0313	-0.5062	0.03	0.51	0.51	1.27	0.40
BASE	51	0.0000	0.0000					
NE+5.60	1	-0.0303	-1.2120	0.03	1.21	1.21	2.24	0.54
NE+4.77	1	-0.0238	-0.9770	0.01	0.43	0.43		
NE+3.17	1	-0.0122	-0.5442	0.01	0.54	0.54		
BASE	1	0.0000	0.0000					
NE+5.60	13	-0.0303	-1.0948	0.02	0.60	0.60	0.97	0.62
NE+4.77	13	-0.0238	-0.8776	0.01	0.39	0.39		
NE+3.17	13	-0.0122	-0.4912	0.01	0.49	0.49	1.27	0.39
BASE	13	0.0000	0.0000					
NE+5.60	3	-0.0156	-1.2120	0.02	1.21	1.21	2.24	0.54
NE+4.77	3	-0.0171	-0.9770	0.00	0.43	0.43		
NE+3.17	3	-0.0143	-0.5442	0.01	0.54	0.54		
BASE	3	0.0000	0.0000					
NE+5.60	14	-0.0156	-1.0948	0.00	0.60	0.60	0.97	0.62
NE+4.77	14	-0.0171	-0.8776	0.00	0.39	0.39		
NE+3.17	14	-0.0143	-0.4912	0.01	0.49	0.49	1.27	0.39
BASE	14	0.0000	0.0000					

8.10 Análisis Estructural

8.10.1 Datos de Entrada

ETABS® 2015
Integrated Building Design Software



ATOS DE ENTRADA 1

716-HSJD
Model File: GRUPO 2 - CAPILLA, Revision 0
1/06/2017

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1 Structure Data

This chapter provides model geometry information, including items such as story levels, point coordinates, and element connectivity.

Table 1.1 - Program Control (Part 1 of 2)

Program Name	Version	Level	License Number	Current Units	Steel Frame Code	Concrete Frame Code	Composite Beam Code	Composite Column Code
ETABS 2015	15.2.2	Ultimate	*14PDRZVHD2T7VBN	Varies	AISC 360-10	ACI 318-08	AISC 360-10	AISC 360-10

Table 1.1 - Program Control (Part 2 of 2)

Shear Wall Code	Steel Connection Code
ACI 318-08	

1.1 Story Data

Table 1.2 - Story Data

Name	Height m	Elevation m	Master Story	Similar To	Splice Story
NE+23.33	4.3019	23.331	Yes	None	No
NE+19.03	3.4	19.0291	No	NE+23.33	No
NE+15.63	3.81	15.6291	No	NE+23.33	No
NE+11.82	1.6571	11.8191	No	NE+23.33	No
NE+10.16	0.801	10.162	No	None	No
NE+9.36	0.3482	9.361	No	None	No
NE+9.01	1.5568	9.0128	No	NE+23.33	No
NE+7.46	1.8529	7.456	No	None	No
NE+5.60	0.8304	5.6031	No	NE+23.33	No
NE+4.77	1.5992	4.7727	No	NE+23.33	No
NE+3.17	3.1735	3.1735	No	NE+23.33	No
Base	0	0	No	None	No

1.2 Grid Data

Table 1.3 - Grid Systems

Name	Type	Story Range	X Origin m	Y Origin m	Rotation deg	Bubble Size m	Color
G1	Cartesian	Default	0	0	0	1.25	ffa0a0a0

Table 1.4 - Grid Lines

Grid System	Grid Direction	Grid ID	Visible	Bubble Location	Ordinate m
G1	X	1	Yes	End	0
G1	X	2	Yes	End	7.1298
G1	X	3	Yes	End	10.0521
G1	X	4	Yes	End	12.9693
G1	X		Yes	End	13.0956

Grid System	Grid Direction	Grid ID	Visible	Bubble Location	Ordinate m
G1	X		Yes	End	13.4061
G1	X		Yes	End	13.8805
G1	X		Yes	End	14.4882
G1	X		Yes	End	15.1898
G1	X		Yes	End	15.9401
G1	X		Yes	End	16.6903
G1	X		Yes	End	17.3919
G1	X		Yes	End	17.9996
G1	X		Yes	End	18.474
G1	X		Yes	End	18.7845
G1	X	5	Yes	End	18.9108
G1	X	6	Yes	End	21.7872
G1	X	7	Yes	End	24.7248
G1	X	8	Yes	End	31.9209
G1	Y	A	Yes	Start	0
G1	Y	N	Yes	Start	2.3969
G1	Y	B	Yes	Start	4.9215
G1	Y	C	Yes	Start	5.2632
G1	Y	D	Yes	Start	6.3597
G1	Y	E	Yes	Start	10.1898
G1	Y	F	Yes	Start	14.0505
G1	Y	G	Yes	Start	17.8245
G1	Y	H	Yes	Start	18.9873
G1	Y	I	Yes	Start	22.2462
G1	Y	J	Yes	Start	27.1779
G1	Y	K	Yes	Start	28.1418
G1	Y	L	Yes	Start	30.1155
G1	Y	M	Yes	Start	32.9689

1.3 Mass

Table 1.5 - Mass Source

Name	Include Elements	Include Added Mass	Include Loads	Include Lateral	Include Vertical	Lump at Stories	IsDefault	Load Pattern	Multiplier
MsSrc1	No	No	Yes	Yes	No	Yes	Yes	PP	1
MsSrc1	No	No	Yes	Yes	No	Yes	Yes	CA	1
MsSrc1	No	No	Yes	Yes	No	Yes	Yes	CA-M	1

Table 1.6 - Centers of Mass and Rigidity

Story	Diaphragm	Mass X tonf-s²/m	Mass Y tonf-s²/m	XCM m	YCM m	Cumulative X tonf-s²/m	Cumulative Y tonf-s²/m	XCCM m	YCCM m	XCR m	YCR m
NE+3.17	D1	0	0	18.0248	20.5282	0	0	0	0		
NE+4.77	D2	0	0	15.9112	5.7809	0	0	0	0		
NE+5.60	D3	0	0	15.8489	25.8255	0	0	0	0		
NE+9.01	D4	0	0	15.9205	6.5452	0	0	0	0		
NE+11.82	D5	0	0	15.9097	23.0933	0	0	0	0		
NE+10.16	D5	0	0	14.448	32.5605	0	0	0	0		

Story	Diaphragm	Mass X tonf-s²/m	Mass Y tonf-s²/m	XCM m	YCM m	Cumulative X tonf-s²/m	Cumulative Y tonf-s²/m	XCCM m	YCCM m	XCR m	YCR m
NE+15.63	D6	0	0	15.9375	17.8798	0	0	0	0		
NE+19.03	D7	0	0	15.9165	28.6344	0	0	0	0		

Table 1.7 - Mass Summary by Diaphragm

Story	Diaphragm	Mass X tonf-s²/m	Mass Y tonf-s²/m	Mass Moment of Inertia tonf-m-s²	X Mass Center m	Y Mass Center m
NE+19.03	D7	0	0	0	15.9165	28.6344
NE+15.63	D6	0	0	0	15.9375	17.8798
NE+11.82	D5	0	0	0	15.9097	23.0933
NE+10.16	D5	0	0	0	14.448	32.5605
NE+9.01	D4	0	0	0	15.9205	6.5452
NE+5.60	D3	0	0	0	15.8489	25.8255
NE+4.77	D2	0	0	0	15.9112	5.7809
NE+3.17	D1	0	0	0	18.0248	20.5282

Table 1.8 - Mass Summary by Story

Story	UX tonf-s²/m	UY tonf-s²/m	UZ tonf-s²/m
NE+23.33	0	0	0
NE+19.03	3.57917	3.57917	0
NE+15.63	4.55435	4.55435	0
NE+11.82	21.19745	21.19745	0
NE+10.16	2.2127	2.2127	0
NE+9.36	0.98436	0.98436	0
NE+9.01	10.81221	10.81221	0
NE+7.46	3.24272	3.24272	0
NE+5.60	28.50538	28.50538	0
NE+4.77	22.9574	22.9574	0
NE+3.17	34.61297	34.61297	0
Base	2.82703	2.82703	0

1.4 Groups

Table 1.9 - Group Definitions

Name	Color
All	Yellow
PISO 1	Red
CORO	Blue
CUB 1	Green
CUB 2	Fuchsia
CUB-RASO	Orange
CUB 3	Aqua
CUB 4	Black
DERIVAS	Red
EXISTENTE	Red

Name	Color
REFORZAMIENTO	Red

Table 1.10 - Group Assignments

Name	Object Type	Unique Name	Label	Story
PISO 1	Point	1	1	Base
PISO 1	Point	4	1	NE+3.17
PISO 1	Point	5	3	Base
PISO 1	Point	6	3	NE+3.17
PISO 1	Point	13	7	Base
PISO 1	Point	14	7	NE+3.17
PISO 1	Point	15	8	Base
PISO 1	Point	16	8	NE+3.17
PISO 1	Point	17	9	Base
PISO 1	Point	18	10	Base
PISO 1	Point	19	10	NE+3.17
PISO 1	Point	20	9	NE+3.17
PISO 1	Point	22	11	NE+3.17
PISO 1	Point	25	13	Base
PISO 1	Point	26	13	NE+3.17
PISO 1	Point	27	14	Base
PISO 1	Point	28	14	NE+3.17
PISO 1	Point	32	16	NE+3.17
PISO 1	Point	33	17	Base
PISO 1	Point	34	17	NE+3.17
PISO 1	Point	35	18	Base
PISO 1	Point	36	18	NE+3.17
PISO 1	Point	37	19	Base
PISO 1	Point	38	19	NE+3.17
PISO 1	Point	39	20	Base
PISO 1	Point	40	20	NE+3.17
PISO 1	Point	49	23	Base
PISO 1	Point	50	23	NE+3.17
PISO 1	Point	51	25	Base
PISO 1	Point	52	25	NE+3.17
PISO 1	Point	53	26	Base
PISO 1	Point	54	26	NE+3.17
PISO 1	Point	57	28	Base
PISO 1	Point	58	28	NE+3.17
PISO 1	Point	46	30	NE+3.17
PISO 1	Point	48	32	NE+3.17
PISO 1	Point	76	34	NE+3.17
PISO 1	Point	84	36	Base
PISO 1	Point	85	36	NE+3.17
PISO 1	Point	94	38	NE+3.17
PISO 1	Point	103	39	NE+3.17
PISO 1	Point	112	41	NE+3.17
PISO 1	Point	120	43	Base
PISO 1	Point	121	43	NE+3.17
PISO 1	Point	130	45	NE+3.17

Name	Object Type	Unique Name	Label	Story
PISO 1	Point	139	47	NE+3.17
PISO 1	Point	148	49	NE+3.17
PISO 1	Point	61	24	Base
PISO 1	Point	62	24	NE+3.17
PISO 1	Point	63	31	Base
PISO 1	Point	64	31	NE+3.17
PISO 1	Point	65	35	Base
PISO 1	Point	78	35	NE+3.17
PISO 1	Point	79	42	Base
PISO 1	Point	106	42	NE+3.17
PISO 1	Point	113	48	Base
PISO 1	Point	114	48	NE+3.17
PISO 1	Point	115	50	Base
PISO 1	Point	122	50	NE+3.17
PISO 1	Point	123	51	Base
PISO 1	Point	124	51	NE+3.17
PISO 1	Point	131	52	Base
PISO 1	Point	132	52	NE+3.17
PISO 1	Point	366	105	Base
PISO 1	Point	367	105	NE+3.17
PISO 1	Point	371	107	NE+3.17
PISO 1	Point	372	108	Base
PISO 1	Point	373	108	NE+3.17
PISO 1	Point	374	109	Base
PISO 1	Point	375	109	NE+3.17
PISO 1	Point	376	110	Base
PISO 1	Point	377	110	NE+3.17
PISO 1	Point	66	33	Base
PISO 1	Point	179	33	NE+3.17
PISO 1	Point	180	44	Base
PISO 1	Point	190	44	NE+3.17
PISO 1	Point	557	140	Base
PISO 1	Point	560	140	NE+3.17
PISO 1	Point	562	143	Base
PISO 1	Point	563	143	NE+3.17
PISO 1	Point	60	120	NE+3.17
PISO 1	Point	268	132	NE+3.17
PISO 1	Point	297	87	NE+3.17
PISO 1	Point	432	124	NE+3.17
PISO 1	Point	439	127	NE+3.17
PISO 1	Point	449	137	NE+3.17
PISO 1	Point	458	131	NE+3.17
PISO 1	Point	460	164	NE+3.17
PISO 1	Point	466	135	NE+3.17
PISO 1	Point	517	144	NE+3.17
PISO 1	Point	627	134	NE+3.17
PISO 1	Point	645	187	NE+3.17
PISO 1	Point	647	188	NE+3.17
PISO 1	Point	660	124	Base

Name	Object Type	Unique Name	Label	Story
PISO 1	Point	679	127	Base
PISO 1	Point	502	158	NE+3.17
PISO 1	Point	613	121	NE+3.17
PISO 1	Point	1154	122	NE+3.17
PISO 1	Point	1175	257	NE+3.17
PISO 1	Point	365	68	Base
PISO 1	Point	1119	68	NE+3.17
PISO 1	Point	1133	197	Base
PISO 1	Point	1159	197	NE+3.17
PISO 1	Point	1861	454	NE+3.17
PISO 1	Point	1862	455	NE+3.17
PISO 1	Point	1865	458	NE+3.17
PISO 1	Point	1911	504	NE+3.17
PISO 1	Point	1913	506	NE+3.17
PISO 1	Point	1915	508	NE+3.17
PISO 1	Point	1917	510	NE+3.17
PISO 1	Point	1919	512	NE+3.17
PISO 1	Point	1921	514	NE+3.17
PISO 1	Point	1923	516	NE+3.17
PISO 1	Point	1925	518	NE+3.17
PISO 1	Point	1926	519	NE+3.17
PISO 1	Point	1927	520	NE+3.17
PISO 1	Point	1928	521	NE+3.17
PISO 1	Point	1929	522	NE+3.17
PISO 1	Point	1930	523	NE+3.17
PISO 1	Point	1931	524	NE+3.17
PISO 1	Point	1932	525	NE+3.17
PISO 1	Point	1933	526	NE+3.17
PISO 1	Point	1934	527	NE+3.17
PISO 1	Point	1935	528	NE+3.17
PISO 1	Point	1936	529	NE+3.17
PISO 1	Point	1937	530	NE+3.17
PISO 1	Point	1938	531	NE+3.17
PISO 1	Point	1939	532	NE+3.17
PISO 1	Point	1940	533	NE+3.17
PISO 1	Point	1941	534	NE+3.17
PISO 1	Point	1943	536	NE+3.17
PISO 1	Point	1944	537	NE+3.17
PISO 1	Point	1945	538	NE+3.17
PISO 1	Point	1946	539	NE+3.17
PISO 1	Point	1968	561	NE+3.17
PISO 1	Point	1969	562	NE+3.17
PISO 1	Point	1970	563	NE+3.17
PISO 1	Point	1971	564	NE+3.17
PISO 1	Point	1972	565	NE+3.17
PISO 1	Point	1973	566	NE+3.17
PISO 1	Point	1974	567	NE+3.17
PISO 1	Point	1975	568	NE+3.17
PISO 1	Point	1976	569	NE+3.17

Name	Object Type	Unique Name	Label	Story
PISO 1	Point	1977	570	NE+3.17
PISO 1	Point	1978	571	NE+3.17
PISO 1	Point	1979	572	NE+3.17
PISO 1	Point	1986	579	NE+3.17
PISO 1	Point	1987	580	NE+3.17
PISO 1	Point	1988	581	NE+3.17
PISO 1	Point	1989	582	NE+3.17
PISO 1	Point	1990	583	NE+3.17
PISO 1	Point	1992	585	NE+3.17
PISO 1	Point	1994	587	NE+3.17
PISO 1	Point	1996	589	NE+3.17
PISO 1	Point	1998	591	NE+3.17
PISO 1	Point	2000	593	NE+3.17
PISO 1	Point	2002	595	NE+3.17
PISO 1	Point	2004	597	NE+3.17
PISO 1	Point	2005	598	NE+3.17
PISO 1	Point	2006	599	NE+3.17
PISO 1	Point	2007	600	NE+3.17
PISO 1	Point	2008	601	NE+3.17
PISO 1	Point	2009	602	NE+3.17
PISO 1	Point	2010	603	NE+3.17
PISO 1	Point	2011	604	NE+3.17
PISO 1	Point	2013	606	NE+3.17
PISO 1	Point	2015	608	NE+3.17
PISO 1	Point	2016	609	NE+3.17
PISO 1	Point	2017	610	NE+3.17
PISO 1	Point	2027	620	NE+3.17
PISO 1	Point	2028	621	NE+3.17
PISO 1	Point	2029	622	NE+3.17
PISO 1	Point	2030	623	NE+3.17
PISO 1	Point	2031	624	NE+3.17
PISO 1	Point	2032	625	NE+3.17
PISO 1	Point	2033	626	NE+3.17
PISO 1	Point	2034	627	NE+3.17
PISO 1	Point	2035	628	NE+3.17
PISO 1	Line	6	C4	NE+3.17
PISO 1	Line	8	C5	NE+3.17
PISO 1	Line	155	B176	NE+3.17
PISO 1	Line	156	B177	NE+3.17
PISO 1	Line	158	B179	NE+3.17
PISO 1	Line	160	B184	NE+3.17
PISO 1	Line	161	B183	NE+3.17
PISO 1	Line	162	B186	NE+3.17
PISO 1	Line	163	B189	NE+3.17
PISO 1	Line	164	B188	NE+3.17
PISO 1	Line	189	B260	NE+3.17
PISO 1	Line	190	B261	NE+3.17
PISO 1	Line	191	B262	NE+3.17
PISO 1	Line	192	B263	NE+3.17

Name	Object Type	Unique Name	Label	Story
PISO 1	Line	193	B264	NE+3.17
PISO 1	Line	194	B265	NE+3.17
PISO 1	Line	195	B266	NE+3.17
PISO 1	Line	196	B267	NE+3.17
PISO 1	Line	205	B230	NE+3.17
PISO 1	Line	206	B231	NE+3.17
PISO 1	Line	207	B232	NE+3.17
PISO 1	Line	208	B233	NE+3.17
PISO 1	Line	209	B234	NE+3.17
PISO 1	Line	210	B235	NE+3.17
PISO 1	Line	211	B236	NE+3.17
PISO 1	Line	212	B237	NE+3.17
PISO 1	Line	213	B268	NE+3.17
PISO 1	Line	215	B240	NE+3.17
PISO 1	Line	227	B252	NE+3.17
PISO 1	Line	228	B253	NE+3.17
PISO 1	Line	229	B254	NE+3.17
PISO 1	Line	230	B255	NE+3.17
PISO 1	Line	231	B256	NE+3.17
PISO 1	Line	232	B257	NE+3.17
PISO 1	Line	233	B258	NE+3.17
PISO 1	Line	234	B259	NE+3.17
PISO 1	Line	236	B276	NE+3.17
PISO 1	Line	237	B277	NE+3.17
PISO 1	Line	238	B278	NE+3.17
PISO 1	Line	240	B279	NE+3.17
PISO 1	Line	241	B298	NE+3.17
PISO 1	Line	242	B299	NE+3.17
PISO 1	Line	243	B300	NE+3.17
PISO 1	Line	244	B301	NE+3.17
PISO 1	Line	245	B302	NE+3.17
PISO 1	Line	246	B303	NE+3.17
PISO 1	Line	247	B304	NE+3.17
PISO 1	Line	255	B305	NE+3.17
PISO 1	Line	256	B306	NE+3.17
PISO 1	Line	259	B307	NE+3.17
PISO 1	Line	260	B308	NE+3.17
PISO 1	Line	261	B318	NE+3.17
PISO 1	Line	262	B319	NE+3.17
PISO 1	Line	263	B320	NE+3.17
PISO 1	Line	264	B321	NE+3.17
PISO 1	Line	265	B322	NE+3.17
PISO 1	Line	266	B323	NE+3.17
PISO 1	Line	267	B324	NE+3.17
PISO 1	Line	268	B325	NE+3.17
PISO 1	Line	269	B326	NE+3.17
PISO 1	Area	628	F58	NE+3.17
PISO 1	Area	629	A3	NE+3.17
CORO	Point	4	1	NE+3.17

Name	Object Type	Unique Name	Label	Story
CORO	Point	6	3	NE+3.17
CORO	Point	14	7	NE+3.17
CORO	Point	16	8	NE+3.17
CORO	Point	19	10	NE+3.17
CORO	Point	20	9	NE+3.17
CORO	Point	22	11	NE+3.17
CORO	Point	26	13	NE+3.17
CORO	Point	28	14	NE+3.17
CORO	Point	32	16	NE+3.17
CORO	Point	34	17	NE+3.17
CORO	Point	36	18	NE+3.17
CORO	Point	38	19	NE+3.17
CORO	Point	40	20	NE+3.17
CORO	Point	50	23	NE+3.17
CORO	Point	52	25	NE+3.17
CORO	Point	54	26	NE+3.17
CORO	Point	58	28	NE+3.17
CORO	Point	46	30	NE+3.17
CORO	Point	48	32	NE+3.17
CORO	Point	76	34	NE+3.17
CORO	Point	85	36	NE+3.17
CORO	Point	92	36	NE+4.77
CORO	Point	94	38	NE+3.17
CORO	Point	103	39	NE+3.17
CORO	Point	112	41	NE+3.17
CORO	Point	121	43	NE+3.17
CORO	Point	128	43	NE+4.77
CORO	Point	130	45	NE+3.17
CORO	Point	139	47	NE+3.17
CORO	Point	148	49	NE+3.17
CORO	Point	162	9	NE+4.77
CORO	Point	325	1	NE+4.77
CORO	Point	327	3	NE+4.77
CORO	Point	331	7	NE+4.77
CORO	Point	332	10	NE+4.77
CORO	Point	335	13	NE+4.77
CORO	Point	336	14	NE+4.77
CORO	Point	339	17	NE+4.77
CORO	Point	340	18	NE+4.77
CORO	Point	341	8	NE+4.77
CORO	Point	342	19	NE+4.77
CORO	Point	343	20	NE+4.77
CORO	Point	344	21	NE+4.77
CORO	Point	345	22	NE+4.77
CORO	Point	346	23	NE+4.77
CORO	Point	347	25	NE+4.77
CORO	Point	348	26	NE+4.77
CORO	Point	350	28	NE+4.77
CORO	Point	62	24	NE+3.17

Name	Object Type	Unique Name	Label	Story
CORO	Point	64	31	NE+3.17
CORO	Point	78	35	NE+3.17
CORO	Point	106	42	NE+3.17
CORO	Point	114	48	NE+3.17
CORO	Point	122	50	NE+3.17
CORO	Point	124	51	NE+3.17
CORO	Point	132	52	NE+3.17
CORO	Point	213	24	NE+4.77
CORO	Point	214	31	NE+4.77
CORO	Point	215	35	NE+4.77
CORO	Point	216	42	NE+4.77
CORO	Point	217	48	NE+4.77
CORO	Point	218	50	NE+4.77
CORO	Point	219	51	NE+4.77
CORO	Point	220	52	NE+4.77
CORO	Point	367	105	NE+3.17
CORO	Point	371	107	NE+3.17
CORO	Point	373	108	NE+3.17
CORO	Point	375	109	NE+3.17
CORO	Point	377	110	NE+3.17
CORO	Point	384	105	NE+4.77
CORO	Point	390	108	NE+4.77
CORO	Point	392	109	NE+4.77
CORO	Point	393	110	NE+4.77
CORO	Point	414	115	NE+4.77
CORO	Point	421	117	NE+4.77
CORO	Point	179	33	NE+3.17
CORO	Point	190	44	NE+3.17
CORO	Point	545	33	NE+4.77
CORO	Point	547	44	NE+4.77
CORO	Point	560	140	NE+3.17
CORO	Point	563	143	NE+3.17
CORO	Point	569	140	NE+4.77
CORO	Point	570	141	NE+4.77
CORO	Point	573	142	NE+4.77
CORO	Point	574	143	NE+4.77
CORO	Point	60	120	NE+3.17
CORO	Point	297	87	NE+3.17
CORO	Point	430	124	NE+4.77
CORO	Point	431	127	NE+4.77
CORO	Point	432	124	NE+3.17
CORO	Point	439	127	NE+3.17
CORO	Point	449	137	NE+3.17
CORO	Point	458	131	NE+3.17
CORO	Point	460	164	NE+3.17
CORO	Point	466	135	NE+3.17
CORO	Point	517	144	NE+3.17
CORO	Point	627	134	NE+3.17
CORO	Point	645	187	NE+3.17

Name	Object Type	Unique Name	Label	Story
CORO	Point	647	188	NE+3.17
CORO	Point	502	158	NE+3.17
CORO	Point	613	121	NE+3.17
CORO	Point	1101	240	NE+4.77
CORO	Point	1175	257	NE+3.17
CORO	Point	1119	68	NE+3.17
CORO	Point	1159	197	NE+3.17
CORO	Point	1693	235	NE+4.77
CORO	Point	1731	239	NE+4.77
CORO	Point	1733	242	NE+4.77
CORO	Point	1735	244	NE+4.77
CORO	Point	1737	250	NE+4.77
CORO	Point	1739	254	NE+4.77
CORO	Point	1741	272	NE+4.77
CORO	Point	1744	286	NE+4.77
CORO	Point	1746	303	NE+4.77
CORO	Point	1748	309	NE+4.77
CORO	Point	1750	311	NE+4.77
CORO	Point	1752	315	NE+4.77
CORO	Point	1754	321	NE+4.77
CORO	Point	1756	323	NE+4.77
CORO	Point	1765	340	NE+4.77
CORO	Point	1767	348	NE+4.77
CORO	Point	1769	362	NE+4.77
CORO	Point	1771	364	NE+4.77
CORO	Point	1773	366	NE+4.77
CORO	Point	1775	368	NE+4.77
CORO	Point	1777	370	NE+4.77
CORO	Point	1806	399	NE+4.77
CORO	Point	1807	400	NE+4.77
CORO	Point	1808	401	NE+4.77
CORO	Point	1809	402	NE+4.77
CORO	Point	1810	403	NE+4.77
CORO	Point	1811	404	NE+4.77
CORO	Point	1812	405	NE+4.77
CORO	Point	1814	407	NE+4.77
CORO	Point	1815	408	NE+4.77
CORO	Point	1816	409	NE+4.77
CORO	Point	1817	410	NE+4.77
CORO	Point	1818	411	NE+4.77
CORO	Point	1819	412	NE+4.77
CORO	Point	1820	413	NE+4.77
CORO	Point	1821	414	NE+4.77
CORO	Point	1822	415	NE+4.77
CORO	Point	1823	416	NE+4.77
CORO	Point	1824	417	NE+4.77
CORO	Point	1825	418	NE+4.77
CORO	Point	1826	419	NE+4.77
CORO	Point	1827	420	NE+4.77

Name	Object Type	Unique Name	Label	Story
CORO	Point	1828	421	NE+4.77
CORO	Point	1829	422	NE+4.77
CORO	Point	1830	423	NE+4.77
CORO	Point	1831	56	NE+4.77
CORO	Point	1832	68	NE+4.77
CORO	Point	1833	426	NE+4.77
CORO	Point	1834	427	NE+4.77
CORO	Point	1835	428	NE+4.77
CORO	Point	1836	429	NE+4.77
CORO	Point	1837	430	NE+4.77
CORO	Point	1838	431	NE+4.77
CORO	Point	1839	432	NE+4.77
CORO	Point	1840	433	NE+4.77
CORO	Point	1841	434	NE+4.77
CORO	Point	1842	435	NE+4.77
CORO	Point	1843	436	NE+4.77
CORO	Point	1844	437	NE+4.77
CORO	Point	1845	438	NE+4.77
CORO	Point	1846	439	NE+4.77
CORO	Point	1847	440	NE+4.77
CORO	Point	1848	441	NE+4.77
CORO	Point	1849	442	NE+4.77
CORO	Point	1850	443	NE+4.77
CORO	Point	1851	444	NE+4.77
CORO	Point	1852	445	NE+4.77
CORO	Point	1853	446	NE+4.77
CORO	Point	1854	447	NE+4.77
CORO	Point	1855	448	NE+4.77
CORO	Point	1856	449	NE+4.77
CORO	Point	1857	62	NE+4.77
CORO	Point	1858	197	NE+4.77
CORO	Line	7	C4	NE+4.77
CORO	Line	9	C5	NE+4.77
CORO	Line	10	B442	NE+4.77
CORO	Line	50	B44	NE+4.77
CORO	Line	54	B48	NE+4.77
CORO	Line	55	B49	NE+4.77
CORO	Line	56	B50	NE+4.77
CORO	Line	57	B51	NE+4.77
CORO	Line	58	B52	NE+4.77
CORO	Line	59	B102	NE+4.77
CORO	Line	60	B103	NE+4.77
CORO	Line	61	B104	NE+4.77
CORO	Line	62	B105	NE+4.77
CORO	Line	63	B106	NE+4.77
CORO	Line	64	B107	NE+4.77
CORO	Line	65	B108	NE+4.77
CORO	Line	66	B125	NE+4.77
CORO	Line	67	B126	NE+4.77

Name	Object Type	Unique Name	Label	Story
CORO	Line	68	B127	NE+4.77
CORO	Line	69	B128	NE+4.77
CORO	Line	70	B129	NE+4.77
CORO	Line	71	B130	NE+4.77
CORO	Line	72	B131	NE+4.77
CORO	Line	82	B133	NE+4.77
CORO	Line	83	B134	NE+4.77
CORO	Line	84	B135	NE+4.77
CORO	Line	85	B136	NE+4.77
CORO	Line	86	B137	NE+4.77
CORO	Line	87	B138	NE+4.77
CORO	Line	88	B139	NE+4.77
CORO	Line	117	B132	NE+4.77
CORO	Line	118	B13	NE+4.77
CORO	Line	119	B140	NE+4.77
CORO	Line	120	B64	NE+4.77
CORO	Line	121	B142	NE+4.77
CORO	Line	122	B143	NE+4.77
CORO	Line	123	B144	NE+4.77
CORO	Line	124	B145	NE+4.77
CORO	Line	125	B146	NE+4.77
CORO	Line	126	B147	NE+4.77
CORO	Line	127	B148	NE+4.77
CORO	Line	128	B149	NE+4.77
CORO	Line	129	B150	NE+4.77
CORO	Line	130	B151	NE+4.77
CORO	Line	131	B152	NE+4.77
CORO	Line	132	B153	NE+4.77
CORO	Line	133	B65	NE+4.77
CORO	Area	31	F4	NE+4.77
CUB 1	Point	71	30	NE+5.60
CUB 1	Point	72	32	NE+5.60
CUB 1	Point	82	34	NE+5.60
CUB 1	Point	91	36	NE+5.60
CUB 1	Point	92	36	NE+4.77
CUB 1	Point	100	38	NE+5.60
CUB 1	Point	109	39	NE+5.60
CUB 1	Point	118	41	NE+5.60
CUB 1	Point	127	43	NE+5.60
CUB 1	Point	128	43	NE+4.77
CUB 1	Point	136	45	NE+5.60
CUB 1	Point	145	47	NE+5.60
CUB 1	Point	154	49	NE+5.60
CUB 1	Point	161	9	NE+5.60
CUB 1	Point	162	9	NE+4.77
CUB 1	Point	298	1	NE+5.60
CUB 1	Point	300	3	NE+5.60
CUB 1	Point	302	5	NE+5.60
CUB 1	Point	303	6	NE+5.60

Name	Object Type	Unique Name	Label	Story
CUB 1	Point	304	7	NE+5.60
CUB 1	Point	305	10	NE+5.60
CUB 1	Point	306	11	NE+5.60
CUB 1	Point	308	13	NE+5.60
CUB 1	Point	309	14	NE+5.60
CUB 1	Point	311	16	NE+5.60
CUB 1	Point	312	17	NE+5.60
CUB 1	Point	313	18	NE+5.60
CUB 1	Point	314	8	NE+5.60
CUB 1	Point	315	19	NE+5.60
CUB 1	Point	316	20	NE+5.60
CUB 1	Point	319	23	NE+5.60
CUB 1	Point	320	25	NE+5.60
CUB 1	Point	321	26	NE+5.60
CUB 1	Point	323	28	NE+5.60
CUB 1	Point	325	1	NE+4.77
CUB 1	Point	327	3	NE+4.77
CUB 1	Point	331	7	NE+4.77
CUB 1	Point	332	10	NE+4.77
CUB 1	Point	335	13	NE+4.77
CUB 1	Point	336	14	NE+4.77
CUB 1	Point	339	17	NE+4.77
CUB 1	Point	340	18	NE+4.77
CUB 1	Point	341	8	NE+4.77
CUB 1	Point	342	19	NE+4.77
CUB 1	Point	343	20	NE+4.77
CUB 1	Point	344	21	NE+4.77
CUB 1	Point	345	22	NE+4.77
CUB 1	Point	346	23	NE+4.77
CUB 1	Point	347	25	NE+4.77
CUB 1	Point	348	26	NE+4.77
CUB 1	Point	350	28	NE+4.77
CUB 1	Point	133	24	NE+5.60
CUB 1	Point	141	31	NE+5.60
CUB 1	Point	149	35	NE+5.60
CUB 1	Point	151	42	NE+5.60
CUB 1	Point	170	48	NE+5.60
CUB 1	Point	173	50	NE+5.60
CUB 1	Point	209	51	NE+5.60
CUB 1	Point	211	52	NE+5.60
CUB 1	Point	213	24	NE+4.77
CUB 1	Point	214	31	NE+4.77
CUB 1	Point	215	35	NE+4.77
CUB 1	Point	216	42	NE+4.77
CUB 1	Point	217	48	NE+4.77
CUB 1	Point	218	50	NE+4.77
CUB 1	Point	219	51	NE+4.77
CUB 1	Point	220	52	NE+4.77
CUB 1	Point	382	109	NE+5.60

Name	Object Type	Unique Name	Label	Story
CUB 1	Point	383	110	NE+5.60
CUB 1	Point	384	105	NE+4.77
CUB 1	Point	390	108	NE+4.77
CUB 1	Point	392	109	NE+4.77
CUB 1	Point	393	110	NE+4.77
CUB 1	Point	414	115	NE+4.77
CUB 1	Point	421	117	NE+4.77
CUB 1	Point	537	33	NE+5.60
CUB 1	Point	539	44	NE+5.60
CUB 1	Point	545	33	NE+4.77
CUB 1	Point	547	44	NE+4.77
CUB 1	Point	566	143	NE+5.60
CUB 1	Point	569	140	NE+4.77
CUB 1	Point	570	141	NE+4.77
CUB 1	Point	572	140	NE+5.60
CUB 1	Point	573	142	NE+4.77
CUB 1	Point	574	143	NE+4.77
CUB 1	Point	430	124	NE+4.77
CUB 1	Point	431	127	NE+4.77
CUB 1	Point	583	124	NE+5.60
CUB 1	Point	590	127	NE+5.60
CUB 1	Point	1101	240	NE+4.77
CUB 1	Point	2036	629	NE+5.60
CUB 1	Point	2037	630	NE+5.60
CUB 1	Point	2038	631	NE+5.60
CUB 1	Point	2039	632	NE+5.60
CUB 1	Point	2040	633	NE+5.60
CUB 1	Point	2041	634	NE+5.60
CUB 1	Point	2042	635	NE+5.60
CUB 1	Point	2043	636	NE+5.60
CUB 1	Line	272	B327	NE+5.60
CUB 1	Line	274	B329	NE+5.60
CUB 1	Line	275	B330	NE+5.60
CUB 1	Line	276	B331	NE+5.60
CUB 1	Line	277	B178	NE+5.60
CUB 1	Line	278	B179	NE+5.60
CUB 1	Line	280	B332	NE+5.60
CUB 1	Line	281	B333	NE+5.60
CUB 1	Line	282	B334	NE+5.60
CUB 1	Line	283	B335	NE+5.60
CUB 1	Line	284	B336	NE+5.60
CUB 1	Line	285	B337	NE+5.60
CUB 1	Area	647	F59	NE+5.60
CUB 1	Area	651	F58	NE+5.60
CUB 2	Point	71	30	NE+5.60
CUB 2	Point	72	32	NE+5.60
CUB 2	Point	82	34	NE+5.60
CUB 2	Point	90	36	NE+9.01
CUB 2	Point	91	36	NE+5.60

Name	Object Type	Unique Name	Label	Story
CUB 2	Point	100	38	NE+5.60
CUB 2	Point	109	39	NE+5.60
CUB 2	Point	118	41	NE+5.60
CUB 2	Point	126	43	NE+9.01
CUB 2	Point	127	43	NE+5.60
CUB 2	Point	136	45	NE+5.60
CUB 2	Point	145	47	NE+5.60
CUB 2	Point	154	49	NE+5.60
CUB 2	Point	160	9	NE+9.01
CUB 2	Point	161	9	NE+5.60
CUB 2	Point	277	7	NE+9.01
CUB 2	Point	278	10	NE+9.01
CUB 2	Point	285	17	NE+9.01
CUB 2	Point	286	18	NE+9.01
CUB 2	Point	287	8	NE+9.01
CUB 2	Point	288	19	NE+9.01
CUB 2	Point	289	20	NE+9.01
CUB 2	Point	290	21	NE+9.01
CUB 2	Point	291	22	NE+9.01
CUB 2	Point	292	23	NE+9.01
CUB 2	Point	293	25	NE+9.01
CUB 2	Point	294	26	NE+9.01
CUB 2	Point	296	28	NE+9.01
CUB 2	Point	302	5	NE+5.60
CUB 2	Point	303	6	NE+5.60
CUB 2	Point	304	7	NE+5.60
CUB 2	Point	305	10	NE+5.60
CUB 2	Point	306	11	NE+5.60
CUB 2	Point	311	16	NE+5.60
CUB 2	Point	312	17	NE+5.60
CUB 2	Point	313	18	NE+5.60
CUB 2	Point	314	8	NE+5.60
CUB 2	Point	315	19	NE+5.60
CUB 2	Point	316	20	NE+5.60
CUB 2	Point	319	23	NE+5.60
CUB 2	Point	320	25	NE+5.60
CUB 2	Point	321	26	NE+5.60
CUB 2	Point	323	28	NE+5.60
CUB 2	Point	133	24	NE+5.60
CUB 2	Point	140	24	NE+9.01
CUB 2	Point	141	31	NE+5.60
CUB 2	Point	142	31	NE+9.01
CUB 2	Point	149	35	NE+5.60
CUB 2	Point	150	35	NE+9.01
CUB 2	Point	151	42	NE+5.60
CUB 2	Point	166	42	NE+9.01
CUB 2	Point	170	48	NE+5.60
CUB 2	Point	172	48	NE+9.01
CUB 2	Point	173	50	NE+5.60

Name	Object Type	Unique Name	Label	Story
CUB 2	Point	185	50	NE+9.01
CUB 2	Point	209	51	NE+5.60
CUB 2	Point	210	51	NE+9.01
CUB 2	Point	211	52	NE+5.60
CUB 2	Point	212	52	NE+9.01
CUB 2	Point	378	109	NE+9.01
CUB 2	Point	380	110	NE+9.01
CUB 2	Point	382	109	NE+5.60
CUB 2	Point	383	110	NE+5.60
CUB 2	Point	566	143	NE+5.60
CUB 2	Point	567	143	NE+9.01
CUB 2	Point	568	142	NE+9.01
CUB 2	Point	572	140	NE+5.60
CUB 2	Point	575	141	NE+9.01
CUB 2	Point	576	140	NE+9.01
CUB 2	Point	876	110	NE+7.46
CUB 2	Point	882	20	NE+7.46
CUB 2	Point	894	36	NE+7.46
CUB 2	Point	930	43	NE+7.46
CUB 2	Point	942	9	NE+7.46
CUB 2	Point	949	17	NE+7.46
CUB 2	Point	952	26	NE+7.46
CUB 2	Point	954	28	NE+7.46
CUB 2	Point	958	8	NE+7.46
CUB 2	Point	967	24	NE+7.46
CUB 2	Point	968	31	NE+7.46
CUB 2	Point	969	35	NE+7.46
CUB 2	Point	970	42	NE+7.46
CUB 2	Point	972	48	NE+7.46
CUB 2	Point	973	50	NE+7.46
CUB 2	Point	974	51	NE+7.46
CUB 2	Point	975	52	NE+7.46
CUB 2	Point	1065	23	NE+7.46
CUB 2	Point	1089	25	NE+7.46
CUB 2	Point	1128	109	NE+7.46
CUB 2	Point	1155	143	NE+7.46
CUB 2	Point	1158	140	NE+7.46
CUB 2	Point	1188	10	NE+7.46
CUB 2	Point	1202	7	NE+7.46
CUB 2	Point	1214	18	NE+7.46
CUB 2	Point	1223	19	NE+7.46
CUB 2	Point	2152	384	NE+9.01
CUB 2	Point	2153	395	NE+9.01
CUB 2	Point	2154	244	NE+9.01
CUB 2	Point	2155	402	NE+9.01
CUB 2	Line	526	B49	NE+9.01
CUB 2	Line	532	B52	NE+9.01
CUB 2	Line	533	B50	NE+9.01
CUB 2	Line	535	B48	NE+9.01

Name	Object Type	Unique Name	Label	Story
CUB 2	Line	537	B51	NE+9.01
CUB 2	Line	539	B44	NE+9.01
CUB 2	Line	541	B98	NE+9.01
CUB 2	Line	542	B105	NE+9.01
CUB 2	Area	935	F1	NE+9.01
CUB 2	Area	937	F2	NE+9.01
CUB-RASO	Point	90	36	NE+9.01
CUB-RASO	Point	126	43	NE+9.01
CUB-RASO	Point	159	9	NE+11.82
CUB-RASO	Point	160	9	NE+9.01
CUB-RASO	Point	250	7	NE+11.82
CUB-RASO	Point	251	10	NE+11.82
CUB-RASO	Point	258	17	NE+11.82
CUB-RASO	Point	259	18	NE+11.82
CUB-RASO	Point	260	8	NE+11.82
CUB-RASO	Point	261	19	NE+11.82
CUB-RASO	Point	262	20	NE+11.82
CUB-RASO	Point	265	23	NE+11.82
CUB-RASO	Point	277	7	NE+9.01
CUB-RASO	Point	278	10	NE+9.01
CUB-RASO	Point	285	17	NE+9.01
CUB-RASO	Point	286	18	NE+9.01
CUB-RASO	Point	287	8	NE+9.01
CUB-RASO	Point	288	19	NE+9.01
CUB-RASO	Point	289	20	NE+9.01
CUB-RASO	Point	290	21	NE+9.01
CUB-RASO	Point	291	22	NE+9.01
CUB-RASO	Point	292	23	NE+9.01
CUB-RASO	Point	293	25	NE+9.01
CUB-RASO	Point	96	25	NE+11.82
CUB-RASO	Point	140	24	NE+9.01
CUB-RASO	Point	142	31	NE+9.01
CUB-RASO	Point	150	35	NE+9.01
CUB-RASO	Point	166	42	NE+9.01
CUB-RASO	Point	172	48	NE+9.01
CUB-RASO	Point	185	50	NE+9.01
CUB-RASO	Point	210	51	NE+9.01
CUB-RASO	Point	212	52	NE+9.01
CUB-RASO	Point	226	24	NE+11.82
CUB-RASO	Point	229	31	NE+11.82
CUB-RASO	Point	236	35	NE+11.82
CUB-RASO	Point	237	42	NE+11.82
CUB-RASO	Point	238	48	NE+11.82
CUB-RASO	Point	239	50	NE+11.82
CUB-RASO	Point	240	51	NE+11.82
CUB-RASO	Point	241	52	NE+11.82
CUB-RASO	Point	378	109	NE+9.01
CUB-RASO	Point	379	109	NE+11.82
CUB-RASO	Point	380	110	NE+9.01

Name	Object Type	Unique Name	Label	Story
CUB-RASO	Point	381	110	NE+11.82
CUB-RASO	Point	415	115	NE+11.82
CUB-RASO	Point	422	117	NE+11.82
CUB-RASO	Point	568	142	NE+9.01
CUB-RASO	Point	575	141	NE+9.01
CUB-RASO	Point	396	146	NE+10.16
CUB-RASO	Point	809	196	NE+11.82
CUB-RASO	Point	811	199	NE+11.82
CUB-RASO	Point	813	200	NE+11.82
CUB-RASO	Point	815	203	NE+11.82
CUB-RASO	Point	874	110	NE+9.36
CUB-RASO	Point	884	20	NE+9.36
CUB-RASO	Point	886	110	NE+10.16
CUB-RASO	Point	890	20	NE+10.16
CUB-RASO	Point	892	36	NE+9.36
CUB-RASO	Point	893	36	NE+10.16
CUB-RASO	Point	928	43	NE+9.36
CUB-RASO	Point	929	43	NE+10.16
CUB-RASO	Point	940	9	NE+9.36
CUB-RASO	Point	941	9	NE+10.16
CUB-RASO	Point	943	17	NE+9.36
CUB-RASO	Point	945	17	NE+10.16
CUB-RASO	Point	956	8	NE+9.36
CUB-RASO	Point	957	8	NE+10.16
CUB-RASO	Point	977	24	NE+9.36
CUB-RASO	Point	978	24	NE+10.16
CUB-RASO	Point	979	31	NE+9.36
CUB-RASO	Point	980	31	NE+10.16
CUB-RASO	Point	981	35	NE+9.36
CUB-RASO	Point	982	35	NE+10.16
CUB-RASO	Point	983	42	NE+9.36
CUB-RASO	Point	984	42	NE+10.16
CUB-RASO	Point	987	48	NE+9.36
CUB-RASO	Point	988	48	NE+10.16
CUB-RASO	Point	989	50	NE+9.36
CUB-RASO	Point	990	50	NE+10.16
CUB-RASO	Point	991	51	NE+9.36
CUB-RASO	Point	992	51	NE+10.16
CUB-RASO	Point	993	52	NE+9.36
CUB-RASO	Point	994	52	NE+10.16
CUB-RASO	Point	1023	23	NE+9.36
CUB-RASO	Point	1025	23	NE+10.16
CUB-RASO	Point	1061	25	NE+9.36
CUB-RASO	Point	1062	25	NE+10.16
CUB-RASO	Point	1126	109	NE+9.36
CUB-RASO	Point	1127	109	NE+10.16
CUB-RASO	Point	1184	10	NE+9.36
CUB-RASO	Point	1186	10	NE+10.16
CUB-RASO	Point	1196	7	NE+9.36

Name	Object Type	Unique Name	Label	Story
CUB-RASO	Point	1198	7	NE+10.16
CUB-RASO	Point	1208	18	NE+9.36
CUB-RASO	Point	1210	18	NE+10.16
CUB-RASO	Point	1218	19	NE+9.36
CUB-RASO	Point	1220	19	NE+10.16
CUB-RASO	Point	1686	215	NE+11.82
CUB-RASO	Line	1	B6	NE+11.82
CUB-RASO	Line	2	B7	NE+11.82
CUB-RASO	Line	5	B8	NE+11.82
CUB-RASO	Line	13	B9	NE+11.82
CUB-RASO	Line	14	B10	NE+11.82
CUB-RASO	Line	16	B12	NE+11.82
CUB-RASO	Line	18	B14	NE+11.82
CUB-RASO	Line	19	B15	NE+11.82
CUB-RASO	Line	20	B16	NE+11.82
CUB-RASO	Line	21	B17	NE+11.82
CUB-RASO	Line	22	B18	NE+11.82
CUB-RASO	Line	23	B19	NE+11.82
CUB-RASO	Line	24	B20	NE+11.82
CUB-RASO	Line	25	B21	NE+11.82
CUB-RASO	Line	26	B22	NE+11.82
CUB-RASO	Line	27	B23	NE+11.82
CUB-RASO	Line	28	B24	NE+11.82
CUB-RASO	Line	29	B25	NE+11.82
CUB-RASO	Line	30	B26	NE+11.82
CUB-RASO	Line	31	B27	NE+11.82
CUB-RASO	Line	32	B28	NE+11.82
CUB-RASO	Line	33	B29	NE+11.82
CUB-RASO	Line	34	B30	NE+11.82
CUB-RASO	Line	36	B31	NE+11.82
CUB-RASO	Area	37	F7	NE+11.82
CUB-RASO	Area	38	F9	NE+11.82
CUB-RASO	Area	71	F24	NE+11.82
CUB-RASO	Area	170	F25	NE+11.82
CUB-RASO	Area	334	F26	NE+11.82
CUB-RASO	Area	439	F27	NE+11.82
CUB-RASO	Area	445	F28	NE+11.82
CUB-RASO	Area	542	A1	NE+11.82
CUB-RASO	Area	605	A2	NE+11.82
CUB 3	Point	158	9	NE+15.63
CUB 3	Point	159	9	NE+11.82
CUB 3	Point	223	7	NE+15.63
CUB 3	Point	224	10	NE+15.63
CUB 3	Point	232	18	NE+15.63
CUB 3	Point	233	8	NE+15.63
CUB 3	Point	234	19	NE+15.63
CUB 3	Point	250	7	NE+11.82
CUB 3	Point	251	10	NE+11.82
CUB 3	Point	258	17	NE+11.82

Name	Object Type	Unique Name	Label	Story
CUB 3	Point	259	18	NE+11.82
CUB 3	Point	260	8	NE+11.82
CUB 3	Point	261	19	NE+11.82
CUB 3	Point	262	20	NE+11.82
CUB 3	Point	265	23	NE+11.82
CUB 3	Point	77	46	NE+15.63
CUB 3	Point	96	25	NE+11.82
CUB 3	Point	201	17	NE+15.63
CUB 3	Point	206	20	NE+15.63
CUB 3	Point	226	24	NE+11.82
CUB 3	Point	229	31	NE+11.82
CUB 3	Point	236	35	NE+11.82
CUB 3	Point	237	42	NE+11.82
CUB 3	Point	238	48	NE+11.82
CUB 3	Point	239	50	NE+11.82
CUB 3	Point	240	51	NE+11.82
CUB 3	Point	241	52	NE+11.82
CUB 3	Point	379	109	NE+11.82
CUB 3	Point	381	110	NE+11.82
CUB 3	Point	415	115	NE+11.82
CUB 3	Point	422	117	NE+11.82
CUB 3	Point	182	57	NE+15.63
CUB 3	Point	183	58	NE+15.63
CUB 3	Point	184	59	NE+15.63
CUB 3	Point	186	60	NE+15.63
CUB 3	Point	187	61	NE+15.63
CUB 3	Point	188	64	NE+15.63
CUB 3	Point	231	65	NE+15.63
CUB 3	Point	235	40	NE+15.63
CUB 3	Point	424	94	NE+11.82
CUB 3	Point	396	146	NE+10.16
CUB 3	Point	809	196	NE+11.82
CUB 3	Point	811	199	NE+11.82
CUB 3	Point	813	200	NE+11.82
CUB 3	Point	815	203	NE+11.82
CUB 3	Point	254	267	NE+15.63
CUB 3	Point	481	326	NE+15.63
CUB 3	Point	610	342	NE+15.63
CUB 3	Point	728	343	NE+15.63
CUB 3	Point	740	344	NE+15.63
CUB 3	Point	832	345	NE+15.63
CUB 3	Point	833	346	NE+15.63
CUB 3	Point	834	347	NE+15.63
CUB 3	Point	2047	640	NE+15.63
CUB 3	Point	2048	641	NE+15.63
CUB 3	Point	2049	642	NE+15.63
CUB 3	Point	2053	646	NE+15.63
CUB 3	Point	2054	647	NE+15.63
CUB 3	Point	2055	648	NE+15.63

Name	Object Type	Unique Name	Label	Story
CUB 3	Point	2056	649	NE+15.63
CUB 3	Point	2057	650	NE+15.63
CUB 3	Point	2058	651	NE+15.63
CUB 3	Point	2059	652	NE+15.63
CUB 3	Point	2060	653	NE+15.63
CUB 3	Point	2061	654	NE+15.63
CUB 3	Point	2062	655	NE+15.63
CUB 3	Point	2063	656	NE+15.63
CUB 3	Point	2064	657	NE+15.63
CUB 3	Point	2065	658	NE+15.63
CUB 3	Point	2066	659	NE+15.63
CUB 3	Point	2067	660	NE+15.63
CUB 3	Point	2068	661	NE+15.63
CUB 3	Point	2069	662	NE+15.63
CUB 3	Point	2070	663	NE+15.63
CUB 3	Point	2071	664	NE+15.63
CUB 3	Point	2072	665	NE+15.63
CUB 3	Point	2073	666	NE+15.63
CUB 3	Point	2074	667	NE+15.63
CUB 3	Point	2075	668	NE+15.63
CUB 3	Point	2076	669	NE+15.63
CUB 3	Point	2077	670	NE+15.63
CUB 3	Point	2078	671	NE+15.63
CUB 3	Point	2079	672	NE+15.63
CUB 3	Point	2080	673	NE+15.63
CUB 3	Point	2081	674	NE+15.63
CUB 3	Point	2082	675	NE+15.63
CUB 3	Point	2083	676	NE+15.63
CUB 3	Point	2084	677	NE+15.63
CUB 3	Point	2085	678	NE+15.63
CUB 3	Point	2086	679	NE+15.63
CUB 3	Point	2087	680	NE+15.63
CUB 3	Point	2088	681	NE+15.63
CUB 3	Point	2089	682	NE+15.63
CUB 3	Point	2090	683	NE+15.63
CUB 3	Point	2091	684	NE+15.63
CUB 3	Point	2092	685	NE+15.63
CUB 3	Point	2093	686	NE+15.63
CUB 3	Point	2094	687	NE+15.63
CUB 3	Point	2095	688	NE+15.63
CUB 3	Point	2096	689	NE+15.63
CUB 3	Point	2097	690	NE+15.63
CUB 3	Point	2098	691	NE+15.63
CUB 3	Point	2099	692	NE+15.63
CUB 3	Point	2100	693	NE+15.63
CUB 3	Point	2101	694	NE+15.63
CUB 3	Point	2102	695	NE+15.63
CUB 3	Point	2103	696	NE+15.63
CUB 3	Point	2104	697	NE+15.63

Name	Object Type	Unique Name	Label	Story
CUB 3	Point	2105	698	NE+15.63
CUB 3	Point	2106	699	NE+15.63
CUB 3	Point	2107	700	NE+15.63
CUB 3	Point	2108	701	NE+15.63
CUB 3	Point	2109	702	NE+15.63
CUB 3	Point	2110	703	NE+15.63
CUB 3	Point	2111	704	NE+15.63
CUB 3	Point	2112	705	NE+15.63
CUB 3	Point	2113	706	NE+15.63
CUB 3	Point	2114	707	NE+15.63
CUB 3	Point	2115	708	NE+15.63
CUB 3	Point	2116	709	NE+15.63
CUB 3	Point	2117	710	NE+15.63
CUB 3	Point	2118	711	NE+15.63
CUB 3	Point	2119	712	NE+15.63
CUB 3	Point	2120	713	NE+15.63
CUB 3	Point	2121	714	NE+15.63
CUB 3	Point	2122	715	NE+15.63
CUB 3	Point	2123	716	NE+15.63
CUB 3	Point	2124	717	NE+15.63
CUB 3	Point	2125	718	NE+15.63
CUB 3	Point	2126	719	NE+15.63
CUB 3	Point	2127	720	NE+15.63
CUB 3	Point	2128	721	NE+15.63
CUB 3	Point	2129	722	NE+15.63
CUB 3	Point	2130	723	NE+15.63
CUB 3	Point	2131	724	NE+15.63
CUB 3	Point	2132	725	NE+15.63
CUB 3	Point	2133	726	NE+15.63
CUB 3	Point	2134	727	NE+15.63
CUB 3	Point	2135	728	NE+15.63
CUB 3	Point	2136	729	NE+15.63
CUB 3	Point	2137	730	NE+15.63
CUB 3	Point	2138	731	NE+15.63
CUB 3	Point	2139	732	NE+15.63
CUB 3	Point	2140	733	NE+15.63
CUB 3	Point	2141	734	NE+15.63
CUB 3	Point	2142	735	NE+15.63
CUB 3	Point	2143	736	NE+15.63
CUB 3	Point	2144	737	NE+15.63
CUB 3	Point	2145	738	NE+15.63
CUB 3	Point	2146	739	NE+15.63
CUB 3	Point	2147	740	NE+15.63
CUB 3	Point	2148	741	NE+15.63
CUB 3	Point	2149	742	NE+15.63
CUB 3	Point	2150	743	NE+15.63
CUB 3	Point	2151	744	NE+15.63
CUB 3	Line	297	D3	NE+15.63
CUB 3	Line	304	D6	NE+15.63

Name	Object Type	Unique Name	Label	Story
CUB 3	Line	325	D56	NE+15.63
CUB 3	Line	332	D57	NE+15.63
CUB 3	Line	339	D58	NE+15.63
CUB 3	Line	346	D59	NE+15.63
CUB 3	Line	353	D60	NE+15.63
CUB 3	Line	360	D61	NE+15.63
CUB 3	Line	367	D62	NE+15.63
CUB 3	Line	374	D63	NE+15.63
CUB 3	Line	381	D64	NE+15.63
CUB 3	Line	388	D65	NE+15.63
CUB 3	Line	395	D66	NE+15.63
CUB 3	Line	402	D67	NE+15.63
CUB 3	Line	409	D68	NE+15.63
CUB 3	Line	416	D69	NE+15.63
CUB 3	Line	423	B340	NE+15.63
CUB 3	Line	424	B341	NE+15.63
CUB 3	Line	425	B342	NE+15.63
CUB 3	Line	426	B343	NE+15.63
CUB 3	Line	427	B344	NE+15.63
CUB 3	Line	428	B345	NE+15.63
CUB 3	Line	429	B346	NE+15.63
CUB 3	Line	430	B347	NE+15.63
CUB 3	Line	431	B348	NE+15.63
CUB 3	Line	432	B349	NE+15.63
CUB 3	Line	433	B350	NE+15.63
CUB 3	Line	434	B351	NE+15.63
CUB 3	Line	435	B352	NE+15.63
CUB 3	Line	436	B353	NE+15.63
CUB 3	Line	437	B354	NE+15.63
CUB 3	Line	438	B355	NE+15.63
CUB 3	Line	439	B356	NE+15.63
CUB 3	Line	440	B357	NE+15.63
CUB 3	Line	441	B358	NE+15.63
CUB 3	Line	442	B359	NE+15.63
CUB 3	Line	443	B360	NE+15.63
CUB 3	Line	444	B361	NE+15.63
CUB 3	Line	445	B362	NE+15.63
CUB 3	Line	446	B363	NE+15.63
CUB 3	Line	447	B364	NE+15.63
CUB 3	Line	448	B365	NE+15.63
CUB 3	Line	449	B366	NE+15.63
CUB 3	Line	450	B367	NE+15.63
CUB 3	Line	451	B368	NE+15.63
CUB 3	Line	452	B369	NE+15.63
CUB 3	Line	453	B370	NE+15.63
CUB 3	Line	454	B371	NE+15.63
CUB 3	Line	455	B372	NE+15.63
CUB 3	Line	456	B373	NE+15.63
CUB 3	Line	457	B374	NE+15.63

Name	Object Type	Unique Name	Label	Story
CUB 3	Line	458	B375	NE+15.63
CUB 3	Line	459	B376	NE+15.63
CUB 3	Line	460	B377	NE+15.63
CUB 3	Line	461	B378	NE+15.63
CUB 3	Line	462	B379	NE+15.63
CUB 3	Line	463	B380	NE+15.63
CUB 3	Line	464	B381	NE+15.63
CUB 3	Line	465	B382	NE+15.63
CUB 3	Line	466	B383	NE+15.63
CUB 3	Line	467	B384	NE+15.63
CUB 3	Line	468	B385	NE+15.63
CUB 3	Line	469	B386	NE+15.63
CUB 3	Line	470	B387	NE+15.63
CUB 3	Line	471	B388	NE+15.63
CUB 3	Line	472	B389	NE+15.63
CUB 3	Line	473	B390	NE+15.63
CUB 3	Line	474	B391	NE+15.63
CUB 3	Line	475	B392	NE+15.63
CUB 3	Line	476	B393	NE+15.63
CUB 3	Line	477	B394	NE+15.63
CUB 3	Line	478	B395	NE+15.63
CUB 3	Line	479	B396	NE+15.63
CUB 3	Line	480	B397	NE+15.63
CUB 3	Line	481	B398	NE+15.63
CUB 3	Line	482	B399	NE+15.63
CUB 3	Line	483	B400	NE+15.63
CUB 3	Line	484	B401	NE+15.63
CUB 3	Line	485	B402	NE+15.63
CUB 3	Line	486	B403	NE+15.63
CUB 3	Line	487	B404	NE+15.63
CUB 3	Line	488	B405	NE+15.63
CUB 3	Line	489	B406	NE+15.63
CUB 3	Line	490	B407	NE+15.63
CUB 3	Line	491	B408	NE+15.63
CUB 3	Line	492	B409	NE+15.63
CUB 3	Line	493	B410	NE+15.63
CUB 3	Line	494	B411	NE+15.63
CUB 3	Line	495	B412	NE+15.63
CUB 3	Line	496	B413	NE+15.63
CUB 3	Line	497	B414	NE+15.63
CUB 3	Line	498	B415	NE+15.63
CUB 3	Line	499	B416	NE+15.63
CUB 3	Line	500	B417	NE+15.63
CUB 3	Line	501	B418	NE+15.63
CUB 3	Line	502	B419	NE+15.63
CUB 3	Line	503	B420	NE+15.63
CUB 3	Line	504	B421	NE+15.63
CUB 3	Line	506	B423	NE+15.63
CUB 3	Line	507	B424	NE+15.63

Name	Object Type	Unique Name	Label	Story
CUB 3	Line	508	B425	NE+15.63
CUB 3	Line	509	B426	NE+15.63
CUB 3	Line	510	B427	NE+15.63
CUB 3	Line	511	B428	NE+15.63
CUB 3	Line	512	B429	NE+15.63
CUB 3	Line	513	B430	NE+15.63
CUB 3	Line	514	B431	NE+15.63
CUB 3	Line	515	B432	NE+15.63
CUB 3	Line	516	B433	NE+15.63
CUB 3	Line	517	B434	NE+15.63
CUB 3	Line	518	B435	NE+15.63
CUB 3	Line	519	B436	NE+15.63
CUB 3	Line	520	B437	NE+15.63
CUB 3	Line	521	B438	NE+15.63
CUB 3	Line	522	B439	NE+15.63
CUB 3	Line	523	B440	NE+15.63
CUB 3	Area	4	W3	NE+15.63
CUB 3	Area	34	W4	NE+15.63
CUB 3	Area	76	W5	NE+15.63
CUB 3	Area	86	W6	NE+15.63
CUB 3	Area	110	W8	NE+15.63
CUB 3	Area	118	W9	NE+15.63
CUB 3	Area	125	W16	NE+15.63
CUB 3	Area	132	W17	NE+15.63
CUB 3	Area	181	W18	NE+15.63
CUB 3	Area	203	W19	NE+15.63
CUB 3	Area	204	W21	NE+15.63
CUB 3	Area	207	W22	NE+15.63
CUB 3	Area	219	W23	NE+15.63
CUB 3	Area	239	W25	NE+15.63
CUB 3	Area	240	W26	NE+15.63
CUB 3	Area	370	W27	NE+15.63
CUB 4	Point	156	9	NE+19.03
CUB 4	Point	158	9	NE+15.63
CUB 4	Point	193	7	NE+19.03
CUB 4	Point	195	10	NE+19.03
CUB 4	Point	203	17	NE+19.03
CUB 4	Point	204	18	NE+19.03
CUB 4	Point	205	8	NE+19.03
CUB 4	Point	207	19	NE+19.03
CUB 4	Point	208	20	NE+19.03
CUB 4	Point	223	7	NE+15.63
CUB 4	Point	224	10	NE+15.63
CUB 4	Point	232	18	NE+15.63
CUB 4	Point	233	8	NE+15.63
CUB 4	Point	234	19	NE+15.63
CUB 4	Point	201	17	NE+15.63
CUB 4	Point	206	20	NE+15.63
CUB 4	Line	289	B338	NE+19.03

Name	Object Type	Unique Name	Label	Story
CUB 4	Line	290	B23	NE+19.03
CUB 4	Line	291	B24	NE+19.03
CUB 4	Line	292	B25	NE+19.03
CUB 4	Line	293	B339	NE+19.03
CUB 4	Line	294	B20	NE+19.03
CUB 4	Line	295	B21	NE+19.03
CUB 4	Line	296	B22	NE+19.03
CUB 4	Area	665	F60	NE+19.03
CUB 4	Area	676	F61	NE+19.03
DERIVAS	Point	1	1	Base
DERIVAS	Point	4	1	NE+3.17
DERIVAS	Point	5	3	Base
DERIVAS	Point	6	3	NE+3.17
DERIVAS	Point	13	7	Base
DERIVAS	Point	14	7	NE+3.17
DERIVAS	Point	18	10	Base
DERIVAS	Point	19	10	NE+3.17
DERIVAS	Point	25	13	Base
DERIVAS	Point	26	13	NE+3.17
DERIVAS	Point	27	14	Base
DERIVAS	Point	28	14	NE+3.17
DERIVAS	Point	33	17	Base
DERIVAS	Point	34	17	NE+3.17
DERIVAS	Point	39	20	Base
DERIVAS	Point	40	20	NE+3.17
DERIVAS	Point	49	23	Base
DERIVAS	Point	50	23	NE+3.17
DERIVAS	Point	51	25	Base
DERIVAS	Point	52	25	NE+3.17
DERIVAS	Point	193	7	NE+19.03
DERIVAS	Point	195	10	NE+19.03
DERIVAS	Point	203	17	NE+19.03
DERIVAS	Point	208	20	NE+19.03
DERIVAS	Point	223	7	NE+15.63
DERIVAS	Point	224	10	NE+15.63
DERIVAS	Point	250	7	NE+11.82
DERIVAS	Point	251	10	NE+11.82
DERIVAS	Point	258	17	NE+11.82
DERIVAS	Point	262	20	NE+11.82
DERIVAS	Point	265	23	NE+11.82
DERIVAS	Point	277	7	NE+9.01
DERIVAS	Point	278	10	NE+9.01
DERIVAS	Point	285	17	NE+9.01
DERIVAS	Point	289	20	NE+9.01
DERIVAS	Point	292	23	NE+9.01
DERIVAS	Point	293	25	NE+9.01
DERIVAS	Point	298	1	NE+5.60
DERIVAS	Point	300	3	NE+5.60
DERIVAS	Point	304	7	NE+5.60

Name	Object Type	Unique Name	Label	Story
DERIVAS	Point	305	10	NE+5.60
DERIVAS	Point	308	13	NE+5.60
DERIVAS	Point	309	14	NE+5.60
DERIVAS	Point	312	17	NE+5.60
DERIVAS	Point	316	20	NE+5.60
DERIVAS	Point	319	23	NE+5.60
DERIVAS	Point	320	25	NE+5.60
DERIVAS	Point	325	1	NE+4.77
DERIVAS	Point	327	3	NE+4.77
DERIVAS	Point	331	7	NE+4.77
DERIVAS	Point	332	10	NE+4.77
DERIVAS	Point	335	13	NE+4.77
DERIVAS	Point	336	14	NE+4.77
DERIVAS	Point	339	17	NE+4.77
DERIVAS	Point	343	20	NE+4.77
DERIVAS	Point	346	23	NE+4.77
DERIVAS	Point	347	25	NE+4.77
DERIVAS	Point	96	25	NE+11.82
DERIVAS	Point	201	17	NE+15.63
DERIVAS	Point	206	20	NE+15.63
DERIVAS	Point	882	20	NE+7.46
DERIVAS	Point	884	20	NE+9.36
DERIVAS	Point	890	20	NE+10.16
DERIVAS	Point	943	17	NE+9.36
DERIVAS	Point	945	17	NE+10.16
DERIVAS	Point	949	17	NE+7.46
DERIVAS	Point	1023	23	NE+9.36
DERIVAS	Point	1025	23	NE+10.16
DERIVAS	Point	1061	25	NE+9.36
DERIVAS	Point	1062	25	NE+10.16
DERIVAS	Point	1065	23	NE+7.46
DERIVAS	Point	1089	25	NE+7.46
DERIVAS	Point	1184	10	NE+9.36
DERIVAS	Point	1186	10	NE+10.16
DERIVAS	Point	1188	10	NE+7.46
DERIVAS	Point	1196	7	NE+9.36
DERIVAS	Point	1198	7	NE+10.16
DERIVAS	Point	1202	7	NE+7.46
DERIVAS	Point	65	35	Base
DERIVAS	Point	78	35	NE+3.17
DERIVAS	Point	123	51	Base
DERIVAS	Point	124	51	NE+3.17
DERIVAS	Point	149	35	NE+5.60
DERIVAS	Point	150	35	NE+9.01
DERIVAS	Point	209	51	NE+5.60
DERIVAS	Point	210	51	NE+9.01
DERIVAS	Point	215	35	NE+4.77
DERIVAS	Point	219	51	NE+4.77
DERIVAS	Point	236	35	NE+11.82

Name	Object Type	Unique Name	Label	Story
DERIVAS	Point	240	51	NE+11.82
DERIVAS	Point	969	35	NE+7.46
DERIVAS	Point	974	51	NE+7.46
DERIVAS	Point	981	35	NE+9.36
DERIVAS	Point	982	35	NE+10.16
DERIVAS	Point	991	51	NE+9.36
DERIVAS	Point	992	51	NE+10.16
DERIVAS	Line	314	C48	NE+3.17
DERIVAS	Line	315	C48	NE+4.77
DERIVAS	Line	351	C70	NE+3.17
DERIVAS	Line	352	C70	NE+4.77
DERIVAS	Line	558	C48	NE+5.60
DERIVAS	Line	559	C48	NE+7.46
DERIVAS	Line	560	C48	NE+9.01
DERIVAS	Line	561	C48	NE+9.36
DERIVAS	Line	562	C48	NE+10.16
DERIVAS	Line	563	C48	NE+11.82
DERIVAS	Line	626	C70	NE+5.60
DERIVAS	Line	627	C70	NE+7.46
DERIVAS	Line	628	C70	NE+9.01
DERIVAS	Line	629	C70	NE+9.36
DERIVAS	Line	630	C70	NE+10.16
DERIVAS	Line	631	C70	NE+11.82
EXISTENTE	Point	1	1	Base
EXISTENTE	Point	4	1	NE+3.17
EXISTENTE	Point	5	3	Base
EXISTENTE	Point	6	3	NE+3.17
EXISTENTE	Point	13	7	Base
EXISTENTE	Point	14	7	NE+3.17
EXISTENTE	Point	15	8	Base
EXISTENTE	Point	16	8	NE+3.17
EXISTENTE	Point	17	9	Base
EXISTENTE	Point	18	10	Base
EXISTENTE	Point	19	10	NE+3.17
EXISTENTE	Point	20	9	NE+3.17
EXISTENTE	Point	22	11	NE+3.17
EXISTENTE	Point	25	13	Base
EXISTENTE	Point	26	13	NE+3.17
EXISTENTE	Point	27	14	Base
EXISTENTE	Point	28	14	NE+3.17
EXISTENTE	Point	32	16	NE+3.17
EXISTENTE	Point	33	17	Base
EXISTENTE	Point	34	17	NE+3.17
EXISTENTE	Point	35	18	Base
EXISTENTE	Point	36	18	NE+3.17
EXISTENTE	Point	37	19	Base
EXISTENTE	Point	38	19	NE+3.17
EXISTENTE	Point	39	20	Base
EXISTENTE	Point	40	20	NE+3.17

Name	Object Type	Unique Name	Label	Story
EXISTENTE	Point	49	23	Base
EXISTENTE	Point	50	23	NE+3.17
EXISTENTE	Point	51	25	Base
EXISTENTE	Point	52	25	NE+3.17
EXISTENTE	Point	53	26	Base
EXISTENTE	Point	54	26	NE+3.17
EXISTENTE	Point	57	28	Base
EXISTENTE	Point	58	28	NE+3.17
EXISTENTE	Point	46	30	NE+3.17
EXISTENTE	Point	48	32	NE+3.17
EXISTENTE	Point	71	30	NE+5.60
EXISTENTE	Point	72	32	NE+5.60
EXISTENTE	Point	76	34	NE+3.17
EXISTENTE	Point	82	34	NE+5.60
EXISTENTE	Point	84	36	Base
EXISTENTE	Point	85	36	NE+3.17
EXISTENTE	Point	90	36	NE+9.01
EXISTENTE	Point	91	36	NE+5.60
EXISTENTE	Point	92	36	NE+4.77
EXISTENTE	Point	94	38	NE+3.17
EXISTENTE	Point	100	38	NE+5.60
EXISTENTE	Point	103	39	NE+3.17
EXISTENTE	Point	109	39	NE+5.60
EXISTENTE	Point	112	41	NE+3.17
EXISTENTE	Point	118	41	NE+5.60
EXISTENTE	Point	120	43	Base
EXISTENTE	Point	121	43	NE+3.17
EXISTENTE	Point	126	43	NE+9.01
EXISTENTE	Point	127	43	NE+5.60
EXISTENTE	Point	128	43	NE+4.77
EXISTENTE	Point	130	45	NE+3.17
EXISTENTE	Point	136	45	NE+5.60
EXISTENTE	Point	139	47	NE+3.17
EXISTENTE	Point	145	47	NE+5.60
EXISTENTE	Point	148	49	NE+3.17
EXISTENTE	Point	154	49	NE+5.60
EXISTENTE	Point	156	9	NE+19.03
EXISTENTE	Point	158	9	NE+15.63
EXISTENTE	Point	159	9	NE+11.82
EXISTENTE	Point	160	9	NE+9.01
EXISTENTE	Point	161	9	NE+5.60
EXISTENTE	Point	162	9	NE+4.77
EXISTENTE	Point	193	7	NE+19.03
EXISTENTE	Point	195	10	NE+19.03
EXISTENTE	Point	203	17	NE+19.03
EXISTENTE	Point	204	18	NE+19.03
EXISTENTE	Point	205	8	NE+19.03
EXISTENTE	Point	207	19	NE+19.03
EXISTENTE	Point	208	20	NE+19.03

Name	Object Type	Unique Name	Label	Story
EXISTENTE	Point	223	7	NE+15.63
EXISTENTE	Point	224	10	NE+15.63
EXISTENTE	Point	232	18	NE+15.63
EXISTENTE	Point	233	8	NE+15.63
EXISTENTE	Point	234	19	NE+15.63
EXISTENTE	Point	250	7	NE+11.82
EXISTENTE	Point	251	10	NE+11.82
EXISTENTE	Point	258	17	NE+11.82
EXISTENTE	Point	259	18	NE+11.82
EXISTENTE	Point	260	8	NE+11.82
EXISTENTE	Point	261	19	NE+11.82
EXISTENTE	Point	262	20	NE+11.82
EXISTENTE	Point	265	23	NE+11.82
EXISTENTE	Point	277	7	NE+9.01
EXISTENTE	Point	278	10	NE+9.01
EXISTENTE	Point	285	17	NE+9.01
EXISTENTE	Point	286	18	NE+9.01
EXISTENTE	Point	287	8	NE+9.01
EXISTENTE	Point	288	19	NE+9.01
EXISTENTE	Point	289	20	NE+9.01
EXISTENTE	Point	290	21	NE+9.01
EXISTENTE	Point	291	22	NE+9.01
EXISTENTE	Point	292	23	NE+9.01
EXISTENTE	Point	293	25	NE+9.01
EXISTENTE	Point	294	26	NE+9.01
EXISTENTE	Point	296	28	NE+9.01
EXISTENTE	Point	298	1	NE+5.60
EXISTENTE	Point	300	3	NE+5.60
EXISTENTE	Point	302	5	NE+5.60
EXISTENTE	Point	303	6	NE+5.60
EXISTENTE	Point	304	7	NE+5.60
EXISTENTE	Point	305	10	NE+5.60
EXISTENTE	Point	306	11	NE+5.60
EXISTENTE	Point	308	13	NE+5.60
EXISTENTE	Point	309	14	NE+5.60
EXISTENTE	Point	311	16	NE+5.60
EXISTENTE	Point	312	17	NE+5.60
EXISTENTE	Point	313	18	NE+5.60
EXISTENTE	Point	314	8	NE+5.60
EXISTENTE	Point	315	19	NE+5.60
EXISTENTE	Point	316	20	NE+5.60
EXISTENTE	Point	319	23	NE+5.60
EXISTENTE	Point	320	25	NE+5.60
EXISTENTE	Point	321	26	NE+5.60
EXISTENTE	Point	323	28	NE+5.60
EXISTENTE	Point	325	1	NE+4.77
EXISTENTE	Point	327	3	NE+4.77
EXISTENTE	Point	331	7	NE+4.77
EXISTENTE	Point	332	10	NE+4.77

Name	Object Type	Unique Name	Label	Story
EXISTENTE	Point	335	13	NE+4.77
EXISTENTE	Point	336	14	NE+4.77
EXISTENTE	Point	339	17	NE+4.77
EXISTENTE	Point	340	18	NE+4.77
EXISTENTE	Point	341	8	NE+4.77
EXISTENTE	Point	342	19	NE+4.77
EXISTENTE	Point	343	20	NE+4.77
EXISTENTE	Point	344	21	NE+4.77
EXISTENTE	Point	345	22	NE+4.77
EXISTENTE	Point	346	23	NE+4.77
EXISTENTE	Point	347	25	NE+4.77
EXISTENTE	Point	348	26	NE+4.77
EXISTENTE	Point	350	28	NE+4.77
EXISTENTE	Point	77	46	NE+15.63
EXISTENTE	Point	96	25	NE+11.82
EXISTENTE	Point	201	17	NE+15.63
EXISTENTE	Point	206	20	NE+15.63
EXISTENTE	Point	61	24	Base
EXISTENTE	Point	62	24	NE+3.17
EXISTENTE	Point	63	31	Base
EXISTENTE	Point	64	31	NE+3.17
EXISTENTE	Point	65	35	Base
EXISTENTE	Point	78	35	NE+3.17
EXISTENTE	Point	79	42	Base
EXISTENTE	Point	106	42	NE+3.17
EXISTENTE	Point	113	48	Base
EXISTENTE	Point	114	48	NE+3.17
EXISTENTE	Point	115	50	Base
EXISTENTE	Point	122	50	NE+3.17
EXISTENTE	Point	123	51	Base
EXISTENTE	Point	124	51	NE+3.17
EXISTENTE	Point	131	52	Base
EXISTENTE	Point	132	52	NE+3.17
EXISTENTE	Point	133	24	NE+5.60
EXISTENTE	Point	140	24	NE+9.01
EXISTENTE	Point	141	31	NE+5.60
EXISTENTE	Point	142	31	NE+9.01
EXISTENTE	Point	149	35	NE+5.60
EXISTENTE	Point	150	35	NE+9.01
EXISTENTE	Point	151	42	NE+5.60
EXISTENTE	Point	166	42	NE+9.01
EXISTENTE	Point	170	48	NE+5.60
EXISTENTE	Point	172	48	NE+9.01
EXISTENTE	Point	173	50	NE+5.60
EXISTENTE	Point	185	50	NE+9.01
EXISTENTE	Point	209	51	NE+5.60
EXISTENTE	Point	210	51	NE+9.01
EXISTENTE	Point	211	52	NE+5.60
EXISTENTE	Point	212	52	NE+9.01

Name	Object Type	Unique Name	Label	Story
EXISTENTE	Point	213	24	NE+4.77
EXISTENTE	Point	214	31	NE+4.77
EXISTENTE	Point	215	35	NE+4.77
EXISTENTE	Point	216	42	NE+4.77
EXISTENTE	Point	217	48	NE+4.77
EXISTENTE	Point	218	50	NE+4.77
EXISTENTE	Point	219	51	NE+4.77
EXISTENTE	Point	220	52	NE+4.77
EXISTENTE	Point	226	24	NE+11.82
EXISTENTE	Point	229	31	NE+11.82
EXISTENTE	Point	236	35	NE+11.82
EXISTENTE	Point	237	42	NE+11.82
EXISTENTE	Point	238	48	NE+11.82
EXISTENTE	Point	239	50	NE+11.82
EXISTENTE	Point	240	51	NE+11.82
EXISTENTE	Point	241	52	NE+11.82
EXISTENTE	Point	366	105	Base
EXISTENTE	Point	367	105	NE+3.17
EXISTENTE	Point	371	107	NE+3.17
EXISTENTE	Point	372	108	Base
EXISTENTE	Point	373	108	NE+3.17
EXISTENTE	Point	374	109	Base
EXISTENTE	Point	375	109	NE+3.17
EXISTENTE	Point	376	110	Base
EXISTENTE	Point	377	110	NE+3.17
EXISTENTE	Point	378	109	NE+9.01
EXISTENTE	Point	379	109	NE+11.82
EXISTENTE	Point	380	110	NE+9.01
EXISTENTE	Point	381	110	NE+11.82
EXISTENTE	Point	382	109	NE+5.60
EXISTENTE	Point	383	110	NE+5.60
EXISTENTE	Point	384	105	NE+4.77
EXISTENTE	Point	390	108	NE+4.77
EXISTENTE	Point	392	109	NE+4.77
EXISTENTE	Point	393	110	NE+4.77
EXISTENTE	Point	414	115	NE+4.77
EXISTENTE	Point	415	115	NE+11.82
EXISTENTE	Point	421	117	NE+4.77
EXISTENTE	Point	422	117	NE+11.82
EXISTENTE	Point	182	57	NE+15.63
EXISTENTE	Point	183	58	NE+15.63
EXISTENTE	Point	184	59	NE+15.63
EXISTENTE	Point	186	60	NE+15.63
EXISTENTE	Point	187	61	NE+15.63
EXISTENTE	Point	188	64	NE+15.63
EXISTENTE	Point	231	65	NE+15.63
EXISTENTE	Point	235	40	NE+15.63
EXISTENTE	Point	424	94	NE+11.82
EXISTENTE	Point	66	33	Base

Name	Object Type	Unique Name	Label	Story
EXISTENTE	Point	179	33	NE+3.17
EXISTENTE	Point	180	44	Base
EXISTENTE	Point	190	44	NE+3.17
EXISTENTE	Point	537	33	NE+5.60
EXISTENTE	Point	539	44	NE+5.60
EXISTENTE	Point	545	33	NE+4.77
EXISTENTE	Point	547	44	NE+4.77
EXISTENTE	Point	557	140	Base
EXISTENTE	Point	560	140	NE+3.17
EXISTENTE	Point	562	143	Base
EXISTENTE	Point	563	143	NE+3.17
EXISTENTE	Point	566	143	NE+5.60
EXISTENTE	Point	567	143	NE+9.01
EXISTENTE	Point	568	142	NE+9.01
EXISTENTE	Point	569	140	NE+4.77
EXISTENTE	Point	570	141	NE+4.77
EXISTENTE	Point	572	140	NE+5.60
EXISTENTE	Point	573	142	NE+4.77
EXISTENTE	Point	574	143	NE+4.77
EXISTENTE	Point	575	141	NE+9.01
EXISTENTE	Point	576	140	NE+9.01
EXISTENTE	Point	396	146	NE+10.16
EXISTENTE	Point	60	120	NE+3.17
EXISTENTE	Point	268	132	NE+3.17
EXISTENTE	Point	297	87	NE+3.17
EXISTENTE	Point	430	124	NE+4.77
EXISTENTE	Point	431	127	NE+4.77
EXISTENTE	Point	432	124	NE+3.17
EXISTENTE	Point	439	127	NE+3.17
EXISTENTE	Point	449	137	NE+3.17
EXISTENTE	Point	458	131	NE+3.17
EXISTENTE	Point	460	164	NE+3.17
EXISTENTE	Point	466	135	NE+3.17
EXISTENTE	Point	517	144	NE+3.17
EXISTENTE	Point	583	124	NE+5.60
EXISTENTE	Point	590	127	NE+5.60
EXISTENTE	Point	627	134	NE+3.17
EXISTENTE	Point	645	187	NE+3.17
EXISTENTE	Point	647	188	NE+3.17
EXISTENTE	Point	660	124	Base
EXISTENTE	Point	679	127	Base
EXISTENTE	Point	502	158	NE+3.17
EXISTENTE	Point	613	121	NE+3.17
EXISTENTE	Point	809	196	NE+11.82
EXISTENTE	Point	811	199	NE+11.82
EXISTENTE	Point	813	200	NE+11.82
EXISTENTE	Point	815	203	NE+11.82
EXISTENTE	Point	874	110	NE+9.36
EXISTENTE	Point	876	110	NE+7.46

Name	Object Type	Unique Name	Label	Story
EXISTENTE	Point	882	20	NE+7.46
EXISTENTE	Point	884	20	NE+9.36
EXISTENTE	Point	886	110	NE+10.16
EXISTENTE	Point	890	20	NE+10.16
EXISTENTE	Point	892	36	NE+9.36
EXISTENTE	Point	893	36	NE+10.16
EXISTENTE	Point	894	36	NE+7.46
EXISTENTE	Point	928	43	NE+9.36
EXISTENTE	Point	929	43	NE+10.16
EXISTENTE	Point	930	43	NE+7.46
EXISTENTE	Point	940	9	NE+9.36
EXISTENTE	Point	941	9	NE+10.16
EXISTENTE	Point	942	9	NE+7.46
EXISTENTE	Point	943	17	NE+9.36
EXISTENTE	Point	945	17	NE+10.16
EXISTENTE	Point	949	17	NE+7.46
EXISTENTE	Point	952	26	NE+7.46
EXISTENTE	Point	954	28	NE+7.46
EXISTENTE	Point	956	8	NE+9.36
EXISTENTE	Point	957	8	NE+10.16
EXISTENTE	Point	958	8	NE+7.46
EXISTENTE	Point	967	24	NE+7.46
EXISTENTE	Point	968	31	NE+7.46
EXISTENTE	Point	969	35	NE+7.46
EXISTENTE	Point	970	42	NE+7.46
EXISTENTE	Point	972	48	NE+7.46
EXISTENTE	Point	973	50	NE+7.46
EXISTENTE	Point	974	51	NE+7.46
EXISTENTE	Point	975	52	NE+7.46
EXISTENTE	Point	977	24	NE+9.36
EXISTENTE	Point	978	24	NE+10.16
EXISTENTE	Point	979	31	NE+9.36
EXISTENTE	Point	980	31	NE+10.16
EXISTENTE	Point	981	35	NE+9.36
EXISTENTE	Point	982	35	NE+10.16
EXISTENTE	Point	983	42	NE+9.36
EXISTENTE	Point	984	42	NE+10.16
EXISTENTE	Point	987	48	NE+9.36
EXISTENTE	Point	988	48	NE+10.16
EXISTENTE	Point	989	50	NE+9.36
EXISTENTE	Point	990	50	NE+10.16
EXISTENTE	Point	991	51	NE+9.36
EXISTENTE	Point	992	51	NE+10.16
EXISTENTE	Point	993	52	NE+9.36
EXISTENTE	Point	994	52	NE+10.16
EXISTENTE	Point	1023	23	NE+9.36
EXISTENTE	Point	1025	23	NE+10.16
EXISTENTE	Point	1061	25	NE+9.36
EXISTENTE	Point	1062	25	NE+10.16

Name	Object Type	Unique Name	Label	Story
EXISTENTE	Point	1065	23	NE+7.46
EXISTENTE	Point	1089	25	NE+7.46
EXISTENTE	Point	1101	240	NE+4.77
EXISTENTE	Point	1126	109	NE+9.36
EXISTENTE	Point	1127	109	NE+10.16
EXISTENTE	Point	1128	109	NE+7.46
EXISTENTE	Point	1154	122	NE+3.17
EXISTENTE	Point	1155	143	NE+7.46
EXISTENTE	Point	1158	140	NE+7.46
EXISTENTE	Point	1175	257	NE+3.17
EXISTENTE	Point	1184	10	NE+9.36
EXISTENTE	Point	1186	10	NE+10.16
EXISTENTE	Point	1188	10	NE+7.46
EXISTENTE	Point	1196	7	NE+9.36
EXISTENTE	Point	1198	7	NE+10.16
EXISTENTE	Point	1202	7	NE+7.46
EXISTENTE	Point	1208	18	NE+9.36
EXISTENTE	Point	1210	18	NE+10.16
EXISTENTE	Point	1214	18	NE+7.46
EXISTENTE	Point	1218	19	NE+9.36
EXISTENTE	Point	1220	19	NE+10.16
EXISTENTE	Point	1223	19	NE+7.46
EXISTENTE	Point	254	267	NE+15.63
EXISTENTE	Point	481	326	NE+15.63
EXISTENTE	Point	610	342	NE+15.63
EXISTENTE	Point	728	343	NE+15.63
EXISTENTE	Point	740	344	NE+15.63
EXISTENTE	Point	832	345	NE+15.63
EXISTENTE	Point	833	346	NE+15.63
EXISTENTE	Point	834	347	NE+15.63
EXISTENTE	Point	365	68	Base
EXISTENTE	Point	1119	68	NE+3.17
EXISTENTE	Point	1133	197	Base
EXISTENTE	Point	1159	197	NE+3.17
EXISTENTE	Point	1686	215	NE+11.82
EXISTENTE	Point	1693	235	NE+4.77
EXISTENTE	Point	1731	239	NE+4.77
EXISTENTE	Point	1733	242	NE+4.77
EXISTENTE	Point	1735	244	NE+4.77
EXISTENTE	Point	1737	250	NE+4.77
EXISTENTE	Point	1739	254	NE+4.77
EXISTENTE	Point	1741	272	NE+4.77
EXISTENTE	Point	1744	286	NE+4.77
EXISTENTE	Point	1746	303	NE+4.77
EXISTENTE	Point	1748	309	NE+4.77
EXISTENTE	Point	1750	311	NE+4.77
EXISTENTE	Point	1752	315	NE+4.77
EXISTENTE	Point	1754	321	NE+4.77
EXISTENTE	Point	1756	323	NE+4.77

Name	Object Type	Unique Name	Label	Story
EXISTENTE	Point	1765	340	NE+4.77
EXISTENTE	Point	1767	348	NE+4.77
EXISTENTE	Point	1769	362	NE+4.77
EXISTENTE	Point	1771	364	NE+4.77
EXISTENTE	Point	1773	366	NE+4.77
EXISTENTE	Point	1775	368	NE+4.77
EXISTENTE	Point	1777	370	NE+4.77
EXISTENTE	Point	1806	399	NE+4.77
EXISTENTE	Point	1807	400	NE+4.77
EXISTENTE	Point	1808	401	NE+4.77
EXISTENTE	Point	1809	402	NE+4.77
EXISTENTE	Point	1810	403	NE+4.77
EXISTENTE	Point	1811	404	NE+4.77
EXISTENTE	Point	1812	405	NE+4.77
EXISTENTE	Point	1814	407	NE+4.77
EXISTENTE	Point	1815	408	NE+4.77
EXISTENTE	Point	1816	409	NE+4.77
EXISTENTE	Point	1817	410	NE+4.77
EXISTENTE	Point	1818	411	NE+4.77
EXISTENTE	Point	1819	412	NE+4.77
EXISTENTE	Point	1820	413	NE+4.77
EXISTENTE	Point	1821	414	NE+4.77
EXISTENTE	Point	1822	415	NE+4.77
EXISTENTE	Point	1823	416	NE+4.77
EXISTENTE	Point	1824	417	NE+4.77
EXISTENTE	Point	1825	418	NE+4.77
EXISTENTE	Point	1826	419	NE+4.77
EXISTENTE	Point	1827	420	NE+4.77
EXISTENTE	Point	1828	421	NE+4.77
EXISTENTE	Point	1829	422	NE+4.77
EXISTENTE	Point	1830	423	NE+4.77
EXISTENTE	Point	1831	56	NE+4.77
EXISTENTE	Point	1832	68	NE+4.77
EXISTENTE	Point	1833	426	NE+4.77
EXISTENTE	Point	1834	427	NE+4.77
EXISTENTE	Point	1835	428	NE+4.77
EXISTENTE	Point	1836	429	NE+4.77
EXISTENTE	Point	1837	430	NE+4.77
EXISTENTE	Point	1838	431	NE+4.77
EXISTENTE	Point	1839	432	NE+4.77
EXISTENTE	Point	1840	433	NE+4.77
EXISTENTE	Point	1841	434	NE+4.77
EXISTENTE	Point	1842	435	NE+4.77
EXISTENTE	Point	1843	436	NE+4.77
EXISTENTE	Point	1844	437	NE+4.77
EXISTENTE	Point	1845	438	NE+4.77
EXISTENTE	Point	1846	439	NE+4.77
EXISTENTE	Point	1847	440	NE+4.77
EXISTENTE	Point	1848	441	NE+4.77

Name	Object Type	Unique Name	Label	Story
EXISTENTE	Point	1849	442	NE+4.77
EXISTENTE	Point	1850	443	NE+4.77
EXISTENTE	Point	1851	444	NE+4.77
EXISTENTE	Point	1852	445	NE+4.77
EXISTENTE	Point	1853	446	NE+4.77
EXISTENTE	Point	1854	447	NE+4.77
EXISTENTE	Point	1855	448	NE+4.77
EXISTENTE	Point	1856	449	NE+4.77
EXISTENTE	Point	1857	62	NE+4.77
EXISTENTE	Point	1858	197	NE+4.77
EXISTENTE	Point	1861	454	NE+3.17
EXISTENTE	Point	1862	455	NE+3.17
EXISTENTE	Point	1865	458	NE+3.17
EXISTENTE	Point	1911	504	NE+3.17
EXISTENTE	Point	1913	506	NE+3.17
EXISTENTE	Point	1915	508	NE+3.17
EXISTENTE	Point	1917	510	NE+3.17
EXISTENTE	Point	1919	512	NE+3.17
EXISTENTE	Point	1921	514	NE+3.17
EXISTENTE	Point	1923	516	NE+3.17
EXISTENTE	Point	1925	518	NE+3.17
EXISTENTE	Point	1926	519	NE+3.17
EXISTENTE	Point	1927	520	NE+3.17
EXISTENTE	Point	1928	521	NE+3.17
EXISTENTE	Point	1929	522	NE+3.17
EXISTENTE	Point	1930	523	NE+3.17
EXISTENTE	Point	1931	524	NE+3.17
EXISTENTE	Point	1932	525	NE+3.17
EXISTENTE	Point	1933	526	NE+3.17
EXISTENTE	Point	1934	527	NE+3.17
EXISTENTE	Point	1935	528	NE+3.17
EXISTENTE	Point	1936	529	NE+3.17
EXISTENTE	Point	1937	530	NE+3.17
EXISTENTE	Point	1938	531	NE+3.17
EXISTENTE	Point	1939	532	NE+3.17
EXISTENTE	Point	1940	533	NE+3.17
EXISTENTE	Point	1941	534	NE+3.17
EXISTENTE	Point	1943	536	NE+3.17
EXISTENTE	Point	1944	537	NE+3.17
EXISTENTE	Point	1945	538	NE+3.17
EXISTENTE	Point	1946	539	NE+3.17
EXISTENTE	Point	1968	561	NE+3.17
EXISTENTE	Point	1969	562	NE+3.17
EXISTENTE	Point	1970	563	NE+3.17
EXISTENTE	Point	1971	564	NE+3.17
EXISTENTE	Point	1972	565	NE+3.17
EXISTENTE	Point	1973	566	NE+3.17
EXISTENTE	Point	1974	567	NE+3.17
EXISTENTE	Point	1975	568	NE+3.17

Name	Object Type	Unique Name	Label	Story
EXISTENTE	Point	1976	569	NE+3.17
EXISTENTE	Point	1977	570	NE+3.17
EXISTENTE	Point	1978	571	NE+3.17
EXISTENTE	Point	1979	572	NE+3.17
EXISTENTE	Point	1986	579	NE+3.17
EXISTENTE	Point	1987	580	NE+3.17
EXISTENTE	Point	1988	581	NE+3.17
EXISTENTE	Point	1989	582	NE+3.17
EXISTENTE	Point	1990	583	NE+3.17
EXISTENTE	Point	1992	585	NE+3.17
EXISTENTE	Point	1994	587	NE+3.17
EXISTENTE	Point	1996	589	NE+3.17
EXISTENTE	Point	1998	591	NE+3.17
EXISTENTE	Point	2000	593	NE+3.17
EXISTENTE	Point	2002	595	NE+3.17
EXISTENTE	Point	2004	597	NE+3.17
EXISTENTE	Point	2005	598	NE+3.17
EXISTENTE	Point	2006	599	NE+3.17
EXISTENTE	Point	2007	600	NE+3.17
EXISTENTE	Point	2008	601	NE+3.17
EXISTENTE	Point	2009	602	NE+3.17
EXISTENTE	Point	2010	603	NE+3.17
EXISTENTE	Point	2011	604	NE+3.17
EXISTENTE	Point	2013	606	NE+3.17
EXISTENTE	Point	2015	608	NE+3.17
EXISTENTE	Point	2016	609	NE+3.17
EXISTENTE	Point	2017	610	NE+3.17
EXISTENTE	Point	2027	620	NE+3.17
EXISTENTE	Point	2028	621	NE+3.17
EXISTENTE	Point	2029	622	NE+3.17
EXISTENTE	Point	2030	623	NE+3.17
EXISTENTE	Point	2031	624	NE+3.17
EXISTENTE	Point	2032	625	NE+3.17
EXISTENTE	Point	2033	626	NE+3.17
EXISTENTE	Point	2034	627	NE+3.17
EXISTENTE	Point	2035	628	NE+3.17
EXISTENTE	Point	2036	629	NE+5.60
EXISTENTE	Point	2037	630	NE+5.60
EXISTENTE	Point	2038	631	NE+5.60
EXISTENTE	Point	2039	632	NE+5.60
EXISTENTE	Point	2040	633	NE+5.60
EXISTENTE	Point	2041	634	NE+5.60
EXISTENTE	Point	2042	635	NE+5.60
EXISTENTE	Point	2043	636	NE+5.60
EXISTENTE	Point	2047	640	NE+15.63
EXISTENTE	Point	2048	641	NE+15.63
EXISTENTE	Point	2049	642	NE+15.63
EXISTENTE	Point	2053	646	NE+15.63
EXISTENTE	Point	2054	647	NE+15.63

Name	Object Type	Unique Name	Label	Story
EXISTENTE	Point	2055	648	NE+15.63
EXISTENTE	Point	2056	649	NE+15.63
EXISTENTE	Point	2057	650	NE+15.63
EXISTENTE	Point	2058	651	NE+15.63
EXISTENTE	Point	2059	652	NE+15.63
EXISTENTE	Point	2060	653	NE+15.63
EXISTENTE	Point	2061	654	NE+15.63
EXISTENTE	Point	2062	655	NE+15.63
EXISTENTE	Point	2063	656	NE+15.63
EXISTENTE	Point	2064	657	NE+15.63
EXISTENTE	Point	2065	658	NE+15.63
EXISTENTE	Point	2066	659	NE+15.63
EXISTENTE	Point	2067	660	NE+15.63
EXISTENTE	Point	2068	661	NE+15.63
EXISTENTE	Point	2069	662	NE+15.63
EXISTENTE	Point	2070	663	NE+15.63
EXISTENTE	Point	2071	664	NE+15.63
EXISTENTE	Point	2072	665	NE+15.63
EXISTENTE	Point	2073	666	NE+15.63
EXISTENTE	Point	2074	667	NE+15.63
EXISTENTE	Point	2075	668	NE+15.63
EXISTENTE	Point	2076	669	NE+15.63
EXISTENTE	Point	2077	670	NE+15.63
EXISTENTE	Point	2078	671	NE+15.63
EXISTENTE	Point	2079	672	NE+15.63
EXISTENTE	Point	2080	673	NE+15.63
EXISTENTE	Point	2081	674	NE+15.63
EXISTENTE	Point	2082	675	NE+15.63
EXISTENTE	Point	2083	676	NE+15.63
EXISTENTE	Point	2084	677	NE+15.63
EXISTENTE	Point	2085	678	NE+15.63
EXISTENTE	Point	2086	679	NE+15.63
EXISTENTE	Point	2087	680	NE+15.63
EXISTENTE	Point	2088	681	NE+15.63
EXISTENTE	Point	2089	682	NE+15.63
EXISTENTE	Point	2090	683	NE+15.63
EXISTENTE	Point	2091	684	NE+15.63
EXISTENTE	Point	2092	685	NE+15.63
EXISTENTE	Point	2093	686	NE+15.63
EXISTENTE	Point	2094	687	NE+15.63
EXISTENTE	Point	2095	688	NE+15.63
EXISTENTE	Point	2096	689	NE+15.63
EXISTENTE	Point	2097	690	NE+15.63
EXISTENTE	Point	2098	691	NE+15.63
EXISTENTE	Point	2099	692	NE+15.63
EXISTENTE	Point	2100	693	NE+15.63
EXISTENTE	Point	2101	694	NE+15.63
EXISTENTE	Point	2102	695	NE+15.63
EXISTENTE	Point	2103	696	NE+15.63

Name	Object Type	Unique Name	Label	Story
EXISTENTE	Point	2104	697	NE+15.63
EXISTENTE	Point	2105	698	NE+15.63
EXISTENTE	Point	2106	699	NE+15.63
EXISTENTE	Point	2107	700	NE+15.63
EXISTENTE	Point	2108	701	NE+15.63
EXISTENTE	Point	2109	702	NE+15.63
EXISTENTE	Point	2110	703	NE+15.63
EXISTENTE	Point	2111	704	NE+15.63
EXISTENTE	Point	2112	705	NE+15.63
EXISTENTE	Point	2113	706	NE+15.63
EXISTENTE	Point	2114	707	NE+15.63
EXISTENTE	Point	2115	708	NE+15.63
EXISTENTE	Point	2116	709	NE+15.63
EXISTENTE	Point	2117	710	NE+15.63
EXISTENTE	Point	2118	711	NE+15.63
EXISTENTE	Point	2119	712	NE+15.63
EXISTENTE	Point	2120	713	NE+15.63
EXISTENTE	Point	2121	714	NE+15.63
EXISTENTE	Point	2122	715	NE+15.63
EXISTENTE	Point	2123	716	NE+15.63
EXISTENTE	Point	2124	717	NE+15.63
EXISTENTE	Point	2125	718	NE+15.63
EXISTENTE	Point	2126	719	NE+15.63
EXISTENTE	Point	2127	720	NE+15.63
EXISTENTE	Point	2128	721	NE+15.63
EXISTENTE	Point	2129	722	NE+15.63
EXISTENTE	Point	2130	723	NE+15.63
EXISTENTE	Point	2131	724	NE+15.63
EXISTENTE	Point	2132	725	NE+15.63
EXISTENTE	Point	2133	726	NE+15.63
EXISTENTE	Point	2134	727	NE+15.63
EXISTENTE	Point	2135	728	NE+15.63
EXISTENTE	Point	2136	729	NE+15.63
EXISTENTE	Point	2137	730	NE+15.63
EXISTENTE	Point	2138	731	NE+15.63
EXISTENTE	Point	2139	732	NE+15.63
EXISTENTE	Point	2140	733	NE+15.63
EXISTENTE	Point	2141	734	NE+15.63
EXISTENTE	Point	2142	735	NE+15.63
EXISTENTE	Point	2143	736	NE+15.63
EXISTENTE	Point	2144	737	NE+15.63
EXISTENTE	Point	2145	738	NE+15.63
EXISTENTE	Point	2146	739	NE+15.63
EXISTENTE	Point	2147	740	NE+15.63
EXISTENTE	Point	2148	741	NE+15.63
EXISTENTE	Point	2149	742	NE+15.63
EXISTENTE	Point	2150	743	NE+15.63
EXISTENTE	Point	2151	744	NE+15.63
EXISTENTE	Point	2152	384	NE+9.01

Name	Object Type	Unique Name	Label	Story
EXISTENTE	Point	2153	395	NE+9.01
EXISTENTE	Point	2154	244	NE+9.01
EXISTENTE	Point	2155	402	NE+9.01
EXISTENTE	Line	6	C4	NE+3.17
EXISTENTE	Line	7	C4	NE+4.77
EXISTENTE	Line	8	C5	NE+3.17
EXISTENTE	Line	9	C5	NE+4.77
EXISTENTE	Line	10	B442	NE+4.77
EXISTENTE	Line	1	B6	NE+11.82
EXISTENTE	Line	2	B7	NE+11.82
EXISTENTE	Line	5	B8	NE+11.82
EXISTENTE	Line	13	B9	NE+11.82
EXISTENTE	Line	14	B10	NE+11.82
EXISTENTE	Line	16	B12	NE+11.82
EXISTENTE	Line	18	B14	NE+11.82
EXISTENTE	Line	19	B15	NE+11.82
EXISTENTE	Line	20	B16	NE+11.82
EXISTENTE	Line	21	B17	NE+11.82
EXISTENTE	Line	22	B18	NE+11.82
EXISTENTE	Line	23	B19	NE+11.82
EXISTENTE	Line	24	B20	NE+11.82
EXISTENTE	Line	25	B21	NE+11.82
EXISTENTE	Line	26	B22	NE+11.82
EXISTENTE	Line	27	B23	NE+11.82
EXISTENTE	Line	28	B24	NE+11.82
EXISTENTE	Line	29	B25	NE+11.82
EXISTENTE	Line	30	B26	NE+11.82
EXISTENTE	Line	31	B27	NE+11.82
EXISTENTE	Line	32	B28	NE+11.82
EXISTENTE	Line	33	B29	NE+11.82
EXISTENTE	Line	34	B30	NE+11.82
EXISTENTE	Line	36	B31	NE+11.82
EXISTENTE	Line	50	B44	NE+4.77
EXISTENTE	Line	54	B48	NE+4.77
EXISTENTE	Line	55	B49	NE+4.77
EXISTENTE	Line	56	B50	NE+4.77
EXISTENTE	Line	57	B51	NE+4.77
EXISTENTE	Line	58	B52	NE+4.77
EXISTENTE	Line	59	B102	NE+4.77
EXISTENTE	Line	60	B103	NE+4.77
EXISTENTE	Line	61	B104	NE+4.77
EXISTENTE	Line	62	B105	NE+4.77
EXISTENTE	Line	63	B106	NE+4.77
EXISTENTE	Line	64	B107	NE+4.77
EXISTENTE	Line	65	B108	NE+4.77
EXISTENTE	Line	66	B125	NE+4.77
EXISTENTE	Line	67	B126	NE+4.77
EXISTENTE	Line	68	B127	NE+4.77
EXISTENTE	Line	69	B128	NE+4.77

Name	Object Type	Unique Name	Label	Story
EXISTENTE	Line	70	B129	NE+4.77
EXISTENTE	Line	71	B130	NE+4.77
EXISTENTE	Line	72	B131	NE+4.77
EXISTENTE	Line	82	B133	NE+4.77
EXISTENTE	Line	83	B134	NE+4.77
EXISTENTE	Line	84	B135	NE+4.77
EXISTENTE	Line	85	B136	NE+4.77
EXISTENTE	Line	86	B137	NE+4.77
EXISTENTE	Line	87	B138	NE+4.77
EXISTENTE	Line	88	B139	NE+4.77
EXISTENTE	Line	117	B132	NE+4.77
EXISTENTE	Line	118	B13	NE+4.77
EXISTENTE	Line	119	B140	NE+4.77
EXISTENTE	Line	120	B64	NE+4.77
EXISTENTE	Line	121	B142	NE+4.77
EXISTENTE	Line	122	B143	NE+4.77
EXISTENTE	Line	123	B144	NE+4.77
EXISTENTE	Line	124	B145	NE+4.77
EXISTENTE	Line	125	B146	NE+4.77
EXISTENTE	Line	126	B147	NE+4.77
EXISTENTE	Line	127	B148	NE+4.77
EXISTENTE	Line	128	B149	NE+4.77
EXISTENTE	Line	129	B150	NE+4.77
EXISTENTE	Line	130	B151	NE+4.77
EXISTENTE	Line	131	B152	NE+4.77
EXISTENTE	Line	132	B153	NE+4.77
EXISTENTE	Line	133	B65	NE+4.77
EXISTENTE	Line	155	B176	NE+3.17
EXISTENTE	Line	156	B177	NE+3.17
EXISTENTE	Line	158	B179	NE+3.17
EXISTENTE	Line	160	B184	NE+3.17
EXISTENTE	Line	161	B183	NE+3.17
EXISTENTE	Line	162	B186	NE+3.17
EXISTENTE	Line	163	B189	NE+3.17
EXISTENTE	Line	164	B188	NE+3.17
EXISTENTE	Line	189	B260	NE+3.17
EXISTENTE	Line	190	B261	NE+3.17
EXISTENTE	Line	191	B262	NE+3.17
EXISTENTE	Line	192	B263	NE+3.17
EXISTENTE	Line	193	B264	NE+3.17
EXISTENTE	Line	194	B265	NE+3.17
EXISTENTE	Line	195	B266	NE+3.17
EXISTENTE	Line	196	B267	NE+3.17
EXISTENTE	Line	205	B230	NE+3.17
EXISTENTE	Line	206	B231	NE+3.17
EXISTENTE	Line	207	B232	NE+3.17
EXISTENTE	Line	208	B233	NE+3.17
EXISTENTE	Line	209	B234	NE+3.17
EXISTENTE	Line	210	B235	NE+3.17

Name	Object Type	Unique Name	Label	Story
EXISTENTE	Line	211	B236	NE+3.17
EXISTENTE	Line	212	B237	NE+3.17
EXISTENTE	Line	213	B268	NE+3.17
EXISTENTE	Line	215	B240	NE+3.17
EXISTENTE	Line	227	B252	NE+3.17
EXISTENTE	Line	228	B253	NE+3.17
EXISTENTE	Line	229	B254	NE+3.17
EXISTENTE	Line	230	B255	NE+3.17
EXISTENTE	Line	231	B256	NE+3.17
EXISTENTE	Line	232	B257	NE+3.17
EXISTENTE	Line	233	B258	NE+3.17
EXISTENTE	Line	234	B259	NE+3.17
EXISTENTE	Line	236	B276	NE+3.17
EXISTENTE	Line	237	B277	NE+3.17
EXISTENTE	Line	238	B278	NE+3.17
EXISTENTE	Line	240	B279	NE+3.17
EXISTENTE	Line	241	B298	NE+3.17
EXISTENTE	Line	242	B299	NE+3.17
EXISTENTE	Line	243	B300	NE+3.17
EXISTENTE	Line	244	B301	NE+3.17
EXISTENTE	Line	245	B302	NE+3.17
EXISTENTE	Line	246	B303	NE+3.17
EXISTENTE	Line	247	B304	NE+3.17
EXISTENTE	Line	255	B305	NE+3.17
EXISTENTE	Line	256	B306	NE+3.17
EXISTENTE	Line	259	B307	NE+3.17
EXISTENTE	Line	260	B308	NE+3.17
EXISTENTE	Line	261	B318	NE+3.17
EXISTENTE	Line	262	B319	NE+3.17
EXISTENTE	Line	263	B320	NE+3.17
EXISTENTE	Line	264	B321	NE+3.17
EXISTENTE	Line	265	B322	NE+3.17
EXISTENTE	Line	266	B323	NE+3.17
EXISTENTE	Line	267	B324	NE+3.17
EXISTENTE	Line	268	B325	NE+3.17
EXISTENTE	Line	269	B326	NE+3.17
EXISTENTE	Line	272	B327	NE+5.60
EXISTENTE	Line	274	B329	NE+5.60
EXISTENTE	Line	275	B330	NE+5.60
EXISTENTE	Line	276	B331	NE+5.60
EXISTENTE	Line	277	B178	NE+5.60
EXISTENTE	Line	278	B179	NE+5.60
EXISTENTE	Line	280	B332	NE+5.60
EXISTENTE	Line	281	B333	NE+5.60
EXISTENTE	Line	282	B334	NE+5.60
EXISTENTE	Line	283	B335	NE+5.60
EXISTENTE	Line	284	B336	NE+5.60
EXISTENTE	Line	285	B337	NE+5.60
EXISTENTE	Line	289	B338	NE+19.03

Name	Object Type	Unique Name	Label	Story
EXISTENTE	Line	290	B23	NE+19.03
EXISTENTE	Line	291	B24	NE+19.03
EXISTENTE	Line	292	B25	NE+19.03
EXISTENTE	Line	293	B339	NE+19.03
EXISTENTE	Line	294	B20	NE+19.03
EXISTENTE	Line	295	B21	NE+19.03
EXISTENTE	Line	296	B22	NE+19.03
EXISTENTE	Line	297	D3	NE+15.63
EXISTENTE	Line	304	D6	NE+15.63
EXISTENTE	Line	325	D56	NE+15.63
EXISTENTE	Line	332	D57	NE+15.63
EXISTENTE	Line	339	D58	NE+15.63
EXISTENTE	Line	346	D59	NE+15.63
EXISTENTE	Line	353	D60	NE+15.63
EXISTENTE	Line	360	D61	NE+15.63
EXISTENTE	Line	367	D62	NE+15.63
EXISTENTE	Line	374	D63	NE+15.63
EXISTENTE	Line	381	D64	NE+15.63
EXISTENTE	Line	388	D65	NE+15.63
EXISTENTE	Line	395	D66	NE+15.63
EXISTENTE	Line	402	D67	NE+15.63
EXISTENTE	Line	409	D68	NE+15.63
EXISTENTE	Line	416	D69	NE+15.63
EXISTENTE	Line	423	B340	NE+15.63
EXISTENTE	Line	424	B341	NE+15.63
EXISTENTE	Line	425	B342	NE+15.63
EXISTENTE	Line	426	B343	NE+15.63
EXISTENTE	Line	427	B344	NE+15.63
EXISTENTE	Line	428	B345	NE+15.63
EXISTENTE	Line	429	B346	NE+15.63
EXISTENTE	Line	430	B347	NE+15.63
EXISTENTE	Line	431	B348	NE+15.63
EXISTENTE	Line	432	B349	NE+15.63
EXISTENTE	Line	433	B350	NE+15.63
EXISTENTE	Line	434	B351	NE+15.63
EXISTENTE	Line	435	B352	NE+15.63
EXISTENTE	Line	436	B353	NE+15.63
EXISTENTE	Line	437	B354	NE+15.63
EXISTENTE	Line	438	B355	NE+15.63
EXISTENTE	Line	439	B356	NE+15.63
EXISTENTE	Line	440	B357	NE+15.63
EXISTENTE	Line	441	B358	NE+15.63
EXISTENTE	Line	442	B359	NE+15.63
EXISTENTE	Line	443	B360	NE+15.63
EXISTENTE	Line	444	B361	NE+15.63
EXISTENTE	Line	445	B362	NE+15.63
EXISTENTE	Line	446	B363	NE+15.63
EXISTENTE	Line	447	B364	NE+15.63
EXISTENTE	Line	448	B365	NE+15.63

Name	Object Type	Unique Name	Label	Story
EXISTENTE	Line	449	B366	NE+15.63
EXISTENTE	Line	450	B367	NE+15.63
EXISTENTE	Line	451	B368	NE+15.63
EXISTENTE	Line	452	B369	NE+15.63
EXISTENTE	Line	453	B370	NE+15.63
EXISTENTE	Line	454	B371	NE+15.63
EXISTENTE	Line	455	B372	NE+15.63
EXISTENTE	Line	456	B373	NE+15.63
EXISTENTE	Line	457	B374	NE+15.63
EXISTENTE	Line	458	B375	NE+15.63
EXISTENTE	Line	459	B376	NE+15.63
EXISTENTE	Line	460	B377	NE+15.63
EXISTENTE	Line	461	B378	NE+15.63
EXISTENTE	Line	462	B379	NE+15.63
EXISTENTE	Line	463	B380	NE+15.63
EXISTENTE	Line	464	B381	NE+15.63
EXISTENTE	Line	465	B382	NE+15.63
EXISTENTE	Line	466	B383	NE+15.63
EXISTENTE	Line	467	B384	NE+15.63
EXISTENTE	Line	468	B385	NE+15.63
EXISTENTE	Line	469	B386	NE+15.63
EXISTENTE	Line	470	B387	NE+15.63
EXISTENTE	Line	471	B388	NE+15.63
EXISTENTE	Line	472	B389	NE+15.63
EXISTENTE	Line	473	B390	NE+15.63
EXISTENTE	Line	474	B391	NE+15.63
EXISTENTE	Line	475	B392	NE+15.63
EXISTENTE	Line	476	B393	NE+15.63
EXISTENTE	Line	477	B394	NE+15.63
EXISTENTE	Line	478	B395	NE+15.63
EXISTENTE	Line	479	B396	NE+15.63
EXISTENTE	Line	480	B397	NE+15.63
EXISTENTE	Line	481	B398	NE+15.63
EXISTENTE	Line	482	B399	NE+15.63
EXISTENTE	Line	483	B400	NE+15.63
EXISTENTE	Line	484	B401	NE+15.63
EXISTENTE	Line	485	B402	NE+15.63
EXISTENTE	Line	486	B403	NE+15.63
EXISTENTE	Line	487	B404	NE+15.63
EXISTENTE	Line	488	B405	NE+15.63
EXISTENTE	Line	489	B406	NE+15.63
EXISTENTE	Line	490	B407	NE+15.63
EXISTENTE	Line	491	B408	NE+15.63
EXISTENTE	Line	492	B409	NE+15.63
EXISTENTE	Line	493	B410	NE+15.63
EXISTENTE	Line	494	B411	NE+15.63
EXISTENTE	Line	495	B412	NE+15.63
EXISTENTE	Line	496	B413	NE+15.63
EXISTENTE	Line	497	B414	NE+15.63

Name	Object Type	Unique Name	Label	Story
EXISTENTE	Line	498	B415	NE+15.63
EXISTENTE	Line	499	B416	NE+15.63
EXISTENTE	Line	500	B417	NE+15.63
EXISTENTE	Line	501	B418	NE+15.63
EXISTENTE	Line	502	B419	NE+15.63
EXISTENTE	Line	503	B420	NE+15.63
EXISTENTE	Line	504	B421	NE+15.63
EXISTENTE	Line	506	B423	NE+15.63
EXISTENTE	Line	507	B424	NE+15.63
EXISTENTE	Line	508	B425	NE+15.63
EXISTENTE	Line	509	B426	NE+15.63
EXISTENTE	Line	510	B427	NE+15.63
EXISTENTE	Line	511	B428	NE+15.63
EXISTENTE	Line	512	B429	NE+15.63
EXISTENTE	Line	513	B430	NE+15.63
EXISTENTE	Line	514	B431	NE+15.63
EXISTENTE	Line	515	B432	NE+15.63
EXISTENTE	Line	516	B433	NE+15.63
EXISTENTE	Line	517	B434	NE+15.63
EXISTENTE	Line	518	B435	NE+15.63
EXISTENTE	Line	519	B436	NE+15.63
EXISTENTE	Line	520	B437	NE+15.63
EXISTENTE	Line	521	B438	NE+15.63
EXISTENTE	Line	522	B439	NE+15.63
EXISTENTE	Line	523	B440	NE+15.63
EXISTENTE	Line	526	B49	NE+9.01
EXISTENTE	Line	532	B52	NE+9.01
EXISTENTE	Line	533	B50	NE+9.01
EXISTENTE	Line	535	B48	NE+9.01
EXISTENTE	Line	537	B51	NE+9.01
EXISTENTE	Line	539	B44	NE+9.01
EXISTENTE	Line	541	B98	NE+9.01
EXISTENTE	Line	542	B105	NE+9.01
EXISTENTE	Line	12	B1	NE+3.17
EXISTENTE	Line	35	B2	NE+3.17
EXISTENTE	Line	39	B5	NE+3.17
EXISTENTE	Line	52	B45	NE+3.17
EXISTENTE	Line	73	B46	NE+3.17
EXISTENTE	Line	74	B53	NE+3.17
EXISTENTE	Line	75	B54	NE+3.17
EXISTENTE	Line	76	B55	NE+3.17
EXISTENTE	Line	11	B56	NE+11.82
EXISTENTE	Line	77	B57	NE+11.82
EXISTENTE	Line	78	B58	NE+11.82
EXISTENTE	Line	79	B59	NE+11.82
EXISTENTE	Line	80	B60	NE+11.82
EXISTENTE	Line	81	B61	NE+11.82
EXISTENTE	Line	89	B62	NE+11.82
EXISTENTE	Line	90	D1	NE+15.63

Name	Object Type	Unique Name	Label	Story
EXISTENTE	Line	91	D2	NE+15.63
EXISTENTE	Line	92	D4	NE+15.63
EXISTENTE	Line	93	D5	NE+15.63
EXISTENTE	Line	94	D7	NE+15.63
EXISTENTE	Line	95	D8	NE+15.63
EXISTENTE	Line	97	D10	NE+15.63
EXISTENTE	Line	98	D11	NE+15.63
EXISTENTE	Area	485	F22	NE+11.82
EXISTENTE	Area	486	F23	NE+11.82
EXISTENTE	Area	487	F29	NE+11.82
EXISTENTE	Area	488	F30	NE+11.82
EXISTENTE	Area	489	F31	NE+11.82
EXISTENTE	Area	490	F40	NE+11.82
EXISTENTE	Area	491	F56	NE+11.82
EXISTENTE	Area	492	F57	NE+11.82
EXISTENTE	Area	493	F63	NE+11.82
EXISTENTE	Area	494	F64	NE+11.82
EXISTENTE	Area	4	W3	NE+15.63
EXISTENTE	Area	34	W4	NE+15.63
EXISTENTE	Area	76	W5	NE+15.63
EXISTENTE	Area	86	W6	NE+15.63
EXISTENTE	Area	110	W8	NE+15.63
EXISTENTE	Area	118	W9	NE+15.63
EXISTENTE	Area	125	W16	NE+15.63
EXISTENTE	Area	132	W17	NE+15.63
EXISTENTE	Area	181	W18	NE+15.63
EXISTENTE	Area	203	W19	NE+15.63
EXISTENTE	Area	204	W21	NE+15.63
EXISTENTE	Area	207	W22	NE+15.63
EXISTENTE	Area	219	W23	NE+15.63
EXISTENTE	Area	239	W25	NE+15.63
EXISTENTE	Area	240	W26	NE+15.63
EXISTENTE	Area	370	W27	NE+15.63
EXISTENTE	Area	935	F1	NE+9.01
EXISTENTE	Area	937	F2	NE+9.01
EXISTENTE	Area	31	F4	NE+4.77
EXISTENTE	Area	37	F7	NE+11.82
EXISTENTE	Area	38	F9	NE+11.82
EXISTENTE	Area	71	F24	NE+11.82
EXISTENTE	Area	170	F25	NE+11.82
EXISTENTE	Area	334	F26	NE+11.82
EXISTENTE	Area	439	F27	NE+11.82
EXISTENTE	Area	445	F28	NE+11.82
EXISTENTE	Area	542	A1	NE+11.82
EXISTENTE	Area	605	A2	NE+11.82
EXISTENTE	Area	628	F58	NE+3.17
EXISTENTE	Area	629	A3	NE+3.17
EXISTENTE	Area	647	F59	NE+5.60
EXISTENTE	Area	651	F58	NE+5.60

Name	Object Type	Unique Name	Label	Story
EXISTENTE	Area	665	F60	NE+19.03
EXISTENTE	Area	676	F61	NE+19.03
REFORZAMIENTO	Point	1	1	Base
REFORZAMIENTO	Point	4	1	NE+3.17
REFORZAMIENTO	Point	5	3	Base
REFORZAMIENTO	Point	6	3	NE+3.17
REFORZAMIENTO	Point	13	7	Base
REFORZAMIENTO	Point	14	7	NE+3.17
REFORZAMIENTO	Point	15	8	Base
REFORZAMIENTO	Point	16	8	NE+3.17
REFORZAMIENTO	Point	17	9	Base
REFORZAMIENTO	Point	18	10	Base
REFORZAMIENTO	Point	19	10	NE+3.17
REFORZAMIENTO	Point	20	9	NE+3.17
REFORZAMIENTO	Point	22	11	NE+3.17
REFORZAMIENTO	Point	25	13	Base
REFORZAMIENTO	Point	26	13	NE+3.17
REFORZAMIENTO	Point	27	14	Base
REFORZAMIENTO	Point	28	14	NE+3.17
REFORZAMIENTO	Point	32	16	NE+3.17
REFORZAMIENTO	Point	33	17	Base
REFORZAMIENTO	Point	34	17	NE+3.17
REFORZAMIENTO	Point	35	18	Base
REFORZAMIENTO	Point	36	18	NE+3.17
REFORZAMIENTO	Point	37	19	Base
REFORZAMIENTO	Point	38	19	NE+3.17
REFORZAMIENTO	Point	39	20	Base
REFORZAMIENTO	Point	40	20	NE+3.17
REFORZAMIENTO	Point	49	23	Base
REFORZAMIENTO	Point	50	23	NE+3.17
REFORZAMIENTO	Point	51	25	Base
REFORZAMIENTO	Point	52	25	NE+3.17
REFORZAMIENTO	Point	53	26	Base
REFORZAMIENTO	Point	54	26	NE+3.17
REFORZAMIENTO	Point	57	28	Base
REFORZAMIENTO	Point	58	28	NE+3.17
REFORZAMIENTO	Point	46	30	NE+3.17
REFORZAMIENTO	Point	48	32	NE+3.17
REFORZAMIENTO	Point	71	30	NE+5.60
REFORZAMIENTO	Point	72	32	NE+5.60
REFORZAMIENTO	Point	76	34	NE+3.17
REFORZAMIENTO	Point	82	34	NE+5.60
REFORZAMIENTO	Point	84	36	Base
REFORZAMIENTO	Point	85	36	NE+3.17
REFORZAMIENTO	Point	90	36	NE+9.01
REFORZAMIENTO	Point	91	36	NE+5.60
REFORZAMIENTO	Point	92	36	NE+4.77
REFORZAMIENTO	Point	94	38	NE+3.17
REFORZAMIENTO	Point	100	38	NE+5.60

Name	Object Type	Unique Name	Label	Story
REFORZAMIENTO	Point	103	39	NE+3.17
REFORZAMIENTO	Point	109	39	NE+5.60
REFORZAMIENTO	Point	112	41	NE+3.17
REFORZAMIENTO	Point	118	41	NE+5.60
REFORZAMIENTO	Point	120	43	Base
REFORZAMIENTO	Point	121	43	NE+3.17
REFORZAMIENTO	Point	126	43	NE+9.01
REFORZAMIENTO	Point	127	43	NE+5.60
REFORZAMIENTO	Point	128	43	NE+4.77
REFORZAMIENTO	Point	130	45	NE+3.17
REFORZAMIENTO	Point	136	45	NE+5.60
REFORZAMIENTO	Point	139	47	NE+3.17
REFORZAMIENTO	Point	145	47	NE+5.60
REFORZAMIENTO	Point	148	49	NE+3.17
REFORZAMIENTO	Point	154	49	NE+5.60
REFORZAMIENTO	Point	156	9	NE+19.03
REFORZAMIENTO	Point	158	9	NE+15.63
REFORZAMIENTO	Point	159	9	NE+11.82
REFORZAMIENTO	Point	160	9	NE+9.01
REFORZAMIENTO	Point	161	9	NE+5.60
REFORZAMIENTO	Point	162	9	NE+4.77
REFORZAMIENTO	Point	193	7	NE+19.03
REFORZAMIENTO	Point	195	10	NE+19.03
REFORZAMIENTO	Point	203	17	NE+19.03
REFORZAMIENTO	Point	204	18	NE+19.03
REFORZAMIENTO	Point	205	8	NE+19.03
REFORZAMIENTO	Point	207	19	NE+19.03
REFORZAMIENTO	Point	208	20	NE+19.03
REFORZAMIENTO	Point	223	7	NE+15.63
REFORZAMIENTO	Point	224	10	NE+15.63
REFORZAMIENTO	Point	232	18	NE+15.63
REFORZAMIENTO	Point	233	8	NE+15.63
REFORZAMIENTO	Point	234	19	NE+15.63
REFORZAMIENTO	Point	250	7	NE+11.82
REFORZAMIENTO	Point	251	10	NE+11.82
REFORZAMIENTO	Point	258	17	NE+11.82
REFORZAMIENTO	Point	259	18	NE+11.82
REFORZAMIENTO	Point	260	8	NE+11.82
REFORZAMIENTO	Point	261	19	NE+11.82
REFORZAMIENTO	Point	262	20	NE+11.82
REFORZAMIENTO	Point	265	23	NE+11.82
REFORZAMIENTO	Point	277	7	NE+9.01
REFORZAMIENTO	Point	278	10	NE+9.01
REFORZAMIENTO	Point	285	17	NE+9.01
REFORZAMIENTO	Point	286	18	NE+9.01
REFORZAMIENTO	Point	287	8	NE+9.01
REFORZAMIENTO	Point	288	19	NE+9.01
REFORZAMIENTO	Point	289	20	NE+9.01
REFORZAMIENTO	Point	290	21	NE+9.01

Name	Object Type	Unique Name	Label	Story
REFORZAMIENTO	Point	291	22	NE+9.01
REFORZAMIENTO	Point	292	23	NE+9.01
REFORZAMIENTO	Point	293	25	NE+9.01
REFORZAMIENTO	Point	294	26	NE+9.01
REFORZAMIENTO	Point	296	28	NE+9.01
REFORZAMIENTO	Point	298	1	NE+5.60
REFORZAMIENTO	Point	300	3	NE+5.60
REFORZAMIENTO	Point	302	5	NE+5.60
REFORZAMIENTO	Point	303	6	NE+5.60
REFORZAMIENTO	Point	304	7	NE+5.60
REFORZAMIENTO	Point	305	10	NE+5.60
REFORZAMIENTO	Point	306	11	NE+5.60
REFORZAMIENTO	Point	308	13	NE+5.60
REFORZAMIENTO	Point	309	14	NE+5.60
REFORZAMIENTO	Point	311	16	NE+5.60
REFORZAMIENTO	Point	312	17	NE+5.60
REFORZAMIENTO	Point	313	18	NE+5.60
REFORZAMIENTO	Point	314	8	NE+5.60
REFORZAMIENTO	Point	315	19	NE+5.60
REFORZAMIENTO	Point	316	20	NE+5.60
REFORZAMIENTO	Point	319	23	NE+5.60
REFORZAMIENTO	Point	320	25	NE+5.60
REFORZAMIENTO	Point	321	26	NE+5.60
REFORZAMIENTO	Point	323	28	NE+5.60
REFORZAMIENTO	Point	325	1	NE+4.77
REFORZAMIENTO	Point	327	3	NE+4.77
REFORZAMIENTO	Point	331	7	NE+4.77
REFORZAMIENTO	Point	332	10	NE+4.77
REFORZAMIENTO	Point	335	13	NE+4.77
REFORZAMIENTO	Point	336	14	NE+4.77
REFORZAMIENTO	Point	339	17	NE+4.77
REFORZAMIENTO	Point	340	18	NE+4.77
REFORZAMIENTO	Point	341	8	NE+4.77
REFORZAMIENTO	Point	342	19	NE+4.77
REFORZAMIENTO	Point	343	20	NE+4.77
REFORZAMIENTO	Point	344	21	NE+4.77
REFORZAMIENTO	Point	345	22	NE+4.77
REFORZAMIENTO	Point	346	23	NE+4.77
REFORZAMIENTO	Point	347	25	NE+4.77
REFORZAMIENTO	Point	348	26	NE+4.77
REFORZAMIENTO	Point	350	28	NE+4.77
REFORZAMIENTO	Point	77	46	NE+15.63
REFORZAMIENTO	Point	96	25	NE+11.82
REFORZAMIENTO	Point	201	17	NE+15.63
REFORZAMIENTO	Point	206	20	NE+15.63
REFORZAMIENTO	Point	61	24	Base
REFORZAMIENTO	Point	62	24	NE+3.17
REFORZAMIENTO	Point	63	31	Base
REFORZAMIENTO	Point	64	31	NE+3.17

Name	Object Type	Unique Name	Label	Story
REFORZAMIENTO	Point	65	35	Base
REFORZAMIENTO	Point	78	35	NE+3.17
REFORZAMIENTO	Point	79	42	Base
REFORZAMIENTO	Point	106	42	NE+3.17
REFORZAMIENTO	Point	113	48	Base
REFORZAMIENTO	Point	114	48	NE+3.17
REFORZAMIENTO	Point	115	50	Base
REFORZAMIENTO	Point	122	50	NE+3.17
REFORZAMIENTO	Point	123	51	Base
REFORZAMIENTO	Point	124	51	NE+3.17
REFORZAMIENTO	Point	131	52	Base
REFORZAMIENTO	Point	132	52	NE+3.17
REFORZAMIENTO	Point	133	24	NE+5.60
REFORZAMIENTO	Point	140	24	NE+9.01
REFORZAMIENTO	Point	141	31	NE+5.60
REFORZAMIENTO	Point	142	31	NE+9.01
REFORZAMIENTO	Point	149	35	NE+5.60
REFORZAMIENTO	Point	150	35	NE+9.01
REFORZAMIENTO	Point	151	42	NE+5.60
REFORZAMIENTO	Point	166	42	NE+9.01
REFORZAMIENTO	Point	170	48	NE+5.60
REFORZAMIENTO	Point	172	48	NE+9.01
REFORZAMIENTO	Point	173	50	NE+5.60
REFORZAMIENTO	Point	185	50	NE+9.01
REFORZAMIENTO	Point	209	51	NE+5.60
REFORZAMIENTO	Point	210	51	NE+9.01
REFORZAMIENTO	Point	211	52	NE+5.60
REFORZAMIENTO	Point	212	52	NE+9.01
REFORZAMIENTO	Point	213	24	NE+4.77
REFORZAMIENTO	Point	214	31	NE+4.77
REFORZAMIENTO	Point	215	35	NE+4.77
REFORZAMIENTO	Point	216	42	NE+4.77
REFORZAMIENTO	Point	217	48	NE+4.77
REFORZAMIENTO	Point	218	50	NE+4.77
REFORZAMIENTO	Point	219	51	NE+4.77
REFORZAMIENTO	Point	220	52	NE+4.77
REFORZAMIENTO	Point	226	24	NE+11.82
REFORZAMIENTO	Point	229	31	NE+11.82
REFORZAMIENTO	Point	236	35	NE+11.82
REFORZAMIENTO	Point	237	42	NE+11.82
REFORZAMIENTO	Point	238	48	NE+11.82
REFORZAMIENTO	Point	239	50	NE+11.82
REFORZAMIENTO	Point	240	51	NE+11.82
REFORZAMIENTO	Point	241	52	NE+11.82
REFORZAMIENTO	Point	366	105	Base
REFORZAMIENTO	Point	367	105	NE+3.17
REFORZAMIENTO	Point	371	107	NE+3.17
REFORZAMIENTO	Point	372	108	Base
REFORZAMIENTO	Point	373	108	NE+3.17

Name	Object Type	Unique Name	Label	Story
REFORZAMIENTO	Point	374	109	Base
REFORZAMIENTO	Point	375	109	NE+3.17
REFORZAMIENTO	Point	376	110	Base
REFORZAMIENTO	Point	377	110	NE+3.17
REFORZAMIENTO	Point	378	109	NE+9.01
REFORZAMIENTO	Point	379	109	NE+11.82
REFORZAMIENTO	Point	380	110	NE+9.01
REFORZAMIENTO	Point	381	110	NE+11.82
REFORZAMIENTO	Point	382	109	NE+5.60
REFORZAMIENTO	Point	383	110	NE+5.60
REFORZAMIENTO	Point	384	105	NE+4.77
REFORZAMIENTO	Point	390	108	NE+4.77
REFORZAMIENTO	Point	392	109	NE+4.77
REFORZAMIENTO	Point	393	110	NE+4.77
REFORZAMIENTO	Point	414	115	NE+4.77
REFORZAMIENTO	Point	415	115	NE+11.82
REFORZAMIENTO	Point	421	117	NE+4.77
REFORZAMIENTO	Point	422	117	NE+11.82
REFORZAMIENTO	Point	182	57	NE+15.63
REFORZAMIENTO	Point	183	58	NE+15.63
REFORZAMIENTO	Point	184	59	NE+15.63
REFORZAMIENTO	Point	186	60	NE+15.63
REFORZAMIENTO	Point	187	61	NE+15.63
REFORZAMIENTO	Point	188	64	NE+15.63
REFORZAMIENTO	Point	231	65	NE+15.63
REFORZAMIENTO	Point	235	40	NE+15.63
REFORZAMIENTO	Point	424	94	NE+11.82
REFORZAMIENTO	Point	66	33	Base
REFORZAMIENTO	Point	179	33	NE+3.17
REFORZAMIENTO	Point	180	44	Base
REFORZAMIENTO	Point	190	44	NE+3.17
REFORZAMIENTO	Point	537	33	NE+5.60
REFORZAMIENTO	Point	539	44	NE+5.60
REFORZAMIENTO	Point	545	33	NE+4.77
REFORZAMIENTO	Point	547	44	NE+4.77
REFORZAMIENTO	Point	557	140	Base
REFORZAMIENTO	Point	560	140	NE+3.17
REFORZAMIENTO	Point	562	143	Base
REFORZAMIENTO	Point	563	143	NE+3.17
REFORZAMIENTO	Point	566	143	NE+5.60
REFORZAMIENTO	Point	567	143	NE+9.01
REFORZAMIENTO	Point	568	142	NE+9.01
REFORZAMIENTO	Point	569	140	NE+4.77
REFORZAMIENTO	Point	570	141	NE+4.77
REFORZAMIENTO	Point	572	140	NE+5.60
REFORZAMIENTO	Point	573	142	NE+4.77
REFORZAMIENTO	Point	574	143	NE+4.77
REFORZAMIENTO	Point	575	141	NE+9.01
REFORZAMIENTO	Point	576	140	NE+9.01

Name	Object Type	Unique Name	Label	Story
REFORZAMIENTO	Point	396	146	NE+10.16
REFORZAMIENTO	Point	60	120	NE+3.17
REFORZAMIENTO	Point	268	132	NE+3.17
REFORZAMIENTO	Point	297	87	NE+3.17
REFORZAMIENTO	Point	430	124	NE+4.77
REFORZAMIENTO	Point	431	127	NE+4.77
REFORZAMIENTO	Point	432	124	NE+3.17
REFORZAMIENTO	Point	439	127	NE+3.17
REFORZAMIENTO	Point	449	137	NE+3.17
REFORZAMIENTO	Point	458	131	NE+3.17
REFORZAMIENTO	Point	460	164	NE+3.17
REFORZAMIENTO	Point	466	135	NE+3.17
REFORZAMIENTO	Point	517	144	NE+3.17
REFORZAMIENTO	Point	583	124	NE+5.60
REFORZAMIENTO	Point	590	127	NE+5.60
REFORZAMIENTO	Point	627	134	NE+3.17
REFORZAMIENTO	Point	645	187	NE+3.17
REFORZAMIENTO	Point	647	188	NE+3.17
REFORZAMIENTO	Point	660	124	Base
REFORZAMIENTO	Point	679	127	Base
REFORZAMIENTO	Point	502	158	NE+3.17
REFORZAMIENTO	Point	613	121	NE+3.17
REFORZAMIENTO	Point	809	196	NE+11.82
REFORZAMIENTO	Point	811	199	NE+11.82
REFORZAMIENTO	Point	813	200	NE+11.82
REFORZAMIENTO	Point	815	203	NE+11.82
REFORZAMIENTO	Point	874	110	NE+9.36
REFORZAMIENTO	Point	876	110	NE+7.46
REFORZAMIENTO	Point	882	20	NE+7.46
REFORZAMIENTO	Point	884	20	NE+9.36
REFORZAMIENTO	Point	886	110	NE+10.16
REFORZAMIENTO	Point	890	20	NE+10.16
REFORZAMIENTO	Point	892	36	NE+9.36
REFORZAMIENTO	Point	893	36	NE+10.16
REFORZAMIENTO	Point	894	36	NE+7.46
REFORZAMIENTO	Point	928	43	NE+9.36
REFORZAMIENTO	Point	929	43	NE+10.16
REFORZAMIENTO	Point	930	43	NE+7.46
REFORZAMIENTO	Point	940	9	NE+9.36
REFORZAMIENTO	Point	941	9	NE+10.16
REFORZAMIENTO	Point	942	9	NE+7.46
REFORZAMIENTO	Point	943	17	NE+9.36
REFORZAMIENTO	Point	945	17	NE+10.16
REFORZAMIENTO	Point	949	17	NE+7.46
REFORZAMIENTO	Point	952	26	NE+7.46
REFORZAMIENTO	Point	954	28	NE+7.46
REFORZAMIENTO	Point	956	8	NE+9.36
REFORZAMIENTO	Point	957	8	NE+10.16
REFORZAMIENTO	Point	958	8	NE+7.46

Name	Object Type	Unique Name	Label	Story
REFORZAMIENTO	Point	967	24	NE+7.46
REFORZAMIENTO	Point	968	31	NE+7.46
REFORZAMIENTO	Point	969	35	NE+7.46
REFORZAMIENTO	Point	970	42	NE+7.46
REFORZAMIENTO	Point	972	48	NE+7.46
REFORZAMIENTO	Point	973	50	NE+7.46
REFORZAMIENTO	Point	974	51	NE+7.46
REFORZAMIENTO	Point	975	52	NE+7.46
REFORZAMIENTO	Point	977	24	NE+9.36
REFORZAMIENTO	Point	978	24	NE+10.16
REFORZAMIENTO	Point	979	31	NE+9.36
REFORZAMIENTO	Point	980	31	NE+10.16
REFORZAMIENTO	Point	981	35	NE+9.36
REFORZAMIENTO	Point	982	35	NE+10.16
REFORZAMIENTO	Point	983	42	NE+9.36
REFORZAMIENTO	Point	984	42	NE+10.16
REFORZAMIENTO	Point	987	48	NE+9.36
REFORZAMIENTO	Point	988	48	NE+10.16
REFORZAMIENTO	Point	989	50	NE+9.36
REFORZAMIENTO	Point	990	50	NE+10.16
REFORZAMIENTO	Point	991	51	NE+9.36
REFORZAMIENTO	Point	992	51	NE+10.16
REFORZAMIENTO	Point	993	52	NE+9.36
REFORZAMIENTO	Point	994	52	NE+10.16
REFORZAMIENTO	Point	1023	23	NE+9.36
REFORZAMIENTO	Point	1025	23	NE+10.16
REFORZAMIENTO	Point	1061	25	NE+9.36
REFORZAMIENTO	Point	1062	25	NE+10.16
REFORZAMIENTO	Point	1065	23	NE+7.46
REFORZAMIENTO	Point	1089	25	NE+7.46
REFORZAMIENTO	Point	1101	240	NE+4.77
REFORZAMIENTO	Point	1126	109	NE+9.36
REFORZAMIENTO	Point	1127	109	NE+10.16
REFORZAMIENTO	Point	1128	109	NE+7.46
REFORZAMIENTO	Point	1154	122	NE+3.17
REFORZAMIENTO	Point	1155	143	NE+7.46
REFORZAMIENTO	Point	1158	140	NE+7.46
REFORZAMIENTO	Point	1175	257	NE+3.17
REFORZAMIENTO	Point	1184	10	NE+9.36
REFORZAMIENTO	Point	1186	10	NE+10.16
REFORZAMIENTO	Point	1188	10	NE+7.46
REFORZAMIENTO	Point	1196	7	NE+9.36
REFORZAMIENTO	Point	1198	7	NE+10.16
REFORZAMIENTO	Point	1202	7	NE+7.46
REFORZAMIENTO	Point	1208	18	NE+9.36
REFORZAMIENTO	Point	1210	18	NE+10.16
REFORZAMIENTO	Point	1214	18	NE+7.46
REFORZAMIENTO	Point	1218	19	NE+9.36
REFORZAMIENTO	Point	1220	19	NE+10.16

Name	Object Type	Unique Name	Label	Story
REFORZAMIENTO	Point	1223	19	NE+7.46
REFORZAMIENTO	Point	254	267	NE+15.63
REFORZAMIENTO	Point	481	326	NE+15.63
REFORZAMIENTO	Point	610	342	NE+15.63
REFORZAMIENTO	Point	728	343	NE+15.63
REFORZAMIENTO	Point	740	344	NE+15.63
REFORZAMIENTO	Point	832	345	NE+15.63
REFORZAMIENTO	Point	833	346	NE+15.63
REFORZAMIENTO	Point	834	347	NE+15.63
REFORZAMIENTO	Point	365	68	Base
REFORZAMIENTO	Point	1119	68	NE+3.17
REFORZAMIENTO	Point	1133	197	Base
REFORZAMIENTO	Point	1159	197	NE+3.17
REFORZAMIENTO	Point	1686	215	NE+11.82
REFORZAMIENTO	Point	1693	235	NE+4.77
REFORZAMIENTO	Point	1731	239	NE+4.77
REFORZAMIENTO	Point	1733	242	NE+4.77
REFORZAMIENTO	Point	1735	244	NE+4.77
REFORZAMIENTO	Point	1737	250	NE+4.77
REFORZAMIENTO	Point	1739	254	NE+4.77
REFORZAMIENTO	Point	1741	272	NE+4.77
REFORZAMIENTO	Point	1744	286	NE+4.77
REFORZAMIENTO	Point	1746	303	NE+4.77
REFORZAMIENTO	Point	1748	309	NE+4.77
REFORZAMIENTO	Point	1750	311	NE+4.77
REFORZAMIENTO	Point	1752	315	NE+4.77
REFORZAMIENTO	Point	1754	321	NE+4.77
REFORZAMIENTO	Point	1756	323	NE+4.77
REFORZAMIENTO	Point	1765	340	NE+4.77
REFORZAMIENTO	Point	1767	348	NE+4.77
REFORZAMIENTO	Point	1769	362	NE+4.77
REFORZAMIENTO	Point	1771	364	NE+4.77
REFORZAMIENTO	Point	1773	366	NE+4.77
REFORZAMIENTO	Point	1775	368	NE+4.77
REFORZAMIENTO	Point	1777	370	NE+4.77
REFORZAMIENTO	Point	1806	399	NE+4.77
REFORZAMIENTO	Point	1807	400	NE+4.77
REFORZAMIENTO	Point	1808	401	NE+4.77
REFORZAMIENTO	Point	1809	402	NE+4.77
REFORZAMIENTO	Point	1810	403	NE+4.77
REFORZAMIENTO	Point	1811	404	NE+4.77
REFORZAMIENTO	Point	1812	405	NE+4.77
REFORZAMIENTO	Point	1814	407	NE+4.77
REFORZAMIENTO	Point	1815	408	NE+4.77
REFORZAMIENTO	Point	1816	409	NE+4.77
REFORZAMIENTO	Point	1817	410	NE+4.77
REFORZAMIENTO	Point	1818	411	NE+4.77
REFORZAMIENTO	Point	1819	412	NE+4.77
REFORZAMIENTO	Point	1820	413	NE+4.77

Name	Object Type	Unique Name	Label	Story
REFORZAMIENTO	Point	1821	414	NE+4.77
REFORZAMIENTO	Point	1822	415	NE+4.77
REFORZAMIENTO	Point	1823	416	NE+4.77
REFORZAMIENTO	Point	1824	417	NE+4.77
REFORZAMIENTO	Point	1825	418	NE+4.77
REFORZAMIENTO	Point	1826	419	NE+4.77
REFORZAMIENTO	Point	1827	420	NE+4.77
REFORZAMIENTO	Point	1828	421	NE+4.77
REFORZAMIENTO	Point	1829	422	NE+4.77
REFORZAMIENTO	Point	1830	423	NE+4.77
REFORZAMIENTO	Point	1831	56	NE+4.77
REFORZAMIENTO	Point	1832	68	NE+4.77
REFORZAMIENTO	Point	1833	426	NE+4.77
REFORZAMIENTO	Point	1834	427	NE+4.77
REFORZAMIENTO	Point	1835	428	NE+4.77
REFORZAMIENTO	Point	1836	429	NE+4.77
REFORZAMIENTO	Point	1837	430	NE+4.77
REFORZAMIENTO	Point	1838	431	NE+4.77
REFORZAMIENTO	Point	1839	432	NE+4.77
REFORZAMIENTO	Point	1840	433	NE+4.77
REFORZAMIENTO	Point	1841	434	NE+4.77
REFORZAMIENTO	Point	1842	435	NE+4.77
REFORZAMIENTO	Point	1843	436	NE+4.77
REFORZAMIENTO	Point	1844	437	NE+4.77
REFORZAMIENTO	Point	1845	438	NE+4.77
REFORZAMIENTO	Point	1846	439	NE+4.77
REFORZAMIENTO	Point	1847	440	NE+4.77
REFORZAMIENTO	Point	1848	441	NE+4.77
REFORZAMIENTO	Point	1849	442	NE+4.77
REFORZAMIENTO	Point	1850	443	NE+4.77
REFORZAMIENTO	Point	1851	444	NE+4.77
REFORZAMIENTO	Point	1852	445	NE+4.77
REFORZAMIENTO	Point	1853	446	NE+4.77
REFORZAMIENTO	Point	1854	447	NE+4.77
REFORZAMIENTO	Point	1855	448	NE+4.77
REFORZAMIENTO	Point	1856	449	NE+4.77
REFORZAMIENTO	Point	1857	62	NE+4.77
REFORZAMIENTO	Point	1858	197	NE+4.77
REFORZAMIENTO	Point	1861	454	NE+3.17
REFORZAMIENTO	Point	1862	455	NE+3.17
REFORZAMIENTO	Point	1865	458	NE+3.17
REFORZAMIENTO	Point	1911	504	NE+3.17
REFORZAMIENTO	Point	1913	506	NE+3.17
REFORZAMIENTO	Point	1915	508	NE+3.17
REFORZAMIENTO	Point	1917	510	NE+3.17
REFORZAMIENTO	Point	1919	512	NE+3.17
REFORZAMIENTO	Point	1921	514	NE+3.17
REFORZAMIENTO	Point	1923	516	NE+3.17
REFORZAMIENTO	Point	1925	518	NE+3.17

Name	Object Type	Unique Name	Label	Story
REFORZAMIENTO	Point	1926	519	NE+3.17
REFORZAMIENTO	Point	1927	520	NE+3.17
REFORZAMIENTO	Point	1928	521	NE+3.17
REFORZAMIENTO	Point	1929	522	NE+3.17
REFORZAMIENTO	Point	1930	523	NE+3.17
REFORZAMIENTO	Point	1931	524	NE+3.17
REFORZAMIENTO	Point	1932	525	NE+3.17
REFORZAMIENTO	Point	1933	526	NE+3.17
REFORZAMIENTO	Point	1934	527	NE+3.17
REFORZAMIENTO	Point	1935	528	NE+3.17
REFORZAMIENTO	Point	1936	529	NE+3.17
REFORZAMIENTO	Point	1937	530	NE+3.17
REFORZAMIENTO	Point	1938	531	NE+3.17
REFORZAMIENTO	Point	1939	532	NE+3.17
REFORZAMIENTO	Point	1940	533	NE+3.17
REFORZAMIENTO	Point	1941	534	NE+3.17
REFORZAMIENTO	Point	1943	536	NE+3.17
REFORZAMIENTO	Point	1944	537	NE+3.17
REFORZAMIENTO	Point	1945	538	NE+3.17
REFORZAMIENTO	Point	1946	539	NE+3.17
REFORZAMIENTO	Point	1968	561	NE+3.17
REFORZAMIENTO	Point	1969	562	NE+3.17
REFORZAMIENTO	Point	1970	563	NE+3.17
REFORZAMIENTO	Point	1971	564	NE+3.17
REFORZAMIENTO	Point	1972	565	NE+3.17
REFORZAMIENTO	Point	1973	566	NE+3.17
REFORZAMIENTO	Point	1974	567	NE+3.17
REFORZAMIENTO	Point	1975	568	NE+3.17
REFORZAMIENTO	Point	1976	569	NE+3.17
REFORZAMIENTO	Point	1977	570	NE+3.17
REFORZAMIENTO	Point	1978	571	NE+3.17
REFORZAMIENTO	Point	1979	572	NE+3.17
REFORZAMIENTO	Point	1986	579	NE+3.17
REFORZAMIENTO	Point	1987	580	NE+3.17
REFORZAMIENTO	Point	1988	581	NE+3.17
REFORZAMIENTO	Point	1989	582	NE+3.17
REFORZAMIENTO	Point	1990	583	NE+3.17
REFORZAMIENTO	Point	1992	585	NE+3.17
REFORZAMIENTO	Point	1994	587	NE+3.17
REFORZAMIENTO	Point	1996	589	NE+3.17
REFORZAMIENTO	Point	1998	591	NE+3.17
REFORZAMIENTO	Point	2000	593	NE+3.17
REFORZAMIENTO	Point	2002	595	NE+3.17
REFORZAMIENTO	Point	2004	597	NE+3.17
REFORZAMIENTO	Point	2005	598	NE+3.17
REFORZAMIENTO	Point	2006	599	NE+3.17
REFORZAMIENTO	Point	2007	600	NE+3.17
REFORZAMIENTO	Point	2008	601	NE+3.17
REFORZAMIENTO	Point	2009	602	NE+3.17

Name	Object Type	Unique Name	Label	Story
REFORZAMIENTO	Point	2010	603	NE+3.17
REFORZAMIENTO	Point	2011	604	NE+3.17
REFORZAMIENTO	Point	2013	606	NE+3.17
REFORZAMIENTO	Point	2015	608	NE+3.17
REFORZAMIENTO	Point	2016	609	NE+3.17
REFORZAMIENTO	Point	2017	610	NE+3.17
REFORZAMIENTO	Point	2027	620	NE+3.17
REFORZAMIENTO	Point	2028	621	NE+3.17
REFORZAMIENTO	Point	2029	622	NE+3.17
REFORZAMIENTO	Point	2030	623	NE+3.17
REFORZAMIENTO	Point	2031	624	NE+3.17
REFORZAMIENTO	Point	2032	625	NE+3.17
REFORZAMIENTO	Point	2033	626	NE+3.17
REFORZAMIENTO	Point	2034	627	NE+3.17
REFORZAMIENTO	Point	2035	628	NE+3.17
REFORZAMIENTO	Point	2036	629	NE+5.60
REFORZAMIENTO	Point	2037	630	NE+5.60
REFORZAMIENTO	Point	2038	631	NE+5.60
REFORZAMIENTO	Point	2039	632	NE+5.60
REFORZAMIENTO	Point	2040	633	NE+5.60
REFORZAMIENTO	Point	2041	634	NE+5.60
REFORZAMIENTO	Point	2042	635	NE+5.60
REFORZAMIENTO	Point	2043	636	NE+5.60
REFORZAMIENTO	Point	2047	640	NE+15.63
REFORZAMIENTO	Point	2048	641	NE+15.63
REFORZAMIENTO	Point	2049	642	NE+15.63
REFORZAMIENTO	Point	2053	646	NE+15.63
REFORZAMIENTO	Point	2054	647	NE+15.63
REFORZAMIENTO	Point	2055	648	NE+15.63
REFORZAMIENTO	Point	2056	649	NE+15.63
REFORZAMIENTO	Point	2057	650	NE+15.63
REFORZAMIENTO	Point	2058	651	NE+15.63
REFORZAMIENTO	Point	2059	652	NE+15.63
REFORZAMIENTO	Point	2060	653	NE+15.63
REFORZAMIENTO	Point	2061	654	NE+15.63
REFORZAMIENTO	Point	2062	655	NE+15.63
REFORZAMIENTO	Point	2063	656	NE+15.63
REFORZAMIENTO	Point	2064	657	NE+15.63
REFORZAMIENTO	Point	2065	658	NE+15.63
REFORZAMIENTO	Point	2066	659	NE+15.63
REFORZAMIENTO	Point	2067	660	NE+15.63
REFORZAMIENTO	Point	2068	661	NE+15.63
REFORZAMIENTO	Point	2069	662	NE+15.63
REFORZAMIENTO	Point	2070	663	NE+15.63
REFORZAMIENTO	Point	2071	664	NE+15.63
REFORZAMIENTO	Point	2072	665	NE+15.63
REFORZAMIENTO	Point	2073	666	NE+15.63
REFORZAMIENTO	Point	2074	667	NE+15.63
REFORZAMIENTO	Point	2075	668	NE+15.63

Name	Object Type	Unique Name	Label	Story
REFORZAMIENTO	Point	2076	669	NE+15.63
REFORZAMIENTO	Point	2077	670	NE+15.63
REFORZAMIENTO	Point	2078	671	NE+15.63
REFORZAMIENTO	Point	2079	672	NE+15.63
REFORZAMIENTO	Point	2080	673	NE+15.63
REFORZAMIENTO	Point	2081	674	NE+15.63
REFORZAMIENTO	Point	2082	675	NE+15.63
REFORZAMIENTO	Point	2083	676	NE+15.63
REFORZAMIENTO	Point	2084	677	NE+15.63
REFORZAMIENTO	Point	2085	678	NE+15.63
REFORZAMIENTO	Point	2086	679	NE+15.63
REFORZAMIENTO	Point	2087	680	NE+15.63
REFORZAMIENTO	Point	2088	681	NE+15.63
REFORZAMIENTO	Point	2089	682	NE+15.63
REFORZAMIENTO	Point	2090	683	NE+15.63
REFORZAMIENTO	Point	2091	684	NE+15.63
REFORZAMIENTO	Point	2092	685	NE+15.63
REFORZAMIENTO	Point	2093	686	NE+15.63
REFORZAMIENTO	Point	2094	687	NE+15.63
REFORZAMIENTO	Point	2095	688	NE+15.63
REFORZAMIENTO	Point	2096	689	NE+15.63
REFORZAMIENTO	Point	2097	690	NE+15.63
REFORZAMIENTO	Point	2098	691	NE+15.63
REFORZAMIENTO	Point	2099	692	NE+15.63
REFORZAMIENTO	Point	2100	693	NE+15.63
REFORZAMIENTO	Point	2101	694	NE+15.63
REFORZAMIENTO	Point	2102	695	NE+15.63
REFORZAMIENTO	Point	2103	696	NE+15.63
REFORZAMIENTO	Point	2104	697	NE+15.63
REFORZAMIENTO	Point	2105	698	NE+15.63
REFORZAMIENTO	Point	2106	699	NE+15.63
REFORZAMIENTO	Point	2107	700	NE+15.63
REFORZAMIENTO	Point	2108	701	NE+15.63
REFORZAMIENTO	Point	2109	702	NE+15.63
REFORZAMIENTO	Point	2110	703	NE+15.63
REFORZAMIENTO	Point	2111	704	NE+15.63
REFORZAMIENTO	Point	2112	705	NE+15.63
REFORZAMIENTO	Point	2113	706	NE+15.63
REFORZAMIENTO	Point	2114	707	NE+15.63
REFORZAMIENTO	Point	2115	708	NE+15.63
REFORZAMIENTO	Point	2116	709	NE+15.63
REFORZAMIENTO	Point	2117	710	NE+15.63
REFORZAMIENTO	Point	2118	711	NE+15.63
REFORZAMIENTO	Point	2119	712	NE+15.63
REFORZAMIENTO	Point	2120	713	NE+15.63
REFORZAMIENTO	Point	2121	714	NE+15.63
REFORZAMIENTO	Point	2122	715	NE+15.63
REFORZAMIENTO	Point	2123	716	NE+15.63
REFORZAMIENTO	Point	2124	717	NE+15.63

Name	Object Type	Unique Name	Label	Story
REFORZAMIENTO	Point	2125	718	NE+15.63
REFORZAMIENTO	Point	2126	719	NE+15.63
REFORZAMIENTO	Point	2127	720	NE+15.63
REFORZAMIENTO	Point	2128	721	NE+15.63
REFORZAMIENTO	Point	2129	722	NE+15.63
REFORZAMIENTO	Point	2130	723	NE+15.63
REFORZAMIENTO	Point	2131	724	NE+15.63
REFORZAMIENTO	Point	2132	725	NE+15.63
REFORZAMIENTO	Point	2133	726	NE+15.63
REFORZAMIENTO	Point	2134	727	NE+15.63
REFORZAMIENTO	Point	2135	728	NE+15.63
REFORZAMIENTO	Point	2136	729	NE+15.63
REFORZAMIENTO	Point	2137	730	NE+15.63
REFORZAMIENTO	Point	2138	731	NE+15.63
REFORZAMIENTO	Point	2139	732	NE+15.63
REFORZAMIENTO	Point	2140	733	NE+15.63
REFORZAMIENTO	Point	2141	734	NE+15.63
REFORZAMIENTO	Point	2142	735	NE+15.63
REFORZAMIENTO	Point	2143	736	NE+15.63
REFORZAMIENTO	Point	2144	737	NE+15.63
REFORZAMIENTO	Point	2145	738	NE+15.63
REFORZAMIENTO	Point	2146	739	NE+15.63
REFORZAMIENTO	Point	2147	740	NE+15.63
REFORZAMIENTO	Point	2148	741	NE+15.63
REFORZAMIENTO	Point	2149	742	NE+15.63
REFORZAMIENTO	Point	2150	743	NE+15.63
REFORZAMIENTO	Point	2151	744	NE+15.63
REFORZAMIENTO	Point	2152	384	NE+9.01
REFORZAMIENTO	Point	2153	395	NE+9.01
REFORZAMIENTO	Point	2154	244	NE+9.01
REFORZAMIENTO	Point	2155	402	NE+9.01
REFORZAMIENTO	Point	2176	56	Base
REFORZAMIENTO	Point	2178	56	NE+11.82
REFORZAMIENTO	Point	2179	62	Base
REFORZAMIENTO	Point	2180	62	NE+11.82
REFORZAMIENTO	Point	2181	62	NE+3.17
REFORZAMIENTO	Point	1161	56	NE+9.01
REFORZAMIENTO	Point	1870	62	NE+9.01
REFORZAMIENTO	Line	6	C4	NE+3.17
REFORZAMIENTO	Line	7	C4	NE+4.77
REFORZAMIENTO	Line	8	C5	NE+3.17
REFORZAMIENTO	Line	9	C5	NE+4.77
REFORZAMIENTO	Line	10	B442	NE+4.77
REFORZAMIENTO	Line	1	B6	NE+11.82
REFORZAMIENTO	Line	2	B7	NE+11.82
REFORZAMIENTO	Line	5	B8	NE+11.82
REFORZAMIENTO	Line	13	B9	NE+11.82
REFORZAMIENTO	Line	14	B10	NE+11.82
REFORZAMIENTO	Line	16	B12	NE+11.82

Name	Object Type	Unique Name	Label	Story
REFORZAMIENTO	Line	18	B14	NE+11.82
REFORZAMIENTO	Line	19	B15	NE+11.82
REFORZAMIENTO	Line	20	B16	NE+11.82
REFORZAMIENTO	Line	21	B17	NE+11.82
REFORZAMIENTO	Line	22	B18	NE+11.82
REFORZAMIENTO	Line	23	B19	NE+11.82
REFORZAMIENTO	Line	24	B20	NE+11.82
REFORZAMIENTO	Line	25	B21	NE+11.82
REFORZAMIENTO	Line	26	B22	NE+11.82
REFORZAMIENTO	Line	27	B23	NE+11.82
REFORZAMIENTO	Line	28	B24	NE+11.82
REFORZAMIENTO	Line	29	B25	NE+11.82
REFORZAMIENTO	Line	30	B26	NE+11.82
REFORZAMIENTO	Line	31	B27	NE+11.82
REFORZAMIENTO	Line	32	B28	NE+11.82
REFORZAMIENTO	Line	33	B29	NE+11.82
REFORZAMIENTO	Line	34	B30	NE+11.82
REFORZAMIENTO	Line	36	B31	NE+11.82
REFORZAMIENTO	Line	50	B44	NE+4.77
REFORZAMIENTO	Line	54	B48	NE+4.77
REFORZAMIENTO	Line	55	B49	NE+4.77
REFORZAMIENTO	Line	56	B50	NE+4.77
REFORZAMIENTO	Line	57	B51	NE+4.77
REFORZAMIENTO	Line	58	B52	NE+4.77
REFORZAMIENTO	Line	59	B102	NE+4.77
REFORZAMIENTO	Line	60	B103	NE+4.77
REFORZAMIENTO	Line	61	B104	NE+4.77
REFORZAMIENTO	Line	62	B105	NE+4.77
REFORZAMIENTO	Line	63	B106	NE+4.77
REFORZAMIENTO	Line	64	B107	NE+4.77
REFORZAMIENTO	Line	65	B108	NE+4.77
REFORZAMIENTO	Line	66	B125	NE+4.77
REFORZAMIENTO	Line	67	B126	NE+4.77
REFORZAMIENTO	Line	68	B127	NE+4.77
REFORZAMIENTO	Line	69	B128	NE+4.77
REFORZAMIENTO	Line	70	B129	NE+4.77
REFORZAMIENTO	Line	71	B130	NE+4.77
REFORZAMIENTO	Line	72	B131	NE+4.77
REFORZAMIENTO	Line	82	B133	NE+4.77
REFORZAMIENTO	Line	83	B134	NE+4.77
REFORZAMIENTO	Line	84	B135	NE+4.77
REFORZAMIENTO	Line	85	B136	NE+4.77
REFORZAMIENTO	Line	86	B137	NE+4.77
REFORZAMIENTO	Line	87	B138	NE+4.77
REFORZAMIENTO	Line	88	B139	NE+4.77
REFORZAMIENTO	Line	117	B132	NE+4.77
REFORZAMIENTO	Line	118	B13	NE+4.77
REFORZAMIENTO	Line	119	B140	NE+4.77
REFORZAMIENTO	Line	120	B64	NE+4.77

Name	Object Type	Unique Name	Label	Story
REFORZAMIENTO	Line	121	B142	NE+4.77
REFORZAMIENTO	Line	122	B143	NE+4.77
REFORZAMIENTO	Line	123	B144	NE+4.77
REFORZAMIENTO	Line	124	B145	NE+4.77
REFORZAMIENTO	Line	125	B146	NE+4.77
REFORZAMIENTO	Line	126	B147	NE+4.77
REFORZAMIENTO	Line	127	B148	NE+4.77
REFORZAMIENTO	Line	128	B149	NE+4.77
REFORZAMIENTO	Line	129	B150	NE+4.77
REFORZAMIENTO	Line	130	B151	NE+4.77
REFORZAMIENTO	Line	131	B152	NE+4.77
REFORZAMIENTO	Line	132	B153	NE+4.77
REFORZAMIENTO	Line	133	B65	NE+4.77
REFORZAMIENTO	Line	155	B176	NE+3.17
REFORZAMIENTO	Line	156	B177	NE+3.17
REFORZAMIENTO	Line	158	B179	NE+3.17
REFORZAMIENTO	Line	160	B184	NE+3.17
REFORZAMIENTO	Line	161	B183	NE+3.17
REFORZAMIENTO	Line	162	B186	NE+3.17
REFORZAMIENTO	Line	163	B189	NE+3.17
REFORZAMIENTO	Line	164	B188	NE+3.17
REFORZAMIENTO	Line	189	B260	NE+3.17
REFORZAMIENTO	Line	190	B261	NE+3.17
REFORZAMIENTO	Line	191	B262	NE+3.17
REFORZAMIENTO	Line	192	B263	NE+3.17
REFORZAMIENTO	Line	193	B264	NE+3.17
REFORZAMIENTO	Line	194	B265	NE+3.17
REFORZAMIENTO	Line	195	B266	NE+3.17
REFORZAMIENTO	Line	196	B267	NE+3.17
REFORZAMIENTO	Line	205	B230	NE+3.17
REFORZAMIENTO	Line	206	B231	NE+3.17
REFORZAMIENTO	Line	207	B232	NE+3.17
REFORZAMIENTO	Line	208	B233	NE+3.17
REFORZAMIENTO	Line	209	B234	NE+3.17
REFORZAMIENTO	Line	210	B235	NE+3.17
REFORZAMIENTO	Line	211	B236	NE+3.17
REFORZAMIENTO	Line	212	B237	NE+3.17
REFORZAMIENTO	Line	213	B268	NE+3.17
REFORZAMIENTO	Line	215	B240	NE+3.17
REFORZAMIENTO	Line	227	B252	NE+3.17
REFORZAMIENTO	Line	228	B253	NE+3.17
REFORZAMIENTO	Line	229	B254	NE+3.17
REFORZAMIENTO	Line	230	B255	NE+3.17
REFORZAMIENTO	Line	231	B256	NE+3.17
REFORZAMIENTO	Line	232	B257	NE+3.17
REFORZAMIENTO	Line	233	B258	NE+3.17
REFORZAMIENTO	Line	234	B259	NE+3.17
REFORZAMIENTO	Line	236	B276	NE+3.17
REFORZAMIENTO	Line	237	B277	NE+3.17

Name	Object Type	Unique Name	Label	Story
REFORZAMIENTO	Line	238	B278	NE+3.17
REFORZAMIENTO	Line	240	B279	NE+3.17
REFORZAMIENTO	Line	241	B298	NE+3.17
REFORZAMIENTO	Line	242	B299	NE+3.17
REFORZAMIENTO	Line	243	B300	NE+3.17
REFORZAMIENTO	Line	244	B301	NE+3.17
REFORZAMIENTO	Line	245	B302	NE+3.17
REFORZAMIENTO	Line	246	B303	NE+3.17
REFORZAMIENTO	Line	247	B304	NE+3.17
REFORZAMIENTO	Line	255	B305	NE+3.17
REFORZAMIENTO	Line	256	B306	NE+3.17
REFORZAMIENTO	Line	259	B307	NE+3.17
REFORZAMIENTO	Line	260	B308	NE+3.17
REFORZAMIENTO	Line	261	B318	NE+3.17
REFORZAMIENTO	Line	262	B319	NE+3.17
REFORZAMIENTO	Line	263	B320	NE+3.17
REFORZAMIENTO	Line	264	B321	NE+3.17
REFORZAMIENTO	Line	265	B322	NE+3.17
REFORZAMIENTO	Line	266	B323	NE+3.17
REFORZAMIENTO	Line	267	B324	NE+3.17
REFORZAMIENTO	Line	268	B325	NE+3.17
REFORZAMIENTO	Line	269	B326	NE+3.17
REFORZAMIENTO	Line	272	B327	NE+5.60
REFORZAMIENTO	Line	274	B329	NE+5.60
REFORZAMIENTO	Line	275	B330	NE+5.60
REFORZAMIENTO	Line	276	B331	NE+5.60
REFORZAMIENTO	Line	277	B178	NE+5.60
REFORZAMIENTO	Line	278	B179	NE+5.60
REFORZAMIENTO	Line	280	B332	NE+5.60
REFORZAMIENTO	Line	281	B333	NE+5.60
REFORZAMIENTO	Line	282	B334	NE+5.60
REFORZAMIENTO	Line	283	B335	NE+5.60
REFORZAMIENTO	Line	284	B336	NE+5.60
REFORZAMIENTO	Line	285	B337	NE+5.60
REFORZAMIENTO	Line	289	B338	NE+19.03
REFORZAMIENTO	Line	290	B23	NE+19.03
REFORZAMIENTO	Line	291	B24	NE+19.03
REFORZAMIENTO	Line	292	B25	NE+19.03
REFORZAMIENTO	Line	293	B339	NE+19.03
REFORZAMIENTO	Line	294	B20	NE+19.03
REFORZAMIENTO	Line	295	B21	NE+19.03
REFORZAMIENTO	Line	296	B22	NE+19.03
REFORZAMIENTO	Line	297	D3	NE+15.63
REFORZAMIENTO	Line	304	D6	NE+15.63
REFORZAMIENTO	Line	325	D56	NE+15.63
REFORZAMIENTO	Line	332	D57	NE+15.63
REFORZAMIENTO	Line	339	D58	NE+15.63
REFORZAMIENTO	Line	346	D59	NE+15.63
REFORZAMIENTO	Line	353	D60	NE+15.63

Name	Object Type	Unique Name	Label	Story
REFORZAMIENTO	Line	360	D61	NE+15.63
REFORZAMIENTO	Line	367	D62	NE+15.63
REFORZAMIENTO	Line	374	D63	NE+15.63
REFORZAMIENTO	Line	381	D64	NE+15.63
REFORZAMIENTO	Line	388	D65	NE+15.63
REFORZAMIENTO	Line	395	D66	NE+15.63
REFORZAMIENTO	Line	402	D67	NE+15.63
REFORZAMIENTO	Line	409	D68	NE+15.63
REFORZAMIENTO	Line	416	D69	NE+15.63
REFORZAMIENTO	Line	423	B340	NE+15.63
REFORZAMIENTO	Line	424	B341	NE+15.63
REFORZAMIENTO	Line	425	B342	NE+15.63
REFORZAMIENTO	Line	426	B343	NE+15.63
REFORZAMIENTO	Line	427	B344	NE+15.63
REFORZAMIENTO	Line	428	B345	NE+15.63
REFORZAMIENTO	Line	429	B346	NE+15.63
REFORZAMIENTO	Line	430	B347	NE+15.63
REFORZAMIENTO	Line	431	B348	NE+15.63
REFORZAMIENTO	Line	432	B349	NE+15.63
REFORZAMIENTO	Line	433	B350	NE+15.63
REFORZAMIENTO	Line	434	B351	NE+15.63
REFORZAMIENTO	Line	435	B352	NE+15.63
REFORZAMIENTO	Line	436	B353	NE+15.63
REFORZAMIENTO	Line	437	B354	NE+15.63
REFORZAMIENTO	Line	438	B355	NE+15.63
REFORZAMIENTO	Line	439	B356	NE+15.63
REFORZAMIENTO	Line	440	B357	NE+15.63
REFORZAMIENTO	Line	441	B358	NE+15.63
REFORZAMIENTO	Line	442	B359	NE+15.63
REFORZAMIENTO	Line	443	B360	NE+15.63
REFORZAMIENTO	Line	444	B361	NE+15.63
REFORZAMIENTO	Line	445	B362	NE+15.63
REFORZAMIENTO	Line	446	B363	NE+15.63
REFORZAMIENTO	Line	447	B364	NE+15.63
REFORZAMIENTO	Line	448	B365	NE+15.63
REFORZAMIENTO	Line	449	B366	NE+15.63
REFORZAMIENTO	Line	450	B367	NE+15.63
REFORZAMIENTO	Line	451	B368	NE+15.63
REFORZAMIENTO	Line	452	B369	NE+15.63
REFORZAMIENTO	Line	453	B370	NE+15.63
REFORZAMIENTO	Line	454	B371	NE+15.63
REFORZAMIENTO	Line	455	B372	NE+15.63
REFORZAMIENTO	Line	456	B373	NE+15.63
REFORZAMIENTO	Line	457	B374	NE+15.63
REFORZAMIENTO	Line	458	B375	NE+15.63
REFORZAMIENTO	Line	459	B376	NE+15.63
REFORZAMIENTO	Line	460	B377	NE+15.63
REFORZAMIENTO	Line	461	B378	NE+15.63
REFORZAMIENTO	Line	462	B379	NE+15.63

Name	Object Type	Unique Name	Label	Story
REFORZAMIENTO	Line	463	B380	NE+15.63
REFORZAMIENTO	Line	464	B381	NE+15.63
REFORZAMIENTO	Line	465	B382	NE+15.63
REFORZAMIENTO	Line	466	B383	NE+15.63
REFORZAMIENTO	Line	467	B384	NE+15.63
REFORZAMIENTO	Line	468	B385	NE+15.63
REFORZAMIENTO	Line	469	B386	NE+15.63
REFORZAMIENTO	Line	470	B387	NE+15.63
REFORZAMIENTO	Line	471	B388	NE+15.63
REFORZAMIENTO	Line	472	B389	NE+15.63
REFORZAMIENTO	Line	473	B390	NE+15.63
REFORZAMIENTO	Line	474	B391	NE+15.63
REFORZAMIENTO	Line	475	B392	NE+15.63
REFORZAMIENTO	Line	476	B393	NE+15.63
REFORZAMIENTO	Line	477	B394	NE+15.63
REFORZAMIENTO	Line	478	B395	NE+15.63
REFORZAMIENTO	Line	479	B396	NE+15.63
REFORZAMIENTO	Line	480	B397	NE+15.63
REFORZAMIENTO	Line	481	B398	NE+15.63
REFORZAMIENTO	Line	482	B399	NE+15.63
REFORZAMIENTO	Line	483	B400	NE+15.63
REFORZAMIENTO	Line	484	B401	NE+15.63
REFORZAMIENTO	Line	485	B402	NE+15.63
REFORZAMIENTO	Line	486	B403	NE+15.63
REFORZAMIENTO	Line	487	B404	NE+15.63
REFORZAMIENTO	Line	488	B405	NE+15.63
REFORZAMIENTO	Line	489	B406	NE+15.63
REFORZAMIENTO	Line	490	B407	NE+15.63
REFORZAMIENTO	Line	491	B408	NE+15.63
REFORZAMIENTO	Line	492	B409	NE+15.63
REFORZAMIENTO	Line	493	B410	NE+15.63
REFORZAMIENTO	Line	494	B411	NE+15.63
REFORZAMIENTO	Line	495	B412	NE+15.63
REFORZAMIENTO	Line	496	B413	NE+15.63
REFORZAMIENTO	Line	497	B414	NE+15.63
REFORZAMIENTO	Line	498	B415	NE+15.63
REFORZAMIENTO	Line	499	B416	NE+15.63
REFORZAMIENTO	Line	500	B417	NE+15.63
REFORZAMIENTO	Line	501	B418	NE+15.63
REFORZAMIENTO	Line	502	B419	NE+15.63
REFORZAMIENTO	Line	503	B420	NE+15.63
REFORZAMIENTO	Line	504	B421	NE+15.63
REFORZAMIENTO	Line	506	B423	NE+15.63
REFORZAMIENTO	Line	507	B424	NE+15.63
REFORZAMIENTO	Line	508	B425	NE+15.63
REFORZAMIENTO	Line	509	B426	NE+15.63
REFORZAMIENTO	Line	510	B427	NE+15.63
REFORZAMIENTO	Line	511	B428	NE+15.63
REFORZAMIENTO	Line	512	B429	NE+15.63

Name	Object Type	Unique Name	Label	Story
REFORZAMIENTO	Line	513	B430	NE+15.63
REFORZAMIENTO	Line	514	B431	NE+15.63
REFORZAMIENTO	Line	515	B432	NE+15.63
REFORZAMIENTO	Line	516	B433	NE+15.63
REFORZAMIENTO	Line	517	B434	NE+15.63
REFORZAMIENTO	Line	518	B435	NE+15.63
REFORZAMIENTO	Line	519	B436	NE+15.63
REFORZAMIENTO	Line	520	B437	NE+15.63
REFORZAMIENTO	Line	521	B438	NE+15.63
REFORZAMIENTO	Line	522	B439	NE+15.63
REFORZAMIENTO	Line	523	B440	NE+15.63
REFORZAMIENTO	Line	526	B49	NE+9.01
REFORZAMIENTO	Line	532	B52	NE+9.01
REFORZAMIENTO	Line	533	B50	NE+9.01
REFORZAMIENTO	Line	535	B48	NE+9.01
REFORZAMIENTO	Line	537	B51	NE+9.01
REFORZAMIENTO	Line	539	B44	NE+9.01
REFORZAMIENTO	Line	541	B98	NE+9.01
REFORZAMIENTO	Line	542	B105	NE+9.01
REFORZAMIENTO	Line	12	B1	NE+3.17
REFORZAMIENTO	Line	35	B2	NE+3.17
REFORZAMIENTO	Line	39	B5	NE+3.17
REFORZAMIENTO	Line	52	B45	NE+3.17
REFORZAMIENTO	Line	73	B46	NE+3.17
REFORZAMIENTO	Line	74	B53	NE+3.17
REFORZAMIENTO	Line	75	B54	NE+3.17
REFORZAMIENTO	Line	76	B55	NE+3.17
REFORZAMIENTO	Line	11	B56	NE+11.82
REFORZAMIENTO	Line	77	B57	NE+11.82
REFORZAMIENTO	Line	78	B58	NE+11.82
REFORZAMIENTO	Line	79	B59	NE+11.82
REFORZAMIENTO	Line	80	B60	NE+11.82
REFORZAMIENTO	Line	81	B61	NE+11.82
REFORZAMIENTO	Line	89	B62	NE+11.82
REFORZAMIENTO	Line	90	D1	NE+15.63
REFORZAMIENTO	Line	91	D2	NE+15.63
REFORZAMIENTO	Line	92	D4	NE+15.63
REFORZAMIENTO	Line	93	D5	NE+15.63
REFORZAMIENTO	Line	94	D7	NE+15.63
REFORZAMIENTO	Line	95	D8	NE+15.63
REFORZAMIENTO	Line	97	D10	NE+15.63
REFORZAMIENTO	Line	98	D11	NE+15.63
REFORZAMIENTO	Line	248	B16	NE+4.77
REFORZAMIENTO	Line	250	B14	NE+4.77
REFORZAMIENTO	Line	251	B15	NE+3.17
REFORZAMIENTO	Line	252	B14	NE+9.01
REFORZAMIENTO	Line	253	B16	NE+9.01
REFORZAMIENTO	Line	258	B31	NE+4.77
REFORZAMIENTO	Line	270	B30	NE+3.17

Name	Object Type	Unique Name	Label	Story
REFORZAMIENTO	Line	271	B29	NE+4.77
REFORZAMIENTO	Line	287	B25	NE+3.17
REFORZAMIENTO	Line	298	B31	NE+9.01
REFORZAMIENTO	Line	299	B29	NE+9.01
REFORZAMIENTO	Line	306	C44	NE+3.17
REFORZAMIENTO	Line	307	C44	NE+4.77
REFORZAMIENTO	Line	310	C46	NE+3.17
REFORZAMIENTO	Line	311	C46	NE+4.77
REFORZAMIENTO	Line	314	C48	NE+3.17
REFORZAMIENTO	Line	315	C48	NE+4.77
REFORZAMIENTO	Line	318	C50	NE+3.17
REFORZAMIENTO	Line	321	C53	NE+3.17
REFORZAMIENTO	Line	328	C58	NE+3.17
REFORZAMIENTO	Line	331	C60	NE+3.17
REFORZAMIENTO	Line	342	C66	NE+3.17
REFORZAMIENTO	Line	343	C66	NE+4.77
REFORZAMIENTO	Line	347	C68	NE+3.17
REFORZAMIENTO	Line	348	C68	NE+4.77
REFORZAMIENTO	Line	351	C70	NE+3.17
REFORZAMIENTO	Line	352	C70	NE+4.77
REFORZAMIENTO	Line	356	C72	NE+3.17
REFORZAMIENTO	Line	359	C75	NE+3.17
REFORZAMIENTO	Line	364	B17	NE+3.17
REFORZAMIENTO	Line	365	B18	NE+3.17
REFORZAMIENTO	Line	366	B19	NE+3.17
REFORZAMIENTO	Line	368	B20	NE+3.17
REFORZAMIENTO	Line	369	B18	NE+5.60
REFORZAMIENTO	Line	370	B19	NE+5.60
REFORZAMIENTO	Line	371	B20	NE+5.60
REFORZAMIENTO	Line	380	B28	NE+3.17
REFORZAMIENTO	Line	382	B27	NE+3.17
REFORZAMIENTO	Line	383	B26	NE+3.17
REFORZAMIENTO	Line	384	B27	NE+5.60
REFORZAMIENTO	Line	385	B26	NE+5.60
REFORZAMIENTO	Line	386	B25	NE+5.60
REFORZAMIENTO	Line	419	C86	NE+3.17
REFORZAMIENTO	Line	528	C92	NE+3.17
REFORZAMIENTO	Line	15	B339	NE+5.60
REFORZAMIENTO	Line	99	B339	NE+3.17
REFORZAMIENTO	Line	100	B22	NE+3.17
REFORZAMIENTO	Line	102	B43	NE+5.60
REFORZAMIENTO	Line	103	B42	NE+5.60
REFORZAMIENTO	Line	104	B41	NE+5.60
REFORZAMIENTO	Line	106	B40	NE+5.60
REFORZAMIENTO	Line	108	B39	NE+5.60
REFORZAMIENTO	Line	110	B38	NE+5.60
REFORZAMIENTO	Line	135	B43	NE+3.17
REFORZAMIENTO	Line	136	B42	NE+3.17
REFORZAMIENTO	Line	137	B41	NE+3.17

Name	Object Type	Unique Name	Label	Story
REFORZAMIENTO	Line	138	B40	NE+3.17
REFORZAMIENTO	Line	141	B39	NE+3.17
REFORZAMIENTO	Line	142	B38	NE+3.17
REFORZAMIENTO	Line	144	B23	NE+3.17
REFORZAMIENTO	Line	145	B338	NE+3.17
REFORZAMIENTO	Line	146	B32	NE+3.17
REFORZAMIENTO	Line	147	B33	NE+3.17
REFORZAMIENTO	Line	148	B34	NE+3.17
REFORZAMIENTO	Line	149	B35	NE+3.17
REFORZAMIENTO	Line	150	B36	NE+3.17
REFORZAMIENTO	Line	151	B37	NE+3.17
REFORZAMIENTO	Line	154	B338	NE+5.60
REFORZAMIENTO	Line	157	B37	NE+5.60
REFORZAMIENTO	Line	159	B36	NE+5.60
REFORZAMIENTO	Line	165	B35	NE+5.60
REFORZAMIENTO	Line	166	B34	NE+5.60
REFORZAMIENTO	Line	167	B33	NE+5.60
REFORZAMIENTO	Line	168	B32	NE+5.60
REFORZAMIENTO	Line	169	C58	NE+15.63
REFORZAMIENTO	Line	170	C58	NE+19.03
REFORZAMIENTO	Line	171	C60	NE+15.63
REFORZAMIENTO	Line	172	C60	NE+19.03
REFORZAMIENTO	Line	175	C1	NE+3.17
REFORZAMIENTO	Line	176	C1	NE+4.77
REFORZAMIENTO	Line	177	C1	NE+5.60
REFORZAMIENTO	Line	178	C2	NE+3.17
REFORZAMIENTO	Line	179	C2	NE+4.77
REFORZAMIENTO	Line	180	C2	NE+5.60
REFORZAMIENTO	Line	181	C3	NE+3.17
REFORZAMIENTO	Line	182	C3	NE+4.77
REFORZAMIENTO	Line	183	C3	NE+5.60
REFORZAMIENTO	Line	184	C6	NE+3.17
REFORZAMIENTO	Line	185	C6	NE+4.77
REFORZAMIENTO	Line	186	C6	NE+5.60
REFORZAMIENTO	Line	187	C7	NE+3.17
REFORZAMIENTO	Line	188	C7	NE+4.77
REFORZAMIENTO	Line	197	C7	NE+5.60
REFORZAMIENTO	Line	198	C8	NE+3.17
REFORZAMIENTO	Line	199	C8	NE+4.77
REFORZAMIENTO	Line	200	C8	NE+5.60
REFORZAMIENTO	Line	201	C9	NE+3.17
REFORZAMIENTO	Line	202	C9	NE+4.77
REFORZAMIENTO	Line	203	C9	NE+5.60
REFORZAMIENTO	Line	204	C11	NE+3.17
REFORZAMIENTO	Line	220	C11	NE+4.77
REFORZAMIENTO	Line	235	C11	NE+5.60
REFORZAMIENTO	Line	239	C13	NE+3.17
REFORZAMIENTO	Line	249	C13	NE+4.77
REFORZAMIENTO	Line	254	C13	NE+5.60

Name	Object Type	Unique Name	Label	Story
REFORZAMIENTO	Line	257	C13	NE+7.46
REFORZAMIENTO	Line	273	C13	NE+9.01
REFORZAMIENTO	Line	279	C15	NE+3.17
REFORZAMIENTO	Line	286	C15	NE+4.77
REFORZAMIENTO	Line	288	C15	NE+5.60
REFORZAMIENTO	Line	300	C15	NE+7.46
REFORZAMIENTO	Line	301	C15	NE+9.01
REFORZAMIENTO	Line	363	C17	NE+3.17
REFORZAMIENTO	Line	372	C17	NE+4.77
REFORZAMIENTO	Line	373	C17	NE+5.60
REFORZAMIENTO	Line	375	C17	NE+7.46
REFORZAMIENTO	Line	376	C17	NE+9.01
REFORZAMIENTO	Line	377	C18	NE+3.17
REFORZAMIENTO	Line	378	C18	NE+4.77
REFORZAMIENTO	Line	379	C18	NE+5.60
REFORZAMIENTO	Line	387	C18	NE+7.46
REFORZAMIENTO	Line	389	C18	NE+9.01
REFORZAMIENTO	Line	390	C19	NE+3.17
REFORZAMIENTO	Line	391	C19	NE+4.77
REFORZAMIENTO	Line	392	C19	NE+5.60
REFORZAMIENTO	Line	393	C19	NE+7.46
REFORZAMIENTO	Line	394	C19	NE+9.01
REFORZAMIENTO	Line	396	C19	NE+9.36
REFORZAMIENTO	Line	397	C19	NE+10.16
REFORZAMIENTO	Line	399	C20	NE+3.17
REFORZAMIENTO	Line	400	C20	NE+4.77
REFORZAMIENTO	Line	401	C20	NE+5.60
REFORZAMIENTO	Line	403	C20	NE+7.46
REFORZAMIENTO	Line	404	C20	NE+9.01
REFORZAMIENTO	Line	405	C20	NE+9.36
REFORZAMIENTO	Line	411	C20	NE+10.16
REFORZAMIENTO	Line	531	C21	NE+3.17
REFORZAMIENTO	Line	534	C21	NE+4.77
REFORZAMIENTO	Line	536	C21	NE+5.60
REFORZAMIENTO	Line	538	C21	NE+7.46
REFORZAMIENTO	Line	540	C21	NE+9.01
REFORZAMIENTO	Line	543	C21	NE+9.36
REFORZAMIENTO	Line	544	C21	NE+10.16
REFORZAMIENTO	Line	545	C21	NE+11.82
REFORZAMIENTO	Line	546	C44	NE+5.60
REFORZAMIENTO	Line	547	C44	NE+7.46
REFORZAMIENTO	Line	548	C44	NE+9.01
REFORZAMIENTO	Line	549	C44	NE+9.36
REFORZAMIENTO	Line	550	C44	NE+10.16
REFORZAMIENTO	Line	551	C44	NE+11.82
REFORZAMIENTO	Line	552	C46	NE+5.60
REFORZAMIENTO	Line	553	C46	NE+7.46
REFORZAMIENTO	Line	554	C46	NE+9.01
REFORZAMIENTO	Line	555	C46	NE+9.36

Name	Object Type	Unique Name	Label	Story
REFORZAMIENTO	Line	556	C46	NE+10.16
REFORZAMIENTO	Line	557	C46	NE+11.82
REFORZAMIENTO	Line	558	C48	NE+5.60
REFORZAMIENTO	Line	559	C48	NE+7.46
REFORZAMIENTO	Line	560	C48	NE+9.01
REFORZAMIENTO	Line	561	C48	NE+9.36
REFORZAMIENTO	Line	562	C48	NE+10.16
REFORZAMIENTO	Line	563	C48	NE+11.82
REFORZAMIENTO	Line	564	C50	NE+4.77
REFORZAMIENTO	Line	565	C50	NE+5.60
REFORZAMIENTO	Line	566	C50	NE+7.46
REFORZAMIENTO	Line	567	C50	NE+9.01
REFORZAMIENTO	Line	568	C50	NE+9.36
REFORZAMIENTO	Line	569	C50	NE+10.16
REFORZAMIENTO	Line	570	C50	NE+11.82
REFORZAMIENTO	Line	571	C53	NE+4.77
REFORZAMIENTO	Line	572	C53	NE+5.60
REFORZAMIENTO	Line	573	C53	NE+7.46
REFORZAMIENTO	Line	574	C53	NE+9.01
REFORZAMIENTO	Line	575	C53	NE+9.36
REFORZAMIENTO	Line	576	C53	NE+10.16
REFORZAMIENTO	Line	577	C53	NE+11.82
REFORZAMIENTO	Line	585	C58	NE+4.77
REFORZAMIENTO	Line	586	C58	NE+5.60
REFORZAMIENTO	Line	587	C58	NE+7.46
REFORZAMIENTO	Line	588	C58	NE+9.01
REFORZAMIENTO	Line	589	C58	NE+9.36
REFORZAMIENTO	Line	590	C58	NE+10.16
REFORZAMIENTO	Line	591	C58	NE+11.82
REFORZAMIENTO	Line	592	C60	NE+4.77
REFORZAMIENTO	Line	593	C60	NE+5.60
REFORZAMIENTO	Line	594	C60	NE+7.46
REFORZAMIENTO	Line	595	C60	NE+9.01
REFORZAMIENTO	Line	596	C60	NE+9.36
REFORZAMIENTO	Line	597	C60	NE+10.16
REFORZAMIENTO	Line	598	C60	NE+11.82
REFORZAMIENTO	Line	606	C22	NE+3.17
REFORZAMIENTO	Line	607	C22	NE+4.77
REFORZAMIENTO	Line	608	C22	NE+5.60
REFORZAMIENTO	Line	609	C22	NE+7.46
REFORZAMIENTO	Line	610	C22	NE+9.01
REFORZAMIENTO	Line	611	C22	NE+9.36
REFORZAMIENTO	Line	612	C22	NE+10.16
REFORZAMIENTO	Line	613	C22	NE+11.82
REFORZAMIENTO	Line	614	C66	NE+5.60
REFORZAMIENTO	Line	615	C66	NE+7.46
REFORZAMIENTO	Line	616	C66	NE+9.01
REFORZAMIENTO	Line	617	C66	NE+9.36
REFORZAMIENTO	Line	618	C66	NE+10.16

Name	Object Type	Unique Name	Label	Story
REFORZAMIENTO	Line	619	C66	NE+11.82
REFORZAMIENTO	Line	620	C68	NE+5.60
REFORZAMIENTO	Line	621	C68	NE+7.46
REFORZAMIENTO	Line	622	C68	NE+9.01
REFORZAMIENTO	Line	623	C68	NE+9.36
REFORZAMIENTO	Line	624	C68	NE+10.16
REFORZAMIENTO	Line	625	C68	NE+11.82
REFORZAMIENTO	Line	626	C70	NE+5.60
REFORZAMIENTO	Line	627	C70	NE+7.46
REFORZAMIENTO	Line	628	C70	NE+9.01
REFORZAMIENTO	Line	629	C70	NE+9.36
REFORZAMIENTO	Line	630	C70	NE+10.16
REFORZAMIENTO	Line	631	C70	NE+11.82
REFORZAMIENTO	Line	632	C72	NE+4.77
REFORZAMIENTO	Line	633	C72	NE+5.60
REFORZAMIENTO	Line	634	C72	NE+7.46
REFORZAMIENTO	Line	635	C72	NE+9.01
REFORZAMIENTO	Line	636	C72	NE+9.36
REFORZAMIENTO	Line	637	C72	NE+10.16
REFORZAMIENTO	Line	638	C72	NE+11.82
REFORZAMIENTO	Line	639	C75	NE+4.77
REFORZAMIENTO	Line	640	C75	NE+5.60
REFORZAMIENTO	Line	641	C75	NE+7.46
REFORZAMIENTO	Line	642	C75	NE+9.01
REFORZAMIENTO	Line	643	C75	NE+9.36
REFORZAMIENTO	Line	644	C75	NE+10.16
REFORZAMIENTO	Line	645	C75	NE+11.82
REFORZAMIENTO	Line	669	C86	NE+15.63
REFORZAMIENTO	Line	670	C86	NE+19.03
REFORZAMIENTO	Line	671	C86	NE+4.77
REFORZAMIENTO	Line	672	C86	NE+5.60
REFORZAMIENTO	Line	673	C86	NE+7.46
REFORZAMIENTO	Line	674	C86	NE+9.01
REFORZAMIENTO	Line	675	C86	NE+9.36
REFORZAMIENTO	Line	676	C86	NE+10.16
REFORZAMIENTO	Line	677	C86	NE+11.82
REFORZAMIENTO	Line	687	C92	NE+15.63
REFORZAMIENTO	Line	688	C92	NE+19.03
REFORZAMIENTO	Line	689	C92	NE+4.77
REFORZAMIENTO	Line	690	C92	NE+5.60
REFORZAMIENTO	Line	691	C92	NE+7.46
REFORZAMIENTO	Line	692	C92	NE+9.01
REFORZAMIENTO	Line	693	C92	NE+9.36
REFORZAMIENTO	Line	694	C92	NE+10.16
REFORZAMIENTO	Line	695	C92	NE+11.82
REFORZAMIENTO	Line	696	C35	NE+3.17
REFORZAMIENTO	Line	697	C35	NE+4.77
REFORZAMIENTO	Line	698	C94	NE+3.17
REFORZAMIENTO	Line	699	C94	NE+4.77

Name	Object Type	Unique Name	Label	Story
REFORZAMIENTO	Area	485	F22	NE+11.82
REFORZAMIENTO	Area	486	F23	NE+11.82
REFORZAMIENTO	Area	487	F29	NE+11.82
REFORZAMIENTO	Area	488	F30	NE+11.82
REFORZAMIENTO	Area	489	F31	NE+11.82
REFORZAMIENTO	Area	490	F40	NE+11.82
REFORZAMIENTO	Area	491	F56	NE+11.82
REFORZAMIENTO	Area	492	F57	NE+11.82
REFORZAMIENTO	Area	493	F63	NE+11.82
REFORZAMIENTO	Area	494	F64	NE+11.82
REFORZAMIENTO	Area	4	W3	NE+15.63
REFORZAMIENTO	Area	34	W4	NE+15.63
REFORZAMIENTO	Area	76	W5	NE+15.63
REFORZAMIENTO	Area	86	W6	NE+15.63
REFORZAMIENTO	Area	110	W8	NE+15.63
REFORZAMIENTO	Area	118	W9	NE+15.63
REFORZAMIENTO	Area	125	W16	NE+15.63
REFORZAMIENTO	Area	132	W17	NE+15.63
REFORZAMIENTO	Area	181	W18	NE+15.63
REFORZAMIENTO	Area	203	W19	NE+15.63
REFORZAMIENTO	Area	204	W21	NE+15.63
REFORZAMIENTO	Area	207	W22	NE+15.63
REFORZAMIENTO	Area	219	W23	NE+15.63
REFORZAMIENTO	Area	239	W25	NE+15.63
REFORZAMIENTO	Area	240	W26	NE+15.63
REFORZAMIENTO	Area	370	W27	NE+15.63
REFORZAMIENTO	Area	935	F1	NE+9.01
REFORZAMIENTO	Area	937	F2	NE+9.01
REFORZAMIENTO	Area	31	F4	NE+4.77
REFORZAMIENTO	Area	37	F7	NE+11.82
REFORZAMIENTO	Area	38	F9	NE+11.82
REFORZAMIENTO	Area	71	F24	NE+11.82
REFORZAMIENTO	Area	170	F25	NE+11.82
REFORZAMIENTO	Area	334	F26	NE+11.82
REFORZAMIENTO	Area	439	F27	NE+11.82
REFORZAMIENTO	Area	445	F28	NE+11.82
REFORZAMIENTO	Area	542	A1	NE+11.82
REFORZAMIENTO	Area	605	A2	NE+11.82
REFORZAMIENTO	Area	628	F58	NE+3.17
REFORZAMIENTO	Area	629	A3	NE+3.17
REFORZAMIENTO	Area	647	F59	NE+5.60
REFORZAMIENTO	Area	651	F58	NE+5.60
REFORZAMIENTO	Area	665	F60	NE+19.03
REFORZAMIENTO	Area	676	F61	NE+19.03
REFORZAMIENTO	Area	617	F6	NE+4.77
REFORZAMIENTO	Area	625	F8	NE+4.77
REFORZAMIENTO	Area	949	F10	NE+4.77

2 Properties

This chapter provides property information for materials, frame sections, shell sections, and links.

2.1 Materials

Table 2.1 - Material Properties - Summary

Name	Type	E tonf/m²	v	Unit Weight tonf/m³	Design Strengths
24.5MPA	Concrete	2372248.37	0.2	2.4	Fc=2450 tonf/m²
A615Gr60	Rebar	20389019.16	0.3	7.85	Fy=42184.18 tonf/m², Fu=63276.27 tonf/m²
MAD-SN	Other	1427602.7	0.3	0	
SNN	Concrete	2153810.58	0.2	0	Fc=2100 tonf/m²
SNN MET	Steel	20389019.16	0.3	0	Fy=35153.48 tonf/m², Fu=45699.53 tonf/m²

2.2 Frame Sections

Table 2.2 - Frame Sections - Summary

Name	Material	Shape
C40X40	24.5MPA	Concrete Rectangular
C50X50	24.5MPA	Concrete Rectangular
CORREA	MAD-SN	Concrete Rectangular
IPE300	SNN	Steel I/Wide Flange
SOLERA	MAD-SN	Concrete Rectangular
TIRANTE	MAD-SN	Concrete Rectangular
V20X60	24.5MPA	Concrete Rectangular
V30X40	24.5MPA	Concrete Rectangular
VGA	MAD-SN	Concrete Rectangular

2.3 Shell Sections

Table 2.3 - Shell Sections - Summary

Name	Design Type	Element Type	Material	Total Thickness m
C.RASO	Slab	Membrane	MAD-SN	0.05
CUB	Slab	Membrane	SNN MET	0.0001
CUB 2 DIR	Slab	Membrane	SNN MET	0.0001
ENT-MAD	Slab	Membrane	MAD-SN	0.05
P30	Wall	Shell-Thin	24.5MPA	0.3
P40	Wall	Shell-Thin	24.5MPA	0.4

3 Assignments

This chapter provides a listing of the assignments applied to the model.

Table 3.0 - Assignments - Diaphragm

Name	Type
D1	Semi-Rigid
D2	Semi-Rigid
D3	Semi-Rigid
D4	Semi-Rigid
D5	Semi-Rigid
D6	Semi-Rigid
D7	Semi-Rigid

3.1 Joint Assignments

Table 3.1 - Joint Assignments - Summary

Story	Label	Unique Name	Diaphragm	Restraints
NE+19.03	7	193	D7	
NE+19.03	8	205	D7	
NE+19.03	9	156	D7	
NE+19.03	10	195	D7	
NE+19.03	17	203	D7	
NE+19.03	18	204	D7	
NE+19.03	19	207	D7	
NE+19.03	20	208	D7	
NE+19.03	2	31	D7	
NE+19.03	4	59	D7	
NE+19.03	72	249	D7	
NE+19.03	73	253	D7	
NE+15.63	7	223	D6	
NE+15.63	8	233	D6	
NE+15.63	9	158	D6	
NE+15.63	10	224	D6	
NE+15.63	17	201	D6	
NE+15.63	18	232	D6	
NE+15.63	19	234	D6	
NE+15.63	20	206	D6	
NE+15.63	40	235	D6	
NE+15.63	46	77	D6	
NE+15.63	57	182	D6	
NE+15.63	58	183	D6	
NE+15.63	59	184	D6	
NE+15.63	60	186	D6	
NE+15.63	61	187	D6	
NE+15.63	64	188	D6	
NE+15.63	65	231	D6	
NE+15.63	267	254	From Area	
NE+15.63	326	481	From Area	
NE+15.63	342	610	From Area	
NE+15.63	343	728	From Area	

Story	Label	Unique Name	Diaphragm	Restraints
NE+15.63	344	740	From Area	
NE+15.63	345	832	From Area	
NE+15.63	346	833	From Area	
NE+15.63	347	834	From Area	
NE+15.63	640	2047	From Area	
NE+15.63	641	2048	From Area	
NE+15.63	642	2049	From Area	
NE+15.63	646	2053	From Area	
NE+15.63	647	2054	From Area	
NE+15.63	648	2055	From Area	
NE+15.63	649	2056	From Area	
NE+15.63	650	2057	From Area	
NE+15.63	651	2058	From Area	
NE+15.63	652	2059	From Area	
NE+15.63	653	2060	From Area	
NE+15.63	654	2061	From Area	
NE+15.63	655	2062	From Area	
NE+15.63	656	2063	From Area	
NE+15.63	657	2064	From Area	
NE+15.63	658	2065	From Area	
NE+15.63	659	2066	From Area	
NE+15.63	660	2067	From Area	
NE+15.63	661	2068	From Area	
NE+15.63	662	2069	From Area	
NE+15.63	663	2070	From Area	
NE+15.63	664	2071	From Area	
NE+15.63	665	2072	From Area	
NE+15.63	666	2073	From Area	
NE+15.63	667	2074	From Area	
NE+15.63	668	2075	From Area	
NE+15.63	669	2076	From Area	
NE+15.63	670	2077	From Area	
NE+15.63	671	2078	From Area	
NE+15.63	672	2079	From Area	
NE+15.63	673	2080	From Area	
NE+15.63	674	2081	From Area	
NE+15.63	675	2082	From Area	
NE+15.63	676	2083	From Area	
NE+15.63	677	2084	From Area	
NE+15.63	678	2085	From Area	
NE+15.63	679	2086	From Area	
NE+15.63	680	2087	From Area	
NE+15.63	681	2088	From Area	
NE+15.63	682	2089	From Area	
NE+15.63	683	2090	From Area	
NE+15.63	684	2091	From Area	
NE+15.63	685	2092	From Area	
NE+15.63	686	2093	From Area	
NE+15.63	687	2094	From Area	

Story	Label	Unique Name	Diaphragm	Restraints
NE+15.63	688	2095	From Area	
NE+15.63	689	2096	From Area	
NE+15.63	690	2097	From Area	
NE+15.63	691	2098	From Area	
NE+15.63	692	2099	From Area	
NE+15.63	693	2100	From Area	
NE+15.63	694	2101	From Area	
NE+15.63	695	2102	From Area	
NE+15.63	696	2103	From Area	
NE+15.63	697	2104	From Area	
NE+15.63	698	2105	From Area	
NE+15.63	699	2106	From Area	
NE+15.63	700	2107	From Area	
NE+15.63	701	2108	From Area	
NE+15.63	702	2109	From Area	
NE+15.63	703	2110	From Area	
NE+15.63	704	2111	From Area	
NE+15.63	705	2112	From Area	
NE+15.63	706	2113	From Area	
NE+15.63	707	2114	From Area	
NE+15.63	708	2115	From Area	
NE+15.63	709	2116	From Area	
NE+15.63	710	2117	From Area	
NE+15.63	711	2118	From Area	
NE+15.63	712	2119	From Area	
NE+15.63	713	2120	From Area	
NE+15.63	714	2121	From Area	
NE+15.63	715	2122	From Area	
NE+15.63	716	2123	From Area	
NE+15.63	717	2124	From Area	
NE+15.63	718	2125	From Area	
NE+15.63	719	2126	From Area	
NE+15.63	720	2127	From Area	
NE+15.63	721	2128	From Area	
NE+15.63	722	2129	From Area	
NE+15.63	723	2130	From Area	
NE+15.63	724	2131	From Area	
NE+15.63	725	2132	From Area	
NE+15.63	726	2133	From Area	
NE+15.63	727	2134	From Area	
NE+15.63	728	2135	From Area	
NE+15.63	729	2136	From Area	
NE+15.63	730	2137	From Area	
NE+15.63	731	2138	From Area	
NE+15.63	732	2139	From Area	
NE+15.63	733	2140	From Area	
NE+15.63	734	2141	From Area	
NE+15.63	735	2142	From Area	
NE+15.63	736	2143	From Area	

Story	Label	Unique Name	Diaphragm	Restraints
NE+15.63	737	2144	From Area	
NE+15.63	738	2145	From Area	
NE+15.63	739	2146	From Area	
NE+15.63	740	2147	From Area	
NE+15.63	741	2148	From Area	
NE+15.63	742	2149	From Area	
NE+15.63	743	2150	From Area	
NE+15.63	744	2151	From Area	
NE+15.63	2	30	From Area	
NE+15.63	4	69	From Area	
NE+15.63	72	248	From Area	
NE+15.63	73	252	From Area	
NE+11.82	7	250	D5	
NE+11.82	8	260	D5	
NE+11.82	9	159	D5	
NE+11.82	10	251	D5	
NE+11.82	17	258	D5	
NE+11.82	18	259	D5	
NE+11.82	19	261	D5	
NE+11.82	20	262	D5	
NE+11.82	23	265	D5	
NE+11.82	25	96	D5	
NE+11.82	24	226	D5	
NE+11.82	31	229	D5	
NE+11.82	35	236	D5	
NE+11.82	42	237	D5	
NE+11.82	48	238	D5	
NE+11.82	50	239	D5	
NE+11.82	51	240	D5	
NE+11.82	52	241	D5	
NE+11.82	109	379	D5	
NE+11.82	110	381	D5	
NE+11.82	115	415	D5	
NE+11.82	117	422	D5	
NE+11.82	196	809	D5	
NE+11.82	199	811	D5	
NE+11.82	200	813	D5	
NE+11.82	203	815	D5	
NE+11.82	215	1686	D5	
NE+11.82	56	2178	From Area	
NE+11.82	62	2180	From Area	
NE+11.82	2	29	From Area	
NE+11.82	4	70	From Area	
NE+11.82	66	192	From Area	
NE+11.82	67	197	From Area	
NE+11.82	69	221	From Area	
NE+11.82	70	227	From Area	
NE+11.82	72	245	From Area	
NE+11.82	73	247	From Area	

Story	Label	Unique Name	Diaphragm	Restraints
NE+11.82	12	273	From Area	
NE+11.82	15	279	From Area	
NE+11.82	94	424	From Area	
NE+10.16	7	1198	From Area	
NE+10.16	8	957	From Area	
NE+10.16	9	941	From Area	
NE+10.16	10	1186	From Area	
NE+10.16	17	945	From Area	
NE+10.16	18	1210	From Area	
NE+10.16	19	1220	From Area	
NE+10.16	20	890	From Area	
NE+10.16	23	1025	From Area	
NE+10.16	25	1062	From Area	
NE+10.16	30	299	From Area	
NE+10.16	32	301	From Area	
NE+10.16	34	307	From Area	
NE+10.16	36	893	From Area	
NE+10.16	38	310	From Area	
NE+10.16	39	317	From Area	
NE+10.16	41	318	From Area	
NE+10.16	43	929	From Area	
NE+10.16	45	322	From Area	
NE+10.16	47	324	From Area	
NE+10.16	49	326	From Area	
NE+10.16	40	328	From Area	
NE+10.16	24	978	From Area	
NE+10.16	31	980	From Area	
NE+10.16	35	982	From Area	
NE+10.16	42	984	From Area	
NE+10.16	48	988	From Area	
NE+10.16	50	990	From Area	
NE+10.16	51	992	From Area	
NE+10.16	52	994	From Area	
NE+10.16	109	1127	From Area	
NE+10.16	110	886	From Area	
NE+10.16	146	396	D5	
NE+10.16	56	191	From Area	
NE+10.16	62	202	From Area	
NE+10.16	2	47	From Area	
NE+10.16	4	83	From Area	
NE+10.16	66	189	From Area	
NE+10.16	67	196	From Area	
NE+10.16	69	200	From Area	
NE+10.16	70	225	From Area	
NE+10.16	72	244	From Area	
NE+10.16	73	246	From Area	
NE+10.16	12	272	From Area	
NE+10.16	15	284	From Area	
NE+9.36	7	1196	From Area	

Story	Label	Unique Name	Diaphragm	Restraints
NE+9.36	8	956	From Area	
NE+9.36	9	940	From Area	
NE+9.36	10	1184	From Area	
NE+9.36	17	943	From Area	
NE+9.36	18	1208	From Area	
NE+9.36	19	1218	From Area	
NE+9.36	20	884	From Area	
NE+9.36	23	1023	From Area	
NE+9.36	25	1061	From Area	
NE+9.36	36	892	From Area	
NE+9.36	43	928	From Area	
NE+9.36	24	977	From Area	
NE+9.36	31	979	From Area	
NE+9.36	35	981	From Area	
NE+9.36	42	983	From Area	
NE+9.36	48	987	From Area	
NE+9.36	50	989	From Area	
NE+9.36	51	991	From Area	
NE+9.36	52	993	From Area	
NE+9.36	109	1126	From Area	
NE+9.36	110	874	From Area	
NE+9.36	56	181	From Area	
NE+9.36	62	199	From Area	
NE+9.36	2	45	From Area	
NE+9.36	4	81	From Area	
NE+9.36	66	178	From Area	
NE+9.36	67	194	From Area	
NE+9.36	69	198	From Area	
NE+9.36	70	222	From Area	
NE+9.36	72	257	From Area	
NE+9.36	73	266	From Area	
NE+9.36	12	271	From Area	
NE+9.36	15	282	From Area	
NE+9.01	7	277	D4	
NE+9.01	8	287	D4	
NE+9.01	9	160	D4	
NE+9.01	10	278	D4	
NE+9.01	17	285	D4	
NE+9.01	18	286	D4	
NE+9.01	19	288	D4	
NE+9.01	20	289	D4	
NE+9.01	21	290	D4	
NE+9.01	22	291	D4	
NE+9.01	23	292	D4	
NE+9.01	25	293	D4	
NE+9.01	26	294	D4	
NE+9.01	28	296	D4	
NE+9.01	36	90	D4	
NE+9.01	43	126	D4	

Story	Label	Unique Name	Diaphragm	Restraints
NE+9.01	24	140	D4	
NE+9.01	31	142	D4	
NE+9.01	35	150	D4	
NE+9.01	42	166	D4	
NE+9.01	48	172	D4	
NE+9.01	50	185	D4	
NE+9.01	51	210	D4	
NE+9.01	52	212	D4	
NE+9.01	109	378	D4	
NE+9.01	110	380	D4	
NE+9.01	140	576	D4	
NE+9.01	141	575	D4	
NE+9.01	142	568	D4	
NE+9.01	143	567	D4	
NE+9.01	244	2154	D4	
NE+9.01	384	2152	D4	
NE+9.01	395	2153	D4	
NE+9.01	402	2155	D4	
NE+9.01	56	1161	From Area	
NE+9.01	62	1870	From Area	
NE+9.01	2	44	From Area	
NE+9.01	4	73	From Area	
NE+9.01	66	104	From Area	
NE+9.01	67	105	From Area	
NE+9.01	69	108	From Area	
NE+9.01	70	110	From Area	
NE+9.01	72	256	From Area	
NE+9.01	73	264	From Area	
NE+9.01	12	270	From Area	
NE+9.01	15	276	From Area	
NE+7.46	7	1202	From Area	
NE+7.46	8	958	From Area	
NE+7.46	9	942	From Area	
NE+7.46	10	1188	From Area	
NE+7.46	17	949	From Area	
NE+7.46	18	1214	From Area	
NE+7.46	19	1223	From Area	
NE+7.46	20	882	From Area	
NE+7.46	23	1065	From Area	
NE+7.46	25	1089	From Area	
NE+7.46	26	952	From Area	
NE+7.46	28	954	From Area	
NE+7.46	36	894	From Area	
NE+7.46	43	930	From Area	
NE+7.46	24	967	From Area	
NE+7.46	31	968	From Area	
NE+7.46	35	969	From Area	
NE+7.46	42	970	From Area	
NE+7.46	48	972	From Area	

Story	Label	Unique Name	Diaphragm	Restraints
NE+7.46	50	973	From Area	
NE+7.46	51	974	From Area	
NE+7.46	52	975	From Area	
NE+7.46	109	1128	From Area	
NE+7.46	110	876	From Area	
NE+7.46	140	1158	From Area	
NE+7.46	143	1155	From Area	
NE+7.46	56	165	From Area	
NE+7.46	62	175	From Area	
NE+7.46	2	43	From Area	
NE+7.46	4	86	From Area	
NE+7.46	66	164	From Area	
NE+7.46	67	168	From Area	
NE+7.46	69	174	From Area	
NE+7.46	70	177	From Area	
NE+7.46	72	255	From Area	
NE+7.46	73	263	From Area	
NE+7.46	12	269	From Area	
NE+7.46	15	283	From Area	
NE+5.60	1	298	D3	
NE+5.60	3	300	D3	
NE+5.60	5	302	D3	
NE+5.60	6	303	D3	
NE+5.60	7	304	D3	
NE+5.60	8	314	D3	
NE+5.60	9	161	D3	
NE+5.60	10	305	D3	
NE+5.60	11	306	D3	
NE+5.60	13	308	D3	
NE+5.60	14	309	D3	
NE+5.60	16	311	D3	
NE+5.60	17	312	D3	
NE+5.60	18	313	D3	
NE+5.60	19	315	D3	
NE+5.60	20	316	D3	
NE+5.60	23	319	D3	
NE+5.60	25	320	D3	
NE+5.60	26	321	D3	
NE+5.60	28	323	D3	
NE+5.60	30	71	D3	
NE+5.60	32	72	D3	
NE+5.60	34	82	D3	
NE+5.60	36	91	D3	
NE+5.60	38	100	D3	
NE+5.60	39	109	D3	
NE+5.60	41	118	D3	
NE+5.60	43	127	D3	
NE+5.60	45	136	D3	
NE+5.60	47	145	D3	

Story	Label	Unique Name	Diaphragm	Restraints
NE+5.60	49	154	D3	
NE+5.60	24	133	D3	
NE+5.60	31	141	D3	
NE+5.60	35	149	D3	
NE+5.60	42	151	D3	
NE+5.60	48	170	D3	
NE+5.60	50	173	D3	
NE+5.60	51	209	D3	
NE+5.60	52	211	D3	
NE+5.60	105	12	From Area	
NE+5.60	108	21	From Area	
NE+5.60	109	382	D3	
NE+5.60	110	383	D3	
NE+5.60	33	537	D3	
NE+5.60	44	539	D3	
NE+5.60	140	572	D3	
NE+5.60	143	566	D3	
NE+5.60	124	583	D3	
NE+5.60	127	590	D3	
NE+5.60	629	2036	D3	
NE+5.60	630	2037	D3	
NE+5.60	631	2038	D3	
NE+5.60	632	2039	D3	
NE+5.60	633	2040	D3	
NE+5.60	634	2041	D3	
NE+5.60	635	2042	D3	
NE+5.60	636	2043	D3	
NE+5.60	56	163	From Area	
NE+5.60	62	171	From Area	
NE+5.60	2	42	From Area	
NE+5.60	4	74	From Area	
NE+5.60	66	157	From Area	
NE+5.60	67	167	From Area	
NE+5.60	69	169	From Area	
NE+5.60	70	176	From Area	
NE+5.60	72	230	From Area	
NE+5.60	73	243	From Area	
NE+5.60	12	267	From Area	
NE+5.60	15	280	From Area	
NE+4.77	1	325	D2	
NE+4.77	3	327	D2	
NE+4.77	7	331	D2	
NE+4.77	8	341	D2	
NE+4.77	9	162	D2	
NE+4.77	10	332	D2	
NE+4.77	13	335	D2	
NE+4.77	14	336	D2	
NE+4.77	17	339	D2	
NE+4.77	18	340	D2	

Story	Label	Unique Name	Diaphragm	Restraints
NE+4.77	19	342	D2	
NE+4.77	20	343	D2	
NE+4.77	21	344	D2	
NE+4.77	22	345	D2	
NE+4.77	23	346	D2	
NE+4.77	25	347	D2	
NE+4.77	26	348	D2	
NE+4.77	28	350	D2	
NE+4.77	36	92	D2	
NE+4.77	43	128	D2	
NE+4.77	24	213	D2	
NE+4.77	31	214	D2	
NE+4.77	35	215	D2	
NE+4.77	42	216	D2	
NE+4.77	48	217	D2	
NE+4.77	50	218	D2	
NE+4.77	51	219	D2	
NE+4.77	52	220	D2	
NE+4.77	105	384	D2	
NE+4.77	108	390	D2	
NE+4.77	109	392	D2	
NE+4.77	110	393	D2	
NE+4.77	115	414	D2	
NE+4.77	117	421	D2	
NE+4.77	33	545	D2	
NE+4.77	44	547	D2	
NE+4.77	140	569	D2	
NE+4.77	141	570	D2	
NE+4.77	142	573	D2	
NE+4.77	143	574	D2	
NE+4.77	124	430	D2	
NE+4.77	127	431	D2	
NE+4.77	240	1101	D2	
NE+4.77	68	1832	D2	
NE+4.77	197	1858	D2	
NE+4.77	235	1693	D2	
NE+4.77	239	1731	D2	
NE+4.77	242	1733	D2	
NE+4.77	244	1735	D2	
NE+4.77	250	1737	D2	
NE+4.77	254	1739	D2	
NE+4.77	272	1741	D2	
NE+4.77	286	1744	D2	
NE+4.77	303	1746	D2	
NE+4.77	309	1748	D2	
NE+4.77	311	1750	D2	
NE+4.77	315	1752	D2	
NE+4.77	321	1754	D2	
NE+4.77	323	1756	D2	

Story	Label	Unique Name	Diaphragm	Restraints
NE+4.77	340	1765	D2	
NE+4.77	348	1767	D2	
NE+4.77	362	1769	D2	
NE+4.77	364	1771	D2	
NE+4.77	366	1773	D2	
NE+4.77	368	1775	D2	
NE+4.77	370	1777	D2	
NE+4.77	399	1806	D2	
NE+4.77	400	1807	D2	
NE+4.77	401	1808	D2	
NE+4.77	402	1809	D2	
NE+4.77	403	1810	D2	
NE+4.77	404	1811	D2	
NE+4.77	405	1812	D2	
NE+4.77	407	1814	D2	
NE+4.77	408	1815	D2	
NE+4.77	409	1816	D2	
NE+4.77	410	1817	D2	
NE+4.77	411	1818	D2	
NE+4.77	412	1819	D2	
NE+4.77	413	1820	D2	
NE+4.77	414	1821	D2	
NE+4.77	415	1822	D2	
NE+4.77	416	1823	D2	
NE+4.77	417	1824	D2	
NE+4.77	418	1825	D2	
NE+4.77	419	1826	D2	
NE+4.77	420	1827	D2	
NE+4.77	421	1828	D2	
NE+4.77	422	1829	D2	
NE+4.77	423	1830	D2	
NE+4.77	426	1833	D2	
NE+4.77	427	1834	D2	
NE+4.77	428	1835	D2	
NE+4.77	429	1836	D2	
NE+4.77	430	1837	D2	
NE+4.77	431	1838	D2	
NE+4.77	432	1839	D2	
NE+4.77	433	1840	D2	
NE+4.77	434	1841	D2	
NE+4.77	435	1842	D2	
NE+4.77	436	1843	D2	
NE+4.77	437	1844	D2	
NE+4.77	438	1845	D2	
NE+4.77	439	1846	D2	
NE+4.77	440	1847	D2	
NE+4.77	441	1848	D2	
NE+4.77	442	1849	D2	
NE+4.77	443	1850	D2	

Story	Label	Unique Name	Diaphragm	Restraints
NE+4.77	444	1851	D2	
NE+4.77	445	1852	D2	
NE+4.77	446	1853	D2	
NE+4.77	447	1854	D2	
NE+4.77	448	1855	D2	
NE+4.77	449	1856	D2	
NE+4.77	56	1831	D2	
NE+4.77	62	1857	D2	
NE+4.77	2	41	From Area	
NE+4.77	4	75	From Area	
NE+4.77	66	88	From Area	
NE+4.77	67	95	From Area	
NE+4.77	69	99	From Area	
NE+4.77	70	102	From Area	
NE+4.77	72	228	From Area	
NE+4.77	73	242	From Area	
NE+4.77	12	101	From Area	
NE+4.77	15	281	From Area	
NE+3.17	1	4	D1	
NE+3.17	3	6	D1	
NE+3.17	7	14	D1	
NE+3.17	8	16	D1	
NE+3.17	9	20	D1	
NE+3.17	10	19	D1	
NE+3.17	11	22	D1	
NE+3.17	13	26	D1	
NE+3.17	14	28	D1	
NE+3.17	16	32	D1	
NE+3.17	17	34	D1	
NE+3.17	18	36	D1	
NE+3.17	19	38	D1	
NE+3.17	20	40	D1	
NE+3.17	23	50	D1	
NE+3.17	25	52	D1	
NE+3.17	26	54	D1	
NE+3.17	28	58	D1	
NE+3.17	30	46	D1	
NE+3.17	32	48	D1	
NE+3.17	34	76	D1	
NE+3.17	36	85	D1	
NE+3.17	38	94	D1	
NE+3.17	39	103	D1	
NE+3.17	41	112	D1	
NE+3.17	43	121	D1	
NE+3.17	45	130	D1	
NE+3.17	47	139	D1	
NE+3.17	49	148	D1	
NE+3.17	24	62	D1	
NE+3.17	31	64	D1	

Story	Label	Unique Name	Diaphragm	Restraints
NE+3.17	35	78	D1	
NE+3.17	42	106	D1	
NE+3.17	48	114	D1	
NE+3.17	50	122	D1	
NE+3.17	51	124	D1	
NE+3.17	52	132	D1	
NE+3.17	105	367	D1	
NE+3.17	107	371	D1	
NE+3.17	108	373	D1	
NE+3.17	109	375	D1	
NE+3.17	110	377	D1	
NE+3.17	33	179	D1	
NE+3.17	44	190	D1	
NE+3.17	87	297	D1	
NE+3.17	121	613	D1	
NE+3.17	122	1154	D1	
NE+3.17	134	627	D1	
NE+3.17	140	560	D1	
NE+3.17	143	563	D1	
NE+3.17	124	432	D1	
NE+3.17	127	439	D1	
NE+3.17	158	502	D1	
NE+3.17	164	460	D1	
NE+3.17	187	645	D1	
NE+3.17	188	647	D1	
NE+3.17	131	458	D1	
NE+3.17	137	449	D1	
NE+3.17	120	60	D1	
NE+3.17	132	268	D1	
NE+3.17	135	466	D1	
NE+3.17	144	517	D1	
NE+3.17	257	1175	D1	
NE+3.17	68	1119	D1	
NE+3.17	197	1159	D1	
NE+3.17	454	1861	D1	
NE+3.17	455	1862	D1	
NE+3.17	458	1865	D1	
NE+3.17	504	1911	D1	
NE+3.17	506	1913	D1	
NE+3.17	508	1915	D1	
NE+3.17	510	1917	D1	
NE+3.17	512	1919	D1	
NE+3.17	514	1921	D1	
NE+3.17	516	1923	D1	
NE+3.17	518	1925	D1	
NE+3.17	519	1926	D1	
NE+3.17	520	1927	D1	
NE+3.17	521	1928	D1	
NE+3.17	522	1929	D1	

Story	Label	Unique Name	Diaphragm	Restraints
NE+3.17	523	1930	D1	
NE+3.17	524	1931	D1	
NE+3.17	525	1932	D1	
NE+3.17	526	1933	D1	
NE+3.17	527	1934	D1	
NE+3.17	528	1935	D1	
NE+3.17	529	1936	D1	
NE+3.17	530	1937	D1	
NE+3.17	531	1938	D1	
NE+3.17	532	1939	D1	
NE+3.17	533	1940	D1	
NE+3.17	534	1941	D1	
NE+3.17	536	1943	D1	
NE+3.17	537	1944	D1	
NE+3.17	538	1945	D1	
NE+3.17	539	1946	D1	
NE+3.17	561	1968	D1	
NE+3.17	562	1969	D1	
NE+3.17	563	1970	D1	
NE+3.17	564	1971	D1	
NE+3.17	565	1972	D1	
NE+3.17	566	1973	D1	
NE+3.17	567	1974	D1	
NE+3.17	568	1975	D1	
NE+3.17	569	1976	D1	
NE+3.17	570	1977	D1	
NE+3.17	571	1978	D1	
NE+3.17	572	1979	D1	
NE+3.17	579	1986	D1	
NE+3.17	580	1987	D1	
NE+3.17	581	1988	D1	
NE+3.17	582	1989	D1	
NE+3.17	583	1990	D1	
NE+3.17	585	1992	D1	
NE+3.17	587	1994	D1	
NE+3.17	589	1996	D1	
NE+3.17	591	1998	D1	
NE+3.17	593	2000	D1	
NE+3.17	595	2002	D1	
NE+3.17	597	2004	D1	
NE+3.17	598	2005	D1	
NE+3.17	599	2006	D1	
NE+3.17	600	2007	D1	
NE+3.17	601	2008	D1	
NE+3.17	602	2009	D1	
NE+3.17	603	2010	D1	
NE+3.17	604	2011	D1	
NE+3.17	606	2013	D1	
NE+3.17	608	2015	D1	

Story	Label	Unique Name	Diaphragm	Restraints
NE+3.17	609	2016	D1	
NE+3.17	610	2017	D1	
NE+3.17	620	2027	D1	
NE+3.17	621	2028	D1	
NE+3.17	622	2029	D1	
NE+3.17	623	2030	D1	
NE+3.17	624	2031	D1	
NE+3.17	625	2032	D1	
NE+3.17	626	2033	D1	
NE+3.17	627	2034	D1	
NE+3.17	628	2035	D1	
NE+3.17	56	137	From Area	
NE+3.17	62	2181	From Area	
NE+3.17	2	24	From Area	
NE+3.17	4	56	From Area	
NE+3.17	66	135	From Area	
NE+3.17	67	144	From Area	
NE+3.17	69	147	From Area	
NE+3.17	70	155	From Area	
NE+3.17	72	117	From Area	
NE+3.17	73	129	From Area	
NE+3.17	27	295	From Area	
NE+3.17	12	97	From Area	
NE+3.17	15	275	From Area	
Base	1	1	From Area	UX; UY; UZ; RX; RY; RZ
Base	3	5	From Area	UX; UY; UZ; RX; RY; RZ
Base	7	13	From Area	UX; UY; UZ; RX; RY; RZ
Base	8	15	From Area	UX; UY; UZ; RX; RY; RZ
Base	9	17	From Area	UX; UY; UZ; RX; RY; RZ
Base	10	18	From Area	UX; UY; UZ; RX; RY; RZ
Base	13	25	From Area	UX; UY; UZ; RX; RY; RZ
Base	14	27	From Area	UX; UY; UZ; RX; RY; RZ
Base	17	33	From Area	UX; UY; UZ; RX; RY; RZ
Base	18	35	From Area	UX; UY; UZ; RX; RY; RZ
Base	19	37	From Area	UX; UY; UZ; RX; RY; RZ
Base	20	39	From Area	UX; UY; UZ; RX; RY; RZ
Base	23	49	From Area	UX; UY; UZ; RX; RY; RZ
Base	25	51	From Area	UX; UY; UZ; RX; RY; RZ
Base	26	53	From Area	UX; UY; UZ; RX; RY; RZ
Base	28	57	From Area	UX; UY; UZ; RX; RY; RZ
Base	36	84	From Area	UX; UY; UZ; RX; RY; RZ
Base	43	120	From Area	UX; UY; UZ; RX; RY; RZ
Base	24	61	From Area	UX; UY; UZ; RX; RY; RZ
Base	31	63	From Area	UX; UY; UZ; RX; RY; RZ
Base	35	65	From Area	UX; UY; UZ; RX; RY; RZ
Base	42	79	From Area	UX; UY; UZ; RX; RY; RZ
Base	48	113	From Area	UX; UY; UZ; RX; RY; RZ
Base	50	115	From Area	UX; UY; UZ; RX; RY; RZ
Base	51	123	From Area	UX; UY; UZ; RX; RY; RZ

Story	Label	Unique Name	Diaphragm	Restraints
Base	52	131	From Area	UX; UY; UZ; RX; RY; RZ
Base	105	366	From Area	UX; UY; UZ; RX; RY; RZ
Base	108	372	From Area	UX; UY; UZ; RX; RY; RZ
Base	109	374	From Area	UX; UY; UZ; RX; RY; RZ
Base	110	376	From Area	UX; UY; UZ; RX; RY; RZ
Base	33	66	From Area	UX; UY; UZ; RX; RY; RZ
Base	44	180	From Area	UX; UY; UZ; RX; RY; RZ
Base	140	557	From Area	UX; UY; UZ; RX; RY; RZ
Base	143	562	From Area	UX; UY; UZ; RX; RY; RZ
Base	124	660	From Area	UX; UY; UZ; RX; RY; RZ
Base	127	679	From Area	UX; UY; UZ; RX; RY; RZ
Base	68	365	From Area	UX; UY; UZ; RX; RY; RZ
Base	197	1133	From Area	UX; UY; UZ; RX; RY; RZ
Base	56	2176	From Area	UX; UY; UZ; RX; RY; RZ
Base	62	2179	From Area	UX; UY; UZ; RX; RY; RZ
Base	2	23	From Area	UX; UY; UZ; RX; RY; RZ
Base	4	55	From Area	UX; UY; UZ; RX; RY; RZ
Base	66	87	From Area	UX; UY; UZ; RX; RY; RZ
Base	67	138	From Area	UX; UY; UZ; RX; RY; RZ
Base	69	146	From Area	UX; UY; UZ; RX; RY; RZ
Base	70	153	From Area	UX; UY; UZ; RX; RY; RZ
Base	72	111	From Area	UX; UY; UZ; RX; RY; RZ
Base	73	119	From Area	UX; UY; UZ; RX; RY; RZ
Base	12	93	From Area	UX; UY; UZ; RX; RY; RZ
Base	15	274	From Area	UX; UY; UZ; RX; RY; RZ

Table 3.2 - Joint Assignments - Restraints

Tower	Story	Label	Unique Name	UX	UY	UZ	RX	RY	RZ
	Base	1	1	Yes	Yes	Yes	Yes	Yes	Yes
	Base	3	5	Yes	Yes	Yes	Yes	Yes	Yes
	Base	7	13	Yes	Yes	Yes	Yes	Yes	Yes
	Base	8	15	Yes	Yes	Yes	Yes	Yes	Yes
	Base	9	17	Yes	Yes	Yes	Yes	Yes	Yes
	Base	10	18	Yes	Yes	Yes	Yes	Yes	Yes
	Base	13	25	Yes	Yes	Yes	Yes	Yes	Yes
	Base	14	27	Yes	Yes	Yes	Yes	Yes	Yes
	Base	17	33	Yes	Yes	Yes	Yes	Yes	Yes
	Base	18	35	Yes	Yes	Yes	Yes	Yes	Yes
	Base	19	37	Yes	Yes	Yes	Yes	Yes	Yes
	Base	20	39	Yes	Yes	Yes	Yes	Yes	Yes
	Base	23	49	Yes	Yes	Yes	Yes	Yes	Yes
	Base	25	51	Yes	Yes	Yes	Yes	Yes	Yes
	Base	26	53	Yes	Yes	Yes	Yes	Yes	Yes
	Base	28	57	Yes	Yes	Yes	Yes	Yes	Yes
	Base	36	84	Yes	Yes	Yes	Yes	Yes	Yes
	Base	43	120	Yes	Yes	Yes	Yes	Yes	Yes
	Base	24	61	Yes	Yes	Yes	Yes	Yes	Yes
	Base	31	63	Yes	Yes	Yes	Yes	Yes	Yes

Tower	Story	Label	Unique Name	UX	UY	UZ	RX	RY	RZ
	Base	35	65	Yes	Yes	Yes	Yes	Yes	Yes
	Base	42	79	Yes	Yes	Yes	Yes	Yes	Yes
	Base	48	113	Yes	Yes	Yes	Yes	Yes	Yes
	Base	50	115	Yes	Yes	Yes	Yes	Yes	Yes
	Base	51	123	Yes	Yes	Yes	Yes	Yes	Yes
	Base	52	131	Yes	Yes	Yes	Yes	Yes	Yes
	Base	105	366	Yes	Yes	Yes	Yes	Yes	Yes
	Base	108	372	Yes	Yes	Yes	Yes	Yes	Yes
	Base	109	374	Yes	Yes	Yes	Yes	Yes	Yes
	Base	110	376	Yes	Yes	Yes	Yes	Yes	Yes
	Base	33	66	Yes	Yes	Yes	Yes	Yes	Yes
	Base	44	180	Yes	Yes	Yes	Yes	Yes	Yes
	Base	140	557	Yes	Yes	Yes	Yes	Yes	Yes
	Base	143	562	Yes	Yes	Yes	Yes	Yes	Yes
	Base	124	660	Yes	Yes	Yes	Yes	Yes	Yes
	Base	127	679	Yes	Yes	Yes	Yes	Yes	Yes
	Base	68	365	Yes	Yes	Yes	Yes	Yes	Yes
	Base	197	1133	Yes	Yes	Yes	Yes	Yes	Yes
	Base	56	2176	Yes	Yes	Yes	Yes	Yes	Yes
	Base	62	2179	Yes	Yes	Yes	Yes	Yes	Yes
	Base	2	23	Yes	Yes	Yes	Yes	Yes	Yes
	Base	4	55	Yes	Yes	Yes	Yes	Yes	Yes
	Base	66	87	Yes	Yes	Yes	Yes	Yes	Yes
	Base	67	138	Yes	Yes	Yes	Yes	Yes	Yes
	Base	69	146	Yes	Yes	Yes	Yes	Yes	Yes
	Base	70	153	Yes	Yes	Yes	Yes	Yes	Yes
	Base	72	111	Yes	Yes	Yes	Yes	Yes	Yes
	Base	73	119	Yes	Yes	Yes	Yes	Yes	Yes
	Base	12	93	Yes	Yes	Yes	Yes	Yes	Yes
	Base	15	274	Yes	Yes	Yes	Yes	Yes	Yes

3.2 Frame Assignments

Table 3.3 - Frame Assignments - Summary

Story	Label	Unique Name	Design Type	Length m	Analysis Section	Design Section	Min Number Stations	Releases
NE+19.03	C58	170	Column	3.4	C40X40	N/A	11	No
NE+19.03	C60	172	Column	3.4	C40X40	N/A	11	No
NE+19.03	C86	670	Column	3.4	C40X40	N/A	11	No
NE+19.03	C92	688	Column	3.4	C40X40	N/A	11	No
NE+15.63	C58	169	Column	3.81	C40X40	N/A	11	No
NE+15.63	C60	171	Column	3.81	C40X40	N/A	11	No
NE+15.63	C86	669	Column	3.81	C40X40	N/A	11	No
NE+15.63	C92	687	Column	3.81	C40X40	N/A	11	No
NE+11.82	C44	551	Column	1.6571	C50X50	N/A	11	No
NE+11.82	C46	557	Column	1.6571	C50X50	N/A	11	No
NE+11.82	C48	563	Column	1.6571	C50X50	N/A	11	No
NE+11.82	C50	570	Column	1.6571	C50X50	N/A	11	No
NE+11.82	C53	577	Column	1.6571	C50X50	N/A	11	No

Story	Label	Unique Name	Design Type	Length m	Analysis Section	Design Section	Min Number Stations	Releases
NE+11.82	C58	591	Column	1.6571	C40X40	N/A	11	No
NE+11.82	C60	598	Column	1.6571	C40X40	N/A	11	No
NE+11.82	C66	619	Column	1.6571	C50X50	N/A	11	No
NE+11.82	C68	625	Column	1.6571	C50X50	N/A	11	No
NE+11.82	C70	631	Column	1.6571	C50X50	N/A	11	No
NE+11.82	C72	638	Column	1.6571	C50X50	N/A	11	No
NE+11.82	C75	645	Column	1.6571	C50X50	N/A	11	No
NE+11.82	C86	677	Column	1.6571	C40X40	N/A	11	No
NE+11.82	C92	695	Column	1.6571	C40X40	N/A	11	No
NE+11.82	C21	545	Column	1.6571	C50X50	N/A	11	No
NE+11.82	C22	613	Column	1.6571	C50X50	N/A	11	No
NE+10.16	C44	550	Column	0.801	C50X50	N/A	11	No
NE+10.16	C46	556	Column	0.801	C50X50	N/A	11	No
NE+10.16	C48	562	Column	0.801	C50X50	N/A	11	No
NE+10.16	C50	569	Column	0.801	C50X50	N/A	11	No
NE+10.16	C53	576	Column	0.801	C50X50	N/A	11	No
NE+10.16	C58	590	Column	0.801	C40X40	N/A	11	No
NE+10.16	C60	597	Column	0.801	C40X40	N/A	11	No
NE+10.16	C66	618	Column	0.801	C50X50	N/A	11	No
NE+10.16	C68	624	Column	0.801	C50X50	N/A	11	No
NE+10.16	C70	630	Column	0.801	C50X50	N/A	11	No
NE+10.16	C72	637	Column	0.801	C50X50	N/A	11	No
NE+10.16	C75	644	Column	0.801	C50X50	N/A	11	No
NE+10.16	C86	676	Column	0.801	C40X40	N/A	11	No
NE+10.16	C92	694	Column	0.801	C40X40	N/A	11	No
NE+10.16	C19	397	Column	0.801	C40X40	N/A	11	No
NE+10.16	C20	411	Column	0.801	C40X40	N/A	11	No
NE+10.16	C21	544	Column	0.801	C50X50	N/A	11	No
NE+10.16	C22	612	Column	0.801	C50X50	N/A	11	No
NE+9.36	C44	549	Column	0.3482	C50X50	N/A	11	No
NE+9.36	C46	555	Column	0.3482	C50X50	N/A	11	No
NE+9.36	C48	561	Column	0.3482	C50X50	N/A	11	No
NE+9.36	C50	568	Column	0.3482	C50X50	N/A	11	No
NE+9.36	C53	575	Column	0.3482	C50X50	N/A	11	No
NE+9.36	C58	589	Column	0.3482	C40X40	N/A	11	No
NE+9.36	C60	596	Column	0.3482	C40X40	N/A	11	No
NE+9.36	C66	617	Column	0.3482	C50X50	N/A	11	No
NE+9.36	C68	623	Column	0.3482	C50X50	N/A	11	No
NE+9.36	C70	629	Column	0.3482	C50X50	N/A	11	No
NE+9.36	C72	636	Column	0.3482	C50X50	N/A	11	No
NE+9.36	C75	643	Column	0.3482	C50X50	N/A	11	No
NE+9.36	C86	675	Column	0.3482	C40X40	N/A	11	No
NE+9.36	C92	693	Column	0.3482	C40X40	N/A	11	No
NE+9.36	C19	396	Column	0.3482	C40X40	N/A	11	No
NE+9.36	C20	405	Column	0.3482	C40X40	N/A	11	No
NE+9.36	C21	543	Column	0.3482	C50X50	N/A	11	No
NE+9.36	C22	611	Column	0.3482	C50X50	N/A	11	No
NE+9.01	C44	548	Column	1.5568	C50X50	N/A	11	No
NE+9.01	C46	554	Column	1.5568	C50X50	N/A	11	No

Story	Label	Unique Name	Design Type	Length m	Analysis Section	Design Section	Min Number Stations	Releases
NE+9.01	C48	560	Column	1.5568	C50X50	N/A	11	No
NE+9.01	C50	567	Column	1.5568	C50X50	N/A	11	No
NE+9.01	C53	574	Column	1.5568	C50X50	N/A	11	No
NE+9.01	C58	588	Column	1.5568	C40X40	N/A	11	No
NE+9.01	C60	595	Column	1.5568	C40X40	N/A	11	No
NE+9.01	C66	616	Column	1.5568	C50X50	N/A	11	No
NE+9.01	C68	622	Column	1.5568	C50X50	N/A	11	No
NE+9.01	C70	628	Column	1.5568	C50X50	N/A	11	No
NE+9.01	C72	635	Column	1.5568	C50X50	N/A	11	No
NE+9.01	C75	642	Column	1.5568	C50X50	N/A	11	No
NE+9.01	C86	674	Column	1.5568	C40X40	N/A	11	No
NE+9.01	C92	692	Column	1.5568	C40X40	N/A	11	No
NE+9.01	C13	273	Column	1.5568	C40X40	N/A	11	No
NE+9.01	C15	301	Column	1.5568	C40X40	N/A	11	No
NE+9.01	C17	376	Column	1.5568	C40X40	N/A	11	No
NE+9.01	C18	389	Column	1.5568	C40X40	N/A	11	No
NE+9.01	C19	394	Column	1.5568	C40X40	N/A	11	No
NE+9.01	C20	404	Column	1.5568	C40X40	N/A	11	No
NE+9.01	C21	540	Column	1.5568	C50X50	N/A	11	No
NE+9.01	C22	610	Column	1.5568	C50X50	N/A	11	No
NE+7.46	C44	547	Column	1.8529	C50X50	N/A	11	No
NE+7.46	C46	553	Column	1.8529	C50X50	N/A	11	No
NE+7.46	C48	559	Column	1.8529	C50X50	N/A	11	No
NE+7.46	C50	566	Column	1.8529	C50X50	N/A	11	No
NE+7.46	C53	573	Column	1.8529	C50X50	N/A	11	No
NE+7.46	C58	587	Column	1.8529	C40X40	N/A	11	No
NE+7.46	C60	594	Column	1.8529	C40X40	N/A	11	No
NE+7.46	C66	615	Column	1.8529	C50X50	N/A	11	No
NE+7.46	C68	621	Column	1.8529	C50X50	N/A	11	No
NE+7.46	C70	627	Column	1.8529	C50X50	N/A	11	No
NE+7.46	C72	634	Column	1.8529	C50X50	N/A	11	No
NE+7.46	C75	641	Column	1.8529	C50X50	N/A	11	No
NE+7.46	C86	673	Column	1.8529	C40X40	N/A	11	No
NE+7.46	C92	691	Column	1.8529	C40X40	N/A	11	No
NE+7.46	C13	257	Column	1.8529	C40X40	N/A	11	No
NE+7.46	C15	300	Column	1.8529	C40X40	N/A	11	No
NE+7.46	C17	375	Column	1.8529	C40X40	N/A	11	No
NE+7.46	C18	387	Column	1.8529	C40X40	N/A	11	No
NE+7.46	C19	393	Column	1.8529	C40X40	N/A	11	No
NE+7.46	C20	403	Column	1.8529	C40X40	N/A	11	No
NE+7.46	C21	538	Column	1.8529	C50X50	N/A	11	No
NE+7.46	C22	609	Column	1.8529	C50X50	N/A	11	No
NE+5.60	C44	546	Column	0.8304	C50X50	N/A	11	No
NE+5.60	C46	552	Column	0.8304	C50X50	N/A	11	No
NE+5.60	C48	558	Column	0.8304	C50X50	N/A	11	No
NE+5.60	C50	565	Column	0.8304	C50X50	N/A	11	No
NE+5.60	C53	572	Column	0.8304	C50X50	N/A	11	No
NE+5.60	C58	586	Column	0.8304	C40X40	N/A	11	No
NE+5.60	C60	593	Column	0.8304	C40X40	N/A	11	No

Story	Label	Unique Name	Design Type	Length m	Analysis Section	Design Section	Min Number Stations	Releases
NE+5.60	C66	614	Column	0.8304	C50X50	N/A	11	No
NE+5.60	C68	620	Column	0.8304	C50X50	N/A	11	No
NE+5.60	C70	626	Column	0.8304	C50X50	N/A	11	No
NE+5.60	C72	633	Column	0.8304	C50X50	N/A	11	No
NE+5.60	C75	640	Column	0.8304	C50X50	N/A	11	No
NE+5.60	C86	672	Column	0.8304	C40X40	N/A	11	No
NE+5.60	C92	690	Column	0.8304	C40X40	N/A	11	No
NE+5.60	C1	177	Column	0.8304	C40X40	N/A	11	No
NE+5.60	C2	180	Column	0.8304	C40X40	N/A	11	No
NE+5.60	C3	183	Column	0.8304	C40X40	N/A	11	No
NE+5.60	C6	186	Column	0.8304	C40X40	N/A	11	No
NE+5.60	C7	197	Column	0.8304	C40X40	N/A	11	No
NE+5.60	C8	200	Column	0.8304	C40X40	N/A	11	No
NE+5.60	C9	203	Column	0.8304	C40X40	N/A	11	No
NE+5.60	C11	235	Column	0.8304	C40X40	N/A	11	No
NE+5.60	C13	254	Column	0.8304	C40X40	N/A	11	No
NE+5.60	C15	288	Column	0.8304	C40X40	N/A	11	No
NE+5.60	C17	373	Column	0.8304	C40X40	N/A	11	No
NE+5.60	C18	379	Column	0.8304	C40X40	N/A	11	No
NE+5.60	C19	392	Column	0.8304	C40X40	N/A	11	No
NE+5.60	C20	401	Column	0.8304	C40X40	N/A	11	No
NE+5.60	C21	536	Column	0.8304	C50X50	N/A	11	No
NE+5.60	C22	608	Column	0.8304	C50X50	N/A	11	No
NE+5.60	C35	105	Column	0.8304	C40X40	N/A	11	No
NE+5.60	C94	107	Column	0.8304	C40X40	N/A	11	No
NE+4.77	C4	7	Column	1.5992	C40X40	N/A	11	No
NE+4.77	C5	9	Column	1.5992	C40X40	N/A	11	No
NE+4.77	C44	307	Column	1.5992	C50X50	N/A	11	No
NE+4.77	C46	311	Column	1.5992	C50X50	N/A	11	No
NE+4.77	C48	315	Column	1.5992	C50X50	N/A	11	No
NE+4.77	C50	564	Column	1.5992	C50X50	N/A	11	No
NE+4.77	C53	571	Column	1.5992	C50X50	N/A	11	No
NE+4.77	C58	585	Column	1.5992	C40X40	N/A	11	No
NE+4.77	C60	592	Column	1.5992	C40X40	N/A	11	No
NE+4.77	C66	343	Column	1.5992	C50X50	N/A	11	No
NE+4.77	C68	348	Column	1.5992	C50X50	N/A	11	No
NE+4.77	C70	352	Column	1.5992	C50X50	N/A	11	No
NE+4.77	C72	632	Column	1.5992	C50X50	N/A	11	No
NE+4.77	C75	639	Column	1.5992	C50X50	N/A	11	No
NE+4.77	C86	671	Column	1.5992	C40X40	N/A	11	No
NE+4.77	C92	689	Column	1.5992	C40X40	N/A	11	No
NE+4.77	C1	176	Column	1.5992	C40X40	N/A	11	No
NE+4.77	C2	179	Column	1.5992	C40X40	N/A	11	No
NE+4.77	C3	182	Column	1.5992	C40X40	N/A	11	No
NE+4.77	C6	185	Column	1.5992	C40X40	N/A	11	No
NE+4.77	C7	188	Column	1.5992	C40X40	N/A	11	No
NE+4.77	C8	199	Column	1.5992	C40X40	N/A	11	No
NE+4.77	C9	202	Column	1.5992	C40X40	N/A	11	No
NE+4.77	C11	220	Column	1.5992	C40X40	N/A	11	No

Story	Label	Unique Name	Design Type	Length m	Analysis Section	Design Section	Min Number Stations	Releases
NE+4.77	C13	249	Column	1.5992	C40X40	N/A	11	No
NE+4.77	C15	286	Column	1.5992	C40X40	N/A	11	No
NE+4.77	C17	372	Column	1.5992	C40X40	N/A	11	No
NE+4.77	C18	378	Column	1.5992	C40X40	N/A	11	No
NE+4.77	C19	391	Column	1.5992	C40X40	N/A	11	No
NE+4.77	C20	400	Column	1.5992	C40X40	N/A	11	No
NE+4.77	C21	534	Column	1.5992	C50X50	N/A	11	No
NE+4.77	C22	607	Column	1.5992	C50X50	N/A	11	No
NE+4.77	C35	697	Column	1.5992	C40X40	N/A	11	No
NE+4.77	C94	699	Column	1.5992	C40X40	N/A	11	No
NE+3.17	C4	6	Column	3.1735	C40X40	N/A	11	No
NE+3.17	C5	8	Column	3.1735	C40X40	N/A	11	No
NE+3.17	C44	306	Column	3.1735	C50X50	N/A	11	No
NE+3.17	C46	310	Column	3.1735	C50X50	N/A	11	No
NE+3.17	C48	314	Column	3.1735	C50X50	N/A	11	No
NE+3.17	C50	318	Column	3.1735	C50X50	N/A	11	No
NE+3.17	C53	321	Column	3.1735	C50X50	N/A	11	No
NE+3.17	C58	328	Column	3.1735	C40X40	N/A	11	No
NE+3.17	C60	331	Column	3.1735	C40X40	N/A	11	No
NE+3.17	C66	342	Column	3.1735	C50X50	N/A	11	No
NE+3.17	C68	347	Column	3.1735	C50X50	N/A	11	No
NE+3.17	C70	351	Column	3.1735	C50X50	N/A	11	No
NE+3.17	C72	356	Column	3.1735	C50X50	N/A	11	No
NE+3.17	C75	359	Column	3.1735	C50X50	N/A	11	No
NE+3.17	C86	419	Column	3.1735	C40X40	N/A	11	No
NE+3.17	C92	528	Column	3.1735	C40X40	N/A	11	No
NE+3.17	C1	175	Column	3.1735	C40X40	N/A	11	No
NE+3.17	C2	178	Column	3.1735	C40X40	N/A	11	No
NE+3.17	C3	181	Column	3.1735	C40X40	N/A	11	No
NE+3.17	C6	184	Column	3.1735	C40X40	N/A	11	No
NE+3.17	C7	187	Column	3.1735	C40X40	N/A	11	No
NE+3.17	C8	198	Column	3.1735	C40X40	N/A	11	No
NE+3.17	C9	201	Column	3.1735	C40X40	N/A	11	No
NE+3.17	C11	204	Column	3.1735	C40X40	N/A	11	No
NE+3.17	C13	239	Column	3.1735	C40X40	N/A	11	No
NE+3.17	C15	279	Column	3.1735	C40X40	N/A	11	No
NE+3.17	C17	363	Column	3.1735	C40X40	N/A	11	No
NE+3.17	C18	377	Column	3.1735	C40X40	N/A	11	No
NE+3.17	C19	390	Column	3.1735	C40X40	N/A	11	No
NE+3.17	C20	399	Column	3.1735	C40X40	N/A	11	No
NE+3.17	C21	531	Column	3.1735	C50X50	N/A	11	No
NE+3.17	C22	606	Column	3.1735	C50X50	N/A	11	No
NE+3.17	C35	696	Column	3.1735	C40X40	N/A	11	No
NE+3.17	C94	698	Column	3.1735	C40X40	N/A	11	No
NE+19.03	B20	294	Beam	2.9376	V20X60	N/A	11	No
NE+19.03	B21	295	Beam	2.8764	V20X60	N/A	11	No
NE+19.03	B22	296	Beam	2.9376	V20X60	N/A	11	No
NE+19.03	B23	290	Beam	2.9376	V20X60	N/A	11	No
NE+19.03	B24	291	Beam	2.9172	V20X60	N/A	11	No

Story	Label	Unique Name	Design Type	Length m	Analysis Section	Design Section	Min Number Stations	Releases
NE+19.03	B25	292	Beam	2.9376	V20X60	N/A	11	No
NE+19.03	B338	289	Beam	2.9172	V20X60	N/A	11	No
NE+19.03	B339	293	Beam	2.8764	V20X60	N/A	11	No
NE+15.63	B340	423	Beam	4.9215	CORREA	N/A	11	Yes
NE+15.63	B341	424	Beam	1.4382	CORREA	N/A	11	Yes
NE+15.63	B342	425	Beam	3.8301	CORREA	N/A	11	Yes
NE+15.63	B343	426	Beam	3.8607	CORREA	N/A	11	Yes
NE+15.63	B344	427	Beam	3.774	CORREA	N/A	11	Yes
NE+15.63	B345	428	Beam	4.4217	CORREA	N/A	11	Yes
NE+15.63	B346	429	Beam	4.9317	CORREA	N/A	11	Yes
NE+15.63	B347	430	Beam	4.9215	CORREA	N/A	11	Yes
NE+15.63	B348	431	Beam	1.4382	CORREA	N/A	11	Yes
NE+15.63	B349	432	Beam	3.8301	CORREA	N/A	11	Yes
NE+15.63	B350	433	Beam	3.8607	CORREA	N/A	11	Yes
NE+15.63	B351	434	Beam	3.774	CORREA	N/A	11	Yes
NE+15.63	B352	435	Beam	4.4217	CORREA	N/A	11	Yes
NE+15.63	B353	436	Beam	4.9317	CORREA	N/A	11	Yes
NE+15.63	B354	437	Beam	4.9215	CORREA	N/A	11	Yes
NE+15.63	B355	438	Beam	1.4382	CORREA	N/A	11	Yes
NE+15.63	B356	439	Beam	3.8301	CORREA	N/A	11	Yes
NE+15.63	B357	440	Beam	3.8607	CORREA	N/A	11	Yes
NE+15.63	B358	441	Beam	3.774	CORREA	N/A	11	Yes
NE+15.63	B359	442	Beam	4.4217	CORREA	N/A	11	Yes
NE+15.63	B360	443	Beam	4.9317	CORREA	N/A	11	Yes
NE+15.63	B361	444	Beam	4.9215	CORREA	N/A	11	Yes
NE+15.63	B362	445	Beam	1.4382	CORREA	N/A	11	Yes
NE+15.63	B363	446	Beam	3.8301	CORREA	N/A	11	Yes
NE+15.63	B364	447	Beam	3.8607	CORREA	N/A	11	Yes
NE+15.63	B365	448	Beam	3.774	CORREA	N/A	11	Yes
NE+15.63	B366	449	Beam	4.4217	CORREA	N/A	11	Yes
NE+15.63	B367	450	Beam	4.9317	CORREA	N/A	11	Yes
NE+15.63	B368	451	Beam	2.9376	CORREA	N/A	11	Yes
NE+15.63	B369	452	Beam	4.9215	CORREA	N/A	11	Yes
NE+15.63	B370	453	Beam	1.4382	CORREA	N/A	11	Yes
NE+15.63	B371	454	Beam	3.8301	CORREA	N/A	11	Yes
NE+15.63	B372	455	Beam	3.8607	CORREA	N/A	11	Yes
NE+15.63	B373	456	Beam	3.774	CORREA	N/A	11	Yes
NE+15.63	B374	457	Beam	4.4217	CORREA	N/A	11	Yes
NE+15.63	B375	458	Beam	4.9317	CORREA	N/A	11	Yes
NE+15.63	B376	459	Beam	2.9376	CORREA	N/A	11	Yes
NE+15.63	B377	460	Beam	4.9215	CORREA	N/A	11	Yes
NE+15.63	B378	461	Beam	1.4382	CORREA	N/A	11	Yes
NE+15.63	B379	462	Beam	3.8301	CORREA	N/A	11	Yes
NE+15.63	B380	463	Beam	3.8607	CORREA	N/A	11	Yes
NE+15.63	B381	464	Beam	3.774	CORREA	N/A	11	Yes
NE+15.63	B382	465	Beam	4.4217	CORREA	N/A	11	Yes
NE+15.63	B383	466	Beam	4.9317	CORREA	N/A	11	Yes
NE+15.63	B384	467	Beam	2.9376	CORREA	N/A	11	Yes
NE+15.63	B385	468	Beam	4.9215	CORREA	N/A	11	Yes

Story	Label	Unique Name	Design Type	Length m	Analysis Section	Design Section	Min Number Stations	Releases
NE+15.63	B386	469	Beam	1.4382	CORREA	N/A	11	Yes
NE+15.63	B387	470	Beam	3.8301	CORREA	N/A	11	Yes
NE+15.63	B388	471	Beam	3.8607	CORREA	N/A	11	Yes
NE+15.63	B389	472	Beam	3.774	CORREA	N/A	11	Yes
NE+15.63	B390	473	Beam	4.4217	CORREA	N/A	11	Yes
NE+15.63	B391	474	Beam	4.9317	CORREA	N/A	11	Yes
NE+15.63	B392	475	Beam	2.9376	CORREA	N/A	11	Yes
NE+15.63	B393	476	Beam	4.9215	CORREA	N/A	11	Yes
NE+15.63	B394	477	Beam	1.4382	CORREA	N/A	11	Yes
NE+15.63	B395	478	Beam	3.8301	CORREA	N/A	11	Yes
NE+15.63	B396	479	Beam	3.8607	CORREA	N/A	11	Yes
NE+15.63	B397	480	Beam	3.774	CORREA	N/A	11	Yes
NE+15.63	B398	481	Beam	4.4217	CORREA	N/A	11	Yes
NE+15.63	B399	482	Beam	4.9317	CORREA	N/A	11	Yes
NE+15.63	B400	483	Beam	2.9376	CORREA	N/A	11	Yes
NE+15.63	B401	484	Beam	4.9215	CORREA	N/A	11	Yes
NE+15.63	B402	485	Beam	1.4382	CORREA	N/A	11	Yes
NE+15.63	B403	486	Beam	3.8301	CORREA	N/A	11	Yes
NE+15.63	B404	487	Beam	3.8607	CORREA	N/A	11	Yes
NE+15.63	B405	488	Beam	3.774	CORREA	N/A	11	Yes
NE+15.63	B406	489	Beam	4.4217	CORREA	N/A	11	Yes
NE+15.63	B407	490	Beam	4.9317	CORREA	N/A	11	Yes
NE+15.63	B408	491	Beam	2.9376	CORREA	N/A	11	Yes
NE+15.63	B409	492	Beam	1.4382	CORREA	N/A	11	Yes
NE+15.63	B410	493	Beam	3.8301	CORREA	N/A	11	Yes
NE+15.63	B411	494	Beam	3.8607	CORREA	N/A	11	Yes
NE+15.63	B412	495	Beam	3.774	CORREA	N/A	11	Yes
NE+15.63	B413	496	Beam	4.4217	CORREA	N/A	11	Yes
NE+15.63	B414	497	Beam	4.9317	CORREA	N/A	11	Yes
NE+15.63	B415	498	Beam	2.9376	CORREA	N/A	11	Yes
NE+15.63	B416	499	Beam	1.4382	CORREA	N/A	11	Yes
NE+15.63	B417	500	Beam	3.8301	CORREA	N/A	11	Yes
NE+15.63	B418	501	Beam	3.8607	CORREA	N/A	11	Yes
NE+15.63	B419	502	Beam	3.774	CORREA	N/A	11	Yes
NE+15.63	B420	503	Beam	4.4217	CORREA	N/A	11	Yes
NE+15.63	B421	504	Beam	4.9317	CORREA	N/A	11	Yes
NE+15.63	B423	506	Beam	1.4382	CORREA	N/A	11	Yes
NE+15.63	B424	507	Beam	3.8301	CORREA	N/A	11	Yes
NE+15.63	B425	508	Beam	3.8607	CORREA	N/A	11	Yes
NE+15.63	B426	509	Beam	3.774	CORREA	N/A	11	Yes
NE+15.63	B427	510	Beam	4.4217	CORREA	N/A	11	Yes
NE+15.63	B428	511	Beam	4.9317	CORREA	N/A	11	Yes
NE+15.63	B429	512	Beam	1.4382	CORREA	N/A	11	Yes
NE+15.63	B430	513	Beam	3.8301	CORREA	N/A	11	Yes
NE+15.63	B431	514	Beam	3.8607	CORREA	N/A	11	Yes
NE+15.63	B432	515	Beam	3.774	CORREA	N/A	11	Yes
NE+15.63	B433	516	Beam	4.4217	CORREA	N/A	11	Yes
NE+15.63	B434	517	Beam	4.9317	CORREA	N/A	11	Yes
NE+15.63	B435	518	Beam	4.9215	CORREA	N/A	11	Yes

Story	Label	Unique Name	Design Type	Length m	Analysis Section	Design Section	Min Number Stations	Releases
NE+15.63	B436	519	Beam	4.9215	CORREA	N/A	11	Yes
NE+15.63	B437	520	Beam	4.9215	CORREA	N/A	11	Yes
NE+15.63	B438	521	Beam	4.9215	CORREA	N/A	11	Yes
NE+15.63	B439	522	Beam	2.9376	CORREA	N/A	11	Yes
NE+15.63	B440	523	Beam	2.9376	CORREA	N/A	11	Yes
NE+11.82	B6	1	Beam	11.7351	TIRANTE	N/A	11	No
NE+11.82	B7	2	Beam	11.7351	TIRANTE	N/A	11	No
NE+11.82	B8	5	Beam	11.7351	TIRANTE	N/A	11	No
NE+11.82	B9	13	Beam	11.7351	TIRANTE	N/A	11	No
NE+11.82	B10	14	Beam	11.7351	TIRANTE	N/A	11	No
NE+11.82	B12	16	Beam	5.9415	TIRANTE	N/A	11	No
NE+11.82	B14	18	Beam	6.3597	V20X60	N/A	11	No
NE+11.82	B15	19	Beam	3.8301	V20X60	N/A	11	No
NE+11.82	B16	20	Beam	3.8607	V20X60	N/A	11	No
NE+11.82	B17	21	Beam	3.774	V20X60	N/A	11	No
NE+11.82	B18	22	Beam	4.4217	V20X60	N/A	11	No
NE+11.82	B19	23	Beam	4.9317	V20X60	N/A	11	No
NE+11.82	B20	24	Beam	2.9376	V20X60	N/A	11	No
NE+11.82	B21	25	Beam	2.8764	V20X60	N/A	11	No
NE+11.82	B22	26	Beam	2.9376	V20X60	N/A	11	No
NE+11.82	B23	27	Beam	2.9376	V20X60	N/A	11	No
NE+11.82	B24	28	Beam	2.9172	V20X60	N/A	11	No
NE+11.82	B25	29	Beam	2.9376	V20X60	N/A	11	No
NE+11.82	B26	30	Beam	4.9317	V20X60	N/A	11	No
NE+11.82	B27	31	Beam	4.4217	V20X60	N/A	11	No
NE+11.82	B28	32	Beam	3.774	V20X60	N/A	11	No
NE+11.82	B29	33	Beam	3.8607	V20X60	N/A	11	No
NE+11.82	B30	34	Beam	3.8301	V20X60	N/A	11	No
NE+11.82	B31	36	Beam	6.3597	V20X60	N/A	11	No
NE+11.82	B56	11	Beam	0.5866	V20X60	N/A	11	No
NE+11.82	B57	77	Beam	1	V20X60	N/A	11	No
NE+11.82	B58	78	Beam	1.3306	V20X60	N/A	11	No
NE+11.82	B59	79	Beam	5.9415	TIRANTE	N/A	11	No
NE+11.82	B60	80	Beam	1.3154	V20X60	N/A	11	No
NE+11.82	B61	81	Beam	1	V20X60	N/A	11	No
NE+11.82	B62	89	Beam	0.561	V20X60	N/A	11	No
NE+11.82	B11	218	Beam	3.3864	V20X60	N/A	11	No
NE+11.82	B47	217	Beam	4.9521	V20X60	N/A	11	No
NE+11.82	B63	216	Beam	3.3966	V20X60	N/A	11	No
NE+11.82	B66	303	Beam	3.1285	IPE300	N/A	11	Yes
NE+11.82	B67	305	Beam	3.1285	IPE300	N/A	11	Yes
NE+10.16	B32	17	Beam	0.75632	V20X60	N/A	11	No
NE+10.16	B33	139	Beam	0.75637	V20X60	N/A	11	No
NE+10.16	B34	140	Beam	0.75637	V20X60	N/A	11	No
NE+10.16	B35	173	Beam	0.75635	V20X60	N/A	11	No
NE+10.16	B36	174	Beam	0.7563	V20X60	N/A	11	No
NE+10.16	B37	219	Beam	0.75644	V20X60	N/A	11	No
NE+10.16	B38	221	Beam	0.75634	V20X60	N/A	11	No
NE+10.16	B39	222	Beam	0.75608	V20X60	N/A	11	No

Story	Label	Unique Name	Design Type	Length m	Analysis Section	Design Section	Min Number Stations	Releases
NE+10.16	B40	223	Beam	0.75671	V20X60	N/A	11	No
NE+10.16	B41	224	Beam	0.75637	V20X60	N/A	11	No
NE+10.16	B42	225	Beam	0.75637	V20X60	N/A	11	No
NE+10.16	B43	226	Beam	0.75632	V20X60	N/A	11	No
NE+10.16	B70	316	Beam	1	V20X60	N/A	11	No
NE+10.16	B73	323	Beam	1	V20X60	N/A	11	No
NE+9.01	B14	252	Beam	6.3597	V20X60	N/A	11	No
NE+9.01	B16	253	Beam	3.8607	V20X60	N/A	11	No
NE+9.01	B29	299	Beam	3.8607	V20X60	N/A	11	No
NE+9.01	B31	298	Beam	6.3597	V20X60	N/A	11	No
NE+9.01	B44	539	Beam	2.9223	V20X60	N/A	11	No
NE+9.01	B48	535	Beam	2.9376	V20X60	N/A	11	No
NE+9.01	B49	526	Beam	2.8663	V20X60	N/A	11	No
NE+9.01	B50	533	Beam	2.9376	V20X60	N/A	11	No
NE+9.01	B51	537	Beam	2.9223	V20X60	N/A	11	No
NE+9.01	B52	532	Beam	2.8663	V20X60	N/A	11	No
NE+9.01	B98	541	Beam	2.8663	TIRANTE	N/A	11	Yes
NE+9.01	B105	542	Beam	2.8663	TIRANTE	N/A	11	Yes
NE+9.01	B11	109	Beam	3.3864	V20X60	N/A	11	No
NE+9.01	B47	134	Beam	4.9521	V20X60	N/A	11	No
NE+9.01	B63	214	Beam	3.3966	V20X60	N/A	11	No
NE+5.60	B18	369	Beam	4.4217	V20X60	N/A	11	No
NE+5.60	B19	370	Beam	4.9317	V20X60	N/A	11	No
NE+5.60	B20	371	Beam	2.9376	V20X60	N/A	11	No
NE+5.60	B25	386	Beam	2.9376	V20X60	N/A	11	No
NE+5.60	B26	385	Beam	4.9317	V20X60	N/A	11	No
NE+5.60	B27	384	Beam	4.4217	V20X60	N/A	11	No
NE+5.60	B32	168	Beam	0.75632	V20X60	N/A	11	No
NE+5.60	B33	167	Beam	0.75637	V20X60	N/A	11	No
NE+5.60	B34	166	Beam	0.75637	V20X60	N/A	11	No
NE+5.60	B35	165	Beam	0.75635	V20X60	N/A	11	No
NE+5.60	B36	159	Beam	0.7563	V20X60	N/A	11	No
NE+5.60	B37	157	Beam	0.75644	V20X60	N/A	11	No
NE+5.60	B38	110	Beam	0.75634	V20X60	N/A	11	No
NE+5.60	B39	108	Beam	0.75608	V20X60	N/A	11	No
NE+5.60	B40	106	Beam	0.75671	V20X60	N/A	11	No
NE+5.60	B41	104	Beam	0.75637	V20X60	N/A	11	No
NE+5.60	B42	103	Beam	0.75637	V20X60	N/A	11	No
NE+5.60	B43	102	Beam	0.75632	V20X60	N/A	11	No
NE+5.60	B178	277	Beam	9.1545	V30X40	N/A	11	No
NE+5.60	B179	278	Beam	10.1337	V30X40	N/A	11	No
NE+5.60	B327	272	Beam	10.0521	V30X40	N/A	11	No
NE+5.60	B329	274	Beam	10.0521	V30X40	N/A	11	No
NE+5.60	B330	275	Beam	9.1545	V30X40	N/A	11	No
NE+5.60	B331	276	Beam	10.1337	V30X40	N/A	11	No
NE+5.60	B332	280	Beam	9.1545	TIRANTE	N/A	11	Yes
NE+5.60	B333	281	Beam	9.1545	TIRANTE	N/A	11	Yes
NE+5.60	B334	282	Beam	9.1545	TIRANTE	N/A	11	Yes
NE+5.60	B335	283	Beam	9.1545	TIRANTE	N/A	11	Yes

Story	Label	Unique Name	Design Type	Length m	Analysis Section	Design Section	Min Number Stations	Releases
NE+5.60	B336	284	Beam	9.1545	TIRANTE	N/A	11	Yes
NE+5.60	B337	285	Beam	9.1545	TIRANTE	N/A	11	Yes
NE+5.60	B338	154	Beam	2.9172	V20X60	N/A	11	No
NE+5.60	B339	15	Beam	2.8764	V20X60	N/A	11	No
NE+5.60	B70	308	Beam	1	V20X60	N/A	11	No
NE+5.60	B73	322	Beam	1	V20X60	N/A	11	No
NE+4.77	B13	118	Beam	11.7351	V20X60	N/A	11	No
NE+4.77	B14	250	Beam	6.3597	V20X60	N/A	11	No
NE+4.77	B16	248	Beam	3.8607	V20X60	N/A	11	No
NE+4.77	B29	271	Beam	3.8607	V20X60	N/A	11	No
NE+4.77	B31	258	Beam	6.3597	V20X60	N/A	11	No
NE+4.77	B44	50	Beam	2.9223	V20X60	N/A	11	No
NE+4.77	B48	54	Beam	2.9376	V20X60	N/A	11	No
NE+4.77	B49	55	Beam	2.8663	V20X60	N/A	11	No
NE+4.77	B50	56	Beam	2.9376	V20X60	N/A	11	No
NE+4.77	B51	57	Beam	2.9223	V20X60	N/A	11	No
NE+4.77	B52	58	Beam	2.8663	V20X60	N/A	11	No
NE+4.77	B102	59	Beam	2.8663	VGA	N/A	11	Yes
NE+4.77	B103	60	Beam	2.8663	VGA	N/A	11	Yes
NE+4.77	B104	61	Beam	2.8663	VGA	N/A	11	Yes
NE+4.77	B105	62	Beam	2.8663	VGA	N/A	11	Yes
NE+4.77	B106	63	Beam	2.8663	VGA	N/A	11	Yes
NE+4.77	B107	64	Beam	2.8663	VGA	N/A	11	Yes
NE+4.77	B108	65	Beam	2.8663	VGA	N/A	11	Yes
NE+4.77	B125	66	Beam	4.9215	VGA	N/A	11	Yes
NE+4.77	B126	67	Beam	4.9215	VGA	N/A	11	Yes
NE+4.77	B127	68	Beam	4.9215	VGA	N/A	11	Yes
NE+4.77	B128	69	Beam	4.9215	VGA	N/A	11	Yes
NE+4.77	B129	70	Beam	4.9215	VGA	N/A	11	Yes
NE+4.77	B130	71	Beam	4.9215	VGA	N/A	11	Yes
NE+4.77	B131	72	Beam	4.9215	VGA	N/A	11	Yes
NE+4.77	B132	117	Beam	4.9215	VGA	N/A	11	Yes
NE+4.77	B133	82	Beam	4.9215	VGA	N/A	11	Yes
NE+4.77	B134	83	Beam	4.9215	VGA	N/A	11	Yes
NE+4.77	B135	84	Beam	4.9215	VGA	N/A	11	Yes
NE+4.77	B136	85	Beam	4.9215	VGA	N/A	11	Yes
NE+4.77	B137	86	Beam	4.9215	VGA	N/A	11	Yes
NE+4.77	B138	87	Beam	4.9215	VGA	N/A	11	Yes
NE+4.77	B139	88	Beam	4.9215	VGA	N/A	11	Yes
NE+4.77	B140	119	Beam	4.9215	VGA	N/A	11	Yes
NE+4.77	B142	121	Beam	4.9215	VGA	N/A	11	Yes
NE+4.77	B143	122	Beam	4.9215	VGA	N/A	11	Yes
NE+4.77	B144	123	Beam	4.9215	VGA	N/A	11	Yes
NE+4.77	B145	124	Beam	4.9215	VGA	N/A	11	Yes
NE+4.77	B146	125	Beam	4.9215	VGA	N/A	11	Yes
NE+4.77	B147	126	Beam	4.9215	VGA	N/A	11	Yes
NE+4.77	B148	127	Beam	4.9215	VGA	N/A	11	Yes
NE+4.77	B149	128	Beam	4.9215	VGA	N/A	11	Yes
NE+4.77	B150	129	Beam	4.9215	VGA	N/A	11	Yes

Story	Label	Unique Name	Design Type	Length m	Analysis Section	Design Section	Min Number Stations	Releases
NE+4.77	B151	130	Beam	4.9215	VGA	N/A	11	Yes
NE+4.77	B152	131	Beam	4.9215	VGA	N/A	11	Yes
NE+4.77	B153	132	Beam	4.9215	VGA	N/A	11	Yes
NE+4.77	B442	10	Beam	11.7351	V20X60	N/A	11	Yes
NE+4.77	B64	120	Beam	4.9215	V20X60	N/A	11	No
NE+4.77	B65	133	Beam	4.9215	V20X60	N/A	11	No
NE+3.17	B15	251	Beam	3.8301	V20X60	N/A	11	No
NE+3.17	B17	364	Beam	3.774	V20X60	N/A	11	No
NE+3.17	B18	365	Beam	4.4217	V20X60	N/A	11	No
NE+3.17	B19	366	Beam	4.9317	V20X60	N/A	11	No
NE+3.17	B20	368	Beam	2.9376	V20X60	N/A	11	No
NE+3.17	B22	100	Beam	2.9376	V20X60	N/A	11	No
NE+3.17	B23	144	Beam	2.9376	V20X60	N/A	11	No
NE+3.17	B25	287	Beam	2.9376	V20X60	N/A	11	No
NE+3.17	B26	383	Beam	4.9317	V20X60	N/A	11	No
NE+3.17	B27	382	Beam	4.4217	V20X60	N/A	11	No
NE+3.17	B28	380	Beam	3.774	V20X60	N/A	11	No
NE+3.17	B30	270	Beam	3.8301	V20X60	N/A	11	No
NE+3.17	B32	146	Beam	0.75632	V20X60	N/A	11	No
NE+3.17	B33	147	Beam	0.75637	V20X60	N/A	11	No
NE+3.17	B34	148	Beam	0.75637	V20X60	N/A	11	No
NE+3.17	B35	149	Beam	0.75635	V20X60	N/A	11	No
NE+3.17	B36	150	Beam	0.7563	V20X60	N/A	11	No
NE+3.17	B37	151	Beam	0.75644	V20X60	N/A	11	No
NE+3.17	B38	142	Beam	0.75634	V20X60	N/A	11	No
NE+3.17	B39	141	Beam	0.75608	V20X60	N/A	11	No
NE+3.17	B40	138	Beam	0.75671	V20X60	N/A	11	No
NE+3.17	B41	137	Beam	0.75637	V20X60	N/A	11	No
NE+3.17	B42	136	Beam	0.75637	V20X60	N/A	11	No
NE+3.17	B43	135	Beam	0.75632	V20X60	N/A	11	No
NE+3.17	B176	155	Beam	6.0129	V30X40	N/A	11	No
NE+3.17	B177	156	Beam	4.1208	V30X40	N/A	11	No
NE+3.17	B179	158	Beam	10.1337	V30X40	N/A	11	No
NE+3.17	B183	161	Beam	3.0753	SOLERA	N/A	11	No
NE+3.17	B184	160	Beam	2.9376	SOLERA	N/A	11	No
NE+3.17	B186	162	Beam	1.2138	SOLERA	N/A	11	No
NE+3.17	B188	164	Beam	6.0129	SOLERA	N/A	11	No
NE+3.17	B189	163	Beam	1.2138	SOLERA	N/A	11	No
NE+3.17	B230	205	Beam	4.1208	VGA	N/A	11	Yes
NE+3.17	B231	206	Beam	4.1208	VGA	N/A	11	Yes
NE+3.17	B232	207	Beam	4.1208	VGA	N/A	11	Yes
NE+3.17	B233	208	Beam	4.1208	VGA	N/A	11	Yes
NE+3.17	B234	209	Beam	4.1208	VGA	N/A	11	Yes
NE+3.17	B235	210	Beam	4.1208	VGA	N/A	11	Yes
NE+3.17	B236	211	Beam	4.1208	VGA	N/A	11	Yes
NE+3.17	B237	212	Beam	4.1208	VGA	N/A	11	Yes
NE+3.17	B240	215	Beam	4.1208	VGA	N/A	11	Yes
NE+3.17	B252	227	Beam	1.2649	VGA	N/A	11	Yes
NE+3.17	B253	228	Beam	1.2649	VGA	N/A	11	Yes

Story	Label	Unique Name	Design Type	Length m	Analysis Section	Design Section	Min Number Stations	Releases
NE+3.17	B254	229	Beam	1.2649	VGA	N/A	11	Yes
NE+3.17	B255	230	Beam	1.6268	VGA	N/A	11	Yes
NE+3.17	B256	231	Beam	1.6268	VGA	N/A	11	Yes
NE+3.17	B257	232	Beam	1.6268	VGA	N/A	11	Yes
NE+3.17	B258	233	Beam	6.0129	VGA	N/A	11	Yes
NE+3.17	B259	234	Beam	4.1208	VGA	N/A	11	Yes
NE+3.17	B260	189	Beam	6.0129	VGA	N/A	11	Yes
NE+3.17	B261	190	Beam	6.0129	VGA	N/A	11	Yes
NE+3.17	B262	191	Beam	6.0129	VGA	N/A	11	Yes
NE+3.17	B263	192	Beam	6.0129	VGA	N/A	11	Yes
NE+3.17	B264	193	Beam	6.0129	VGA	N/A	11	Yes
NE+3.17	B265	194	Beam	6.0129	VGA	N/A	11	Yes
NE+3.17	B266	195	Beam	6.0129	VGA	N/A	11	Yes
NE+3.17	B267	196	Beam	6.0129	VGA	N/A	11	Yes
NE+3.17	B268	213	Beam	6.0129	VGA	N/A	11	Yes
NE+3.17	B276	236	Beam	4.1208	VGA	N/A	11	Yes
NE+3.17	B277	237	Beam	4.1208	VGA	N/A	11	Yes
NE+3.17	B278	238	Beam	4.1208	VGA	N/A	11	Yes
NE+3.17	B279	240	Beam	4.1208	VGA	N/A	11	Yes
NE+3.17	B298	241	Beam	6.0129	VGA	N/A	11	Yes
NE+3.17	B299	242	Beam	6.0129	VGA	N/A	11	Yes
NE+3.17	B300	243	Beam	6.0129	VGA	N/A	11	Yes
NE+3.17	B301	244	Beam	6.0129	VGA	N/A	11	Yes
NE+3.17	B302	245	Beam	6.0129	VGA	N/A	11	Yes
NE+3.17	B303	246	Beam	6.0129	VGA	N/A	11	Yes
NE+3.17	B304	247	Beam	6.0129	VGA	N/A	11	Yes
NE+3.17	B305	255	Beam	6.0129	VGA	N/A	11	Yes
NE+3.17	B306	256	Beam	6.0129	VGA	N/A	11	Yes
NE+3.17	B307	259	Beam	6.0129	VGA	N/A	11	Yes
NE+3.17	B308	260	Beam	4.1208	VGA	N/A	11	Yes
NE+3.17	B318	261	Beam	4.1208	VGA	N/A	11	Yes
NE+3.17	B319	262	Beam	4.1208	VGA	N/A	11	Yes
NE+3.17	B320	263	Beam	4.1208	VGA	N/A	11	Yes
NE+3.17	B321	264	Beam	4.1208	VGA	N/A	11	Yes
NE+3.17	B322	265	Beam	4.1208	VGA	N/A	11	Yes
NE+3.17	B323	266	Beam	4.1208	VGA	N/A	11	Yes
NE+3.17	B324	267	Beam	4.1208	VGA	N/A	11	Yes
NE+3.17	B325	268	Beam	4.1208	VGA	N/A	11	Yes
NE+3.17	B326	269	Beam	4.1208	VGA	N/A	11	Yes
NE+3.17	B338	145	Beam	2.9172	V20X60	N/A	11	No
NE+3.17	B339	99	Beam	2.8764	V20X60	N/A	11	No
NE+3.17	B1	12	Beam	2.0299	VGA	N/A	11	Yes
NE+3.17	B2	35	Beam	2.0909	VGA	N/A	11	Yes
NE+3.17	B5	39	Beam	3.978	SOLERA	N/A	11	No
NE+3.17	B45	52	Beam	1.1934	SOLERA	N/A	11	No
NE+3.17	B46	73	Beam	3.9831	SOLERA	N/A	11	No
NE+3.17	B53	74	Beam	4.3962	V30X40	N/A	11	No
NE+3.17	B54	75	Beam	1.3158	V30X40	N/A	11	No
NE+3.17	B55	76	Beam	3.4425	V30X40	N/A	11	No

Story	Label	Unique Name	Design Type	Length m	Analysis Section	Design Section	Min Number Stations	Releases
NE+3.17	B70	312	Beam	1	V20X60	N/A	11	No
NE+3.17	B73	319	Beam	1	V20X60	N/A	11	No
NE+15.63	D56	325	Brace	7.01313	IPE300	N/A	11	Yes
NE+15.63	D57	332	Brace	6.97892	IPE300	N/A	11	Yes
NE+15.63	D58	339	Brace	7.01313	IPE300	N/A	11	Yes
NE+15.63	D59	346	Brace	6.97892	IPE300	N/A	11	Yes
NE+15.63	D60	353	Brace	7.01313	IPE300	N/A	11	Yes
NE+15.63	D61	360	Brace	6.97892	IPE300	N/A	11	Yes
NE+15.63	D62	367	Brace	7.01313	IPE300	N/A	11	Yes
NE+15.63	D63	374	Brace	6.97892	IPE300	N/A	11	Yes
NE+15.63	D64	381	Brace	7.01313	IPE300	N/A	11	Yes
NE+15.63	D65	388	Brace	6.97892	IPE300	N/A	11	Yes
NE+15.63	D66	395	Brace	7.01313	IPE300	N/A	11	Yes
NE+15.63	D67	402	Brace	6.97892	IPE300	N/A	11	Yes
NE+15.63	D68	409	Brace	7.01313	IPE300	N/A	11	Yes
NE+15.63	D69	416	Brace	6.97892	IPE300	N/A	11	Yes
NE+15.63	D3	297	Brace	7.01313	IPE300	N/A	11	Yes
NE+15.63	D6	304	Brace	6.97892	IPE300	N/A	11	Yes
NE+15.63	D1	90	Brace	0.6987	IPE300	N/A	11	Yes
NE+15.63	D2	91	Brace	1.1911	IPE300	N/A	11	No
NE+15.63	D4	92	Brace	1.58487	IPE300	N/A	11	No
NE+15.63	D5	93	Brace	3.53851	IPE300	N/A	11	Yes
NE+15.63	D7	94	Brace	0.66959	IPE300	N/A	11	Yes
NE+15.63	D8	95	Brace	1.19356	IPE300	N/A	11	No
NE+15.63	D10	97	Brace	1.57001	IPE300	N/A	11	No
NE+15.63	D11	98	Brace	3.54571	IPE300	N/A	11	Yes

Table 3.4 - Frame Assignments - Releases (Part 1 of 2)

Story	Label	Unique Name	Design Type	P	V2	V3	T	M2	M3	Partial P I-end tonf/m	Partial V2 I-end tonf/m	Partial V3 I-end tonf/m
NE+19.03	C58	170	Column	None	None	None	None	None	None			
NE+19.03	C60	172	Column	None	None	None	None	None	None			
NE+19.03	C86	670	Column	None	None	None	None	None	None			
NE+19.03	C92	688	Column	None	None	None	None	None	None			
NE+15.63	C58	169	Column	None	None	None	None	None	None			
NE+15.63	C60	171	Column	None	None	None	None	None	None			
NE+15.63	C86	669	Column	None	None	None	None	None	None			
NE+15.63	C92	687	Column	None	None	None	None	None	None			
NE+11.82	C44	551	Column	None	None	None	None	None	None			
NE+11.82	C46	557	Column	None	None	None	None	None	None			
NE+11.82	C48	563	Column	None	None	None	None	None	None			
NE+11.82	C50	570	Column	None	None	None	None	None	None			
NE+11.82	C53	577	Column	None	None	None	None	None	None			
NE+11.82	C58	591	Column	None	None	None	None	None	None			
NE+11.82	C60	598	Column	None	None	None	None	None	None			
NE+11.82	C66	619	Column	None	None	None	None	None	None			

Story	Label	Unique Name	Design Type	P	V2	V3	T	M2	M3	Partial P I-end tonf/m	Partial V2 I-end tonf/m	Partial V3 I-end tonf/m
NE+11.82	C68	625	Column	None	None	None	None	None	None			
NE+11.82	C70	631	Column	None	None	None	None	None	None			
NE+11.82	C72	638	Column	None	None	None	None	None	None			
NE+11.82	C75	645	Column	None	None	None	None	None	None			
NE+11.82	C86	677	Column	None	None	None	None	None	None			
NE+11.82	C92	695	Column	None	None	None	None	None	None			
NE+11.82	C21	545	Column	None	None	None	None	None	None			
NE+11.82	C22	613	Column	None	None	None	None	None	None			
NE+10.16	C44	550	Column	None	None	None	None	None	None			
NE+10.16	C46	556	Column	None	None	None	None	None	None			
NE+10.16	C48	562	Column	None	None	None	None	None	None			
NE+10.16	C50	569	Column	None	None	None	None	None	None			
NE+10.16	C53	576	Column	None	None	None	None	None	None			
NE+10.16	C58	590	Column	None	None	None	None	None	None			
NE+10.16	C60	597	Column	None	None	None	None	None	None			
NE+10.16	C66	618	Column	None	None	None	None	None	None			
NE+10.16	C68	624	Column	None	None	None	None	None	None			
NE+10.16	C70	630	Column	None	None	None	None	None	None			
NE+10.16	C72	637	Column	None	None	None	None	None	None			
NE+10.16	C75	644	Column	None	None	None	None	None	None			
NE+10.16	C86	676	Column	None	None	None	None	None	None			
NE+10.16	C92	694	Column	None	None	None	None	None	None			
NE+10.16	C19	397	Column	None	None	None	None	None	None			
NE+10.16	C20	411	Column	None	None	None	None	None	None			
NE+10.16	C21	544	Column	None	None	None	None	None	None			
NE+10.16	C22	612	Column	None	None	None	None	None	None			
NE+9.36	C44	549	Column	None	None	None	None	None	None			
NE+9.36	C46	555	Column	None	None	None	None	None	None			
NE+9.36	C48	561	Column	None	None	None	None	None	None			
NE+9.36	C50	568	Column	None	None	None	None	None	None			
NE+9.36	C53	575	Column	None	None	None	None	None	None			
NE+9.36	C58	589	Column	None	None	None	None	None	None			
NE+9.36	C60	596	Column	None	None	None	None	None	None			
NE+9.36	C66	617	Column	None	None	None	None	None	None			
NE+9.36	C68	623	Column	None	None	None	None	None	None			
NE+9.36	C70	629	Column	None	None	None	None	None	None			
NE+9.36	C72	636	Column	None	None	None	None	None	None			
NE+9.36	C75	643	Column	None	None	None	None	None	None			
NE+9.36	C86	675	Column	None	None	None	None	None	None			
NE+9.36	C92	693	Column	None	None	None	None	None	None			
NE+9.36	C19	396	Column	None	None	None	None	None	None			
NE+9.36	C20	405	Column	None	None	None	None	None	None			
NE+9.36	C21	543	Column	None	None	None	None	None	None			
NE+9.36	C22	611	Column	None	None	None	None	None	None			
NE+9.01	C44	548	Column	None	None	None	None	None	None			
NE+9.01	C46	554	Column	None	None	None	None	None	None			
NE+9.01	C48	560	Column	None	None	None	None	None	None			
NE+9.01	C50	567	Column	None	None	None	None	None	None			

Story	Label	Unique Name	Design Type	P	V2	V3	T	M2	M3	Partial P I-end tonf/m	Partial V2 I-end tonf/m	Partial V3 I-end tonf/m
NE+9.01	C53	574	Column	None	None	None	None	None	None			
NE+9.01	C58	588	Column	None	None	None	None	None	None			
NE+9.01	C60	595	Column	None	None	None	None	None	None			
NE+9.01	C66	616	Column	None	None	None	None	None	None			
NE+9.01	C68	622	Column	None	None	None	None	None	None			
NE+9.01	C70	628	Column	None	None	None	None	None	None			
NE+9.01	C72	635	Column	None	None	None	None	None	None			
NE+9.01	C75	642	Column	None	None	None	None	None	None			
NE+9.01	C86	674	Column	None	None	None	None	None	None			
NE+9.01	C92	692	Column	None	None	None	None	None	None			
NE+9.01	C13	273	Column	None	None	None	None	None	None			
NE+9.01	C15	301	Column	None	None	None	None	None	None			
NE+9.01	C17	376	Column	None	None	None	None	None	None			
NE+9.01	C18	389	Column	None	None	None	None	None	None			
NE+9.01	C19	394	Column	None	None	None	None	None	None			
NE+9.01	C20	404	Column	None	None	None	None	None	None			
NE+9.01	C21	540	Column	None	None	None	None	None	None			
NE+9.01	C22	610	Column	None	None	None	None	None	None			
NE+7.46	C44	547	Column	None	None	None	None	None	None			
NE+7.46	C46	553	Column	None	None	None	None	None	None			
NE+7.46	C48	559	Column	None	None	None	None	None	None			
NE+7.46	C50	566	Column	None	None	None	None	None	None			
NE+7.46	C53	573	Column	None	None	None	None	None	None			
NE+7.46	C58	587	Column	None	None	None	None	None	None			
NE+7.46	C60	594	Column	None	None	None	None	None	None			
NE+7.46	C66	615	Column	None	None	None	None	None	None			
NE+7.46	C68	621	Column	None	None	None	None	None	None			
NE+7.46	C70	627	Column	None	None	None	None	None	None			
NE+7.46	C72	634	Column	None	None	None	None	None	None			
NE+7.46	C75	641	Column	None	None	None	None	None	None			
NE+7.46	C86	673	Column	None	None	None	None	None	None			
NE+7.46	C92	691	Column	None	None	None	None	None	None			
NE+7.46	C13	257	Column	None	None	None	None	None	None			
NE+7.46	C15	300	Column	None	None	None	None	None	None			
NE+7.46	C17	375	Column	None	None	None	None	None	None			
NE+7.46	C18	387	Column	None	None	None	None	None	None			
NE+7.46	C19	393	Column	None	None	None	None	None	None			
NE+7.46	C20	403	Column	None	None	None	None	None	None			
NE+7.46	C21	538	Column	None	None	None	None	None	None			
NE+7.46	C22	609	Column	None	None	None	None	None	None			
NE+5.60	C44	546	Column	None	None	None	None	None	None			
NE+5.60	C46	552	Column	None	None	None	None	None	None			
NE+5.60	C48	558	Column	None	None	None	None	None	None			
NE+5.60	C50	565	Column	None	None	None	None	None	None			
NE+5.60	C53	572	Column	None	None	None	None	None	None			
NE+5.60	C58	586	Column	None	None	None	None	None	None			
NE+5.60	C60	593	Column	None	None	None	None	None	None			
NE+5.60	C66	614	Column	None	None	None	None	None	None			

Story	Label	Unique Name	Design Type	P	V2	V3	T	M2	M3	Partial P I-end tonf/m	Partial V2 I-end tonf/m	Partial V3 I-end tonf/m
NE+5.60	C68	620	Column	None	None	None	None	None	None			
NE+5.60	C70	626	Column	None	None	None	None	None	None			
NE+5.60	C72	633	Column	None	None	None	None	None	None			
NE+5.60	C75	640	Column	None	None	None	None	None	None			
NE+5.60	C86	672	Column	None	None	None	None	None	None			
NE+5.60	C92	690	Column	None	None	None	None	None	None			
NE+5.60	C1	177	Column	None	None	None	None	None	None			
NE+5.60	C2	180	Column	None	None	None	None	None	None			
NE+5.60	C3	183	Column	None	None	None	None	None	None			
NE+5.60	C6	186	Column	None	None	None	None	None	None			
NE+5.60	C7	197	Column	None	None	None	None	None	None			
NE+5.60	C8	200	Column	None	None	None	None	None	None			
NE+5.60	C9	203	Column	None	None	None	None	None	None			
NE+5.60	C11	235	Column	None	None	None	None	None	None			
NE+5.60	C13	254	Column	None	None	None	None	None	None			
NE+5.60	C15	288	Column	None	None	None	None	None	None			
NE+5.60	C17	373	Column	None	None	None	None	None	None			
NE+5.60	C18	379	Column	None	None	None	None	None	None			
NE+5.60	C19	392	Column	None	None	None	None	None	None			
NE+5.60	C20	401	Column	None	None	None	None	None	None			
NE+5.60	C21	536	Column	None	None	None	None	None	None			
NE+5.60	C22	608	Column	None	None	None	None	None	None			
NE+5.60	C35	105	Column	None	None	None	None	None	None			
NE+5.60	C94	107	Column	None	None	None	None	None	None			
NE+4.77	C4	7	Column	None	None	None	None	None	None			
NE+4.77	C5	9	Column	None	None	None	None	None	None			
NE+4.77	C44	307	Column	None	None	None	None	None	None			
NE+4.77	C46	311	Column	None	None	None	None	None	None			
NE+4.77	C48	315	Column	None	None	None	None	None	None			
NE+4.77	C50	564	Column	None	None	None	None	None	None			
NE+4.77	C53	571	Column	None	None	None	None	None	None			
NE+4.77	C58	585	Column	None	None	None	None	None	None			
NE+4.77	C60	592	Column	None	None	None	None	None	None			
NE+4.77	C66	343	Column	None	None	None	None	None	None			
NE+4.77	C68	348	Column	None	None	None	None	None	None			
NE+4.77	C70	352	Column	None	None	None	None	None	None			
NE+4.77	C72	632	Column	None	None	None	None	None	None			
NE+4.77	C75	639	Column	None	None	None	None	None	None			
NE+4.77	C86	671	Column	None	None	None	None	None	None			
NE+4.77	C92	689	Column	None	None	None	None	None	None			
NE+4.77	C1	176	Column	None	None	None	None	None	None			
NE+4.77	C2	179	Column	None	None	None	None	None	None			
NE+4.77	C3	182	Column	None	None	None	None	None	None			
NE+4.77	C6	185	Column	None	None	None	None	None	None			
NE+4.77	C7	188	Column	None	None	None	None	None	None			
NE+4.77	C8	199	Column	None	None	None	None	None	None			
NE+4.77	C9	202	Column	None	None	None	None	None	None			
NE+4.77	C11	220	Column	None	None	None	None	None	None			

Story	Label	Unique Name	Design Type	P	V2	V3	T	M2	M3	Partial P I-end tonf/m	Partial V2 I-end tonf/m	Partial V3 I-end tonf/m
NE+4.77	C13	249	Column	None	None	None	None	None	None			
NE+4.77	C15	286	Column	None	None	None	None	None	None			
NE+4.77	C17	372	Column	None	None	None	None	None	None			
NE+4.77	C18	378	Column	None	None	None	None	None	None			
NE+4.77	C19	391	Column	None	None	None	None	None	None			
NE+4.77	C20	400	Column	None	None	None	None	None	None			
NE+4.77	C21	534	Column	None	None	None	None	None	None			
NE+4.77	C22	607	Column	None	None	None	None	None	None			
NE+4.77	C35	697	Column	None	None	None	None	None	None			
NE+4.77	C94	699	Column	None	None	None	None	None	None			
NE+3.17	C4	6	Column	None	None	None	None	None	None			
NE+3.17	C5	8	Column	None	None	None	None	None	None			
NE+3.17	C44	306	Column	None	None	None	None	None	None			
NE+3.17	C46	310	Column	None	None	None	None	None	None			
NE+3.17	C48	314	Column	None	None	None	None	None	None			
NE+3.17	C50	318	Column	None	None	None	None	None	None			
NE+3.17	C53	321	Column	None	None	None	None	None	None			
NE+3.17	C58	328	Column	None	None	None	None	None	None			
NE+3.17	C60	331	Column	None	None	None	None	None	None			
NE+3.17	C66	342	Column	None	None	None	None	None	None			
NE+3.17	C68	347	Column	None	None	None	None	None	None			
NE+3.17	C70	351	Column	None	None	None	None	None	None			
NE+3.17	C72	356	Column	None	None	None	None	None	None			
NE+3.17	C75	359	Column	None	None	None	None	None	None			
NE+3.17	C86	419	Column	None	None	None	None	None	None			
NE+3.17	C92	528	Column	None	None	None	None	None	None			
NE+3.17	C1	175	Column	None	None	None	None	None	None			
NE+3.17	C2	178	Column	None	None	None	None	None	None			
NE+3.17	C3	181	Column	None	None	None	None	None	None			
NE+3.17	C6	184	Column	None	None	None	None	None	None			
NE+3.17	C7	187	Column	None	None	None	None	None	None			
NE+3.17	C8	198	Column	None	None	None	None	None	None			
NE+3.17	C9	201	Column	None	None	None	None	None	None			
NE+3.17	C11	204	Column	None	None	None	None	None	None			
NE+3.17	C13	239	Column	None	None	None	None	None	None			
NE+3.17	C15	279	Column	None	None	None	None	None	None			
NE+3.17	C17	363	Column	None	None	None	None	None	None			
NE+3.17	C18	377	Column	None	None	None	None	None	None			
NE+3.17	C19	390	Column	None	None	None	None	None	None			
NE+3.17	C20	399	Column	None	None	None	None	None	None			
NE+3.17	C21	531	Column	None	None	None	None	None	None			
NE+3.17	C22	606	Column	None	None	None	None	None	None			
NE+3.17	C35	696	Column	None	None	None	None	None	None			
NE+3.17	C94	698	Column	None	None	None	None	None	None			
NE+19.03	B20	294	Beam	None	None	None	None	None	None			
NE+19.03	B21	295	Beam	None	None	None	None	None	None			
NE+19.03	B22	296	Beam	None	None	None	None	None	None			
NE+19.03	B23	290	Beam	None	None	None	None	None	None			

Story	Label	Unique Name	Design Type	P	V2	V3	T	M2	M3	Partial P I-end tonf/m	Partial V2 I-end tonf/m	Partial V3 I-end tonf/m
NE+19.03	B24	291	Beam	None	None	None	None	None	None			
NE+19.03	B25	292	Beam	None	None	None	None	None	None			
NE+19.03	B338	289	Beam	None	None	None	None	None	None			
NE+19.03	B339	293	Beam	None	None	None	None	None	None			
NE+15.63	B340	423	Beam	None	None	None	End I	Both	Both			
NE+15.63	B341	424	Beam	None	None	None	End I	Both	Both			
NE+15.63	B342	425	Beam	None	None	None	End I	Both	Both			
NE+15.63	B343	426	Beam	None	None	None	End I	Both	Both			
NE+15.63	B344	427	Beam	None	None	None	End I	Both	Both			
NE+15.63	B345	428	Beam	None	None	None	End I	Both	Both			
NE+15.63	B346	429	Beam	None	None	None	End I	Both	Both			
NE+15.63	B347	430	Beam	None	None	None	End I	Both	Both			
NE+15.63	B348	431	Beam	None	None	None	End I	Both	Both			
NE+15.63	B349	432	Beam	None	None	None	End I	Both	Both			
NE+15.63	B350	433	Beam	None	None	None	End I	Both	Both			
NE+15.63	B351	434	Beam	None	None	None	End I	Both	Both			
NE+15.63	B352	435	Beam	None	None	None	End I	Both	Both			
NE+15.63	B353	436	Beam	None	None	None	End I	Both	Both			
NE+15.63	B354	437	Beam	None	None	None	End I	Both	Both			
NE+15.63	B355	438	Beam	None	None	None	End I	Both	Both			
NE+15.63	B356	439	Beam	None	None	None	End I	Both	Both			
NE+15.63	B357	440	Beam	None	None	None	End I	Both	Both			
NE+15.63	B358	441	Beam	None	None	None	End I	Both	Both			
NE+15.63	B359	442	Beam	None	None	None	End I	Both	Both			
NE+15.63	B360	443	Beam	None	None	None	End I	Both	Both			
NE+15.63	B361	444	Beam	None	None	None	End I	Both	Both			
NE+15.63	B362	445	Beam	None	None	None	End I	Both	Both			
NE+15.63	B363	446	Beam	None	None	None	End I	Both	Both			
NE+15.63	B364	447	Beam	None	None	None	End I	Both	Both			
NE+15.63	B365	448	Beam	None	None	None	End I	Both	Both			
NE+15.63	B366	449	Beam	None	None	None	End I	Both	Both			
NE+15.63	B367	450	Beam	None	None	None	End I	Both	Both			
NE+15.63	B368	451	Beam	None	None	None	End I	Both	Both			
NE+15.63	B369	452	Beam	None	None	None	End I	Both	Both			
NE+15.63	B370	453	Beam	None	None	None	End I	Both	Both			
NE+15.63	B371	454	Beam	None	None	None	End I	Both	Both			
NE+15.63	B372	455	Beam	None	None	None	End I	Both	Both			
NE+15.63	B373	456	Beam	None	None	None	End I	Both	Both			
NE+15.63	B374	457	Beam	None	None	None	End I	Both	Both			
NE+15.63	B375	458	Beam	None	None	None	End I	Both	Both			
NE+15.63	B376	459	Beam	None	None	None	End I	Both	Both			
NE+15.63	B377	460	Beam	None	None	None	End I	Both	Both			
NE+15.63	B378	461	Beam	None	None	None	End I	Both	Both			
NE+15.63	B379	462	Beam	None	None	None	End I	Both	Both			
NE+15.63	B380	463	Beam	None	None	None	End I	Both	Both			
NE+15.63	B381	464	Beam	None	None	None	End I	Both	Both			
NE+15.63	B382	465	Beam	None	None	None	End I	Both	Both			
NE+15.63	B383	466	Beam	None	None	None	End I	Both	Both			

Story	Label	Unique Name	Design Type	P	V2	V3	T	M2	M3	Partial P I-end tonf/m	Partial V2 I-end tonf/m	Partial V3 I-end tonf/m
NE+15.63	B384	467	Beam	None	None	None	End I	Both	Both			
NE+15.63	B385	468	Beam	None	None	None	End I	Both	Both			
NE+15.63	B386	469	Beam	None	None	None	End I	Both	Both			
NE+15.63	B387	470	Beam	None	None	None	End I	Both	Both			
NE+15.63	B388	471	Beam	None	None	None	End I	Both	Both			
NE+15.63	B389	472	Beam	None	None	None	End I	Both	Both			
NE+15.63	B390	473	Beam	None	None	None	End I	Both	Both			
NE+15.63	B391	474	Beam	None	None	None	End I	Both	Both			
NE+15.63	B392	475	Beam	None	None	None	End I	Both	Both			
NE+15.63	B393	476	Beam	None	None	None	End I	Both	Both			
NE+15.63	B394	477	Beam	None	None	None	End I	Both	Both			
NE+15.63	B395	478	Beam	None	None	None	End I	Both	Both			
NE+15.63	B396	479	Beam	None	None	None	End I	Both	Both			
NE+15.63	B397	480	Beam	None	None	None	End I	Both	Both			
NE+15.63	B398	481	Beam	None	None	None	End I	Both	Both			
NE+15.63	B399	482	Beam	None	None	None	End I	Both	Both			
NE+15.63	B400	483	Beam	None	None	None	End I	Both	Both			
NE+15.63	B401	484	Beam	None	None	None	End I	Both	Both			
NE+15.63	B402	485	Beam	None	None	None	End I	Both	Both			
NE+15.63	B403	486	Beam	None	None	None	End I	Both	Both			
NE+15.63	B404	487	Beam	None	None	None	End I	Both	Both			
NE+15.63	B405	488	Beam	None	None	None	End I	Both	Both			
NE+15.63	B406	489	Beam	None	None	None	End I	Both	Both			
NE+15.63	B407	490	Beam	None	None	None	End I	Both	Both			
NE+15.63	B408	491	Beam	None	None	None	End I	Both	Both			
NE+15.63	B409	492	Beam	None	None	None	End I	Both	Both			
NE+15.63	B410	493	Beam	None	None	None	End I	Both	Both			
NE+15.63	B411	494	Beam	None	None	None	End I	Both	Both			
NE+15.63	B412	495	Beam	None	None	None	End I	Both	Both			
NE+15.63	B413	496	Beam	None	None	None	End I	Both	Both			
NE+15.63	B414	497	Beam	None	None	None	End I	Both	Both			
NE+15.63	B415	498	Beam	None	None	None	End I	Both	Both			
NE+15.63	B416	499	Beam	None	None	None	End I	Both	Both			
NE+15.63	B417	500	Beam	None	None	None	End I	Both	Both			
NE+15.63	B418	501	Beam	None	None	None	End I	Both	Both			
NE+15.63	B419	502	Beam	None	None	None	End I	Both	Both			
NE+15.63	B420	503	Beam	None	None	None	End I	Both	Both			
NE+15.63	B421	504	Beam	None	None	None	End I	Both	Both			
NE+15.63	B423	506	Beam	None	None	None	End I	Both	Both			
NE+15.63	B424	507	Beam	None	None	None	End I	Both	Both			
NE+15.63	B425	508	Beam	None	None	None	End I	Both	Both			
NE+15.63	B426	509	Beam	None	None	None	End I	Both	Both			
NE+15.63	B427	510	Beam	None	None	None	End I	Both	Both			
NE+15.63	B428	511	Beam	None	None	None	End I	Both	Both			
NE+15.63	B429	512	Beam	None	None	None	End I	Both	Both			
NE+15.63	B430	513	Beam	None	None	None	End I	Both	Both			
NE+15.63	B431	514	Beam	None	None	None	End I	Both	Both			
NE+15.63	B432	515	Beam	None	None	None	End I	Both	Both			

Story	Label	Unique Name	Design Type	P	V2	V3	T	M2	M3	Partial P I-end tonf/m	Partial V2 I-end tonf/m	Partial V3 I-end tonf/m
NE+15.63	B433	516	Beam	None	None	None	End I	Both	Both			
NE+15.63	B434	517	Beam	None	None	None	End I	Both	Both			
NE+15.63	B435	518	Beam	None	None	None	End I	Both	Both			
NE+15.63	B436	519	Beam	None	None	None	End I	Both	Both			
NE+15.63	B437	520	Beam	None	None	None	End I	Both	Both			
NE+15.63	B438	521	Beam	None	None	None	End I	Both	Both			
NE+15.63	B439	522	Beam	None	None	None	End I	Both	Both			
NE+15.63	B440	523	Beam	None	None	None	End I	Both	Both			
NE+11.82	B6	1	Beam	None	None	None	None	None	None			
NE+11.82	B7	2	Beam	None	None	None	None	None	None			
NE+11.82	B8	5	Beam	None	None	None	None	None	None			
NE+11.82	B9	13	Beam	None	None	None	None	None	None			
NE+11.82	B10	14	Beam	None	None	None	None	None	None			
NE+11.82	B12	16	Beam	None	None	None	None	None	None			
NE+11.82	B14	18	Beam	None	None	None	None	None	None			
NE+11.82	B15	19	Beam	None	None	None	None	None	None			
NE+11.82	B16	20	Beam	None	None	None	None	None	None			
NE+11.82	B17	21	Beam	None	None	None	None	None	None			
NE+11.82	B18	22	Beam	None	None	None	None	None	None			
NE+11.82	B19	23	Beam	None	None	None	None	None	None			
NE+11.82	B20	24	Beam	None	None	None	None	None	None			
NE+11.82	B21	25	Beam	None	None	None	None	None	None			
NE+11.82	B22	26	Beam	None	None	None	None	None	None			
NE+11.82	B23	27	Beam	None	None	None	None	None	None			
NE+11.82	B24	28	Beam	None	None	None	None	None	None			
NE+11.82	B25	29	Beam	None	None	None	None	None	None			
NE+11.82	B26	30	Beam	None	None	None	None	None	None			
NE+11.82	B27	31	Beam	None	None	None	None	None	None			
NE+11.82	B28	32	Beam	None	None	None	None	None	None			
NE+11.82	B29	33	Beam	None	None	None	None	None	None			
NE+11.82	B30	34	Beam	None	None	None	None	None	None			
NE+11.82	B31	36	Beam	None	None	None	None	None	None			
NE+11.82	B56	11	Beam	None	None	None	None	None	None			
NE+11.82	B57	77	Beam	None	None	None	None	None	None			
NE+11.82	B58	78	Beam	None	None	None	None	None	None			
NE+11.82	B59	79	Beam	None	None	None	None	None	None			
NE+11.82	B60	80	Beam	None	None	None	None	None	None			
NE+11.82	B61	81	Beam	None	None	None	None	None	None			
NE+11.82	B62	89	Beam	None	None	None	None	None	None			
NE+11.82	B11	218	Beam	None	None	None	None	None	None			
NE+11.82	B47	217	Beam	None	None	None	None	None	None			
NE+11.82	B63	216	Beam	None	None	None	None	None	None			
NE+11.82	B66	303	Beam	None	None	None	End I	Both	Both			
NE+11.82	B67	305	Beam	None	None	None	End I	Both	Both			
NE+10.16	B32	17	Beam	None	None	None	None	None	None			
NE+10.16	B33	139	Beam	None	None	None	None	None	None			
NE+10.16	B34	140	Beam	None	None	None	None	None	None			
NE+10.16	B35	173	Beam	None	None	None	None	None	None			

Story	Label	Unique Name	Design Type	P	V2	V3	T	M2	M3	Partial P I-end tonf/m	Partial V2 I-end tonf/m	Partial V3 I-end tonf/m
NE+10.16	B36	174	Beam	None	None	None	None	None	None			
NE+10.16	B37	219	Beam	None	None	None	None	None	None			
NE+10.16	B38	221	Beam	None	None	None	None	None	None			
NE+10.16	B39	222	Beam	None	None	None	None	None	None			
NE+10.16	B40	223	Beam	None	None	None	None	None	None			
NE+10.16	B41	224	Beam	None	None	None	None	None	None			
NE+10.16	B42	225	Beam	None	None	None	None	None	None			
NE+10.16	B43	226	Beam	None	None	None	None	None	None			
NE+10.16	B70	316	Beam	None	None	None	None	None	None			
NE+10.16	B73	323	Beam	None	None	None	None	None	None			
NE+9.01	B14	252	Beam	None	None	None	None	None	None			
NE+9.01	B16	253	Beam	None	None	None	None	None	None			
NE+9.01	B29	299	Beam	None	None	None	None	None	None			
NE+9.01	B31	298	Beam	None	None	None	None	None	None			
NE+9.01	B44	539	Beam	None	None	None	None	None	None			
NE+9.01	B48	535	Beam	None	None	None	None	None	None			
NE+9.01	B49	526	Beam	None	None	None	None	None	None			
NE+9.01	B50	533	Beam	None	None	None	None	None	None			
NE+9.01	B51	537	Beam	None	None	None	None	None	None			
NE+9.01	B52	532	Beam	None	None	None	None	None	None			
NE+9.01	B98	541	Beam	None	None	None	End I	Both	Both			
NE+9.01	B105	542	Beam	None	None	None	End I	Both	Both			
NE+9.01	B11	109	Beam	None	None	None	None	None	None			
NE+9.01	B47	134	Beam	None	None	None	None	None	None			
NE+9.01	B63	214	Beam	None	None	None	None	None	None			
NE+5.60	B18	369	Beam	None	None	None	None	None	None			
NE+5.60	B19	370	Beam	None	None	None	None	None	None			
NE+5.60	B20	371	Beam	None	None	None	None	None	None			
NE+5.60	B25	386	Beam	None	None	None	None	None	None			
NE+5.60	B26	385	Beam	None	None	None	None	None	None			
NE+5.60	B27	384	Beam	None	None	None	None	None	None			
NE+5.60	B32	168	Beam	None	None	None	None	None	None			
NE+5.60	B33	167	Beam	None	None	None	None	None	None			
NE+5.60	B34	166	Beam	None	None	None	None	None	None			
NE+5.60	B35	165	Beam	None	None	None	None	None	None			
NE+5.60	B36	159	Beam	None	None	None	None	None	None			
NE+5.60	B37	157	Beam	None	None	None	None	None	None			
NE+5.60	B38	110	Beam	None	None	None	None	None	None			
NE+5.60	B39	108	Beam	None	None	None	None	None	None			
NE+5.60	B40	106	Beam	None	None	None	None	None	None			
NE+5.60	B41	104	Beam	None	None	None	None	None	None			
NE+5.60	B42	103	Beam	None	None	None	None	None	None			
NE+5.60	B43	102	Beam	None	None	None	None	None	None			
NE+5.60	B178	277	Beam	None	None	None	None	None	None			
NE+5.60	B179	278	Beam	None	None	None	None	None	None			
NE+5.60	B327	272	Beam	None	None	None	None	None	None			
NE+5.60	B329	274	Beam	None	None	None	None	None	None			
NE+5.60	B330	275	Beam	None	None	None	None	None	None			

Story	Label	Unique Name	Design Type	P	V2	V3	T	M2	M3	Partial P I-end tonf/m	Partial V2 I-end tonf/m	Partial V3 I-end tonf/m
NE+5.60	B331	276	Beam	None	None	None	None	None	None			
NE+5.60	B332	280	Beam	None	None	None	End I	Both	Both			
NE+5.60	B333	281	Beam	None	None	None	End I	Both	Both			
NE+5.60	B334	282	Beam	None	None	None	End I	Both	Both			
NE+5.60	B335	283	Beam	None	None	None	End I	Both	Both			
NE+5.60	B336	284	Beam	None	None	None	End I	Both	Both			
NE+5.60	B337	285	Beam	None	None	None	End I	Both	Both			
NE+5.60	B338	154	Beam	None	None	None	None	None	None			
NE+5.60	B339	15	Beam	None	None	None	None	None	None			
NE+5.60	B70	308	Beam	None	None	None	None	None	None			
NE+5.60	B73	322	Beam	None	None	None	None	None	None			
NE+4.77	B13	118	Beam	None	None	None	None	None	None			
NE+4.77	B14	250	Beam	None	None	None	None	None	None			
NE+4.77	B16	248	Beam	None	None	None	None	None	None			
NE+4.77	B29	271	Beam	None	None	None	None	None	None			
NE+4.77	B31	258	Beam	None	None	None	None	None	None			
NE+4.77	B44	50	Beam	None	None	None	None	None	None			
NE+4.77	B48	54	Beam	None	None	None	None	None	None			
NE+4.77	B49	55	Beam	None	None	None	None	None	None			
NE+4.77	B50	56	Beam	None	None	None	None	None	None			
NE+4.77	B51	57	Beam	None	None	None	None	None	None			
NE+4.77	B52	58	Beam	None	None	None	None	None	None			
NE+4.77	B102	59	Beam	None	None	None	End I	Both	Both			
NE+4.77	B103	60	Beam	None	None	None	End I	Both	Both			
NE+4.77	B104	61	Beam	None	None	None	End I	Both	Both			
NE+4.77	B105	62	Beam	None	None	None	End I	Both	Both			
NE+4.77	B106	63	Beam	None	None	None	End I	Both	Both			
NE+4.77	B107	64	Beam	None	None	None	End I	Both	Both			
NE+4.77	B108	65	Beam	None	None	None	End I	Both	Both			
NE+4.77	B125	66	Beam	None	None	None	End I	Both	Both			
NE+4.77	B126	67	Beam	None	None	None	End I	Both	Both			
NE+4.77	B127	68	Beam	None	None	None	End I	Both	Both			
NE+4.77	B128	69	Beam	None	None	None	End I	Both	Both			
NE+4.77	B129	70	Beam	None	None	None	End I	Both	Both			
NE+4.77	B130	71	Beam	None	None	None	End I	Both	Both			
NE+4.77	B131	72	Beam	None	None	None	End I	Both	Both			
NE+4.77	B132	117	Beam	None	None	None	End I	Both	Both			
NE+4.77	B133	82	Beam	None	None	None	End I	Both	Both			
NE+4.77	B134	83	Beam	None	None	None	End I	Both	Both			
NE+4.77	B135	84	Beam	None	None	None	End I	Both	Both			
NE+4.77	B136	85	Beam	None	None	None	End I	Both	Both			
NE+4.77	B137	86	Beam	None	None	None	End I	Both	Both			
NE+4.77	B138	87	Beam	None	None	None	End I	Both	Both			
NE+4.77	B139	88	Beam	None	None	None	End I	Both	Both			
NE+4.77	B140	119	Beam	None	None	None	End I	Both	Both			
NE+4.77	B142	121	Beam	None	None	None	End I	Both	Both			
NE+4.77	B143	122	Beam	None	None	None	End I	Both	Both			
NE+4.77	B144	123	Beam	None	None	None	End I	Both	Both			

Story	Label	Unique Name	Design Type	P	V2	V3	T	M2	M3	Partial P I-end tonf/m	Partial V2 I-end tonf/m	Partial V3 I-end tonf/m
NE+4.77	B145	124	Beam	None	None	None	End I	Both	Both			
NE+4.77	B146	125	Beam	None	None	None	End I	Both	Both			
NE+4.77	B147	126	Beam	None	None	None	End I	Both	Both			
NE+4.77	B148	127	Beam	None	None	None	End I	Both	Both			
NE+4.77	B149	128	Beam	None	None	None	End I	Both	Both			
NE+4.77	B150	129	Beam	None	None	None	End I	Both	Both			
NE+4.77	B151	130	Beam	None	None	None	End I	Both	Both			
NE+4.77	B152	131	Beam	None	None	None	End I	Both	Both			
NE+4.77	B153	132	Beam	None	None	None	End I	Both	Both			
NE+4.77	B442	10	Beam	None	None	None	End I	Both	Both			
NE+4.77	B64	120	Beam	None	None	None	None	None	None			
NE+4.77	B65	133	Beam	None	None	None	None	None	None			
NE+3.17	B15	251	Beam	None	None	None	None	None	None			
NE+3.17	B17	364	Beam	None	None	None	None	None	None			
NE+3.17	B18	365	Beam	None	None	None	None	None	None			
NE+3.17	B19	366	Beam	None	None	None	None	None	None			
NE+3.17	B20	368	Beam	None	None	None	None	None	None			
NE+3.17	B22	100	Beam	None	None	None	None	None	None			
NE+3.17	B23	144	Beam	None	None	None	None	None	None			
NE+3.17	B25	287	Beam	None	None	None	None	None	None			
NE+3.17	B26	383	Beam	None	None	None	None	None	None			
NE+3.17	B27	382	Beam	None	None	None	None	None	None			
NE+3.17	B28	380	Beam	None	None	None	None	None	None			
NE+3.17	B30	270	Beam	None	None	None	None	None	None			
NE+3.17	B32	146	Beam	None	None	None	None	None	None			
NE+3.17	B33	147	Beam	None	None	None	None	None	None			
NE+3.17	B34	148	Beam	None	None	None	None	None	None			
NE+3.17	B35	149	Beam	None	None	None	None	None	None			
NE+3.17	B36	150	Beam	None	None	None	None	None	None			
NE+3.17	B37	151	Beam	None	None	None	None	None	None			
NE+3.17	B38	142	Beam	None	None	None	None	None	None			
NE+3.17	B39	141	Beam	None	None	None	None	None	None			
NE+3.17	B40	138	Beam	None	None	None	None	None	None			
NE+3.17	B41	137	Beam	None	None	None	None	None	None			
NE+3.17	B42	136	Beam	None	None	None	None	None	None			
NE+3.17	B43	135	Beam	None	None	None	None	None	None			
NE+3.17	B176	155	Beam	None	None	None	None	None	None			
NE+3.17	B177	156	Beam	None	None	None	None	None	None			
NE+3.17	B179	158	Beam	None	None	None	None	None	None			
NE+3.17	B183	161	Beam	None	None	None	None	None	None			
NE+3.17	B184	160	Beam	None	None	None	None	None	None			
NE+3.17	B186	162	Beam	None	None	None	None	None	None			
NE+3.17	B188	164	Beam	None	None	None	None	None	None			
NE+3.17	B189	163	Beam	None	None	None	None	None	None			
NE+3.17	B230	205	Beam	None	None	None	End I	Both	Both			
NE+3.17	B231	206	Beam	None	None	None	End I	Both	Both			
NE+3.17	B232	207	Beam	None	None	None	End I	Both	Both			
NE+3.17	B233	208	Beam	None	None	None	End I	Both	Both			

Story	Label	Unique Name	Design Type	P	V2	V3	T	M2	M3	Partial P I-end tonf/m	Partial V2 I-end tonf/m	Partial V3 I-end tonf/m
NE+3.17	B234	209	Beam	None	None	None	End I	Both	Both			
NE+3.17	B235	210	Beam	None	None	None	End I	Both	Both			
NE+3.17	B236	211	Beam	None	None	None	End I	Both	Both			
NE+3.17	B237	212	Beam	None	None	None	End I	Both	Both			
NE+3.17	B240	215	Beam	None	None	None	End I	Both	Both			
NE+3.17	B252	227	Beam	None	None	None	End I	Both	Both			
NE+3.17	B253	228	Beam	None	None	None	End I	Both	Both			
NE+3.17	B254	229	Beam	None	None	None	End I	Both	Both			
NE+3.17	B255	230	Beam	None	None	None	End I	Both	Both			
NE+3.17	B256	231	Beam	None	None	None	End I	Both	Both			
NE+3.17	B257	232	Beam	None	None	None	End I	Both	Both			
NE+3.17	B258	233	Beam	None	None	None	End I	Both	Both			
NE+3.17	B259	234	Beam	None	None	None	End I	Both	Both			
NE+3.17	B260	189	Beam	None	None	None	End I	Both	Both			
NE+3.17	B261	190	Beam	None	None	None	End I	Both	Both			
NE+3.17	B262	191	Beam	None	None	None	End I	Both	Both			
NE+3.17	B263	192	Beam	None	None	None	End I	Both	Both			
NE+3.17	B264	193	Beam	None	None	None	End I	Both	Both			
NE+3.17	B265	194	Beam	None	None	None	End I	Both	Both			
NE+3.17	B266	195	Beam	None	None	None	End I	Both	Both			
NE+3.17	B267	196	Beam	None	None	None	End I	Both	Both			
NE+3.17	B268	213	Beam	None	None	None	End I	Both	Both			
NE+3.17	B276	236	Beam	None	None	None	End I	Both	Both			
NE+3.17	B277	237	Beam	None	None	None	End I	Both	Both			
NE+3.17	B278	238	Beam	None	None	None	End I	Both	Both			
NE+3.17	B279	240	Beam	None	None	None	End I	Both	Both			
NE+3.17	B298	241	Beam	None	None	None	End I	Both	Both			
NE+3.17	B299	242	Beam	None	None	None	End I	Both	Both			
NE+3.17	B300	243	Beam	None	None	None	End I	Both	Both			
NE+3.17	B301	244	Beam	None	None	None	End I	Both	Both			
NE+3.17	B302	245	Beam	None	None	None	End I	Both	Both			
NE+3.17	B303	246	Beam	None	None	None	End I	Both	Both			
NE+3.17	B304	247	Beam	None	None	None	End I	Both	Both			
NE+3.17	B305	255	Beam	None	None	None	End I	Both	Both			
NE+3.17	B306	256	Beam	None	None	None	End I	Both	Both			
NE+3.17	B307	259	Beam	None	None	None	End I	Both	Both			
NE+3.17	B308	260	Beam	None	None	None	End I	Both	Both			
NE+3.17	B318	261	Beam	None	None	None	End I	Both	Both			
NE+3.17	B319	262	Beam	None	None	None	End I	Both	Both			
NE+3.17	B320	263	Beam	None	None	None	End I	Both	Both			
NE+3.17	B321	264	Beam	None	None	None	End I	Both	Both			
NE+3.17	B322	265	Beam	None	None	None	End I	Both	Both			
NE+3.17	B323	266	Beam	None	None	None	End I	Both	Both			
NE+3.17	B324	267	Beam	None	None	None	End I	Both	Both			
NE+3.17	B325	268	Beam	None	None	None	End I	Both	Both			
NE+3.17	B326	269	Beam	None	None	None	End I	Both	Both			
NE+3.17	B338	145	Beam	None	None	None	None	None	None			
NE+3.17	B339	99	Beam	None	None	None	None	None	None			

Story	Label	Unique Name	Design Type	P	V2	V3	T	M2	M3	Partial P I-end tonf/m	Partial V2 I-end tonf/m	Partial V3 I-end tonf/m
NE+3.17	B1	12	Beam	None	None	None	End I	End I	End I			
NE+3.17	B2	35	Beam	None	None	None	None	End J	End J			
NE+3.17	B5	39	Beam	None	None	None	None	None	None			
NE+3.17	B45	52	Beam	None	None	None	None	None	None			
NE+3.17	B46	73	Beam	None	None	None	None	None	None			
NE+3.17	B53	74	Beam	None	None	None	None	None	None			
NE+3.17	B54	75	Beam	None	None	None	None	None	None			
NE+3.17	B55	76	Beam	None	None	None	None	None	None			
NE+3.17	B70	312	Beam	None	None	None	None	None	None			
NE+3.17	B73	319	Beam	None	None	None	None	None	None			
NE+15.63	D56	325	Brace	None	None	None	End I	Both	Both			
NE+15.63	D57	332	Brace	None	None	None	End I	Both	Both			
NE+15.63	D58	339	Brace	None	None	None	End I	Both	Both			
NE+15.63	D59	346	Brace	None	None	None	End I	Both	Both			
NE+15.63	D60	353	Brace	None	None	None	End I	Both	Both			
NE+15.63	D61	360	Brace	None	None	None	End I	Both	Both			
NE+15.63	D62	367	Brace	None	None	None	End I	Both	Both			
NE+15.63	D63	374	Brace	None	None	None	End I	Both	Both			
NE+15.63	D64	381	Brace	None	None	None	End I	Both	Both			
NE+15.63	D65	388	Brace	None	None	None	End I	Both	Both			
NE+15.63	D66	395	Brace	None	None	None	End I	Both	Both			
NE+15.63	D67	402	Brace	None	None	None	End I	Both	Both			
NE+15.63	D68	409	Brace	None	None	None	End I	Both	Both			
NE+15.63	D69	416	Brace	None	None	None	End I	Both	Both			
NE+15.63	D3	297	Brace	None	None	None	End I	Both	Both			
NE+15.63	D6	304	Brace	None	None	None	End I	Both	Both			
NE+15.63	D1	90	Brace	None	None	None	End I	End I	End I			
NE+15.63	D2	91	Brace	None	None	None	None	None	None			
NE+15.63	D4	92	Brace	None	None	None	None	None	None			
NE+15.63	D5	93	Brace	None	None	None	None	End J	End J			
NE+15.63	D7	94	Brace	None	None	None	End I	End I	End I			
NE+15.63	D8	95	Brace	None	None	None	None	None	None			
NE+15.63	D10	97	Brace	None	None	None	None	None	None			
NE+15.63	D11	98	Brace	None	None	None	None	End J	End J			

Table 3.4 - Frame Assignments - Releases (Part 2 of 2)

Story	Label	Unique Name	Partial T I-end tonf-m/rad	Partial M2 I-end tonf-m/rad	Partial M3 I-end tonf-m/rad	Partial P J-end tonf/m	Partial V2 J-end tonf/m	Partial V3 J-end tonf/m	Partial T J-end tonf-m/rad	Partial M2 J-end tonf-m/rad
NE+19.03	C58	170								
NE+19.03	C60	172								
NE+19.03	C86	670								
NE+19.03	C92	688								
NE+15.63	C58	169								
NE+15.63	C60	171								
NE+15.63	C86	669								

Story	Label	Unique Name	Partial T I-end tonf-m/rad	Partial M2 I-end tonf-m/rad	Partial M3 I-end tonf-m/rad	Partial P J-end tonf/m	Partial V2 J-end tonf/m	Partial V3 J-end tonf/m	Partial T J-end tonf-m/rad	Partial M2 J-end tonf-m/rad
NE+15.63	C92	687								
NE+11.82	C44	551								
NE+11.82	C46	557								
NE+11.82	C48	563								
NE+11.82	C50	570								
NE+11.82	C53	577								
NE+11.82	C58	591								
NE+11.82	C60	598								
NE+11.82	C66	619								
NE+11.82	C68	625								
NE+11.82	C70	631								
NE+11.82	C72	638								
NE+11.82	C75	645								
NE+11.82	C86	677								
NE+11.82	C92	695								
NE+11.82	C21	545								
NE+11.82	C22	613								
NE+10.16	C44	550								
NE+10.16	C46	556								
NE+10.16	C48	562								
NE+10.16	C50	569								
NE+10.16	C53	576								
NE+10.16	C58	590								
NE+10.16	C60	597								
NE+10.16	C66	618								
NE+10.16	C68	624								
NE+10.16	C70	630								
NE+10.16	C72	637								
NE+10.16	C75	644								
NE+10.16	C86	676								
NE+10.16	C92	694								
NE+10.16	C19	397								
NE+10.16	C20	411								
NE+10.16	C21	544								
NE+10.16	C22	612								
NE+9.36	C44	549								
NE+9.36	C46	555								
NE+9.36	C48	561								
NE+9.36	C50	568								
NE+9.36	C53	575								
NE+9.36	C58	589								
NE+9.36	C60	596								
NE+9.36	C66	617								
NE+9.36	C68	623								
NE+9.36	C70	629								
NE+9.36	C72	636								
NE+9.36	C75	643								
NE+9.36	C86	675								

Story	Label	Unique Name	Partial T I-end tonf-m/rad	Partial M2 I-end tonf-m/rad	Partial M3 I-end tonf-m/rad	Partial P J-end tonf/m	Partial V2 J-end tonf/m	Partial V3 J-end tonf/m	Partial T J-end tonf-m/rad	Partial M2 J-end tonf-m/rad
NE+9.36	C92	693								
NE+9.36	C19	396								
NE+9.36	C20	405								
NE+9.36	C21	543								
NE+9.36	C22	611								
NE+9.01	C44	548								
NE+9.01	C46	554								
NE+9.01	C48	560								
NE+9.01	C50	567								
NE+9.01	C53	574								
NE+9.01	C58	588								
NE+9.01	C60	595								
NE+9.01	C66	616								
NE+9.01	C68	622								
NE+9.01	C70	628								
NE+9.01	C72	635								
NE+9.01	C75	642								
NE+9.01	C86	674								
NE+9.01	C92	692								
NE+9.01	C13	273								
NE+9.01	C15	301								
NE+9.01	C17	376								
NE+9.01	C18	389								
NE+9.01	C19	394								
NE+9.01	C20	404								
NE+9.01	C21	540								
NE+9.01	C22	610								
NE+7.46	C44	547								
NE+7.46	C46	553								
NE+7.46	C48	559								
NE+7.46	C50	566								
NE+7.46	C53	573								
NE+7.46	C58	587								
NE+7.46	C60	594								
NE+7.46	C66	615								
NE+7.46	C68	621								
NE+7.46	C70	627								
NE+7.46	C72	634								
NE+7.46	C75	641								
NE+7.46	C86	673								
NE+7.46	C92	691								
NE+7.46	C13	257								
NE+7.46	C15	300								
NE+7.46	C17	375								
NE+7.46	C18	387								
NE+7.46	C19	393								
NE+7.46	C20	403								
NE+7.46	C21	538								

Story	Label	Unique Name	Partial T I-end tonf-m/rad	Partial M2 I-end tonf-m/rad	Partial M3 I-end tonf-m/rad	Partial P J-end tonf/m	Partial V2 J-end tonf/m	Partial V3 J-end tonf/m	Partial T J-end tonf-m/rad	Partial M2 J-end tonf-m/rad
NE+7.46	C22	609								
NE+5.60	C44	546								
NE+5.60	C46	552								
NE+5.60	C48	558								
NE+5.60	C50	565								
NE+5.60	C53	572								
NE+5.60	C58	586								
NE+5.60	C60	593								
NE+5.60	C66	614								
NE+5.60	C68	620								
NE+5.60	C70	626								
NE+5.60	C72	633								
NE+5.60	C75	640								
NE+5.60	C86	672								
NE+5.60	C92	690								
NE+5.60	C1	177								
NE+5.60	C2	180								
NE+5.60	C3	183								
NE+5.60	C6	186								
NE+5.60	C7	197								
NE+5.60	C8	200								
NE+5.60	C9	203								
NE+5.60	C11	235								
NE+5.60	C13	254								
NE+5.60	C15	288								
NE+5.60	C17	373								
NE+5.60	C18	379								
NE+5.60	C19	392								
NE+5.60	C20	401								
NE+5.60	C21	536								
NE+5.60	C22	608								
NE+5.60	C35	105								
NE+5.60	C94	107								
NE+4.77	C4	7								
NE+4.77	C5	9								
NE+4.77	C44	307								
NE+4.77	C46	311								
NE+4.77	C48	315								
NE+4.77	C50	564								
NE+4.77	C53	571								
NE+4.77	C58	585								
NE+4.77	C60	592								
NE+4.77	C66	343								
NE+4.77	C68	348								
NE+4.77	C70	352								
NE+4.77	C72	632								
NE+4.77	C75	639								
NE+4.77	C86	671								

Story	Label	Unique Name	Partial T I-end tonf-m/rad	Partial M2 I-end tonf-m/rad	Partial M3 I-end tonf-m/rad	Partial P J-end tonf/m	Partial V2 J-end tonf/m	Partial V3 J-end tonf/m	Partial T J-end tonf-m/rad	Partial M2 J-end tonf-m/rad
NE+4.77	C92	689								
NE+4.77	C1	176								
NE+4.77	C2	179								
NE+4.77	C3	182								
NE+4.77	C6	185								
NE+4.77	C7	188								
NE+4.77	C8	199								
NE+4.77	C9	202								
NE+4.77	C11	220								
NE+4.77	C13	249								
NE+4.77	C15	286								
NE+4.77	C17	372								
NE+4.77	C18	378								
NE+4.77	C19	391								
NE+4.77	C20	400								
NE+4.77	C21	534								
NE+4.77	C22	607								
NE+4.77	C35	697								
NE+4.77	C94	699								
NE+3.17	C4	6								
NE+3.17	C5	8								
NE+3.17	C44	306								
NE+3.17	C46	310								
NE+3.17	C48	314								
NE+3.17	C50	318								
NE+3.17	C53	321								
NE+3.17	C58	328								
NE+3.17	C60	331								
NE+3.17	C66	342								
NE+3.17	C68	347								
NE+3.17	C70	351								
NE+3.17	C72	356								
NE+3.17	C75	359								
NE+3.17	C86	419								
NE+3.17	C92	528								
NE+3.17	C1	175								
NE+3.17	C2	178								
NE+3.17	C3	181								
NE+3.17	C6	184								
NE+3.17	C7	187								
NE+3.17	C8	198								
NE+3.17	C9	201								
NE+3.17	C11	204								
NE+3.17	C13	239								
NE+3.17	C15	279								
NE+3.17	C17	363								
NE+3.17	C18	377								
NE+3.17	C19	390								

Story	Label	Unique Name	Partial T I-end tonf-m/rad	Partial M2 I-end tonf-m/rad	Partial M3 I-end tonf-m/rad	Partial P J-end tonf/m	Partial V2 J-end tonf/m	Partial V3 J-end tonf/m	Partial T J-end tonf-m/rad	Partial M2 J-end tonf-m/rad
NE+3.17	C20	399								
NE+3.17	C21	531								
NE+3.17	C22	606								
NE+3.17	C35	696								
NE+3.17	C94	698								
NE+19.03	B20	294								
NE+19.03	B21	295								
NE+19.03	B22	296								
NE+19.03	B23	290								
NE+19.03	B24	291								
NE+19.03	B25	292								
NE+19.03	B338	289								
NE+19.03	B339	293								
NE+15.63	B340	423								
NE+15.63	B341	424								
NE+15.63	B342	425								
NE+15.63	B343	426								
NE+15.63	B344	427								
NE+15.63	B345	428								
NE+15.63	B346	429								
NE+15.63	B347	430								
NE+15.63	B348	431								
NE+15.63	B349	432								
NE+15.63	B350	433								
NE+15.63	B351	434								
NE+15.63	B352	435								
NE+15.63	B353	436								
NE+15.63	B354	437								
NE+15.63	B355	438								
NE+15.63	B356	439								
NE+15.63	B357	440								
NE+15.63	B358	441								
NE+15.63	B359	442								
NE+15.63	B360	443								
NE+15.63	B361	444								
NE+15.63	B362	445								
NE+15.63	B363	446								
NE+15.63	B364	447								
NE+15.63	B365	448								
NE+15.63	B366	449								
NE+15.63	B367	450								
NE+15.63	B368	451								
NE+15.63	B369	452								
NE+15.63	B370	453								
NE+15.63	B371	454								
NE+15.63	B372	455								
NE+15.63	B373	456								
NE+15.63	B374	457								

Story	Label	Unique Name	Partial T I-end tonf-m/rad	Partial M2 I-end tonf-m/rad	Partial M3 I-end tonf-m/rad	Partial P J-end tonf/m	Partial V2 J-end tonf/m	Partial V3 J-end tonf/m	Partial T J-end tonf-m/rad	Partial M2 J-end tonf-m/rad
NE+15.63	B375	458								
NE+15.63	B376	459								
NE+15.63	B377	460								
NE+15.63	B378	461								
NE+15.63	B379	462								
NE+15.63	B380	463								
NE+15.63	B381	464								
NE+15.63	B382	465								
NE+15.63	B383	466								
NE+15.63	B384	467								
NE+15.63	B385	468								
NE+15.63	B386	469								
NE+15.63	B387	470								
NE+15.63	B388	471								
NE+15.63	B389	472								
NE+15.63	B390	473								
NE+15.63	B391	474								
NE+15.63	B392	475								
NE+15.63	B393	476								
NE+15.63	B394	477								
NE+15.63	B395	478								
NE+15.63	B396	479								
NE+15.63	B397	480								
NE+15.63	B398	481								
NE+15.63	B399	482								
NE+15.63	B400	483								
NE+15.63	B401	484								
NE+15.63	B402	485								
NE+15.63	B403	486								
NE+15.63	B404	487								
NE+15.63	B405	488								
NE+15.63	B406	489								
NE+15.63	B407	490								
NE+15.63	B408	491								
NE+15.63	B409	492								
NE+15.63	B410	493								
NE+15.63	B411	494								
NE+15.63	B412	495								
NE+15.63	B413	496								
NE+15.63	B414	497								
NE+15.63	B415	498								
NE+15.63	B416	499								
NE+15.63	B417	500								
NE+15.63	B418	501								
NE+15.63	B419	502								
NE+15.63	B420	503								
NE+15.63	B421	504								
NE+15.63	B423	506								

Story	Label	Unique Name	Partial T I-end tonf-m/rad	Partial M2 I-end tonf-m/rad	Partial M3 I-end tonf-m/rad	Partial P J-end tonf/m	Partial V2 J-end tonf/m	Partial V3 J-end tonf/m	Partial T J-end tonf-m/rad	Partial M2 J-end tonf-m/rad
NE+15.63	B424	507								
NE+15.63	B425	508								
NE+15.63	B426	509								
NE+15.63	B427	510								
NE+15.63	B428	511								
NE+15.63	B429	512								
NE+15.63	B430	513								
NE+15.63	B431	514								
NE+15.63	B432	515								
NE+15.63	B433	516								
NE+15.63	B434	517								
NE+15.63	B435	518								
NE+15.63	B436	519								
NE+15.63	B437	520								
NE+15.63	B438	521								
NE+15.63	B439	522								
NE+15.63	B440	523								
NE+11.82	B6	1								
NE+11.82	B7	2								
NE+11.82	B8	5								
NE+11.82	B9	13								
NE+11.82	B10	14								
NE+11.82	B12	16								
NE+11.82	B14	18								
NE+11.82	B15	19								
NE+11.82	B16	20								
NE+11.82	B17	21								
NE+11.82	B18	22								
NE+11.82	B19	23								
NE+11.82	B20	24								
NE+11.82	B21	25								
NE+11.82	B22	26								
NE+11.82	B23	27								
NE+11.82	B24	28								
NE+11.82	B25	29								
NE+11.82	B26	30								
NE+11.82	B27	31								
NE+11.82	B28	32								
NE+11.82	B29	33								
NE+11.82	B30	34								
NE+11.82	B31	36								
NE+11.82	B56	11								
NE+11.82	B57	77								
NE+11.82	B58	78								
NE+11.82	B59	79								
NE+11.82	B60	80								
NE+11.82	B61	81								
NE+11.82	B62	89								

Story	Label	Unique Name	Partial T I-end tonf-m/rad	Partial M2 I-end tonf-m/rad	Partial M3 I-end tonf-m/rad	Partial P J-end tonf/m	Partial V2 J-end tonf/m	Partial V3 J-end tonf/m	Partial T J-end tonf-m/rad	Partial M2 J-end tonf-m/rad
NE+11.82	B11	218								
NE+11.82	B47	217								
NE+11.82	B63	216								
NE+11.82	B66	303								
NE+11.82	B67	305								
NE+10.16	B32	17								
NE+10.16	B33	139								
NE+10.16	B34	140								
NE+10.16	B35	173								
NE+10.16	B36	174								
NE+10.16	B37	219								
NE+10.16	B38	221								
NE+10.16	B39	222								
NE+10.16	B40	223								
NE+10.16	B41	224								
NE+10.16	B42	225								
NE+10.16	B43	226								
NE+10.16	B70	316								
NE+10.16	B73	323								
NE+9.01	B14	252								
NE+9.01	B16	253								
NE+9.01	B29	299								
NE+9.01	B31	298								
NE+9.01	B44	539								
NE+9.01	B48	535								
NE+9.01	B49	526								
NE+9.01	B50	533								
NE+9.01	B51	537								
NE+9.01	B52	532								
NE+9.01	B98	541								
NE+9.01	B105	542								
NE+9.01	B11	109								
NE+9.01	B47	134								
NE+9.01	B63	214								
NE+5.60	B18	369								
NE+5.60	B19	370								
NE+5.60	B20	371								
NE+5.60	B25	386								
NE+5.60	B26	385								
NE+5.60	B27	384								
NE+5.60	B32	168								
NE+5.60	B33	167								
NE+5.60	B34	166								
NE+5.60	B35	165								
NE+5.60	B36	159								
NE+5.60	B37	157								
NE+5.60	B38	110								
NE+5.60	B39	108								

Story	Label	Unique Name	Partial T I-end tonf-m/rad	Partial M2 I-end tonf-m/rad	Partial M3 I-end tonf-m/rad	Partial P J-end tonf/m	Partial V2 J-end tonf/m	Partial V3 J-end tonf/m	Partial T J-end tonf-m/rad	Partial M2 J-end tonf-m/rad
NE+5.60	B40	106								
NE+5.60	B41	104								
NE+5.60	B42	103								
NE+5.60	B43	102								
NE+5.60	B178	277								
NE+5.60	B179	278								
NE+5.60	B327	272								
NE+5.60	B329	274								
NE+5.60	B330	275								
NE+5.60	B331	276								
NE+5.60	B332	280								
NE+5.60	B333	281								
NE+5.60	B334	282								
NE+5.60	B335	283								
NE+5.60	B336	284								
NE+5.60	B337	285								
NE+5.60	B338	154								
NE+5.60	B339	15								
NE+5.60	B70	308								
NE+5.60	B73	322								
NE+4.77	B13	118								
NE+4.77	B14	250								
NE+4.77	B16	248								
NE+4.77	B29	271								
NE+4.77	B31	258								
NE+4.77	B44	50								
NE+4.77	B48	54								
NE+4.77	B49	55								
NE+4.77	B50	56								
NE+4.77	B51	57								
NE+4.77	B52	58								
NE+4.77	B102	59								
NE+4.77	B103	60								
NE+4.77	B104	61								
NE+4.77	B105	62								
NE+4.77	B106	63								
NE+4.77	B107	64								
NE+4.77	B108	65								
NE+4.77	B125	66								
NE+4.77	B126	67								
NE+4.77	B127	68								
NE+4.77	B128	69								
NE+4.77	B129	70								
NE+4.77	B130	71								
NE+4.77	B131	72								
NE+4.77	B132	117								
NE+4.77	B133	82								
NE+4.77	B134	83								

Story	Label	Unique Name	Partial T I-end tonf-m/rad	Partial M2 I-end tonf-m/rad	Partial M3 I-end tonf-m/rad	Partial P J-end tonf/m	Partial V2 J-end tonf/m	Partial V3 J-end tonf/m	Partial T J-end tonf-m/rad	Partial M2 J-end tonf-m/rad
NE+4.77	B135	84								
NE+4.77	B136	85								
NE+4.77	B137	86								
NE+4.77	B138	87								
NE+4.77	B139	88								
NE+4.77	B140	119								
NE+4.77	B142	121								
NE+4.77	B143	122								
NE+4.77	B144	123								
NE+4.77	B145	124								
NE+4.77	B146	125								
NE+4.77	B147	126								
NE+4.77	B148	127								
NE+4.77	B149	128								
NE+4.77	B150	129								
NE+4.77	B151	130								
NE+4.77	B152	131								
NE+4.77	B153	132								
NE+4.77	B442	10								
NE+4.77	B64	120								
NE+4.77	B65	133								
NE+3.17	B15	251								
NE+3.17	B17	364								
NE+3.17	B18	365								
NE+3.17	B19	366								
NE+3.17	B20	368								
NE+3.17	B22	100								
NE+3.17	B23	144								
NE+3.17	B25	287								
NE+3.17	B26	383								
NE+3.17	B27	382								
NE+3.17	B28	380								
NE+3.17	B30	270								
NE+3.17	B32	146								
NE+3.17	B33	147								
NE+3.17	B34	148								
NE+3.17	B35	149								
NE+3.17	B36	150								
NE+3.17	B37	151								
NE+3.17	B38	142								
NE+3.17	B39	141								
NE+3.17	B40	138								
NE+3.17	B41	137								
NE+3.17	B42	136								
NE+3.17	B43	135								
NE+3.17	B176	155								
NE+3.17	B177	156								
NE+3.17	B179	158								

Story	Label	Unique Name	Partial T I-end tonf-m/rad	Partial M2 I-end tonf-m/rad	Partial M3 I-end tonf-m/rad	Partial P J-end tonf/m	Partial V2 J-end tonf/m	Partial V3 J-end tonf/m	Partial T J-end tonf-m/rad	Partial M2 J-end tonf-m/rad
NE+3.17	B183	161								
NE+3.17	B184	160								
NE+3.17	B186	162								
NE+3.17	B188	164								
NE+3.17	B189	163								
NE+3.17	B230	205								
NE+3.17	B231	206								
NE+3.17	B232	207								
NE+3.17	B233	208								
NE+3.17	B234	209								
NE+3.17	B235	210								
NE+3.17	B236	211								
NE+3.17	B237	212								
NE+3.17	B240	215								
NE+3.17	B252	227								
NE+3.17	B253	228								
NE+3.17	B254	229								
NE+3.17	B255	230								
NE+3.17	B256	231								
NE+3.17	B257	232								
NE+3.17	B258	233								
NE+3.17	B259	234								
NE+3.17	B260	189								
NE+3.17	B261	190								
NE+3.17	B262	191								
NE+3.17	B263	192								
NE+3.17	B264	193								
NE+3.17	B265	194								
NE+3.17	B266	195								
NE+3.17	B267	196								
NE+3.17	B268	213								
NE+3.17	B276	236								
NE+3.17	B277	237								
NE+3.17	B278	238								
NE+3.17	B279	240								
NE+3.17	B298	241								
NE+3.17	B299	242								
NE+3.17	B300	243								
NE+3.17	B301	244								
NE+3.17	B302	245								
NE+3.17	B303	246								
NE+3.17	B304	247								
NE+3.17	B305	255								
NE+3.17	B306	256								
NE+3.17	B307	259								
NE+3.17	B308	260								
NE+3.17	B318	261								
NE+3.17	B319	262								

Story	Label	Unique Name	Partial T I-end tonf-m/rad	Partial M2 I-end tonf-m/rad	Partial M3 I-end tonf-m/rad	Partial P J-end tonf/m	Partial V2 J-end tonf/m	Partial V3 J-end tonf/m	Partial T J-end tonf-m/rad	Partial M2 J-end tonf-m/rad
NE+3.17	B320	263								
NE+3.17	B321	264								
NE+3.17	B322	265								
NE+3.17	B323	266								
NE+3.17	B324	267								
NE+3.17	B325	268								
NE+3.17	B326	269								
NE+3.17	B338	145								
NE+3.17	B339	99								
NE+3.17	B1	12								
NE+3.17	B2	35								
NE+3.17	B5	39								
NE+3.17	B45	52								
NE+3.17	B46	73								
NE+3.17	B53	74								
NE+3.17	B54	75								
NE+3.17	B55	76								
NE+3.17	B70	312								
NE+3.17	B73	319								
NE+15.63	D56	325								
NE+15.63	D57	332								
NE+15.63	D58	339								
NE+15.63	D59	346								
NE+15.63	D60	353								
NE+15.63	D61	360								
NE+15.63	D62	367								
NE+15.63	D63	374								
NE+15.63	D64	381								
NE+15.63	D65	388								
NE+15.63	D66	395								
NE+15.63	D67	402								
NE+15.63	D68	409								
NE+15.63	D69	416								
NE+15.63	D3	297								
NE+15.63	D6	304								
NE+15.63	D1	90								
NE+15.63	D2	91								
NE+15.63	D4	92								
NE+15.63	D5	93								
NE+15.63	D7	94								
NE+15.63	D8	95								
NE+15.63	D10	97								
NE+15.63	D11	98								

Table 3.4 - Frame Assignments - Releases (Part 3 of 2)

Story	Label	Unique Name	Partial M3 J-end tonf-m/rad
NE+19.03	C58	170	
NE+19.03	C60	172	
NE+19.03	C86	670	
NE+19.03	C92	688	
NE+15.63	C58	169	
NE+15.63	C60	171	
NE+15.63	C86	669	
NE+15.63	C92	687	
NE+11.82	C44	551	
NE+11.82	C46	557	
NE+11.82	C48	563	
NE+11.82	C50	570	
NE+11.82	C53	577	
NE+11.82	C58	591	
NE+11.82	C60	598	
NE+11.82	C66	619	
NE+11.82	C68	625	
NE+11.82	C70	631	
NE+11.82	C72	638	
NE+11.82	C75	645	
NE+11.82	C86	677	
NE+11.82	C92	695	
NE+11.82	C21	545	
NE+11.82	C22	613	
NE+10.16	C44	550	
NE+10.16	C46	556	
NE+10.16	C48	562	
NE+10.16	C50	569	
NE+10.16	C53	576	
NE+10.16	C58	590	
NE+10.16	C60	597	
NE+10.16	C66	618	
NE+10.16	C68	624	
NE+10.16	C70	630	
NE+10.16	C72	637	
NE+10.16	C75	644	
NE+10.16	C86	676	
NE+10.16	C92	694	
NE+10.16	C19	397	
NE+10.16	C20	411	
NE+10.16	C21	544	
NE+10.16	C22	612	
NE+9.36	C44	549	
NE+9.36	C46	555	
NE+9.36	C48	561	
NE+9.36	C50	568	
NE+9.36	C53	575	
NE+9.36	C58	589	
NE+9.36	C60	596	

Story	Label	Unique Name	Partial M3 J-end tonf-m/rad
NE+9.36	C66	617	
NE+9.36	C68	623	
NE+9.36	C70	629	
NE+9.36	C72	636	
NE+9.36	C75	643	
NE+9.36	C86	675	
NE+9.36	C92	693	
NE+9.36	C19	396	
NE+9.36	C20	405	
NE+9.36	C21	543	
NE+9.36	C22	611	
NE+9.01	C44	548	
NE+9.01	C46	554	
NE+9.01	C48	560	
NE+9.01	C50	567	
NE+9.01	C53	574	
NE+9.01	C58	588	
NE+9.01	C60	595	
NE+9.01	C66	616	
NE+9.01	C68	622	
NE+9.01	C70	628	
NE+9.01	C72	635	
NE+9.01	C75	642	
NE+9.01	C86	674	
NE+9.01	C92	692	
NE+9.01	C13	273	
NE+9.01	C15	301	
NE+9.01	C17	376	
NE+9.01	C18	389	
NE+9.01	C19	394	
NE+9.01	C20	404	
NE+9.01	C21	540	
NE+9.01	C22	610	
NE+7.46	C44	547	
NE+7.46	C46	553	
NE+7.46	C48	559	
NE+7.46	C50	566	
NE+7.46	C53	573	
NE+7.46	C58	587	
NE+7.46	C60	594	
NE+7.46	C66	615	
NE+7.46	C68	621	
NE+7.46	C70	627	
NE+7.46	C72	634	
NE+7.46	C75	641	
NE+7.46	C86	673	
NE+7.46	C92	691	
NE+7.46	C13	257	
NE+7.46	C15	300	

Story	Label	Unique Name	Partial M3 J-end tonf-m/rad
NE+7.46	C17	375	
NE+7.46	C18	387	
NE+7.46	C19	393	
NE+7.46	C20	403	
NE+7.46	C21	538	
NE+7.46	C22	609	
NE+5.60	C44	546	
NE+5.60	C46	552	
NE+5.60	C48	558	
NE+5.60	C50	565	
NE+5.60	C53	572	
NE+5.60	C58	586	
NE+5.60	C60	593	
NE+5.60	C66	614	
NE+5.60	C68	620	
NE+5.60	C70	626	
NE+5.60	C72	633	
NE+5.60	C75	640	
NE+5.60	C86	672	
NE+5.60	C92	690	
NE+5.60	C1	177	
NE+5.60	C2	180	
NE+5.60	C3	183	
NE+5.60	C6	186	
NE+5.60	C7	197	
NE+5.60	C8	200	
NE+5.60	C9	203	
NE+5.60	C11	235	
NE+5.60	C13	254	
NE+5.60	C15	288	
NE+5.60	C17	373	
NE+5.60	C18	379	
NE+5.60	C19	392	
NE+5.60	C20	401	
NE+5.60	C21	536	
NE+5.60	C22	608	
NE+5.60	C35	105	
NE+5.60	C94	107	
NE+4.77	C4	7	
NE+4.77	C5	9	
NE+4.77	C44	307	
NE+4.77	C46	311	
NE+4.77	C48	315	
NE+4.77	C50	564	
NE+4.77	C53	571	
NE+4.77	C58	585	
NE+4.77	C60	592	
NE+4.77	C66	343	
NE+4.77	C68	348	

Story	Label	Unique Name	Partial M3 J-end tonf-m/rad
NE+4.77	C70	352	
NE+4.77	C72	632	
NE+4.77	C75	639	
NE+4.77	C86	671	
NE+4.77	C92	689	
NE+4.77	C1	176	
NE+4.77	C2	179	
NE+4.77	C3	182	
NE+4.77	C6	185	
NE+4.77	C7	188	
NE+4.77	C8	199	
NE+4.77	C9	202	
NE+4.77	C11	220	
NE+4.77	C13	249	
NE+4.77	C15	286	
NE+4.77	C17	372	
NE+4.77	C18	378	
NE+4.77	C19	391	
NE+4.77	C20	400	
NE+4.77	C21	534	
NE+4.77	C22	607	
NE+4.77	C35	697	
NE+4.77	C94	699	
NE+3.17	C4	6	
NE+3.17	C5	8	
NE+3.17	C44	306	
NE+3.17	C46	310	
NE+3.17	C48	314	
NE+3.17	C50	318	
NE+3.17	C53	321	
NE+3.17	C58	328	
NE+3.17	C60	331	
NE+3.17	C66	342	
NE+3.17	C68	347	
NE+3.17	C70	351	
NE+3.17	C72	356	
NE+3.17	C75	359	
NE+3.17	C86	419	
NE+3.17	C92	528	
NE+3.17	C1	175	
NE+3.17	C2	178	
NE+3.17	C3	181	
NE+3.17	C6	184	
NE+3.17	C7	187	
NE+3.17	C8	198	
NE+3.17	C9	201	
NE+3.17	C11	204	
NE+3.17	C13	239	
NE+3.17	C15	279	

Story	Label	Unique Name	Partial M3 J-end tonf-m/rad
NE+3.17	C17	363	
NE+3.17	C18	377	
NE+3.17	C19	390	
NE+3.17	C20	399	
NE+3.17	C21	531	
NE+3.17	C22	606	
NE+3.17	C35	696	
NE+3.17	C94	698	
NE+19.03	B20	294	
NE+19.03	B21	295	
NE+19.03	B22	296	
NE+19.03	B23	290	
NE+19.03	B24	291	
NE+19.03	B25	292	
NE+19.03	B338	289	
NE+19.03	B339	293	
NE+15.63	B340	423	
NE+15.63	B341	424	
NE+15.63	B342	425	
NE+15.63	B343	426	
NE+15.63	B344	427	
NE+15.63	B345	428	
NE+15.63	B346	429	
NE+15.63	B347	430	
NE+15.63	B348	431	
NE+15.63	B349	432	
NE+15.63	B350	433	
NE+15.63	B351	434	
NE+15.63	B352	435	
NE+15.63	B353	436	
NE+15.63	B354	437	
NE+15.63	B355	438	
NE+15.63	B356	439	
NE+15.63	B357	440	
NE+15.63	B358	441	
NE+15.63	B359	442	
NE+15.63	B360	443	
NE+15.63	B361	444	
NE+15.63	B362	445	
NE+15.63	B363	446	
NE+15.63	B364	447	
NE+15.63	B365	448	
NE+15.63	B366	449	
NE+15.63	B367	450	
NE+15.63	B368	451	
NE+15.63	B369	452	
NE+15.63	B370	453	
NE+15.63	B371	454	
NE+15.63	B372	455	

Story	Label	Unique Name	Partial M3 J-end tonf-m/rad
NE+15.63	B373	456	
NE+15.63	B374	457	
NE+15.63	B375	458	
NE+15.63	B376	459	
NE+15.63	B377	460	
NE+15.63	B378	461	
NE+15.63	B379	462	
NE+15.63	B380	463	
NE+15.63	B381	464	
NE+15.63	B382	465	
NE+15.63	B383	466	
NE+15.63	B384	467	
NE+15.63	B385	468	
NE+15.63	B386	469	
NE+15.63	B387	470	
NE+15.63	B388	471	
NE+15.63	B389	472	
NE+15.63	B390	473	
NE+15.63	B391	474	
NE+15.63	B392	475	
NE+15.63	B393	476	
NE+15.63	B394	477	
NE+15.63	B395	478	
NE+15.63	B396	479	
NE+15.63	B397	480	
NE+15.63	B398	481	
NE+15.63	B399	482	
NE+15.63	B400	483	
NE+15.63	B401	484	
NE+15.63	B402	485	
NE+15.63	B403	486	
NE+15.63	B404	487	
NE+15.63	B405	488	
NE+15.63	B406	489	
NE+15.63	B407	490	
NE+15.63	B408	491	
NE+15.63	B409	492	
NE+15.63	B410	493	
NE+15.63	B411	494	
NE+15.63	B412	495	
NE+15.63	B413	496	
NE+15.63	B414	497	
NE+15.63	B415	498	
NE+15.63	B416	499	
NE+15.63	B417	500	
NE+15.63	B418	501	
NE+15.63	B419	502	
NE+15.63	B420	503	
NE+15.63	B421	504	

Story	Label	Unique Name	Partial M3 J-end tonf-m/rad
NE+15.63	B423	506	
NE+15.63	B424	507	
NE+15.63	B425	508	
NE+15.63	B426	509	
NE+15.63	B427	510	
NE+15.63	B428	511	
NE+15.63	B429	512	
NE+15.63	B430	513	
NE+15.63	B431	514	
NE+15.63	B432	515	
NE+15.63	B433	516	
NE+15.63	B434	517	
NE+15.63	B435	518	
NE+15.63	B436	519	
NE+15.63	B437	520	
NE+15.63	B438	521	
NE+15.63	B439	522	
NE+15.63	B440	523	
NE+11.82	B6	1	
NE+11.82	B7	2	
NE+11.82	B8	5	
NE+11.82	B9	13	
NE+11.82	B10	14	
NE+11.82	B12	16	
NE+11.82	B14	18	
NE+11.82	B15	19	
NE+11.82	B16	20	
NE+11.82	B17	21	
NE+11.82	B18	22	
NE+11.82	B19	23	
NE+11.82	B20	24	
NE+11.82	B21	25	
NE+11.82	B22	26	
NE+11.82	B23	27	
NE+11.82	B24	28	
NE+11.82	B25	29	
NE+11.82	B26	30	
NE+11.82	B27	31	
NE+11.82	B28	32	
NE+11.82	B29	33	
NE+11.82	B30	34	
NE+11.82	B31	36	
NE+11.82	B56	11	
NE+11.82	B57	77	
NE+11.82	B58	78	
NE+11.82	B59	79	
NE+11.82	B60	80	
NE+11.82	B61	81	
NE+11.82	B62	89	

Story	Label	Unique Name	Partial M3 J-end tonf-m/rad
NE+11.82	B11	218	
NE+11.82	B47	217	
NE+11.82	B63	216	
NE+11.82	B66	303	
NE+11.82	B67	305	
NE+10.16	B32	17	
NE+10.16	B33	139	
NE+10.16	B34	140	
NE+10.16	B35	173	
NE+10.16	B36	174	
NE+10.16	B37	219	
NE+10.16	B38	221	
NE+10.16	B39	222	
NE+10.16	B40	223	
NE+10.16	B41	224	
NE+10.16	B42	225	
NE+10.16	B43	226	
NE+10.16	B70	316	
NE+10.16	B73	323	
NE+9.01	B14	252	
NE+9.01	B16	253	
NE+9.01	B29	299	
NE+9.01	B31	298	
NE+9.01	B44	539	
NE+9.01	B48	535	
NE+9.01	B49	526	
NE+9.01	B50	533	
NE+9.01	B51	537	
NE+9.01	B52	532	
NE+9.01	B98	541	
NE+9.01	B105	542	
NE+9.01	B11	109	
NE+9.01	B47	134	
NE+9.01	B63	214	
NE+5.60	B18	369	
NE+5.60	B19	370	
NE+5.60	B20	371	
NE+5.60	B25	386	
NE+5.60	B26	385	
NE+5.60	B27	384	
NE+5.60	B32	168	
NE+5.60	B33	167	
NE+5.60	B34	166	
NE+5.60	B35	165	
NE+5.60	B36	159	
NE+5.60	B37	157	
NE+5.60	B38	110	
NE+5.60	B39	108	
NE+5.60	B40	106	

Story	Label	Unique Name	Partial M3 J-end tonf-m/rad
NE+5.60	B41	104	
NE+5.60	B42	103	
NE+5.60	B43	102	
NE+5.60	B178	277	
NE+5.60	B179	278	
NE+5.60	B327	272	
NE+5.60	B329	274	
NE+5.60	B330	275	
NE+5.60	B331	276	
NE+5.60	B332	280	
NE+5.60	B333	281	
NE+5.60	B334	282	
NE+5.60	B335	283	
NE+5.60	B336	284	
NE+5.60	B337	285	
NE+5.60	B338	154	
NE+5.60	B339	15	
NE+5.60	B70	308	
NE+5.60	B73	322	
NE+4.77	B13	118	
NE+4.77	B14	250	
NE+4.77	B16	248	
NE+4.77	B29	271	
NE+4.77	B31	258	
NE+4.77	B44	50	
NE+4.77	B48	54	
NE+4.77	B49	55	
NE+4.77	B50	56	
NE+4.77	B51	57	
NE+4.77	B52	58	
NE+4.77	B102	59	
NE+4.77	B103	60	
NE+4.77	B104	61	
NE+4.77	B105	62	
NE+4.77	B106	63	
NE+4.77	B107	64	
NE+4.77	B108	65	
NE+4.77	B125	66	
NE+4.77	B126	67	
NE+4.77	B127	68	
NE+4.77	B128	69	
NE+4.77	B129	70	
NE+4.77	B130	71	
NE+4.77	B131	72	
NE+4.77	B132	117	
NE+4.77	B133	82	
NE+4.77	B134	83	
NE+4.77	B135	84	
NE+4.77	B136	85	

Story	Label	Unique Name	Partial M3 J-end tonf-m/rad
NE+4.77	B137	86	
NE+4.77	B138	87	
NE+4.77	B139	88	
NE+4.77	B140	119	
NE+4.77	B142	121	
NE+4.77	B143	122	
NE+4.77	B144	123	
NE+4.77	B145	124	
NE+4.77	B146	125	
NE+4.77	B147	126	
NE+4.77	B148	127	
NE+4.77	B149	128	
NE+4.77	B150	129	
NE+4.77	B151	130	
NE+4.77	B152	131	
NE+4.77	B153	132	
NE+4.77	B442	10	
NE+4.77	B64	120	
NE+4.77	B65	133	
NE+3.17	B15	251	
NE+3.17	B17	364	
NE+3.17	B18	365	
NE+3.17	B19	366	
NE+3.17	B20	368	
NE+3.17	B22	100	
NE+3.17	B23	144	
NE+3.17	B25	287	
NE+3.17	B26	383	
NE+3.17	B27	382	
NE+3.17	B28	380	
NE+3.17	B30	270	
NE+3.17	B32	146	
NE+3.17	B33	147	
NE+3.17	B34	148	
NE+3.17	B35	149	
NE+3.17	B36	150	
NE+3.17	B37	151	
NE+3.17	B38	142	
NE+3.17	B39	141	
NE+3.17	B40	138	
NE+3.17	B41	137	
NE+3.17	B42	136	
NE+3.17	B43	135	
NE+3.17	B176	155	
NE+3.17	B177	156	
NE+3.17	B179	158	
NE+3.17	B183	161	
NE+3.17	B184	160	
NE+3.17	B186	162	

Story	Label	Unique Name	Partial M3 J-end tonf-m/rad
NE+3.17	B188	164	
NE+3.17	B189	163	
NE+3.17	B230	205	
NE+3.17	B231	206	
NE+3.17	B232	207	
NE+3.17	B233	208	
NE+3.17	B234	209	
NE+3.17	B235	210	
NE+3.17	B236	211	
NE+3.17	B237	212	
NE+3.17	B240	215	
NE+3.17	B252	227	
NE+3.17	B253	228	
NE+3.17	B254	229	
NE+3.17	B255	230	
NE+3.17	B256	231	
NE+3.17	B257	232	
NE+3.17	B258	233	
NE+3.17	B259	234	
NE+3.17	B260	189	
NE+3.17	B261	190	
NE+3.17	B262	191	
NE+3.17	B263	192	
NE+3.17	B264	193	
NE+3.17	B265	194	
NE+3.17	B266	195	
NE+3.17	B267	196	
NE+3.17	B268	213	
NE+3.17	B276	236	
NE+3.17	B277	237	
NE+3.17	B278	238	
NE+3.17	B279	240	
NE+3.17	B298	241	
NE+3.17	B299	242	
NE+3.17	B300	243	
NE+3.17	B301	244	
NE+3.17	B302	245	
NE+3.17	B303	246	
NE+3.17	B304	247	
NE+3.17	B305	255	
NE+3.17	B306	256	
NE+3.17	B307	259	
NE+3.17	B308	260	
NE+3.17	B318	261	
NE+3.17	B319	262	
NE+3.17	B320	263	
NE+3.17	B321	264	
NE+3.17	B322	265	
NE+3.17	B323	266	

Story	Label	Unique Name	Partial M3 J-end tonf-m/rad
NE+3.17	B324	267	
NE+3.17	B325	268	
NE+3.17	B326	269	
NE+3.17	B338	145	
NE+3.17	B339	99	
NE+3.17	B1	12	
NE+3.17	B2	35	
NE+3.17	B5	39	
NE+3.17	B45	52	
NE+3.17	B46	73	
NE+3.17	B53	74	
NE+3.17	B54	75	
NE+3.17	B55	76	
NE+3.17	B70	312	
NE+3.17	B73	319	
NE+15.63	D56	325	
NE+15.63	D57	332	
NE+15.63	D58	339	
NE+15.63	D59	346	
NE+15.63	D60	353	
NE+15.63	D61	360	
NE+15.63	D62	367	
NE+15.63	D63	374	
NE+15.63	D64	381	
NE+15.63	D65	388	
NE+15.63	D66	395	
NE+15.63	D67	402	
NE+15.63	D68	409	
NE+15.63	D69	416	
NE+15.63	D3	297	
NE+15.63	D6	304	
NE+15.63	D1	90	
NE+15.63	D2	91	
NE+15.63	D4	92	
NE+15.63	D5	93	
NE+15.63	D7	94	
NE+15.63	D8	95	
NE+15.63	D10	97	
NE+15.63	D11	98	

3.3 Shell Assignments

Table 3.5 - Shell Assignments - Summary

Story	Label	Unique Name	Section	Axis Angle deg	Pier
NE+19.03	W2	12	P30		P1
NE+19.03	W10	23	P30		P2
NE+19.03	W31	69	P40		P5

Story	Label	Unique Name	Section	Axis Angle deg	Pier
NE+19.03	W32	70	P40		P6
NE+15.63	W3	4	CUB		
NE+15.63	W4	34	CUB		
NE+15.63	W5	76	CUB		
NE+15.63	W6	86	CUB		
NE+15.63	W8	110	CUB		
NE+15.63	W9	118	CUB		
NE+15.63	W16	125	CUB		
NE+15.63	W17	132	CUB		
NE+15.63	W18	181	CUB		
NE+15.63	W19	203	CUB		
NE+15.63	W21	204	CUB		
NE+15.63	W22	207	CUB		
NE+15.63	W23	219	CUB		
NE+15.63	W25	239	CUB		
NE+15.63	W26	240	CUB		
NE+15.63	W27	370	CUB		
NE+15.63	W2	11	P30		P1
NE+15.63	W10	22	P30		P2
NE+15.63	W31	83	P40		P5
NE+15.63	W32	84	P40		P6
NE+11.82	W2	10	P30		P1
NE+11.82	W10	21	P30		P2
NE+11.82	W1	59	P30		P3
NE+11.82	W7	62	P30		P3
NE+11.82	W11	65	P30		P4
NE+11.82	W12	68	P30		P4
NE+11.82	W31	33	P40		P5
NE+11.82	W32	35	P40		P6
NE+11.82	W13	88	P40		P7
NE+11.82	W15	97	P40		P8
NE+10.16	W2	9	P30		P1
NE+10.16	W10	20	P30		P2
NE+10.16	W1	58	P30		P3
NE+10.16	W7	61	P30		P3
NE+10.16	W11	64	P30		P4
NE+10.16	W12	67	P30		P4
NE+10.16	W31	78	P40		P5
NE+10.16	W32	82	P40		P6
NE+10.16	W13	87	P40		P7
NE+10.16	W15	96	P40		P8
NE+9.36	W2	8	P30		P1
NE+9.36	W10	19	P30		P2
NE+9.36	W1	57	P30		P3
NE+9.36	W7	60	P30		P3
NE+9.36	W11	63	P30		P4
NE+9.36	W12	66	P30		P4
NE+9.36	W31	77	P40		P5
NE+9.36	W32	81	P40		P6

Story	Label	Unique Name	Section	Axis Angle deg	Pier
NE+9.36	W13	85	P40		P7
NE+9.36	W15	95	P40		P8
NE+9.01	W2	7	P30		P1
NE+9.01	W10	18	P30		P2
NE+9.01	W1	47	P30		P3
NE+9.01	W7	50	P30		P3
NE+9.01	W11	53	P30		P4
NE+9.01	W12	56	P30		P4
NE+9.01	W31	75	P40		P5
NE+9.01	W32	80	P40		P6
NE+9.01	W13	28	P40		P7
NE+9.01	W15	94	P40		P8
NE+7.46	W2	6	P30		P1
NE+7.46	W10	17	P30		P2
NE+7.46	W1	46	P30		P3
NE+7.46	W7	49	P30		P3
NE+7.46	W11	52	P30		P4
NE+7.46	W12	55	P30		P4
NE+7.46	W31	74	P40		P5
NE+7.46	W32	79	P40		P6
NE+7.46	W13	27	P40		P7
NE+7.46	W15	93	P40		P8
NE+5.60	W2	5	P30		P1
NE+5.60	W10	16	P30		P2
NE+5.60	W1	45	P30		P3
NE+5.60	W7	48	P30		P3
NE+5.60	W11	51	P30		P4
NE+5.60	W12	54	P30		P4
NE+5.60	W31	30	P40		P5
NE+5.60	W32	32	P40		P6
NE+5.60	W13	25	P40		P7
NE+5.60	W15	92	P40		P8
NE+4.77	W2	3	P30		P1
NE+4.77	W10	15	P30		P2
NE+4.77	W1	36	P30		P3
NE+4.77	W7	40	P30		P3
NE+4.77	W11	42	P30		P4
NE+4.77	W12	44	P30		P4
NE+4.77	W31	72	P40		P5
NE+4.77	W32	73	P40		P6
NE+4.77	W13	24	P40		P7
NE+4.77	W15	91	P40		P8
NE+3.17	W2	2	P30		P1
NE+3.17	W10	14	P30		P2
NE+3.17	W1	1	P30		P3
NE+3.17	W7	39	P30		P3
NE+3.17	W11	41	P30		P4
NE+3.17	W12	43	P30		P4
NE+3.17	W31	26	P40		P5

Story	Label	Unique Name	Section	Axis Angle deg	Pier
NE+3.17	W32	29	P40		P6
NE+3.17	W13	13	P40		P7
NE+3.17	W15	89	P40		P8
NE+19.03	F60	665	CUB 2 DIR		
NE+19.03	F61	676	CUB 2 DIR		
NE+11.82	F7	37	C.RASO	90	
NE+11.82	F9	38	C.RASO	90	
NE+11.82	F24	71	C.RASO	90	
NE+11.82	F25	170	C.RASO	90	
NE+11.82	F26	334	C.RASO	90	
NE+11.82	F27	439	C.RASO	90	
NE+11.82	F28	445	C.RASO	90	
NE+11.82	F22	485	CUB		
NE+11.82	F23	486	CUB		
NE+11.82	F29	487	CUB		
NE+11.82	F30	488	CUB		
NE+11.82	F31	489	CUB		
NE+11.82	F40	490	CUB		
NE+11.82	F56	491	CUB		
NE+11.82	F57	492	CUB		
NE+11.82	F63	493	CUB		
NE+11.82	F64	494	CUB		
NE+11.82	F65	124	CUB		
NE+11.82	F67	123	CUB		
NE+10.16	F32	98	C.RASO	90	
NE+10.16	F33	99	C.RASO	90	
NE+10.16	F34	100	C.RASO	90	
NE+10.16	F35	101	C.RASO	90	
NE+10.16	F36	102	C.RASO	90	
NE+10.16	F37	103	C.RASO	90	
NE+10.16	F38	104	C.RASO	90	
NE+10.16	F39	105	C.RASO	90	
NE+10.16	F53	106	C.RASO	90	
NE+10.16	F54	107	C.RASO	90	
NE+10.16	F55	108	C.RASO	90	
NE+10.16	F62	90	C.RASO	90	
NE+9.01	F1	935	CUB		
NE+9.01	F2	937	CUB		
NE+5.60	F58	651	CUB		
NE+5.60	F59	647	CUB		
NE+4.77	F4	31	ENT-MAD		
NE+4.77	F6	617	ENT-MAD		
NE+4.77	F8	625	ENT-MAD		
NE+4.77	F10	949	ENT-MAD		
NE+3.17	F58	628	ENT-MAD	90	

Table 3.6 - Shell Assignments - Pier/Spandrel

Story	Label	Unique Name	Pier
NE+19.03	W2	12	P1
NE+19.03	W10	23	P2
NE+19.03	W31	69	P5
NE+19.03	W32	70	P6
NE+15.63	W2	11	P1
NE+15.63	W10	22	P2
NE+15.63	W31	83	P5
NE+15.63	W32	84	P6
NE+11.82	W2	10	P1
NE+11.82	W10	21	P2
NE+11.82	W1	59	P3
NE+11.82	W7	62	P3
NE+11.82	W11	65	P4
NE+11.82	W12	68	P4
NE+11.82	W31	33	P5
NE+11.82	W32	35	P6
NE+11.82	W13	88	P7
NE+11.82	W15	97	P8
NE+10.16	W2	9	P1
NE+10.16	W10	20	P2
NE+10.16	W1	58	P3
NE+10.16	W7	61	P3
NE+10.16	W11	64	P4
NE+10.16	W12	67	P4
NE+10.16	W31	78	P5
NE+10.16	W32	82	P6
NE+10.16	W13	87	P7
NE+10.16	W15	96	P8
NE+9.36	W2	8	P1
NE+9.36	W10	19	P2
NE+9.36	W1	57	P3
NE+9.36	W7	60	P3
NE+9.36	W11	63	P4
NE+9.36	W12	66	P4
NE+9.36	W31	77	P5
NE+9.36	W32	81	P6
NE+9.36	W13	85	P7
NE+9.36	W15	95	P8
NE+9.01	W2	7	P1
NE+9.01	W10	18	P2
NE+9.01	W1	47	P3
NE+9.01	W7	50	P3
NE+9.01	W11	53	P4
NE+9.01	W12	56	P4
NE+9.01	W31	75	P5
NE+9.01	W32	80	P6
NE+9.01	W13	28	P7
NE+9.01	W15	94	P8
NE+7.46	W2	6	P1

Story	Label	Unique Name	Pier
NE+7.46	W10	17	P2
NE+7.46	W1	46	P3
NE+7.46	W7	49	P3
NE+7.46	W11	52	P4
NE+7.46	W12	55	P4
NE+7.46	W31	74	P5
NE+7.46	W32	79	P6
NE+7.46	W13	27	P7
NE+7.46	W15	93	P8
NE+5.60	W2	5	P1
NE+5.60	W10	16	P2
NE+5.60	W1	45	P3
NE+5.60	W7	48	P3
NE+5.60	W11	51	P4
NE+5.60	W12	54	P4
NE+5.60	W31	30	P5
NE+5.60	W32	32	P6
NE+5.60	W13	25	P7
NE+5.60	W15	92	P8
NE+4.77	W2	3	P1
NE+4.77	W10	15	P2
NE+4.77	W1	36	P3
NE+4.77	W7	40	P3
NE+4.77	W11	42	P4
NE+4.77	W12	44	P4
NE+4.77	W31	72	P5
NE+4.77	W32	73	P6
NE+4.77	W13	24	P7
NE+4.77	W15	91	P8
NE+3.17	W2	2	P1
NE+3.17	W10	14	P2
NE+3.17	W1	1	P3
NE+3.17	W7	39	P3
NE+3.17	W11	41	P4
NE+3.17	W12	43	P4
NE+3.17	W31	26	P5
NE+3.17	W32	29	P6
NE+3.17	W13	13	P7
NE+3.17	W15	89	P8

4 Loads

This chapter provides loading information as applied to the model.

4.1 Load Patterns

Table 4.1 - Load Patterns

Name	Type	Self Weight Multiplier	Auto Load
PP	Dead	1	
CA	Dead	0	
CV	Live	0	
W	Wind	0	None
CA-M	Dead	0	

4.2 Applied Loads

4.2.1 Line Loads

Table 4.2 - Frame Loads - Distributed (Part 1 of 2)

Story	Label	Unique Name	Design Type	Load Pattern	LoadType	Direction	Relative Distance Start	Relative Distance End	Absolute Distance Start m	Absolute Distance End m
NE+15.63	B340	423	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+15.63	B341	424	Beam	PP	Force	Gravity	0	1	0	1.4382
NE+15.63	B342	425	Beam	PP	Force	Gravity	0	1	0	3.8301
NE+15.63	B343	426	Beam	PP	Force	Gravity	0	1	0	3.8607
NE+15.63	B344	427	Beam	PP	Force	Gravity	0	1	0	3.774
NE+15.63	B345	428	Beam	PP	Force	Gravity	0	1	0	4.4217
NE+15.63	B346	429	Beam	PP	Force	Gravity	0	1	0	4.9317
NE+15.63	B347	430	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+15.63	B348	431	Beam	PP	Force	Gravity	0	1	0	1.4382
NE+15.63	B349	432	Beam	PP	Force	Gravity	0	1	0	3.8301
NE+15.63	B350	433	Beam	PP	Force	Gravity	0	1	0	3.8607
NE+15.63	B351	434	Beam	PP	Force	Gravity	0	1	0	3.774
NE+15.63	B352	435	Beam	PP	Force	Gravity	0	1	0	4.4217
NE+15.63	B353	436	Beam	PP	Force	Gravity	0	1	0	4.9317
NE+15.63	B354	437	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+15.63	B355	438	Beam	PP	Force	Gravity	0	1	0	1.4382
NE+15.63	B356	439	Beam	PP	Force	Gravity	0	1	0	3.8301
NE+15.63	B357	440	Beam	PP	Force	Gravity	0	1	0	3.8607
NE+15.63	B358	441	Beam	PP	Force	Gravity	0	1	0	3.774
NE+15.63	B359	442	Beam	PP	Force	Gravity	0	1	0	4.4217
NE+15.63	B360	443	Beam	PP	Force	Gravity	0	1	0	4.9317
NE+15.63	B361	444	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+15.63	B362	445	Beam	PP	Force	Gravity	0	1	0	1.4382
NE+15.63	B363	446	Beam	PP	Force	Gravity	0	1	0	3.8301
NE+15.63	B364	447	Beam	PP	Force	Gravity	0	1	0	3.8607
NE+15.63	B365	448	Beam	PP	Force	Gravity	0	1	0	3.774
NE+15.63	B366	449	Beam	PP	Force	Gravity	0	1	0	4.4217
NE+15.63	B367	450	Beam	PP	Force	Gravity	0	1	0	4.9317

Story	Label	Unique Name	Design Type	Load Pattern	LoadType	Direction	Relative Distance Start	Relative Distance End	Absolute Distance Start m	Absolute Distance End m
NE+15.63	B368	451	Beam	PP	Force	Gravity	0	1	0	2.9376
NE+15.63	B369	452	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+15.63	B370	453	Beam	PP	Force	Gravity	0	1	0	1.4382
NE+15.63	B371	454	Beam	PP	Force	Gravity	0	1	0	3.8301
NE+15.63	B372	455	Beam	PP	Force	Gravity	0	1	0	3.8607
NE+15.63	B373	456	Beam	PP	Force	Gravity	0	1	0	3.774
NE+15.63	B374	457	Beam	PP	Force	Gravity	0	1	0	4.4217
NE+15.63	B375	458	Beam	PP	Force	Gravity	0	1	0	4.9317
NE+15.63	B376	459	Beam	PP	Force	Gravity	0	1	0	2.9376
NE+15.63	B377	460	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+15.63	B378	461	Beam	PP	Force	Gravity	0	1	0	1.4382
NE+15.63	B379	462	Beam	PP	Force	Gravity	0	1	0	3.8301
NE+15.63	B380	463	Beam	PP	Force	Gravity	0	1	0	3.8607
NE+15.63	B381	464	Beam	PP	Force	Gravity	0	1	0	3.774
NE+15.63	B382	465	Beam	PP	Force	Gravity	0	1	0	4.4217
NE+15.63	B383	466	Beam	PP	Force	Gravity	0	1	0	4.9317
NE+15.63	B384	467	Beam	PP	Force	Gravity	0	1	0	2.9376
NE+15.63	B385	468	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+15.63	B386	469	Beam	PP	Force	Gravity	0	1	0	1.4382
NE+15.63	B387	470	Beam	PP	Force	Gravity	0	1	0	3.8301
NE+15.63	B388	471	Beam	PP	Force	Gravity	0	1	0	3.8607
NE+15.63	B389	472	Beam	PP	Force	Gravity	0	1	0	3.774
NE+15.63	B390	473	Beam	PP	Force	Gravity	0	1	0	4.4217
NE+15.63	B391	474	Beam	PP	Force	Gravity	0	1	0	4.9317
NE+15.63	B392	475	Beam	PP	Force	Gravity	0	1	0	2.9376
NE+15.63	B393	476	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+15.63	B394	477	Beam	PP	Force	Gravity	0	1	0	1.4382
NE+15.63	B395	478	Beam	PP	Force	Gravity	0	1	0	3.8301
NE+15.63	B396	479	Beam	PP	Force	Gravity	0	1	0	3.8607
NE+15.63	B397	480	Beam	PP	Force	Gravity	0	1	0	3.774
NE+15.63	B398	481	Beam	PP	Force	Gravity	0	1	0	4.4217
NE+15.63	B399	482	Beam	PP	Force	Gravity	0	1	0	4.9317
NE+15.63	B400	483	Beam	PP	Force	Gravity	0	1	0	2.9376
NE+15.63	B401	484	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+15.63	B402	485	Beam	PP	Force	Gravity	0	1	0	1.4382
NE+15.63	B403	486	Beam	PP	Force	Gravity	0	1	0	3.8301
NE+15.63	B404	487	Beam	PP	Force	Gravity	0	1	0	3.8607
NE+15.63	B405	488	Beam	PP	Force	Gravity	0	1	0	3.774
NE+15.63	B406	489	Beam	PP	Force	Gravity	0	1	0	4.4217
NE+15.63	B407	490	Beam	PP	Force	Gravity	0	1	0	4.9317
NE+15.63	B408	491	Beam	PP	Force	Gravity	0	1	0	2.9376
NE+15.63	B409	492	Beam	PP	Force	Gravity	0	1	0	1.4382
NE+15.63	B410	493	Beam	PP	Force	Gravity	0	1	0	3.8301
NE+15.63	B411	494	Beam	PP	Force	Gravity	0	1	0	3.8607
NE+15.63	B412	495	Beam	PP	Force	Gravity	0	1	0	3.774
NE+15.63	B413	496	Beam	PP	Force	Gravity	0	1	0	4.4217
NE+15.63	B414	497	Beam	PP	Force	Gravity	0	1	0	4.9317
NE+15.63	B415	498	Beam	PP	Force	Gravity	0	1	0	2.9376

Story	Label	Unique Name	Design Type	Load Pattern	LoadType	Direction	Relative Distance Start	Relative Distance End	Absolute Distance Start m	Absolute Distance End m
NE+15.63	B416	499	Beam	PP	Force	Gravity	0	1	0	1.4382
NE+15.63	B417	500	Beam	PP	Force	Gravity	0	1	0	3.8301
NE+15.63	B418	501	Beam	PP	Force	Gravity	0	1	0	3.8607
NE+15.63	B419	502	Beam	PP	Force	Gravity	0	1	0	3.774
NE+15.63	B420	503	Beam	PP	Force	Gravity	0	1	0	4.4217
NE+15.63	B421	504	Beam	PP	Force	Gravity	0	1	0	4.9317
NE+15.63	B423	506	Beam	PP	Force	Gravity	0	1	0	1.4382
NE+15.63	B424	507	Beam	PP	Force	Gravity	0	1	0	3.8301
NE+15.63	B425	508	Beam	PP	Force	Gravity	0	1	0	3.8607
NE+15.63	B426	509	Beam	PP	Force	Gravity	0	1	0	3.774
NE+15.63	B427	510	Beam	PP	Force	Gravity	0	1	0	4.4217
NE+15.63	B428	511	Beam	PP	Force	Gravity	0	1	0	4.9317
NE+15.63	B429	512	Beam	PP	Force	Gravity	0	1	0	1.4382
NE+15.63	B430	513	Beam	PP	Force	Gravity	0	1	0	3.8301
NE+15.63	B431	514	Beam	PP	Force	Gravity	0	1	0	3.8607
NE+15.63	B432	515	Beam	PP	Force	Gravity	0	1	0	3.774
NE+15.63	B433	516	Beam	PP	Force	Gravity	0	1	0	4.4217
NE+15.63	B434	517	Beam	PP	Force	Gravity	0	1	0	4.9317
NE+15.63	B435	518	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+15.63	B436	519	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+15.63	B437	520	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+15.63	B438	521	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+15.63	B439	522	Beam	PP	Force	Gravity	0	1	0	2.9376
NE+15.63	B440	523	Beam	PP	Force	Gravity	0	1	0	2.9376
NE+11.82	B6	1	Beam	PP	Force	Gravity	0	1	0	11.7351
NE+11.82	B7	2	Beam	PP	Force	Gravity	0	1	0	11.7351
NE+11.82	B8	5	Beam	PP	Force	Gravity	0	1	0	11.7351
NE+11.82	B9	13	Beam	PP	Force	Gravity	0	1	0	11.7351
NE+11.82	B10	14	Beam	PP	Force	Gravity	0	1	0	11.7351
NE+11.82	B12	16	Beam	PP	Force	Gravity	0	1	0	5.9415
NE+11.82	B59	79	Beam	PP	Force	Gravity	0	1	0	5.9415
NE+9.01	B98	541	Beam	PP	Force	Gravity	0	1	0	2.8663
NE+9.01	B105	542	Beam	PP	Force	Gravity	0	1	0	2.8663
NE+5.60	B332	280	Beam	PP	Force	Gravity	0	1	0	9.1545
NE+5.60	B333	281	Beam	PP	Force	Gravity	0	1	0	9.1545
NE+5.60	B334	282	Beam	PP	Force	Gravity	0	1	0	9.1545
NE+5.60	B335	283	Beam	PP	Force	Gravity	0	1	0	9.1545
NE+5.60	B336	284	Beam	PP	Force	Gravity	0	1	0	9.1545
NE+5.60	B337	285	Beam	PP	Force	Gravity	0	1	0	9.1545
NE+4.77	B102	59	Beam	PP	Force	Gravity	0	1	0	2.8663
NE+4.77	B103	60	Beam	PP	Force	Gravity	0	1	0	2.8663
NE+4.77	B104	61	Beam	PP	Force	Gravity	0	1	0	2.8663
NE+4.77	B105	62	Beam	PP	Force	Gravity	0	1	0	2.8663
NE+4.77	B106	63	Beam	PP	Force	Gravity	0	1	0	2.8663
NE+4.77	B107	64	Beam	PP	Force	Gravity	0	1	0	2.8663
NE+4.77	B108	65	Beam	PP	Force	Gravity	0	1	0	2.8663
NE+4.77	B125	66	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+4.77	B126	67	Beam	PP	Force	Gravity	0	1	0	4.9215

Story	Label	Unique Name	Design Type	Load Pattern	LoadType	Direction	Relative Distance Start	Relative Distance End	Absolute Distance Start m	Absolute Distance End m
NE+4.77	B127	68	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+4.77	B128	69	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+4.77	B129	70	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+4.77	B130	71	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+4.77	B131	72	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+4.77	B132	117	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+4.77	B133	82	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+4.77	B134	83	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+4.77	B135	84	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+4.77	B136	85	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+4.77	B137	86	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+4.77	B138	87	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+4.77	B139	88	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+4.77	B140	119	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+4.77	B142	121	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+4.77	B143	122	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+4.77	B144	123	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+4.77	B145	124	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+4.77	B146	125	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+4.77	B147	126	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+4.77	B148	127	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+4.77	B149	128	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+4.77	B150	129	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+4.77	B151	130	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+4.77	B152	131	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+4.77	B153	132	Beam	PP	Force	Gravity	0	1	0	4.9215
NE+3.17	B183	161	Beam	PP	Force	Gravity	0	1	0	3.0753
NE+3.17	B184	160	Beam	PP	Force	Gravity	0	1	0	2.9376
NE+3.17	B186	162	Beam	PP	Force	Gravity	0	1	0	1.2138
NE+3.17	B188	164	Beam	PP	Force	Gravity	0	1	0	6.0129
NE+3.17	B189	163	Beam	PP	Force	Gravity	0	1	0	1.2138
NE+3.17	B230	205	Beam	PP	Force	Gravity	0	1	0	4.1208
NE+3.17	B231	206	Beam	PP	Force	Gravity	0	1	0	4.1208
NE+3.17	B232	207	Beam	PP	Force	Gravity	0	1	0	4.1208
NE+3.17	B233	208	Beam	PP	Force	Gravity	0	1	0	4.1208
NE+3.17	B234	209	Beam	PP	Force	Gravity	0	1	0	4.1208
NE+3.17	B235	210	Beam	PP	Force	Gravity	0	1	0	4.1208
NE+3.17	B236	211	Beam	PP	Force	Gravity	0	1	0	4.1208
NE+3.17	B237	212	Beam	PP	Force	Gravity	0	1	0	4.1208
NE+3.17	B240	215	Beam	PP	Force	Gravity	0	1	0	4.1208
NE+3.17	B252	227	Beam	PP	Force	Gravity	0	1	0	1.2649
NE+3.17	B253	228	Beam	PP	Force	Gravity	0	1	0	1.2649
NE+3.17	B254	229	Beam	PP	Force	Gravity	0	1	0	1.2649
NE+3.17	B255	230	Beam	PP	Force	Gravity	0	1	0	1.6268
NE+3.17	B256	231	Beam	PP	Force	Gravity	0	1	0	1.6268
NE+3.17	B257	232	Beam	PP	Force	Gravity	0	1	0	1.6268
NE+3.17	B258	233	Beam	PP	Force	Gravity	0	1	0	6.0129
NE+3.17	B259	234	Beam	PP	Force	Gravity	0	1	0	4.1208

Story	Label	Unique Name	Design Type	Load Pattern	LoadType	Direction	Relative Distance Start	Relative Distance End	Absolute Distance Start m	Absolute Distance End m
NE+3.17	B260	189	Beam	PP	Force	Gravity	0	1	0	6.0129
NE+3.17	B261	190	Beam	PP	Force	Gravity	0	1	0	6.0129
NE+3.17	B262	191	Beam	PP	Force	Gravity	0	1	0	6.0129
NE+3.17	B263	192	Beam	PP	Force	Gravity	0	1	0	6.0129
NE+3.17	B264	193	Beam	PP	Force	Gravity	0	1	0	6.0129
NE+3.17	B265	194	Beam	PP	Force	Gravity	0	1	0	6.0129
NE+3.17	B266	195	Beam	PP	Force	Gravity	0	1	0	6.0129
NE+3.17	B267	196	Beam	PP	Force	Gravity	0	1	0	6.0129
NE+3.17	B268	213	Beam	PP	Force	Gravity	0	1	0	6.0129
NE+3.17	B276	236	Beam	PP	Force	Gravity	0	1	0	4.1208
NE+3.17	B277	237	Beam	PP	Force	Gravity	0	1	0	4.1208
NE+3.17	B278	238	Beam	PP	Force	Gravity	0	1	0	4.1208
NE+3.17	B279	240	Beam	PP	Force	Gravity	0	1	0	4.1208
NE+3.17	B298	241	Beam	PP	Force	Gravity	0	1	0	6.0129
NE+3.17	B299	242	Beam	PP	Force	Gravity	0	1	0	6.0129
NE+3.17	B300	243	Beam	PP	Force	Gravity	0	1	0	6.0129
NE+3.17	B301	244	Beam	PP	Force	Gravity	0	1	0	6.0129
NE+3.17	B302	245	Beam	PP	Force	Gravity	0	1	0	6.0129
NE+3.17	B303	246	Beam	PP	Force	Gravity	0	1	0	6.0129
NE+3.17	B304	247	Beam	PP	Force	Gravity	0	1	0	6.0129
NE+3.17	B305	255	Beam	PP	Force	Gravity	0	1	0	6.0129
NE+3.17	B306	256	Beam	PP	Force	Gravity	0	1	0	6.0129
NE+3.17	B307	259	Beam	PP	Force	Gravity	0	1	0	6.0129
NE+3.17	B308	260	Beam	PP	Force	Gravity	0	1	0	4.1208
NE+3.17	B318	261	Beam	PP	Force	Gravity	0	1	0	4.1208
NE+3.17	B319	262	Beam	PP	Force	Gravity	0	1	0	4.1208
NE+3.17	B320	263	Beam	PP	Force	Gravity	0	1	0	4.1208
NE+3.17	B321	264	Beam	PP	Force	Gravity	0	1	0	4.1208
NE+3.17	B322	265	Beam	PP	Force	Gravity	0	1	0	4.1208
NE+3.17	B323	266	Beam	PP	Force	Gravity	0	1	0	4.1208
NE+3.17	B324	267	Beam	PP	Force	Gravity	0	1	0	4.1208
NE+3.17	B325	268	Beam	PP	Force	Gravity	0	1	0	4.1208
NE+3.17	B326	269	Beam	PP	Force	Gravity	0	1	0	4.1208
NE+3.17	B1	12	Beam	PP	Force	Gravity	0	1	0	2.0299
NE+3.17	B2	35	Beam	PP	Force	Gravity	0	1	0	2.0909
NE+3.17	B5	39	Beam	PP	Force	Gravity	0	1	0	3.978
NE+3.17	B45	52	Beam	PP	Force	Gravity	0	1	0	1.1934
NE+3.17	B46	73	Beam	PP	Force	Gravity	0	1	0	3.9831
NE+19.03	B20	294	Beam	CA	Force	Gravity	0	1	0	2.9376
NE+19.03	B21	295	Beam	CA	Force	Gravity	0	1	0	2.8764
NE+19.03	B22	296	Beam	CA	Force	Gravity	0	1	0	2.9376
NE+19.03	B23	290	Beam	CA	Force	Gravity	0	1	0	2.9376
NE+19.03	B24	291	Beam	CA	Force	Gravity	0	1	0	2.9172
NE+19.03	B25	292	Beam	CA	Force	Gravity	0	1	0	2.9376
NE+19.03	B338	289	Beam	CA	Force	Gravity	0	1	0	2.9172
NE+19.03	B339	293	Beam	CA	Force	Gravity	0	1	0	2.8764
NE+4.77	B442	10	Beam	CA	Force	Gravity	0	1	0	11.7351
NE+3.17	B186	162	Beam	CA	Force	Gravity	0	1	0	1.2138

Story	Label	Unique Name	Design Type	Load Pattern	LoadType	Direction	Relative Distance Start	Relative Distance End	Absolute Distance Start m	Absolute Distance End m
NE+3.17	B253	228	Beam	CA	Force	Gravity	0	1	0	1.2649
NE+3.17	B45	52	Beam	CA	Force	Gravity	0	1	0	1.1934
NE+3.17	B54	75	Beam	CA	Force	Gravity	0	1	0	1.3158
NE+11.82	B20	24	Beam	CA-M	Force	Gravity	0	1	0	2.9376
NE+11.82	B21	25	Beam	CA-M	Force	Gravity	0	1	0	2.8764
NE+11.82	B22	26	Beam	CA-M	Force	Gravity	0	1	0	2.9376
NE+11.82	B23	27	Beam	CA-M	Force	Gravity	0	1	0	2.9376
NE+11.82	B24	28	Beam	CA-M	Force	Gravity	0	1	0	2.9172
NE+11.82	B25	29	Beam	CA-M	Force	Gravity	0	1	0	2.9376
NE+11.82	B56	11	Beam	CA-M	Force	Gravity	0	1	0	0.5866
NE+11.82	B57	77	Beam	CA-M	Force	Gravity	0	1	0	1
NE+11.82	B58	78	Beam	CA-M	Force	Gravity	0	1	0	1.3306
NE+11.82	B60	80	Beam	CA-M	Force	Gravity	0	1	0	1.3154
NE+11.82	B61	81	Beam	CA-M	Force	Gravity	0	1	0	1
NE+11.82	B62	89	Beam	CA-M	Force	Gravity	0	1	0	0.561
NE+11.82	B11	218	Beam	CA-M	Force	Gravity	0	1	0	3.3864
NE+11.82	B47	217	Beam	CA-M	Force	Gravity	0	1	0	4.9521
NE+11.82	B63	216	Beam	CA-M	Force	Gravity	0	1	0	3.3966
NE+9.01	B14	252	Beam	CA-M	Force	Gravity	0	1	0	6.3597
NE+9.01	B16	253	Beam	CA-M	Force	Gravity	0	1	0	3.8607
NE+9.01	B29	299	Beam	CA-M	Force	Gravity	0	1	0	3.8607
NE+9.01	B31	298	Beam	CA-M	Force	Gravity	0	1	0	6.3597
NE+9.01	B11	109	Beam	CA-M	Force	Gravity	0	1	0	3.3864
NE+9.01	B47	134	Beam	CA-M	Force	Gravity	0	1	0	4.9521
NE+9.01	B63	214	Beam	CA-M	Force	Gravity	0	1	0	3.3966
NE+5.60	B18	369	Beam	CA-M	Force	Gravity	0	1	0	4.4217
NE+5.60	B19	370	Beam	CA-M	Force	Gravity	0	1	0	4.9317
NE+5.60	B20	371	Beam	CA-M	Force	Gravity	0	1	0	2.9376
NE+5.60	B25	386	Beam	CA-M	Force	Gravity	0	1	0	2.9376
NE+5.60	B26	385	Beam	CA-M	Force	Gravity	0	1	0	4.9317
NE+5.60	B27	384	Beam	CA-M	Force	Gravity	0	1	0	4.4217
NE+5.60	B32	168	Beam	CA-M	Force	Gravity	0	1	0	0.75632
NE+5.60	B33	167	Beam	CA-M	Force	Gravity	0	1	0	0.75637
NE+5.60	B34	166	Beam	CA-M	Force	Gravity	0	1	0	0.75637
NE+5.60	B35	165	Beam	CA-M	Force	Gravity	0	1	0	0.75635
NE+5.60	B36	159	Beam	CA-M	Force	Gravity	0	1	0	0.7563
NE+5.60	B37	157	Beam	CA-M	Force	Gravity	0	1	0	0.75644
NE+5.60	B38	110	Beam	CA-M	Force	Gravity	0	1	0	0.75634
NE+5.60	B39	108	Beam	CA-M	Force	Gravity	0	1	0	0.75608
NE+5.60	B40	106	Beam	CA-M	Force	Gravity	0	1	0	0.75671
NE+5.60	B41	104	Beam	CA-M	Force	Gravity	0	1	0	0.75637
NE+5.60	B42	103	Beam	CA-M	Force	Gravity	0	1	0	0.75637
NE+5.60	B43	102	Beam	CA-M	Force	Gravity	0	1	0	0.75632
NE+5.60	B338	154	Beam	CA-M	Force	Gravity	0	1	0	2.9172
NE+5.60	B339	15	Beam	CA-M	Force	Gravity	0	1	0	2.8764
NE+5.60	B70	308	Beam	CA-M	Force	Gravity	0	1	0	1
NE+5.60	B73	322	Beam	CA-M	Force	Gravity	0	1	0	1
NE+4.77	B13	118	Beam	CA-M	Force	Gravity	0	1	0	11.7351

Story	Label	Unique Name	Design Type	Load Pattern	LoadType	Direction	Relative Distance Start	Relative Distance End	Absolute Distance Start m	Absolute Distance End m
NE+4.77	B14	250	Beam	CA-M	Force	Gravity	0	1	0	6.3597
NE+4.77	B16	248	Beam	CA-M	Force	Gravity	0	1	0	3.8607
NE+4.77	B29	271	Beam	CA-M	Force	Gravity	0	1	0	3.8607
NE+4.77	B31	258	Beam	CA-M	Force	Gravity	0	1	0	6.3597
NE+4.77	B44	50	Beam	CA-M	Force	Gravity	0	1	0	2.9223
NE+4.77	B48	54	Beam	CA-M	Force	Gravity	0	1	0	2.9376
NE+4.77	B49	55	Beam	CA-M	Force	Gravity	0	1	0	2.8663
NE+4.77	B50	56	Beam	CA-M	Force	Gravity	0	1	0	2.9376
NE+4.77	B51	57	Beam	CA-M	Force	Gravity	0	1	0	2.9223
NE+4.77	B52	58	Beam	CA-M	Force	Gravity	0	1	0	2.8663
NE+3.17	B15	251	Beam	CA-M	Force	Gravity	0	1	0	3.8301
NE+3.17	B17	364	Beam	CA-M	Force	Gravity	0	1	0	3.774
NE+3.17	B18	365	Beam	CA-M	Force	Gravity	0	1	0	4.4217
NE+3.17	B19	366	Beam	CA-M	Force	Gravity	0	1	0	4.9317
NE+3.17	B20	368	Beam	CA-M	Force	Gravity	0	1	0	2.9376
NE+3.17	B22	100	Beam	CA-M	Force	Gravity	0	1	0	2.9376
NE+3.17	B23	144	Beam	CA-M	Force	Gravity	0	1	0	2.9376
NE+3.17	B25	287	Beam	CA-M	Force	Gravity	0	1	0	2.9376
NE+3.17	B26	383	Beam	CA-M	Force	Gravity	0	1	0	4.9317
NE+3.17	B27	382	Beam	CA-M	Force	Gravity	0	1	0	4.4217
NE+3.17	B28	380	Beam	CA-M	Force	Gravity	0	1	0	3.774
NE+3.17	B30	270	Beam	CA-M	Force	Gravity	0	1	0	3.8301
NE+3.17	B32	146	Beam	CA-M	Force	Gravity	0	1	0	0.75632
NE+3.17	B33	147	Beam	CA-M	Force	Gravity	0	1	0	0.75637
NE+3.17	B34	148	Beam	CA-M	Force	Gravity	0	1	0	0.75637
NE+3.17	B35	149	Beam	CA-M	Force	Gravity	0	1	0	0.75635
NE+3.17	B36	150	Beam	CA-M	Force	Gravity	0	1	0	0.7563
NE+3.17	B37	151	Beam	CA-M	Force	Gravity	0	1	0	0.75644
NE+3.17	B38	142	Beam	CA-M	Force	Gravity	0	1	0	0.75634
NE+3.17	B39	141	Beam	CA-M	Force	Gravity	0	1	0	0.75608
NE+3.17	B40	138	Beam	CA-M	Force	Gravity	0	1	0	0.75671
NE+3.17	B41	137	Beam	CA-M	Force	Gravity	0	1	0	0.75637
NE+3.17	B42	136	Beam	CA-M	Force	Gravity	0	1	0	0.75637
NE+3.17	B43	135	Beam	CA-M	Force	Gravity	0	1	0	0.75632
NE+3.17	B176	155	Beam	CA-M	Force	Gravity	0	1	0	6.0129
NE+3.17	B177	156	Beam	CA-M	Force	Gravity	0	1	0	4.1208
NE+3.17	B179	158	Beam	CA-M	Force	Gravity	0	1	0	10.1337
NE+3.17	B338	145	Beam	CA-M	Force	Gravity	0	1	0	2.9172
NE+3.17	B339	99	Beam	CA-M	Force	Gravity	0	1	0	2.8764
NE+3.17	B53	74	Beam	CA-M	Force	Gravity	0	1	0	4.3962
NE+3.17	B54	75	Beam	CA-M	Force	Gravity	0	1	0	1.3158
NE+3.17	B55	76	Beam	CA-M	Force	Gravity	0	1	0	3.4425
NE+3.17	B70	312	Beam	CA-M	Force	Gravity	0	1	0	1
NE+3.17	B73	319	Beam	CA-M	Force	Gravity	0	1	0	1

Table 4.2 - Frame Loads - Distributed (Part 2 of 2)

Story	Label	Unique Name	Force at Start tonf/m	Force at End tonf/m
NE+15.63	B340	423	0.007	0.007
NE+15.63	B341	424	0.007	0.007
NE+15.63	B342	425	0.007	0.007
NE+15.63	B343	426	0.007	0.007
NE+15.63	B344	427	0.007	0.007
NE+15.63	B345	428	0.007	0.007
NE+15.63	B346	429	0.007	0.007
NE+15.63	B347	430	0.007	0.007
NE+15.63	B348	431	0.007	0.007
NE+15.63	B349	432	0.007	0.007
NE+15.63	B350	433	0.007	0.007
NE+15.63	B351	434	0.007	0.007
NE+15.63	B352	435	0.007	0.007
NE+15.63	B353	436	0.007	0.007
NE+15.63	B354	437	0.007	0.007
NE+15.63	B355	438	0.007	0.007
NE+15.63	B356	439	0.007	0.007
NE+15.63	B357	440	0.007	0.007
NE+15.63	B358	441	0.007	0.007
NE+15.63	B359	442	0.007	0.007
NE+15.63	B360	443	0.007	0.007
NE+15.63	B361	444	0.007	0.007
NE+15.63	B362	445	0.007	0.007
NE+15.63	B363	446	0.007	0.007
NE+15.63	B364	447	0.007	0.007
NE+15.63	B365	448	0.007	0.007
NE+15.63	B366	449	0.007	0.007
NE+15.63	B367	450	0.007	0.007
NE+15.63	B368	451	0.007	0.007
NE+15.63	B369	452	0.007	0.007
NE+15.63	B370	453	0.007	0.007
NE+15.63	B371	454	0.007	0.007
NE+15.63	B372	455	0.007	0.007
NE+15.63	B373	456	0.007	0.007
NE+15.63	B374	457	0.007	0.007
NE+15.63	B375	458	0.007	0.007
NE+15.63	B376	459	0.007	0.007
NE+15.63	B377	460	0.007	0.007
NE+15.63	B378	461	0.007	0.007
NE+15.63	B379	462	0.007	0.007
NE+15.63	B380	463	0.007	0.007
NE+15.63	B381	464	0.007	0.007
NE+15.63	B382	465	0.007	0.007
NE+15.63	B383	466	0.007	0.007
NE+15.63	B384	467	0.007	0.007
NE+15.63	B385	468	0.007	0.007
NE+15.63	B386	469	0.007	0.007
NE+15.63	B387	470	0.007	0.007

Story	Label	Unique Name	Force at Start tonf/m	Force at End tonf/m
NE+15.63	B388	471	0.007	0.007
NE+15.63	B389	472	0.007	0.007
NE+15.63	B390	473	0.007	0.007
NE+15.63	B391	474	0.007	0.007
NE+15.63	B392	475	0.007	0.007
NE+15.63	B393	476	0.007	0.007
NE+15.63	B394	477	0.007	0.007
NE+15.63	B395	478	0.007	0.007
NE+15.63	B396	479	0.007	0.007
NE+15.63	B397	480	0.007	0.007
NE+15.63	B398	481	0.007	0.007
NE+15.63	B399	482	0.007	0.007
NE+15.63	B400	483	0.007	0.007
NE+15.63	B401	484	0.007	0.007
NE+15.63	B402	485	0.007	0.007
NE+15.63	B403	486	0.007	0.007
NE+15.63	B404	487	0.007	0.007
NE+15.63	B405	488	0.007	0.007
NE+15.63	B406	489	0.007	0.007
NE+15.63	B407	490	0.007	0.007
NE+15.63	B408	491	0.007	0.007
NE+15.63	B409	492	0.007	0.007
NE+15.63	B410	493	0.007	0.007
NE+15.63	B411	494	0.007	0.007
NE+15.63	B412	495	0.007	0.007
NE+15.63	B413	496	0.007	0.007
NE+15.63	B414	497	0.007	0.007
NE+15.63	B415	498	0.007	0.007
NE+15.63	B416	499	0.007	0.007
NE+15.63	B417	500	0.007	0.007
NE+15.63	B418	501	0.007	0.007
NE+15.63	B419	502	0.007	0.007
NE+15.63	B420	503	0.007	0.007
NE+15.63	B421	504	0.007	0.007
NE+15.63	B423	506	0.007	0.007
NE+15.63	B424	507	0.007	0.007
NE+15.63	B425	508	0.007	0.007
NE+15.63	B426	509	0.007	0.007
NE+15.63	B427	510	0.007	0.007
NE+15.63	B428	511	0.007	0.007
NE+15.63	B429	512	0.007	0.007
NE+15.63	B430	513	0.007	0.007
NE+15.63	B431	514	0.007	0.007
NE+15.63	B432	515	0.007	0.007
NE+15.63	B433	516	0.007	0.007
NE+15.63	B434	517	0.007	0.007
NE+15.63	B435	518	0.007	0.007
NE+15.63	B436	519	0.007	0.007

Story	Label	Unique Name	Force at Start tonf/m	Force at End tonf/m
NE+15.63	B437	520	0.007	0.007
NE+15.63	B438	521	0.007	0.007
NE+15.63	B439	522	0.007	0.007
NE+15.63	B440	523	0.007	0.007
NE+11.82	B6	1	0.028	0.028
NE+11.82	B7	2	0.028	0.028
NE+11.82	B8	5	0.028	0.028
NE+11.82	B9	13	0.028	0.028
NE+11.82	B10	14	0.028	0.028
NE+11.82	B12	16	0.028	0.028
NE+11.82	B59	79	0.028	0.028
NE+9.01	B98	541	0.028	0.028
NE+9.01	B105	542	0.028	0.028
NE+5.60	B332	280	0.028	0.028
NE+5.60	B333	281	0.028	0.028
NE+5.60	B334	282	0.028	0.028
NE+5.60	B335	283	0.028	0.028
NE+5.60	B336	284	0.028	0.028
NE+5.60	B337	285	0.028	0.028
NE+4.77	B102	59	0.012	0.012
NE+4.77	B103	60	0.012	0.012
NE+4.77	B104	61	0.012	0.012
NE+4.77	B105	62	0.012	0.012
NE+4.77	B106	63	0.012	0.012
NE+4.77	B107	64	0.012	0.012
NE+4.77	B108	65	0.012	0.012
NE+4.77	B125	66	0.012	0.012
NE+4.77	B126	67	0.012	0.012
NE+4.77	B127	68	0.012	0.012
NE+4.77	B128	69	0.012	0.012
NE+4.77	B129	70	0.012	0.012
NE+4.77	B130	71	0.012	0.012
NE+4.77	B131	72	0.012	0.012
NE+4.77	B132	117	0.012	0.012
NE+4.77	B133	82	0.012	0.012
NE+4.77	B134	83	0.012	0.012
NE+4.77	B135	84	0.012	0.012
NE+4.77	B136	85	0.012	0.012
NE+4.77	B137	86	0.012	0.012
NE+4.77	B138	87	0.012	0.012
NE+4.77	B139	88	0.012	0.012
NE+4.77	B140	119	0.012	0.012
NE+4.77	B142	121	0.012	0.012
NE+4.77	B143	122	0.012	0.012
NE+4.77	B144	123	0.012	0.012
NE+4.77	B145	124	0.012	0.012
NE+4.77	B146	125	0.012	0.012
NE+4.77	B147	126	0.012	0.012

Story	Label	Unique Name	Force at Start tonf/m	Force at End tonf/m
NE+4.77	B148	127	0.012	0.012
NE+4.77	B149	128	0.012	0.012
NE+4.77	B150	129	0.012	0.012
NE+4.77	B151	130	0.012	0.012
NE+4.77	B152	131	0.012	0.012
NE+4.77	B153	132	0.012	0.012
NE+3.17	B183	161	0.086	0.086
NE+3.17	B184	160	0.086	0.086
NE+3.17	B186	162	0.086	0.086
NE+3.17	B188	164	0.086	0.086
NE+3.17	B189	163	0.086	0.086
NE+3.17	B230	205	0.012	0.012
NE+3.17	B231	206	0.012	0.012
NE+3.17	B232	207	0.012	0.012
NE+3.17	B233	208	0.012	0.012
NE+3.17	B234	209	0.012	0.012
NE+3.17	B235	210	0.012	0.012
NE+3.17	B236	211	0.012	0.012
NE+3.17	B237	212	0.012	0.012
NE+3.17	B240	215	0.012	0.012
NE+3.17	B252	227	0.012	0.012
NE+3.17	B253	228	0.012	0.012
NE+3.17	B254	229	0.012	0.012
NE+3.17	B255	230	0.012	0.012
NE+3.17	B256	231	0.012	0.012
NE+3.17	B257	232	0.012	0.012
NE+3.17	B258	233	0.012	0.012
NE+3.17	B259	234	0.012	0.012
NE+3.17	B260	189	0.012	0.012
NE+3.17	B261	190	0.012	0.012
NE+3.17	B262	191	0.012	0.012
NE+3.17	B263	192	0.012	0.012
NE+3.17	B264	193	0.012	0.012
NE+3.17	B265	194	0.012	0.012
NE+3.17	B266	195	0.012	0.012
NE+3.17	B267	196	0.012	0.012
NE+3.17	B268	213	0.012	0.012
NE+3.17	B276	236	0.012	0.012
NE+3.17	B277	237	0.012	0.012
NE+3.17	B278	238	0.012	0.012
NE+3.17	B279	240	0.012	0.012
NE+3.17	B298	241	0.012	0.012
NE+3.17	B299	242	0.012	0.012
NE+3.17	B300	243	0.012	0.012
NE+3.17	B301	244	0.012	0.012
NE+3.17	B302	245	0.012	0.012
NE+3.17	B303	246	0.012	0.012
NE+3.17	B304	247	0.012	0.012

Story	Label	Unique Name	Force at Start tonf/m	Force at End tonf/m
NE+3.17	B305	255	0.012	0.012
NE+3.17	B306	256	0.012	0.012
NE+3.17	B307	259	0.012	0.012
NE+3.17	B308	260	0.012	0.012
NE+3.17	B318	261	0.012	0.012
NE+3.17	B319	262	0.012	0.012
NE+3.17	B320	263	0.012	0.012
NE+3.17	B321	264	0.012	0.012
NE+3.17	B322	265	0.012	0.012
NE+3.17	B323	266	0.012	0.012
NE+3.17	B324	267	0.012	0.012
NE+3.17	B325	268	0.012	0.012
NE+3.17	B326	269	0.012	0.012
NE+3.17	B1	12	0.012	0.012
NE+3.17	B2	35	0.012	0.012
NE+3.17	B5	39	0.086	0.086
NE+3.17	B45	52	0.086	0.086
NE+3.17	B46	73	0.086	0.086
NE+19.03	B20	294	0.6	0.6
NE+19.03	B21	295	0.6	0.6
NE+19.03	B22	296	0.6	0.6
NE+19.03	B23	290	0.6	0.6
NE+19.03	B24	291	0.6	0.6
NE+19.03	B25	292	0.6	0.6
NE+19.03	B338	289	0.6	0.6
NE+19.03	B339	293	0.6	0.6
NE+4.77	B442	10	0.333	0.333
NE+3.17	B186	162	0.674	0.674
NE+3.17	B253	228	0.674	0.674
NE+3.17	B45	52	0.674	0.674
NE+3.17	B54	75	0.674	0.674
NE+11.82	B20	24	3.783	3.783
NE+11.82	B21	25	3.933	3.933
NE+11.82	B22	26	3.783	3.783
NE+11.82	B23	27	3.783	3.783
NE+11.82	B24	28	3.769	3.769
NE+11.82	B25	29	3.783	3.783
NE+11.82	B56	11	3.961	3.961
NE+11.82	B57	77	3.961	3.961
NE+11.82	B58	78	3.961	3.961
NE+11.82	B60	80	3.742	3.742
NE+11.82	B61	81	3.742	3.742
NE+11.82	B62	89	3.742	3.742
NE+11.82	B11	218	1.515	1.515
NE+11.82	B47	217	1.515	1.515
NE+11.82	B63	216	1.515	1.515
NE+9.01	B14	252	2.546	2.546
NE+9.01	B16	253	1.547	1.547

Story	Label	Unique Name	Force at Start tonf/m	Force at End tonf/m
NE+9.01	B29	299	1.547	1.547
NE+9.01	B31	298	2.546	2.546
NE+9.01	B11	109	2.232	2.232
NE+9.01	B47	134	2.232	2.232
NE+9.01	B63	214	2.232	2.232
NE+5.60	B18	369	4.877	4.877
NE+5.60	B19	370	4.472	4.472
NE+5.60	B20	371	3.262	3.262
NE+5.60	B25	386	3.262	3.262
NE+5.60	B26	385	4.472	4.472
NE+5.60	B27	384	4.877	4.877
NE+5.60	B32	168	7.18	7.18
NE+5.60	B33	167	7.18	7.18
NE+5.60	B34	166	7.18	7.18
NE+5.60	B35	165	7.18	7.18
NE+5.60	B36	159	7.18	7.18
NE+5.60	B37	157	7.18	7.18
NE+5.60	B38	110	7.18	7.18
NE+5.60	B39	108	7.18	7.18
NE+5.60	B40	106	7.18	7.18
NE+5.60	B41	104	7.18	7.18
NE+5.60	B42	103	7.18	7.18
NE+5.60	B43	102	7.18	7.18
NE+5.60	B338	154	4.945	4.945
NE+5.60	B339	15	3.226	3.226
NE+5.60	B70	308	4.945	4.945
NE+5.60	B73	322	3.25	3.25
NE+4.77	B13	118	3.373	3.373
NE+4.77	B14	250	3.365	3.365
NE+4.77	B16	248	5.031	5.031
NE+4.77	B29	271	5.031	5.031
NE+4.77	B31	258	3.365	3.365
NE+4.77	B44	50	2.031	2.031
NE+4.77	B48	54	2.047	2.047
NE+4.77	B49	55	1.867	1.867
NE+4.77	B50	56	3.373	3.373
NE+4.77	B51	57	3.373	3.373
NE+4.77	B52	58	1.869	1.869
NE+3.17	B15	251	5.609	5.609
NE+3.17	B17	364	5.59	5.59
NE+3.17	B18	365	2.226	2.226
NE+3.17	B19	366	2.089	2.089
NE+3.17	B20	368	1.275	1.275
NE+3.17	B22	100	1.275	1.275
NE+3.17	B23	144	1.275	1.275
NE+3.17	B25	287	1.275	1.275
NE+3.17	B26	383	2.089	2.089
NE+3.17	B27	382	2.226	2.226

Story	Label	Unique Name	Force at Start tonf/m	Force at End tonf/m
NE+3.17	B28	380	5.59	5.59
NE+3.17	B30	270	5.609	5.609
NE+3.17	B32	146	3.821	3.821
NE+3.17	B33	147	3.821	3.821
NE+3.17	B34	148	3.821	3.821
NE+3.17	B35	149	3.821	3.821
NE+3.17	B36	150	3.821	3.821
NE+3.17	B37	151	3.821	3.821
NE+3.17	B38	142	3.821	3.821
NE+3.17	B39	141	3.821	3.821
NE+3.17	B40	138	3.821	3.821
NE+3.17	B41	137	3.821	3.821
NE+3.17	B42	136	3.821	3.821
NE+3.17	B43	135	3.821	3.821
NE+3.17	B176	155	0.94	0.94
NE+3.17	B177	156	0.94	0.94
NE+3.17	B179	158	0.944	0.944
NE+3.17	B338	145	1.933	1.933
NE+3.17	B339	99	1.261	1.261
NE+3.17	B53	74	1.188	1.188
NE+3.17	B54	75	1.188	1.188
NE+3.17	B55	76	1.188	1.188
NE+3.17	B70	312	1.933	1.933
NE+3.17	B73	319	1.27	1.27

4.2.2 Area Loads

Table 4.3 - Shell Loads - Uniform

Story	Label	Unique Name	Load Pattern	Direction	Load tonf/m²
NE+15.63	W3	4	CA	Gravity	0.116
NE+15.63	W4	34	CA	Gravity	0.116
NE+15.63	W5	76	CA	Gravity	0.116
NE+15.63	W6	86	CA	Gravity	0.116
NE+15.63	W8	110	CA	Gravity	0.116
NE+15.63	W9	118	CA	Gravity	0.116
NE+15.63	W16	125	CA	Gravity	0.116
NE+15.63	W17	132	CA	Gravity	0.116
NE+15.63	W18	181	CA	Gravity	0.116
NE+15.63	W19	203	CA	Gravity	0.116
NE+15.63	W21	204	CA	Gravity	0.116
NE+15.63	W22	207	CA	Gravity	0.116
NE+15.63	W23	219	CA	Gravity	0.116
NE+15.63	W25	239	CA	Gravity	0.116
NE+15.63	W26	240	CA	Gravity	0.116
NE+15.63	W27	370	CA	Gravity	0.116
NE+15.63	W3	4	CV	Gravity	0.05
NE+15.63	W4	34	CV	Gravity	0.05

Story	Label	Unique Name	Load Pattern	Direction	Load tonf/m²
NE+15.63	W5	76	CV	Gravity	0.05
NE+15.63	W6	86	CV	Gravity	0.05
NE+15.63	W8	110	CV	Gravity	0.05
NE+15.63	W9	118	CV	Gravity	0.05
NE+15.63	W16	125	CV	Gravity	0.05
NE+15.63	W17	132	CV	Gravity	0.05
NE+15.63	W18	181	CV	Gravity	0.05
NE+15.63	W19	203	CV	Gravity	0.05
NE+15.63	W21	204	CV	Gravity	0.05
NE+15.63	W22	207	CV	Gravity	0.05
NE+15.63	W23	219	CV	Gravity	0.05
NE+15.63	W25	239	CV	Gravity	0.05
NE+15.63	W26	240	CV	Gravity	0.05
NE+15.63	W27	370	CV	Gravity	0.05
NE+19.03	F60	665	CA	Gravity	0.131
NE+19.03	F61	676	CA	Gravity	0.131
NE+11.82	F7	37	CA	Gravity	0.095
NE+11.82	F9	38	CA	Gravity	0.095
NE+11.82	F24	71	CA	Gravity	0.095
NE+11.82	F25	170	CA	Gravity	0.095
NE+11.82	F26	334	CA	Gravity	0.095
NE+11.82	F27	439	CA	Gravity	0.095
NE+11.82	F28	445	CA	Gravity	0.095
NE+10.16	F32	98	CA	Gravity	0.131
NE+10.16	F33	99	CA	Gravity	0.131
NE+10.16	F34	100	CA	Gravity	0.131
NE+10.16	F35	101	CA	Gravity	0.131
NE+10.16	F36	102	CA	Gravity	0.131
NE+10.16	F37	103	CA	Gravity	0.131
NE+10.16	F38	104	CA	Gravity	0.131
NE+10.16	F39	105	CA	Gravity	0.131
NE+10.16	F53	106	CA	Gravity	0.131
NE+10.16	F54	107	CA	Gravity	0.131
NE+10.16	F55	108	CA	Gravity	0.131
NE+10.16	F62	90	CA	Gravity	0.131
NE+9.01	F1	935	CA	Gravity	0.131
NE+9.01	F2	937	CA	Gravity	0.131
NE+5.60	F58	651	CA	Gravity	0.131
NE+5.60	F59	647	CA	Gravity	0.131
NE+4.77	F4	31	CA	Gravity	0.09
NE+4.77	F6	617	CA	Gravity	0.09
NE+4.77	F8	625	CA	Gravity	0.09
NE+4.77	F10	949	CA	Gravity	0.09
NE+3.17	F58	628	CA	Gravity	0.32
NE+19.03	F60	665	CV	Gravity	0.05
NE+19.03	F61	676	CV	Gravity	0.05
NE+10.16	F32	98	CV	Gravity	0.05
NE+10.16	F33	99	CV	Gravity	0.05
NE+10.16	F34	100	CV	Gravity	0.05

Story	Label	Unique Name	Load Pattern	Direction	Load tonf/m²
NE+10.16	F35	101	CV	Gravity	0.05
NE+10.16	F36	102	CV	Gravity	0.05
NE+10.16	F37	103	CV	Gravity	0.05
NE+10.16	F38	104	CV	Gravity	0.05
NE+10.16	F39	105	CV	Gravity	0.05
NE+10.16	F53	106	CV	Gravity	0.05
NE+10.16	F54	107	CV	Gravity	0.05
NE+10.16	F55	108	CV	Gravity	0.05
NE+10.16	F62	90	CV	Gravity	0.05
NE+9.01	F1	935	CV	Gravity	0.05
NE+9.01	F2	937	CV	Gravity	0.05
NE+5.60	F58	651	CV	Gravity	0.05
NE+5.60	F59	647	CV	Gravity	0.05
NE+4.77	F4	31	CV	Gravity	0.5
NE+4.77	F6	617	CV	Gravity	0.7
NE+4.77	F8	625	CV	Gravity	0.7
NE+4.77	F8	625	CV	Gravity	0.5
NE+4.77	F10	949	CV	Gravity	0.7
NE+3.17	F58	628	CV	Gravity	0.2

4.3 Functions

4.3.1 Response Spectrum Functions

Table 4.4 - Response Spectrum Function - User

Name	Period sec	Acceleration	Damping %
EspDis	0	0.7312	5
EspDis	0.031	0.7312	
EspDis	0.062	0.7312	
EspDis	0.093	0.7312	
EspDis	0.124	0.7312	
EspDis	0.155	0.7312	
EspDis	0.186	0.7312	
EspDis	0.217	0.7312	
EspDis	0.248	0.7312	
EspDis	0.279	0.7312	
EspDis	0.31	0.7312	
EspDis	0.341	0.7312	
EspDis	0.372	0.7312	
EspDis	0.403	0.7312	
EspDis	0.434	0.7312	
EspDis	0.465	0.7312	
EspDis	0.496	0.7312	
EspDis	0.527	0.7312	
EspDis	0.558	0.7312	
EspDis	0.637	0.6408	
EspDis	0.716	0.5702	
EspDis	0.794	0.5137	
EspDis	0.873	0.4673	

Name	Period sec	Acceleration	Damping %
EspDis	0.952	0.4286	
EspDis	1.031	0.3959	
EspDis	1.109	0.3678	
EspDis	1.188	0.3434	
EspDis	1.267	0.322	
EspDis	1.346	0.3032	
EspDis	1.425	0.2864	
EspDis	1.503	0.2714	
EspDis	1.582	0.2579	
EspDis	1.661	0.2457	
EspDis	1.74	0.2345	
EspDis	1.818	0.2244	
EspDis	1.897	0.2151	
EspDis	1.976	0.2065	
EspDis	2.055	0.1986	
EspDis	2.134	0.1912	
EspDis	2.212	0.1844	
EspDis	2.291	0.1781	
EspDis	2.37	0.1722	
EspDis	2.449	0.1666	
EspDis	2.527	0.1614	
EspDis	2.606	0.1566	
EspDis	2.685	0.152	
EspDis	2.764	0.1476	
EspDis	2.842	0.1435	
EspDis	2.921	0.1397	
EspDis	3	0.136	
EspDis	6.917	0.0256	
EspDis	10.833	0.0104	
EspDis	14.75	0.005626	
EspDis	18.667	0.003513	
EspDis	22.583	0.0024	
EspDis	26.5	0.001743	
EspDis	30.417	0.001323	
EspDis	34.333	0.001038	
EspDis	38.25	0.000837	
EspDis	42.167	0.000688	
EspDis	46.083	0.000576	
EspDis	50	0.00049	
EspUD	0	0.12	2
EspUD	0.017	0.166	
EspUD	0.034	0.212	
EspUD	0.051	0.258	
EspUD	0.068	0.304	
EspUD	0.085	0.35	
EspUD	0.102	0.396	
EspUD	0.12	0.396	
EspUD	0.138	0.396	
EspUD	0.156	0.396	

Name	Period sec	Acceleration	Damping %
EspUD	0.173	0.396	
EspUD	0.191	0.396	
EspUD	0.209	0.396	
EspUD	0.227	0.396	
EspUD	0.245	0.396	
EspUD	0.262	0.396	
EspUD	0.28	0.396	
EspUD	0.298	0.396	
EspUD	0.316	0.396	
EspUD	0.334	0.396	
EspUD	0.351	0.396	
EspUD	0.369	0.396	
EspUD	0.387	0.396	
EspUD	0.405	0.396	
EspUD	0.422	0.396	
EspUD	0.44	0.396	
EspUD	0.458	0.396	
EspUD	0.476	0.396	
EspUD	0.494	0.396	
EspUD	0.511	0.396	
EspUD	0.636	0.3185	
EspUD	0.76	0.2664	
EspUD	0.885	0.2289	
EspUD	1.009	0.2007	
EspUD	1.134	0.1786	
EspUD	1.258	0.161	
EspUD	1.382	0.1465	
EspUD	1.507	0.1344	
EspUD	1.631	0.1241	
EspUD	1.756	0.1153	
EspUD	1.88	0.1077	
EspUD	2.005	0.101	
EspUD	2.129	0.0951	
EspUD	2.253	0.0899	
EspUD	2.378	0.0852	
EspUD	2.502	0.0809	
EspUD	2.627	0.0771	
EspUD	2.751	0.0736	
EspUD	2.876	0.0704	
EspUD	3	0.0675	
EspUD	7	0.0124	
EspUD	8	0.009492	
EspUD	9	0.0075	
EspUD	10	0.006075	
EspUD	12	0.004219	
EspUD	15	0.0027	
EspUD	30	0.000675	
EspUD	35	0.000496	
EspUD	40	0.00038	

Name	Period sec	Acceleration	Damping %
EspUD	50	0.000243	

4.4 Load Cases

Table 4.5 - Load Cases - Summary

Name	Type
PP	Linear Static
CA	Linear Static
CV	Linear Static
W	Linear Static
SX	Response Spectrum
SY	Response Spectrum
SDX	Response Spectrum
SDY	Response Spectrum
CA-M	Linear Static

Table 4.6 - Load Cases - Static - Linear

Name	Stiffness From	Mass Source	Load Type	Load Name	Scale Factor	Design Load Type
PP	Preset P-delta	MsSrc1	Load Pattern	PP	1	Program Determined
CA	Preset P-delta	MsSrc1	Load Pattern	CA	1	Program Determined
CV	Preset P-delta	MsSrc1	Load Pattern	CV	1	Program Determined
W	Preset P-delta	MsSrc1	Load Pattern	W	1	Program Determined
CA-M	Preset P-delta	MsSrc1	Load Pattern	CA-M	1	Program Determined

Table 4.7 - Load Cases - Modal - Ritz

Name	Stiffness From	Mass Source	Load Type	Load Name	Max Cycles	Target Participation %	Max Number Modes	Min Number Modes	Design Load Type
Modal	Preset P-delta	MsSrc1	Acceleration	UX	0	99	50	18	Program Determined
Modal			Acceleration	UY	0	99			

Table 4.8 - Load Cases - Response Spectrum (Part 1 of 2)

Name	Mass Source	Load Type	Load Name	Function	Scale Factor	Coordinate System	Angle deg	Modal Case	Modal Combination Method
SX	Previous (MsSrc1)	Acceleration	U1	EspDis	12.53	Global	0	Modal	CQC
SY	Previous (MsSrc1)	Acceleration	U2	EspDis	13.08	Global	0	Modal	CQC
SDX	Previous (MsSrc1)	Acceleration	U1	EspUD	12.34	Global	0	Modal	CQC
SDY	Previous (MsSrc1)	Acceleration	U2	EspUD	13.06	Global	0	Modal	CQC

Table 4.8 - Load Cases - Response Spectrum (Part 2 of 2)

Name	Include Rigid Response	Directional Combination Method	Design Load Type	Eccentricity Ratio	Eccentricity Overrides	Constant Damping
SX	No	SRSS	Program Determined	0	No	0.05
SY	No	SRSS	Program Determined	0	No	0.05
SDX	No	SRSS	Program Determined	0	No	0.02

Name	Include Rigid Response	Directional Combination Method	Design Load Type	Eccentricity Ratio	Eccentricity Overrides	Constant Damping
SDY	No	SRSS	Program Determined	0	No	0.02

Table 4.9 - P-delta Options

Automation Method
None

4.5 Load Combinations

Table 4.10 - Load Combinations

Name	Load Case/Combo	Scale Factor	Type	Auto
CM	PP	1	Linear Add	No
CM	CA	1		No
CM	CA-M	0.25		No
DER1	CM-W	1.2	Linear Add	No
DER1	CV	1.6		No
DER2	CM-W	1.2	Linear Add	No
DER2	CV	1		No
DER2	SX	1		No
DER3	CM-W	1.2	Linear Add	No
DER3	CV	1		No
DER3	SX	-1		No
DER4	CM-W	1.2	Linear Add	No
DER4	CV	1		No
DER4	SY	1		No
DER5	CM-W	1.2	Linear Add	No
DER5	CV	1		No
DER5	SY	-1		No
DER6	CM-W	0.9	Linear Add	No
DER6	SX	1		No
DER7	CM-W	0.9	Linear Add	No
DER7	SX	-1		No
DER8	CM-W	0.9	Linear Add	No
DER8	SY	1		No
DER9	CM-W	0.9	Linear Add	No
DER9	SY	-1		No
COMB1	CM	1.2	Linear Add	No
COMB1	CV	1.6		No
COMB2	CM	1.2	Linear Add	No
COMB2	CV	1		No
COMB2	SX	0.63		No
COMB2	SY	0.09		No
COMB3	CM	1.2	Linear Add	No
COMB3	CV	1		No
COMB3	SX	0.63		No
COMB3	SY	-0.09		No
COMB4	CM	1.2	Linear Add	No

Name	Load Case/Combo	Scale Factor	Type	Auto
COMB4	SX	-0.63		No
COMB4	SY	0.09		No
COMB4	CV	1		No
COMB5	CM	1.2	Linear Add	No
COMB5	SX	-0.63		No
COMB5	SY	-0.09		No
COMB5	CV	1		No
COMB6	CM	1.2	Linear Add	No
COMB6	SX	0.19		No
COMB6	SY	0.31		No
COMB6	CV	1		No
COMB7	CM	1.2	Linear Add	No
COMB7	SX	0.19		No
COMB7	SY	-0.31		No
COMB7	CV	1		No
COMB8	CM	1.2	Linear Add	No
COMB8	SX	-0.19		No
COMB8	SY	0.31		No
COMB8	CV	1		No
COMB9	CM	1.2	Linear Add	No
COMB9	SX	-0.19		No
COMB9	SY	-0.31		No
COMB9	CV	1		No
COMB10	CM	0.9	Linear Add	No
COMB10	SX	0.63		No
COMB10	SY	0.09		No
COMB11	CM	0.9	Linear Add	No
COMB11	SX	0.63		No
COMB11	SY	-0.09		No
COMB12	CM	0.9	Linear Add	No
COMB12	SX	-0.63		No
COMB12	SY	0.09		No
COMB13	CM	0.9	Linear Add	No
COMB13	SX	-0.63		No
COMB13	SY	-0.09		No
COMB14	CM	0.9	Linear Add	No
COMB14	SX	0.19		No
COMB14	SY	0.31		No
COMB15	CM	0.9	Linear Add	No
COMB15	SX	0.19		No
COMB15	SY	-0.31		No
COMB16	CM	0.9	Linear Add	No
COMB16	SX	-0.19		No
COMB16	SY	0.31		No
COMB17	CM	0.9	Linear Add	No
COMB17	SX	-0.19		No
COMB17	SY	-0.31		No
ENVDIS	COMB1	1	Envelope	No
ENVDIS	COMB2	1		No

Name	Load Case/Combo	Scale Factor	Type	Auto
ENVDIS	COMB3	1		No
ENVDIS	COMB4	1		No
ENVDIS	COMB5	1		No
ENVDIS	COMB6	1		No
ENVDIS	COMB7	1		No
ENVDIS	COMB8	1		No
ENVDIS	COMB9	1		No
ENVDIS	COMB10	1		No
ENVDIS	COMB11	1		No
ENVDIS	COMB12	1		No
ENVDIS	COMB13	1		No
ENVDIS	COMB14	1		No
ENVDIS	COMB15	1		No
ENVDIS	COMB16	1		No
ENVDIS	COMB17	1		No
ENVDIS	COMB18	1		No
CIM1	CM	1	Linear Add	No
CIM1	CV	1		No
CIM2	CM	1	Linear Add	No
CIM2	SX	0.44		No
CIM3	CM	1	Linear Add	No
CIM3	SY	0.22		No
CIM4	CM	1	Linear Add	No
CIM4	CV	0.75		No
CIM4	SX	0.33		No
CIM5	CM	1	Linear Add	No
CIM5	CV	0.75		No
CIM5	SY	0.16		No
CIM6	CM	0.6	Linear Add	No
CIM6	SX	0.44		No
CIM7	CM	0.6	Linear Add	No
CIM7	SY	0.22		No
ENVCIM	CIM1	1	Envelope	No
ENVCIM	CIM2	1		No
ENVCIM	CIM3	1		No
ENVCIM	CIM4	1		No
ENVCIM	CIM5	1		No
ENVCIM	CIM6	1		No
ENVCIM	CIM7	1		No
COMB18	CM	1.4	Linear Add	No
DERUD1	CM-W	1.2	Linear Add	No
DERUD1	CV	1.6		No
DERUD2	CM-W	1.2	Linear Add	No
DERUD2	CV	1		No
DERUD2	SDX	1		No
DERUD3	CM-W	1.2	Linear Add	No
DERUD3	CV	1		No
DERUD3	SDX	-1		No
DERUD4	CM-W	1.2	Linear Add	No

Name	Load Case/Combo	Scale Factor	Type	Auto
DERUD4	CV	1		No
DERUD4	SDY	1		No
DERUD5	CM-W	1.2	Linear Add	No
DERUD5	CV	1		No
DERUD5	SDY	-1		No
DERUD6	CM-W	0.9	Linear Add	No
DERUD6	SDX	1		No
DERUD7	CM-W	0.9	Linear Add	No
DERUD7	SDX	-1		No
DERUD8	CM-W	0.9	Linear Add	No
DERUD8	SDY	1		No
DERUD9	CM-W	0.9	Linear Add	No
DERUD9	SDY	-1		No
COMBC1	CM	1.2	Linear Add	No
COMBC1	CV	1.6		No
COMBC2	CM	1.35	Linear Add	No
COMBC2	CV	1		No
COMBC2	SX	1.25		No
COMBC2	SY	0.19		No
COMBC4	CM	1.35	Linear Add	No
COMBC4	CV	1		No
COMBC4	SX	1.25		No
COMBC4	SY	-0.19		No
COMBC6	CM	1.35	Linear Add	No
COMBC6	CV	1		No
COMBC6	SX	-1.25		No
COMBC6	SY	0.19		No
COMBC8	CM	1.35	Linear Add	No
COMBC8	CV	1		No
COMBC8	SX	-1.25		No
COMBC8	SY	-0.19		No
COMBC10	CM	1.35	Linear Add	No
COMBC10	CV	1		No
COMBC10	SX	0.38		No
COMBC10	SY	0.63		No
COMBC12	CM	1.35	Linear Add	No
COMBC12	CV	1		No
COMBC12	SX	0.38		No
COMBC12	SY	-0.63		No
COMBC14	CM	1.35	Linear Add	No
COMBC14	CV	1		No
COMBC14	SX	-0.38		No
COMBC14	SY	0.63		No
COMBC16	CM	1.35	Linear Add	No
COMBC16	CV	1		No
COMBC16	SX	-0.38		No
COMBC16	SY	-0.63		No
COMBC3	CM	1.05	Linear Add	No
COMBC3	CV	1		No

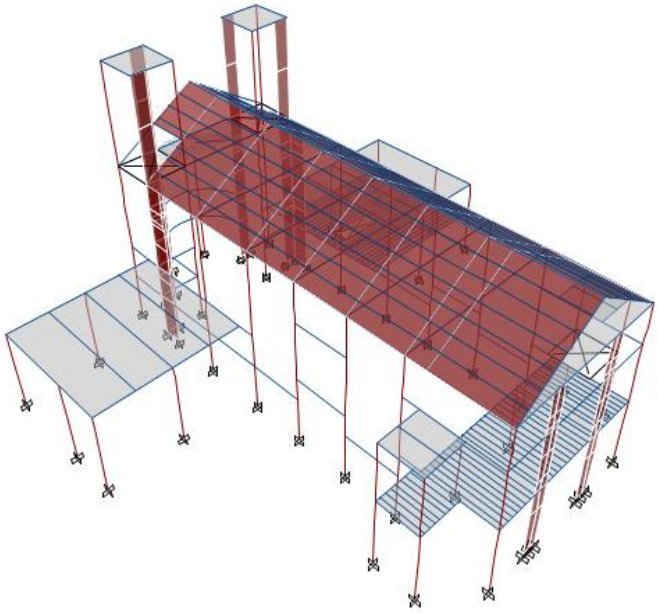
Name	Load Case/Combo	Scale Factor	Type	Auto
COMBC3	SX	1.25		No
COMBC3	SY	0.19		No
COMBC5	CM	1.05	Linear Add	No
COMBC5	CV	1		No
COMBC5	SX	1.25		No
COMBC5	SY	-0.19		No
COMBC7	CM	1.05	Linear Add	No
COMBC7	CV	1		No
COMBC7	SX	-1.25		No
COMBC7	SY	0.19		No
COMBC9	CM	1.05	Linear Add	No
COMBC9	CV	1		No
COMBC9	SX	-1.25		No
COMBC9	SY	-0.19		No
COMBC11	CM	1.05	Linear Add	No
COMBC11	CV	1		No
COMBC11	SX	0.38		No
COMBC11	SY	0.63		No
COMBC13	CM	1.05	Linear Add	No
COMBC13	CV	1		No
COMBC13	SX	0.38		No
COMBC13	SY	-0.63		No
COMBC15	CM	1.05	Linear Add	No
COMBC15	CV	1		No
COMBC15	SX	-0.38		No
COMBC15	SY	0.63		No
COMBC17	CM	1.05	Linear Add	No
COMBC17	CV	1		No
COMBC17	SX	-0.38		No
COMBC17	SY	-0.63		No
COMBC18	CM	1.05	Linear Add	No
COMBC18	SX	1.25		No
COMBC18	SY	0.19		No
COMBC20	CM	1.05	Linear Add	No
COMBC20	SX	1.25		No
COMBC20	SY	-0.19		No
COMBC22	CM	1.05	Linear Add	No
COMBC22	SX	-1.25		No
COMBC22	SY	0.19		No
COMBC24	CM	1.05	Linear Add	No
COMBC24	SX	-1.25		No
COMBC24	SY	-0.19		No
COMBC26	CM	1.05	Linear Add	No
COMBC26	SX	0.38		No
COMBC26	SY	0.63		No
COMBC28	CM	1.05	Linear Add	No
COMBC28	SX	0.38		No
COMBC28	SY	-0.63		No
COMBC30	CM	1.05	Linear Add	No

Name	Load Case/Combo	Scale Factor	Type	Auto
COMBC30	SX	-0.38		No
COMBC30	SY	0.63		No
COMBC32	CM	1.05	Linear Add	No
COMBC32	SX	-0.38		No
COMBC32	SY	-0.63		No
COMBC19	CM	0.75	Linear Add	No
COMBC19	SX	1.25		No
COMBC19	SY	0.19		No
COMBC21	CM	0.75	Linear Add	No
COMBC21	SX	1.25		No
COMBC21	SY	-0.19		No
COMBC23	CM	0.75	Linear Add	No
COMBC23	SX	-1.25		No
COMBC23	SY	0.19		No
COMBC25	CM	0.75	Linear Add	No
COMBC25	SX	-1.25		No
COMBC25	SY	-0.19		No
COMBC27	CM	0.75	Linear Add	No
COMBC27	SX	0.38		No
COMBC27	SY	0.63		No
COMBC29	CM	0.75	Linear Add	No
COMBC29	SX	0.38		No
COMBC29	SY	-0.63		No
COMBC31	CM	0.75	Linear Add	No
COMBC31	SX	-0.38		No
COMBC31	SY	0.63		No
COMBC33	CM	0.75	Linear Add	No
COMBC33	SX	-0.38		No
COMBC33	SY	-0.63		No
ENVC	COMBC1	1	Envelope	No
ENVC	COMBC2	1		No
ENVC	COMBC3	1		No
ENVC	COMBC4	1		No
ENVC	COMBC5	1		No
ENVC	COMBC6	1		No
ENVC	COMBC7	1		No
ENVC	COMBC8	1		No
ENVC	COMBC9	1		No
ENVC	COMBC10	1		No
ENVC	COMBC11	1		No
ENVC	COMBC12	1		No
ENVC	COMBC13	1		No
ENVC	COMBC14	1		No
ENVC	COMBC15	1		No
ENVC	COMBC16	1		No
ENVC	COMBC17	1		No
ENVC	COMBC18	1		No
ENVC	COMBC19	1		No
ENVC	COMBC20	1		No

Name	Load Case/Combo	Scale Factor	Type	Auto
ENVC	COMBC21	1		No
ENVC	COMBC22	1		No
ENVC	COMBC23	1		No
ENVC	COMBC24	1		No
ENVC	COMBC25	1		No
ENVC	COMBC26	1		No
ENVC	COMBC27	1		No
ENVC	COMBC28	1		No
ENVC	COMBC29	1		No
ENVC	COMBC30	1		No
ENVC	COMBC31	1		No
ENVC	COMBC32	1		No
ENVC	COMBC33	1		No
COMBV1	CM	1.2	Linear Add	No
COMBV1	CV	1.6		No
COMBV2	CM	1.2	Linear Add	No
COMBV2	CV	1		No
COMBV2	SX	1.25		No
COMBV2	SY	0.19		No
COMBV3	CM	1.2	Linear Add	No
COMBV3	CV	1		No
COMBV3	SX	1.25		No
COMBV3	SY	-0.19		No
COMBV4	CM	1.2	Linear Add	No
COMBV4	CV	1		No
COMBV4	SX	-1.25		No
COMBV4	SY	0.19		No
COMBV5	CM	1.2	Linear Add	No
COMBV5	CV	1		No
COMBV5	SX	-1.25		No
COMBV5	SY	-0.19		No
COMBV6	CM	1.2	Linear Add	No
COMBV6	CV	1		No
COMBV6	SX	0.38		No
COMBV6	SY	0.63		No
COMBV7	CM	1.2	Linear Add	No
COMBV7	CV	1		No
COMBV7	SX	0.38		No
COMBV7	SY	-0.63		No
COMBV8	CM	1.2	Linear Add	No
COMBV8	CV	1		No
COMBV8	SX	-0.38		No
COMBV8	SY	0.63		No
COMBV9	CM	1.2	Linear Add	No
COMBV9	CV	1		No
COMBV9	SX	-0.38		No
COMBV9	SY	-0.63		No
COMBV10	CM	0.9	Linear Add	No
COMBV10	SX	1.25		No

Name	Load Case/Combo	Scale Factor	Type	Auto
COMBV10	SY	0.19		No
COMBV11	CM	0.9	Linear Add	No
COMBV11	SX	1.25		No
COMBV11	SY	-0.19		No
COMBV12	CM	0.9	Linear Add	No
COMBV12	SX	-1.25		No
COMBV12	SY	0.19		No
COMBV13	CM	0.9	Linear Add	No
COMBV13	SX	-1.25		No
COMBV13	SY	-0.19		No
COMBV14	CM	0.9	Linear Add	No
COMBV14	SX	0.38		No
COMBV14	SY	0.63		No
COMBV15	CM	0.9	Linear Add	No
COMBV15	SX	0.38		No
COMBV15	SY	-0.63		No
COMBV16	CM	0.9	Linear Add	No
COMBV16	SX	-0.38		No
COMBV16	SY	0.63		No
COMBV17	CM	0.9	Linear Add	No
COMBV17	SX	-0.38		No
COMBV17	SY	-0.63		No
ENVV	COMBV1	1	Envelope	No
ENVV	COMBV2	1		No
ENVV	COMBV3	1		No
ENVV	COMBV4	1		No
ENVV	COMBV5	1		No
ENVV	COMBV6	1		No
ENVV	COMBV7	1		No
ENVV	COMBV8	1		No
ENVV	COMBV9	1		No
ENVV	COMBV10	1		No
ENVV	COMBV11	1		No
ENVV	COMBV12	1		No
ENVV	COMBV13	1		No
ENVV	COMBV14	1		No
ENVV	COMBV15	1		No
ENVV	COMBV16	1		No
ENVV	COMBV17	1		No
CM-W	PP	1	Linear Add	No
CM-W	CA	1		No
CM-W	CA-M	1		No

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DATOS DE ENTRADA 2

716-HSJD

Model File: GRUPO 2 - CAPILLA, Revision 0
1/06/2017

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1. Analysis Results 3

1.1 Modal Results 3

1 Analysis Results

This chapter provides analysis results.

1.1 Modal Results

Table 1.1 - Modal Periods and Frequencies

Case	Mode	Period sec	Frequency cyc/sec	Circular Frequency rad/sec	Eigenvalue rad²/sec²
Modal	1	0.526	1.901	11.942	142.6117
Modal	2	0.484	2.068	12.9918	168.7865
Modal	3	0.42	2.383	14.9731	224.1945
Modal	4	0.303	3.297	20.7157	429.1418
Modal	5	0.298	3.357	21.0943	444.9683
Modal	6	0.286	3.501	21.9976	483.8933
Modal	7	0.274	3.655	22.9667	527.4685
Modal	8	0.269	3.722	23.3863	546.9185
Modal	9	0.266	3.753	23.5786	555.9511
Modal	10	0.265	3.775	23.7198	562.6267
Modal	11	0.263	3.808	23.9285	572.5746
Modal	12	0.254	3.938	24.7452	612.3267
Modal	13	0.242	4.127	25.9309	672.4135
Modal	14	0.223	4.475	28.1179	790.6159
Modal	15	0.222	4.503	28.2934	800.5174
Modal	16	0.215	4.661	29.2858	857.6605
Modal	17	0.208	4.815	30.2548	915.3506
Modal	18	0.202	4.955	31.1355	969.4177
Modal	19	0.196	5.093	31.9996	1023.9752
Modal	20	0.186	5.378	33.7922	1141.9124
Modal	21	0.177	5.635	35.4038	1253.4259
Modal	22	0.172	5.823	36.5865	1338.5709
Modal	23	0.167	5.985	37.6037	1414.0385
Modal	24	0.164	6.113	38.4088	1475.2383
Modal	25	0.16	6.244	39.2309	1539.0619
Modal	26	0.157	6.381	40.0958	1607.6727
Modal	27	0.152	6.561	41.2257	1699.5609
Modal	28	0.148	6.756	42.4511	1802.0995
Modal	29	0.143	6.972	43.8086	1919.1916
Modal	30	0.136	7.362	46.2566	2139.6712
Modal	31	0.133	7.522	47.2624	2233.7347
Modal	32	0.13	7.666	48.1654	2319.9038
Modal	33	0.13	7.71	48.444	2346.8197
Modal	34	0.118	8.458	53.1436	2824.2407
Modal	35	0.109	9.199	57.8	3340.8372
Modal	36	0.107	9.32	58.5577	3429.0068
Modal	37	0.097	10.354	65.0574	4232.461
Modal	38	0.094	10.653	66.9325	4479.9632
Modal	39	0.086	11.666	73.3	5372.8889
Modal	40	0.081	12.4	77.9143	6070.6353
Modal	41	0.072	13.819	86.825	7538.5808
Modal	42	0.071	14.182	89.1088	7940.3738

Case	Mode	Period sec	Frequency cyc/sec	Circular Frequency rad/sec	Eigenvalue rad²/sec²
Modal	43	0.059	16.813	105.6371	11159.1999
Modal	44	0.055	18.17	114.1662	13033.9153
Modal	45	0.044	22.958	144.2491	20807.8044
Modal	46	0.042	23.725	149.0677	22221.165
Modal	47	0.029	34.249	215.1946	46308.7082
Modal	48	0.027	37.427	235.1619	55301.106
Modal	49	0.014	69.175	434.6398	188911.7607
Modal	50	0.014	72.661	456.5397	208428.5048

Table 1.2 - Modal Participating Mass Ratios (Part 1 of 2)

Case	Mode	Period sec	UX	UY	UZ	Sum UX	Sum UY	Sum UZ
Modal	1	0.526	0.5987	1.897E-05	0	0.5987	1.897E-05	0
Modal	2	0.484	0.0001	0.5997	0	0.5988	0.5997	0
Modal	3	0.42	0.064	0.0001	0	0.6628	0.5998	0
Modal	4	0.303	0.0024	0.0002	0	0.6652	0.6	0
Modal	5	0.298	1.754E-05	0.1311	0	0.6652	0.7311	0
Modal	6	0.286	0.0188	0.0072	0	0.684	0.7382	0
Modal	7	0.274	0.0357	0.0128	0	0.7197	0.751	0
Modal	8	0.269	0.0007	0.0063	0	0.7205	0.7573	0
Modal	9	0.266	0.006	0.0004	0	0.7265	0.7578	0
Modal	10	0.265	0.0001	0.0039	0	0.7265	0.7616	0
Modal	11	0.263	0.0517	0.0002	0	0.7783	0.7618	0
Modal	12	0.254	0.0145	0.0001	0	0.7928	0.7619	0
Modal	13	0.242	0.0008	8.233E-06	0	0.7936	0.7619	0
Modal	14	0.223	0.0001	0.0001	0	0.7937	0.762	0
Modal	15	0.222	0.0001	0.0001	0	0.7939	0.7621	0
Modal	16	0.215	2.063E-05	0.0147	0	0.7939	0.7768	0
Modal	17	0.208	0.0117	0.005	0	0.8056	0.7818	0
Modal	18	0.202	0.0044	0.0009	0	0.81	0.7827	0
Modal	19	0.196	0.0004	0.0022	0	0.8104	0.7849	0
Modal	20	0.186	0.0315	0.0062	0	0.8419	0.7911	0
Modal	21	0.177	0.0006	0.0026	0	0.8425	0.7937	0
Modal	22	0.172	0.0257	3.854E-05	0	0.8683	0.7937	0
Modal	23	0.167	0.0016	0.0141	0	0.8699	0.8078	0
Modal	24	0.164	0.0016	0.0216	0	0.8714	0.8294	0
Modal	25	0.16	0.0011	0.0007	0	0.8725	0.8301	0
Modal	26	0.157	0.0028	1.469E-05	0	0.8753	0.8301	0
Modal	27	0.152	0.0001	0.0096	0	0.8754	0.8398	0
Modal	28	0.148	0.0041	0.0015	0	0.8796	0.8413	0
Modal	29	0.143	0.0018	0.0238	0	0.8814	0.8651	0
Modal	30	0.136	0.0005	0.0197	0	0.8819	0.8848	0
Modal	31	0.133	0.0098	0.0118	0	0.8917	0.8966	0
Modal	32	0.13	0.0196	0.0178	0	0.9113	0.9144	0
Modal	33	0.13	0.0051	0.0137	0	0.9164	0.9281	0
Modal	34	0.118	0.0012	0.0021	0	0.9176	0.9301	0
Modal	35	0.109	0.0086	0.0001	0	0.9261	0.9303	0

Case	Mode	Period sec	UX	UY	UZ	Sum UX	Sum UY	Sum UZ
Modal	36	0.107	0.0003	0.013	0	0.9264	0.9433	0
Modal	37	0.097	0.0299	0.0021	0	0.9563	0.9454	0
Modal	38	0.094	0.0014	0.0151	0	0.9576	0.9605	0
Modal	39	0.086	0.0074	0.0037	0	0.9651	0.9642	0
Modal	40	0.081	0.0001	0.0079	0	0.9652	0.9721	0
Modal	41	0.072	0.0099	4.769E-05	0	0.9751	0.9722	0
Modal	42	0.071	0.0002	0.0037	0	0.9752	0.9758	0
Modal	43	0.059	0.0049	3.783E-06	0	0.9801	0.9758	0
Modal	44	0.055	4.556E-05	0.0037	0	0.9802	0.9796	0
Modal	45	0.044	0.0009	0.0072	0	0.981	0.9868	0
Modal	46	0.042	0.0044	0.001	0	0.9854	0.9877	0
Modal	47	0.029	0.0066	0.0001	0	0.992	0.9878	0
Modal	48	0.027	0.0001	0.005	0	0.9921	0.9928	0
Modal	49	0.014	0.0007	0.0037	0	0.9928	0.9965	0
Modal	50	0.014	0.0036	0.0006	0	0.9963	0.9971	0

Table 1.2 - Modal Participating Mass Ratios (Part 2 of 2)

Case	Mode	RX	RY	RZ	Sum RX	Sum RY	Sum RZ
Modal	1	4.024E-05	0.3902	0.0312	4.024E-05	0.3902	0.0312
Modal	2	0.4133	8.284E-06	0.0014	0.4133	0.3902	0.0326
Modal	3	2.042E-06	0.0008	0.6614	0.4133	0.391	0.694
Modal	4	0.0002	0.001	0.023	0.4135	0.392	0.717
Modal	5	0.1491	1.89E-05	0.0002	0.5625	0.392	0.7172
Modal	6	0.0021	0.0267	0.0003	0.5646	0.4187	0.7175
Modal	7	0.0061	0.0439	0.008	0.5707	0.4626	0.7255
Modal	8	0.0006	0.0009	0.0004	0.5712	0.4635	0.7259
Modal	9	0.0011	0.0127	0.0015	0.5723	0.4762	0.7274
Modal	10	0.0037	0.0043	0.0028	0.576	0.4805	0.7302
Modal	11	0.0002	0.1129	0.013	0.5762	0.5934	0.7431
Modal	12	0.0001	0.0314	0.0019	0.5763	0.6248	0.7451
Modal	13	1.18E-06	0.001	0.0031	0.5763	0.6258	0.7482
Modal	14	0.001	0.0002	0.0002	0.5773	0.6261	0.7484
Modal	15	1.262E-05	0.0002	0.0009	0.5773	0.6262	0.7493
Modal	16	0.0738	0.0001	0.0004	0.6511	0.6263	0.7497
Modal	17	0.0055	0.0191	0.0217	0.6566	0.6454	0.7714
Modal	18	0.0003	0.0062	0.0094	0.6569	0.6516	0.7809
Modal	19	0.021	0.001	0.0005	0.6779	0.6526	0.7814
Modal	20	0.0052	0.0416	0.0539	0.683	0.6941	0.8353
Modal	21	0.0022	0.0014	0.0001	0.6852	0.6955	0.8354
Modal	22	0.0001	0.0509	0.0071	0.6854	0.7464	0.8425
Modal	23	0.0155	0.0038	0.0049	0.7008	0.7502	0.8475
Modal	24	0.0345	0.0043	0.0003	0.7353	0.7545	0.8478
Modal	25	0.0014	0.0027	0.0001	0.7367	0.7572	0.8479
Modal	26	3.345E-06	0.01	0.0053	0.7367	0.7673	0.8531
Modal	27	0.0095	6.872E-06	0.009	0.7463	0.7673	0.8621
Modal	28	0.0021	0.0129	0.0106	0.7484	0.7802	0.8727
Modal	29	0.0288	0.0025	0.0099	0.7772	0.7827	0.8826
Modal	30	0.0302	0.007	0.0055	0.8074	0.7896	0.888
Modal	31	0.0154	0.0261	0.0133	0.8227	0.8157	0.9013
Modal	32	0.0266	0.0307	0.004	0.8494	0.8465	0.9053

Case	Mode	RX	RY	RZ	Sum RX	Sum RY	Sum RZ
Modal	33	0.0212	0.0079	0.0035	0.8706	0.8544	0.9088
Modal	34	0.0013	0.003	0.0013	0.8718	0.8574	0.9101
Modal	35	2.198E-06	0.009	0.0135	0.8718	0.8664	0.9235
Modal	36	0.0185	0.0007	6.075E-07	0.8904	0.8671	0.9235
Modal	37	0.0016	0.0407	0.0211	0.892	0.9078	0.9446
Modal	38	0.0174	0.0008	0.0076	0.9093	0.9086	0.9522
Modal	39	0.0036	0.0108	0.0012	0.9129	0.9194	0.9534
Modal	40	0.0127	1.053E-06	0.0014	0.9256	0.9194	0.9548
Modal	41	0.0001	0.0107	0.002	0.9256	0.9301	0.9568
Modal	42	0.009	0.001	0.0006	0.9346	0.9312	0.9573
Modal	43	0.0001	0.008	0.0013	0.9347	0.9392	0.9586
Modal	44	0.0065	0.0001	3.523E-05	0.9413	0.9393	0.9586
Modal	45	0.0179	0.0022	0.0001	0.9592	0.9415	0.9587
Modal	46	0.0024	0.0126	0.0004	0.9616	0.954	0.9591
Modal	47	0.0002	0.0107	0.0044	0.9617	0.9647	0.9636
Modal	48	0.0104	0.0002	0.0003	0.9722	0.9649	0.9639
Modal	49	0.0085	0.0014	0.0001	0.9807	0.9663	0.964
Modal	50	0.0012	0.0101	1.272E-05	0.9819	0.9764	0.964

Table 1.3 - Modal Participation Factors

Case	Mode	Period sec	UX tonf-m	UY tonf-m	UZ tonf-m	RX tonf-m	RY tonf-m	RZ tonf-m	Modal Mass tonf-m-s²	Modal Stiffness tonf-m
Modal	1	0.526	8.911854	0.050168	0	-0.287534	28.312696	-26.060185	1	142.61166
Modal	2	0.484	-0.105593	8.919176	0	-29.137453	-0.130455	-5.595162	1	168.78648
Modal	3	0.42	-2.914579	-0.105938	0	-0.064765	1.262544	-120.010977	1	224.19449
Modal	4	0.303	0.563421	-0.16195	0	-0.596415	-1.453223	22.391717	1	429.14175
Modal	5	0.298	0.04824	4.170264	0	17.49896	-0.19703	-1.833024	1	444.96826
Modal	6	0.286	-1.580584	0.975015	0	2.069432	7.400824	-2.539577	1	483.89326
Modal	7	0.274	-2.175886	-1.302962	0	-3.529299	9.49592	-13.223183	1	527.46846
Modal	8	0.269	-0.311574	-0.914149	0	-1.071539	1.337058	-2.781841	1	546.91854
Modal	9	0.266	0.891927	0.238157	0	1.4788	-5.112506	5.793915	1	555.95107
Modal	10	0.265	0.100833	-0.715916	0	-2.769948	-2.978172	-7.745994	1	562.62673
Modal	11	0.263	-2.619326	-0.143336	0	-0.568982	15.22842	16.818467	1	572.57457
Modal	12	0.254	-1.386734	-0.133332	0	-0.390591	8.031274	6.488817	1	612.32669
Modal	13	0.242	-0.332426	0.033048	0	0.049233	1.45926	8.256673	1	672.41349
Modal	14	0.223	-0.125453	-0.127939	0	-1.417371	0.699376	2.043677	1	790.6159
Modal	15	0.222	-0.139827	-0.098307	0	-0.160993	0.594756	-4.540853	1	800.51736
Modal	16	0.215	-0.052308	-1.395097	0	-12.313038	0.352973	-2.870037	1	857.66054
Modal	17	0.208	1.24714	0.81793	0	3.37443	-6.266212	-21.748853	1	915.35062
Modal	18	0.202	0.764255	0.33812	0	0.761348	-3.563425	-14.329889	1	969.41774
Modal	19	0.196	-0.221826	0.540155	0	6.565818	1.430342	-3.450977	1	1023.97516
Modal	20	0.186	-2.045169	0.903832	0	3.259427	9.239305	34.266852	1	1141.91237
Modal	21	0.177	0.291883	0.592171	0	2.1241	-1.683987	-1.389151	1	1253.42593
Modal	22	0.172	-1.848108	-0.071503	0	-0.51655	10.22493	-12.435636	1	1338.57093
Modal	23	0.167	0.454514	-1.365952	0	-5.635435	-2.801643	10.367846	1	1414.03847
Modal	24	0.164	0.458645	-1.693772	0	-8.419241	-2.960815	2.502666	1	1475.23833
Modal	25	0.16	0.376172	0.304312	0	1.700128	-2.369548	1.539848	1	1539.0619
Modal	26	0.157	-0.608052	-0.044138	0	0.082892	4.543655	-10.6975	1	1607.67267
Modal	27	0.152	-0.130441	1.129312	0	4.423844	-0.118821	13.97415	1	1699.56087
Modal	28	0.148	-0.740906	-0.452849	0	-2.069445	5.154067	-15.170631	1	1802.0995

Case	Mode	Period sec	UX tonf-m	UY tonf-m	UZ tonf-m	RX tonf-m	RY tonf-m	RZ tonf-m	Modal Mass tonf-m-s²	Modal Stiffness tonf-m
Modal	29	0.143	-0.488486	1.777944	0	7.691011	2.246819	14.684059	1	1919.19156
Modal	30	0.136	0.258828	1.616375	0	7.878819	-3.786383	10.899077	1	2139.67122
Modal	31	0.133	-1.140919	1.250666	0	5.617868	7.320548	-17.008775	1	2233.73467
Modal	32	0.13	1.613242	1.534502	0	7.397556	-7.94417	9.336678	1	2319.90379
Modal	33	0.13	0.821065	-1.349325	0	-6.599764	-4.039434	8.715019	1	2346.81974
Modal	34	0.118	0.395539	-0.522862	0	-1.615592	-2.471636	5.301626	1	2824.2407
Modal	35	0.109	1.065153	0.122266	0	0.067192	-4.311126	-17.119401	1	3340.83724
Modal	36	0.107	-0.203563	1.314025	0	6.172593	1.185427	-0.115022	1	3429.00675
Modal	37	0.097	1.990718	-0.532303	0	-1.807173	-9.144024	-21.416208	1	4232.46104
Modal	38	0.094	-0.423233	-1.415986	0	-5.97078	1.279064	12.841766	1	4479.96315
Modal	39	0.086	0.992232	0.701157	0	2.700905	-4.715071	-5.096925	1	5372.88887
Modal	40	0.081	-0.122071	1.023291	0	5.1009	0.04652	5.512167	1	6070.63526
Modal	41	0.072	-1.145678	0.079539	0	0.336834	4.69116	6.641305	1	7538.58081
Modal	42	0.071	-0.148208	0.697268	0	4.304757	1.458219	3.503509	1	7940.37375
Modal	43	0.059	0.804314	-0.022401	0	-0.4699	-4.066477	-5.22811	1	11159.19991
Modal	44	0.055	0.07774	0.70303	0	3.665312	-0.441145	0.875959	1	13033.9153
Modal	45	0.044	0.336912	0.978384	0	6.069159	-2.106586	-1.255533	1	20807.8044
Modal	46	0.042	0.766491	-0.355144	0	-2.201692	-5.080406	3.072561	1	22221.16496
Modal	47	0.029	-0.935807	0.100911	0	0.618723	4.68028	9.842523	1	46308.70816
Modal	48	0.027	0.093278	0.811974	0	4.629837	-0.638878	-2.720142	1	55301.10595
Modal	49	0.014	0.296039	0.702349	0	4.182508	-1.677751	-1.463946	1	188912
Modal	50	0.014	-0.68699	0.279173	0	1.588764	4.555468	0.526385	1	208429

Table 1.4 - Modal Load Participation Ratios

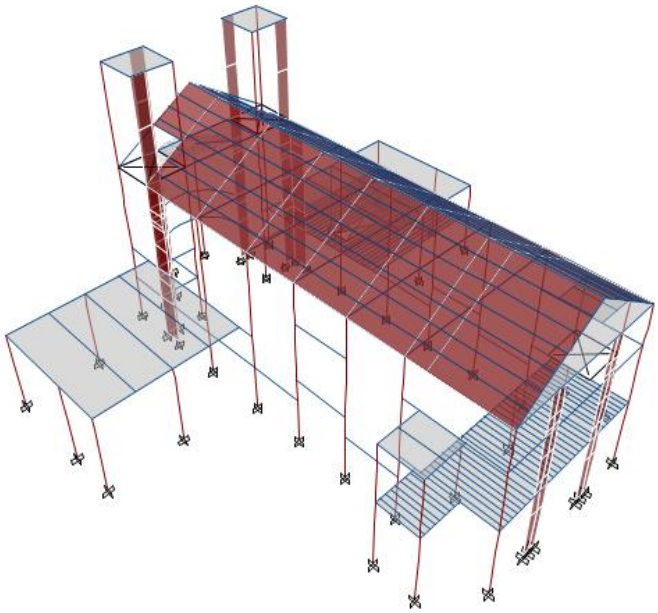
Case	Item Type	Item	Static %	Dynamic %
Modal	Acceleration	UX	100	99.63
Modal	Acceleration	UY	100	99.71
Modal	Acceleration	UZ	0	0

Table 1.5 - Modal Direction Factors

Case	Mode	Period sec	UX	UY	UZ	RZ
Modal	1	0.526	0.97	0	0	0.03
Modal	2	0.484	0	1	0	0
Modal	3	0.42	0.402	0	0	0.597
Modal	4	0.303	0.408	0.019	0	0.574
Modal	5	0.298	0	0.999	0	0.001
Modal	6	0.286	0.413	0.071	0	0.516
Modal	7	0.274	0.36	0.107	0	0.534
Modal	8	0.269	0.008	0.987	0	0.005
Modal	9	0.266	0.262	0.673	0	0.065
Modal	10	0.265	0.193	0.202	0	0.605
Modal	11	0.263	0.828	0.005	0	0.167
Modal	12	0.254	0.183	0.002	0	0.814
Modal	13	0.242	0.007	0	0	0.992
Modal	14	0.223	0.063	0.767	0	0.17

Case	Mode	Period sec	UX	UY	UZ	RZ
Modal	15	0.222	0.026	0.003	0	0.97
Modal	16	0.215	0.005	0.947	0	0.048
Modal	17	0.208	0.255	0.095	0	0.649
Modal	18	0.202	0.295	0.054	0	0.65
Modal	19	0.196	0.042	0.745	0	0.213
Modal	20	0.186	0.64	0.033	0	0.327
Modal	21	0.177	0.086	0.109	0	0.806
Modal	22	0.172	0.141	0.004	0	0.855
Modal	23	0.167	0.024	0.103	0	0.873
Modal	24	0.164	0.033	0.505	0	0.462
Modal	25	0.16	0.072	0.013	0	0.914
Modal	26	0.157	0.088	0.001	0	0.911
Modal	27	0.152	0.121	0.155	0	0.724
Modal	28	0.148	0.257	0.031	0	0.712
Modal	29	0.143	0.009	0.135	0	0.856
Modal	30	0.136	0.136	0.103	0	0.761
Modal	31	0.133	0.202	0.069	0	0.729
Modal	32	0.13	0.417	0.279	0	0.304
Modal	33	0.13	0.074	0.156	0	0.77
Modal	34	0.118	0.053	0.032	0	0.915
Modal	35	0.109	0.148	0.031	0	0.821
Modal	36	0.107	0.075	0.739	0	0.186
Modal	37	0.097	0.479	0.085	0	0.436
Modal	38	0.094	0.136	0.528	0	0.336
Modal	39	0.086	0.318	0.079	0	0.603
Modal	40	0.081	0.029	0.243	0	0.728
Modal	41	0.072	0.236	0.003	0	0.761
Modal	42	0.071	0.038	0.275	0	0.688
Modal	43	0.059	0.306	0.014	0	0.68
Modal	44	0.055	0.002	0.608	0	0.39
Modal	45	0.044	0.094	0.599	0	0.307
Modal	46	0.042	0.369	0.087	0	0.543
Modal	47	0.029	0.149	0.001	0	0.85
Modal	48	0.027	0.005	0.415	0	0.58
Modal	49	0.014	0.045	0.125	0	0.83
Modal	50	0.014	0.075	0.007	0	0.918

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DATOS DE ENTRADA 3

716-HSJD

Model File: GRUPO 2 - CAPILLA, Revision 0

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1 Analysis Results

This chapter provides analysis results.

1.1 Structure Results

Table 1.1 - Base Reactions

Load Case/Combo	FX tonf	FY tonf	FZ tonf	MX tonf-m	MY tonf-m	MZ tonf-m	X m	Y m	Z m
CV	0	0	102.6178	1032.5621	-1799.7317	0	0	0	0
CM	0	0	747.659	13700.5489	-12493.1986	6.088E-07	0	0	0
CIM1	0	0	850.2768	14733.1109	-14292.9303	0	0	0	0
CIM2 Max	379.789	6.7074	747.659	13726.6782	-9070.0894	7153.7858	0	0	0
CIM2 Min	-379.789	-6.7074	747.659	13674.4195	-15916.3077	-7153.7858	0	0	0
CIM3 Max	3.2836	189.8744	747.659	15446.3484	-12487.1925	3057.1407	0	0	0
CIM3 Min	-3.2836	-189.8744	747.659	11954.7494	-12499.2047	-3057.1407	0	0	0
CIM4 Max	284.8418	5.0306	824.6223	14494.5674	-11275.6655	5365.3393	0	0	0
CIM4 Min	-284.8418	-5.0306	824.6223	14455.3734	-16410.3292	-5365.3393	0	0	0
CIM5 Max	2.3881	138.0905	824.6223	15744.6428	-13838.6293	2223.3751	0	0	0
CIM5 Min	-2.3881	-138.0905	824.6223	13205.2981	-13847.3655	-2223.3751	0	0	0
CIM6 Max	379.789	6.7074	448.5954	8246.4587	-4072.81	7153.7858	0	0	0
CIM6 Min	-379.789	-6.7074	448.5954	8194.2	-10919.0283	-7153.7858	0	0	0
CIM7 Max	3.2836	189.8744	448.5954	9966.1288	-7489.913	3057.1407	0	0	0
CIM7 Min	-3.2836	-189.8744	448.5954	6474.5298	-7501.9253	-3057.1407	0	0	0

Table 1.2 - Centers of Mass and Rigidity

Story	Diaphragm	Mass X tonf-s²/m	Mass Y tonf-s²/m	XCM m	YCM m	Cumulative X tonf-s²/m	Cumulative Y tonf-s²/m	XCCM m	YCCM m	XCR m	YCR m
NE+3.17	D1	29.787	29.787	18.0248	20.5282	29.787	29.787	18.0248	20.5282		
NE+4.77	D2	21.49551	21.49551	15.9112	5.7809	21.49551	21.49551	15.9112	5.7809		
NE+5.60	D3	25.16536	25.16536	15.8489	25.8255	25.16536	25.16536	15.8489	25.8255		
NE+9.01	D4	7.61332	7.61332	15.9205	6.5452	7.61332	7.61332	15.9205	6.5452		
NE+11.82	D5	15.54279	15.54279	15.9097	23.0933	15.54279	15.54279	15.9097	23.0933		
NE+10.16	D5	0	0	14.448	32.5605	15.54279	15.54279	15.9097	23.0933		
NE+15.63	D6	3.17553	3.17553	15.9375	17.8798	3.17553	3.17553	15.9375	17.8798		
NE+19.03	D7	2.41954	2.41954	15.9161	28.6404	2.41954	2.41954	15.9161	28.6404		

1.2 Point Results

Table 1.3 - Joint Reactions

Story	Joint Label	Unique Name	Load Case/Combo	FX tonf	FY tonf	FZ tonf	MX tonf-m	MY tonf-m	MZ tonf-m
Base	1	1	CV	-0.0017	-0.0058	0.2748	0.0049	-0.0197	0.0003
Base	1	1	CM	0.0018	-0.0121	4.402	0.0221	-0.0354	0.0008
Base	1	1	CIM1	0.0001	-0.018	4.6768	0.027	-0.0551	0.0011
Base	1	1	CIM2 Max	1.7679	1.1024	7.652	2.4127	6.6847	0.0904
Base	1	1	CIM2 Min	-1.7644	-1.1266	1.1519	-2.3684	-6.7556	-0.0888
Base	1	1	CIM3 Max	0.0266	0.9403	5.368	3.1569	0.0386	0.0119
Base	1	1	CIM3 Min	-0.0231	-0.9646	3.4359	-3.1127	-0.1095	-0.0103
Base	1	1	CIM4 Max	1.3251	0.8194	7.0456	1.8187	4.9899	0.0682
Base	1	1	CIM4 Min	-1.3241	-0.8524	2.1705	-1.7671	-5.0903	-0.0662

Story	Joint Label	Unique Name	Load Case/Combo	FX tonf	FY tonf	FZ tonf	MX tonf-m	MY tonf-m	MZ tonf-m
Base	1	1	CIM5 Max	0.0185	0.6762	5.3107	2.3057	0.0037	0.0091
Base	1	1	CIM5 Min	-0.0176	-0.7092	3.9055	-2.2541	-0.104	-0.007
Base	1	1	CIM6 Max	1.7672	1.1072	5.8913	2.4039	6.6989	0.0901
Base	1	1	CIM6 Min	-1.7651	-1.1218	-0.6089	-2.3773	-6.7414	-0.0891
Base	1	1	CIM7 Max	0.0259	0.9452	3.6073	3.1481	0.0528	0.0116
Base	1	1	CIM7 Min	-0.0238	-0.9597	1.6751	-3.1215	-0.0953	-0.0106
Base	3	5	CV	0.0002	-0.0048	0.2382	0.0039	-0.0156	0.0003
Base	3	5	CM	0.0038	-0.0018	3.7856	0.0115	-0.0265	0.0008
Base	3	5	CIM1	0.004	-0.0066	4.0238	0.0153	-0.0421	0.0011
Base	3	5	CIM2 Max	2.3159	1.114	7.4932	2.4045	7.739	0.0904
Base	3	5	CIM2 Min	-2.3083	-1.1177	0.0779	-2.3816	-7.7921	-0.0888
Base	3	5	CIM3 Max	0.0401	0.9655	6.6529	3.162	0.052	0.0119
Base	3	5	CIM3 Min	-0.0326	-0.9691	0.9182	-3.1391	-0.1051	-0.0103
Base	3	5	CIM4 Max	1.738	0.8315	6.745	1.8091	5.786	0.0682
Base	3	5	CIM4 Min	-1.7302	-0.8423	1.1835	-1.7804	-5.8624	-0.0662
Base	3	5	CIM5 Max	0.0303	0.698	6.0496	2.3057	0.0189	0.0091
Base	3	5	CIM5 Min	-0.0225	-0.7089	1.8789	-2.277	-0.0953	-0.007
Base	3	5	CIM6 Max	2.3144	1.1148	5.979	2.3999	7.7496	0.0901
Base	3	5	CIM6 Min	-2.3098	-1.1169	-1.4363	-2.3862	-7.7815	-0.0891
Base	3	5	CIM7 Max	0.0386	0.9662	5.1387	3.1574	0.0626	0.0116
Base	3	5	CIM7 Min	-0.0341	-0.9684	-0.596	-3.1437	-0.0945	-0.0106
Base	7	13	CV	-0.0042	0.0033	0.0557	-0.007	-0.0227	0.0003
Base	7	13	CM	-0.0099	-0.0342	14.2544	0.0375	-0.0489	0.0008
Base	7	13	CIM1	-0.0141	-0.0309	14.3101	0.0305	-0.0717	0.0011
Base	7	13	CIM2 Max	1.5758	0.8108	47.8144	1.3758	6.3821	0.0904
Base	7	13	CIM2 Min	-1.5957	-0.8793	-19.3056	-1.3008	-6.48	-0.0888
Base	7	13	CIM3 Max	0.0247	2.5759	37.2675	4.8506	0.0538	0.0119
Base	7	13	CIM3 Min	-0.0445	-2.6444	-8.7588	-4.7756	-0.1517	-0.0103
Base	7	13	CIM4 Max	1.1762	0.602	39.4662	1.036	4.7573	0.0682
Base	7	13	CIM4 Min	-1.2024	-0.6655	-10.8738	-0.9714	-4.8893	-0.0662
Base	7	13	CIM5 Max	0.0121	1.8666	31.033	3.5327	0.0087	0.0091
Base	7	13	CIM5 Min	-0.0382	-1.9301	-2.4406	-3.4682	-0.1408	-0.007
Base	7	13	CIM6 Max	1.5798	0.8245	42.1127	1.3608	6.4017	0.0901
Base	7	13	CIM6 Min	-1.5917	-0.8656	-25.0074	-1.3158	-6.4604	-0.0891
Base	7	13	CIM7 Max	0.0287	2.5896	31.5658	4.8356	0.0734	0.0116
Base	7	13	CIM7 Min	-0.0406	-2.6307	-14.4605	-4.7906	-0.1321	-0.0106
Base	8	15	CV	-0.055	-0.0001	0.4945	-0.0016	-0.0088	-0.0002
Base	8	15	CM	-1.4431	0.0205	15.5194	-0.0186	-0.0392	-0.002
Base	8	15	CIM1	-1.4981	0.0204	16.0139	-0.0202	-0.048	-0.0022
Base	8	15	CIM2 Max	8.1943	0.6094	89.9085	0.3412	2.1484	0.0389
Base	8	15	CIM2 Min	-11.0805	-0.5684	-58.8698	-0.3784	-2.2268	-0.043
Base	8	15	CIM3 Max	-1.1168	1.7113	18.781	2.4573	-0.0046	0.286
Base	8	15	CIM3 Min	-1.7694	-1.6703	12.2577	-2.4945	-0.0738	-0.2901
Base	8	15	CIM4 Max	5.7437	0.4621	71.6821	0.25	1.5949	0.0285
Base	8	15	CIM4 Min	-8.7124	-0.4213	-39.9016	-0.2896	-1.6865	-0.0329
Base	8	15	CIM5 Max	-1.247	1.2501	18.2624	1.7808	-0.0206	0.2073
Base	8	15	CIM5 Min	-1.7217	-1.2093	13.5181	-1.8205	-0.0709	-0.2117
Base	8	15	CIM6 Max	8.7715	0.6012	83.7008	0.3487	2.1641	0.0397
Base	8	15	CIM6 Min	-10.5033	-0.5766	-65.0776	-0.3709	-2.2111	-0.0422

Story	Joint Label	Unique Name	Load Case/Combo	FX tonf	FY tonf	FZ tonf	MX tonf-m	MY tonf-m	MZ tonf-m
Base	8	15	CIM7 Max	-0.5396	1.7031	12.5733	2.4648	0.0111	0.2869
Base	8	15	CIM7 Min	-1.1922	-1.6785	6.0499	-2.487	-0.0581	-0.2893
Base	9	17	CV	-0.0057	0.0047	-0.0064	-0.0071	-0.0076	0.0008
Base	9	17	CM	1.3373	0.0299	14.7297	-0.0317	0.0048	0.0035
Base	9	17	CIM1	1.3316	0.0346	14.7233	-0.0388	-0.0028	0.0043
Base	9	17	CIM2 Max	11.0033	0.6531	89.4373	0.381	2.193	0.0507
Base	9	17	CIM2 Min	-8.3286	-0.5933	-59.978	-0.4445	-2.1835	-0.0437
Base	9	17	CIM3 Max	1.6311	1.7187	17.3786	2.4148	0.0431	0.2886
Base	9	17	CIM3 Min	1.0436	-1.6589	12.0807	-2.4783	-0.0335	-0.2816
Base	9	17	CIM4 Max	8.5825	0.5008	70.7556	0.2725	1.6403	0.0395
Base	9	17	CIM4 Min	-5.9164	-0.434	-41.3058	-0.3466	-1.6421	-0.0313
Base	9	17	CIM5 Max	1.5467	1.2616	16.6514	1.7422	0.0269	0.2114
Base	9	17	CIM5 Min	1.1194	-1.1948	12.7984	-1.8164	-0.0288	-0.2033
Base	9	17	CIM6 Max	10.4683	0.6411	83.5454	0.3937	2.1911	0.0493
Base	9	17	CIM6 Min	-8.8635	-0.6053	-65.8698	-0.4318	-2.1854	-0.0451
Base	9	17	CIM7 Max	1.0961	1.7067	11.4867	2.4275	0.0411	0.2872
Base	9	17	CIM7 Min	0.5087	-1.6709	6.1888	-2.4656	-0.0354	-0.283
Base	10	18	CV	-0.0072	0.0023	0.1402	-0.0087	-0.0259	0.0003
Base	10	18	CM	0.004	-0.0579	14.6055	0.0532	-0.0346	0.0008
Base	10	18	CIM1	-0.0032	-0.0556	14.7457	0.0446	-0.0605	0.0011
Base	10	18	CIM2 Max	1.8092	0.7187	47.9742	1.3118	6.6309	0.0904
Base	10	18	CIM2 Min	-1.8012	-0.8345	-18.7631	-1.2053	-6.7	-0.0888
Base	10	18	CIM3 Max	0.0425	2.5192	37.6415	4.7877	0.0747	0.0119
Base	10	18	CIM3 Min	-0.0345	-2.635	-8.4305	-4.6813	-0.1438	-0.0103
Base	10	18	CIM4 Max	1.3525	0.5262	39.7371	0.9906	4.9451	0.0682
Base	10	18	CIM4 Min	-1.3553	-0.6386	-10.3158	-0.8972	-5.0531	-0.0662
Base	10	18	CIM5 Max	0.0266	1.8181	31.4641	3.49	0.0255	0.0091
Base	10	18	CIM5 Min	-0.0294	-1.9305	-2.0428	-3.3966	-0.1334	-0.007
Base	10	18	CIM6 Max	1.8076	0.7418	42.132	1.2905	6.6447	0.0901
Base	10	18	CIM6 Min	-1.8028	-0.8113	-24.6053	-1.2266	-6.6862	-0.0891
Base	10	18	CIM7 Max	0.0409	2.5424	31.7993	4.7665	0.0885	0.0116
Base	10	18	CIM7 Min	-0.0361	-2.6119	-14.2727	-4.7026	-0.13	-0.0106
Base	13	25	CV	-0.2012	-0.3547	2.1748	0.3579	-0.226	0.0003
Base	13	25	CM	-0.5901	-1.0121	11.0599	1.0319	-0.6471	0.0008
Base	13	25	CIM1	-0.7913	-1.3667	13.2346	1.3898	-0.8731	0.0011
Base	13	25	CIM2 Max	2.5128	0.3041	17.1892	3.6467	7.4716	0.0904
Base	13	25	CIM2 Min	-3.6929	-2.3282	4.9305	-1.5829	-8.7659	-0.0888
Base	13	25	CIM3 Max	-0.5538	0.4328	12.9008	4.5579	-0.5574	0.0119
Base	13	25	CIM3 Min	-0.6263	-2.457	9.2189	-2.494	-0.7369	-0.0103
Base	13	25	CIM4 Max	1.5861	-0.291	17.288	3.2614	5.2724	0.0682
Base	13	25	CIM4 Min	-3.0681	-2.2652	8.0939	-0.6608	-6.9057	-0.0662
Base	13	25	CIM5 Max	-0.7146	-0.2272	14.0298	3.8647	-0.7514	0.0091
Base	13	25	CIM5 Min	-0.7674	-2.3289	11.3521	-1.264	-0.8819	-0.007
Base	13	25	CIM6 Max	2.7488	0.7089	12.7653	3.2339	7.7305	0.0901
Base	13	25	CIM6 Min	-3.4569	-1.9234	0.5066	-1.9956	-8.507	-0.0891
Base	13	25	CIM7 Max	-0.3178	0.8376	8.4769	4.1451	-0.2986	0.0116
Base	13	25	CIM7 Min	-0.3903	-2.0521	4.795	-2.9068	-0.478	-0.0106
Base	14	27	CV	-0.1968	0.2039	1.4528	-0.2194	-0.2192	0.0003
Base	14	27	CM	-0.5787	0.4642	8.0821	-0.494	-0.6285	0.0008

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Base	14	27	CIM1	-0.7755	0.6681	9.5349	-0.7135	-0.8477	0.0011
Base	14	27	CIM2 Max	3.1263	1.887	14.3795	2.2388	8.5866	0.0904
Base	14	27	CIM2 Min	-4.2836	-0.9585	1.7847	-3.2268	-9.8436	-0.0888
Base	14	27	CIM3 Max	-0.5341	2.1735	13.2535	3.3072	-0.5409	0.0119
Base	14	27	CIM3 Min	-0.6232	-1.245	2.9107	-4.2952	-0.7161	-0.0103
Base	14	27	CIM4 Max	2.0525	1.6842	13.8947	1.391	6.1184	0.0682
Base	14	27	CIM4 Min	-3.505	-0.4499	4.4487	-2.7082	-7.7043	-0.0662
Base	14	27	CIM5 Max	-0.6938	1.8602	12.9328	2.1059	-0.7292	0.0091
Base	14	27	CIM5 Min	-0.7587	-0.626	5.4107	-3.4231	-0.8566	-0.007
Base	14	27	CIM6 Max	3.3578	1.7013	11.1466	2.4364	8.838	0.0901
Base	14	27	CIM6 Min	-4.0521	-1.1442	-1.4481	-3.0292	-9.5922	-0.0891
Base	14	27	CIM7 Max	-0.3026	1.9878	10.0207	3.5048	-0.2895	0.0116
Base	14	27	CIM7 Min	-0.3918	-1.4307	-0.3222	-4.0976	-0.4647	-0.0106
Base	17	33	CV	-0.066	-0.062	0.1522	0.0057	-0.0351	-0.0037
Base	17	33	CM	1.3417	-1.7992	22.0337	0.1295	0.0272	-0.0104
Base	17	33	CIM1	1.2757	-1.8612	22.1859	0.1352	-0.0079	-0.0141
Base	17	33	CIM2 Max	23.2819	11.6796	124.4966	1.8455	10.4398	0.8555
Base	17	33	CIM2 Min	-20.5984	-15.278	-80.4293	-1.5864	-10.3854	-0.8763
Base	17	33	CIM3 Max	2.869	16.4156	124.3421	6.1353	0.1903	0.5736
Base	17	33	CIM3 Min	-0.1855	-20.014	-80.2747	-5.8762	-0.1359	-0.5944
Base	17	33	CIM4 Max	17.7474	8.2634	98.9951	1.4207	7.8103	0.6363
Base	17	33	CIM4 Min	-15.1629	-11.9548	-54.6993	-1.1532	-7.8086	-0.6626
Base	17	33	CIM5 Max	2.403	11.4014	96.554	4.5016	0.1195	0.4116
Base	17	33	CIM5 Min	0.1815	-15.0928	-52.2582	-4.234	-0.1177	-0.4379
Base	17	33	CIM6 Max	22.7452	12.3993	115.6832	1.7937	10.4289	0.8597
Base	17	33	CIM6 Min	-21.1351	-14.5583	-89.2427	-1.6382	-10.3963	-0.8721
Base	17	33	CIM7 Max	2.3323	17.1353	115.5286	6.0835	0.1794	0.5777
Base	17	33	CIM7 Min	-0.7222	-19.2943	-89.0882	-5.928	-0.1468	-0.5902
Base	18	35	CV	-0.0227	0.0037	0.5968	-0.0081	-0.0412	0.0003
Base	18	35	CM	-0.0377	0.0432	16.0734	-0.0447	-0.0755	0.0008
Base	18	35	CIM1	-0.0604	0.0469	16.6702	-0.0528	-0.1166	0.0011
Base	18	35	CIM2 Max	6.8599	0.7428	122.7629	0.8904	12.0189	0.0904
Base	18	35	CIM2 Min	-6.9353	-0.6564	-90.6161	-0.9798	-12.1698	-0.0888
Base	18	35	CIM3 Max	0.2895	2.1357	18.4328	4.2209	0.2934	0.0119
Base	18	35	CIM3 Min	-0.3649	-2.0493	13.714	-4.3104	-0.4443	-0.0103
Base	18	35	CIM4 Max	5.1185	0.5707	96.5381	0.6505	8.9644	0.0682
Base	18	35	CIM4 Min	-5.2279	-0.4787	-63.4961	-0.7521	-9.1771	-0.0662
Base	18	35	CIM5 Max	0.1833	1.5678	18.2369	3.0515	0.1619	0.0091
Base	18	35	CIM5 Min	-0.2927	-1.4758	14.8051	-3.1531	-0.3746	-0.007
Base	18	35	CIM6 Max	6.875	0.7256	116.3335	0.9082	12.049	0.0901
Base	18	35	CIM6 Min	-6.9202	-0.6737	-97.0455	-0.9619	-12.1396	-0.0891
Base	18	35	CIM7 Max	0.3046	2.1184	12.0034	4.2388	0.3236	0.0116
Base	18	35	CIM7 Min	-0.3499	-2.0666	7.2846	-4.2925	-0.4141	-0.0106
Base	19	37	CV	-0.0249	0.0008	0.1037	-0.0064	-0.0435	0.0003
Base	19	37	CM	-0.0667	0.0406	14.4643	-0.0465	-0.1055	0.0008
Base	19	37	CIM1	-0.0917	0.0414	14.5679	-0.0529	-0.149	0.0011
Base	19	37	CIM2 Max	6.8461	0.7013	123.5762	0.8296	12.0045	0.0904
Base	19	37	CIM2 Min	-6.9795	-0.6201	-94.6477	-0.9226	-12.2155	-0.0888
Base	19	37	CIM3 Max	0.2038	2.127	17.3262	4.1903	0.164	0.0119

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Base	19	37	CIM3 Min	-0.3373	-2.0458	11.6023	-4.2833	-0.375	-0.0103
Base	19	37	CIM4 Max	5.0992	0.5367	96.376	0.6058	8.9444	0.0682
Base	19	37	CIM4 Min	-5.27	-0.4543	-67.292	-0.7084	-9.2206	-0.0662
Base	19	37	CIM5 Max	0.1113	1.5586	16.6234	3.03	0.0579	0.0091
Base	19	37	CIM5 Min	-0.2822	-1.4762	12.4606	-3.1326	-0.3341	-0.007
Base	19	37	CIM6 Max	6.8728	0.6851	117.7905	0.8482	12.0467	0.0901
Base	19	37	CIM6 Min	-6.9528	-0.6363	-100.4334	-0.904	-12.1733	-0.0891
Base	19	37	CIM7 Max	0.2305	2.1108	11.5405	4.2089	0.2062	0.0116
Base	19	37	CIM7 Min	-0.3106	-2.062	5.8166	-4.2647	-0.3328	-0.0106
Base	20	39	CV	-0.1083	-0.1519	1.2736	0.0145	-0.0259	-0.0028
Base	20	39	CM	-1.6248	-2.0431	24.1161	0.1617	-0.1404	-0.0016
Base	20	39	CIM1	-1.7331	-2.1951	25.3898	0.1762	-0.1663	-0.0044
Base	20	39	CIM2 Max	20.2617	11.8485	126.6463	1.8829	10.3482	0.8666
Base	20	39	CIM2 Min	-23.5112	-15.9347	-78.4141	-1.5595	-10.6291	-0.8698
Base	20	39	CIM3 Max	0.4001	16.3381	125.3894	6.1471	0.063	0.5724
Base	20	39	CIM3 Min	-3.6496	-20.4244	-77.1572	-5.8238	-0.3439	-0.5756
Base	20	39	CIM4 Max	14.7088	8.2616	101.969	1.4634	7.7066	0.6475
Base	20	39	CIM4 Min	-18.1208	-12.5758	-51.8263	-1.1184	-8.0263	-0.6548
Base	20	39	CIM5 Max	-0.2334	11.2111	98.7247	4.5256	-0.0119	0.4138
Base	20	39	CIM5 Min	-3.1786	-15.5253	-48.582	-4.1805	-0.3078	-0.4211
Base	20	39	CIM6 Max	20.9116	12.6657	116.9999	1.8182	10.4044	0.8673
Base	20	39	CIM6 Min	-22.8613	-15.1175	-88.0605	-1.6242	-10.5729	-0.8691
Base	20	39	CIM7 Max	1.05	17.1554	115.743	6.0825	0.1192	0.573
Base	20	39	CIM7 Min	-2.9997	-19.6071	-86.8036	-5.8884	-0.2878	-0.5749
Base	23	49	CV	-0.0238	-0.0518	4.4055	0.0443	-0.0518	0.0006
Base	23	49	CM	-0.031	-0.1432	21.9281	0.1512	-0.0713	0.002
Base	23	49	CIM1	-0.0548	-0.1951	26.3336	0.1955	-0.1231	0.0027
Base	23	49	CIM2 Max	7.1911	0.6731	67.3952	2.1158	23.1871	0.2207
Base	23	49	CIM2 Min	-7.2531	-0.9596	-23.5391	-1.8133	-23.3297	-0.2167
Base	23	49	CIM3 Max	0.2957	1.8413	30.367	7.3049	0.7861	0.0291
Base	23	49	CIM3 Min	-0.3576	-2.1278	13.4891	-7.0024	-0.9287	-0.025
Base	23	49	CIM4 Max	5.3678	0.4302	59.3326	1.6579	17.3336	0.1666
Base	23	49	CIM4 Min	-5.4654	-0.7944	-8.8682	-1.289	-17.5539	-0.1615
Base	23	49	CIM5 Max	0.1887	1.2612	31.3696	5.3871	0.5134	0.0222
Base	23	49	CIM5 Min	-0.2864	-1.6254	19.0948	-5.0182	-0.7337	-0.0172
Base	23	49	CIM6 Max	7.2035	0.7304	58.624	2.0553	23.2156	0.2199
Base	23	49	CIM6 Min	-7.2407	-0.9023	-32.3103	-1.8738	-23.3012	-0.2175
Base	23	49	CIM7 Max	0.3081	1.8986	21.5958	7.2444	0.8146	0.0283
Base	23	49	CIM7 Min	-0.3452	-2.0705	4.7179	-7.0629	-0.9001	-0.0259
Base	25	51	CV	0.0419	-0.0209	3.9902	0.006	0.0153	0.0006
Base	25	51	CM	0.025	-0.1307	21.9263	0.1171	-0.0142	0.002
Base	25	51	CIM1	0.0669	-0.1516	25.9165	0.123	0.001	0.0027
Base	25	51	CIM2 Max	7.2456	0.6729	67.7494	2.0404	23.2426	0.2207
Base	25	51	CIM2 Min	-7.1957	-0.9342	-23.8969	-1.8062	-23.2711	-0.2167
Base	25	51	CIM3 Max	0.3528	1.8772	31.3054	7.179	0.848	0.0291
Base	25	51	CIM3 Min	-0.3028	-2.1386	12.5472	-6.9449	-0.8765	-0.025
Base	25	51	CIM4 Max	5.4719	0.4563	59.2862	1.564	17.4399	0.1666
Base	25	51	CIM4 Min	-5.3591	-0.749	-9.4484	-1.3209	-17.4454	-0.1615
Base	25	51	CIM5 Max	0.2948	1.3139	31.7401	5.2575	0.6243	0.0222

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Base	25	51	CIM5 Min	-0.182	-1.6067	18.0977	-5.0144	-0.6299	-0.0172
Base	25	51	CIM6 Max	7.2356	0.7252	58.9789	1.9936	23.2483	0.2199
Base	25	51	CIM6 Min	-7.2057	-0.882	-32.6674	-1.8531	-23.2654	-0.2175
Base	25	51	CIM7 Max	0.3428	1.9295	22.5349	7.1322	0.8537	0.0283
Base	25	51	CIM7 Min	-0.3128	-2.0863	3.7767	-6.9917	-0.8708	-0.0259
Base	26	53	CV	-0.0275	-0.0016	1.4464	-0.0012	-0.041	0.0003
Base	26	53	CM	-0.0628	0.0193	7.8904	-0.0157	-0.0851	0.0008
Base	26	53	CIM1	-0.0904	0.0177	9.3368	-0.0169	-0.1261	0.0011
Base	26	53	CIM2 Max	2.5155	0.6364	18.5526	1.2914	8.7525	0.0904
Base	26	53	CIM2 Min	-2.6412	-0.5978	-2.7717	-1.3228	-8.9228	-0.0888
Base	26	53	CIM3 Max	0.0582	0.6408	17.1091	2.7239	0.2106	0.0119
Base	26	53	CIM3 Min	-0.1839	-0.6022	-1.3282	-2.7553	-0.3808	-0.0103
Base	26	53	CIM4 Max	1.8503	0.4809	16.9719	0.9637	6.5124	0.0682
Base	26	53	CIM4 Min	-2.0173	-0.4447	0.9786	-0.9969	-6.7441	-0.0662
Base	26	53	CIM5 Max	0.0045	0.4701	15.6797	1.9758	0.0992	0.0091
Base	26	53	CIM5 Min	-0.1715	-0.4339	2.2708	-2.009	-0.3309	-0.007
Base	26	53	CIM6 Max	2.5407	0.6286	15.3965	1.2977	8.7866	0.0901
Base	26	53	CIM6 Min	-2.6161	-0.6055	-5.9279	-1.3165	-8.8887	-0.0891
Base	26	53	CIM7 Max	0.0834	0.6331	13.9529	2.7302	0.2446	0.0116
Base	26	53	CIM7 Min	-0.1587	-0.6099	-4.4844	-2.749	-0.3468	-0.0106
Base	28	57	CV	0.0126	-0.0001	0.2409	-0.0069	0.0005	0.0003
Base	28	57	CM	0.0548	0.0209	7.6125	-0.0305	0.0365	0.0008
Base	28	57	CIM1	0.0675	0.0208	7.8535	-0.0374	0.037	0.0011
Base	28	57	CIM2 Max	2.6336	0.6311	18.1265	1.2574	8.8745	0.0904
Base	28	57	CIM2 Min	-2.5239	-0.5892	-2.9015	-1.3183	-8.8015	-0.0888
Base	28	57	CIM3 Max	0.1742	0.6684	16.3811	2.6615	0.3069	0.0119
Base	28	57	CIM3 Min	-0.0645	-0.6266	-1.1561	-2.7224	-0.2339	-0.0103
Base	28	57	CIM4 Max	1.9983	0.4785	15.6787	0.9302	6.6654	0.0682
Base	28	57	CIM4 Min	-1.8697	-0.4367	-0.0923	-1.0015	-6.5916	-0.0662
Base	28	57	CIM5 Max	0.1511	0.4918	14.1704	1.9222	0.2335	0.0091
Base	28	57	CIM5 Min	-0.0225	-0.4501	1.4161	-1.9934	-0.1597	-0.007
Base	28	57	CIM6 Max	2.6116	0.6227	15.0815	1.2695	8.8599	0.0901
Base	28	57	CIM6 Min	-2.5458	-0.5976	-5.9465	-1.3061	-8.8161	-0.0891
Base	28	57	CIM7 Max	0.1522	0.6601	13.3361	2.6737	0.2923	0.0116
Base	28	57	CIM7 Min	-0.0864	-0.6349	-4.2011	-2.7102	-0.2485	-0.0106
Base	36	84	CV	-0.0179	-0.007	0.145	0.0027	-0.0375	0.0003
Base	36	84	CM	-0.0417	-0.0488	15.7711	0.0492	-0.0836	0.0008
Base	36	84	CIM1	-0.0595	-0.0558	15.9161	0.0519	-0.1211	0.0011
Base	36	84	CIM2 Max	4.9396	1.5716	23.7238	1.6472	9.7777	0.0904
Base	36	84	CIM2 Min	-5.023	-1.6692	7.8183	-1.5488	-9.945	-0.0888
Base	36	84	CIM3 Max	0.4691	1.4922	27.082	3.7366	0.5088	0.0119
Base	36	84	CIM3 Min	-0.5525	-1.5897	4.4601	-3.6382	-0.6761	-0.0103
Base	36	84	CIM4 Max	3.6809	1.1613	21.8444	1.2497	7.2843	0.0682
Base	36	84	CIM4 Min	-3.791	-1.2694	9.9153	-1.1472	-7.5077	-0.0662
Base	36	84	CIM5 Max	0.3164	1.0667	24.106	2.733	0.3191	0.0091
Base	36	84	CIM5 Min	-0.4266	-1.1747	7.6537	-2.6306	-0.5426	-0.007
Base	36	84	CIM6 Max	4.9563	1.5912	17.4153	1.6275	9.8112	0.0901
Base	36	84	CIM6 Min	-5.0063	-1.6497	1.5099	-1.5684	-9.9115	-0.0891
Base	36	84	CIM7 Max	0.4858	1.5117	20.7736	3.717	0.5423	0.0116

Story	Joint Label	Unique Name	Load Case/Combo	FX tonf	FY tonf	FZ tonf	MX tonf-m	MY tonf-m	MZ tonf-m
Base	36	84	CIM7 Min	-0.5359	-1.5702	-1.8483	-3.6579	-0.6426	-0.0106
Base	43	120	CV	-0.0211	0.0078	0.1871	-0.0133	-0.0408	0.0003
Base	43	120	CM	-0.0412	-0.0187	15.8515	0.0159	-0.0831	0.0008
Base	43	120	CIM1	-0.0623	-0.0109	16.0385	0.0026	-0.1239	0.0011
Base	43	120	CIM2 Max	4.9471	1.6346	23.6424	1.6877	9.7855	0.0904
Base	43	120	CIM2 Min	-5.0295	-1.6719	8.0605	-1.6559	-9.9518	-0.0888
Base	43	120	CIM3 Max	0.3905	1.4847	27.2816	3.6527	0.3529	0.0119
Base	43	120	CIM3 Min	-0.4729	-1.522	4.4213	-3.6208	-0.5192	-0.0103
Base	43	120	CIM4 Max	3.6843	1.2271	21.835	1.2598	7.2878	0.0682
Base	43	120	CIM4 Min	-3.7982	-1.2528	10.1485	-1.2479	-7.5152	-0.0662
Base	43	120	CIM5 Max	0.257	1.0805	24.3046	2.6508	0.2034	0.0091
Base	43	120	CIM5 Min	-0.371	-1.1062	7.6789	-2.639	-0.4308	-0.007
Base	43	120	CIM6 Max	4.9636	1.642	17.3018	1.6813	9.8188	0.0901
Base	43	120	CIM6 Min	-5.0131	-1.6644	1.7199	-1.6622	-9.9185	-0.0891
Base	43	120	CIM7 Max	0.407	1.4921	20.941	3.6463	0.3862	0.0116
Base	43	120	CIM7 Min	-0.4564	-1.5145	-1.9193	-3.6272	-0.4859	-0.0106
Base	24	61	CV	0.0016	0.0483	4.3538	-0.0578	-0.0296	0.0006
Base	24	61	CM	-0.0113	0.4379	27.8199	-0.4416	-0.0628	0.002
Base	24	61	CIM1	-0.0097	0.4862	32.1738	-0.4994	-0.0923	0.0027
Base	24	61	CIM2 Max	7.1952	1.7563	38.5439	2.0457	22.2172	0.2207
Base	24	61	CIM2 Min	-7.2178	-0.8805	17.0959	-2.9288	-22.3428	-0.2167
Base	24	61	CIM3 Max	0.2482	4.1498	28.8195	8.5015	0.5903	0.0291
Base	24	61	CIM3 Min	-0.2708	-3.274	26.8204	-9.3846	-0.7159	-0.025
Base	24	61	CIM4 Max	5.3948	1.4629	39.1283	1.3805	16.625	0.1666
Base	24	61	CIM4 Min	-5.415	-0.5147	23.0423	-2.3503	-16.7949	-0.1615
Base	24	61	CIM5 Max	0.1786	3.1737	31.8122	6.0191	0.39	0.0222
Base	24	61	CIM5 Min	-0.1988	-2.2255	30.3583	-6.9889	-0.56	-0.0172
Base	24	61	CIM6 Max	7.1998	1.5811	27.4159	2.2223	22.2423	0.2199
Base	24	61	CIM6 Min	-7.2133	-1.0556	5.968	-2.7522	-22.3177	-0.2175
Base	24	61	CIM7 Max	0.2527	3.9746	17.6915	8.6781	0.6155	0.0283
Base	24	61	CIM7 Min	-0.2662	-3.4492	15.6924	-9.208	-0.6908	-0.0259
Base	31	63	CV	0.0002	-0.0147	1.3487	0.0064	-0.0332	0.0006
Base	31	63	CM	-0.0096	-0.3996	20.716	0.4127	-0.068	0.002
Base	31	63	CIM1	-0.0093	-0.4143	22.0648	0.4192	-0.1012	0.0027
Base	31	63	CIM2 Max	6.6862	0.7808	23.1371	2.7658	21.1226	0.2207
Base	31	63	CIM2 Min	-6.7053	-1.58	18.2949	-1.9404	-21.2586	-0.2167
Base	31	63	CIM3 Max	0.1958	3.2292	27.3572	9.27	0.4406	0.0291
Base	31	63	CIM3 Min	-0.215	-4.0283	14.0748	-8.4446	-0.5766	-0.025
Base	31	63	CIM4 Max	5.0124	0.4747	23.5434	2.1823	15.8001	0.1666
Base	31	63	CIM4 Min	-5.0312	-1.2959	19.9117	-1.3473	-15.9859	-0.1615
Base	31	63	CIM5 Max	0.14	2.2285	26.5575	6.8592	0.277	0.0222
Base	31	63	CIM5 Min	-0.1588	-3.0497	16.8976	-6.0241	-0.4628	-0.0172
Base	31	63	CIM6 Max	6.69	0.9406	14.8507	2.6007	21.1498	0.2199
Base	31	63	CIM6 Min	-6.7015	-1.4202	10.0085	-2.1054	-21.2314	-0.2175
Base	31	63	CIM7 Max	0.1997	3.389	19.0708	9.1049	0.4678	0.0283
Base	31	63	CIM7 Min	-0.2111	-3.8685	5.7884	-8.6097	-0.5494	-0.0259
Base	35	65	CV	-0.0017	-0.0025	1.3231	-0.0061	-0.0374	0.0006
Base	35	65	CM	-0.0115	0.343	20.8251	-0.3447	-0.077	0.002
Base	35	65	CIM1	-0.0132	0.3405	22.1482	-0.3508	-0.1144	0.0027

Story	Joint Label	Unique Name	Load Case/Combo	FX tonf	FY tonf	FZ tonf	MX tonf-m	MY tonf-m	MZ tonf-m
Base	35	65	CIM2 Max	6.0923	1.5484	22.5739	2.0306	19.952	0.2207
Base	35	65	CIM2 Min	-6.1153	-0.8624	19.0763	-2.7201	-20.106	-0.2167
Base	35	65	CIM3 Max	0.1429	3.8915	27.9733	8.43	0.2916	0.0291
Base	35	65	CIM3 Min	-0.1659	-3.2055	13.6769	-9.1194	-0.4456	-0.025
Base	35	65	CIM4 Max	4.5651	1.2452	23.129	1.4323	14.9167	0.1666
Base	35	65	CIM4 Min	-4.5906	-0.5629	20.5058	-2.1308	-15.1268	-0.1615
Base	35	65	CIM5 Max	0.0995	2.9219	27.0162	6.0323	0.1631	0.0222
Base	35	65	CIM5 Min	-0.1251	-2.2396	16.6187	-6.7309	-0.3731	-0.0172
Base	35	65	CIM6 Max	6.0969	1.4112	14.2439	2.1685	19.9828	0.2199
Base	35	65	CIM6 Min	-6.1107	-0.9996	10.7462	-2.5822	-20.0752	-0.2175
Base	35	65	CIM7 Max	0.1475	3.7543	19.6433	8.5678	0.3224	0.0283
Base	35	65	CIM7 Min	-0.1613	-3.3427	5.3468	-8.9815	-0.4148	-0.0259
Base	42	79	CV	-0.0039	0.0029	1.6202	-0.0116	-0.0418	0.0006
Base	42	79	CM	-0.0145	-0.0892	23.3519	0.0961	-0.0869	0.002
Base	42	79	CIM1	-0.0184	-0.0862	24.9722	0.0845	-0.1288	0.0027
Base	42	79	CIM2 Max	5.5218	1.2941	25.8939	2.6656	18.8366	0.2207
Base	42	79	CIM2 Min	-5.5509	-1.4724	20.81	-2.4734	-19.0105	-0.2167
Base	42	79	CIM3 Max	0.0885	4.842	24.0558	10.2884	0.144	0.0291
Base	42	79	CIM3 Min	-0.1176	-5.0204	22.6481	-10.0963	-0.3179	-0.025
Base	42	79	CIM4 Max	4.1348	0.9505	26.4736	2.0145	14.0744	0.1666
Base	42	79	CIM4 Min	-4.1697	-1.1244	22.6606	-1.8397	-14.311	-0.1615
Base	42	79	CIM5 Max	0.0575	3.4993	25.079	7.5	0.0497	0.0222
Base	42	79	CIM5 Min	-0.0924	-3.6733	24.0552	-7.3252	-0.2863	-0.0172
Base	42	79	CIM6 Max	5.5277	1.3297	16.5531	2.6271	18.8714	0.2199
Base	42	79	CIM6 Min	-5.5451	-1.4368	11.4692	-2.5118	-18.9757	-0.2175
Base	42	79	CIM7 Max	0.0943	4.8777	14.715	10.25	0.1788	0.0283
Base	42	79	CIM7 Min	-0.1118	-4.9847	13.3073	-10.1347	-0.2831	-0.0259
Base	48	113	CV	0.0043	0.033	3.3795	-0.049	-0.0268	0.0006
Base	48	113	CM	-0.0066	0.4451	27.6016	-0.4703	-0.0581	0.002
Base	48	113	CIM1	-0.0023	0.4781	30.9811	-0.5193	-0.0848	0.0027
Base	48	113	CIM2 Max	7.1996	1.73	38.2363	1.953	22.2217	0.2207
Base	48	113	CIM2 Min	-7.2129	-0.8397	16.9668	-2.8935	-22.3378	-0.2167
Base	48	113	CIM3 Max	0.2516	4.119	28.4226	8.3237	0.5905	0.0291
Base	48	113	CIM3 Min	-0.2649	-3.2287	26.7805	-9.2642	-0.7066	-0.025
Base	48	113	CIM4 Max	5.4013	1.4335	38.1123	1.3104	16.6317	0.1666
Base	48	113	CIM4 Min	-5.4081	-0.4938	22.1601	-2.3245	-16.7879	-0.1615
Base	48	113	CIM5 Max	0.1844	3.1418	30.7333	5.8886	0.3935	0.0222
Base	48	113	CIM5 Min	-0.1912	-2.202	29.5391	-6.9027	-0.5498	-0.0172
Base	48	113	CIM6 Max	7.2023	1.5519	27.1957	2.1411	22.2449	0.2199
Base	48	113	CIM6 Min	-7.2102	-1.0178	5.9262	-2.7054	-22.3145	-0.2175
Base	48	113	CIM7 Max	0.2542	3.9409	17.382	8.5118	0.6137	0.0283
Base	48	113	CIM7 Min	-0.2622	-3.4068	15.7399	-9.0761	-0.6834	-0.0259
Base	50	115	CV	0.0003	-0.0028	1.3189	-0.0125	-0.0331	0.0006
Base	50	115	CM	-0.0138	-0.3853	20.7271	0.3768	-0.0723	0.002
Base	50	115	CIM1	-0.0136	-0.3881	22.046	0.3643	-0.1055	0.0027
Base	50	115	CIM2 Max	6.6819	0.7686	23.2309	2.6742	21.1183	0.2207
Base	50	115	CIM2 Min	-6.7096	-1.5393	18.2233	-1.9206	-21.263	-0.2167
Base	50	115	CIM3 Max	0.1916	3.2102	27.3165	9.0897	0.4362	0.0291
Base	50	115	CIM3 Min	-0.2192	-3.9808	14.1377	-8.3361	-0.5809	-0.025

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Base	50	115	CIM4 Max	5.0082	0.478	23.5941	2.0905	15.7958	0.1666
Base	50	115	CIM4 Min	-5.0354	-1.2529	19.8384	-1.3556	-15.9902	-0.1615
Base	50	115	CIM5 Max	0.1357	2.2275	26.5085	6.7041	0.2727	0.0222
Base	50	115	CIM5 Min	-0.163	-3.0023	16.924	-5.9692	-0.4671	-0.0172
Base	50	115	CIM6 Max	6.6875	0.9228	14.9401	2.5235	21.1472	0.2199
Base	50	115	CIM6 Min	-6.704	-1.3852	9.9325	-2.0713	-21.234	-0.2175
Base	50	115	CIM7 Max	0.1971	3.3643	19.0257	8.939	0.4652	0.0283
Base	50	115	CIM7 Min	-0.2137	-3.8267	5.8469	-8.4868	-0.552	-0.0259
Base	51	123	CV	-0.0017	-0.0006	1.3008	-0.0147	-0.0374	0.0006
Base	51	123	CM	-0.0156	0.3415	20.7592	-0.3646	-0.0812	0.002
Base	51	123	CIM1	-0.0173	0.3409	22.06	-0.3793	-0.1186	0.0027
Base	51	123	CIM2 Max	6.0918	1.5118	22.5122	1.9466	19.9516	0.2207
Base	51	123	CIM2 Min	-6.123	-0.8287	19.0061	-2.6758	-20.1139	-0.2167
Base	51	123	CIM3 Max	0.1388	3.8598	27.8776	8.2686	0.2875	0.0291
Base	51	123	CIM3 Min	-0.17	-3.1767	13.6407	-8.9978	-0.4498	-0.025
Base	51	123	CIM4 Max	4.5636	1.2188	23.0496	1.3577	14.9153	0.1666
Base	51	123	CIM4 Min	-4.5975	-0.5366	20.42	-2.109	-15.1338	-0.1615
Base	51	123	CIM5 Max	0.0954	2.8998	26.9118	5.9031	0.1588	0.0222
Base	51	123	CIM5 Min	-0.1292	-2.2177	16.5577	-6.6544	-0.3773	-0.0172
Base	51	123	CIM6 Max	6.098	1.3752	14.2086	2.0924	19.984	0.2199
Base	51	123	CIM6 Min	-6.1168	-0.9653	10.7024	-2.5299	-20.0814	-0.2175
Base	51	123	CIM7 Max	0.1451	3.7232	19.5739	8.4145	0.3199	0.0283
Base	51	123	CIM7 Min	-0.1638	-3.3133	5.3371	-8.852	-0.4173	-0.0259
Base	52	131	CV	-0.0108	0.0964	2.1963	-0.1137	-0.0489	0.0006
Base	52	131	CM	0.0028	0.1533	25.1685	-0.1725	-0.0692	0.002
Base	52	131	CIM1	-0.008	0.2497	27.3648	-0.2863	-0.1181	0.0027
Base	52	131	CIM2 Max	5.968	1.6216	26.7405	2.4465	19.2974	0.2207
Base	52	131	CIM2 Min	-5.9623	-1.3151	23.5965	-2.7916	-19.4359	-0.2167
Base	52	131	CIM3 Max	0.1079	5.0049	26.0168	9.8297	0.1626	0.0291
Base	52	131	CIM3 Min	-0.1022	-4.6984	24.3202	-10.1747	-0.3011	-0.025
Base	52	131	CIM4 Max	4.4686	1.3269	27.9947	1.7064	14.4191	0.1666
Base	52	131	CIM4 Min	-4.4792	-0.8757	25.6367	-2.2221	-14.6309	-0.1615
Base	52	131	CIM5 Max	0.0711	3.7541	27.4327	7.0165	0.0627	0.0222
Base	52	131	CIM5 Min	-0.0817	-3.3029	26.1988	-7.5322	-0.2745	-0.0172
Base	52	131	CIM6 Max	5.9669	1.5603	16.6731	2.5155	19.3251	0.2199
Base	52	131	CIM6 Min	-5.9635	-1.3764	13.5291	-2.7226	-19.4082	-0.2175
Base	52	131	CIM7 Max	0.1068	4.9436	15.9494	9.8987	0.1903	0.0283
Base	52	131	CIM7 Min	-0.1034	-4.7597	14.2528	-10.1057	-0.2734	-0.0259
Base	105	366	CV	-0.0049	-0.0049	0.1632	0.0039	-0.0216	0.0003
Base	105	366	CM	-0.0155	-0.0014	4.0212	0.011	-0.0489	0.0008
Base	105	366	CIM1	-0.0204	-0.0063	4.1844	0.0149	-0.0705	0.0011
Base	105	366	CIM2 Max	2.0247	1.1162	4.6933	2.4043	7.2463	0.0904
Base	105	366	CIM2 Min	-2.0558	-1.119	3.3491	-2.3824	-7.344	-0.0888
Base	105	366	CIM3 Max	0.0068	0.9484	5.8876	3.1426	-0.0106	0.0119
Base	105	366	CIM3 Min	-0.0379	-0.9511	2.1548	-3.1206	-0.0872	-0.0103
Base	105	366	CIM4 Max	1.511	0.8332	4.6477	1.809	5.4063	0.0682
Base	105	366	CIM4 Min	-1.5494	-0.8432	3.6395	-1.7811	-5.5364	-0.0662
Base	105	366	CIM5 Max	-0.0029	0.6857	5.501	2.2915	-0.0372	0.0091
Base	105	366	CIM5 Min	-0.0354	-0.6958	2.7862	-2.2636	-0.0929	-0.007

Story	Joint Label	Unique Name	Load Case/Combo	FX tonf	FY tonf	FZ tonf	MX tonf-m	MY tonf-m	MZ tonf-m
Base	105	366	CIM6 Max	2.0309	1.1168	3.0848	2.3999	7.2658	0.0901
Base	105	366	CIM6 Min	-2.0495	-1.1184	1.7406	-2.3867	-7.3245	-0.0891
Base	105	366	CIM7 Max	0.013	0.9489	4.2792	3.1382	0.009	0.0116
Base	105	366	CIM7 Min	-0.0317	-0.9506	0.5463	-3.125	-0.0676	-0.0106
Base	108	372	CV	-0.0178	0.1121	2.3243	-0.1246	-0.0349	0.0003
Base	108	372	CM	-0.0446	0.4511	11.4621	-0.4805	-0.079	0.0008
Base	108	372	CIM1	-0.0624	0.5632	13.7864	-0.605	-0.1139	0.0011
Base	108	372	CIM2 Max	2.074	2.0311	12.848	2.4208	7.2998	0.0904
Base	108	372	CIM2 Min	-2.1633	-1.1289	10.0762	-3.3818	-7.4577	-0.0888
Base	108	372	CIM3 Max	-0.0222	2.5098	14.7979	3.6833	-0.0406	0.0119
Base	108	372	CIM3 Min	-0.067	-1.6076	8.1263	-4.6443	-0.1173	-0.0103
Base	108	372	CIM4 Max	1.531	1.7202	14.2447	1.6021	5.4289	0.0682
Base	108	372	CIM4 Min	-1.6469	-0.6498	12.1659	-2.7499	-5.6392	-0.0662
Base	108	372	CIM5 Max	-0.0417	2.0324	15.6313	2.4543	-0.0772	0.0091
Base	108	372	CIM5 Min	-0.0743	-0.9621	10.7793	-3.6021	-0.1331	-0.007
Base	108	372	CIM6 Max	2.0919	1.8507	8.2631	2.613	7.3314	0.0901
Base	108	372	CIM6 Min	-2.1454	-1.3093	5.4914	-3.1896	-7.4261	-0.0891
Base	108	372	CIM7 Max	-0.0044	2.3294	10.213	3.8755	-0.009	0.0116
Base	108	372	CIM7 Min	-0.0492	-1.788	3.5415	-4.4521	-0.0858	-0.0106
Base	109	374	CV	-0.006	-0.0006	1.6356	-0.0079	-0.0465	0.0006
Base	109	374	CM	-0.0161	-0.0719	23.8014	0.0785	-0.0966	0.002
Base	109	374	CIM1	-0.0221	-0.0725	25.437	0.0705	-0.1432	0.0027
Base	109	374	CIM2 Max	4.8587	1.1963	35.8974	2.5388	17.5598	0.2207
Base	109	374	CIM2 Min	-4.891	-1.3401	11.7053	-2.3819	-17.7531	-0.2167
Base	109	374	CIM3 Max	0.0335	5.2717	37.485	10.6924	-0.0089	0.0291
Base	109	374	CIM3 Min	-0.0658	-5.4155	10.1177	-10.5355	-0.1844	-0.025
Base	109	374	CIM4 Max	3.6355	0.8787	34.1001	1.9178	13.1108	0.1666
Base	109	374	CIM4 Min	-3.6768	-1.0235	15.956	-1.7727	-13.3739	-0.1615
Base	109	374	CIM5 Max	0.0154	3.8139	34.9798	7.7918	-0.0677	0.0222
Base	109	374	CIM5 Min	-0.0567	-3.9586	15.0763	-7.6467	-0.1953	-0.0172
Base	109	374	CIM6 Max	4.8652	1.225	26.3769	2.5074	17.5985	0.2199
Base	109	374	CIM6 Min	-4.8846	-1.3113	2.1848	-2.4133	-17.7145	-0.2175
Base	109	374	CIM7 Max	0.0399	5.3005	27.9645	10.661	0.0298	0.0283
Base	109	374	CIM7 Min	-0.0593	-5.3868	0.5971	-10.5669	-0.1457	-0.0259
Base	110	376	CV	0.3406	-0.008	4.2248	-0.0072	0.307	0.0006
Base	110	376	CM	0.8451	0.0264	30.1788	-0.0431	0.7819	0.002
Base	110	376	CIM1	1.1858	0.0184	34.4036	-0.0503	1.0889	0.0027
Base	110	376	CIM2 Max	6.1297	1.253	41.9415	2.3464	18.8635	0.2207
Base	110	376	CIM2 Min	-4.4394	-1.2003	18.4162	-2.4326	-17.2997	-0.2167
Base	110	376	CIM3 Max	0.8952	5.3122	43.5551	10.4032	0.8705	0.0291
Base	110	376	CIM3 Min	0.795	-5.2595	16.8026	-10.4894	0.6933	-0.025
Base	110	376	CIM4 Max	5.064	0.9403	42.1694	1.7436	14.5734	0.1666
Base	110	376	CIM4 Min	-2.8628	-0.8996	24.5254	-1.8406	-12.549	-0.1615
Base	110	376	CIM5 Max	1.137	3.8646	43.0756	7.5488	1.0766	0.0222
Base	110	376	CIM5 Min	1.0642	-3.8239	23.6192	-7.6458	0.9477	-0.0172
Base	110	376	CIM6 Max	5.7917	1.2425	29.87	2.3636	18.5507	0.2199
Base	110	376	CIM6 Min	-4.7775	-1.2108	6.3446	-2.4154	-17.6125	-0.2175
Base	110	376	CIM7 Max	0.5572	5.3017	31.4836	10.4204	0.5578	0.0283
Base	110	376	CIM7 Min	0.457	-5.27	4.731	-10.4722	0.3805	-0.0259

Story	Joint Label	Unique Name	Load Case/Combo	FX tonf	FY tonf	FZ tonf	MX tonf-m	MY tonf-m	MZ tonf-m
Base	33	66	CV	-0.0036	-0.0045	0.7655	0.0023	-0.0217	0.0003
Base	33	66	CM	-0.0079	-0.0035	6.0465	0.0093	-0.0454	0.0008
Base	33	66	CIM1	-0.0115	-0.008	6.812	0.0116	-0.0671	0.0011
Base	33	66	CIM2 Max	1.8153	0.7455	6.9325	1.6149	6.736	0.0904
Base	33	66	CIM2 Min	-1.831	-0.7525	5.1605	-1.5963	-6.8267	-0.0888
Base	33	66	CIM3 Max	0.017	0.9268	6.2024	3.0972	0.0278	0.0119
Base	33	66	CIM3 Min	-0.0327	-0.9338	5.8906	-3.0786	-0.1185	-0.0103
Base	33	66	CIM4 Max	1.3568	0.5548	7.2851	1.2152	5.0244	0.0682
Base	33	66	CIM4 Min	-1.3779	-0.5686	5.9561	-1.1932	-5.1477	-0.0662
Base	33	66	CIM5 Max	0.0075	0.6697	6.734	2.2568	-0.0084	0.0091
Base	33	66	CIM5 Min	-0.0287	-0.6835	6.5072	-2.2347	-0.1148	-0.007
Base	33	66	CIM6 Max	1.8184	0.7469	4.5139	1.6111	6.7542	0.0901
Base	33	66	CIM6 Min	-1.8279	-0.7511	2.7419	-1.6	-6.8086	-0.0891
Base	33	66	CIM7 Max	0.0201	0.9282	3.7838	3.0935	0.0459	0.0116
Base	33	66	CIM7 Min	-0.0296	-0.9324	3.472	-3.0823	-0.1004	-0.0106
Base	44	180	CV	-0.0016	-0.0036	0.7752	0.0013	-0.0174	0.0003
Base	44	180	CM	-0.0046	-1.895E-05	6.1006	0.0057	-0.0352	0.0008
Base	44	180	CIM1	-0.0062	-0.0036	6.8758	0.007	-0.0526	0.0011
Base	44	180	CIM2 Max	2.3594	0.7486	7.3392	1.611	7.7852	0.0904
Base	44	180	CIM2 Min	-2.3686	-0.7486	4.8621	-1.5996	-7.8555	-0.0888
Base	44	180	CIM3 Max	0.0319	0.9304	6.1714	3.0937	0.0437	0.0119
Base	44	180	CIM3 Min	-0.0411	-0.9304	6.0299	-3.0823	-0.114	-0.0103
Base	44	180	CIM4 Max	1.7672	0.5588	7.6109	1.2106	5.8171	0.0682
Base	44	180	CIM4 Min	-1.7788	-0.5641	5.7531	-1.1973	-5.9135	-0.0662
Base	44	180	CIM5 Max	0.0207	0.6739	6.7335	2.2525	0.0091	0.0091
Base	44	180	CIM5 Min	-0.0323	-0.6793	6.6305	-2.2391	-0.1055	-0.007
Base	44	180	CIM6 Max	2.3612	0.7486	4.8989	1.6087	7.7993	0.0901
Base	44	180	CIM6 Min	-2.3667	-0.7486	2.4218	-1.6019	-7.8415	-0.0891
Base	44	180	CIM7 Max	0.0337	0.9304	3.7312	3.0914	0.0577	0.0116
Base	44	180	CIM7 Min	-0.0392	-0.9304	3.5896	-3.0846	-0.0999	-0.0106
Base	140	557	CV	0.0152	-0.0018	0.3257	-0.0051	0.0039	0.0003
Base	140	557	CM	0.0923	-0.0123	8.5703	0.0039	0.0774	0.0008
Base	140	557	CIM1	0.1075	-0.0141	8.896	-0.0012	0.0813	0.0011
Base	140	557	CIM2 Max	2.9084	0.5903	18.4012	1.2844	9.3425	0.0904
Base	140	557	CIM2 Min	-2.7237	-0.615	-1.2607	-1.2766	-9.1878	-0.0888
Base	140	557	CIM3 Max	0.2192	0.6305	18.076	2.6904	0.4052	0.0119
Base	140	557	CIM3 Min	-0.0346	-0.6552	-0.9355	-2.6826	-0.2505	-0.0103
Base	140	557	CIM4 Max	2.2158	0.4383	16.1877	0.9604	7.0292	0.0682
Base	140	557	CIM4 Min	-2.0083	-0.4656	1.4413	-0.9603	-6.8686	-0.0662
Base	140	557	CIM5 Max	0.196	0.4539	15.7278	1.9538	0.3187	0.0091
Base	140	557	CIM5 Min	0.0114	-0.4812	1.9012	-1.9537	-0.1581	-0.007
Base	140	557	CIM6 Max	2.8715	0.5952	14.9731	1.2828	9.3116	0.0901
Base	140	557	CIM6 Min	-2.7607	-0.61	-4.6888	-1.2781	-9.2187	-0.0891
Base	140	557	CIM7 Max	0.1823	0.6355	14.6479	2.6888	0.3743	0.0116
Base	140	557	CIM7 Min	-0.0715	-0.6503	-4.3636	-2.6841	-0.2814	-0.0106
Base	143	562	CV	-0.0356	-0.0078	1.6283	0.0052	-0.0486	0.0003
Base	143	562	CM	-0.102	-0.015	8.8066	0.0197	-0.1235	0.0008
Base	143	562	CIM1	-0.1376	-0.0227	10.4349	0.0249	-0.1721	0.0011
Base	143	562	CIM2 Max	2.7136	0.5943	18.562	1.3191	9.1412	0.0904

Story	Joint Label	Unique Name	Load Case/Combo	FX tonf	FY tonf	FZ tonf	MX tonf-m	MY tonf-m	MZ tonf-m
Base	143	562	CIM2 Min	-2.9176	-0.6242	-0.9488	-1.2796	-9.3882	-0.0888
Base	143	562	CIM3 Max	0.0243	0.6015	18.3628	2.7536	0.1901	0.0119
Base	143	562	CIM3 Min	-0.2284	-0.6315	-0.7496	-2.7141	-0.4371	-0.0103
Base	143	562	CIM4 Max	1.983	0.4361	17.3443	0.9982	6.7886	0.0682
Base	143	562	CIM4 Min	-2.2404	-0.4777	2.7112	-0.9509	-7.1084	-0.0662
Base	143	562	CIM5 Max	-0.0368	0.4276	16.9778	2.0119	0.0681	0.0091
Base	143	562	CIM5 Min	-0.2206	-0.4691	3.0778	-1.9646	-0.388	-0.007
Base	143	562	CIM6 Max	2.7544	0.6003	15.0393	1.3112	9.1906	0.0901
Base	143	562	CIM6 Min	-2.8768	-0.6182	-4.4714	-1.2875	-9.3388	-0.0891
Base	143	562	CIM7 Max	0.0651	0.6075	14.8402	2.7457	0.2395	0.0116
Base	143	562	CIM7 Min	-0.1876	-0.6255	-4.2723	-2.722	-0.3877	-0.0106
Base	124	660	CV	0.3909	-0.6314	4.2947	0.6452	0.3861	0.0003
Base	124	660	CM	0.7849	-1.3366	16.0889	1.3714	0.774	0.0008
Base	124	660	CIM1	1.1758	-1.9681	20.3837	2.0166	1.1602	0.0011
Base	124	660	CIM2 Max	4.9245	-0.5093	17.4143	3.045	9.9691	0.0904
Base	124	660	CIM2 Min	-3.3548	-2.164	14.7636	-0.3023	-8.4211	-0.0888
Base	124	660	CIM3 Max	0.8517	-0.2382	16.4576	4.5521	0.8944	0.0119
Base	124	660	CIM3 Min	0.718	-2.4351	15.7202	-1.8093	0.6537	-0.0103
Base	124	660	CIM4 Max	4.1828	-1.1897	20.304	3.1105	7.9599	0.0682
Base	124	660	CIM4 Min	-2.0267	-2.4307	18.3159	0.6	-5.8327	-0.0662
Base	124	660	CIM5 Max	1.1267	-1.0113	19.5781	4.1685	1.1512	0.0091
Base	124	660	CIM5 Min	1.0294	-2.6091	19.0418	-0.4579	0.9761	-0.007
Base	124	660	CIM6 Max	4.6105	0.0254	10.9787	2.4965	9.6595	0.0901
Base	124	660	CIM6 Min	-3.6687	-1.6294	8.328	-0.8508	-8.7307	-0.0891
Base	124	660	CIM7 Max	0.5378	0.2965	10.0221	4.0035	0.5848	0.0116
Base	124	660	CIM7 Min	0.404	-1.9004	9.2847	-2.3578	0.344	-0.0106
Base	127	679	CV	0.3842	0.6321	4.2998	-0.6608	0.3814	0.0003
Base	127	679	CM	0.7586	1.3435	16.1401	-1.3989	0.7537	0.0008
Base	127	679	CIM1	1.1429	1.9756	20.4399	-2.0598	1.1351	0.0011
Base	127	679	CIM2 Max	5.4581	2.0866	18.2226	0.1989	10.9998	0.0904
Base	127	679	CIM2 Min	-3.9409	0.6004	14.0576	-2.9967	-9.4923	-0.0888
Base	127	679	CIM3 Max	0.8166	2.4463	16.1644	1.7864	0.8473	0.0119
Base	127	679	CIM3 Min	0.7006	0.2407	16.1158	-4.5843	0.6601	-0.0103
Base	127	679	CIM4 Max	4.5714	2.3749	20.9268	-0.6962	8.7243	0.0682
Base	127	679	CIM4 Min	-2.4778	1.2603	17.8031	-3.0929	-6.6448	-0.0662
Base	127	679	CIM5 Max	1.089	2.6196	19.3827	0.4221	1.1078	0.0091
Base	127	679	CIM5 Min	1.0046	1.0156	19.3473	-4.2112	0.9717	-0.007
Base	127	679	CIM6 Max	5.1547	1.5492	11.7665	0.7584	10.6983	0.0901
Base	127	679	CIM6 Min	-4.2443	0.063	7.6016	-2.4371	-9.7938	-0.0891
Base	127	679	CIM7 Max	0.5132	1.9089	9.7084	2.346	0.5458	0.0116
Base	127	679	CIM7 Min	0.3972	-0.2967	9.6597	-4.0247	0.3587	-0.0106
Base	68	365	CV	-0.1236	0.0359	11.3714	-0.0414	-0.1401	0.0003
Base	68	365	CM	0.034	0.0455	7.0259	-0.0475	0.0152	0.0008
Base	68	365	CIM1	-0.0896	0.0814	18.3972	-0.0889	-0.1249	0.0011
Base	68	365	CIM2 Max	1.8522	0.2335	8.3525	0.3408	8.0463	0.0904
Base	68	365	CIM2 Min	-1.7842	-0.1425	5.6992	-0.4357	-8.0158	-0.0888
Base	68	365	CIM3 Max	0.1511	0.5667	9.1295	2.5329	0.2786	0.0119
Base	68	365	CIM3 Min	-0.0831	-0.4757	4.9222	-2.6278	-0.2482	-0.0103
Base	68	365	CIM4 Max	1.305	0.2134	16.5493	0.2126	5.9334	0.0682

Story	Joint Label	Unique Name	Load Case/Combo	FX tonf	FY tonf	FZ tonf	MX tonf-m	MY tonf-m	MZ tonf-m
Base	68	365	CIM4 Min	-1.4223	-0.0686	14.5594	-0.3697	-6.1132	-0.0662
Base	68	365	CIM5 Max	0.0265	0.4515	17.0843	1.7981	0.1017	0.0091
Base	68	365	CIM5 Min	-0.1438	-0.3066	14.0244	-1.9552	-0.2815	-0.007
Base	68	365	CIM6 Max	1.8386	0.2153	5.5421	0.3597	8.0402	0.0901
Base	68	365	CIM6 Min	-1.7978	-0.1607	2.8889	-0.4167	-8.0219	-0.0891
Base	68	365	CIM7 Max	0.1375	0.5485	6.3192	2.5519	0.2725	0.0116
Base	68	365	CIM7 Min	-0.0967	-0.4939	2.1118	-2.6088	-0.2543	-0.0106
Base	197	1133	CV	0.1436	0.0369	11.2932	-0.0436	0.136	0.0003
Base	197	1133	CM	-0.0302	0.0519	7.0044	-0.0577	-0.0512	0.0008
Base	197	1133	CIM1	0.1134	0.0887	18.2976	-0.1013	0.0848	0.0011
Base	197	1133	CIM2 Max	1.7883	0.2367	8.3084	0.3125	7.9802	0.0904
Base	197	1133	CIM2 Min	-1.8487	-0.133	5.7003	-0.428	-8.0826	-0.0888
Base	197	1133	CIM3 Max	0.0816	0.5746	9.0282	2.5004	0.2348	0.0119
Base	197	1133	CIM3 Min	-0.1421	-0.4709	4.9805	-2.6159	-0.3372	-0.0103
Base	197	1133	CIM4 Max	1.4413	0.2182	16.4524	0.1873	6.0744	0.0682
Base	197	1133	CIM4 Min	-1.2864	-0.0591	14.4963	-0.3681	-5.9727	-0.0662
Base	197	1133	CIM5 Max	0.1588	0.4597	16.9462	1.77	0.2588	0.0091
Base	197	1133	CIM5 Min	-0.0039	-0.3007	14.0024	-1.9509	-0.1572	-0.007
Base	197	1133	CIM6 Max	1.8004	0.216	5.5067	0.3356	8.0007	0.0901
Base	197	1133	CIM6 Min	-1.8366	-0.1537	2.8986	-0.4049	-8.0621	-0.0891
Base	197	1133	CIM7 Max	0.0937	0.5539	6.2265	2.5235	0.2553	0.0116
Base	197	1133	CIM7 Min	-0.13	-0.4917	2.1788	-2.5928	-0.3167	-0.0106
Base	56	2176	CV	0.1203	0.08	5.1411	-0.0847	0.0253	5.779E-07
Base	56	2176	CM	0.0505	0.0255	11.501	-0.0266	0.0003	6.704E-07
Base	56	2176	CIM1	0.1709	0.1055	16.6421	-0.1113	0.0256	1.248E-06
Base	56	2176	CIM2 Max	11.0139	0.1879	19.0356	0.1559	2.0125	0.0001
Base	56	2176	CIM2 Min	-10.9128	-0.1369	3.9665	-0.209	-2.0118	-0.0001
Base	56	2176	CIM3 Max	0.3994	1.4585	13.018	1.8202	0.0783	2.07E-05
Base	56	2176	CIM3 Min	-0.2983	-1.4076	9.9841	-1.8733	-0.0776	-1.936E-05
Base	56	2176	CIM4 Max	8.3633	0.2073	21.0077	0.0467	1.5284	0.0001
Base	56	2176	CIM4 Min	-8.0817	-0.0363	9.7059	-0.2269	-1.4898	-0.0001
Base	56	2176	CIM5 Max	0.3945	1.1277	16.46	1.253	0.076	1.567E-05
Base	56	2176	CIM5 Min	-0.1129	-0.9567	14.2536	-1.4332	-0.0374	-1.346E-05
Base	56	2176	CIM6 Max	10.9936	0.1777	14.4351	0.1665	2.0123	0.0001
Base	56	2176	CIM6 Min	-10.933	-0.1471	-0.6339	-0.1984	-2.0119	-0.0001
Base	56	2176	CIM7 Max	0.3792	1.4483	8.4176	1.8308	0.0782	2.043E-05
Base	56	2176	CIM7 Min	-0.3185	-1.4178	5.3836	-1.8627	-0.0778	-1.963E-05
Base	62	2179	CV	-0.0719	0.0792	5.0872	-0.0839	-0.0365	0
Base	62	2179	CM	0.0058	0.0301	11.4694	-0.032	-0.0142	2.186E-06
Base	62	2179	CIM1	-0.0662	0.1093	16.5566	-0.116	-0.0507	2.162E-06
Base	62	2179	CIM2 Max	10.9689	0.1772	19.1055	0.1315	1.9981	0.0001
Base	62	2179	CIM2 Min	-10.9573	-0.1169	3.8333	-0.1956	-2.0265	-0.0001
Base	62	2179	CIM3 Max	0.3593	1.4448	12.7959	1.7918	0.0622	1.932E-05
Base	62	2179	CIM3 Min	-0.3478	-1.3846	10.1429	-1.8558	-0.0906	-1.495E-05
Base	62	2179	CIM4 Max	8.1742	0.1998	21.0119	0.0277	1.4676	0.0001
Base	62	2179	CIM4 Min	-8.2705	-0.0208	9.5577	-0.2177	-1.5508	-0.0001
Base	62	2179	CIM5 Max	0.209	1.1184	16.2495	1.2314	0.014	1.463E-05
Base	62	2179	CIM5 Min	-0.3053	-0.9394	14.3201	-1.4214	-0.0972	-1.029E-05
Base	62	2179	CIM6 Max	10.9666	0.1651	14.5178	0.1443	2.0038	0.0001

Story	Joint Label	Unique Name	Load Case/Combo	FX tonf	FY tonf	FZ tonf	MX tonf-m	MY tonf-m	MZ tonf-m
Base	62	2179	CIM6 Min	-10.9597	-0.129	-0.7545	-0.1828	-2.0208	-0.0001
Base	62	2179	CIM7 Max	0.357	1.4328	8.2081	1.8046	0.0679	1.845E-05
Base	62	2179	CIM7 Min	-0.3501	-1.3967	5.5552	-1.843	-0.0849	-1.582E-05
Base	2	23	CV	-0.0104	-0.0012	-0.0379	-0.0015	-0.0079	0.0002
Base	2	23	CM	1.5744	0.0121	14.926	-0.0172	0.0289	0.0017
Base	2	23	CIM1	1.564	0.0109	14.8881	-0.0186	0.021	0.0019
Base	2	23	CIM2 Max	11.5534	0.3177	83.9569	0.3207	2.4109	0.0385
Base	2	23	CIM2 Min	-8.4046	-0.2936	-54.105	-0.355	-2.3531	-0.035
Base	2	23	CIM3 Max	1.8739	0.7337	17.5134	2.2984	0.0686	0.2465
Base	2	23	CIM3 Min	1.2748	-0.7095	12.3386	-2.3327	-0.0108	-0.243
Base	2	23	CIM4 Max	9.0508	0.2404	66.6708	0.2351	1.8094	0.0294
Base	2	23	CIM4 Min	-5.9177	-0.218	-36.8757	-0.2716	-1.7635	-0.0257
Base	2	23	CIM5 Max	1.7844	0.536	16.7793	1.6658	0.0518	0.1799
Base	2	23	CIM5 Min	1.3488	-0.5136	13.0158	-1.7023	-0.0059	-0.1761
Base	2	23	CIM6 Max	10.9236	0.3129	77.9865	0.3275	2.3993	0.0378
Base	2	23	CIM6 Min	-9.0344	-0.2984	-60.0754	-0.3481	-2.3646	-0.0357
Base	2	23	CIM7 Max	1.2441	0.7288	11.543	2.3052	0.057	0.2458
Base	2	23	CIM7 Min	0.6451	-0.7144	6.3682	-2.3258	-0.0224	-0.2437
Base	4	55	CV	-0.0596	0.0024	0.5279	-0.0067	-0.0092	-0.0007
Base	4	55	CM	-1.7507	0.0221	16.3896	-0.0305	-0.0654	-0.0032
Base	4	55	CIM1	-1.8103	0.0245	16.9175	-0.0372	-0.0746	-0.0039
Base	4	55	CIM2 Max	8.1981	0.3391	85.1117	0.3521	2.3156	0.0375
Base	4	55	CIM2 Min	-11.6995	-0.2948	-52.3325	-0.413	-2.4465	-0.0438
Base	4	55	CIM3 Max	-1.3907	0.7163	19.7749	2.251	-0.0263	0.2376
Base	4	55	CIM3 Min	-2.1106	-0.672	13.0044	-2.3119	-0.1046	-0.2439
Base	4	55	CIM4 Max	5.6662	0.2617	68.3271	0.2514	1.7134	0.0268
Base	4	55	CIM4 Min	-9.257	-0.2138	-34.756	-0.3224	-1.8581	-0.0342
Base	4	55	CIM5 Max	-1.5336	0.5288	19.2475	1.6238	-0.0439	0.1714
Base	4	55	CIM5 Min	-2.0572	-0.4809	14.3235	-1.6948	-0.1008	-0.1787
Base	4	55	CIM6 Max	8.8984	0.3303	78.5559	0.3643	2.3418	0.0388
Base	4	55	CIM6 Min	-10.9992	-0.3037	-58.8883	-0.4008	-2.4203	-0.0426
Base	4	55	CIM7 Max	-0.6905	0.7074	13.219	2.2632	-0.0001	0.2388
Base	4	55	CIM7 Min	-1.4103	-0.6809	6.4485	-2.2998	-0.0784	-0.2426
Base	66	87	CV	-0.3721	0.0118	2.1225	-0.0411	0.0034	-0.0076
Base	66	87	CM	-1.2866	0.0043	6.2743	-0.013	-0.0118	-0.0024
Base	66	87	CIM1	-1.6587	0.0162	8.3968	-0.0541	-0.0084	-0.01
Base	66	87	CIM2 Max	21.3286	0.2646	113.6351	0.0467	0.8864	0.0077
Base	66	87	CIM2 Min	-23.9018	-0.2559	-101.0865	-0.0726	-0.9101	-0.0125
Base	66	87	CIM3 Max	-0.3423	0.1725	10.6043	0.8627	0.0249	0.1598
Base	66	87	CIM3 Min	-2.2309	-0.1638	1.9444	-0.8886	-0.0485	-0.1646
Base	66	87	CIM4 Max	15.3957	0.2084	88.3868	0.0009	0.6644	-0.0006
Base	66	87	CIM4 Min	-18.5271	-0.182	-72.6545	-0.0886	-0.6829	-0.0157
Base	66	87	CIM5 Max	-0.8789	0.1355	11.0152	0.593	0.0174	0.1098
Base	66	87	CIM5 Min	-2.2524	-0.1091	4.7171	-0.6807	-0.0359	-0.1261
Base	66	87	CIM6 Max	21.8433	0.2628	111.1254	0.0519	0.8911	0.0086
Base	66	87	CIM6 Min	-23.3872	-0.2576	-103.5962	-0.0674	-0.9053	-0.0115
Base	66	87	CIM7 Max	0.1723	0.1708	8.0945	0.8679	0.0296	0.1607
Base	66	87	CIM7 Min	-1.7163	-0.1655	-0.5654	-0.8834	-0.0438	-0.1636
Base	67	138	CV	0.7729	0.009	3.3633	-0.0407	0.0131	0.0075

Story	Joint Label	Unique Name	Load Case/Combo	FX tonf	FY tonf	FZ tonf	MX tonf-m	MY tonf-m	MZ tonf-m
Base	67	138	CM	1.252	0.0031	5.9944	-0.0127	0.0099	0.0024
Base	67	138	CIM1	2.0249	0.0121	9.3577	-0.0534	0.023	0.0099
Base	67	138	CIM2 Max	22.2637	0.2436	105.6142	0.1101	0.8944	0.0273
Base	67	138	CIM2 Min	-19.7597	-0.2374	-93.6255	-0.1356	-0.8746	-0.0225
Base	67	138	CIM3 Max	2.0224	0.1302	9.4782	0.8693	0.0451	0.1661
Base	67	138	CIM3 Min	0.4816	-0.124	2.5105	-0.8948	-0.0253	-0.1614
Base	67	138	CIM4 Max	17.5905	0.1902	83.2317	0.0489	0.6831	0.0267
Base	67	138	CIM4 Min	-13.9271	-0.1705	-66.198	-0.1354	-0.6436	-0.0107
Base	67	138	CIM5 Max	2.3919	0.1023	11.0506	0.5982	0.0453	0.1271
Base	67	138	CIM5 Min	1.2714	-0.0826	5.9831	-0.6847	-0.0059	-0.1111
Base	67	138	CIM6 Max	21.7629	0.2423	103.2165	0.1152	0.8904	0.0263
Base	67	138	CIM6 Min	-20.2605	-0.2386	-96.0232	-0.1305	-0.8786	-0.0235
Base	67	138	CIM7 Max	1.5216	0.1289	7.0805	0.8744	0.0412	0.1651
Base	67	138	CIM7 Min	-0.0192	-0.1252	0.1128	-0.8897	-0.0293	-0.1623
Base	69	146	CV	-0.8875	0.0097	3.887	-0.0405	-0.0181	-0.0075
Base	69	146	CM	-1.3987	0.0088	6.6579	-0.0163	-0.0163	-0.0031
Base	69	146	CIM1	-2.2862	0.0185	10.5449	-0.0568	-0.0344	-0.0105
Base	69	146	CIM2 Max	19.6045	0.2492	106.2339	0.0984	0.8683	0.0204
Base	69	146	CIM2 Min	-22.4019	-0.2316	-92.9181	-0.131	-0.9008	-0.0265
Base	69	146	CIM3 Max	-0.5013	0.1676	10.7725	0.8494	0.0198	0.1573
Base	69	146	CIM3 Min	-2.296	-0.1501	2.5434	-0.8821	-0.0523	-0.1635
Base	69	146	CIM4 Max	13.6881	0.1964	84.2552	0.0394	0.6335	0.0089
Base	69	146	CIM4 Min	-17.8167	-0.1643	-65.1088	-0.1327	-0.6932	-0.0263
Base	69	146	CIM5 Max	-1.4117	0.1316	12.5656	0.583	-0.0037	0.108
Base	69	146	CIM5 Min	-2.7169	-0.0995	6.5808	-0.6763	-0.056	-0.1253
Base	69	146	CIM6 Max	20.164	0.2457	103.5707	0.1049	0.8748	0.0216
Base	69	146	CIM6 Min	-21.8424	-0.2351	-95.5812	-0.1245	-0.8943	-0.0253
Base	69	146	CIM7 Max	0.0581	0.1641	8.1093	0.856	0.0263	0.1585
Base	69	146	CIM7 Min	-1.7366	-0.1536	-0.1198	-0.8755	-0.0458	-0.1622
Base	70	153	CV	0.2455	0.0107	1.5412	-0.0406	-0.0085	0.0075
Base	70	153	CM	1.1328	-0.0013	5.5771	-0.0146	0.0054	0.0027
Base	70	153	CIM1	1.3783	0.0094	7.1183	-0.0553	-0.0031	0.0102
Base	70	153	CIM2 Max	23.7612	0.2593	112.9985	0.0353	0.9039	0.011
Base	70	153	CIM2 Min	-21.4955	-0.2619	-101.8444	-0.0645	-0.8931	-0.0057
Base	70	153	CIM3 Max	1.9251	0.1336	9.1855	0.8554	0.0405	0.1641
Base	70	153	CIM3 Min	0.3406	-0.1361	1.9686	-0.8847	-0.0297	-0.1588
Base	70	153	CIM4 Max	18.2882	0.2022	87.299	-0.0077	0.6729	0.0146
Base	70	153	CIM4 Min	-15.6543	-0.1887	-73.8331	-0.0825	-0.6749	0.002
Base	70	153	CIM5 Max	1.8931	0.1048	9.3573	0.5877	0.0245	0.1257
Base	70	153	CIM5 Min	0.7407	-0.0914	4.1087	-0.6779	-0.0265	-0.1091
Base	70	153	CIM6 Max	23.3081	0.2598	110.7677	0.0411	0.9017	0.0099
Base	70	153	CIM6 Min	-21.9487	-0.2614	-104.0752	-0.0587	-0.8952	-0.0067
Base	70	153	CIM7 Max	1.472	0.1341	6.9546	0.8613	0.0383	0.163
Base	70	153	CIM7 Min	-0.1126	-0.1356	-0.2622	-0.8789	-0.0319	-0.1598
Base	72	111	CV	-0.1718	-0.0076	0.9702	0.0015	-0.0155	0.0002
Base	72	111	CM	-1.8192	-0.0901	15.2873	0.0749	-0.0735	0.0072
Base	72	111	CIM1	-1.991	-0.0977	16.2575	0.0763	-0.0889	0.0073
Base	72	111	CIM2 Max	35.8937	0.3792	223.2696	1.2257	4.0606	0.0712
Base	72	111	CIM2 Min	-39.5321	-0.5593	-192.695	-1.076	-4.2075	-0.0569

Story	Joint Label	Unique Name	Load Case/Combo	FX tonf	FY tonf	FZ tonf	MX tonf-m	MY tonf-m	MZ tonf-m
Base	72	111	CIM3 Max	13.5247	0.8628	86.9729	4.5059	0.5034	0.4382
Base	72	111	CIM3 Min	-17.1631	-1.0429	-56.3983	-4.3562	-0.6503	-0.4238
Base	72	111	CIM4 Max	26.3366	0.2561	172.0017	0.9391	3.0155	0.0553
Base	72	111	CIM4 Min	-30.2327	-0.4477	-139.9718	-0.7872	-3.1856	-0.0408
Base	72	111	CIM5 Max	9.2111	0.5972	68.15	3.2985	0.3345	0.3207
Base	72	111	CIM5 Min	-13.1072	-0.7888	-36.12	-3.1466	-0.5046	-0.3062
Base	72	111	CIM6 Max	36.6214	0.4152	217.1547	1.1958	4.09	0.0684
Base	72	111	CIM6 Min	-38.8044	-0.5233	-198.81	-1.1059	-4.1781	-0.0598
Base	72	111	CIM7 Max	14.2523	0.8988	80.858	4.4759	0.5328	0.4353
Base	72	111	CIM7 Min	-16.4354	-1.0069	-62.5132	-4.3861	-0.6209	-0.4267
Base	73	119	CV	-0.0132	-0.0769	-0.1181	0.0259	-0.0081	-0.0034
Base	73	119	CM	1.4914	-0.2707	12.9497	0.1425	0.0294	-0.0158
Base	73	119	CIM1	1.4782	-0.3476	12.8315	0.1684	0.0214	-0.0192
Base	73	119	CIM2 Max	39.6427	0.5498	222.3274	1.1977	4.2033	0.0455
Base	73	119	CIM2 Min	-36.6598	-1.0912	-196.4281	-0.9128	-4.1444	-0.0772
Base	73	119	CIM3 Max	16.5066	0.7579	81.6043	4.563	0.5809	0.414
Base	73	119	CIM3 Min	-13.5237	-1.2993	-55.705	-4.278	-0.5221	-0.4456
Base	73	119	CIM4 Max	30.095	0.287	169.8944	0.9534	3.1537	0.0277
Base	73	119	CIM4 Min	-27.1319	-0.9438	-144.1722	-0.6295	-3.107	-0.0644
Base	73	119	CIM5 Max	12.4016	0.4197	62.7917	3.3768	0.4245	0.2942
Base	73	119	CIM5 Min	-9.4386	-1.0765	-37.0696	-3.053	-0.3777	-0.3309
Base	73	119	CIM6 Max	39.0461	0.6581	217.1475	1.1407	4.1915	0.0519
Base	73	119	CIM6 Min	-37.2564	-0.9829	-201.608	-0.9698	-4.1562	-0.0709
Base	73	119	CIM7 Max	15.91	0.8662	76.4244	4.506	0.5692	0.4203
Base	73	119	CIM7 Min	-14.1203	-1.191	-60.8849	-4.335	-0.5338	-0.4393
Base	12	93	CV	0.0105	-0.032	0.0531	0.0013	-0.0177	0.0025
Base	12	93	CM	0.006	1.528	8.5359	-0.0292	-0.0135	0.0035
Base	12	93	CIM1	0.0165	1.496	8.5891	-0.028	-0.0311	0.0059
Base	12	93	CIM2 Max	2.0304	17.1472	76.1487	0.2563	5.6388	0.7965
Base	12	93	CIM2 Min	-2.0184	-14.0912	-59.0769	-0.3148	-5.6657	-0.7896
Base	12	93	CIM3 Max	0.107	26.357	120.9219	1.0074	0.0226	0.0091
Base	12	93	CIM3 Min	-0.095	-23.3009	-103.85	-1.0659	-0.0495	-0.0022
Base	12	93	CIM4 Max	1.5322	13.2184	59.2854	0.1859	4.2125	0.6001
Base	12	93	CIM4 Min	-1.5045	-10.2104	-42.1338	-0.2424	-4.2659	-0.5895
Base	12	93	CIM5 Max	0.0873	19.5614	90.311	0.7256	-0.0005	0.0094
Base	12	93	CIM5 Min	-0.0596	-16.5534	-73.1594	-0.7822	-0.0529	0.0012
Base	12	93	CIM6 Max	2.028	16.536	72.7344	0.268	5.6442	0.7952
Base	12	93	CIM6 Min	-2.0208	-14.7024	-62.4913	-0.3031	-5.6603	-0.791
Base	12	93	CIM7 Max	0.1046	25.7458	117.5075	1.0191	0.028	0.0077
Base	12	93	CIM7 Min	-0.0974	-23.9121	-107.2644	-1.0542	-0.0441	-0.0036
Base	15	274	CV	0.1203	0.188	1.0712	-0.0052	0.0278	-0.0057
Base	15	274	CM	0.3109	1.9302	10.5744	-0.041	0.057	-0.0139
Base	15	274	CIM1	0.4312	2.1182	11.6456	-0.0462	0.0848	-0.0195
Base	15	274	CIM2 Max	1.7455	17.7559	79.5221	0.2585	5.9852	0.8245
Base	15	274	CIM2 Min	-1.1236	-13.8956	-58.3733	-0.3405	-5.8711	-0.8522
Base	15	274	CIM3 Max	0.4494	26.4226	120.622	0.996	0.0984	-0.0089
Base	15	274	CIM3 Min	0.1725	-22.5623	-99.4732	-1.078	0.0157	-0.0188
Base	15	274	CIM4 Max	1.4771	13.9404	63.0886	0.1797	4.524	0.6106
Base	15	274	CIM4 Min	-0.6748	-9.7981	-40.3329	-0.2696	-4.3682	-0.6469

Story	Joint Label	Unique Name	Load Case/Combo	FX tonf	FY tonf	FZ tonf	MX tonf-m	MY tonf-m	MZ tonf-m
Base	15	274	CIM5 Max	0.5018	19.8839	91.4124	0.7092	0.108	-0.0145
Base	15	274	CIM5 Min	0.3005	-15.7416	-68.6568	-0.7991	0.0478	-0.0217
Base	15	274	CIM6 Max	1.6211	16.9838	75.2923	0.2749	5.9623	0.83
Base	15	274	CIM6 Min	-1.248	-14.6676	-62.6031	-0.3241	-5.8939	-0.8466
Base	15	274	CIM7 Max	0.325	25.6506	116.3922	1.0124	0.0756	-0.0034
Base	15	274	CIM7 Min	0.0481	-23.3344	-103.7029	-1.0616	-0.0071	-0.0133
Base	~2758		CV	-0.0237	-0.1267	-0.0424	0.0063	-0.0422	-0.0001
Base	~2758		CM	0.1264	0.0258	15.8019	0.0041	2.373E-05	-0.0013
Base	~2758		CIM1	0.1027	-0.1009	15.7594	0.0104	-0.0422	-0.0014
Base	~2758		CIM2 Max	8.881	15.5736	169.9279	0.7726	13.0694	0.0179
Base	~2758		CIM2 Min	-8.6282	-15.522	-138.3242	-0.7644	-13.0694	-0.0204
Base	~2758		CIM3 Max	0.4461	10.8248	90.5939	2.3351	0.1149	0.004
Base	~2758		CIM3 Min	-0.1933	-10.7732	-58.9902	-2.3269	-0.1149	-0.0065
Base	~2758		CIM4 Max	6.6746	11.5916	131.3645	0.5853	9.7704	0.013
Base	~2758		CIM4 Min	-6.4573	-11.7301	-99.8245	-0.5675	-9.8337	-0.0157
Base	~2758		CIM5 Max	0.3411	7.7846	70.1642	1.7041	0.0519	0.0025
Base	~2758		CIM5 Min	-0.1238	-7.9231	-38.6242	-1.6864	-0.1152	-0.0052
Base	~2758		CIM6 Max	8.8304	15.5633	163.6072	0.771	13.0694	0.0184
Base	~2758		CIM6 Min	-8.6787	-15.5323	-144.6449	-0.7661	-13.0694	-0.0199
Base	~2758		CIM7 Max	0.3955	10.8145	84.2731	2.3335	0.1149	0.0045
Base	~2758		CIM7 Min	-0.2438	-10.7835	-65.3109	-2.3285	-0.1149	-0.006
Base	~2765		CV	0.0001	-0.0262	1.7423	0.0012	0.0066	0.0001
Base	~2765		CM	-0.1497	0.1109	19.3985	0.003	-0.0435	0.0012
Base	~2765		CIM1	-0.1497	0.0847	21.1408	0.0042	-0.0369	0.0012
Base	~2765		CIM2 Max	8.878	15.5766	174.87	0.7933	13.355	0.0197
Base	~2765		CIM2 Min	-9.1775	-15.3549	-136.073	-0.7873	-13.4421	-0.0173
Base	~2765		CIM3 Max	0.1786	11.1774	91.5353	2.3085	0.1094	0.0065
Base	~2765		CIM3 Min	-0.478	-10.9556	-52.7383	-2.3026	-0.1965	-0.0042
Base	~2765		CIM4 Max	6.6211	11.6905	137.3089	0.5966	10.0103	0.0151
Base	~2765		CIM4 Min	-6.9205	-11.5081	-95.8984	-0.5888	-10.0875	-0.0127
Base	~2765		CIM5 Max	0.0891	8.1396	73.1684	1.6807	0.0727	0.0051
Base	~2765		CIM5 Min	-0.3885	-7.9571	-31.7579	-1.6729	-0.1498	-0.0027
Base	~2765		CIM6 Max	8.9379	15.5323	167.1106	0.7921	13.3724	0.0192
Base	~2765		CIM6 Min	-9.1176	-15.3992	-143.8324	-0.7885	-13.4247	-0.0178
Base	~2765		CIM7 Max	0.2385	11.133	83.7759	2.3073	0.1268	0.006
Base	~2765		CIM7 Min	-0.4182	-11	-60.4977	-2.3037	-0.1791	-0.0046

8.10.2 Combinaciones de Carga

Debido a la configuración de la estructura, las combinaciones de diseño para las columnas C-1 y C-2, ubicadas en los ejes 3 y 6 y los ejes D, E, F, G, I, se obtuvieron a partir de los coeficientes de capacidad básica de modificación de respuesta (R_0) para el sistema combinado de pórticos resistentes a momento y muros de carga en un sentido, y el sistema de péndulo invertido en el otro sentido, dando como resultado las combinaciones que se muestran a continuación.

ANALISIS ESTRUCTURA EDIFICIO

COMBINACIONES DE CARGA

A. COMBINACIONES DE CARGA PARA DERIVA

Combinaciones de Carga:

CHEQUEO DE LA DERIVA

$Fy \circ Fy$

1.	1.20	C.M.	+	1.60	C.V.				C.M.	=	Carga Muerta	
2.	1.20	C.M.	+	1.00	C.V.	+	1.00	S.X.	C.V.	=	Carga Viva	
3.	1.20	C.M.	+	1.00	C.V.	-	1.00	S.X.	S.X.	=	Fuerzas Sismicas Elásticas en X	
4.	1.20	C.M.	+	1.00	C.V.	+	1.00	S.Y.	S.Y.	=	Fuerzas Sismicas Elásticas en Y	
5.	1.20	C.M.	+	1.00	C.V.	-	1.00	S.Y.	R_o (x)	=	**2.5**	
6.	0.90	C.M.				+	1.00	S.X.	R_o (y)	=	**5.0**	Sistema Combinado de
7.	0.90	C.M.				-	1.00	S.X.	ϕ_p	=	0.80	pantallas y pórticos de
8.	0.90	C.M.				+	1.00	S.Y.	ϕ_a	=	1.00	concreto - Péndulo Invertido
9.	0.90	C.M.				-	1.00	S.Y.	ϕRx	=	1.00	
									ϕRy	=	1.00	
									RX	=	$R_o \Phi_a \Phi_p \Phi_r$	= 2.00
									RY	=	$R_o \Phi_a \Phi_p \Phi_r$	= 4.00

B. COMBINACIONES DE DISEÑO DE VIGAS Y COLUMNAS

						$\frac{1}{R}F_xI$ ó $\frac{0.3}{R}F_xI$		$\frac{1}{R}F_yI$ ó $\frac{0.3}{R}F_yI$
						S.X.		S.Y.
1.	1.20	C.M.	+	1.60	C.V.			
2.	1.20	C.M.	+	1.00	C.V.	+	0.63	+ 0.09
3.	1.20	C.M.	+	1.00	C.V.	+	0.63	- 0.09
4.	1.20	C.M.	+	1.00	C.V.	-	0.63	+ 0.09
5.	1.20	C.M.	+	1.00	C.V.	-	0.63	- 0.09
6.	1.20	C.M.	+	1.00	C.V.	+	0.19	+ 0.31
7.	1.20	C.M.	+	1.00	C.V.	+	0.19	- 0.31
8.	1.20	C.M.	+	1.00	C.V.	-	0.19	+ 0.31
9.	1.20	C.M.	+	1.00	C.V.	-	0.19	- 0.31
10.	0.90	C.M.				+	0.63	+ 0.09
11.	0.90	C.M.				+	0.63	- 0.09
12.	0.90	C.M.				-	0.63	+ 0.09
13.	0.90	C.M.				-	0.63	- 0.09
14.	0.90	C.M.				+	0.19	+ 0.31
15.	0.90	C.M.				+	0.19	- 0.31
16.	0.90	C.M.				-	0.19	+ 0.31
17.	0.90	C.M.				-	0.19	- 0.31
18.	1.40	C.M.						

Sismo X= 1.00
Sismo Y= 1.00
III = 1.25

Nota: Se tiene en cuenta la irregularidad para el efecto de la torsión.

Observaciones:

Para las combinaciones se tiene en cuenta el coeficiente de importancia correspondiente al tipo III con un valor de 1.25

C. COMBINACIONES DE CHEQUEO CORTANTE EN COLUMNAS

					$\frac{\Omega}{R}F_xI$ ó $\frac{0.3\Omega}{R}F_yI$		$\frac{0.3\Omega}{R}F_xI$ ó $\frac{\Omega}{R}F_yI$				
1.	1.2C.M.	+ 1.60	C.V.								
2.	1.35C.M.	+ 1.00	C.V.	+	1.25	+	0.19	C.M.	=	Carga Muerta	
3.	1.05C.M.	+ 1.00	C.V.	+	1.25	+	0.19	C.V.	=	Carga Viva	
4.	1.35C.M.	+ 1.00	C.V.	+	1.25	-	0.19	S.X.	=	Fuerzas Sismicas Elásticas en X	
5.	1.05C.M.	+ 1.00	C.V.	+	1.25	-	0.19	S.Y.	=	Fuerzas Sismicas Elásticas en Y	
6.	1.35C.M.	+ 1.00	C.V.	-	1.25	+	0.19	R_o (x)	=	***2.5***	COMBINADO
7.	1.05C.M.	+ 1.00	C.V.	-	1.25	+	0.19	R_o (y)	=	***5.0***	Sistema Combinado de
8.	1.35C.M.	+ 1.00	C.V.	-	1.25	-	0.19	ϕ_p	=	0.80	pantallas y pórticos de
9.	1.05C.M.	+ 1.00	C.V.	-	1.25	-	0.19	ϕ_a	=	1.00	concreto - Péndulo Invertido
10.	1.35C.M.	+ 1.00	C.V.	+	0.38	+	0.63	ϕ Rx	=	1.00	
11.	1.05C.M.	+ 1.00	C.V.	+	0.38	+	0.63	ϕ Ry	=	1.00	
12.	1.35C.M.	+ 1.00	C.V.	+	0.38	-	0.63	RX	=	$R_o\ \Phi_a\ \Phi_p\ \Phi_r$	= 2.00
13.	1.05C.M.	+ 1.00	C.V.	+	0.38	-	0.63	RY	=	$R_o\ \Phi_a\ \Phi_p\ \Phi_r$	= 4.00
14.	1.35C.M.	+ 1.00	C.V.	-	0.38	+	0.63	Ω	=	*2.0*	
15.	1.05C.M.	+ 1.00	C.V.	-	0.38	+	0.63	Ω	=	*2.5*	Sismo X= 1.00
16.	1.35C.M.	+ 1.00	C.V.	-	0.38	-	0.63				Sismo Y= 1.00
17.	1.05C.M.	+ 1.00	C.V.	-	0.38	-	0.63				III = 1.25
18.	1.05C.M.			+	1.25	+	0.19				
19.	0.75C.M.			+	1.25	+	0.19				
20.	1.05C.M.			+	1.25	-	0.19				
21.	0.75C.M.			+	1.25	-	0.19				
22.	1.05C.M.			-	1.25	+	0.19				
23.	0.75C.M.			-	1.25	+	0.19				
24.	1.05C.M.			-	1.25	-	0.19				
25.	0.75C.M.			-	1.25	-	0.19				
26.	1.05C.M.			+	0.38	+	0.63				
27.	0.75C.M.			+	0.38	+	0.63				
28.	1.05C.M.			+	0.38	-	0.63				
29.	0.75C.M.			+	0.38	-	0.63				
30.	1.05C.M.			-	0.38	+	0.63				
31.	0.75C.M.			-	0.38	+	0.63				
32.	1.05C.M.			-	0.38	-	0.63				
33.	0.75C.M.			-	0.38	-	0.63				

D. COMBINACIONES PARA CHEQUEO A CORTANTE EN VIGAS

					$\frac{1}{R}F_xI$ ó $\frac{0.3}{R}F_xI$		$\frac{1}{R}F_yI$ ó $\frac{0.3}{R}F_yI$			
					S.X.		S.Y.			Sismo X= 2.00
										Sismo Y= 2.00
1.	1.20 C.M.	+ 1.60	C.V.							III= 1.25
2.	1.20 C.M.	+ 1.00	C.V.	+	1.25	+	0.19			
3.	1.20 C.M.	+ 1.00	C.V.	+	1.25	-	0.19			
4.	1.20 C.M.	+ 1.00	C.V.	-	1.25	+	0.19			
5.	1.20 C.M.	+ 1.00	C.V.	-	1.25	-	0.19			
6.	1.20 C.M.	+ 1.00	C.V.	+	0.38	+	0.63			
7.	1.20 C.M.	+ 1.00	C.V.	+	0.38	-	0.63			
8.	1.20 C.M.	+ 1.00	C.V.	-	0.38	+	0.63			
9.	1.20 C.M.	+ 1.00	C.V.	-	0.38	-	0.63			
10.	0.90 C.M.			+	1.25	+	0.19			
11.	0.90 C.M.			+	1.25	-	0.19			
12.	0.90 C.M.			-	1.25	+	0.19			
13.	0.90 C.M.			-	1.25	-	0.19			
14.	0.90 C.M.			+	0.38	+	0.63			
15.	0.90 C.M.			+	0.38	-	0.63			
16.	0.90 C.M.			-	0.38	+	0.63	Nota:		Se tiene en cuenta la irregularidad
17.	0.90 C.M.			-	0.38	-	0.63			para el efecto de la torsión.

Observaciones:
Para las combinaciones se tiene en cuenta el coeficiente de importancia correspondiente al tipo III con un valor de 1.25

E. COMBINACIONES DE DISEÑO DE CIMENTACION

1.	1.00	C.M.	+ 1.00	C.V.				C.M.	= Carga Muerta
2.	1.00	C.M.			+	0.44	S.X.	C.V.	= Carga Viva
3.	1.00	C.M.			+	0.22	S.Y.	S.X.	= Fuerzas Sismicas Elásticas en X
4.	1.00	C.M.	+ 0.75	C.V.	+	0.33	S.X.	S.Y.	= Fuerzas Sismicas Elásticas en Y
5.	1.00	C.M.	+ 0.75	C.V.	+	0.16	S.Y.	R_o (x)	= **2.5**
6.	0.60	C.M.			+	0.44	S.X.	R_o (y)	= **5.0** Sistema Combinado de
7.	0.60	C.M.			+	0.22	S.Y.	ϕ_p	= 0.80 pantallas y pórticos de
								ϕ_a	= 1.00 concreto - Péndulo Invertido
								ϕ Rx	= 1.00
								ϕ Ry	= 1.00
								R	= $R_o\ \Phi_a\ \Phi_p\ \Phi_r$ = 2.00
								R	= $R_o\ \Phi_a\ \Phi_p\ \Phi_r$ = 4.00

Sismo X= 1.00
Sismo Y= 1.00
III = 1.25

COMBINACIONES	
CIM1	CM+CV
CIM2	CM+0.7SX/R
CIM3	CM+0.7SY/R
CIM4	CM+0.75CV+0.525SX/R
CIM5	CM+0.75CV+0.525SY/R
CIM6	0.60CM+0.7SX/R
CIM7	0.60CM+0.7SY/R

Para el resto de los elementos estructurales (columnas, vigas, pantallas y viguetas), las combinaciones de diseño se obtuvieron únicamente a partir del coeficiente de capacidad básica de modificación de respuesta (R_0) correspondiente al sistema combinado de pórticos resistentes a momentos y muros de carga con capacidad moderada de disipación de energía (DMO); las cuales se muestran a continuación.

ANALISIS ESTRUCTURA EDIFICIO

COMBINACIONES DE CARGA

A. COMBINACIONES DE CARGA PARA DERIVA

Combinaciones de Carga:

CHEQUEO DE LA DERIVA

$Fy \circ Fy$

1.	1.20	C.M.	+	1.60	C.V.				C.M.	=	Carga Muerta	
2.	1.20	C.M.	+	1.00	C.V.	+	1.00	S.X.	C.V.	=	Carga Viva	
3.	1.20	C.M.	+	1.00	C.V.	-	1.00	S.X.	S.X.	=	Fuerzas Sismicas Elásticas en X	
4.	1.20	C.M.	+	1.00	C.V.	+	1.00	S.Y.	S.Y.	=	Fuerzas Sismicas Elásticas en Y	
5.	1.20	C.M.	+	1.00	C.V.	-	1.00	S.Y.	R_o (x)	=	5.0	
6.	0.90	C.M.				+	1.00	S.X.	R_o (y)	=	5.0	Sistema Combinado de pantallas y pórticos de concreto
7.	0.90	C.M.				-	1.00	S.X.	ϕ_p	=	0.80	
8.	0.90	C.M.				+	1.00	S.Y.	ϕ_a	=	1.00	
9.	0.90	C.M.				-	1.00	S.Y.	ϕ Rx	=	1.00	
									ϕ Ry	=	1.00	
									RX	=	$R_o \Phi_a \Phi_p \Phi_r$	= 4.00
									RY	=	$R_o \Phi_a \Phi_p \Phi_r$	= 4.00

B. COMBINACIONES DE DISEÑO DE VIGAS Y COLUMNAS

							$\frac{1}{R}F_xI$ ó $\frac{0.3}{R}F_xI$		$\frac{1}{R}F_yI$ ó $\frac{0.3}{R}F_yI$
							S.X.		S.Y.
1.	1.20	C.M.	+	1.60	C.V.				
2.	1.20	C.M.	+	1.00	C.V.	+	0.31	+	0.09
3.	1.20	C.M.	+	1.00	C.V.	+	0.31	-	0.09
4.	1.20	C.M.	+	1.00	C.V.	-	0.31	+	0.09
5.	1.20	C.M.	+	1.00	C.V.	-	0.31	-	0.09
6.	1.20	C.M.	+	1.00	C.V.	+	0.09	+	0.31
7.	1.20	C.M.	+	1.00	C.V.	+	0.09	-	0.31
8.	1.20	C.M.	+	1.00	C.V.	-	0.09	+	0.31
9.	1.20	C.M.	+	1.00	C.V.	-	0.09	-	0.31
10.	0.90	C.M.				+	0.31	+	0.09
11.	0.90	C.M.				+	0.31	-	0.09
12.	0.90	C.M.				-	0.31	+	0.09
13.	0.90	C.M.				-	0.31	-	0.09
14.	0.90	C.M.				+	0.09	+	0.31
15.	0.90	C.M.				+	0.09	-	0.31
16.	0.90	C.M.				-	0.09	+	0.31
17.	0.90	C.M.				-	0.09	-	0.31
18.	1.40	C.M.							

Sismo X= 1.00
Sismo Y= 1.00
III = 1.25

Nota: Se tiene en cuenta la irregularidad para el efecto de la torsión.

Observaciones:

Para las combinaciones se tiene en cuenta el coeficiente de importancia correspondiente al tipo III con un valor de 1.25

C. COMBINACIONES DE CHEQUEO CORTANTE EN COLUMNAS

					$\frac{\Omega}{R}F_xI$ ó $\frac{0.3\Omega}{R}F_yI$		$\frac{0.3\Omega}{R}F_xI$ ó $\frac{\Omega}{R}F_yI$					
1.	1.2C.M.	+	1.60	C.V.								
2.	1.35C.M.	+	1.00	C.V.	+	0.78	+	0.23	C.M.	=	Carga Muerta	
3.	1.05C.M.	+	1.00	C.V.	+	0.78	+	0.23	C.V.	=	Carga Viva	
4.	1.35C.M.	+	1.00	C.V.	+	0.78	-	0.23	S.X.	=	Fuerzas Sismicas Elásticas en X	
5.	1.05C.M.	+	1.00	C.V.	+	0.78	-	0.23	S.Y.	=	Fuerzas Sismicas Elásticas en Y	
6.	1.35C.M.	+	1.00	C.V.	-	0.78	+	0.23	R_o *(x)*	=	***5.0***	COMBINADO
7.	1.05C.M.	+	1.00	C.V.	-	0.78	+	0.23	R_o *(y)*	=	***5.0***	Sistema Combinado de
8.	1.35C.M.	+	1.00	C.V.	-	0.78	-	0.23	ϕ_p	=	0.80	pantallas y pórticos de
9.	1.05C.M.	+	1.00	C.V.	-	0.78	-	0.23	ϕ_a	=	1.00	concreto
10.	1.35C.M.	+	1.00	C.V.	+	0.23	+	0.78	ϕRx	=	1.00	
11.	1.05C.M.	+	1.00	C.V.	+	0.23	+	0.78	ϕRy	=	1.00	
12.	1.35C.M.	+	1.00	C.V.	+	0.23	-	0.78	RX	=	$R_o\ \Phi_a\ \Phi_p\ \Phi_r$	= 4.00
13.	1.05C.M.	+	1.00	C.V.	+	0.23	-	0.78	RY	=	$R_o\ \Phi_a\ \Phi_p\ \Phi_r$	= 4.00
14.	1.35C.M.	+	1.00	C.V.	-	0.23	+	0.78	Ω	=	*2.5*	
15.	1.05C.M.	+	1.00	C.V.	-	0.23	+	0.78				Sismo X= 1.00
16.	1.35C.M.	+	1.00	C.V.	-	0.23	-	0.78				Sismo Y= 1.00
17.	1.05C.M.	+	1.00	C.V.	-	0.23	-	0.78				III = 1.25
18.	1.05C.M.				+	0.78	+	0.23				
19.	0.75C.M.				+	0.78	+	0.23				
20.	1.05C.M.				+	0.78	-	0.23				
21.	0.75C.M.				+	0.78	-	0.23				
22.	1.05C.M.				-	0.78	+	0.23				
23.	0.75C.M.				-	0.78	+	0.23				
24.	1.05C.M.				-	0.78	-	0.23				
25.	0.75C.M.				-	0.78	-	0.23				
26.	1.05C.M.				+	0.23	+	0.78				
27.	0.75C.M.				+	0.23	+	0.78				
28.	1.05C.M.				+	0.23	-	0.78				
29.	0.75C.M.				+	0.23	-	0.78				
30.	1.05C.M.				-	0.23	+	0.78				
31.	0.75C.M.				-	0.23	+	0.78				
32.	1.05C.M.				-	0.23	-	0.78				
33.	0.75C.M.				-	0.23	-	0.78				

D. COMBINACIONES PARA CHEQUEO A CORTANTE EN VIGAS

					$\frac{1}{R}F_xI$ ó $\frac{0.3}{R}F_xI$		$\frac{1}{R}F_yI$ ó $\frac{0.3}{R}F_yI$					
					S.X.		S.Y.					
1.	1.20 C.M.	+	1.60	C.V.								
2.	1.20 C.M.	+	1.00	C.V.	+	0.63	+	0.19				
3.	1.20 C.M.	+	1.00	C.V.	+	0.63	-	0.19				
4.	1.20 C.M.	+	1.00	C.V.	-	0.63	+	0.19				
5.	1.20 C.M.	+	1.00	C.V.	-	0.63	-	0.19				
6.	1.20 C.M.	+	1.00	C.V.	+	0.19	+	0.63				
7.	1.20 C.M.	+	1.00	C.V.	+	0.19	-	0.63				
8.	1.20 C.M.	+	1.00	C.V.	-	0.19	+	0.63				
9.	1.20 C.M.	+	1.00	C.V.	-	0.19	-	0.63				
10.	0.90 C.M.				+	0.63	+	0.19				
11.	0.90 C.M.				+	0.63	-	0.19				
12.	0.90 C.M.				-	0.63	+	0.19				
13.	0.90 C.M.				-	0.63	-	0.19				
14.	0.90 C.M.				+	0.19	+	0.63				
15.	0.90 C.M.				+	0.19	-	0.63				
16.	0.90 C.M.				-	0.19	+	0.63	Nota:		Se tiene en cuenta la irregularidad	
17.	0.90 C.M.				-	0.19	-	0.63			para el efecto de la torsión.	

Sismo X= 2.00
Sismo Y= 2.00
III= 1.25

Observaciones:
Para las combinaciones se tiene en cuenta el coeficiente de importancia correspondiente al tipo III con un valor de 1.25

E. COMBINACIONES DE DISEÑO DE CIMENTACION

1.	1.00	C.M.	+ 1.00	C.V.				C.M.	= Carga Muerta
2.	1.00	C.M.			+	0.22	S.X.	C.V.	= Carga Viva
3.	1.00	C.M.			+	0.22	S.Y.	S.X.	= Fuerzas Sismicas Elásticas en X
4.	1.00	C.M.	+ 0.75	C.V.	+	0.16	S.X.	S.Y.	= Fuerzas Sismicas Elásticas en Y
5.	1.00	C.M.	+ 0.75	C.V.	+	0.16	S.Y.	R_o (x)	= **5.0**
6.	0.60	C.M.			+	0.22	S.X.	R_o (y)	= **5.0** Sistema Combinado de
7.	0.60	C.M.			+	0.22	S.Y.	ϕ_p	= 0.80 pantallas y pórticos de
								ϕ_a	= 1.00 concreto
								ϕ Rx	= 1.00
								ϕ Ry	= 1.00
								R	= $R_o\ \Phi_a\ \Phi_p\ \Phi_r$ = 4.00
								R	= $R_o\ \Phi_a\ \Phi_p\ \Phi_r$ = 4.00

Sismo X= 1.00
Sismo Y= 1.00
III = 1.25

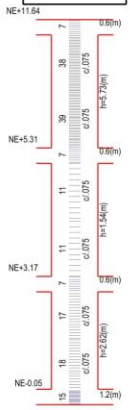
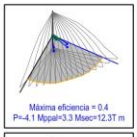
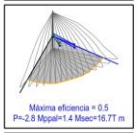
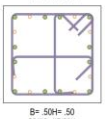
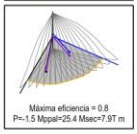
COMBINACIONES	
CIM1	CM+CV
CIM2	CM+0.7SX/R
CIM3	CM+0.7SY/R
CIM4	CM+0.75CV+0.525SX/R
CIM5	CM+0.75CV+0.525SY/R
CIM6	0.60CM+0.7SX/R
CIM7	0.60CM+0.7SY/R

8.11 Diseño Estructural

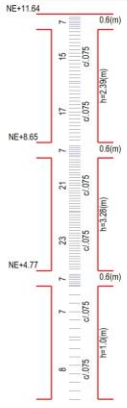
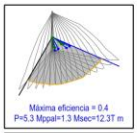
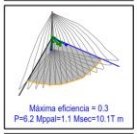
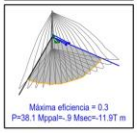
8.11.1 Columnas

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS
Nombre Auxiliar	GRUPO 2 - CAPILLA
Propietario	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.
Norma	NSR-10 DMO
Dirección	
Diseño Arquitectónico	
Contenido	Memorias de columnas
Código Nimbus	

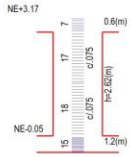
C-1 Norma: NSR-10 DMO
Volumen sin nudos= 2.5 m3 Peso del refuerzo= 893.9 Kg Cuantía= 361.5 kg/m3

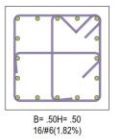
DISTRIBUCIÓN DE ESTRIBOS	SECCIÓN INFERIOR	DISEÑO CORTANTE	SUP.INTERACCIÓN ZONA INFERIOR	DISEÑO FLEXION
		V. Max Ppal=9.7Ton (ENVCMax) Sec= 16.4Ton (ENVCMax) V. plástico Ppal=14 Sec=14Ton So abajo 75mm (P.Volum. (C.21.3.5.7)) So arriba 75mm (P.Volum. (C.21.3.5.7))		F'c = 24.5 Mpa Cuantia zona superior =2 Eficiencia zona superior = 0.49 P=-6.5 Mppal=3.9 Msec=16.6T m Cuantia zona inferior =2 Eficiencia zona inferior = 0.36 P=-4.1 Mppal=3.3 Msec=12.3T m
		V. Max Ppal=16.8Ton (ENVCMin) Sec= 54.1Ton (ENVCMax) V. plástico Ppal=56 Sec=56Ton So abajo 75mm (Diseñador) So arriba 75mm (Diseñador)		F'c = 24.5 Mpa Cuantia zona superior =2 Eficiencia zona superior = 0.20 P=-3.6 Mppal=1.2 Msec=7.0T m Cuantia zona inferior =2 Eficiencia zona inferior = 0.47 P=-2.8 Mppal=1.4 Msec=16.7T m
		V. Max Ppal=13.9Ton (ENVCMax) Sec= 16.5Ton (ENVCMax) V. plástico Ppal=34 Sec=34Ton So abajo 75mm (P.Volum. (C.21.3.5.7)) So arriba 75mm (P.Volum. (C.21.3.5.7))		F'c = 24.5 Mpa Cuantia zona superior =2 Eficiencia zona superior = 0.23 P=-1.5 Mppal=7.8 Msec=2.3T m Cuantia zona inferior =2 Eficiencia zona inferior = 0.75 P=-1.5 Mppal=25.4 Msec=7.9T m

C-2 Norma: NSR-10 DMO
Volumen sin nudos= 2.3 m3 Peso del refuerzo= 836.2 Kg Cuantía= 360.1 kg/m3

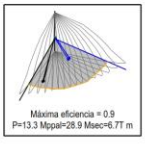
DISTRIBUCIÓN DE ESTRIBOS	SECCIÓN INFERIOR	DISEÑO CORTANTE	SUP.INTERACCIÓN ZONA INFERIOR	DISEÑO FLEXION
		V. Max Ppal=7.9Ton (ENVCMin) Sec= 23.7Ton (ENVCMax) V. plástico Ppal=30 Sec=30Ton So abajo 75mm (P.Volum. (C.21.3.5.7)) So arriba 75mm (P.Volum. (C.21.3.5.7))		F'c = 24.5 Mpa Cuantia zona superior =1.82 Eficiencia zona superior = 0.41 P=8.2 Mppal=4.4 Msec=12.9T m Cuantia zona inferior =1.82 Eficiencia zona inferior = 0.36 P=5.3 Mppal=1.3 Msec=12.3T m
		V. Max Ppal=18.9Ton (ENVCMin) Sec= 8.9Ton (ENVCMax) V. plástico Ppal=23 Sec=23Ton So abajo 75mm (P.Volum. (C.21.3.5.7)) So arriba 75mm (P.Volum. (C.21.3.5.7))		F'c = 24.5 Mpa Cuantia zona superior =1.82 Eficiencia zona superior = 0.18 P=19.2 Mppal=-5.7 Msec=-2.7T m Cuantia zona inferior =1.82 Eficiencia zona inferior = 0.30 P=6.2 Mppal=1.1 Msec=10.1T m
		V. Max Ppal=3.1Ton (ENVCMax) Sec= 24.3Ton (ENVCMin) V. plástico Ppal=78 Sec=78Ton So abajo 75mm (Diseñador) So arriba 75mm (Diseñador)		F'c = 24.5 Mpa Cuantia zona superior =1.82 Eficiencia zona superior = 0.10 P=28.6 Mppal=-2.8 Msec=-2.0T m Cuantia zona inferior =1.82 Eficiencia zona inferior = 0.31 P=38.1 Mppal=-.9 Msec=-11.9T m

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS
Nombre Auxiliar	GRUPO 2 - CAPILLA
Propietario	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.
Norma	NSR-10 DMO
Dirección	
Diseño Arquitectónico	
Contenido	Memorias de columnas
Código Nimbus	





V. Max Ppal=17.5Ton (ENVCMax)
Sec=
11.7Ton (ENVCMin)
V. plástico Ppal=30 Sec=30Ton
So abajo 75mm (P.Volum. (C.21.3.5.7))
So arriba 75mm (P.Volum. (C.21.3.5.7))

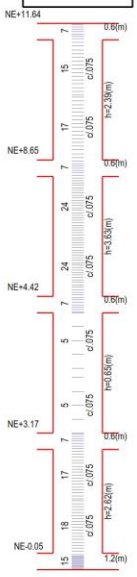
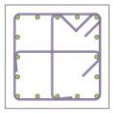
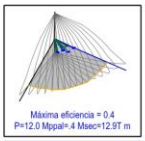
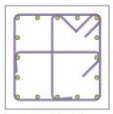
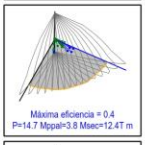
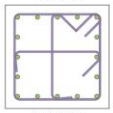
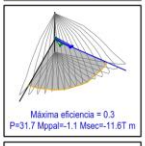
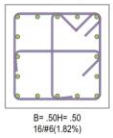
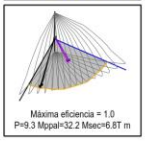


F'c = 24.5 Mpa
Cuantia zona superior =1.82
Eficiencia zona superior = 0.20
P=13.3 Mppal=6.7 Msec=1.9T m

Cuantia zona inferior =1.82
Eficiencia zona inferior = 0.85
P=13.3 Mppal=28.9 Msec=6.7T m

C-2A

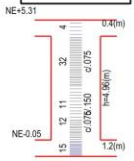
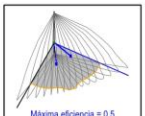
Norma: NSR-10 DMO
Volumen sin nudos= 2.3 m3 Peso del refuerzo= 840.5 Kg Cuantía= 361.9 kg/m3

DISTRIBUCIÓN DE ESTRIBOS	SECCIÓN INFERIOR	DISEÑO CORTANTE	SUP.INTERACCIÓN ZONA INFERIOR	DISEÑO FLEXION
		V. Max Ppal=7.9Ton (ENVCMin) Sec= 23.9Ton (ENVCMax) V. plástico Ppal=30 Sec=30Ton So abajo 75mm (P.Volum. (C.21.3.5.7)) So arriba 75mm (P.Volum. (C.21.3.5.7))		F'c = 24.5 Mpa Cuantia zona superior =1.82 Eficiencia zona superior = 0.45 P=16.9 Mppal=4.4 Msec=-15.1T m Cuantia zona inferior =1.82 Eficiencia zona inferior = 0.37 P=12.0 Mppal=.4 Msec=12.9T m
		V. Max Ppal=13.7Ton (ENVCMin) Sec= 16.7Ton (ENVCMax) V. plástico Ppal=21 Sec=21Ton So abajo 75mm (P.Volum. (C.21.3.5.7)) So arriba 75mm (P.Volum. (C.21.3.5.7))		F'c = 24.5 Mpa Cuantia zona superior =1.82 Eficiencia zona superior = 0.25 P=27.5 Mppal=-8.3 Msec=-3.3T m Cuantia zona inferior =1.82 Eficiencia zona inferior = 0.38 P=14.7 Mppal=3.8 Msec=12.4T m
		V. Max Ppal=4.3Ton (ENVCMax) Sec= 24.1Ton (ENVCMax) V. plástico Ppal=125 Sec=125Ton So abajo 75mm (Insuficiente: Cortante plástico) So arriba 75mm (Insuficiente: Cortante plástico)		F'c = 24.5 Mpa Cuantia zona superior =1.82 Eficiencia zona superior = 0.15 P=48.7 Mppal=-3.8 Msec=-3.3T m Cuantia zona inferior =1.82 Eficiencia zona inferior = 0.31 P=31.7 Mppal=-1.1 Msec=-11.6T m
		V. Max Ppal=20.7Ton (ENVCMax) Sec= 12.4Ton (ENVCMin) V. plástico Ppal=31 Sec=31Ton So abajo 75mm (P.Volum. (C.21.3.5.7)) So arriba 75mm (P.Volum. (C.21.3.5.7))		F'c = 24.5 Mpa Cuantia zona superior =1.82 Eficiencia zona superior = 0.19 P=9.3 Mppal=5.9 Msec=2.3T m Cuantia zona inferior =1.82 Eficiencia zona inferior = 0.96 P=9.3 Mppal=32.2 Msec=6.8T m

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de columnas
Norma	NSR-10 DMO	Código Nimbus	

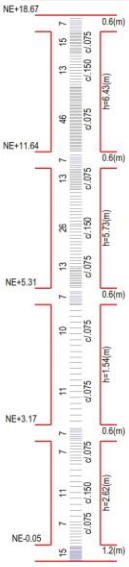
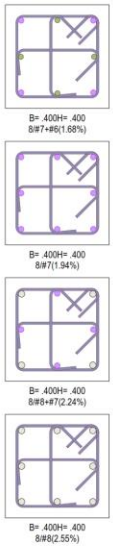
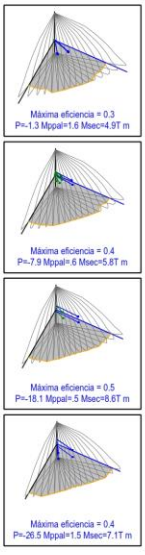
C-3

Norma: NSR-10 DMO
Volumen sin nudos= 0.8 m3 Peso del refuerzo= 215.7 Kg Cuantía= 271.8 kg/m3

DISTRIBUCIÓN DE ESTRIBOS	SECCIÓN INFERIOR	DISEÑO CORTANTE	SUP.INTERACCIÓN ZONA INFERIOR	DISEÑO FLEXION
		V. Max Ppal=29.7Ton (ENVCMin) Sec= 22.5Ton (ENVCMax) So abajo 75mm (P.Volum. (C.21.3.5.7)) S central 150mm (Diseñador) So arriba 75mm (P.Volum. (C.21.3.5.7))		F'c = 24.5 Mpa Cuantia zona superior =1.21 Eficiencia zona superior = 0.30 P=.7 Mppal=3.5 Msec=.4T m Cuantia zona inferior =1.21 Eficiencia zona inferior = 0.48 P=1.3 Mppal=4.8 Msec=3.0T m Relación Mínima Col/Vig=1.6(Viga:V-303)

C-5

Norma: NSR-10 DMO
Volumen sin nudos= 2.6 m3 Peso del refuerzo= 890.1 Kg Cuantía= 340.9 kg/m3

DISTRIBUCIÓN DE ESTRIBOS	SECCIÓN INFERIOR	DISEÑO CORTANTE	SUP.INTERACCIÓN ZONA INFERIOR	DISEÑO FLEXION
		V. Max Ppal=3.4Ton (ENVCMin) Sec= 8.2Ton (ENVCMax) So abajo 75mm (P.Volum. (C.21.3.5.7)) So arriba 75mm (P.Volum. (C.21.3.5.7)) V. Max Ppal=13.0Ton (ENVCMin) Sec= 7.4Ton (ENVCMax) So abajo 75mm (P.Volum. (C.21.3.5.7)) S central 150mm (Diseñador) So arriba 75mm (P.Volum. (C.21.3.5.7)) V. Max Ppal=1.7Ton (ENVCMax) Sec= 42.0Ton (ENVCMax) So abajo 75mm (P.Volum. (C.21.3.5.7)) So arriba 75mm (Diseñador) V. Max Ppal=3.4Ton (ENVCMax) Sec= 11.7Ton (ENVCMax) So abajo 75mm (P.Volum. (C.21.3.5.7)) S central 150mm (Diseñador) So arriba 75mm (P.Volum. (C.21.3.5.7))		F'c = 24.5 Mpa Cuantia zona superior =1.42 Eficiencia zona superior = 0.47 P=-2.6 Mppal=1.6 Msec=6.0T m Cuantia zona inferior =1.68 Eficiencia zona inferior = 0.34 P=-1.3 Mppal=1.6 Msec=4.9T m Relación Mínima Col/Vig=1.0(Viga:V-705) F'c = 24.5 Mpa Cuantia zona superior =1.68 Eficiencia zona superior = 0.61 P=-18.5 Mppal=7.8 Msec=2.2T m Cuantia zona inferior =1.94 Eficiencia zona inferior = 0.35 P=-7.9 Mppal=.6 Msec=5.8T m Relación Mínima Col/Vig=1.3(Viga:V-606) F'c = 24.5 Mpa Cuantia zona superior =1.94 Eficiencia zona superior = 0.24 P=-18.6 Mppal=.2 Msec=3.7T m Cuantia zona inferior =2.24 Eficiencia zona inferior = 0.48 P=-18.1 Mppal=.5 Msec=8.6T m Relación Mínima Col/Vig=1.2(Viga:V-310) F'c = 24.5 Mpa Cuantia zona superior =2.24 Eficiencia zona superior = 0.17 P=-26.5 Mppal=.6 Msec=2.8T m Cuantia zona inferior =2.55 Eficiencia zona inferior = 0.38 P=-26.5 Mppal=1.5 Msec=7.1T m Relación Mínima Col/Vig=2.3(Viga:V-107)

C-4

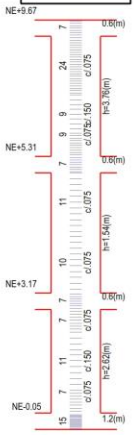
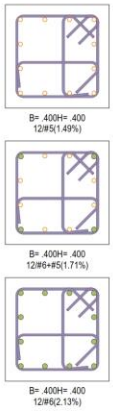
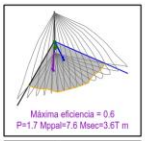
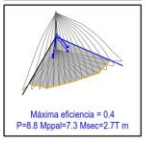
Norma: NSR-10 DMO
Volumen sin nudos= 1.3 m3 Peso del refuerzo= 450.7 Kg Cuantía= 355.6 kg/m3

DISTRIBUCIÓN DE ESTRIBOS	SECCIÓN INFERIOR	DISEÑO CORTANTE	SUP.INTERACCIÓN ZONA INFERIOR	DISEÑO FLEXION

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de columnas
Norma	NSR-10 DMO	Código Nimbus	

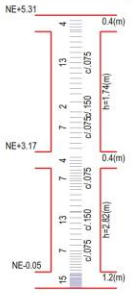
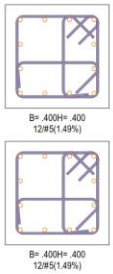
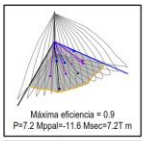
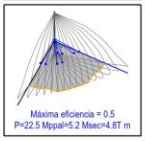
C-4

Norma: NSR-10 DMO
Volumen sin nudos= 1.3 m3 Peso del refuerzo= 450.7 Kg Cuantía= 355.6 kg/m3

DISTRIBUCIÓN DE ESTRIBOS	SECCIÓN INFERIOR	DISEÑO CORTANTE	SUP.INTERACCIÓN ZONA INFERIOR	DISEÑO FLEXION
		V. Max Ppal=30.6Ton (ENVCMax) Sec= 19.3Ton (ENVCMax) So abajo 75mm (P.Volum. (C.21.3.5.7)) S central 150mm (Diseñador) So arriba 75mm (Por Solicitaciones)		F'c = 24.5 Mpa Cuantia zona superior =1.14 Eficiencia zona superior = 0.91 P=-.8 Mppal=9.0 Msec=4.6T m Cuantia zona inferior =1.49 Eficiencia zona inferior = 0.60 P=1.7 Mppal=7.6 Msec=3.6T m Relación Mínima Col/Vig=.4(Viga:V-503)
		V. Max Ppal=49.0Ton (ENVCMax) Sec= 28.9Ton (ENVCMax) So abajo 75mm (P.Volum. (C.21.3.5.7)) So arriba 75mm (Diseñador)		F'c = 24.5 Mpa Cuantia zona superior =1.49 Eficiencia zona superior = 0.45 P=20.2 Mppal=-5.9 Msec=-3.4T m Cuantia zona inferior =1.71 Eficiencia zona inferior = 0.73 P=5.4 Mppal=10.5 Msec=5.2T m Relación Mínima Col/Vig=1.1(Viga:V-311)
		V. Max Ppal=11.4Ton (ENVCMax) Sec= 7.7Ton (ENVCMax) So abajo 75mm (P.Volum. (C.21.3.5.7)) S central 150mm (Diseñador) So arriba 75mm (P.Volum. (C.21.3.5.7))		F'c = 24.5 Mpa Cuantia zona superior =1.71 Eficiencia zona superior = 0.22 P=29.3 Mppal=-2.7 Msec=-2.2T m Cuantia zona inferior =2.13 Eficiencia zona inferior = 0.42 P=8.8 Mppal=7.3 Msec=2.7T m Relación Mínima Col/Vig=1.6(Viga:V-110)

C-6

Norma: NSR-10 DMO
Volumen sin nudos= 0.7 m3 Peso del refuerzo= 236.1 Kg Cuantía= 323.6 kg/m3

DISTRIBUCIÓN DE ESTRIBOS	SECCIÓN INFERIOR	DISEÑO CORTANTE	SUP.INTERACCIÓN ZONA INFERIOR	DISEÑO FLEXION
		V. Max Ppal=42.2Ton (ENVCMax) Sec= 8.2Ton (ENVCMax) So abajo 75mm (P.Volum. (C.21.3.5.7)) S central 150mm (Diseñador) So arriba 75mm (Diseñador)		F'c = 24.5 Mpa Cuantia zona superior =1.49 Eficiencia zona superior = 0.63 P=3.2 Mppal=9.0 Msec=-.1T m Cuantia zona inferior =1.49 Eficiencia zona inferior = 0.94 P=7.2 Mppal=-11.6 Msec=7.2T m
		V. Max Ppal=10.4Ton (ENVCMin) Sec= 7.7Ton (ENVCMax) So abajo 75mm (P.Volum. (C.21.3.5.7)) S central 150mm (Diseñador) So arriba 75mm (P.Volum. (C.21.3.5.7))		F'c = 24.5 Mpa Cuantia zona superior =1.49 Eficiencia zona superior = 0.46 P=22.5 Mppal=5.7 Msec=-3.9T m Cuantia zona inferior =1.49 Eficiencia zona inferior = 0.48 P=22.5 Mppal=5.2 Msec=4.8T m

C-7

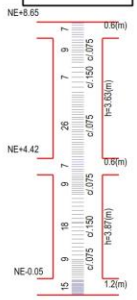
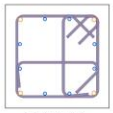
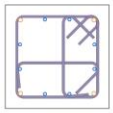
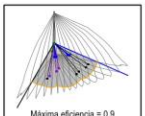
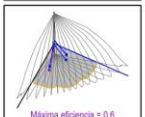
Norma: NSR-10 DMO
Volumen sin nudos= 1.2 m3 Peso del refuerzo= 316.9 Kg Cuantía= 264.0 kg/m3

DISTRIBUCIÓN DE ESTRIBOS	SECCIÓN INFERIOR	DISEÑO CORTANTE	SUP.INTERACCIÓN ZONA INFERIOR	DISEÑO FLEXION

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de columnas
Norma	NSR-10 DMO	Código Nimbus	

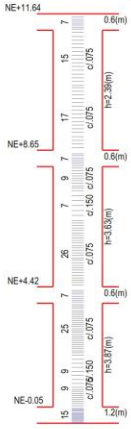
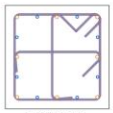
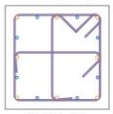
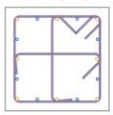
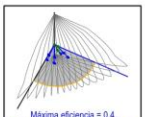
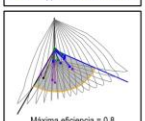
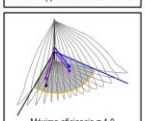
C-7

Norma: NSR-10 DMO
Volumen sin nudos= 1.2 m3 Peso del refuerzo= 316.9 Kg Cuantía= 264.0 kg/m3

DISTRIBUCIÓN DE ESTRIBOS	SECCIÓN INFERIOR	DISEÑO CORTANTE	SUP.INTERACCIÓN ZONA INFERIOR	DISEÑO FLEXION
	 B= .400H= .400 12/#5+#4(1.14%)  B= .400H= .400 12/#5+#4(1.14%)	V. Max Ppal=17.8Ton (ENVCMin) Sec= 18.2Ton (ENVCMax) So abajo 75mm (P.Volum. (C.21.3.5.7)) Sep central 150mm (Diseñador) So arriba 75mm (P.Volum. (C.21.3.5.7))	 Máxima eficiencia = 0.9 P=-2.7 Mppal=2.3 Msec=9.1T m	F'c = 24.5 Mpa Cuantia zona superior =1.14 Eficiencia zona superior = 0.61 P=-2.9 Mppal=3.2 Msec=5.8T m Cuantia zona inferior =1.14 Eficiencia zona inferior = 0.86 P=-2.7 Mppal=2.3 Msec=9.1T m Relación Mínima Col/Vig=1.2(Viga:V-406)
		V. Max Ppal=12.0Ton (ENVCMin) Sec= 13.3Ton (ENVCMax) So abajo 75mm (P.Volum. (C.21.3.5.7)) S central 150mm (Diseñador) So arriba 75mm (P.Volum. (C.21.3.5.7))	 Máxima eficiencia = 0.6 P=-4.2 Mppal=6.4 Msec=2.0T m	F'c = 24.5 Mpa Cuantia zona superior =1.14 Eficiencia zona superior = 0.36 P=-1.8 Mppal=3.8 Msec=1.1T m Cuantia zona inferior =1.14 Eficiencia zona inferior = 0.63 P=-4.2 Mppal=6.4 Msec=2.0T m Relación Mínima Col/Vig=1.4(Viga:V-201)

C-9

Norma: NSR-10 DMO
Volumen sin nudos= 2.5 m3 Peso del refuerzo= 582.7 Kg Cuantía= 235.7 kg/m3

DISTRIBUCIÓN DE ESTRIBOS	SECCIÓN INFERIOR	DISEÑO CORTANTE	SUP.INTERACCIÓN ZONA INFERIOR	DISEÑO FLEXION
	 B= .500H= .500 16/#5+#4(1.05%)  B= .500H= .500 16/#5+#4(1.05%)  B= .500H= .500 16/#5+#4(1.05%)	V. Max Ppal=23.5Ton (ENVCMin) Sec= 21.7Ton (ENVCMin) So abajo 75mm (Barra longitudinal (c.21.3.5.6 (a))) So arriba 75mm (Barra longitudinal (c.21.3.5.6 (a)))	 Máxima eficiencia = 0.4 P=16.7 Mppal=-9.3 Msec=-5.0T m	F'c = 24.5 Mpa Cuantia zona superior =1.05 Eficiencia zona superior = 0.43 P=1.0 Mppal=3.2 Msec=8.7T m Cuantia zona inferior =1.05 Eficiencia zona inferior = 0.44 P=16.7 Mppal=-9.3 Msec=-5.0T m Relación Mínima Col/Vig=1.5(Viga:V-605)
		V. Max Ppal=39.4Ton (ENVCMin) Sec= 15.7Ton (ENVCMin) So abajo 75mm (Barra longitudinal (c.21.3.5.6 (a))) Sep central 150mm (Diseñador) So arriba 75mm (Barra longitudinal (c.21.3.5.6 (a)))	 Máxima eficiencia = 0.8 P=-8.8 Mppal=14.6 Msec=1.9T m	F'c = 24.5 Mpa Cuantia zona superior =1.05 Eficiencia zona superior = 0.48 P=-10.2 Mppal=8.8 Msec=3.4T m Cuantia zona inferior =1.05 Eficiencia zona inferior = 0.77 P=-8.8 Mppal=14.6 Msec=1.9T m Relación Mínima Col/Vig=1.7(Viga:V-405)
		V. Max Ppal=24.1Ton (ENVCMin) Sec= 13.3Ton (ENVCMin) So abajo 75mm (Barra longitudinal (c.21.3.5.6 (a))) S central 150mm (Diseñador) So arriba 75mm (Barra longitudinal (c.21.3.5.6 (a)))	 Máxima eficiencia = 1.0 P=-15.8 Mppal=16.8 Msec=4.4T m	F'c = 24.5 Mpa Cuantia zona superior =1.05 Eficiencia zona superior = 0.44 P=-17.5 Mppal=7.5 Msec=3.0T m Cuantia zona inferior =1.05 Eficiencia zona inferior = 0.95 P=-15.8 Mppal=16.8 Msec=4.4T m Relación Mínima Col/Vig=1.5(Viga:V-206)

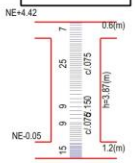
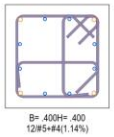
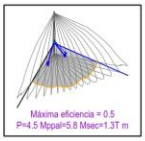
C-8

Norma: NSR-10 DMO
Volumen sin nudos= 0.6 m3 Peso del refuerzo= 181.3 Kg Cuantía= 292.7 kg/m3

DISTRIBUCIÓN DE ESTRIBOS	SECCIÓN INFERIOR	DISEÑO CORTANTE	SUP.INTERACCIÓN ZONA INFERIOR	DISEÑO FLEXION

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de columnas
Norma	NSR-10 DMO	Código Nimbus	

C-8 Norma: NSR-10 DMO
Volumen sin nudos= 0.6 m3 Peso del refuerzo= 181.3 Kg Cuantía= 292.7 kg/m3

DISTRIBUCIÓN DE ESTRIBOS	SECCIÓN INFERIOR	DISEÑO CORTANTE	SUP.INTERACCIÓN ZONA INFERIOR	DISEÑO FLEXION
		V. Max Ppal=28.4Ton (ENVCMin) Sec= 18.9Ton (ENVCMax) So abajo 75mm (P.Volum. (C.21.3.5.7)) S central 150mm (Diseñador) So arriba 75mm (P.Volum. (C.21.3.5.7))		F'c = 24.5 Mpa Cuantia zona superior =1.14 Eficiencia zona superior = 0.63 P=7.0 Mppal=-7.4 Msec=-1.6T m Cuantia zona inferior =1.14 Eficiencia zona inferior = 0.50 P=4.5 Mppal=5.8 Msec=1.3T m Relación Mínima Col/Vig=1.2(Viga:V-210)

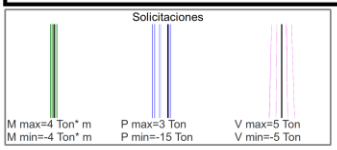
8.11.2 Pantallas

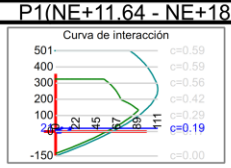
Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias detalladas de muros
Norma	NSR-10 DMO	Código Nimbus	

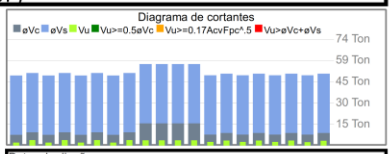
P1

Norma: NSR-10 DMO
Procedimiento de diseño: Desplazamiento de la cubierta (d/h = 0.0100)
Se considera la compresión solo de las barras confinadas
Volumen sin nudos= 4.7 m3 Peso del refuerzo= 1117.8 Kg Cuantía= 237.0 kg/m3

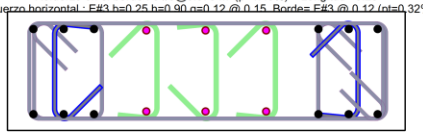
P1(NE+11.64 - NE+18.67)







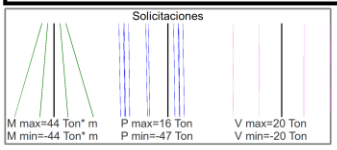
Nivel: NE+11.64 Espesor=0.3 L=1 H=6.43
Refuerzo en el alma : 6 #5@0.15 m (pl=0.88%)
Refuerzo en el borde : 6 #5@0.075 m (p=1.40%) Longitud =0.28
Refuerzo horizontal : E#3 h=0.25 h=0.90 s=0.12 @ 0.15 Bordes E#3 @ 0.12 (pt=0.32%)

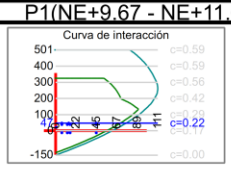


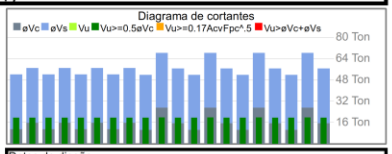
Datos de diseño

Fpc=24.5(Mpa)
Par M/P diseño =16 Ton* m/-18 Ton Eficiencia =0.26 ok
C_max=0.193 m Para P=21 Ton (C límite= 0.167 m deriva=0.01)
L confinada=0.285 m
Longitud a confinar por norma =0.096 m ok
Estribos: 9c/0.12 37c/0.12 9c/0.12
Acero en zonas confinadas=1194
M nominal=112 Ton* m V nominal=17 Ton
Max Vc+Vs=99 Ton ø cortante=0.75
øVc =30 Ton øVs=41 Ton Vu=5 Ton ok
V Max permitido =74 Ton V Max=5 Ton ok
Pt =0.32% > 0.20% ok
S Ref. Htal =0.15 m < 0.20 m ok
Pl =0.88% > 0.12% ok
P total vertical=1.19% P borde=1.40%
S Ref. Vcal =0.15 m < 0.333 m ok
N capas por norma = 2 ok
S estribos = 120mm (Sección columna)

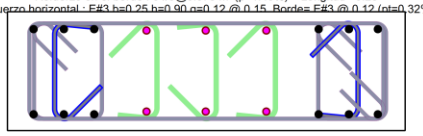
P1(NE+9.67 - NE+11.64)







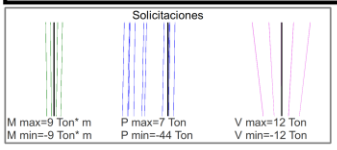
Nivel: NE+9.67 Espesor=0.3 L=1 H=1.37
Refuerzo en el alma : 6 #5@0.15 m (pl=0.88%)
Refuerzo en el borde : 6 #5@0.075 m (p=1.40%) Longitud =0.28
Refuerzo horizontal : E#3 h=0.25 h=0.90 s=0.12 @ 0.15 Bordes E#3 @ 0.12 (pt=0.32%)

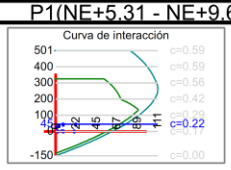


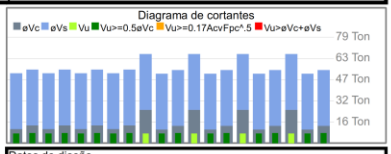
Datos de diseño

Fpc=24.5(Mpa)
Par M/P diseño =44 Ton* m/16 Ton Eficiencia =0.88 ok
C_max=0.223 m Para P=47 Ton (C límite= 0.167 m deriva=0.01)
L confinada=0.285 m
Longitud a confinar por norma =0.123 m ok
Estribos: 5c/0.12 3c/0.12 5c/0.12
Acero en zonas confinadas=1194
M nominal=113 Ton* m V nominal=82 Ton
Max Vc+Vs=107 Ton ø cortante=0.75
øVc =11 Ton øVs=41 Ton Vu=20 Ton ok
V Max permitido =74 Ton V Max=20 Ton ok
Pt =0.32% > 0.25% ok
S Ref. Htal =0.15 m < 0.20 m ok
Pl =0.88% > 0.25% ok
P total vertical=1.19% P borde=1.40%
S Ref. Vcal =0.15 m < 0.333 m ok
N capas por norma = 2 ok
S estribos = 120mm (Sección columna)

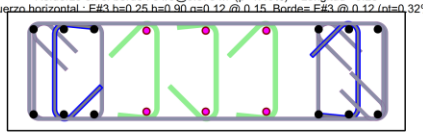
P1(NE+5.31 - NE+9.67)







Nivel: NE+5.31 Espesor=0.3 L=1 H=3.76
Refuerzo en el alma : 6 #5@0.15 m (pl=0.88%)
Refuerzo en el borde : 6 #5@0.075 m (p=1.40%) Longitud =0.28
Refuerzo horizontal : E#3 h=0.25 h=0.90 s=0.12 @ 0.15 Bordes E#3 @ 0.12 (pt=0.32%)

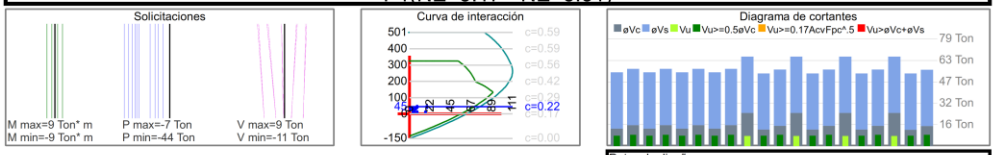


Datos de diseño

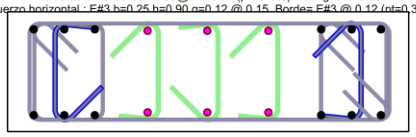
Fpc=24.5(Mpa)
Par M/P diseño =21 Ton* m/4 Ton Eficiencia =0.38 ok
C_max=0.221 m Para P=45 Ton (C límite= 0.167 m deriva=0.01)
L confinada=0.285 m
Longitud a confinar por norma =0.121 m ok
Estribos: 6c/0.12 20c/0.12 6c/0.12
Acero en zonas confinadas=1194
M nominal=113 Ton* m V nominal=30 Ton
Max Vc+Vs=106 Ton ø cortante=0.75
øVc =38 Ton øVs=41 Ton Vu=12 Ton ok
V Max permitido =74 Ton V Max=12 Ton ok
Pt =0.32% > 0.20% ok
S Ref. Htal =0.15 m < 0.20 m ok
Pl =0.88% > 0.12% ok
P total vertical=1.19% P borde=1.40%
S Ref. Vcal =0.15 m < 0.333 m ok
N capas por norma = 2 ok
S estribos = 120mm (Sección columna)

Nombre Principal: COMPLEJO HOSPITALARIO SAN JUAN DE DIOS
Nombre Auxiliar: GRUPO 2 - CAPILLA
Dirección:
Propietario:
Diseño Arquitectónico:
DC-CAD3 Licenciado a: GUEVARA ALVAREZ INGENIEROS LTDA.
Contenido: Memorias detalladas de muros
Norma: NSR-10 DMO
Código Nimbus:

P1(NE+3.17 - NE+5.31)



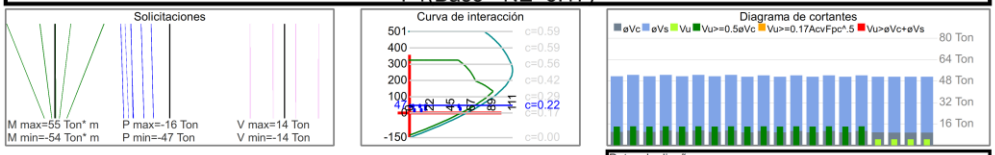
Nivel: NE+3.17 Espesor=0.3 L=1 H=1.54
Refuerzo en el alma : 6 #5@0.15 m (pl=0.88%)
Refuerzo en el borde : 6 #5@0.075 m (p=1.40%) Longitud =0.28
Refuerzo horizontal : E#3 h=0.25 b=0.90 s=0.12 @ 0.15 Borde= E#3 @ 0.12 (pt=0.32%)



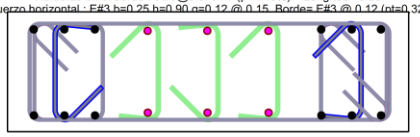
Datos de diseño

Fpc=24.5(Mpa)
Par M/P diseño =18 Ton* m/-8 Ton Eficiencia =0.31 ok
C_max=0.221 m Para P=45 Ton (C limite= 0.167 m deriva=0.01)
L confinada=0.285 m
Longitud a confinar por norma =0.121 m ok
Estribos: 5c/0.12 4c/0.12 5c/0.12
Acero en zonas confinadas=1194
M nominal=112 Ton* m V nominal=73 Ton
Max Vc+Vs=106 Ton ø cortante=0.75
øVc =25 Ton øVs=41 Ton Vu=11 Ton ok
V Max permitido =74 Ton V Max=11 Ton ok
Pt =0.32% > 0.20% ok
S Ref. Htal =0.15 m < 0.20 m ok
Pl =0.88% > 0.12% ok
P total vertical=1.19% P borde=1.40%
S Ref. Vcal =0.15 m < 0.333 m ok
N capas por norma = 2 ok
S estribos = 120mm (Sección columna)

P1(Base - NE+3.17)



Nivel: Base Espesor=0.3 L=1 H=2.62
Refuerzo en el alma : 6 #5@0.15 m (pl=0.88%)
Refuerzo en el borde : 6 #5@0.075 m (p=1.40%) Longitud =0.28
Refuerzo horizontal : E#3 h=0.25 b=0.90 s=0.12 @ 0.15 Borde= E#3 @ 0.12 (pt=0.32%)



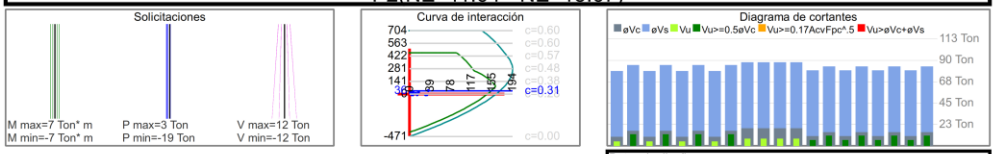
Datos de diseño

Fpc=24.5(Mpa)
Par M/P diseño =54 Ton* m/-18 Ton Eficiencia =0.88 ok
C_max=0.223 m Para P=47 Ton (C limite= 0.167 m deriva=0.01)
L confinada=0.285 m
Longitud a confinar por norma =0.123 m ok
Estribos: 5c/0.12 13c/0.12 5c/0.12
Acero en zonas confinadas=1194
M nominal=113 Ton* m V nominal=43 Ton
Max Vc+Vs=106 Ton ø cortante=0.75
øVc =10 Ton øVs=41 Ton Vu=14 Ton ok
V Max permitido =74 Ton V Max=14 Ton ok
Pt =0.32% > 0.25% ok
S Ref. Htal =0.15 m < 0.20 m ok
Pl =0.88% > 0.25% ok
P total vertical=1.19% P borde=1.40%
S Ref. Vcal =0.15 m < 0.333 m ok
N capas por norma = 2 ok
S estribos = 120mm (Sección columna)

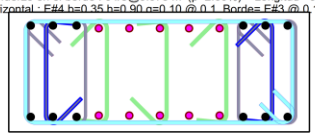
P2

Norma: NSR-10 DMO
Procedimiento de diseño: Desplazamiento de la cubierta (d/h = 0.0100)
Se considera la compresión solo de las barras confinadas
Volumen sin nudos= 6.5 m3 Peso del refuerzo= 3133.2 Kg Cuantía= 480.0 kg/m3

P2(NE+11.64 - NE+18.67)



Nivel: NE+11.64 Espesor=0.4 L=1 H=6.43
Refuerzo en el alma : 10 #8@0.10 m (pl=2.55%)
Refuerzo en el borde : 6 #8@0.075 m (p=2.60%) Longitud =0.29
Refuerzo horizontal : E#4 h=0.35 b=0.90 s=0.10 @ 0.1 Borde= E#3 @ 0.13 (pt=0.65%)

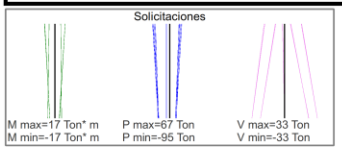


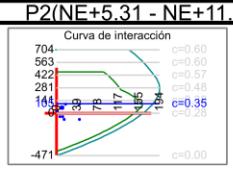
Datos de diseño

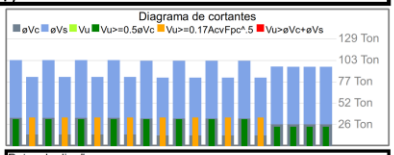
Fpc=24.5(Mpa)
Par M/P diseño =36 Ton* m/-36 Ton Eficiencia =0.23 ok
C_max=0.306 m Para P=36 Ton (C limite= 0.167 m deriva=0.01)
L confinada=0.294 m
Longitud a confinar por norma =0.206 m ok
Estribos: 9c/0.13 33c/0.13 9c/0.13
Acero en zonas confinadas=3060
M nominal=200 Ton* m V nominal=31 Ton
Max Vc+Vs=151 Ton ø cortante=0.75
øVc =16 Ton øVs=69 Ton Vu=13 Ton ok
V Max permitido =99 Ton V Max=13 Ton ok
Pt =0.65% > 0.20% ok
S Ref. Htal =0.10 m < 0.20 m ok
Pl =2.55% > 0.12% ok
P total vertical=2.81% P borde=2.60%
S Ref. Vcal =0.10 m < 0.333 m ok
N capas por norma = 2 ok
S estribos = 130mm (Sección columna)

Nombre Principal: COMPLEJO HOSPITALARIO SAN JUAN DE DIOS
Nombre Auxiliar: GRUPO 2 - CAPILLA
Dirección:
Propietario:
Diseño Arquitectónico:
DC-CAD3 Licenciado a: GUEVARA ALVAREZ INGENIEROS LTDA.
Contenido: Memorias detalladas de muros
Norma: NSR-10 DMO
Código Nimbus:

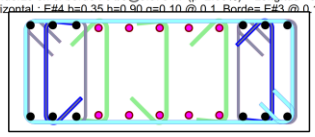
P2(NE+5.31 - NE+11.64)







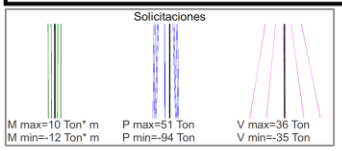
Nivel: NE+5.31 Espesor=0.4 L=1 H=5.73
Refuerzo en el alma : 10 #8@0.10 m (pl=2.55%)
Refuerzo en el borde : 6 #8@0.075 m (p=2.60%) Longitud =0.29
Refuerzo horizontal : E#4 h=0.35 b=0.90 s=0.10 @ 0.1, Borde= E#3 @ 0.13 (pt=0.65%)

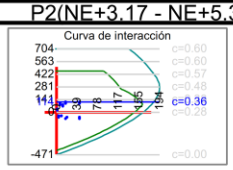


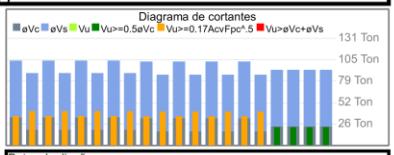
Datos de diseño

Fpc=24.5(Mpa)
Par M/P diseño =46 Ton* m/76 Ton Eficiencia =0.36 ok
C_max=0.355 m Para P=106 Ton (C limite= 0.167 m deriva=0.01)
L confinada=0.294 m
Longitud a confinar por norma =0.255 m ok
Estribos: 8c/0.13 29c/0.13 8c/0.13
Acero en zonas confinadas=3060
M nominal=199 Ton* m V nominal=35 Ton
Max Vc+Vs=172 Ton ø cortante=0.75
øVc =13 Ton øVs=69 Ton Vu=34 Ton ok
V Max permitido =99 Ton V Max=35 Ton ok
Pt =0.65% > 0.25% ok
S Ref. Htal =0.10 m < 0.20 m ok
Pl =2.55% > 0.25% ok
P total vertical=2.81% P borde=2.60%
S Ref. Vcal =0.10 m < 0.333 m ok
N capas por norma = 2 ok
S estribos = 130mm (Sección columna)

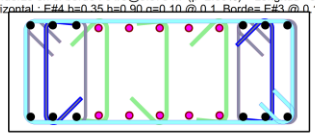
P2(NE+3.17 - NE+5.31)







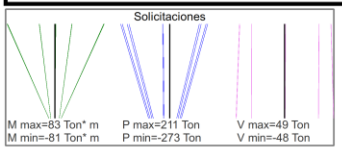
Nivel: NE+3.17 Espesor=0.4 L=1 H=1.54
Refuerzo en el alma : 10 #8@0.10 m (pl=2.55%)
Refuerzo en el borde : 6 #8@0.075 m (p=2.60%) Longitud =0.29
Refuerzo horizontal : E#4 h=0.35 b=0.90 s=0.10 @ 0.1, Borde= E#3 @ 0.13 (pt=0.65%)

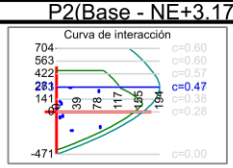


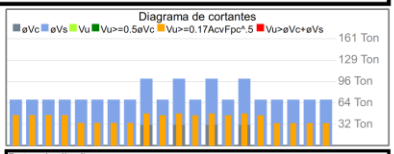
Datos de diseño

Fpc=24.5(Mpa)
Par M/P diseño =43 Ton* m/65 Ton Eficiencia =0.33 ok
C_max=0.36 m Para P=114 Ton (C limite= 0.167 m deriva=0.01)
L confinada=0.294 m
Longitud a confinar por norma =0.26 m ok
Estribos: 4c/0.13 5c/0.13 4c/0.13
Acero en zonas confinadas=3060
M nominal=200 Ton* m V nominal=130 Ton
Max Vc+Vs=175 Ton ø cortante=0.75
øVc =17 Ton øVs=69 Ton Vu=41 Ton ok
V Max permitido =99 Ton V Max=42 Ton ok
Pt =0.65% > 0.25% ok
S Ref. Htal =0.10 m < 0.20 m ok
Pl =2.55% > 0.25% ok
P total vertical=2.81% P borde=2.60%
S Ref. Vcal =0.10 m < 0.333 m ok
N capas por norma = 2 ok
S estribos = 130mm (Sección columna)

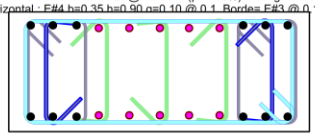
P2(Base - NE+3.17)







Nivel: Base Espesor=0.4 L=1 H=2.62
Refuerzo en el alma : 10 #8@0.10 m (pl=2.55%)
Refuerzo en el borde : 6 #8@0.075 m (p=2.60%) Longitud =0.29
Refuerzo horizontal : E#4 h=0.35 b=0.90 s=0.10 @ 0.1, Borde= E#3 @ 0.13 (pt=0.65%)



Datos de diseño

Fpc=24.5(Mpa)
Par M/P diseño =82 Ton* m/174 Ton Eficiencia =0.83 ok
C_max=0.47 m Para P=273 Ton (C limite= 0.167 m deriva=0.01)
L confinada=0.294 m
Longitud a confinar por norma =0.37 m !!!
Estribos: 4c/0.13 13c/0.13 4c/0.13
Acero en zonas confinadas=3060
M nominal=200 Ton* m V nominal=76 Ton
Max Vc+Vs=214 Ton ø cortante=0.75
øVc = Ton øVs=69 Ton Vu=46 Ton ok
V Max permitido =99 Ton V Max=49 Ton ok
Pt =0.65% > 0.25% ok
S Ref. Htal =0.10 m < 0.20 m ok
Pl =2.55% > 0.25% ok
P total vertical=2.81% P borde=2.60%
S Ref. Vcal =0.10 m < 0.333 m ok
N capas por norma = 2 ok
S estribos = 130mm (Sección columna)

P3

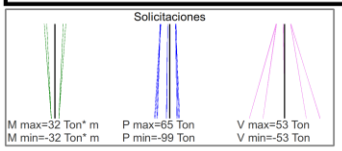
Norma: NSR-10 DMO
Procedimiento de diseño: Desplazamiento de la cubierta (d/h = 0.0100)
Se considera la compresión solo de las barras confinadas
Volumen sin nudos= 5.1 m3 Peso del refuerzo= 2457.4 Kg Cuantía= 477.8 kg/m3

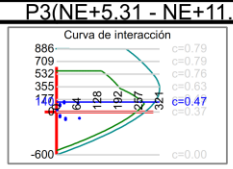
Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS
Nombre Auxiliar	GRUPO 2 - CAPILLA
Propietario	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.
Norma	NSR-10 DMO
Dirección	
Diseño Arquitectónico	
Contenido	Memorias detalladas de muros
Código Nimbus	

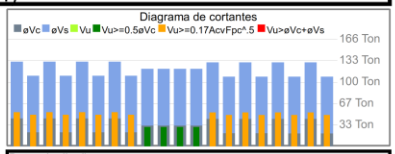
P3

Norma: NSR-10 DMO
Procedimiento de diseño: Desplazamiento de la cubierta (d/h = 0.0100)
Se considera la compresión solo de las barras confinadas
Volumen sin nudos= 5.1 m3 Peso del refuerzo= 2457.4 Kg Cuantía= 477.8 kg/m3

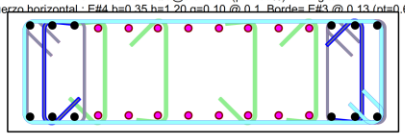
P3(NE+5.31 - NE+11.64)





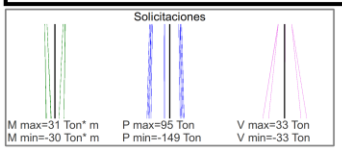


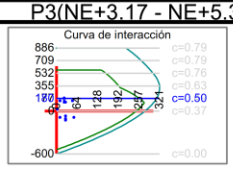
Nivel: NE+5.31 Espesor=0.4 L=1.3 H=5.73
Refuerzo en el alma : 16 #8@0.10 m (pl=2.55%)
Refuerzo en el borde : 6 #8@0.075 m (p=2.60%) Longitud =0.29
Refuerzo horizontal : E#4 h=0.35 h=1.20 s=0.10 @ 0.1, Borde= E#3 @ 0.13 (pt=0.65%)

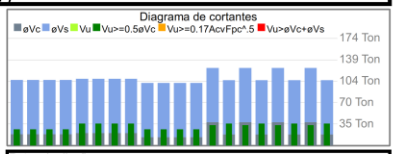


Datos de diseño
Fpc=24.5(Mpa)
Par M/P diseño =70 Ton* m/86 Ton Eficiencia =0.32 ok
C_max=0.468 m Para P=140 Ton (C límite= 0.217 m deriva=0.01)
L confinada=0.294 m
Longitud a confinar por norma =0.338 m ok
Estribos: 8c/0.13 29c/0.13 8c/0.13
Acero en zonas confinadas=3060
M nominal=338 Ton* m V nominal=59 Ton
Max Vc+Vs=222 Ton ø cortante=0.75
øVc =20 Ton øVs=88 Ton Vu=49 Ton ok
V Max permitido =128 Ton V Max=53 Ton ok
Pt =0.65% > 0.25% ok
S Ref. Htal =0.10 m < 0.26 m ok
Pl =2.55% > 0.25% ok
P total vertical=2.75% P borde=2.60%
S Ref. Vcal =0.10 m < 0.433 m ok
N capas por norma = 2 ok
S estribos = 130mm (Sección columna)

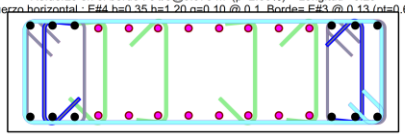
P3(NE+3.17 - NE+5.31)





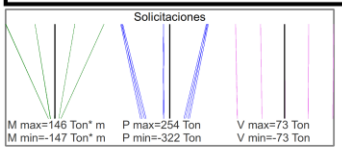


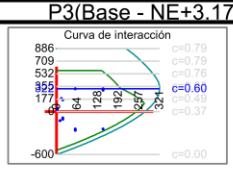
Nivel: NE+3.17 Espesor=0.4 L=1.3 H=1.54
Refuerzo en el alma : 16 #8@0.10 m (pl=2.55%)
Refuerzo en el borde : 6 #8@0.075 m (p=2.60%) Longitud =0.29
Refuerzo horizontal : E#4 h=0.35 h=1.20 s=0.10 @ 0.1, Borde= E#3 @ 0.13 (pt=0.65%)

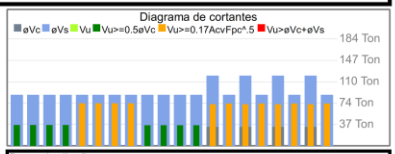


Datos de diseño
Fpc=24.5(Mpa)
Par M/P diseño =52 Ton* m/94 Ton Eficiencia =0.24 ok
C_max=0.496 m Para P=180 Ton (C límite= 0.217 m deriva=0.01)
L confinada=0.294 m
Longitud a confinar por norma =0.366 m !!!
Estribos: 4c/0.13 5c/0.13 4c/0.13
Acero en zonas confinadas=3060
M nominal=339 Ton* m V nominal=220 Ton
Max Vc+Vs=232 Ton ø cortante=0.75
øVc =18 Ton øVs=88 Ton Vu=36 Ton ok
V Max permitido =128 Ton V Max=36 Ton ok
Pt =0.65% > 0.25% ok
S Ref. Htal =0.10 m < 0.26 m ok
Pl =2.55% > 0.25% ok
P total vertical=2.75% P borde=2.60%
S Ref. Vcal =0.10 m < 0.433 m ok
N capas por norma = 2 ok
S estribos = 130mm (Sección columna)

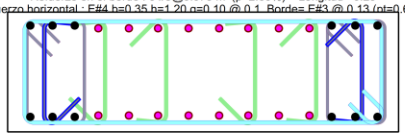
P3(Base - NE+3.17)







Nivel: Base Espesor=0.4 L=1.3 H=2.62
Refuerzo en el alma : 16 #8@0.10 m (pl=2.55%)
Refuerzo en el borde : 6 #8@0.075 m (p=2.60%) Longitud =0.29
Refuerzo horizontal : E#4 h=0.35 h=1.20 s=0.10 @ 0.1, Borde= E#3 @ 0.13 (pt=0.65%)



Datos de diseño
Fpc=24.5(Mpa)
Par M/P diseño =146 Ton* m/249 Ton Eficiencia =0.94 ok
C_max=0.603 m Para P=322 Ton (C límite= 0.217 m deriva=0.01)
L confinada=0.294 m
Longitud a confinar por norma =0.473 m !!!
Estribos: 4c/0.13 13c/0.13 4c/0.13
Acero en zonas confinadas=3060
M nominal=339 Ton* m V nominal=129 Ton
Max Vc+Vs=245 Ton ø cortante=0.75
øVc = Ton øVs=88 Ton Vu=73 Ton ok
V Max permitido =128 Ton V Max=73 Ton ok
Pt =0.65% > 0.25% ok
S Ref. Htal =0.10 m < 0.26 m ok
Pl =2.55% > 0.25% ok
P total vertical=2.75% P borde=2.60%
S Ref. Vcal =0.10 m < 0.433 m ok
N capas por norma = 2 ok
S estribos = 130mm (Sección columna)

P4

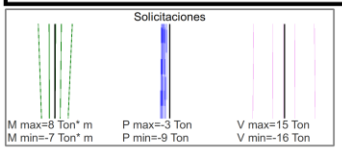
Norma: NSR-10 DMO
Procedimiento de diseño: Desplazamiento de la cubierta (d/h = 0.0100)
Se considera la compresión solo de las barras confinadas
Volumen sin nudos= 3.0 m3 Peso del refuerzo= 911.5 Kg Cuantía= 307.2 kg/m3

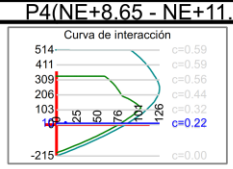
Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS
Nombre Auxiliar	GRUPO 2 - CAPILLA
Propietario	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.
Norma	NSR-10 DMO
Dirección	
Diseño Arquitectónico	
Contenido	Memorias detalladas de muros
Código Nimbus	

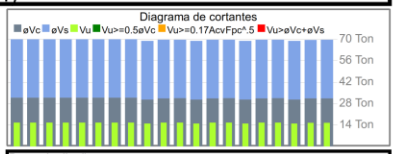
P4

Norma: NSR-10 DMO
Procedimiento de diseño: Desplazamiento de la cubierta (d/h = 0.0100)
Se considera la compresión solo de las barras confinadas
Volumen sin nudos= 3.0 m3 Peso del refuerzo= 911.5 Kg Cuantía= 307.2 kg/m3

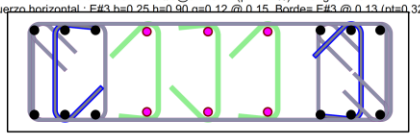
P4(NE+8.65 - NE+11.64)







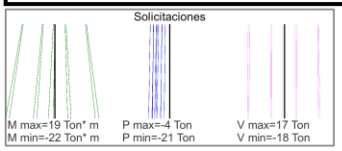
Nivel: NE+8.65 Espesor=0.3 L=1 H=2.39
Refuerzo en el alma : 6 #6@0.15 m (pl=1.26%)
Refuerzo en el borde : 6 #6@0.075 m (p=1.97%) Longitud =0.29
Refuerzo horizontal : E#3 hs0.25 hs0.90 as0.12 @ 0.15 Borde: E#3 @ 0.13 (pt=0.32%)

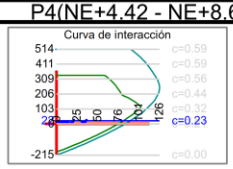


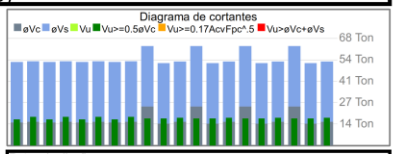
Datos de diseño

Fpc=24.5(Mpa)
Par M/P diseño =32 Ton* m/-3 Ton Eficiencia =0.42 ok
C_max=0.217 m Para P=10 Ton (C limite= 0.167 m deriva=0.01)
L confinada=0.288 m
Longitud a confinar por norma =0.117 m ok
Estribos: 4o/0.13 12o/0.13 4o/0.13
Acero en zonas confinadas=1704
M nominal=128 Ton* m V nominal=53 Ton
Max Vc+Vs=93 Ton ø cortante=0.75
øVc =12 Ton øVs=38 Ton Vu=14 Ton ok
V Max permitido =74 Ton V Max=16 Ton ok
Pt =0.32% > 0.25% ok
S Ref. Htal =0.15 m < 0.20 m ok
Pl =1.26% > 0.25% ok
P total vertical=1.70% P borde=1.97%
S Ref. Vcal =0.15 m < 0.333 m ok
N capas por norma = 2 ok
S estribos = 130mm (Sección columna)

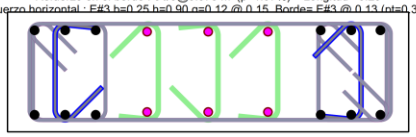
P4(NE+4.42 - NE+8.65)







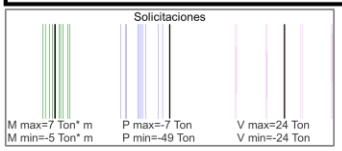
Nivel: NE+4.42 Espesor=0.3 L=1 H=3.63
Refuerzo en el alma : 6 #6@0.15 m (pl=1.26%)
Refuerzo en el borde : 6 #6@0.075 m (p=1.97%) Longitud =0.29
Refuerzo horizontal : E#3 hs0.25 hs0.90 as0.12 @ 0.15 Borde: E#3 @ 0.13 (pt=0.32%)

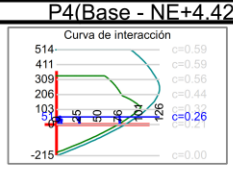


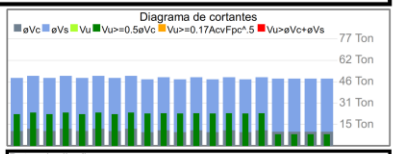
Datos de diseño

Fpc=24.5(Mpa)
Par M/P diseño =40 Ton* m/-6 Ton Eficiencia =0.52 ok
C_max=0.228 m Para P=22 Ton (C limite= 0.167 m deriva=0.01)
L confinada=0.288 m
Longitud a confinar por norma =0.128 m ok
Estribos: 5o/0.13 19o/0.13 5o/0.13
Acero en zonas confinadas=1704
M nominal=127 Ton* m V nominal=35 Ton
Max Vc+Vs=96 Ton ø cortante=0.75
øVc =12 Ton øVs=38 Ton Vu=17 Ton ok
V Max permitido =74 Ton V Max=18 Ton ok
Pt =0.32% > 0.25% ok
S Ref. Htal =0.15 m < 0.20 m ok
Pl =1.26% > 0.25% ok
P total vertical=1.70% P borde=1.97%
S Ref. Vcal =0.15 m < 0.333 m ok
N capas por norma = 2 ok
S estribos = 130mm (Sección columna)

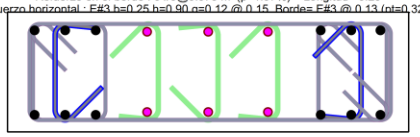
P4(Base - NE+4.42)







Nivel: Base Espesor=0.3 L=1 H=3.87
Refuerzo en el alma : 6 #6@0.15 m (pl=1.26%)
Refuerzo en el borde : 6 #6@0.075 m (p=1.97%) Longitud =0.29
Refuerzo horizontal : E#3 hs0.25 hs0.90 as0.12 @ 0.15 Borde: E#3 @ 0.13 (pt=0.32%)



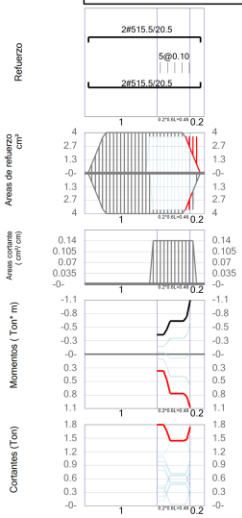
Datos de diseño

Fpc=24.5(Mpa)
Par M/P diseño =77 Ton* m/-9 Ton Eficiencia =0.99 ok
C_max=0.26 m Para P=51 Ton (C limite= 0.167 m deriva=0.01)
L confinada=0.288 m
Longitud a confinar por norma =0.16 m ok
Estribos: 5o/0.13 21o/0.13 5o/0.13
Acero en zonas confinadas=1704
M nominal=127 Ton* m V nominal=33 Ton
Max Vc+Vs=103 Ton ø cortante=0.75
øVc =10 Ton øVs=38 Ton Vu=24 Ton ok
V Max permitido =74 Ton V Max=24 Ton ok
Pt =0.32% > 0.25% ok
S Ref. Htal =0.15 m < 0.20 m ok
Pl =1.26% > 0.25% ok
P total vertical=1.70% P borde=1.97%
S Ref. Vcal =0.15 m < 0.333 m ok
N capas por norma = 2 ok
S estribos = 130mm (Sección columna)

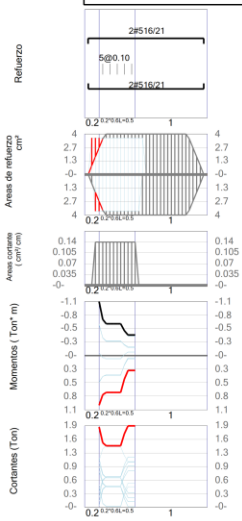
8.11.3 Vigas

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-101 / NE+3.17



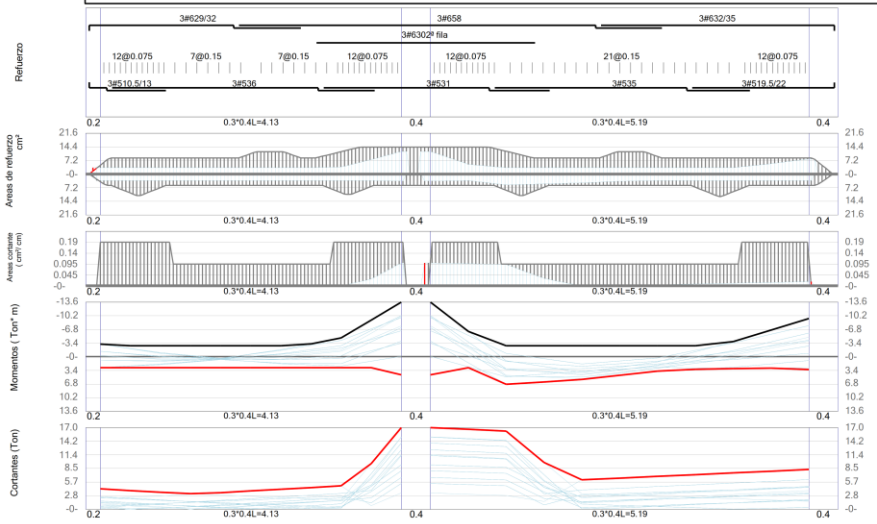
V-102 / NE+3.17



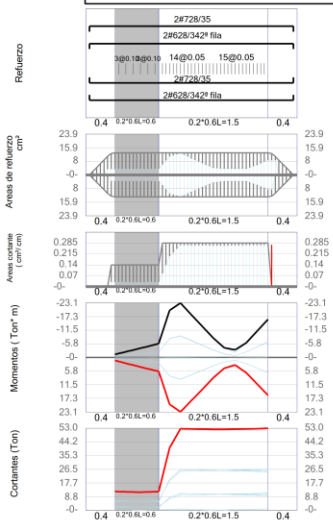
V-103 / NE+3.17

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-103 / NE+3.17



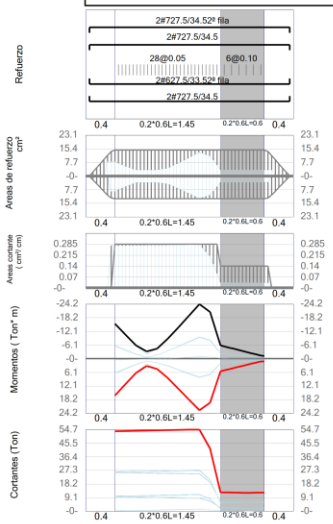
V-104 / NE+3.17



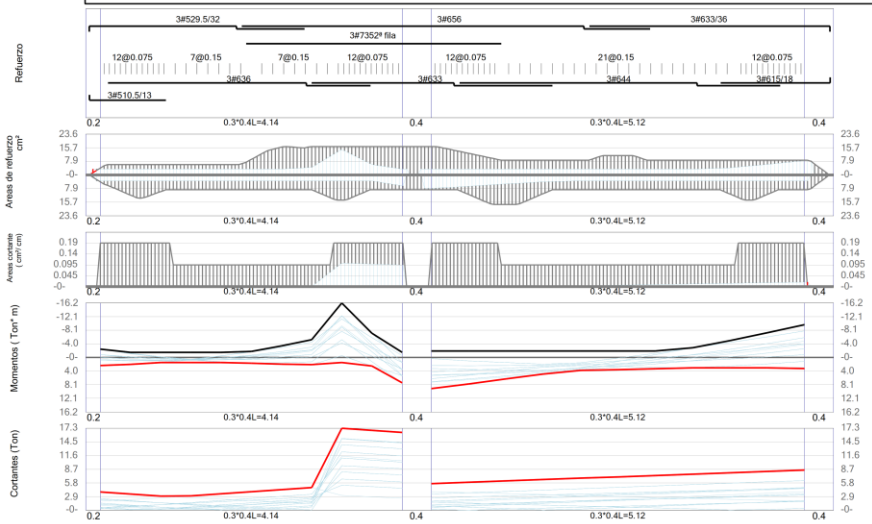
V-105 / NE+3.17

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-105 / NE+3.17



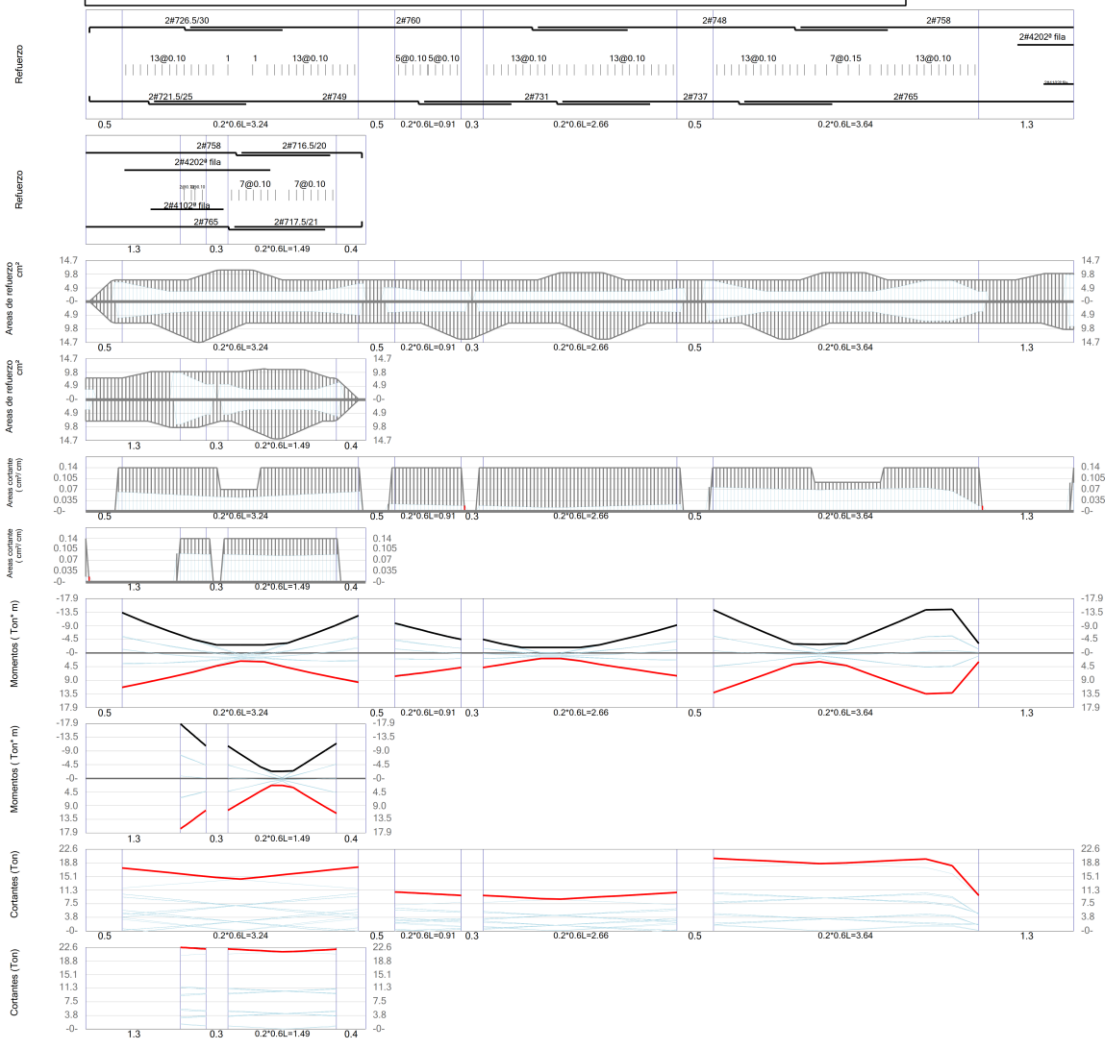
V-106 / NE+3.17



V-107 / NE+3.17

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS
Nombre Auxiliar	GRUPO 2 - CAPILLA
Propietario	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.
Norma	NSR-10 DMO
Dirección	
Diseño Arquitectónico	
Contenido	Memorias de Vigas
Código Nimbus	

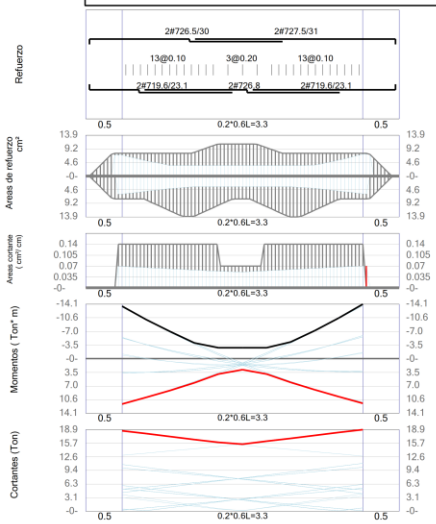
V-107 / NE+3.17



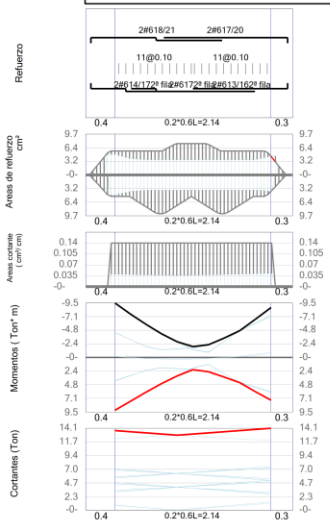
V-108 / NE+3.17

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-108 / NE+3.17



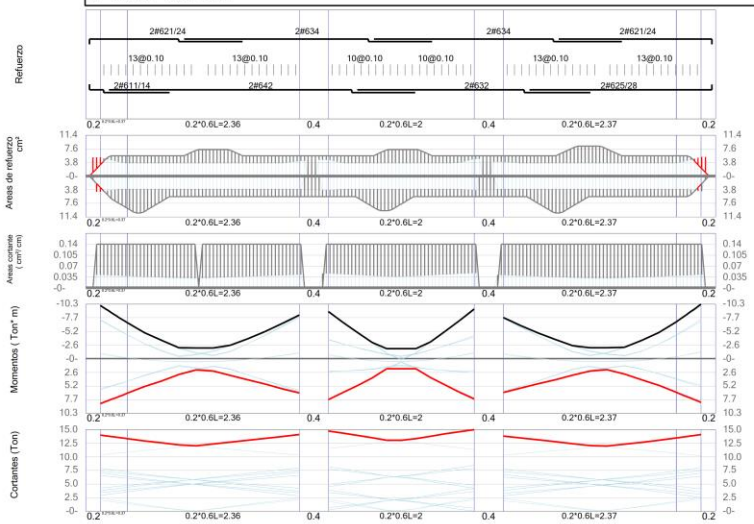
V-109 / NE+3.17



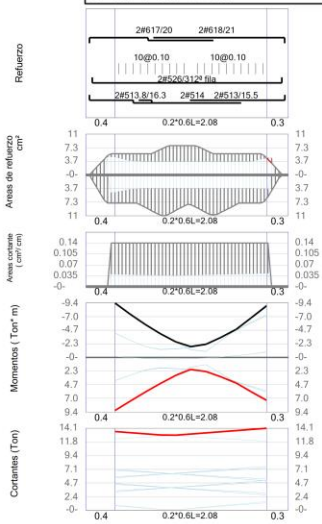
V-110 / NE+3.17

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS
Nombre Auxiliar	GRUPO 2 - CAPILLA
Propietario	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.
Norma	NSR-10 DMO
Dirección	
Diseño Arquitectónico	
Contenido	Memorias de Vigas
Código Nimbus	

V-110 / NE+3.17



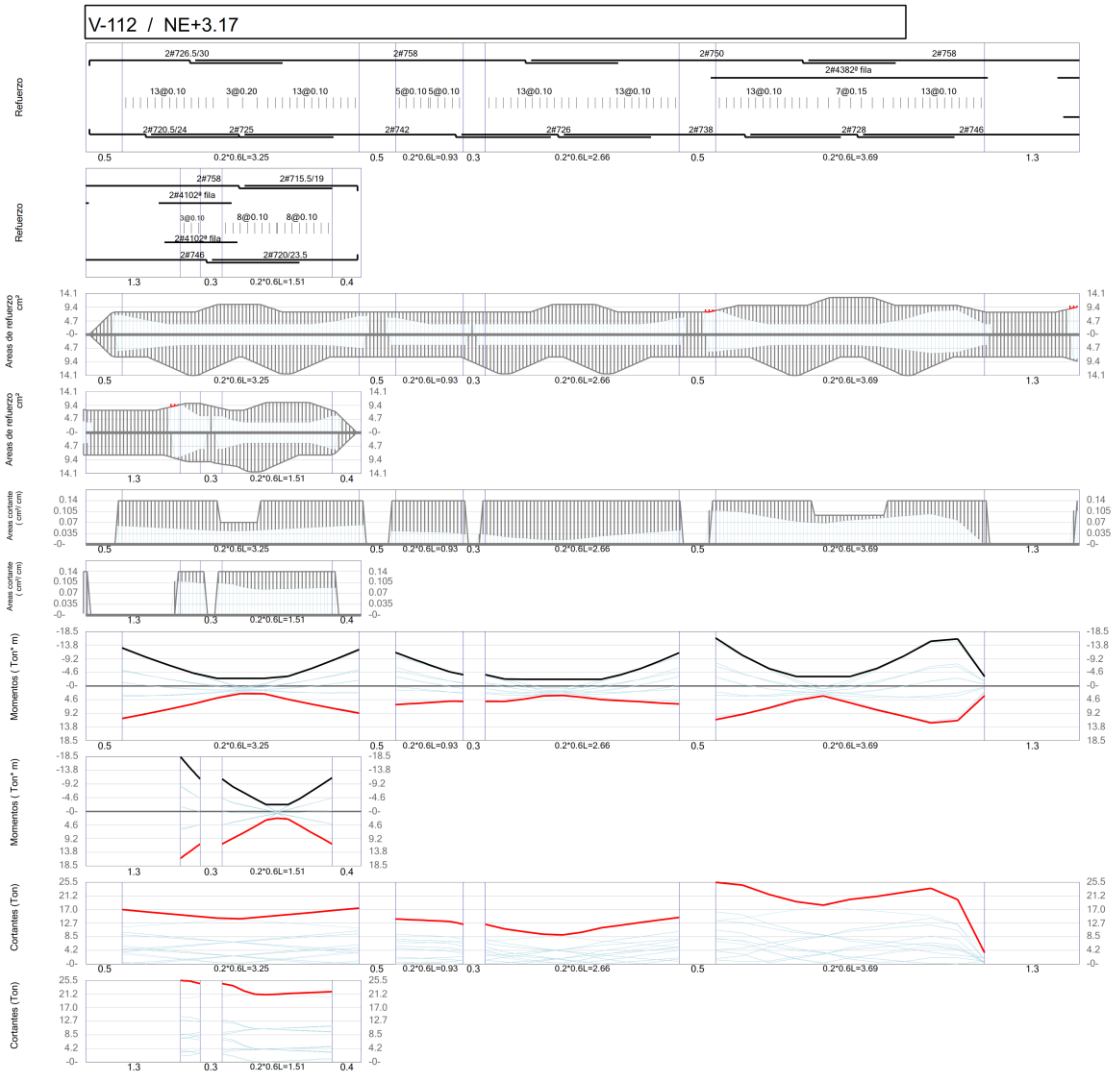
V-111 / NE+3.17



V-112 / NE+3.17

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

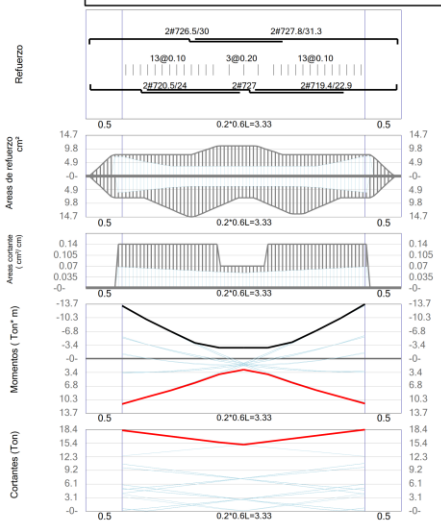
V-112 / NE+3.17



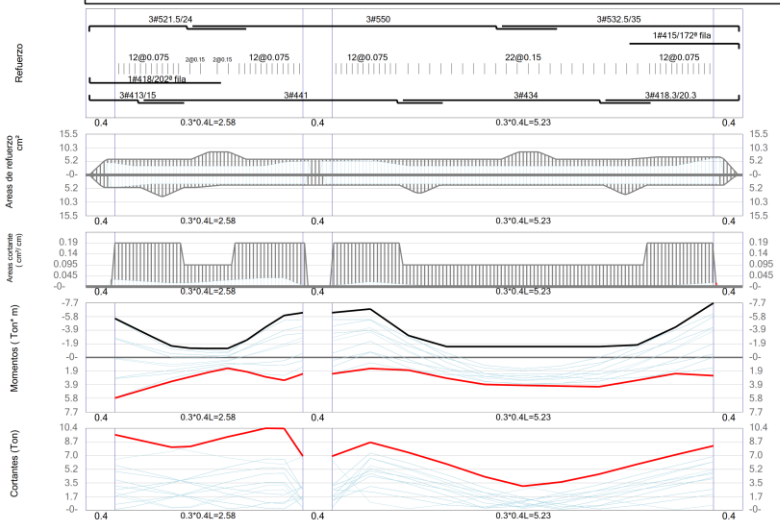
V-113 / NE+3.17

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-113 / NE+3.17

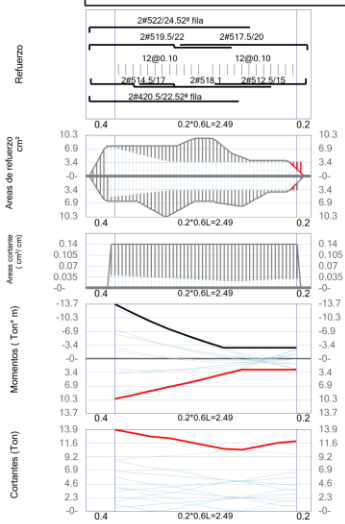


V-114 / NE+3.17

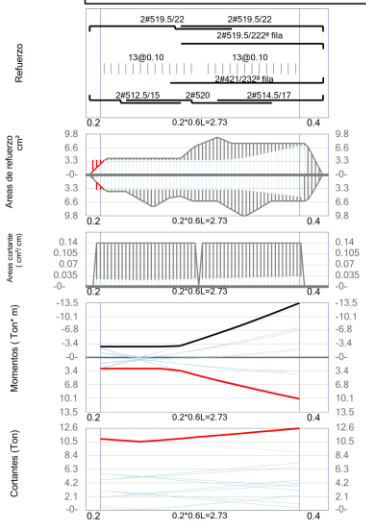


Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS
Nombre Auxiliar	GRUPO 2 - CAPILLA
Propietario	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.
Norma	NSR-10 DMO
Dirección	
Diseño Arquitectónico	
Contenido	Memorias de Vigas
Código Nimbus	

V-201 / NE+4.42



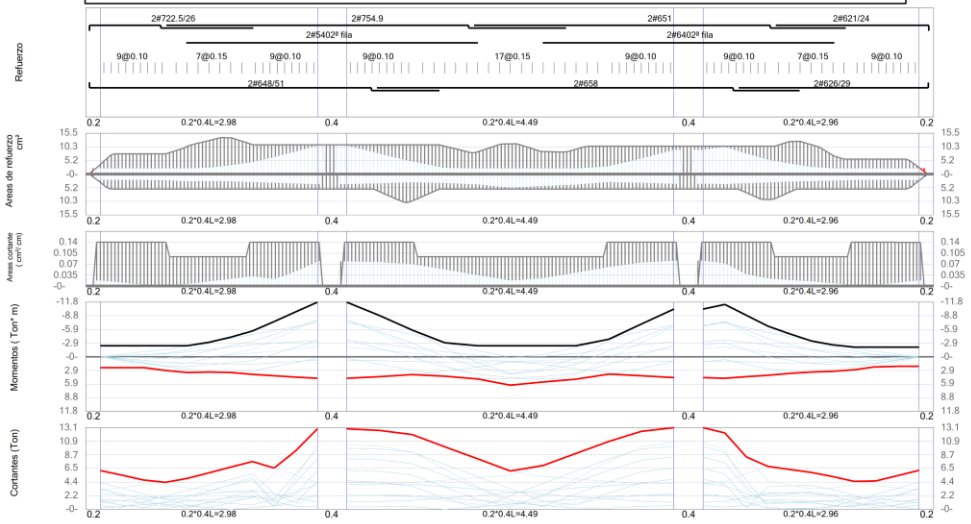
V-202 / NE+4.42



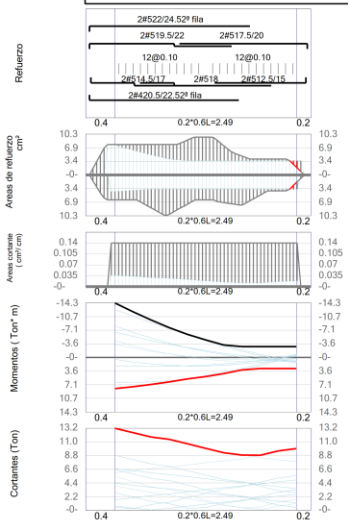
V-203 / NE+4.42

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-203 / NE+4.42



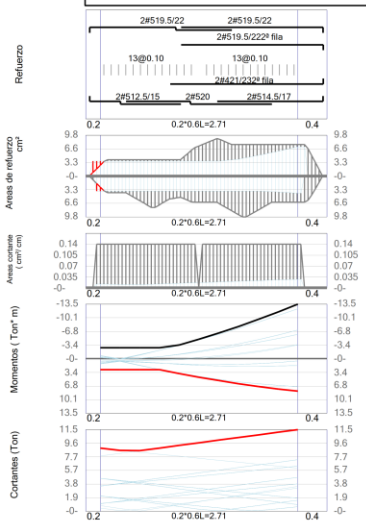
V-204 / NE+4.42



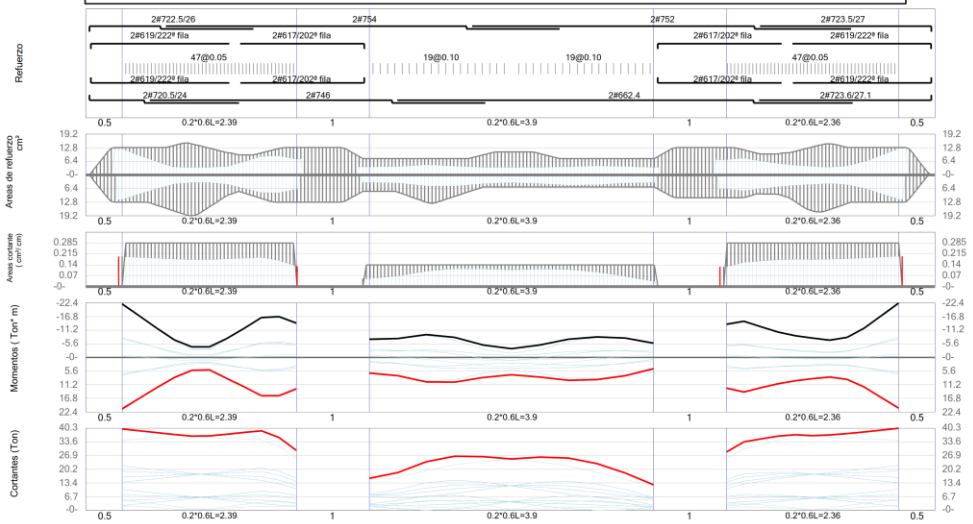
V-205 / NE+4.42

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-205 / NE+4.42



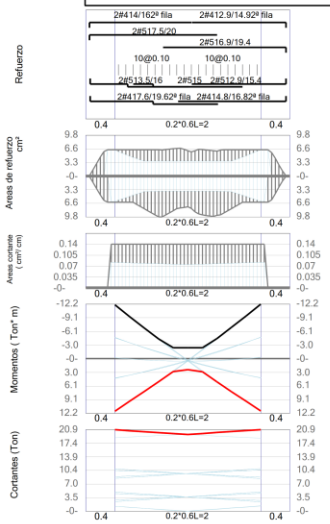
V-206 / NE+4.42



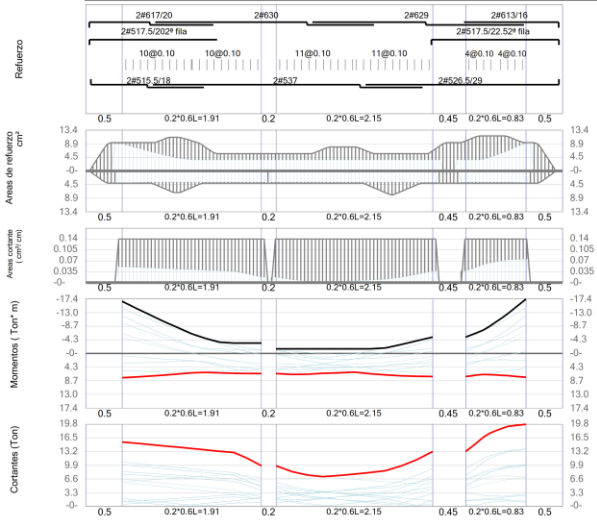
V-207 / NE+4.42

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-207 / NE+4.42



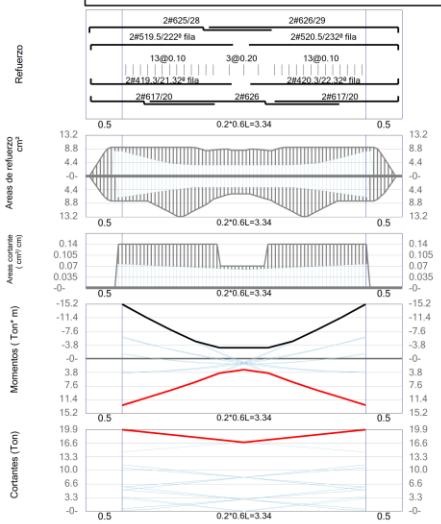
V-208 / NE+4.42



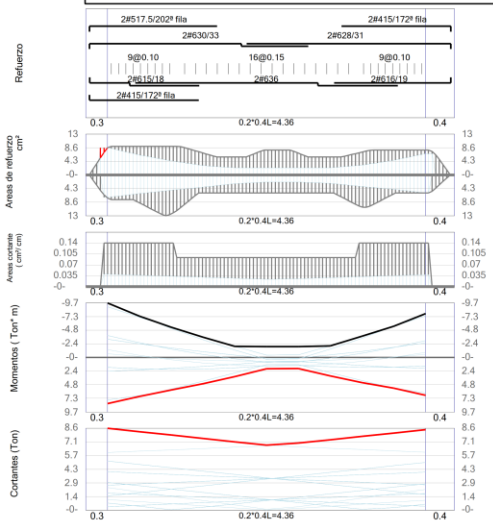
V-209 / NE+4.77

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-209 / NE+4.77



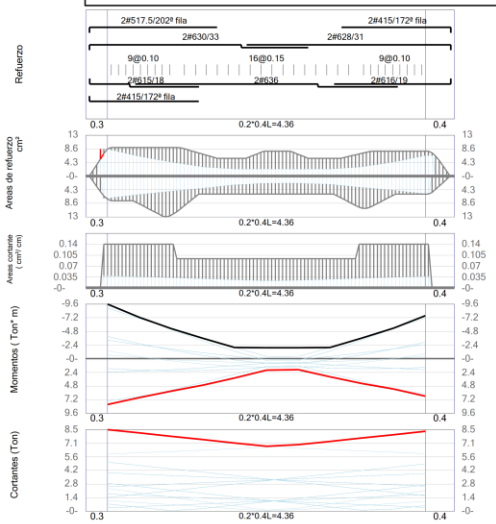
V-210 / NE+4.42



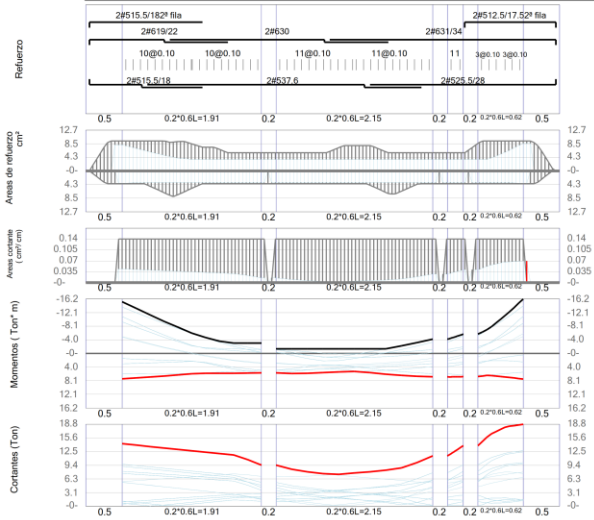
V-211 / NE+4.42

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-211 / NE+4.42



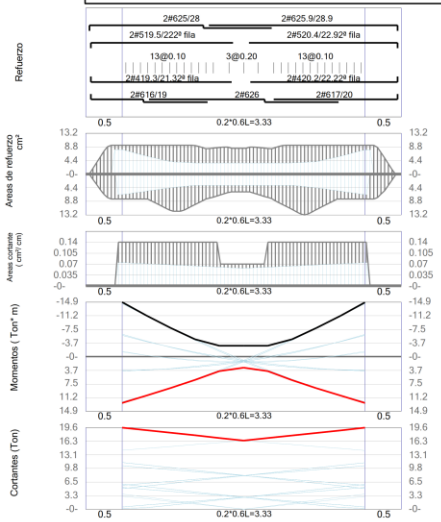
V-212 / NE+4.42



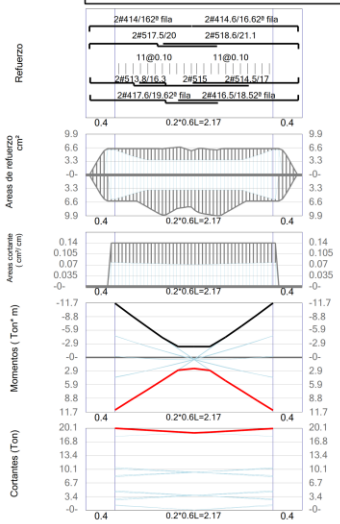
V-213 / NE+4.77

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS
Nombre Auxiliar	GRUPO 2 - CAPILLA
Propietario	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.
Norma	NSR-10 DMO
Dirección	
Diseño Arquitectónico	
Contenido	Memorias de Vigas
Código Nimbus	

V-213 / NE+4.77

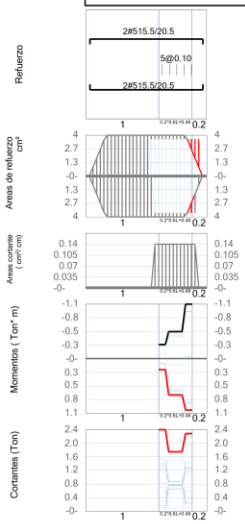


V-214 / NE+4.42

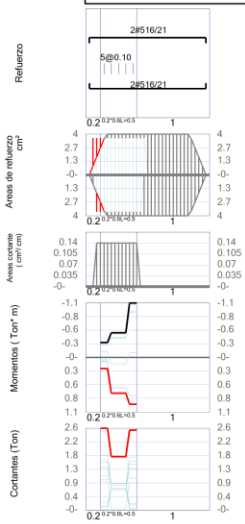


Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-301 / NE+5.31



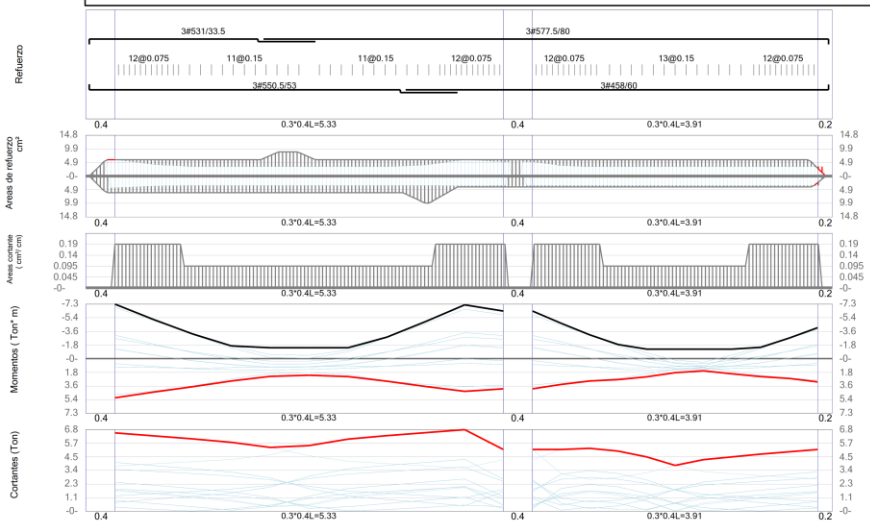
V-302 / NE+5.31



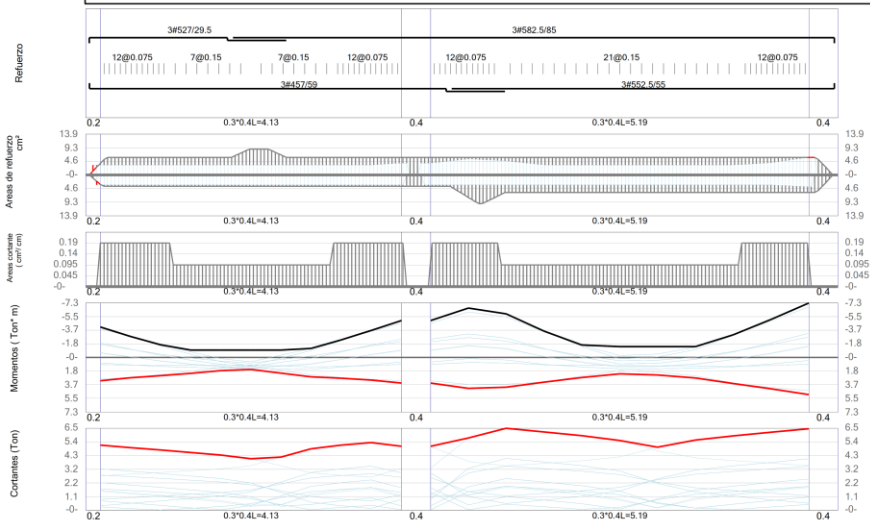
V-303 / NE+5.31

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-303 / NE+5.31



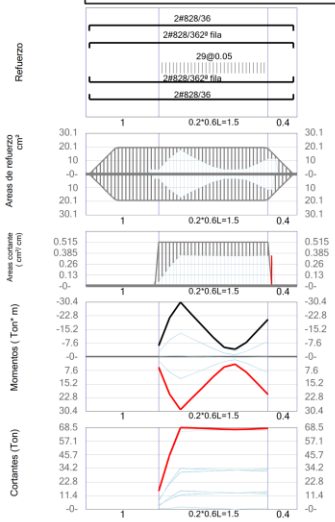
V-304 / NE+5.31



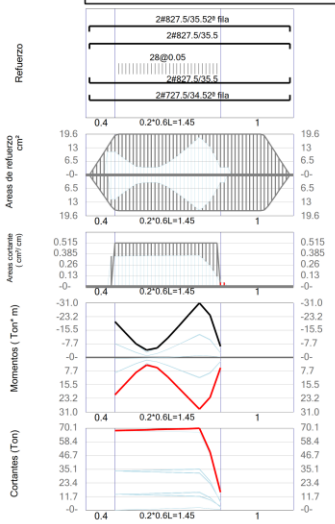
V-305 / NE+5.31

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-305 / NE+5.31



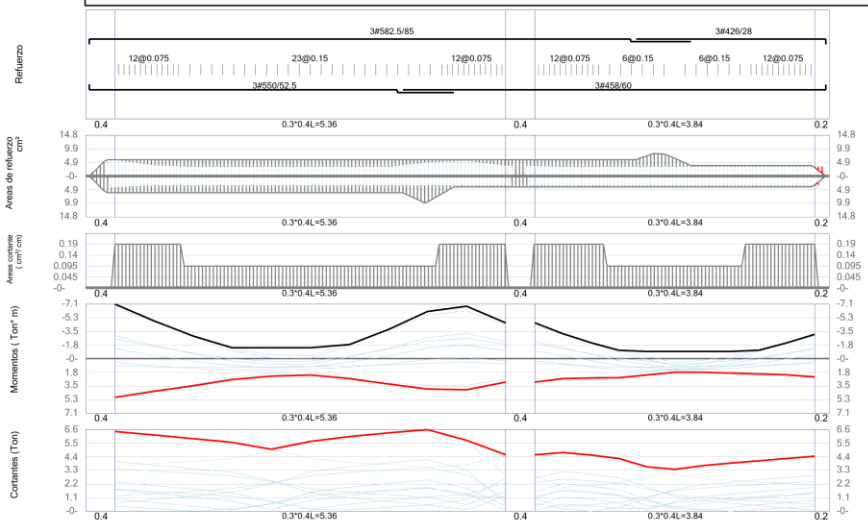
V-306 / NE+5.31



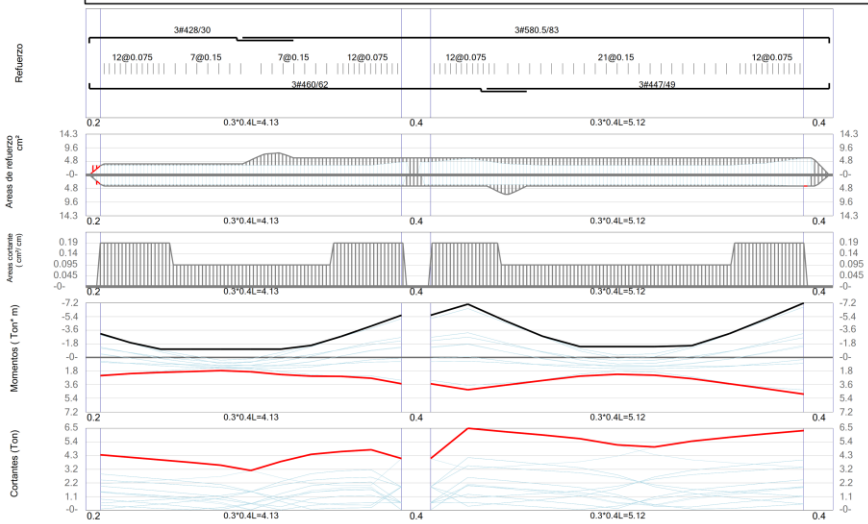
V-307 / NE+5.31

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-307 / NE+5.31



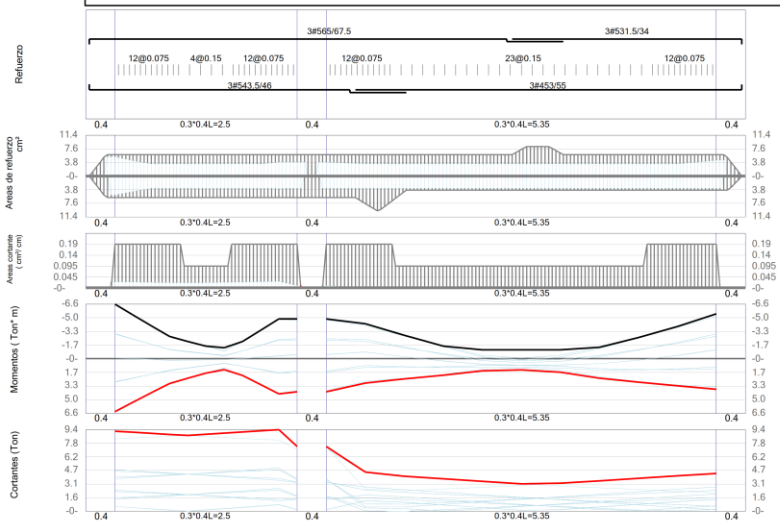
V-308 / NE+5.31



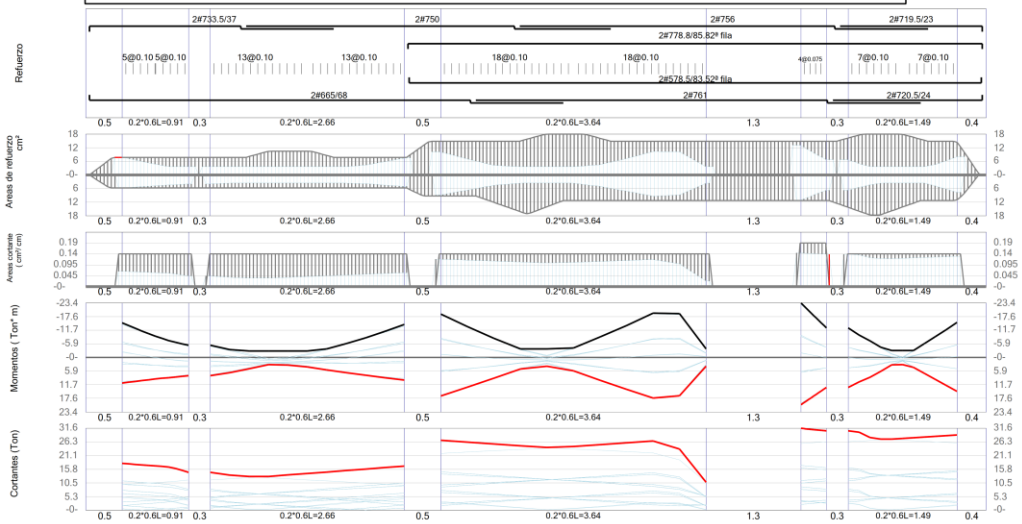
V-309 / NE+5.31

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-309 / NE+5.31



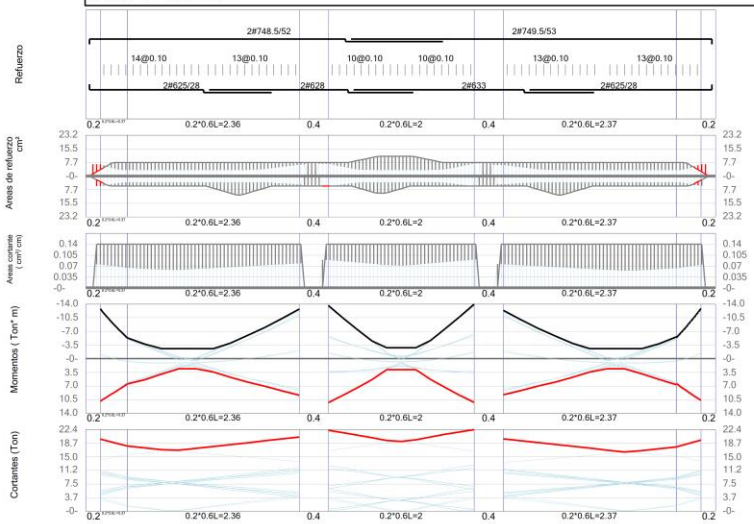
V-310 / NE+5.31



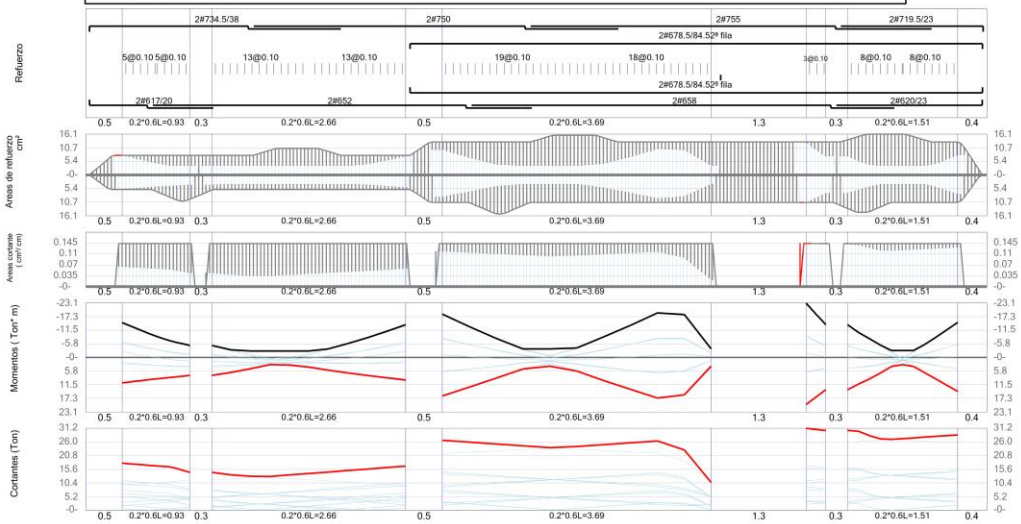
V-311 / NE+5.31

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-311 / NE+5.31



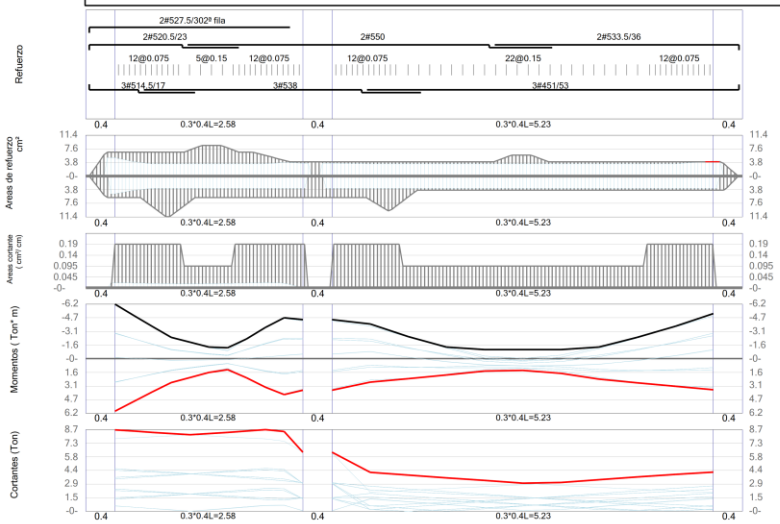
V-312 / NE+5.31



V-313 / NE+5.31

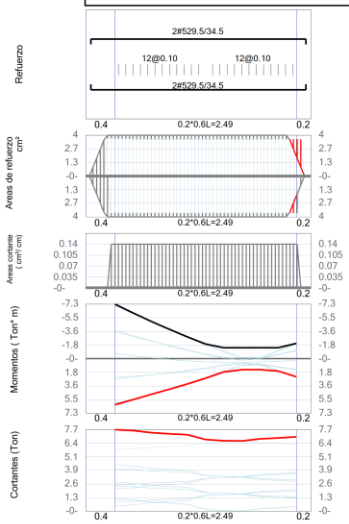
Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-313 / NE+5.31

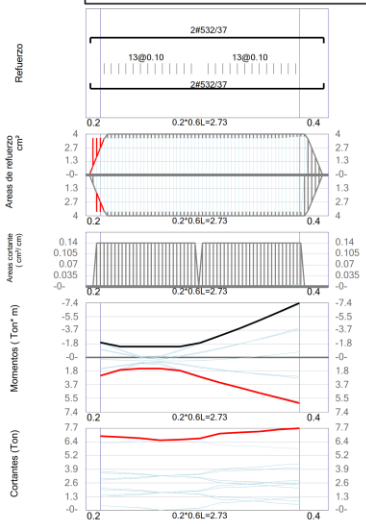


Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-401 / NE+8.65



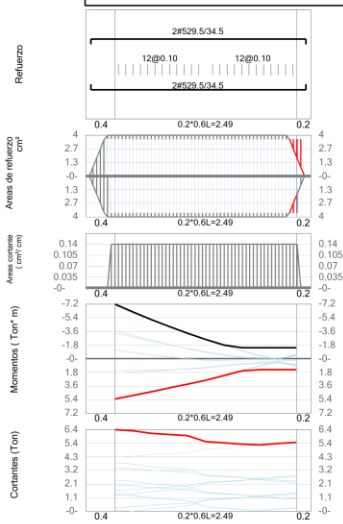
V-402 / NE+8.65



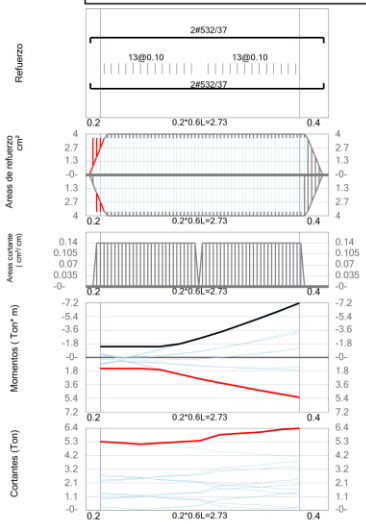
V-403 / NE+8.65

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-403 / NE+8.65



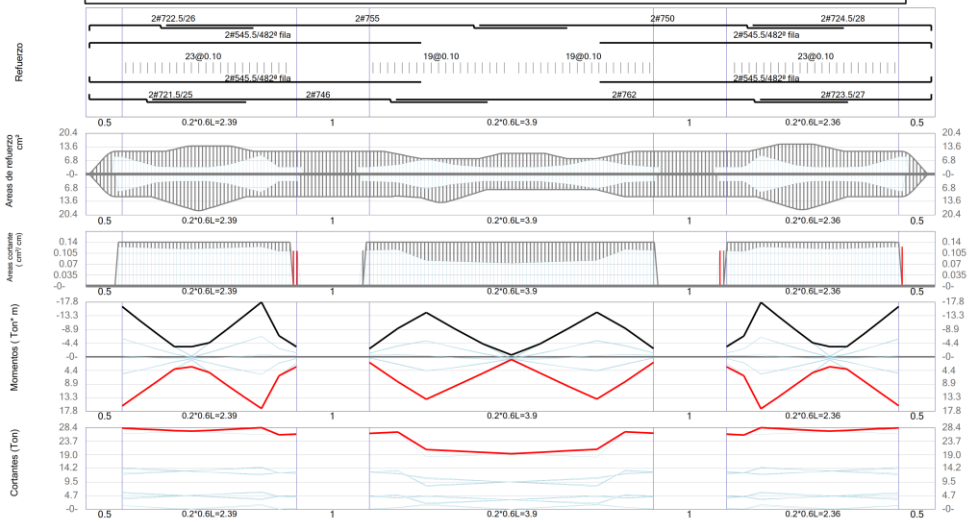
V-404 / NE+8.65



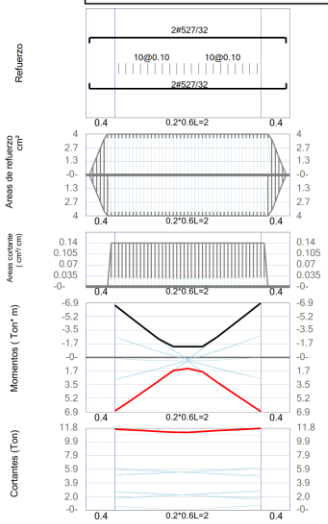
V-405 / NE+8.65

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-405 / NE+8.65



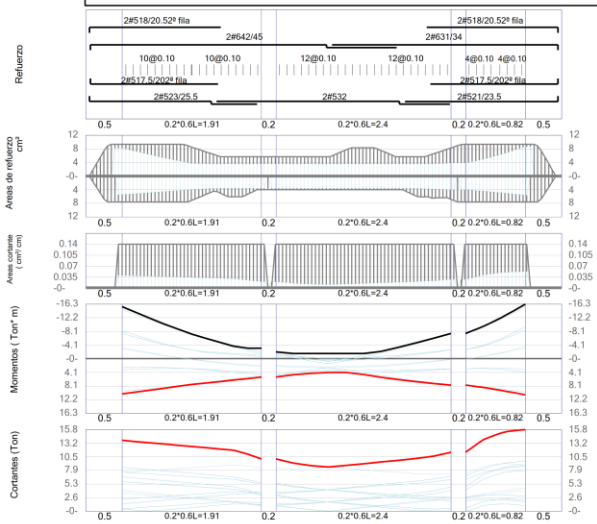
V-406 / NE+8.65



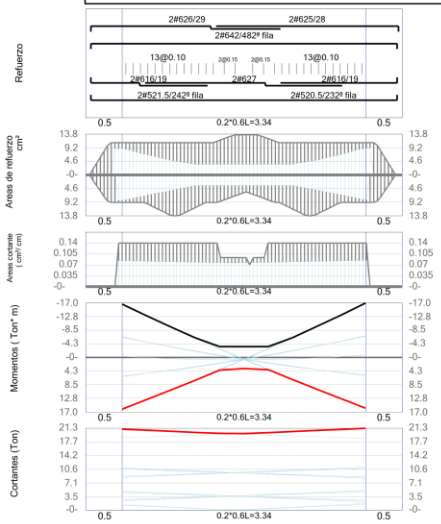
V-407 / NE+8.65

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-407 / NE+8.65



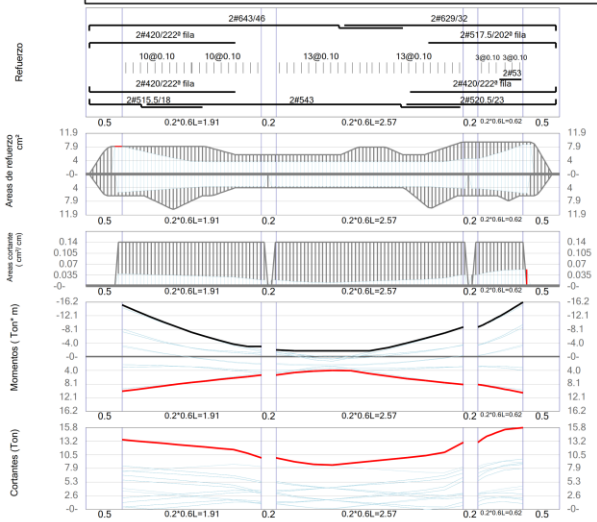
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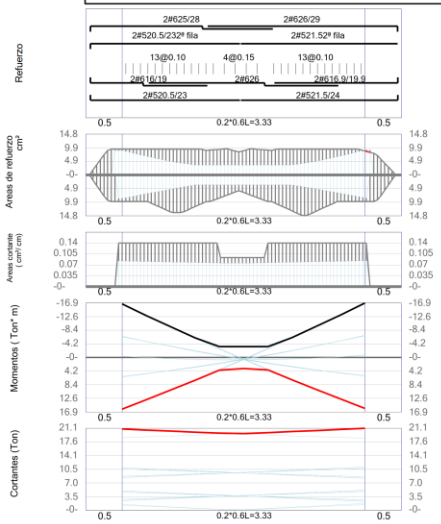
V-409 / NE+8.65

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-409 / NE+8.65



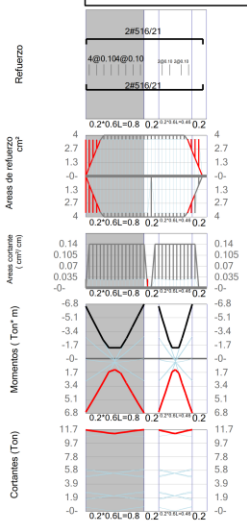
V-410 / NE+8.65



V-411 / NE+8.65

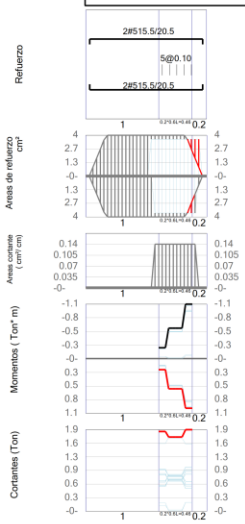
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Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-411 / NE+8.65

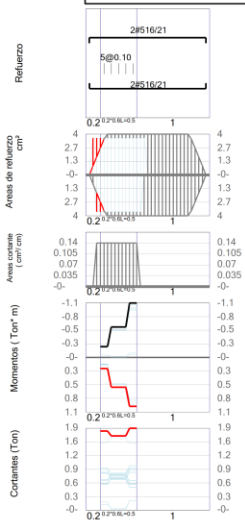


Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-501 / NE+9.67



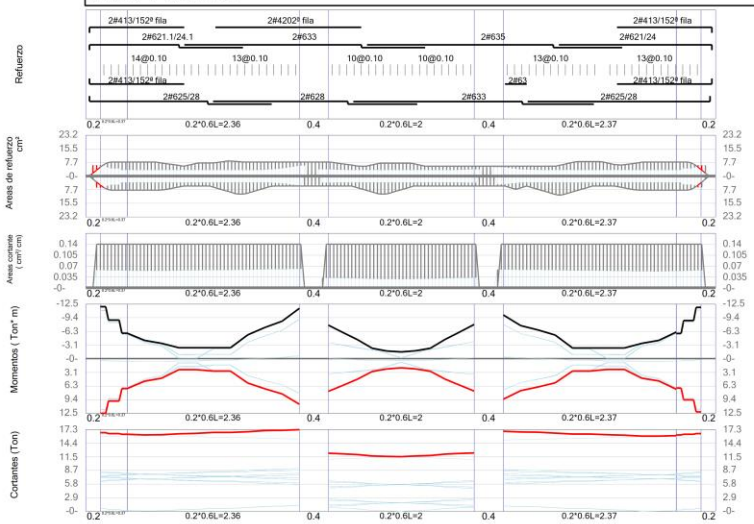
V-502 / NE+9.67



V-503 / NE+9.67

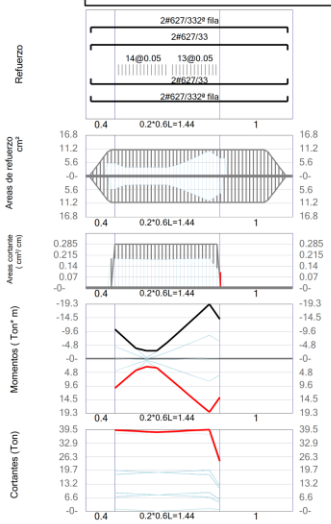
Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-503 / NE+9.67

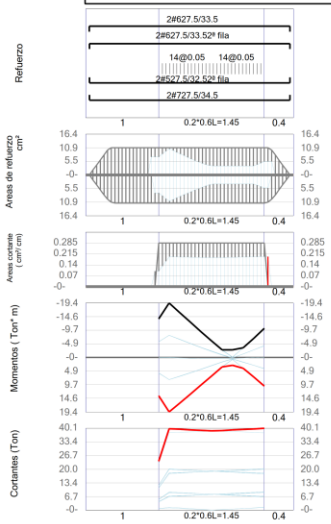


Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-601 / NE+11.64



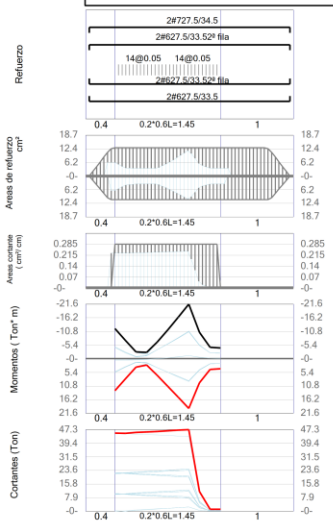
V-602 / NE+11.64



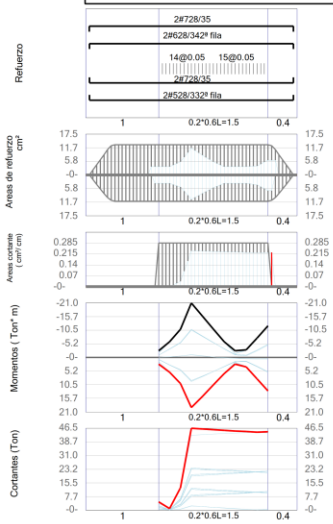
V-604 / NE+11.64

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-604 / NE+11.64

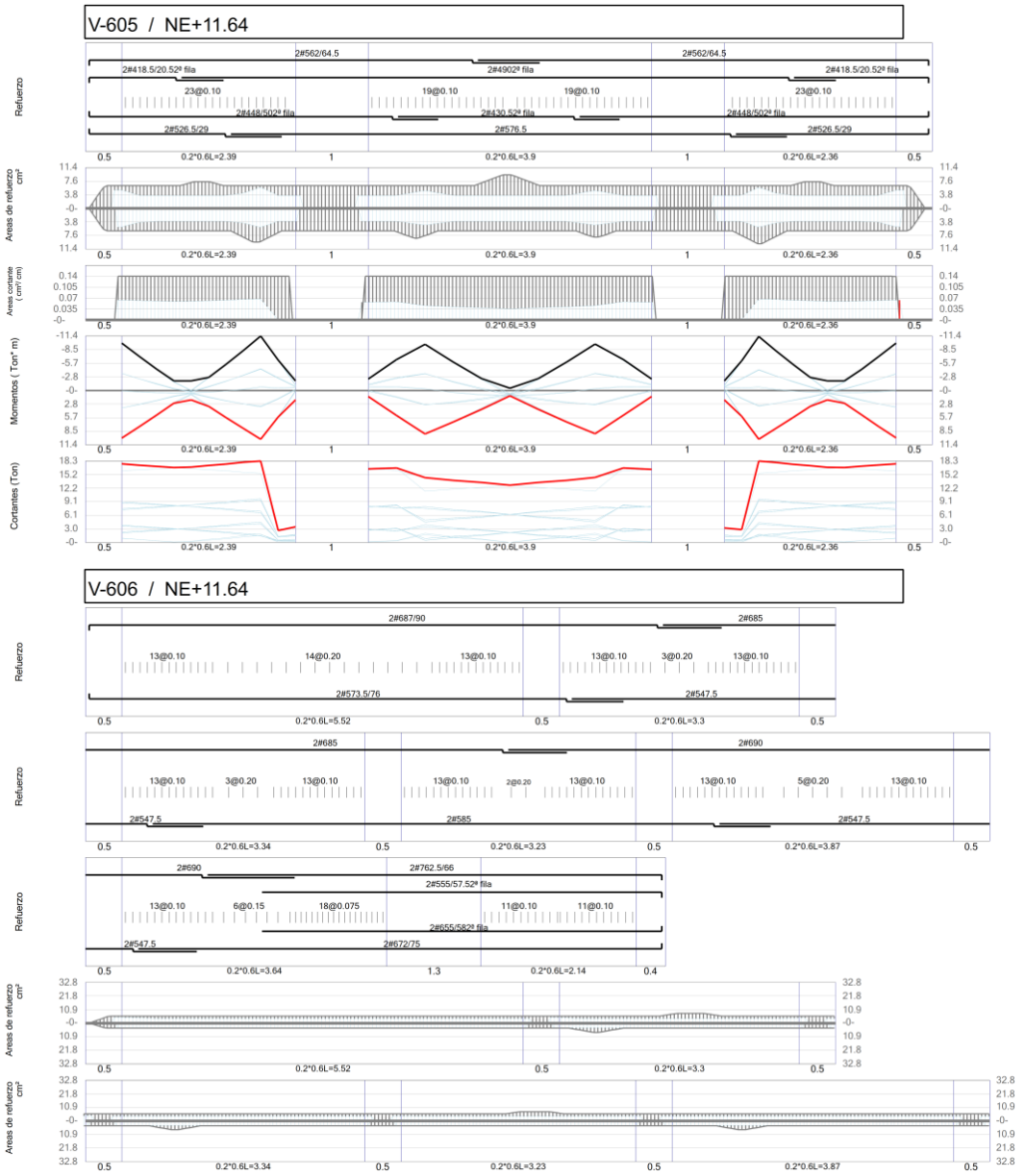


V-603 / NE+11.64

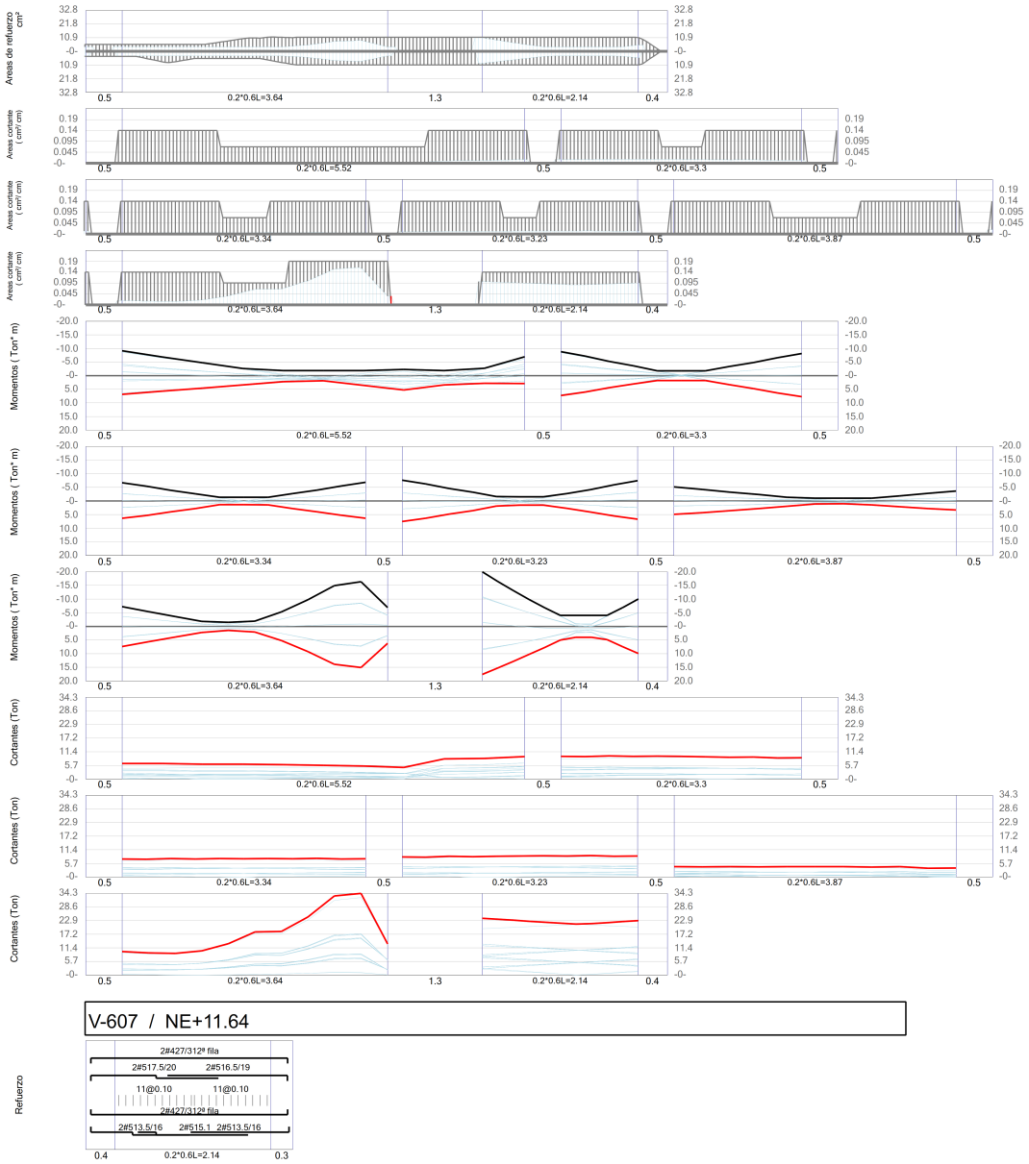


V-605 / NE+11.64

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

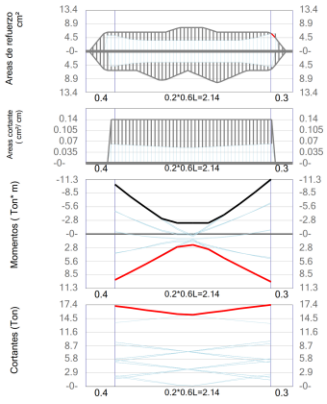


Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

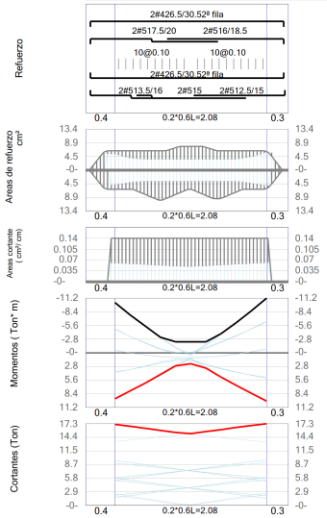


V-607 / NE+11.64

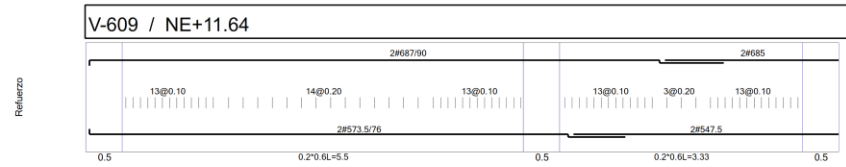
Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	



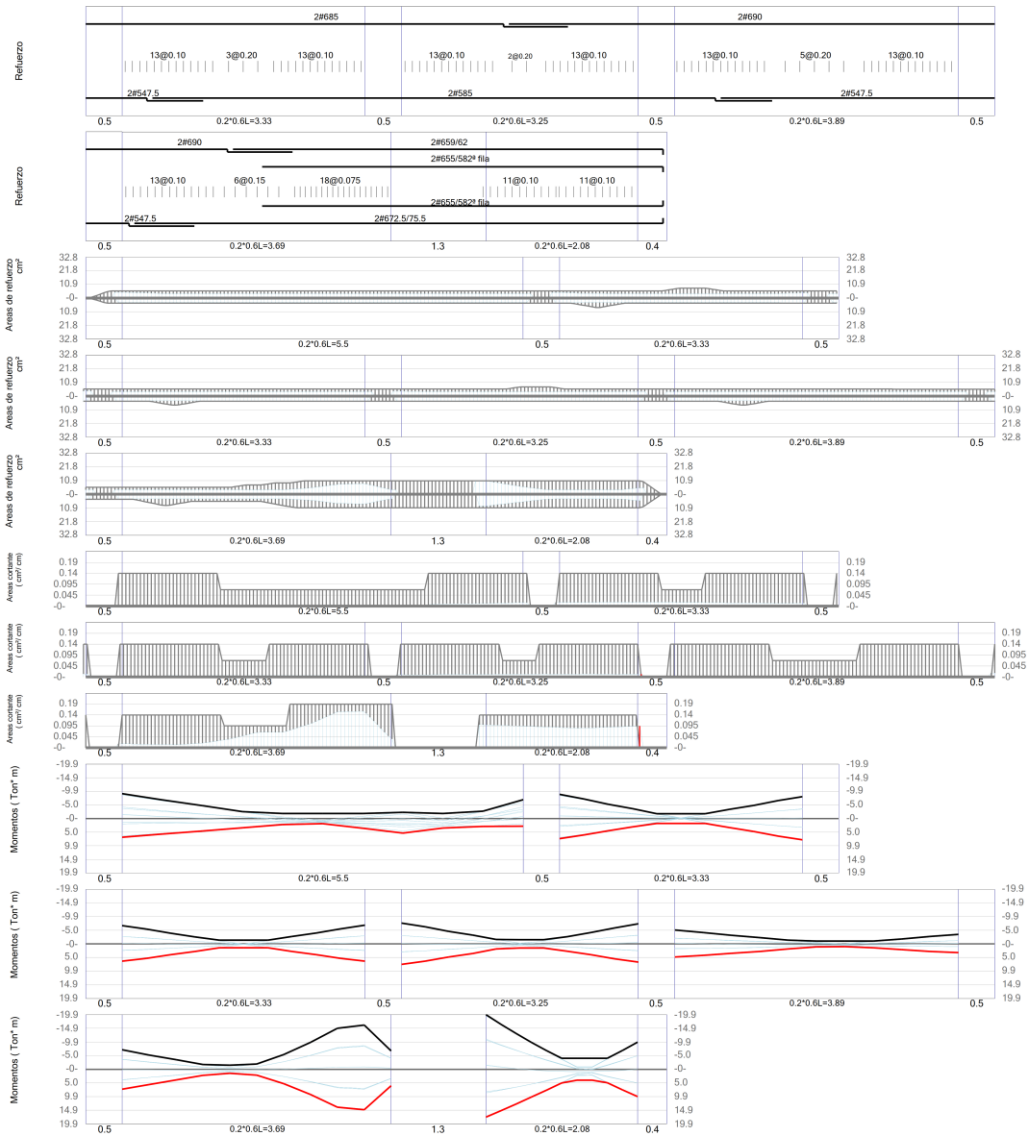
V-608 / NE+11.64



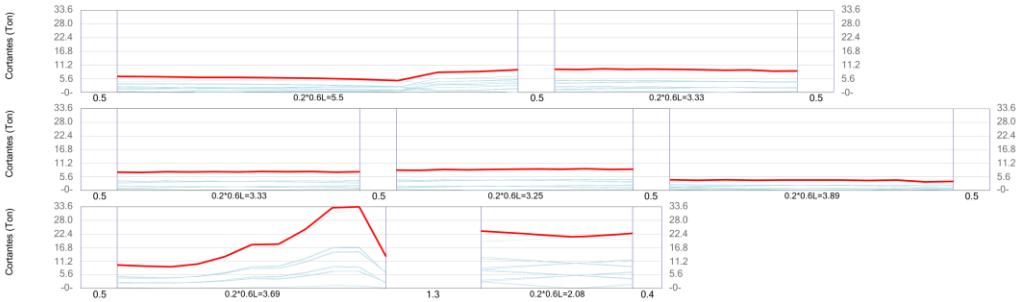
V-609 / NE+11.64



Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

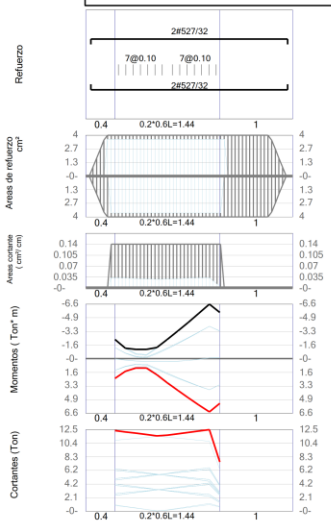


Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS
Nombre Auxiliar	GRUPO 2 - CAPILLA
Propietario	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.
Norma	NSR-10 DMO
Dirección	
Diseño Arquitectónico	
Contenido	Memorias de Vigas
Código Nimbus	

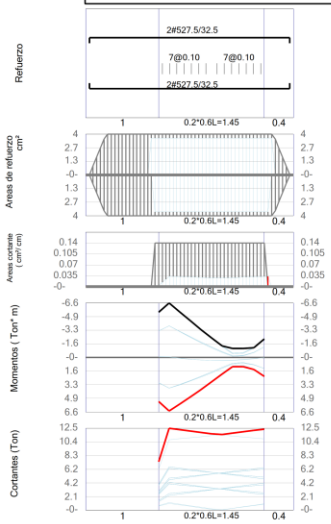


Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-701 / NE+18.67



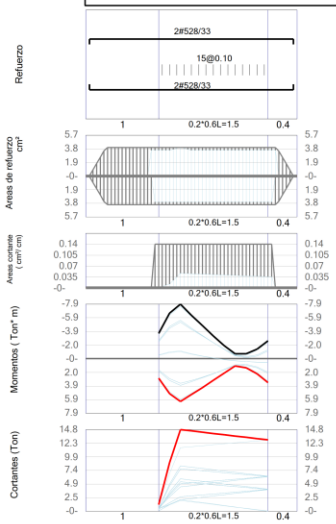
V-702 / NE+18.67



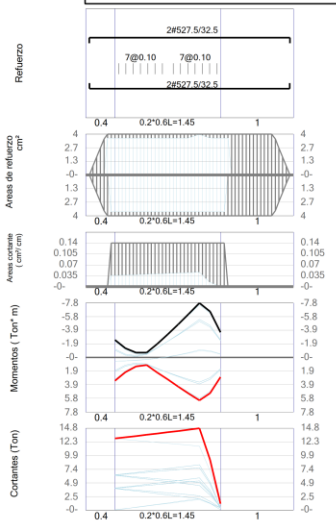
V-703 / NE+18.67

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-703 / NE+18.67



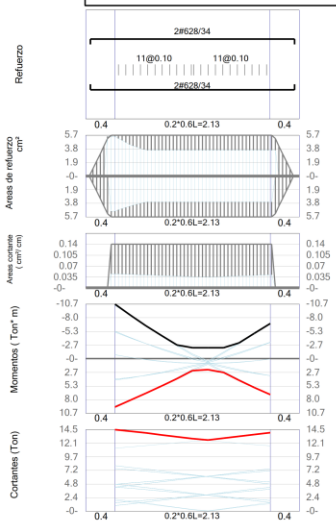
V-704 / NE+18.67



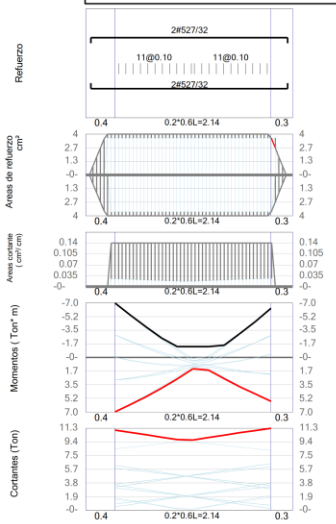
V-705 / NE+18.67

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-705 / NE+18.67



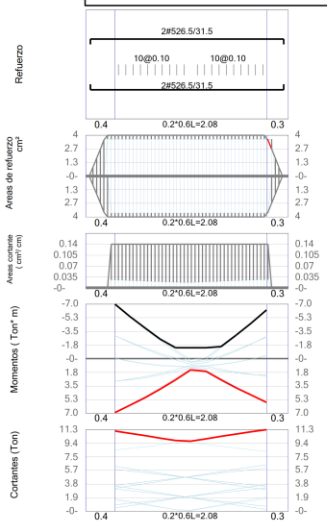
V-706 / NE+18.67



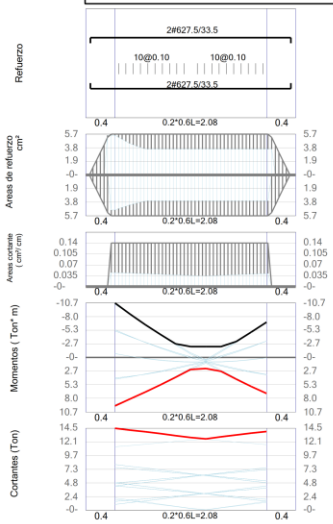
V-707 / NE+18.67

Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS		
Nombre Auxiliar	GRUPO 2 - CAPILLA	Dirección	
Propietario		Diseño Arquitectónico	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.	Contenido	Memorias de Vigas
Norma	NSR-10 DMO	Código Nimbus	

V-707 / NE+18.67



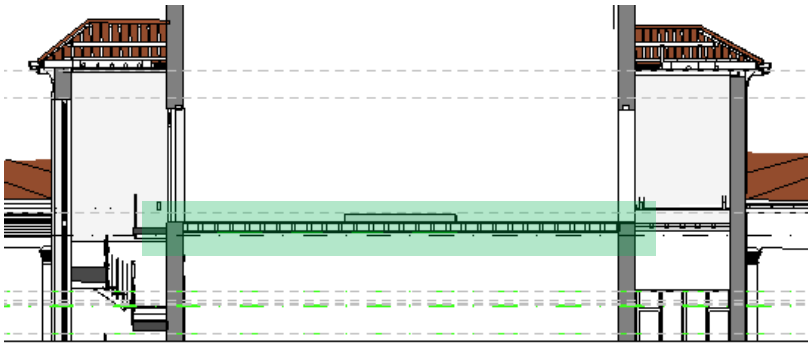
V-708 / NE+18.67



8.11.4 Viguetas Zona Coro

GUEVARA ÁLVAREZ INGENIEROS LTDA.	PROYECTO: HSJD - CAPILLA REVISION VIGUETA CORO	FECHA: 27/02/2023
	INGENIERO: IVAN MAURICIO GUEVARA	N.P : P-22-716

CERCHA CAPILLA - VIGUETA CORO



EVALUACION DE CARGAS

Carga Muerta Adicional (CM)

Tab madera 75 mm	40.00	Kg/m²
Cielo Raso	50.00	Kg/m²
		Kg/m²
	90.00	Kg/m²

Carga Viva (CV)

700 Kg/m²

CARGAS SOBRE CORREAS

TIPO	LONG. AFERENTE (m)	CM (Kg/m)	CV (Kg/m)
CORREA P	0.40	36.00	280.00
Luz	4.80		

REVISIÓN DE CORREA EN MADERA ZONA CORO

I. *MADERA: GEOMETRÍA Y PROPIEDADES.*

MADERA: **GRUPO:** **ES3**

ρ= 700 Kg/m³
E= 112169.2 Kg/cm²

Seccion Rectangular

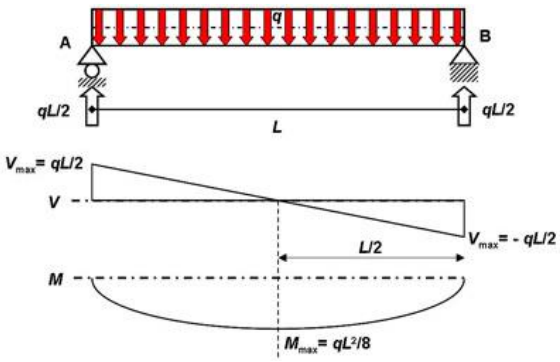
σ_{ADM}= 211.1 Kg/cm²
τ_{ADM}= 14.7 Kg/cm²
δ_{ADM}= 1.6 cm

L= 4.80 m
b= 15.00 cm
h= 22.00 cm

L Afe= 0.40 m
PP= 23.10 Kg/m
I= 13310.00 cm⁴

II. *DETERMINACIÒN DE LAS CARGAS PARA DISEÑO,*

CV ó G= 280.00 Kg/m
CM= 59.10 Kg/m
W= 0.00 Kg/m



q_U =	**339.10 Kg/m**
$V_{MÀX}$=	**813.84 Kg**
$M_{MÀX}$=	**976.61 Kg*m**

III. *FLEXIÓN.*

M Nominal $F'_b \frac{bd^2}{6}$

M Nominal **2554.08 Kg*m** Cumple Mn> Mu

IV. *CORTE.*

$$\tau = \frac{3*V_{MÁX}}{2*b*h}$$

τ= *3.70 Kg/cm²* < τ Admisible, Cumple

V. *DEFORMACIÓN.*

$$\delta = \frac{5*W_U*L^4}{384*E*I}$$

δ= *1.57 cm* < δ Admisible, Cumple

NOTA:

8.11.5 Placas

GUEVARA ÁLVAREZ INGENIEROS LTDA.	PROYECTO: HSJD - GRUPO 2 - EDIFICIO CAPILLA	FECHA: **27/02/2023**
	INGENIERO: IVAN MAURICIO GUEVARA R.	N.P : P-22-716

PLACA CONTRAPISO E=0.12 m

Espesor adoptado: 0.12 m

Avaluo de Cargas: Ton / m²

Peso propio de placa	0.12	x	2.40	=	0.288
Acabados	0.05	x	2.20	=	0.110
Otros				=	0.050
				CM =	0.448
				CV =	0.500
				CR =	0.948

CU = 1.2 CM + 1.6 CV	1.338
MU=(W*L²)/8 =	0.167

DISEÑO PLACA CONTRAPISO

H = 12 cm | b = 100 cm | fy = 4200 kg/cm²
L = 1.00 m | d = 6.00 cm | f'c = 245 kg/cm²

Chequeo a flexión MOMENTO

Coef. Durab. ϕ = 1.00
Mu = 0.17 T-m
ϕMu = 0.17 T-m
Por lo tanto:
ρ = 0.0012
As = 0.75 cm²/m
ρ_{min} = 0.0018
As_{min} = 2.16 cm²/m
Se requiere: As = 2.16 cm²/m

Chequeo a Cortante CORTANTE

Vu = 0.67 T
ϕVc = 3.79 T
Por lo tanto: Vu < ϕVc
Se asume: No requiere refuerzo a Cortante

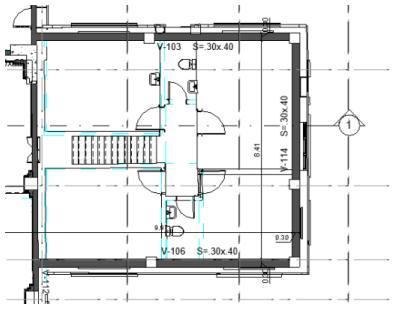
SE COLOCARA MALLA ELECTROSOLDADA DE 6.5 mm c/0.15 EN AMBOS SENTIDOS	SE COLOCARA MALLA ELECTROSOLDADA DE 6.5 mm c/0.15 EN AMBOS SENTIDOS

8.11.6 Chequeo Placa NE +3.17

Con base en la información suministrada por los equipos de levantamiento y restauración integral, por medio de los planos CHSJD_CC_LEV_12_Levantamiento, CHSJD_CC_RIN_R.Integral_18, se asume que esta zona presenta una placa de concreto aligerada en una dirección de aproximadamente 0.30 m de altura, de esta manera se considera como un elemento no estructural que no forma parte del sistema de resistencia.

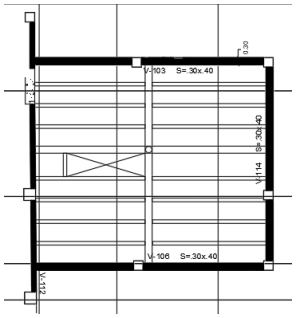
Con base en lo anterior y para el analisis de los elementos se asumen cuantías mínimas de refuerzo tanto para las tortas que conforman las placas de la estructura como para los elementos tipo Viguetas que conforman el entrepiso.

REVISION PLACA NE+3.17



Vulnerabilidad

Se asume placa aligerada de concreto de 0.30m de altura de acuerdo con informacion de levantamietno y restaruacion intergal. Vigas de 30 cm de espesor y viguetas de 15 cm de espesor de acuerdo con muros divisorios



Reforzamiento

EVALUACION DE CARGAS

Carga Muerta Adicional (CM)

Placa de Concreto e=5 cm	120.00	Kg/m²
Acabdo Terrazo 25 mm	150.00	Kg/m²
Cielo Raso	50.00	Kg/m²
	320.00	Kg/m²

Carga Viva (CV)

Vulnerabilidad	180	Kg/m²
Reforzamiento	200	Kg/m²

CARGAS SOBRE Viguetas

TIPO	LONG. AFERENTE (m)	CM (Kg/m)	CV (Kg/m)
Vigueta Vul.	0.92	294.40	165.60
Vigueta Ref.	0.92	294.40	184.00

PLACA NE+3.17 REFORZAMIENTO

Espesor adoptado: 0.05 m

Avaluo de Cargas: Ton / m²

Peso propio de placa	0.05	2.40	=	0.120
Acabados			=	0.150
Otros			=	0.050
			CM =	0.320
			CV =	0.200
			CR =	0.520

CU = 1.2 CM + 1.6 CV	0.704
MU=(W*L²)/8 =	0.074

DISEÑO PLACA CUBIERTA

H = 5 cm | b = 100 cm | fy = 4200 kg/cm²
L = 0.92 m | d = 2.50 cm | f'c= 210 kg/cm²

Chequeo a flexión MOMENTO

Coef. Durab. ϕ = 1.00

Mu = 0.07 T-m

ϕMu = 0.07 T-m

Por lo tanto:

ρ = 0.0033

As = 0.82 cm²/m

ρ_{min} = 0.0018

As_{min} = 0.90 cm²/m

Se requiere: As = 0.90 cm²/m

Chequeo a Cortante CORTANTE

Vu = 0.32 T

ϕVc = 1.46 T

Por lo tanto: Vu < ϕVc

Se asume: No requiere refuerzo a Cortante

SE COLOCARA MALLA ELECTROSOLDADA DE 5 mm c/0.15 EN AMBOS SENTIDOS	SE COLOCARA MALLA ELECTROSOLDADA DE 5 mm c/0.15 EN AMBOS SENTIDOS

Indice de Sobre esfuerzo

Momento Resistente	0.110	**0.677**	**Cumple**
Momento Actuante	0.074		

Vigueta Reforzamiento

Vigueta

DATOS VIGA		Vigueta	
b=	15	cm	
h=	30	cm	
d´=	5	cm	
d=	25	cm	
As=	Sup	1.42	cm^2
	Inf	1.42	cm^2
ρ_{SUP}=	0.0037867		
ρ_{INF}=	0.0037867		

Muagr=	0.77	t.m		
f´c=	210	kg/cm^2		
fy=	4200	kg/cm^2		

Momento Nominal Resistente Superior	1.28 t-m	1.26 t-m	CUMPLE	0.98
Momento Nominal Resistente Inferior	1.28 t-m	0.63 t-m	CUMPLE	0.49
Cortante Resistente Superior	9.62 t	1.56 t	CUMPLE	0.16

Ramas = **2** Av = **0.71** cm2

separacion estribos 15 cm

vc = 0.75* 0.53*√ f'c = 5.76 k/cm2 Vc = 2160.12 Kg

vs = 0.75*Av*R*fy/(S*b) 19.88 k/cm2 Vs = 7455.00 Kg

Cortante Nominal Vn = 9615.12 Kg

Como se puede observar los elementos de viguetas y placas soportan las nuevas solicitaciones a las cuales serán expuestas en la propuesta de adecuación funcional.

8.11.7 Chequeo Proceso Constructivo

VERIFICACION PROCESO CONSTRUCTIVO VIGAS REFORZAMIENTO
ZONA CONSERVACION

Muro Existente

Materiales: f'm = 93.5 kg/cm^2

Sección :
e = 0.43 m Espesor
h = 11.64 m Altura

Nivel Intervencion = NE 3.17

h´ = 8.47 m Altura A soportar Durante Proceso de Intervencion
e´ = 0.20 m Longitud de afectacion en muro (Espesor Viga)

Esfuerzo admisible para compresion NSR-10 D-1.5.2

Fa = 0.20 f´m Re
Re = 0.33
Fa = 0.61 MPa
Fa = 6.08 kg/cm^2

Esfuerzo admisible para compresion por Flexion NSR-10 D-1.5.3

Fb = 0.33 f´m <= 14 Mpa
Fb= 0.33 x 9.35 MPa <= 14 MPa
Fb= 3.09 MPa <= 14 MPa
Fb= 3.09 MPa
Fb= 30.86 kg/cm^2

Carga a soportar en la zona de intervencion

ϒ muros = 1.8 T/m^3
L intervencion = 6.0 m
Carga A soportar= altura a soportar x longitud de intervencion x espesor x peso especifico
Carga A soportar= 8.47 x 6.0 x 0.43 x 1.8
Carga A soportar= 39.335 Ton

Esfuerzo axial sobre zona de intervencion

Esfuerzo Intervencion =	Carga a soportar	/	Seccion trasanversal Reducida			
Esfuerzo Intervencion =	Carga a soportar	/	(e -e´) x (L intervencion)			
Esfuerzo Intervencion =	39.335	/	0.2300	x	6.0	
Esfuerzo Intervencion =	39.335	/	1.3800	m^2		
Esfuerzo Intervencion =	28.503	T/m^2				
Esfuerzo Intervencion =	2.896	kg/cm^2				
Esfuerzo Intervencion =	0.284	Mpa				

Esfuerzo a flexion sobre zona de intervencion

Carga	=	39.335	Ton
Brazo	=	0.100	m
Momento	=	3.933	Ton*m
Inercia	=	0.006	m^4
c	=	0.115	m
Esfuerzo a Flexion	=	103.317	ton/m^2
Esfuerzo a Flexion	=	10.4975	kg/cm^2
Esfuerzo a Flexion	=	1.0295	MPa

Chequeo de Esfuerzos sobre seccion de intervencion

Esfuerzo Admisible D-1.5.2	=	6.08	kg/cm^2
Esfuerzo actuante	=	2.896	kg/cm^2
Verificacion	=	Cumple	
Esfuerzo Admisible D-1.5.3	=	30.86	kg/cm^2
Esfuerzo actuante	=	10.498	kg/cm^2
Verificacion	=	Cumple	

VERIFICACION PROCESO CONSTRUCTIVO VIGAS REFORZAMIENTO ZONA CONSERVACION

Muro Existente

Materiales: f'm = 93.5 kg/cm^2

Sección :
e = 0.43 m Espesor
h = 11.64 m Altura

Nivel Intervencion = NE 4.77

h´ = 6.87 m Altura A soportar Durante Proceso de Intervencion
e´ = 0.20 m Longitud de afectacion en muro (Espesor Viga)

Esfuerzo admisible para compresion NSR-10 D-1.5.2

Fa = 0.20 f´m Re
Re = 0.49
Fa = 0.92 MPa
Fa = 9.24 kg/cm^2

Esfuerzo admisible para compresion por Flexion NSR-10 D-1.5.3

Fb = 0.33 f´m <= 14 Mpa
Fb= 0.33 x 9.35 MPa <= 14 MPa
Fb= 3.09 MPa <= 14 MPa
Fb= 3.09 MPa
Fb= 30.86 kg/cm^2

Carga a soportar en la zona de intervencion

ϒ muros = 1.8 T/m^3
L intervencion = 6.0 m
Carga A soportar= altura a soportar x longitud de intervencion x espesor x peso especifico
Carga A soportar= 6.87 x 6.0 x 0.43 x 1.8
Carga A soportar= 31.904 Ton

Esfuerzo axial sobre zona de intervencion

Esfuerzo Intervencion =	Carga a soportar	/	Seccion trasanversal Reducida			
Esfuerzo Intervencion =	Carga a soportar	/	(e -e´) x (L intervencion)			
Esfuerzo Intervencion =	31.904	/	0.2300	x	6.0	
Esfuerzo Intervencion =	31.904	/	1.3800	m^2		
Esfuerzo Intervencion =	23.119	T/m^2				
Esfuerzo Intervencion =	2.349	kg/cm^2				
Esfuerzo Intervencion =	0.230	Mpa				

Esfuerzo a flexion sobre zona de intervencion

Carga	=	31.904	Ton
Brazo	=	0.100	m
Momento	=	3.190	Ton*m
Inercia	=	0.006	m^4
c	=	0.115	m
Esfuerzo a Flexion	=	83.801	ton/m^2
Esfuerzo a Flexion	=	8.5145	kg/cm^2
Esfuerzo a Flexion	=	0.8350	MPa

Chequeo de Esfuerzos sobre seccion de intervencion

Esfuerzo Admisible D-1.5.2	=	9.24	kg/cm^2
Esfuerzo actuante	=	2.349	kg/cm^2
Verificacion	=	Cumple	
Esfuerzo Admisible D-1.5.3	=	30.86	kg/cm^2
Esfuerzo actuante	=	8.515	kg/cm^2
Verificacion	=	Cumple	

VERIFICACION PROCESO CONSTRUCTIVO VIGAS REFORZAMIENTO ZONA CONSERVACION

Muro Existente

Materiales: f'm = 93.5 kg/cm^2

Sección :
e = 0.43 m Espesor
h = 11.64 m Altura

Nivel Intervencion = NE 8.65

h´ = 2.99 m Altura A soportar Durante Proceso de Intervencion
e´ = 0.20 m Longitud de afectacion en muro (Espesor Viga)

Esfuerzo admisible para compresion NSR-10 D-1.5.2

Fa = 0.20 f´m Re
Re = 0.90
Fa = 1.69 MPa
Fa = 16.91 kg/cm^2

Esfuerzo admisible para compresion por Flexion NSR-10 D-1.5.3

Fb = 0.33 f´m <= 14 Mpa
Fb= 0.33 x 9.35 MPa <= 14 MPa
Fb= 3.09 MPa <= 14 MPa
Fb= 3.09 MPa
Fb= 30.86 kg/cm^2

Carga a soportar en la zona de intervencion

ϒ muros = 1.8 T/m^3
L intervencion = 6.0 m
Carga A soportar= altura a soportar x longitud de intervencion x espesor x peso especifico
Carga A soportar= 2.99 x 6.0 x 0.43 x 1.8
Carga A soportar= 13.886 Ton

Esfuerzo axial sobre zona de intervencion

Esfuerzo Intervencion =	Carga a soportar	/	Seccion trasanversal Reducida			
Esfuerzo Intervencion =	Carga a soportar	/	(e -e´) x (L intervencion)			
Esfuerzo Intervencion =	13.886	/	0.2300	x	6.0	
Esfuerzo Intervencion =	13.886	/	1.3800	m^2		
Esfuerzo Intervencion =	10.062	T/m^2				
Esfuerzo Intervencion =	1.022	kg/cm^2				
Esfuerzo Intervencion =	0.100	Mpa				

Esfuerzo a flexion sobre zona de intervencion

Carga	=	13.886	Ton
Brazo	=	0.100	m
Momento	=	1.389	Ton*m
Inercia	=	0.006	m^4
c	=	0.115	m
Esfuerzo a Flexion	=	36.472	ton/m^2
Esfuerzo a Flexion	=	3.7057	kg/cm^2
Esfuerzo a Flexion	=	0.3634	MPa

Chequeo de Esfuerzos sobre seccion de intervencion

Esfuerzo Admisible D-1.5.2	=	16.91	kg/cm^2
Esfuerzo actuante	=	1.022	kg/cm^2
Verificacion	=	Cumple	
Esfuerzo Admisible D-1.5.3	=	30.86	kg/cm^2
Esfuerzo actuante	=	3.706	kg/cm^2
Verificacion	=	Cumple	

VERIFICACION PROCESO CONSTRUCTIVO VIGAS REFORZAMIENTO ZONA CONSERVACION

Muro Existente

Materiales: f'm = 93.5 kg/cm^2

Sección :
e = 0.43 m Espesor
h = 11.64 m Altura

Nivel Intervencion = NE 11.64

h´ = 0.00 m Altura A soportar Durante Proceso de Intervencion
e´ = 0.20 m Longitud de afectacion en muro (Espesor Viga)

Esfuerzo admisible para compresion NSR-10 D-1.5.2

Fa = 0.20 f´m Re
Re = 1.00
Fa = 1.87 MPa
Fa = 18.70 kg/cm^2

Esfuerzo admisible para compresion por Flexion NSR-10 D-1.5.3

Fb = 0.33 f´m <= 14 Mpa
Fb= 0.33 x 9.35 MPa <= 14 MPa
Fb= 3.09 MPa <= 14 MPa
Fb= 3.09 MPa
Fb= 30.86 kg/cm^2

Carga a soportar en la zona de intervencion

ϒ muros = 1.8 T/m^3
L intervencion = 6.0 m
Carga A soportar= altura a soportar x longitud de intervencion x espesor x peso especifico
Carga A soportar= 0.00 x 6.0 x 0.43 x 1.8
Carga A soportar= 0.000 Ton

Esfuerzo axial sobre zona de intervencion

Esfuerzo Intervencion =	Carga a soportar	/	Seccion trasanversal Reducid			
Esfuerzo Intervencion =	Carga a soportar	/	(e -e´) x (L intervencion)			
Esfuerzo Intervencion =	0.000	/	0.2300	x	6.0	
Esfuerzo Intervencion =	0.000	/	1.3800	m^2		
Esfuerzo Intervencion =	0.000	T/m^2				
Esfuerzo Intervencion =	0.000	kg/cm^2				
Esfuerzo Intervencion =	0.000	Mpa				

Esfuerzo a flexion sobre zona de intervencion

Carga	=	0.000	Ton
Brazo	=	0.100	m
Momento	=	0.000	Ton*m
Inercia	=	0.006	m^4
c	=	0.115	m
Esfuerzo a Flexion	=	0.000	ton/m^2
Esfuerzo a Flexion	=	0.0000	kg/cm^2
Esfuerzo a Flexion	=	0.0000	MPa

Chequeo de Esfuerzos sobre seccion de intervencion

Esfuerzo Admisible D-1.5.2	=	18.70	kg/cm^2
Esfuerzo actuante	=	0.000	kg/cm^2
Verificacion	=	Cumple	
Esfuerzo Admisible D-1.5.3	=	30.86	kg/cm^2
Esfuerzo actuante	=	0.000	kg/cm^2
Verificacion	=	Cumple	

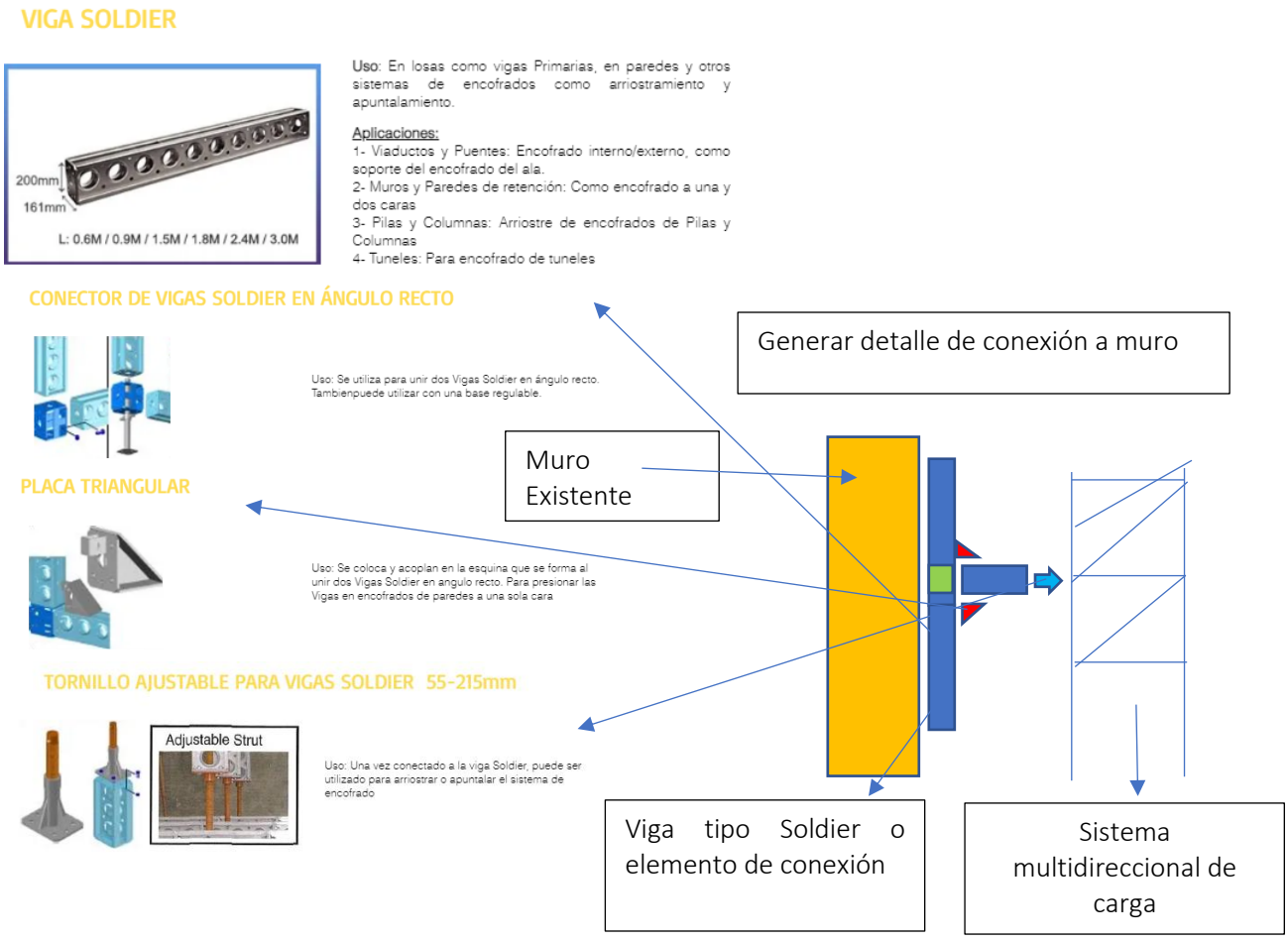
Como se puede observar se genera la revisión de las diferentes tipos de intervenciones sobre los diversos niveles de los muros de conservación considerando la resistencia de materiales, secciones actuales y afectación por la inclusión de la viga de reforzamiento, para lo cual se plantea que en esta etapa los muros se encuentren debidamente apuntalados con lo cual solo se tendrán efectos de peso propio sobre los elementos.

De esta manera fue posible determinar que la demolición parcial de una zona con un espesor de 20 cm, lo cual es aproximado a la tercia parte de los muros de los elementos, no conlleva u un falla por cortante o flexión debidas a las cargas que estarían actuando sobre la sección reducida de los muros, razón por la cual se determinó que estos elementos pueden ser construidos de manera segura, siguiendo las medidas de seguridad pertinentes, a su ves ya que la afectación por la conformación de los elementos de columnas considera longitudes de menores de afectación que las de las vigas, se considera que esos trabajos generan trabajos puntuales que no ponen en riesgo la estabilidad estructural de la edificacion.

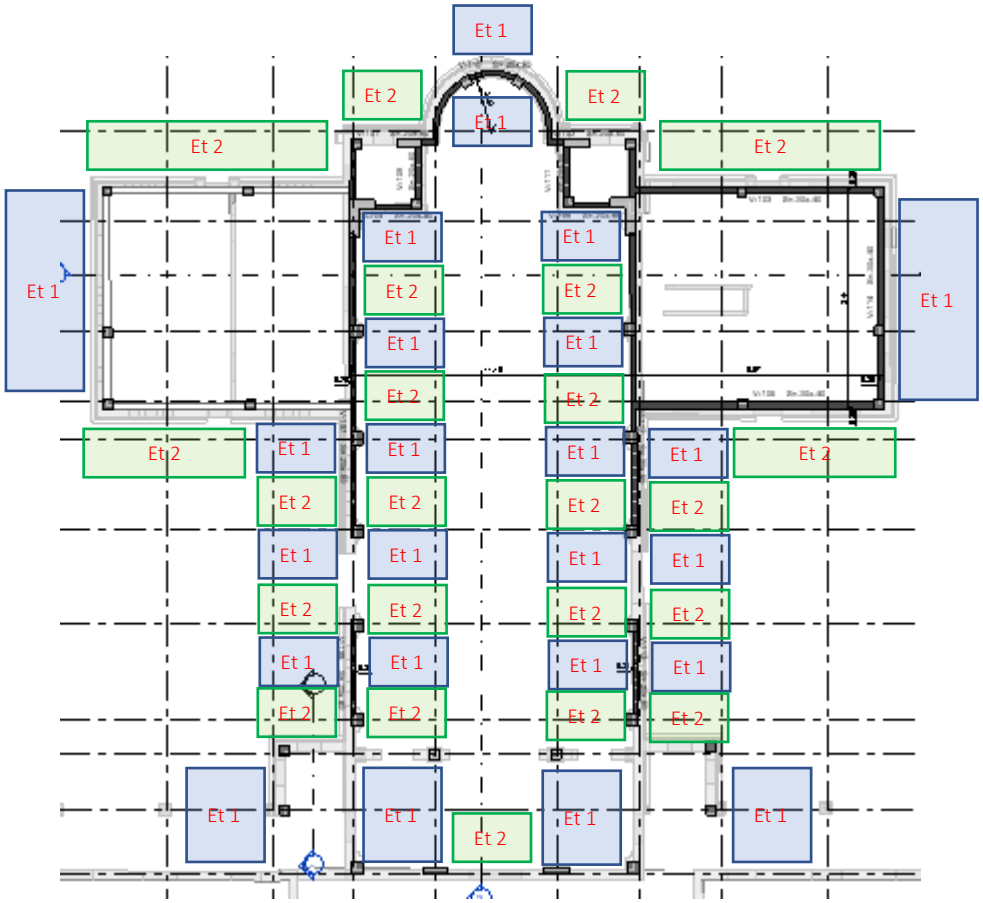
8.11.8 Proceso Constructivo

Para la puesta en marcha del proceso de intervención del edificio capilla, se requiere generar un sistema de apuntalamiento que permita generar la estabilidad de los elementos a intervenir y brindar a la estructura un nivel de seguridad necesario para la conservación de los elementos no estructurales que son tan valiosos para el edificacion.

De esta manera se debe generar un apuntalamiento de los muros, placas y elementos de cubierta, lo cual se realizara por medio de un sistema multidireccional de carga que permita el armado, movimiento y correcto apuntalamiento de los elementos, estos sistemas, se vincularan a los muros o elementos a soportar por medio de elementos de conexión que se vincularan con las vigas Soilder, estos últimos elementos serán los encargados de trasmitir las cargas del muro o elemento existente al sistema de transferencia de carga.



Los detalles y esquemas de vinculación, así como el paso a paso de la conformación de los diversos niveles del sistema multidireccional de carga pueden ser consultados en los planos estructurales del proyecto, ver E-14, donde se presenta a su vez las etapas de apuntalamiento propuestas para la conformación de elementos, los cuales no deben ser realizadas de manera simultanea con el fin de evitar sobre esfuerzos en los elementos.



Es de aclara que el proceso constructivo presentado por esta consultoría es una recomendación para la conformación general del sistema de apuntalamiento, de esta manera, el constructor podrá generar un proceso propio siempre que se garantice la conservación y estabilidad de los elementos que conforman la estructura de capilla y se signa los detalles y especificaciones de los elementos mostrados en planos estructurales.

Para iniciar las labores de reforzamiento de cualquier elemento, se debe contemplar como paso inicial el debido apuntalamiento de la zona a intervenir, de esta manera para el inicio de las labores, se debe generar la demolición controlada de los machones ubicados en la zona central de la capilla, para lo anterior se deben retirar previamente los elementos de modulas y conservación que se presenten a lo largo de la altura del edificio, posteriormente se inicial el proceso de demolición

controlada iniciando desde la parte alta del macho, nivel de cubierta hasta terminar en la zona baja del mismo (Contrapiso), dicha demolición controlada debe ser realizada por medio de herramientas manuales generando demoliciones parciales hasta alcanzar el nivel del muro existente.

En este punto se procede al replanteo de la nueva columna o elementos, con lo cual se inician las labores de la liberación parcial de una sección del muro existente en una longitud no mayor de 20 cm, para ello se procederá a generar cortes con pulidora a lo largo de la altura del muro que permitan delimitar la zona a liberar en la sección, estos trabajos deben ser realizados de la misma manera que el proceso de demolición anterior de los machones, por medio de herramientas manuales evitando generar impactos que puedan comprometer la estabilidad de los elementos.

Con la zona delimitada de la nueva columna, se deben iniciar las labores de conformación de los elementos de cimentacion, con el fin de generar las nuevas zapatas, vigas de amarre y vigas de conexión, estos procesos podrán ser consultados en el plano E-04, donde se muestra el paso a paso a seguir y la localización, dimensiones y refuerzo de los nuevos elementos.

En esta etapa se debe proceder al armado del refuerzo de los elementos tipo zapata y columna hasta alcanzar el primer nivel del sistema de vigas de amarre de entrepiso, en este punto se deben iniciar las labores de demolición parcial de los muros par dar paso a las vigas de vinculación que unirá las columnas en las diferentes alturas, se deben verificar los despieces de los elementos con el fin de contemplar las longitudes a intervenir, de esta manera generar un espacio suficiente para la correcta vinculación del acero de refuerzo de las vigas y columnas en los nudos y contemplar su posterior continuidad con el acero de refuerzo de las vigas, lo anterior deberá ser repetido a lo largo de la conformación de las columnas de la zona de capilla hasta alcanzar el nivel de cubierta de la estructura, los procesos de demolición y conformación de elementos podrán ser consultaos en el plano EST-02.

Consecuentemente con el avance de las columnas se deben generar la unión de las vigas en los diversos niveles considerando siempre la estabilidad global de la estructura y la seguridad de los trabajadores.

Para finalizar el proceso de reforzamiento estructural, se procederá a la vinculación de los elementos no estructurales que corresponden a los muros existentes de la capilla, para ello pueden ser consultados en planos estructurales E-23 los detalles de vinculaciones y plano E-22 la conformación de nuevos elementos.

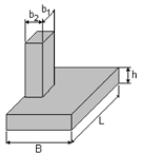
8.12 Diseño de Cimentación

8.12.1 Zapatas

ANALISIS ZAPATA DE LINDERO CON CONTRAPESO

ZAPATA: Z-1 **CANTIDAD:** 2

	GRAVIT.	GRAVIT.+SISMO
Carga de la Columna:	6.88 T	3.73 T
Momento Mxs:	0.01 T.m	3.10 T.m
Momento Mys:	0.05 T.m	0.11 T.m
Presión Admisible ($\sigma_{Adm.}$):	9.23 T/m^2	18.46 T/m^2
Porcentaje de Peso de Cimentación:	12 %	12 %
Excentricidad en x:	0.01 m	0.03 m
Excentricidad en y:	0.00 m	0.74 m
Área de Cimentación:	0.83 m²	
Lado Aprox. de la Zapata:	0.91 m	

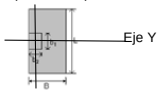


Materiales

Concreto: 210 Kg/cm^2
Acero: 4200 Kg/cm^2

Dimension Lado Corto (B)	1.00	m
El lado Corto Sobre Eje	Y	
Separacion entre Columnas	2.00	m
Excentricidad	0.30	m
Incremento Carga	1.36	Ton
Carga Ultima	9.06	Ton
Momento Viga	3.10	Ton*m
Momento Ultimo	4.66	Ton*m

Disposición Zapata



Dimensiones Viga

b=	40	cm
h=	40	cm
d=	35	cm
Cuantia =	0.0033	
As =	4.62	cm^2

Colocar 4#4 Superior e Inferior

	B (m) (Corto)		L (m) (Largo)
Dimensiónde la Zapata:	1.00	x	1.20
Dimensión de la Columna:	0.40	x	0.40
Acartelamiento:	0.10	m	
Altura de la Zapata:	0.30	m	
Factor de Mayoración:	1.5		

Eje X

Condición	1	2	3	4
q_s (T/m^2)	6.56	8.46	8.54	6.64
q_u (T/m^2)	9.84	12.69	12.81	9.96



Eje Y

REVISIÓN DE ESFUERZOS.

Según Estudio de Suelos:

Presión Admisible:		9.23 T/m^2	OK
Presión Neta:	qs_{fx}=	8.54 T/m^2	
Flexión:	Lv=	0.6 m	
	M =	1.47 T/m	
	Mu =	2.20 T.m	
	h =	40 cm	Recubrimiento= 7.5 cm
	d =	33 cm	
	Cuantia=	0.0006	(Análisis)
	As=	1.81 cm²	(Análisis)
	Cuantia=	0.0020	(Mínima sobre la sección bruta de concreto)
	As=	8.00 cm²	(Mínima)

Armadura Principal **TOTAL** As = 8.00 cm^2
en cada sentido *8.00* cm^2/m

REFUERZO A UTILIZAR

	#	m
	#3	0.09
	#4	0.16
X	#5	0.25
	#6	0.36
	#7	0.49
	#8	0.63

Se debe utilizar mín. refuerzo #5 C/0.25

REVISIÓN DE CORTANTE:

Revisión a d/2:

V (d/2) =	4.76	T		
Vu =	7.13	T		
d =	0.30	m		
ϕVc =	152.62	T	***OK***	
ó ϕVc =	160.70	T	***OK***	
ó ϕVc =	105.59	T	***OK***	

Revisión a d:

q_{sd}=	8.33	kN/m^2	
V (d)	0.25	T	
Vu	0.38	T	
d	0.28	m	
ϕVc	15.84	T	***OK***

Transmisión de Esfuerzos de la columna a la zapata:

Carga Producida:	10	T	
Carga Máxima:	371	T	***OK***

Longitud de Desarrollo necesaria (Refuerzo de la Columna):

Diámetros de las Varillas para utilizar:

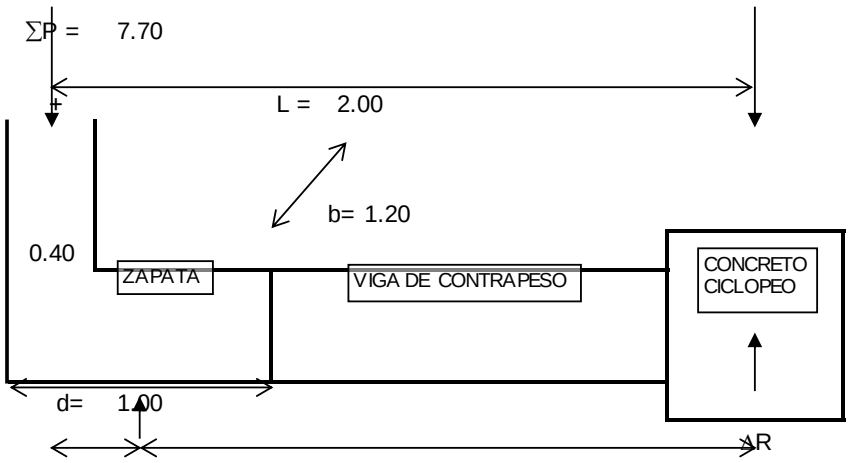
# Var.	Ø (cm)
# 3	0.953
# 4	1.270
# 5	1.590
# 6	1.910
# 7	2.220
# 8	2.540

Varilla de las columnas

# 6	1.91 cm

L_{db} = 29.1 cm ***OK***

CONTRAPESO EN CONCRETO CICLOPEO



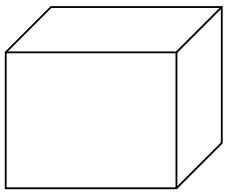
e = 0.30 (L-e)= 1.70

$$\sum P \times e = \Delta R \times (L-e) \quad » \quad \Delta R = \frac{\sum P \times e}{(L-e)}$$

$$\Delta R = \frac{7.70 \times 0.30}{1.70} = 1.36 \text{ Ton}$$

Cálculo del volumen que necesitamos para el contrapeso

$$V_{contrapeso} = \frac{\Delta R}{\gamma_{ciclopeo}} = \frac{1.36 \times 1.00}{2.2} = 0.62 \text{ m}^3$$



a= 0.80

c= 0.90

b= 0.90

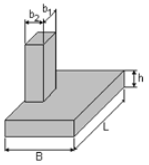
$V_{obtenido} > V_{requerido}$

0.65 **ok** 0.62

ANALISIS ZAPATA DE LINDERO CON CONTRAPESO

ZAPATA: Z-2 **CANTIDAD:** 2

	GRAVIT.	GRAVIT.+SISMO
Carga de la Columna:	13.79 T	10.67 T
Momento Mxs:	0.61 T.m	1.93 T.m
Momento Mys:	0.11 T.m	3.77 T.m
Presión Admisible ($\sigma_{Adm.}$):	9.23 T/m^2	18.46 T/m^2
Porcentaje de Peso de Cimentación:	12 %	12 %
Excentricidad en x:	0.01 m	0.32 m
Excentricidad en y:	0.04 m	0.16 m
Área de Cimentación:	1.67 m²	
Lado Aprox. de la Zapata:	1.29 m	

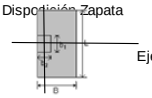


Materiales

Concreto: 210 Kg/cm^2
Acero: 4200 Kg/cm^2

Dimension Lado Corto (B)	1.50	m	
El lado Corto Sobre Eje	X		
Separacion entre Columnas	3.00	m	Eje X
Excentricidad	0.55	m	
Incremento Carga	3.47	Ton	
Carga Ultima	18.91	Ton	Eje Y
Momento Viga	8.49	Ton*m	
Momento Ultimo	12.74	Ton*m	

Disposición Zapata



Dimensiones Viga	b=	40	cm	
	h=	40	cm	
	d=	35	cm	
	Cuantia =	0.0075		
	As =	10.57	cm^2	Colocar 4#6 Superior e Inferior

	B (m) (Corto)		L (m) (Largo)
Dimensiónde la Zapata:	1.50	x	2.40
Dimensión de la Columna:	0.40	x	0.40
Acartelamiento:	0.10 m		
Altura de la Zapata:	0.30 m		
Factor de Mayoración:	1.5		

Eje Y



Eje X

Condición	1	2	3	4
q_s (T/m^2)	2.97	7.22	7.53	3.28
q_u (T/m^2)	4.46	10.83	11.30	4.92

REVISIÓN DE ESFUERZOS.

Según Estudio de Suelos:

Presión Admisible:		9.23	T/m^2	OK
Presión Neta:	qs_{rx}=	7.53	T/m^2	
Flexión:	Lv=	1.1	m	
	M =	8.33	T/m	
	Mu =	12.50	T.m	
	h =	40	cm	Recubrimiento= 7.5 cm
	d =	33	cm	
	Cuantia=	0.0021		(Análisis)
	As=	10.43	cm²	(Análisis)
	Cuantia=	0.0020		(Mínima sobre la sección bruta de concreto)
	As=	12.00	cm²	(Mínima)

Armadura Principal **TOTAL** As = 12.00 cm^2
en cada sentido *8.00* cm^2/m

REFUERZO A UTILIZAR

	#	m
	#3	0.09
	#4	0.16
X	#5	0.25
	#6	0.36
	#7	0.49
	#8	0.63

Se debe utilizar mín. refuerzo #5 C/0.25

REVISIÓN DE CORTANTE:

Revisión a d/2:

V (d/2) =	11.86	T		
Vu =	17.80	T		
d =	0.31	m		
ϕVc =	157.50	T		***OK***
ó ϕVc =	169.43	T		***OK***
ó ϕVc =	108.96	T		***OK***

Revisión a d:

q_{sd}=	6.27	kN/m^2	
V (d)	4.16	T	
Vu	6.24	T	
d	0.30	m	
ϕVc	25.82	T	***OK***

Transmisión de Esfuerzos de la columna a la zapata:

Carga Producida:	21	T	
Carga Máxima:	371	T	***OK***

Longitud de Desarrollo necesaria (Refuerzo de la Columna):

Diámetros de las Varillas para utilizar:

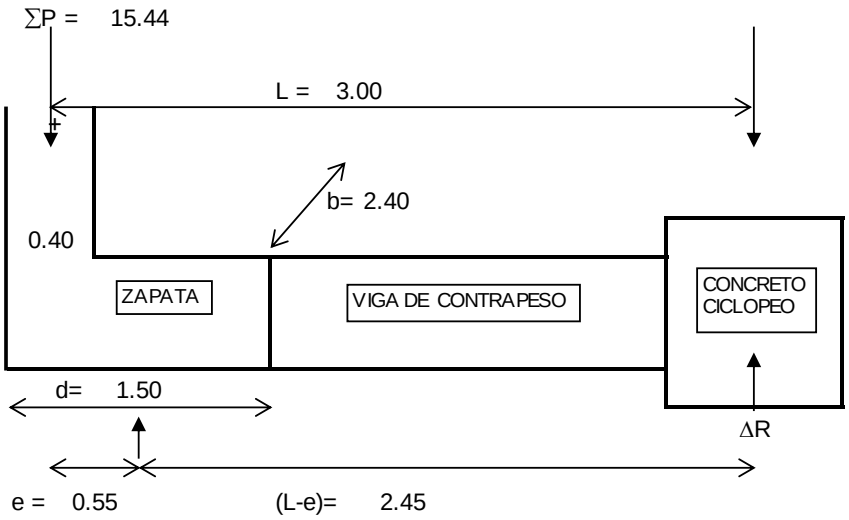
# Var.	Ø (cm)
# 3	0.953
# 4	1.270
# 5	1.590
# 6	1.910
# 7	2.220
# 8	2.540

Varilla de las columnas

# 6	1.91 cm

L_{db} = 29.1 cm ***OK***

CONTRAPESO EN CONCRETO CICLOPEO

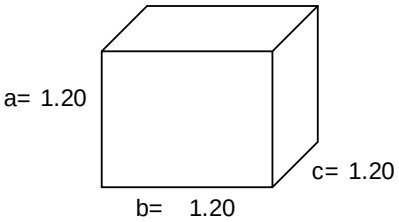


$$\sum P \times e = \Delta R \times (L-e) \quad » \quad \Delta R = \frac{\sum P \times e}{(L-e)}$$

$$\Delta R = \frac{15.44 \times 0.55}{2.45} = 3.47 \text{ Ton}$$

Cálculo del volumen que necesitamos para el contrapeso

$$V_{contrapeso} = \frac{\Delta R}{\gamma_{ciclopeo}} = \frac{3.47 \times 1.00}{2.2} = 1.58 \text{ m}^3$$



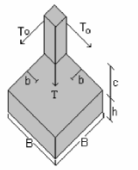
$V_{obtenido} > V_{requerido}$

1.73 **ok** 1.58

ANALISIS ZAPATA DE ESQUINERA

ZAPATA: Z-3 **CANTIDAD:** 2

	GRAVIT.	GRAVIT.+SISMO
Carga de la Columna:	4.02 T	5.17 T
Momento Mxs:	0.02 T.m	3.17 T.m
Momento Mys:	0.04 T.m	3.89 T.m
Presión Admisible ($\sigma_{Adm.}$):	9.23 T/m^2	18.46 T/m^2
Porcentaje de Peso de Cimentación:	12 %	12 %
Excentricidad en x:	0.01 m	0.67 m
Excentricidad en y:	0.00 m	0.55 m
Área de Cimentación:	0.49 m²	
Lado Aprox. de la Zapata:	0.70 m	

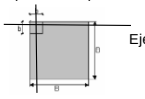


Materiales

Concreto: 210 Kg/cm^2
Acero: 4200 Kg/cm^2

Dimension Lado Corto (B)	1.00	m
El lado Mayor Momento Sobre Eje	X	
Separacion entre Columnas	5.75	m
Excentricidad	0.30	m
Carga Contrapeso	0.25	Ton
Carga Ultima	4.75	Ton
Momento Viga	3.89	Ton*m
Momento Ultimo	5.84	Ton*m

Disposición Zapata



Dimensiones Viga

b=	40	cm
h=	40	cm
d=	35	cm
Cuantia =	0.0033	
As =	4.62	cm^2

Colocar 4#4 Superior e Inferior

	B (m) (Corto)		L (m) (Largo)
Dimensiónde la Zapata:	1.00	x	1.00
Dimensión de la Columna:	0.40	x	0.40
Acartelamiento:	0.10 m		
Altura de la Zapata:	0.30 m		
Factor de Mayoración:	1.5		

Eje Y

Condición	1	2	3	4
q_s (T/m^2)	4.39	4.58	5.12	4.93
q_u (T/m^2)	6.58	6.87	7.68	7.39



REVISIÓN DE ESFUERZOS.

Según Estudio de Suelos:

Presión Admisible:		9.23 T/m^2	OK
Presión Neta:	qs_{rx}=	5.12 T/m^2	
Flexión:	Lv=	0.60 m	
	M =	0.90 T/m	
	Mu =	1.35 T.m	
	h =	40 cm	Recubrimiento= 7.5 cm
	d =	33 cm	
	Cuantia=	0.0003	(Análisis)
	As=	1.11 cm²	(Análisis)
	Cuantia=	0.0020	(Mínima sobre la sección bruta de concreto)
	As=	8.00 cm²	(Mínima)

Armadura Principal **TOTAL** As = 8.00 cm^2
en cada sentido *8.00* cm^2/m

REFUERZO A UTILIZAR

	#	m
	#3	0.09
	#4	0.16
X	#5	0.25
	#6	0.36
	#7	0.49
	#8	0.63

Se debe utilizar mín. refuerzo #5 C/0.25

REVISIÓN DE CORTANTE:

Revisión a d/2:

V (d/2) =	2.75	T		
Vu =	4.13	T		
d =	0.30	m		
ϕVc =	152.62	T	***OK***	
ó ϕVc =	160.70	T	***OK***	
ó ϕVc =	105.59	T	***OK***	

Revisión a d:

q_{sd}=	4.99	kN/m^2	
V (d)	0.13	T	
Vu	0.19	T	
d	0.28	m	
ϕVc	15.84	T	***OK***

Transmisión de Esfuerzos de la columna a la zapata:

Carga Producida:	6	T	
Carga Máxima:	371	T	***OK***

Longitud de Desarrollo necesaria (Refuerzo de la Columna):

Diámetros de las Varillas para utilizar:

# Var.	Ø (cm)
# 3	0.953
# 4	1.270
# 5	1.590
# 6	1.910
# 7	2.220
# 8	2.540

Varilla de las columnas

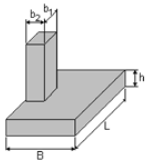
# 6	1.91 cm

L_{db} = 29.1 cm ***OK***

ANALISIS ZAPATA DE LINDERO CON CONTRAPESO

ZAPATA: Z-4 **CANTIDAD:** 2

	GRAVIT.	GRAVIT.+SISMO
Carga de la Columna:	20.44 T	16.12 T
Momento Mxs:	2.06 T.m	4.60 T.m
Momento Mys:	1.13 T.m	0.66 T.m
Presión Admisible ($\sigma_{Adm.}$):	9.23 T/m^2	18.46 T/m^2
Porcentaje de Peso de Cimentación:	12 %	12 %
Excentricidad en x:	0.05 m	0.04 m
Excentricidad en y:	0.09 m	0.25 m
Área de Cimentación:	2.48 m²	
Lado Aprox. de la Zapata:	1.57 m	

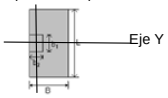


Materiales

Concreto: 210 Kg/cm^2
Acero: 4200 Kg/cm^2

Dimension Lado Corto (B)	1.50	m
El lado Corto Sobre Eje	Y	
Separacion entre Columnas	3.00	m
Excentricidad	0.55	m
Incremento Carga	5.14	Ton
Carga Ultima	28.03	Ton
Momento Viga	12.59	Ton*m
Momento Ultimo	18.89	Ton*m

Disposición Zapata



Dimensiones Viga

b= 40 cm
h= 40 cm
d= 35 cm
Cuantia = 0.0118
As = 16.59 cm^2 Colocar 4#8 Superior e Inferior

	B (m) (Corto)		L (m) (Largo)
Dimensiónde la Zapata:	1.50	x	3.00
Dimensión de la Columna:	0.40	x	0.40
Acartelamiento:	0.10 m		
Altura de la Zapata:	0.30 m		
Factor de Mayoración:	1.5		

Eje X

Condición	1	2	3	4
q_s (T/m^2)	3.37	4.60	9.09	7.85
q_u (T/m^2)	5.05	6.91	13.63	11.78



REVISIÓN DE ESFUERZOS.

Según Estudio de Suelos:

Presión Admisible:		9.23 T/m^2	OK
Presión Neta:	qs_{rx}=	9.09 T/m^2	
Flexión:	Lv=	1.3 m	
	M =	21.40 T/m	
	Mu =	32.10 T.m	
	h =	40 cm	Recubrimiento= 7.5 cm
	d =	33 cm	
	Cuantia=	0.0028	(Análisis)
	As=	27.01 cm²	(Análisis)
	Cuantia=	0.0020	(Mínima sobre la sección bruta de concreto)
	As=	24.00 cm²	(Mínima)

Armadura Principal **TOTAL** As = 27.01 cm^2
en cada sentido *9.00* cm^2/m

REFUERZO A UTILIZAR

	#	m
	#3	0.08
	#4	0.14
X	#5	0.22
	#6	0.32
	#7	0.43
	#8	0.56

Se debe utilizar mín. refuerzo #5 C/0.22

REVISIÓN DE CORTANTE:

Revisión a d/2:

V (d/2) =	18.11	T		
Vu =	27.16	T		
d =	0.32	m		
ϕVc =	158.36	T	***OK***	
ó ϕVc =	170.99	T	***OK***	
ó ϕVc =	109.56	T	***OK***	

Revisión a d:

q_{sd}=	7.59	kN/m^2	
V (d)	6.18	T	
Vu	9.27	T	
d	0.30	m	
ϕVc	26.18	T	***OK***

Transmisión de Esfuerzos de la columna a la zapata:

Carga Producida:	31	T	
Carga Máxima:	371	T	***OK***

Longitud de Desarrollo necesaria (Refuerzo de la Columna):

Diámetros de las Varillas para utilizar:

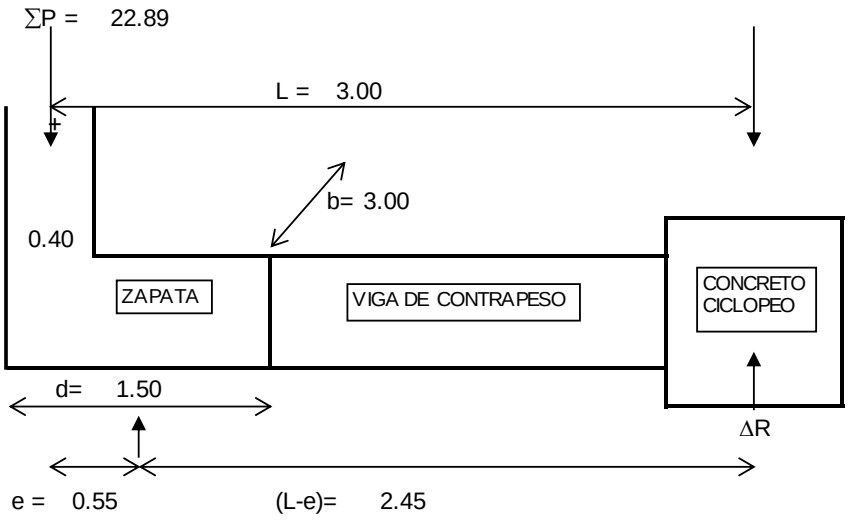
# Var.	Ø (cm)
# 3	0.953
# 4	1.270
# 5	1.590
# 6	1.910
# 7	2.220
# 8	2.540

Varilla de las columnas

# 5	1.59 cm

L_{db} = 24.2 cm ***OK***

CONTRAPESO EN CONCRETO CICLOPEO

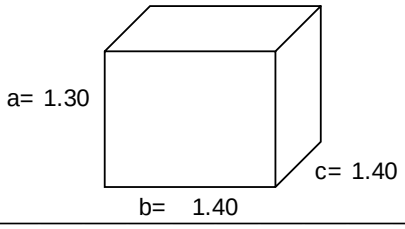


$$\sum P \times e = \Delta R \times (L-e) \quad » \quad \Delta R = \frac{\sum P \times e}{(L-e)}$$

$$\Delta R = \frac{22.89 \times 0.55}{2.45} = 5.14 \text{ Ton}$$

Cálculo del volumen que necesitamos para el contrapeso

$$V_{contrapeso} = \frac{\Delta R}{\gamma_{ciclopeo}} = \frac{5.14 \times 1.00}{2.2} = 2.34 \text{ m}^3$$



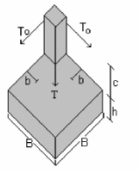
$V_{obtenido} > V_{requerido}$

2.55 **ok** 2.34

ANALISIS ZAPATA DE ESQUINERA

ZAPATA: Z-5 **CANTIDAD:** 2

	GRAVIT.	GRAVIT.+SISMO
Carga de la Columna:	13.24 T	12.91 T
Momento Mxs:	1.39 T.m	4.57 T.m
Momento Mys:	0.87 T.m	4.78 T.m
Presión Admisible ($\sigma_{Adm.}$):	9.23 T/m^2	18.46 T/m^2
Porcentaje de Peso de Cimentación:	12 %	12 %
Excentricidad en x:	0.06 m	0.33 m
Excentricidad en y:	0.09 m	0.32 m
Área de Cimentación:	1.61 m²	
Lado Aprox. de la Zapata:	1.27 m	

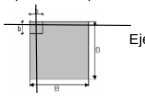


Materiales

Concreto: 210 Kg/cm^2
Acero: 4200 Kg/cm^2

Dimension Lado Corto (B)	1.70	m
El lado Mayor Momento Sobre Eje	X	
Separacion entre Columnas	5.53	m
Excentricidad	0.65	m
Carga Contrapeso	1.97	Ton
Carga Ultima	16.80	Ton
Momento Viga	9.64	Ton*m
Momento Ultimo	14.45	Ton*m

Disposición Zapata



Dimensiones Viga

b= 40 cm
h= 40 cm
d= 35 cm
Cuantia = 0.0087
As = 12.17 cm^2 Colocar 4#8 Superior e Inferior

	B (m) (Corto)		L (m) (Largo)
Dimensiónde la Zapata:	1.70	x	1.70
Dimensión de la Columna:	0.40	x	0.40
Acartelamiento:	0.10 m		
Altura de la Zapata:	0.30 m		
Factor de Mayoración:	1.5		

Eje Y

Condición	1	2	3	4
q_s (T/m^2)	2.68	6.53	8.94	5.10
q_u (T/m^2)	4.02	9.79	13.42	7.65



Eje X

REVISIÓN DE ESFUERZOS.

Según Estudio de Suelos:

Presión Admisible: 9.23 T/m^2 OK
Presión Neta: qs_{rx}= 8.94 T/m^2

Flexión:
Lv= 1.30 m
M = 11.44 T/m
Mu = 17.16 T.m
h = 40 cm Recubrimiento= 7.5 cm
d = 33 cm

Cuantia= 0.0026 (Análisis)
As= 14.41 cm² (Análisis)

Cuantia= 0.0020 (Mínima sobre la sección bruta de concreto)
As= 13.60 cm² (Mínima)

Armadura Principal **TOTAL** As = 14.41 cm^2
en cada sentido *8.48* cm^2/m

REFUERZO A UTILIZAR

	#	m
	#3	0.08
	#4	0.15
X	#5	0.23
	#6	0.34
	#7	0.46
	#8	0.60

Se debe utilizar mín. refuerzo #5 C/0.24

REVISIÓN DE CORTANTE:

Revisión a d/2:

V (d/2) =	10.94	T		
Vu =	16.41	T		
d =	0.32	m		
ϕVc =	158.36	T	***OK***	
ó ϕVc =	170.99	T	***OK***	
ó ϕVc =	109.56	T	***OK***	

Revisión a d:

q_{sd}=	7.12	kN/m^2	
V (d)	4.74	T	
Vu	7.11	T	
d	0.30	m	
ϕVc	29.67	T	***OK***

Transmisión de Esfuerzos de la columna a la zapata:

Carga Producida:	20	T	
Carga Máxima:	371	T	***OK***

Longitud de Desarrollo necesaria (Refuerzo de la Columna):

Diámetros de las Varillas para utilizar:

# Var.	Ø (cm)
# 3	0.953
# 4	1.270
# 5	1.590
# 6	1.910
# 7	2.220
# 8	2.540

Varilla de las columnas

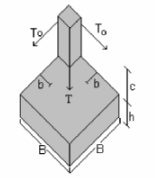
# 5	1.59 cm

L_{db} = 24.2 cm ***OK***

ANALISIS ZAPATA DE ESQUINERA

ZAPATA: Z-6 **CANTIDAD:** 4

	GRAVIT.	GRAVIT.+SISMO
Carga de la Columna:	10.43 T	14.94 T
Momento Mxs:	0.02 T.m	2.76 T.m
Momento Mys:	0.17 T.m	4.65 T.m
Presión Admisible ($\sigma_{Adm.}$):	9.23 T/m^2	18.46 T/m^2
Porcentaje de Peso de Cimentación:	12 %	12 %
Excentricidad en x:	0.01 m	0.28 m
Excentricidad en y:	0.00 m	0.16 m
Área de Cimentación:	1.27 m²	
Lado Aprox. de la Zapata:	1.13 m	

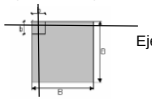


Materiales

Concreto: 210 Kg/cm^2
Acero: 4200 Kg/cm^2

Dimension Lado Corto (B)	1.20	m	
El lado Mayor Momento Sobre Eje	X		
Separacion entre Columnas	2.95	m	
Excentricidad	0.40	m	
Carga Contrapeso	1.83	Ton	
Carga Ultima	13.52	Ton	
Momento Viga	4.67	Ton*m	
Momento Ultimo	7.01	Ton*m	

Disposición Zapata



Eje X

Eje Y

Dimensiones Viga	b=	40	cm
	h=	40	cm
	d=	35	cm
	Cuantia =	0.0040	
	As =	5.56 cm^2	Colocar 3#5 Superior e Inferior

	B (m) (Corto)		L (m) (Largo)
Dimensiónde la Zapata:	1.20	x	1.40
Dimensión de la Columna:	0.40	x	0.40
Acartelamiento:	0.10 m		
Altura de la Zapata:	0.30 m		
Factor de Mayoración:	1.5		

Eje Y

Condición	1	2	3	4
q_s (T/m^2)	7.38	7.53	8.71	8.57
q_u (T/m^2)	11.07	11.29	13.07	12.85



Eje X

REVISIÓN DE ESFUERZOS.

Según Estudio de Suelos:

Presión Admisible:		9.23 T/m^2	OK
Presión Neta:	qs_{fx}=	8.71 T/m^2	
Flexión:	Lv=	1.00 m	
	M =	5.90 T/m	
	Mu =	8.85 T.m	
	h =	40 cm	Recubrimiento= 7.5 cm
	d =	33 cm	
	Cuantia=	0.0016	(Análisis)
	As=	7.34 cm²	(Análisis)
	Cuantia=	0.0020	(Mínima sobre la sección bruta de concreto)
	As=	11.20 cm²	(Mínima)

Armadura Principal **TOTAL** As = 11.20 cm^2
en cada sentido *8.00* cm^2/m

REFUERZO A UTILIZAR

	#	m
	#3	0.09
	#4	0.16
X	#5	0.25
	#6	0.36
	#7	0.49
	#8	0.63

Se debe utilizar mín. refuerzo #5 C/0.25

REVISIÓN DE CORTANTE:

Revisión a d/2:

V (d/2) =	8.22	T		
Vu =	12.33	T		
d =	0.31	m		
ϕVc =	156.94	T	***OK***	
ó ϕVc =	168.41	T	***OK***	
ó ϕVc =	108.57	T	***OK***	

Revisión a d:

q_{sd}=	7.96	kN/m^2	
V (d)	1.21	T	
Vu	1.82	T	
d	0.30	m	
ϕVc	20.46	T	***OK***

Transmisión de Esfuerzos de la columna a la zapata:

Carga Producida:	16	T	
Carga Máxima:	371	T	***OK***

Longitud de Desarrollo necesaria (Refuerzo de la Columna):

Diámetros de las Varillas para utilizar:

# Var.	Ø (cm)
# 3	0.953
# 4	1.270
# 5	1.590
# 6	1.910
# 7	2.220
# 8	2.540

Varilla de las columnas

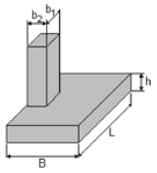
# 5	1.59 cm

L_{db} = 24.2 cm ***OK***

ANALISIS ZAPATA DE LINDERO CON CONTRAPESO

ZAPATA: Z-7 **CANTIDAD:** 3

	GRAVIT.	GRAVIT.+SISMO
Carga de la Columna:	25.44 T	11.71 T
Momento Mxs:	0.07 T.m	2.38 T.m
Momento Mys:	0.14 T.m	17.75 T.m
Presión Admisible ($\sigma_{Adm.}$):	9.23 T/m^2	18.46 T/m^2
Porcentaje de Peso de Cimentación:	12 %	12 %
Excentricidad en x:	0.01 m	1.35 m
Excentricidad en y:	0.00 m	0.18 m
Área de Cimentación:	3.09 m²	
Lado Aprox. de la Zapata:	1.76 m	

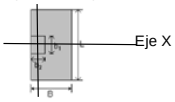


Materiales

Concreto: 210 Kg/cm^2
Acero: 4200 Kg/cm^2

Dimension Lado Corto (B)	2.00	m	
El lado Corto Sobre Eje	X		
Separacion entre Columnas	3.50	m	
Excentricidad	0.75	m	
Incremento Carga	7.77	Ton	
Carga Ultima	36.26	Ton	
Momento Viga	21.37	Ton*m	
Momento Ultimo	32.05	Ton*m	

Disposición Zapata



Dimensiones Viga

b=	50	cm	
h=	60	cm	
d=	55	cm	
Cuantia =	0.0060		
As =	16.59	cm^2	Colocar 5#7 Superior e Inferior

	B (m) (Corto)		L (m) (Largo)
Dimensiónde la Zapata:	2.00	x	2.80
Dimensión de la Columna:	0.50	x	0.50
Acartelamiento:	0.10	m	
Altura de la Zapata:	0.30	m	
Factor de Mayoración:	1.5		

Eje Y

Condición	1	2	3	4
q_s (T/m^2)	3.86	8.90	9.09	4.05
q_u (T/m^2)	5.78	13.35	13.64	6.08



REVISIÓN DE ESFUERZOS.

Según Estudio de Suelos:

Presión Admisible:		9.23 T/m^2	OK
Presión Neta:	qs_{fx}=	9.09 T/m^2	
Flexión:	Lv=	1.5 m	
	M =	17.62 T/m	
	Mu =	26.44 T.m	
	h =	40 cm	Recubrimiento= 7.5 cm
	d =	33 cm	
	Cuantia=	0.0035	(Análisis)
	As=	22.43 cm²	(Análisis)
	Cuantia=	0.0020	(Mínima sobre la sección bruta de concreto)
	As=	16.00 cm²	(Mínima)

Armadura Principal **TOTAL** As = 22.43 cm^2
en cada sentido *11.21* cm^2/m

REFUERZO A UTILIZAR

	#	m
	#3	0.06
	#4	0.11
	#5	0.18
X	#6	0.25
	#7	0.35
	#8	0.45

Se debe utilizar mín. refuerzo #6 C/0.26

REVISIÓN DE CORTANTE:

Revisión a d/2:

V (d/2) =	22.40	T		
Vu =	33.60	T		
d =	0.32	m		
ϕVc =	180.91	T	***OK***	
ó ϕVc =	179.58	T	***OK***	
ó ϕVc =	125.16	T	***OK***	

Revisión a d:

q_{sd}=	7.07	kN/m^2	
V (d)	10.05	T	
Vu	15.07	T	
d	0.31	m	
ϕVc	35.26	T	***OK***

Transmisión de Esfuerzos de la columna a la zapata:

Carga Producida:	38	T	
Carga Máxima:	580	T	***OK***

Longitud de Desarrollo necesaria (Refuerzo de la Columna):

Diámetros de las Varillas para utilizar:

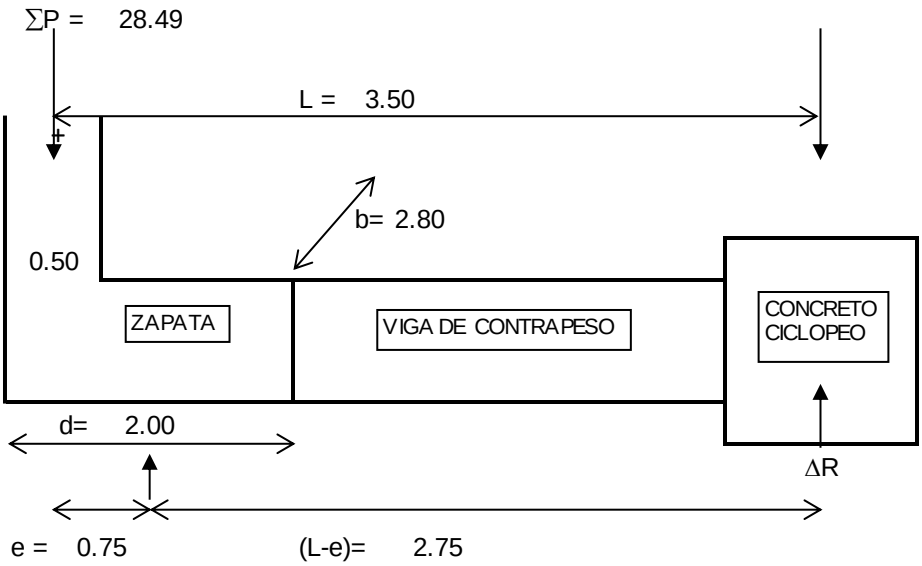
# Var.	Ø (cm)
# 3	0.953
# 4	1.270
# 5	1.590
# 6	1.910
# 7	2.220
# 8	2.540

Varilla de las columnas

# 6	1.91 cm

L_{db} = 29.1 cm ***OK***

CONTRAPESO EN CONCRETO CICLOPEO

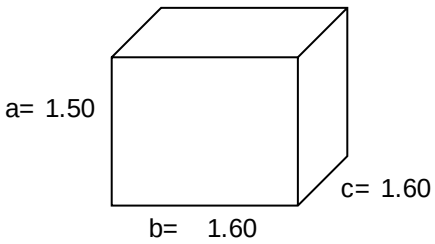


$$\sum P \times e = \Delta R \times (L-e) \quad » \quad \Delta R = \frac{\sum P \times e}{(L-e)}$$

$$\Delta R = \frac{28.49 \times 0.75}{2.75} = 7.77 \text{ Ton}$$

Cálculo del volumen que necesitamos para el contrapeso

$$V_{contrapeso} = \frac{\Delta R}{\gamma_{ciclopeo}} = \frac{7.77 \times 1.00}{2.2} = 3.53 \text{ m}^3$$



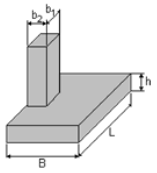
$V_{obtenido} > V_{requerido}$

3.84 **ok** 3.53

ANALISIS ZAPATA DE LINDERO CON CONTRAPESO

ZAPATA: Z-8 **CANTIDAD:** 4

	GRAVIT.	GRAVIT.+SISMO
Carga de la Columna:	22.15 T	19.08 T
Momento Mxs:	0.35 T.m	2.72 T.m
Momento Mys:	0.11 T.m	20.11 T.m
Presión Admisible ($\sigma_{Adm.}$):	9.23 T/m²	18.46 T/m²
Porcentaje de Peso de Cimentación:	12 %	12 %
Excentricidad en x:	0.00 m	0.94 m
Excentricidad en y:	0.01 m	0.13 m
Área de Cimentación:	2.69 m²	
Lado Aprox. de la Zapata:	1.64 m	

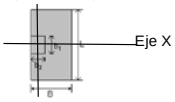


Materiales

Concreto: 210 Kg/cm²
Acero: 4200 Kg/cm²

Dimension Lado Corto (B)	1.80	m
El lado Corto Sobre Eje	X	
Separacion entre Columnas	3.00	m
Excentricidad	0.65	m
Incremento Carga	6.86	Ton
Carga Ultima	31.67	Ton
Momento Viga	20.11	Ton*m
Momento Ultimo	30.16	Ton*m

Disposición Zapata



Dimensiones Viga

b= 50 cm
h= 60 cm
d= 55 cm
Cuantia = 0.0057
As = 15.54 cm² Colocar 5#7 Superior e Inferior

	B (m) (Corto)		L (m) (Largo)
Dimensiónde la Zapata:	1.80	x	2.60
Dimensión de la Columna:	0.50	x	0.50
Acartelamiento:	0.15	m	
Altura de la Zapata:	0.35	m	
Factor de Mayoración:	1.5		

Eje Y

Condición	1	2	3	4
q_s (T/m²)	4.67	8.65	8.86	4.88
q_u (T/m²)	7.01	12.98	13.29	7.32



REVISIÓN DE ESFUERZOS.

Según Estudio de Suelos:

Presión Admisible:		9.23 T/m²	OK
Presión Neta:	qs_{fx}=	8.86 T/m²	
Flexión:	Lv=	1.3 m	
	M =	12.02 T/m	
	Mu =	18.03 T.m	
	h =	50 cm	Recubrimiento= 7.5 cm
	d =	43 cm	
	Cuantia=	0.0015	(Análisis)
	As=	11.42 cm²	(Análisis)
	Cuantia=	0.0020	(Mínima sobre la sección bruta de concreto)
	As=	18.00 cm²	(Mínima)

Armadura Principal **TOTAL** As = 18.00 cm^2
en cada sentido *10.00* cm^2/m

REFUERZO A UTILIZAR

	#	m
	#3	0.07
	#4	0.13
X	#5	0.20
	#6	0.29
	#7	0.39
	#8	0.51

Se debe utilizar mín. refuerzo #5 C/0.2

REVISIÓN DE CORTANTE:

Revisión a d/2:

V (d/2) =	18.52	T		
Vu =	27.77	T		
d =	0.41	m		
ϕVc =	259.27	T	***OK***	
ó ϕVc =	281.06	T	***OK***	
ó ϕVc =	179.37	T	***OK***	

Revisión a d:

q_{sd}=	7.53	kN/m^2	
V (d)	5.75	T	
Vu	8.63	T	
d	0.38	m	
ϕVc	39.40	T	***OK***

Transmisión de Esfuerzos de la columna a la zapata:

Carga Producida:	33	T	
Carga Máxima:	580	T	***OK***

Longitud de Desarrollo necesaria (Refuerzo de la Columna):

Diámetros de las Varillas para utilizar:

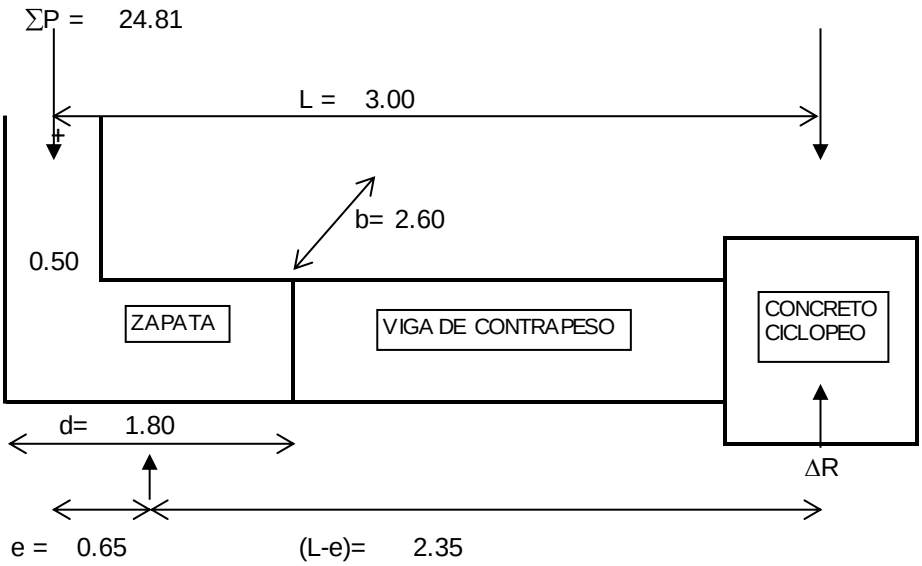
# Var.	Ø (cm)
# 3	0.953
# 4	1.270
# 5	1.590
# 6	1.910
# 7	2.220
# 8	2.540

Varilla de las columnas

# 8	2.54 cm

L_{db} = 38.6 cm ***OK***

CONTRAPESO EN CONCRETO CICLOPEO

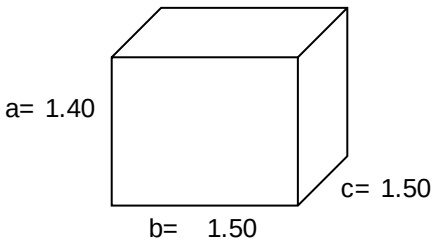


$$\Sigma P \times e = \Delta R \times (L-e) \quad » \quad \Delta R = \frac{\Sigma P \times e}{(L-e)}$$

$$\Delta R = \frac{24.81 \times 0.65}{2.35} = 6.86 \text{ Ton}$$

Cálculo del volumen que necesitamos para el contrapeso

$$V_{contrapeso} = \frac{\Delta R}{\gamma_{ciclopeo}} = \frac{6.86 \times 1.00}{2.2} = 3.12 \text{ m}^3$$



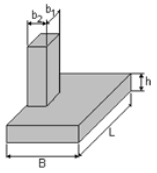
$V_{obtenido} > V_{requerido}$

3.15 **ok** 3.12

ANALISIS ZAPATA DE LINDERO CON CONTRAPESO

ZAPATA: Z-9 **CANTIDAD:** 2

	GRAVIT.	GRAVIT.+SISMO
Carga de la Columna:	32.17 T	17.10 T
Momento Mxs:	0.50 T.m	2.93 T.m
Momento Mys:	0.09 T.m	22.34 T.m
Presión Admisible ($\sigma_{Adm.}$):	9.23 T/m^2	18.46 T/m^2
Porcentaje de Peso de Cimentación:	12 %	12 %
Excentricidad en x:	0.00 m	1.17 m
Excentricidad en y:	0.01 m	0.15 m
Área de Cimentación:	3.90 m²	
Lado Aprox. de la Zapata:	1.98 m	

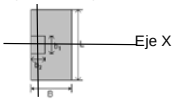


Materiales

Concreto: 210 Kg/cm^2
Acero: 4200 Kg/cm^2

Dimension Lado Corto (B)	2.00	m
El lado Corto Sobre Eje	X	
Separacion entre Columnas	3.50	m
Excentricidad	0.75	m
Incremento Carga	9.83	Ton
Carga Ultima	45.86	Ton
Momento Viga	27.03	Ton*m
Momento Ultimo	40.54	Ton*m

Disposición Zapata



Dimensiones Viga

b= 50 cm
h= 60 cm
d= 55 cm
Cuantia = 0.0078
As = 21.47 cm^2 Colocar 5#8 Superior e Inferior

	B (m) (Corto)		L (m) (Largo)
Dimensiónde la Zapata:	2.00	x	3.30
Dimensión de la Columna:	0.50	x	0.50
Acartelamiento:	0.15	m	
Altura de la Zapata:	0.35	m	
Factor de Mayoración:	1.5		

Eje Y

Condición	1	2	3	4
q_s (T/m^2)	4.96	8.83	8.93	5.07
q_u (T/m^2)	7.44	13.24	13.40	7.60



Eje X

REVISIÓN DE ESFUERZOS.

Según Estudio de Suelos:

Presión Admisible:		9.23 T/m^2	OK
Presión Neta:	qs_{fx}=	8.93 T/m^2	
Flexión:	Lv=	1.5 m	
	M =	27.13 T/m	
	Mu =	40.69 T.m	
	h =	50 cm	Recubrimiento= 7.5 cm
	d =	43 cm	
	Cuantia=	0.0031	(Análisis)
	As=	26.29 cm²	(Análisis)
	Cuantia=	0.0020	(Mínima sobre la sección bruta de concreto)
	As=	20.00 cm²	(Mínima)

Armadura Principal **TOTAL** As = 26.29 cm^2
en cada sentido *13.14* cm^2/m

REFUERZO A UTILIZAR

	#	m
	#3	0.05
	#4	0.10
	#5	0.15
X	#6	0.22
	#7	0.30
	#8	0.39

Se debe utilizar mín. refuerzo #6 C/0.22

REVISIÓN DE CORTANTE:

Revisión a d/2:

V (d/2) =	28.49	T		
Vu =	42.73	T		
d =	0.41	m		
ϕVc =	260.99	T	***OK***	
ó ϕVc =	284.22	T	***OK***	
ó ϕVc =	180.56	T	***OK***	

Revisión a d:

q_{sd}=	7.31	kN/m^2	
V (d)	9.75	T	
Vu	14.63	T	
d	0.39	m	
ϕVc	44.49	T	***OK***

Transmisión de Esfuerzos de la columna a la zapata:

Carga Producida:	48	T	
Carga Máxima:	580	T	***OK***

Longitud de Desarrollo necesaria (Refuerzo de la Columna):

Diámetros de las Varillas para utilizar:

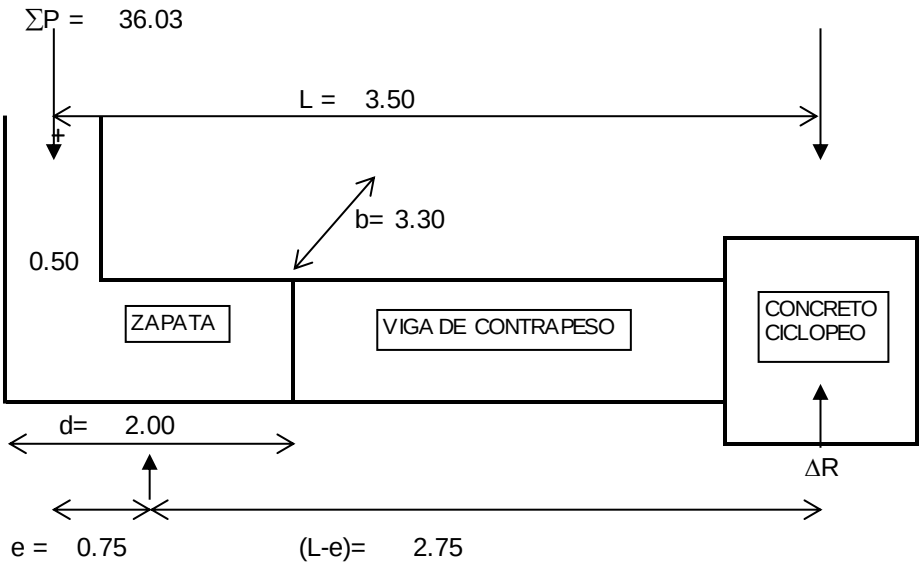
# Var.	Ø (cm)
# 3	0.953
# 4	1.270
# 5	1.590
# 6	1.910
# 7	2.220
# 8	2.540

Varilla de las columnas

# 8	2.54 cm

L_{db} = 38.6 cm ***OK***

CONTRAPESO EN CONCRETO CICLOPEO



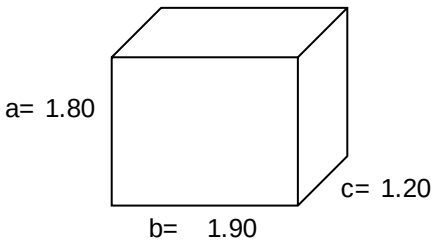
$$\sum P \times e = \Delta R \times (L-e) \quad » \quad \Delta R = \frac{\sum P \times e}{(L-e)}$$

$$\Delta R = \frac{36.03 \times 0.75}{2.75} = 9.83 \text{ Ton}$$

Cálculo del volumen que necesitamos para el contrapeso

$$V_{contrapeso} = \frac{\Delta R}{\gamma_{ciclopeo}} = \frac{9.83 \times 1.00}{2.4} = 4.09 \text{ m}^3$$

Concreto reforzado



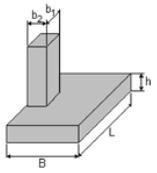
$V_{obtenido} > V_{requerido}$

4.10 **ok** 4.09

ANALISIS ZAPATA DE LINDERO CON CONTRAPESO

ZAPATA: Z-10 **CANTIDAD:** 1

	GRAVIT.	GRAVIT.+SISMO
Carga de la Columna:	34.40 T	29.87 T
Momento Mxs:	0.05 T.m	2.42 T.m
Momento Mys:	1.09 T.m	18.55 T.m
Presión Admisible ($\sigma_{Adm.}$):	9.23 T/m^2	18.46 T/m^2
Porcentaje de Peso de Cimentación:	12 %	12 %
Excentricidad en x:	0.03 m	0.55 m
Excentricidad en y:	0.00 m	0.07 m
Área de Cimentación:	4.17 m²	
Lado Aprox. de la Zapata:	2.04 m	

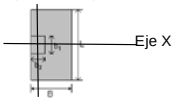


Materiales

Concreto: 210 Kg/cm^2
Acero: 4200 Kg/cm^2

Dimension Lado Corto (B)	2.00	m
El lado Corto Sobre Eje	X	
Separacion entre Columnas	3.50	m
Excentricidad	0.75	m
Incremento Carga	10.51	Ton
Carga Ultima	49.04	Ton
Momento Viga	28.90	Ton*m
Momento Ultimo	43.35	Ton*m

Disposición Zapata



Dimensiones Viga

b= 50 cm
h= 60 cm
d= 55 cm
Cuantia = 0.0084
As = 23.14 cm^2 Colocar 5#8 Superior e Inferior

	B (m) (Corto)		L (m) (Largo)
Dimensiónde la Zapata:	2.00	x	3.30
Dimensión de la Columna:	0.50	x	0.50
Acartelamiento:	0.15	m	
Altura de la Zapata:	0.35	m	
Factor de Mayoración:	1.5		

Eje Y

Condición	1	2	3	4
q_s (T/m^2)	5.83	7.78	9.04	7.08
q_u (T/m^2)	8.74	11.66	13.55	10.63



REVISIÓN DE ESFUERZOS.

Según Estudio de Suelos:

Presión Admisible:		9.23 T/m^2	OK
Presión Neta:	qs_{fx}=	9.04 T/m^2	
Flexión:	Lv=	1.5 m	
	M =	28.33 T/m	
	Mu =	42.49 T.m	
	h =	50 cm	Recubrimiento= 7.5 cm
	d =	43 cm	
	Cuantia=	0.0032	(Análisis)
	As=	27.50 cm²	(Análisis)
	Cuantia=	0.0020	(Mínima sobre la sección bruta de concreto)
	As=	20.00 cm²	(Mínima)

Armadura Principal **TOTAL** As = 27.50 cm^2
en cada sentido *13.75* cm^2/m

REFUERZO A UTILIZAR

	#	m
	#3	0.05
	#4	0.09
	#5	0.14
X	#6	0.21
	#7	0.28
	#8	0.37

Se debe utilizar mín. refuerzo #6 C/0.21

REVISIÓN DE CORTANTE:

Revisión a d/2:

V (d/2) =	30.68	T		
Vu =	46.02	T		
d =	0.41	m		
ϕVc =	260.99	T	***OK***	
ó ϕVc =	284.22	T	***OK***	
ó ϕVc =	180.56	T	***OK***	

Revisión a d:

q_{sd}=	7.39	kN/m^2	
V (d)	9.86	T	
Vu	14.79	T	
d	0.39	m	
ϕVc	44.49	T	***OK***

Transmisión de Esfuerzos de la columna a la zapata:

Carga Producida:	52	T	
Carga Máxima:	580	T	***OK***

Longitud de Desarrollo necesaria (Refuerzo de la Columna):

Diámetros de las Varillas para utilizar:

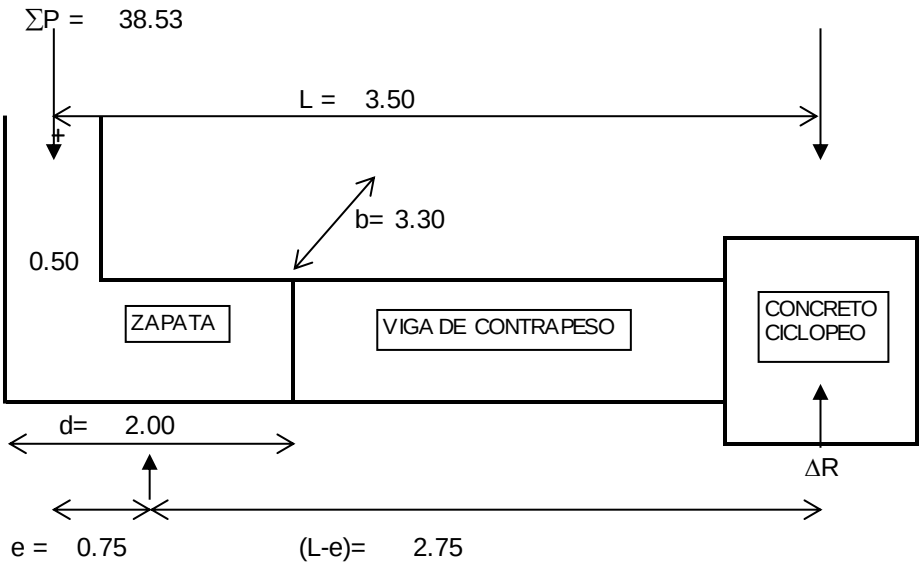
# Var.	Ø (cm)
# 3	0.953
# 4	1.270
# 5	1.590
# 6	1.910
# 7	2.220
# 8	2.540

Varilla de las columnas

# 6	1.91 cm

L_{db} = 29.1 cm ***OK***

CONTRAPESO EN CONCRETO CICLOPEO

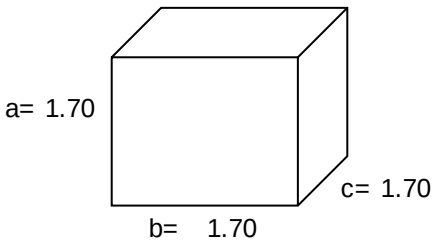


$$\sum P \times e = \Delta R \times (L-e) \quad » \quad \Delta R = \frac{\sum P \times e}{(L-e)}$$

$$\Delta R = \frac{38.53 \times 0.75}{2.75} = 10.51 \text{ Ton}$$

Cálculo del volumen que necesitamos para el contrapeso

$$V_{contrapeso} = \frac{\Delta R}{\gamma_{ciclopeo}} = \frac{10.51 \times 1.00}{2.2} = 4.78 \text{ m}^3$$



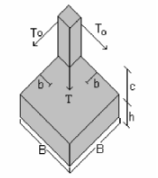
$V_{obtenido} > V_{requerido}$

4.91 **ok** 4.78

ANALISIS ZAPATA DE ESQUINERA

ZAPATA: Z-11 **CANTIDAD:** 2

	GRAVIT.	GRAVIT.+SISMO
Carga de la Columna:	25.99 T	22.64 T
Momento Mxs:	0.12 T.m	7.16 T.m
Momento Mys:	0.00 T.m	11.37 T.m
Presión Admisible ($\sigma_{Adm.}$):	9.23 T/m^2	18.46 T/m^2
Porcentaje de Peso de Cimentación:	12 %	12 %
Excentricidad en x:	0.00 m	0.45 m
Excentricidad en y:	0.00 m	0.28 m
Área de Cimentación:	3.15 m²	
Lado Aprox. de la Zapata:	1.78 m	

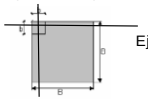


Materiales

Concreto: 210 Kg/cm^2
Acero: 4200 Kg/cm^2

Dimension Lado Corto (B)	1.50	m	
El lado Mayor Momento Sobre Eje	X		
Separacion entre Columnas	3.10	m	
Excentricidad	0.50	m	
Carga Contrapeso	5.60	Ton	
Carga Ultima	34.71	Ton	
Momento Viga	14.56	Ton*m	
Momento Ultimo	21.83	Ton*m	

Disposición Zapata



Eje X
Eje Y

Dimensiones Viga

b=	50	cm	
h=	50	cm	
d=	45	cm	
Cuantia =	0.0061		
As =	13.84	cm^2	Colocar 4#7 Superior e Inferior

	B (m) (Corto)		L (m) (Largo)
Dimensiónde la Zapata:	1.50	x	2.70
Dimensión de la Columna:	0.50	x	0.50
Acartelamiento:	0.15	m	
Altura de la Zapata:	0.30	m	
Factor de Mayoración:	1.5		

Eje Y

Condición	1	2	3	4
q_s (T/m^2)	8.49	8.65	8.65	8.49
q_u (T/m^2)	12.73	12.97	12.98	12.74



Eje X

REVISIÓN DE ESFUERZOS.

Según Estudio de Suelos:

Presión Admisible:		9.23 T/m^2	OK
Presión Neta:	qs_{rx}=	8.65 T/m^2	
Flexión:	Lv=	2.20 m	
	M =	56.25 T/m	
	Mu =	84.38 T.m	
	h =	45 cm	Recubrimiento= 7.5 cm
	d =	38 cm	
	Cuantia=	0.0064	(Análisis)
	As=	64.34 cm²	(Análisis)
	Cuantia=	0.0020	(Mínima sobre la sección bruta de concreto)
	As=	24.30 cm²	(Mínima)

Armadura Principal **TOTAL** As = 64.34 cm^2
en cada sentido *23.83* cm^2/m

REFUERZO A UTILIZAR

	#	m
	#3	0.03
	#4	0.05
	#5	0.08
	#6	0.12
X	#7	0.16
	#8	0.21

Se debe utilizar mín. refuerzo #7 C/0.17

REVISIÓN DE CORTANTE:

Revisión a d/2:

V (d/2) =	22.75	T		
Vu =	34.13	T		
d =	0.37	m		
ϕVc =	221.01	T	***OK***	
ó ϕVc =	231.79	T	***OK***	
ó ϕVc =	152.90	T	***OK***	

Revisión a d:

q_{sd}=	7.80	kN/m^2	
V (d)	3.28	T	
Vu	4.92	T	
d	0.35	m	
ϕVc	30.44	T	***OK***

Transmisión de Esfuerzos de la columna a la zapata:

Carga Producida:	39	T	
Carga Máxima:	580	T	***OK***

Longitud de Desarrollo necesaria (Refuerzo de la Columna):

Diámetros de las Varillas para utilizar:

# Var.	Ø (cm)
# 3	0.953
# 4	1.270
# 5	1.590
# 6	1.910
# 7	2.220
# 8	2.540

Varilla de las columnas

# 4	1.27 cm

L_{db} = 19.3 cm ***OK***

ZAPATA: Z12 **CANTIDAD:** 2

	GRAVIT.+SISMO			GRAVIT.	
Carga de la Columna:	6.36	T		18.29	T
Momento Mxs:	0.24	T.m		0.10	T.m
Momento Mys:	3.97	T.m		0.08	T.m
Presión Admisible ($\sigma_{Adm.}$):	18.46	T/m^2		9.23	T/m^2
Porcentaje de Peso de Cimentación:	12.00	%		12	%
Excentricidad en x:	0.56	m	*(ex/B)>=1/6*	0.00	*OK*
Excentricidad en y:	0.03	m	*O.K*	0.00	*OK*
Área de Cimentación:	0.39	m²		2.22	m²
Lado Aprox. de la Zapata:	0.62	m		1.49	m

Materiales

Concreto:	210	Kg/cm^2
Acero:	4200	Kg/cm^2

	L (m) (X)		B (m) (Y)
Dimensión de la Zapata:	2.20	x	1.20
Distancia m	0.34		1.20
Dimensión del área efectiva definitivo	1.03		1.20
Dimensión de la Columna:	0.40	x	0.40
Acartelamiento:	0.10	m	
Altura de la Zapata:	0.30	m	
Factor de Mayoración:	1.5		

REVISIÓN DE ESFUERZOS.

Según Estudio de Suelos:

Presión Admisible:		18.46	T/m^2	
Presión Neta:	qs_f=	10.33	T/m^2	*O.K*
Flexión:	Lv=	0.9	m	
	M =	5.02	T/m	
	Mu =	7.53	T.m	
	h =	40	cm	Recubrimiento= 7.5 cm
	d =	33	cm	
	Cuantia=	0.0009		(Análisis)
	As=	6.19	cm²	(Análisis)
	Cuantia=	0.0020		(Mínima sobre la sección bruta de concreto)
	As=	17.60	cm²	(Mínima)

Armadura Principal **TOTAL:** As = 17.60 cm^2
en cada sentido *8.00* cm^2/m

REFUERZO A UTILIZAR

	#	m
	#3	0.09
	#4	0.16
X	#5	0.25
	#6	0.36
	#7	0.49
	#8	0.63

Se debe utilizar mín. refuerzo #5 C/0.25

REVISIÓN DE CORTANTE:

Revisión a d/2:

V (d/2) =	21.84	T		
Vu =	32.76	T		
d =	0.31	m		
ϕVc =	156.24	T		***OK***
ó ϕVc =	167.15	T		***OK***
ó ϕVc =	108.09	T		***OK***

Revisión a d:

V (d)	1.70	T	
Vu	2.56	T	
d	0.25	m	
ϕVc	17.03	T	***OK***

Transmisión de Esfuerzos de la columna a la zapata:

Carga Producida:	10	T	
Carga Máxima:	371	T	***OK***

Longitud de Desarrollo necesaria (Refuerzo de la Columna):

Diámetros de las Varillas para utilizar:

# Var.	Ø (cm)
# 3	0.953
# 4	1.270
# 5	1.590
# 6	1.910
# 7	2.220
# 8	2.540

Varilla de las columnas

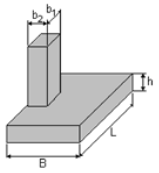
# 5	1.59 cm

L_{db} = 24.2 cm ***OK***

ANALISIS ZAPATA DE LINDERO CON CONTRAPESO

ZAPATA: Z-13 **CANTIDAD:** 1

	GRAVIT.	GRAVIT.+SISMO
Carga de la Columna:	16.08 T	20.51 T
Momento Mxs:	0.00 T.m	3.65 T.m
Momento Mys:	0.12 T.m	0.47 T.m
Presión Admisible ($\sigma_{Adm.}$):	9.23 T/m^2	18.46 T/m^2
Porcentaje de Peso de Cimentación:	12 %	12 %
Excentricidad en x:	0.01 m	0.02 m
Excentricidad en y:	0.00 m	0.16 m
Área de Cimentación:	1.95 m²	
Lado Aprox. de la Zapata:	1.40 m	

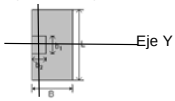


Materiales

Concreto: 210 Kg/cm^2
Acero: 4200 Kg/cm^2

Dimension Lado Corto (B)	1.20	m
El lado Corto Sobre Eje	Y	
Separacion entre Columnas	3.20	m
Excentricidad	0.40	m
Incremento Carga	2.57	Ton
Carga Ultima	20.59	Ton
Momento Viga	7.21	Ton*m
Momento Ultimo	10.81	Ton*m

Disposición Zapata



Dimensiones Viga

b= 40 cm
h= 40 cm
d= 35 cm
Cuantia = 0.0063
As = 8.82 cm^2 Colocar 4#6 Superior e Inferior

	B (m) (Corto)		L (m) (Largo)
Dimensiónde la Zapata:	1.20	x	2.10
Dimensión de la Columna:	0.40	x	0.40
Acartelamiento:	0.00	m	
Altura de la Zapata:	0.40	m	
Factor de Mayoración:	1.5		

Eje X

Condición	1	2	3	4
q_s (T/m^2)	7.68	8.64	8.65	7.70
q_u (T/m^2)	11.53	12.96	12.98	11.54



REVISIÓN DE ESFUERZOS.

Según Estudio de Suelos:

Presión Admisible:		9.23 T/m^2	OK
Presión Neta:	qs_{fx}=	8.65 T/m^2	
Flexión:	Lv=	0.85 m	
	M =	6.47 T/m	
	Mu =	9.70 T.m	
	h =	40 cm	Recubrimiento= 7.5 cm
	d =	33 cm	
	Cuantia=	0.0012	(Análisis)
	As=	8.01 cm²	(Análisis)
	Cuantia=	0.0020	(Mínima sobre la sección bruta de concreto)
	As=	16.80 cm²	(Mínima)

Armadura Principal **TOTAL** As = 16.80 cm^2
en cada sentido *8.00* cm^2/m

REFUERZO A UTILIZAR

	#	m
	#3	0.09
	#4	0.16
X	#5	0.25
	#6	0.36
	#7	0.49
	#8	0.63

Se debe utilizar mín. refuerzo #5 C/0.25

REVISIÓN DE CORTANTE:

Revisión a d/2:

V (d/2) =	13.81	T		
Vu =	20.71	T		
d =	0.33	m		
ϕVc =	162.87	T	***OK***	
ó ϕVc =	179.30	T	***OK***	
ó ϕVc =	112.68	T	***OK***	

Revisión a d:

q_{sd}=	8.11	kN/m^2	
V (d)	1.32	T	
Vu	1.98	T	
d	0.33	m	
ϕVc	22.47	T	***OK***

Transmisión de Esfuerzos de la columna a la zapata:

Carga Producida:	24	T	
Carga Máxima:	371	T	***OK***

Longitud de Desarrollo necesaria (Refuerzo de la Columna):

Diámetros de las Varillas para utilizar:

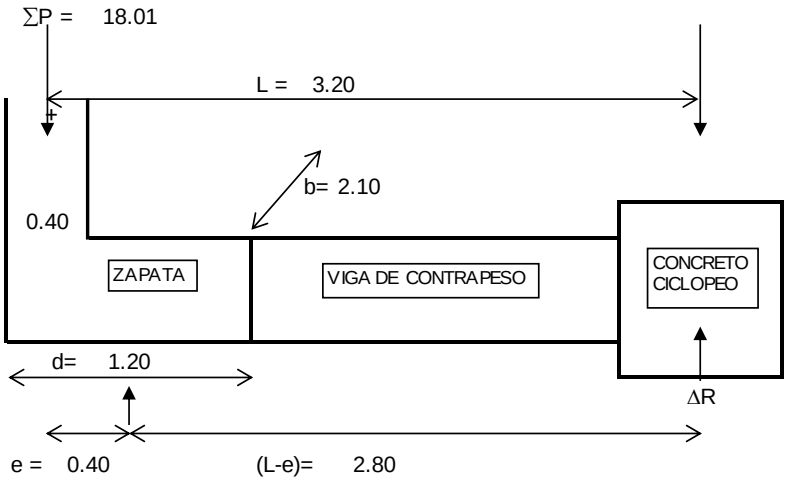
# Var.	Ø (cm)
# 3	0.953
# 4	1.270
# 5	1.590
# 6	1.910
# 7	2.220
# 8	2.540

Varilla de las columnas

# 6	1.91 cm

L_{db} = 29.1 cm ***OK***

CONTRAPESO EN CONCRETO CICLOPEO

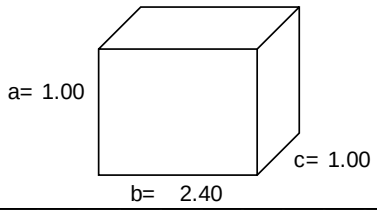


$$\sum P \times e = \Delta R \times (L-e) \quad » \quad \Delta R = \frac{\sum P \times e}{(L-e)}$$

$$\Delta R = \frac{18.01 \times 0.40}{2.80} = 2.57 \text{ Ton}$$

Cálculo del volumen que necesitamos para el contrapeso

$$V_{contrapeso} = \frac{\Delta R}{\gamma_{ciclopeo}} = \frac{2.57 \times 1.00}{2.2} = 1.17 \text{ m}^3$$



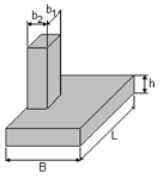
$V_{obtenido} > V_{requerido}$

2.40 **ok** 2.34

ANALISIS ZAPATA DE LINDERO

ZAPATA: Z-14 **CANTIDAD:** 1

	GRAVIT.	GRAVIT.+SISMO
Carga de la Columna:	34.32 T	17.41 T
Momento Mxs:	0.22 T.m	3.67 T.m
Momento Mys:	0.54 T.m	0.00 T.m
Presión Admisible ($\sigma_{Adm.}$):	9.23 T/m^2	18.46 T/m^2
Porcentaje de Peso de Cimentación:	12 %	12 %
Excentricidad en x:	0.01 m	0.00 m
Excentricidad en y:	0.01 m	0.19 m
Área de Cimentación:	4.16 m²	
Lado Aprox. de la Zapata:	2.04 m	

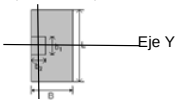


Materiales

Concreto: 210 Kg/cm^2
Acero: 4200 Kg/cm^2

Dimension Lado Corto (B)	1.80	m
El lado Corto Sobre Eje	Y	
Separacion entre Columnas	4.70	m
Excentricidad	0.75	m
Incremento Carga	7.30	Ton
Carga Ultima	45.74	Ton
Momento Viga	28.83	Ton*m
Momento Ultimo	43.24	Ton*m

Disposición Zapata



Dimensiones Viga

b=	40	cm
h=	70	cm
d=	65	cm
Cuantia =	0.0074	
As =	19.28	cm^2

Colocar 4#8 Superior e Inferior

	B (m) (Corto)		L (m) (Largo)
Dimensiónde la Zapata:	1.80	x	3.00
Dimensión de la Columna:	0.30	x	1.00
Acartelamiento:	0.10	m	3.95
Altura de la Zapata:	0.30	m	
Factor de Mayoración:	1.5		

Eje X

Condición	1	2	3	4
q_s (T/m^2)	8.07	8.55	8.87	8.39
q_u (T/m^2)	12.10	12.82	13.31	12.59



Eje Y

REVISIÓN DE ESFUERZOS.

Según Estudio de Suelos:

Presión Admisible:		9.23 T/m^2	OK
Presión Neta:	qs_{rx}=	8.87 T/m^2	
Flexión:	Lv=	1.5 m	
	M =	17.70 T/m	
	Mu =	26.54 T.m	
	h =	40 cm	Recubrimiento= 7.5 cm
	d =	33 cm	
	Cuantia=	0.0039	(Análisis)
	As=	22.64 cm²	(Análisis)
	Cuantia=	0.0020	(Mínima sobre la sección bruta de concreto)
	As=	14.40 cm²	(Mínima)

Armadura Principal **TOTAL** As = 22.64 cm^2
en cada sentido *12.58* cm^2/m

REFUERZO A UTILIZAR

	#	m
	#3	0.06
	#4	0.10
	#5	0.16
X	#6	0.23
	#7	0.31
	#8	0.40

Se debe utilizar mín. refuerzo #6 C/0.23

REVISIÓN DE CORTANTE:

Revisión a d/2:

V (d/2) =	30.71	T		
Vu =	46.07	T		
d =	0.32	m		
ϕVc =	114.03	T	***OK***	
ó ϕVc =	190.75	T	***OK***	
ó ϕVc =	147.92	T	***OK***	

Revisión a d:

q_{sd}=	6.68	kN/m^2	
V (d)	10.36	T	
Vu	15.54	T	
d	0.31	m	
ϕVc	31.73	T	***OK***

Transmisión de Esfuerzos de la columna a la zapata:

Carga Producida:	51	T	
Carga Máxima:	696	T	***OK***

Longitud de Desarrollo necesaria (Refuerzo de la Columna):

Diámetros de las Varillas para utilizar:

# Var.	Ø (cm)
# 3	0.953
# 4	1.270
# 5	1.590
# 6	1.910
# 7	2.220
# 8	2.540

Varilla de las columnas

# 6	1.91 cm

L_{db} = 29.1 cm ***OK***

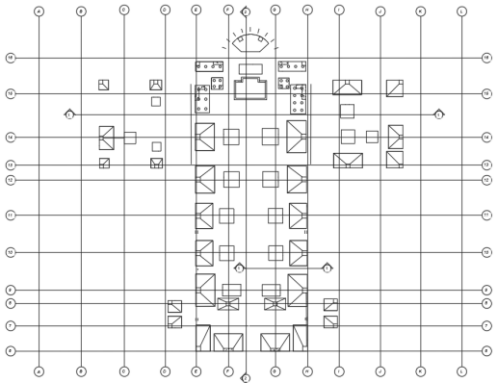
8.12.2 Dados y Pilotes

CÁLCULO DE PILOTES CARGAS GRAVITACIONALES

f´c= 21 MPa
fy= 420 MPa
Porcentaje de Carga (%): 100%

NUDO	LOC EJE	Combo	Carga [P] (Ton)	Carga T (Ton)	Prof m	φf (m)	Cp. (Ton)	Cant. (Pil.)	Cant. (und.)	Vol. (m^3)	ESFUERZOS AXIALES MÁXIMOS Pn_{max} (Ton)		Pu_{max} (Ton)	
7-P1	-	CIM1	45.48	45.48	6.00	0.25	11.80	3.85	4.0	1.18	25.77	O.K	36.08	O.K
10-P2	-	CIM1	46.50	46.50	6.00	0.25	11.80	3.94	4.0	1.18	25.77	O.K	36.08	O.K
18	-	CIM1	16.53	16.53	6.00	0.25	11.80	1.40	4.0	1.18	25.77	O.K	36.08	O.K
19	-	CIM1	14.46	14.46	6.00	0.25	11.80	1.23	4.0	1.18	25.77	O.K	36.08	O.K
P5-P7	-	CIM1	62.64	62.64	6.00	0.25	11.80	5.31	6.0	1.77	25.77	O.K	36.08	O.K
P6-P8	-	CIM1	70.80	70.80	6.00	0.25	11.80	6.00	8.0	2.36	25.77	O.K	36.08	O.K

COMBINACIONES	
CIM1	CM+CV
CIM2	CM+0.7SX/R
CIM3	CM+0.7SY/R
CIM4	CM+0.75CV+0.525SX/R
CIM5	CM+0.75CV+0.525SY/R
CIM6	0.6CM+0.7SX/R
CIM7	0.6CM+0.7SY/R
CIM8	CM+CV+0.7SX/R
CIM9	CM+CV+0.7SY/R
CIM10	1.2CM+CV+1.0SX/R
CIM11	1.2CM+CV+1.0SY/R

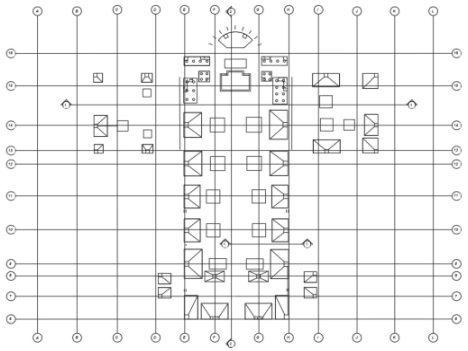


CÁLCULO DE PILOTES CARGAS GRAVITACIONALES + SISMO

f´c= 21 MPa
fy= 420 MPa
Porcentaje de Carga (%) 100%

NUDO	LOC EJE	Combo	Carga [P] (Ton)	Carga T (Ton)	Prof m	φf (m)	Cp. (Ton)	Cant. (Pil.)	Cant. (und.)	Vol. (m³)	ESFUERZOS AXIALES MÁXIMOS Combo	Carga [P] (Ton)	Pn_{max} (Ton)		combo	Carga [P] (Ton)	Pu_{max} (Ton)	
7-P1	-	CIM2-7	66.52	66.52	6.00	0.25	23.60	2.82	4.0	1.18	CIM8-9	67.1	34.0	O.K	CIM10-11	84.96	36.08	O.K
10-P2	-	CIM2-7	67.05	67.05	6.00	0.25	23.60	2.84	4.0	1.18	CIM8-9	67.8	34.0	O.K	CIM10-11	85.61	36.08	O.K
18	-	CIM2-7	85.57	85.57	6.00	0.25	23.60	3.63	4.0	1.18	CIM8-9	86.0	34.0	O.K	CIM10-11	117.59	36.08	O.K
19	-	CIM2-7	84.78	84.78	6.00	0.25	23.60	3.59	4.0	1.18	CIM8-9	84.7	34.0	O.K	CIM10-11	116.33	36.08	O.K
P5-P7	-	CIM2-7	128.29	128.29	6.00	0.25	23.60	5.44	6.0	1.77	CIM8-9	129.6	34.0	O.K	CIM10-11	169.20	36.08	O.K
P6-P8	-	CIM2-7	133.45	133.45	6.00	0.25	23.60	5.65	8.0	2.36	CIM8-9	137.6	34.0	O.K	CIM10-11	178.20	36.08	O.K

COMBINACIONES	
CIM1	CM+CV
CIM2	CM+0.7SX/R
CIM3	CM+0.7SY/R
CIM4	CM+0.75CV+0.525SX/R
CIM5	CM+0.75CV+0.525SY/R
CIM6	0.6CM+0.7SX/R
CIM7	0.6CM+0.7SY/R
CIM8	CM+CV+0.7SX/R
CIM9	CM+CV+0.7SY/R
CIM10	1.2CM+CV+1.0SX/R
CIM11	1.2CM+CV+1.0SY/R



ELEMENTO	Point	EJE	Load	FZ	MX	MY	MZ	# PILOTES	100%F	100%FZ	100%MX	100%MY	
	7		CM+CV	14.46	0.053	-0.05	0	4	14.46	14.46	0.053	-0.0498	

PILOTE #	EJE X	EJE Y	FZ Total	W Dado	MX	MY	Iequ X	Iequ Y	CANT. PILOTES	F POR MX	F POR MY	F POR FZ	F TOTAL
1	0.095	-0.30	14.46	0.00	0.053	-0.05	8.7661	0.3600	4	0.04	0.00	3.63	3.67
2	0.85	-0.30								0.04	0.00	3.63	3.68
3	1.60	-0.30								0.04	0.01	3.63	3.68
4	2.35	-0.30								0.04	0.01	3.63	3.69
											CAPACIDAD DEL PILOTE		11.8

ELEMENTO	Point	EJE	Load	FZ	MX	MY	MZ	# PILOTES	100%F	100%FZ	100%MX	100%MY	
	P1		CM+CV	31.02	0.012	0.281	0	4	31.02	31.02	0.0117	0.2807	

PILOTE #	EJE X	EJE Y	FZ Total	W Dado	MX	MY	Iequ X	Iequ Y	CANT. PILOTES	F POR MX	F POR MY	F POR FZ	F TOTAL
1	0.207	-0.30	31.02	0.00	0.012	0.281	6.4199	0.3600	4	0.01	0.01	7.76	7.78
2	-0.54	-0.30								0.01	0.02	7.76	7.79
3	-1.29	-0.30								0.01	0.06	7.76	7.82
4	2.10	-0.30								0.01	0.09	7.76	7.86
											CAPACIDAD DEL PILOTE		11.8

PILOTE (7-P1)	F TOTAL	CAPACIDAD PILOTE	VERIFICACION
1	11.53	11.80	OK
2	11.50		OK
3	11.47		OK
4	11.46		OK

ELEMENTO	Point	EJE	Load	FZ	MX	MY	MZ	# PILOTES	100%F	100%FZ	100%MX	100%MY	
	10		CM+CV	15.00	0.088	-0.121	0	4	15.00	15.00	0.0881	-0.1209	

PILOTE #	EJE X	EJE Y	FZ Total	W Dado	MX	MY	Iequ X	Iequ Y	CANT. PILOTES	F POR MX	F POR MY	F POR FZ	F TOTAL
1	0.095	-0.30	15.00	0.00	0.088	-0.121	8.7661	0.3600	4	0.04	0.00	3.63	3.67
2	0.85	-0.30								0.04	0.00	3.63	3.68
3	1.60	-0.30								0.04	0.01	3.63	3.68
4	2.35	-0.30								0.04	0.01	3.63	3.69

CAPACIDAD DEL PILOTE 11.8

ELEMENTO	Point	EJE	Load	FZ	MX	MY	MZ	# PILOTES	100%F	100%FZ	100%MX	100%MY	
	P2		CM+CV	31.51	-0.055	0.589	0	4	31.51	31.51	-0.0546	0.5885	

PILOTE #	EJE X	EJE Y	FZ Total	W Dado	MX	MY	Iequ X	Iequ Y	CANT. PILOTES	F POR MX	F POR MY	F POR FZ	F TOTAL
1	0.207	-0.30	31.51	0.00	-0.055	0.589	6.4199	0.3600	4	0.01	0.01	7.76	7.78
2	-0.54	-0.30								0.01	0.02	7.76	7.79
3	-1.29	-0.30								0.01	0.06	7.76	7.82
4	2.10	-0.30								0.01	0.09	7.76	7.86

CAPACIDAD DEL PILOTE 11.8

PILOTE (10-P2)	F TOTAL	CAPACIDAD PILOTE	VERIFICACION
1	11.53	11.80	OK
2	11.50		OK
3	11.47		OK
4	11.46		OK

ELEMENTO	Point	EJE	Load	FZ	MX	MY	MZ	# PILOTES	100%F	100%FZ	100%MX	100%MY	
	18		CM+CV	16.53	-0.029	0.058	0	4	16.53	16.53	-0.0287	0.0583	

PILOTE #	EJE X	EJE Y	FZ Total	W Dado	MX	MY	Iequ X	Iequ Y	CANT. PILOTES	F POR MX	F POR MY	F POR FZ	F TOTAL
1	-0.088	0.09	16.53	0.00	-0.029	0.058	1.0332	1.0286	4	0.00	0.00	4.13	4.13
2	-0.71	0.08								0.00	0.04	4.13	4.17
3	-0.09	0.71								0.00	0.00	4.13	4.13
4	-0.71	0.71								0.00	0.04	4.13	4.17
											CAPACIDAD DEL PILOTE		11.8

ELEMENTO	Point	EJE	Load	FZ	MX	MY	MZ	# PILOTES	100%F	100%FZ	100%MX	100%MY	
	19		CM+CV	14.46	-0.068	-0.42	0	4	14.46	14.46	-0.0675	-0.4201	

PILOTE #	EJE X	EJE Y	FZ Total	W Dado	MX	MY	Iequ X	Iequ Y	CANT. PILOTES	F POR MX	F POR MY	F POR FZ	F TOTAL
1	-0.088	0.09	14.46	0.00	-0.068	-0.42	1.0332	1.0286	4	0.01	0.04	3.60	3.64
2	-0.71	0.08								0.00	0.29	3.60	3.89
3	-0.09	0.71								0.00	0.04	3.60	3.63
4	-0.71	0.71								0.00	0.29	3.60	3.89
											CAPACIDAD DEL PILOTE		11.8

ELEMENTO	Point	EJE	Load	FZ	MX	MY	MZ	# PILOTES	100%F	100%FZ	100%MX	100%MY	
	P5-P7		CM+CV	62.64	1.044	0.469	0	6	62.64	62.64	1.0442	0.4688	

PILOTE #	EJE X	EJE Y	FZ Total	W Dado	MX	MY	Iequ X	Iequ Y	CANT. PILOTES	F POR MX	F POR MY	F POR FZ	F TOTAL
1	0.032	0.18	62.64	0.00	1.044	0.469	1.8381	7.9599	6	0.02	0.01	10.61	10.65
2	0.78	0.18								0.02	0.20	10.61	10.84
3	0.032	-0.82								0.11	0.01	10.61	10.73
4	0.78	-0.82								0.11	0.20	10.61	10.92
5	0.032	-1.81								0.24	0.01	10.61	10.86
6	0.78	-1.81								0.24	0.20	10.61	11.05
											CAPACIDAD DEL PILOTE		11.8

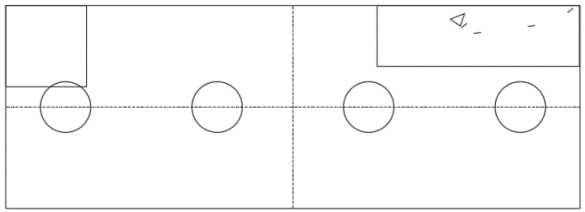
ELEMENTO	Point	EJE	Load	FZ	MX	MY	MZ	# PILOTES	100%F	100%FZ	100%MX	100%MY	
	P6-P8		CM+CV	70.80	-8.804	-4.253	0	8	70.80	70.80	-8.8035	-4.2528	

PILOTE #	EJE X	EJE Y	FZ Total	W Dado	MX	MY	Iequ X	Iequ Y	CANT. PILOTES	F POR MX	F POR MY	F POR FZ	F TOTAL
1	0.082	0.22	70.80	0.00	-8.804	-4.253	2.7951	12.1259	8	0.16	0.12	7.75	8.04
2	0.83	0.22								0.16	1.27	7.75	9.18
3	0.082	0.53								0.38	0.12	7.75	8.26
4	0.83	0.53								0.38	1.27	7.75	9.40
5	0.082	1.28								0.93	0.12	7.75	8.80
6	0.83	1.28								0.93	1.27	7.75	9.94
7	0.082	2.03								1.47	0.12	7.75	9.35
8	0.83	2.03								1.47	1.27	7.75	10.49
											CAPACIDAD DEL PILOTE		11.8

DISEÑO DE DADOS RÍGIDOS MEDIANTE EL MÉTODO DE BIELAS Y TIRANTE

ZAPATA Z-15

f´c =	21 MPa
fy =	420 MPa
Recubrim.(d´) =	0.075 m
ρmin =	0.002
B =	2.84 m
L =	1.00 m
Diam Pilote =	0.25 m
B Col=	1.00 m
H Col=	0.30 m
Dist Pil a borde	0.295 m



REFUERZO INFERIOR

ELEMENTO	EJE	Point	PILOTE #	CARGA (Pu) Ton	Dcol m	Dcol / 4 m	Dist entre Pil m	Distancia An m	Ángulo °	d calculado m
ZAPATA Z15		7-P1		45.48	1.00	0.25	0.75	0.38	45	0.38

h calculado m	h m	d m	Tu Ton	Desc. Tu	Ton	As mm²	ρ	Asmin mm²	Barras #5	S cm
0.45	0.50	0.43	40.13	Tux	80.26	2123.34	0.00176	2414.00	13#5	23.41
				Tuy	18.19	481.29	0.00113	850.00	5#5	23.41
								Paralelo L	13#5 @ 20	
								Paralelo B	5#5 @ 20	

REFUERZO SUPERIOR

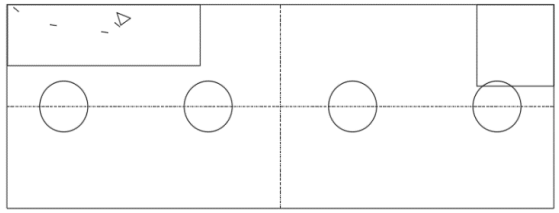
ρ min Ret. y frag.	Asmin mm²	Barras #5	S cm		
0.00180	2172.60	12#5	26.01	CHEQ.APLAST.	
0.00180	765.00	4#5	26.01	696.15	O.K
Paralelo a L		12#5 @ 25			
Paralelo a B		4#5 @ 25			

Observaciones:

DISEÑO DE DADOS RÍGIDOS MEDIANTE EL MÉTODO DE BIELAS Y TIRANTE

ZAPATA Z16

f´c =	21 MPa
fy =	420 MPa
Recubrim.(d´) =	0.075 m
ρmin =	0.002
B =	2.85 m
L =	1.00 m
Diam Pilote =	0.25 m
B Col=	1.00 m
H Col=	0.30 m
Dist Pil a borde	0.295 m



REFUERZO INFERIOR

ELEMENTO	EJE	Point	PILOTE #	CARGA (Pu) Ton	Dcol m	Dcol / 4 m	Dist entre Pil m	Distancia An m	Ángulo °	d calculado m
ZAPATA Z16		10-P2		46.50	1.00	0.25	0.75	0.38	45	0.38

h calculado m	h m	d m	Tu Ton	Desc. Tu	Ton	As mm^2	ρ	Asmin mm^2	Barras #5	S cm
0.45	0.50	0.43	41.03	Tux	82.61	2185.52	0.00180	2422.50	13#5	23.41
				Tuy	18.60	492.10	0.00116	850.00	5#5	23.41
								Paralelo L	13#5 @ 20	
								Paralelo B	5#5 @ 20	

REFUERZO SUPERIOR

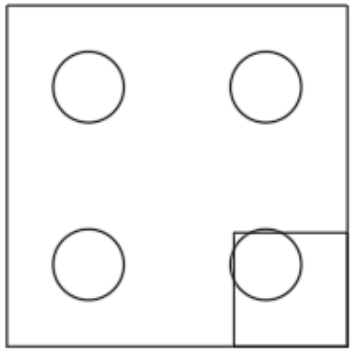
ρ min Ret. y frag.	Asmin mm^2	Barras #5	S cm
0.00180	2180.25	12#5	26.01
0.00180	765.00	4#5	26.01
Paralelo a L		12#5 @ 25	
Paralelo a B		4#5 @ 25	

CHEQ.APLAST.	
696.15	O.K

Observaciones:

DISEÑO DE DADOS RÍGIDOS MEDIANTE EL MÉTODO DE BIELAS Y TIRANTE

ZAPATA Z-18



f´c =	21 MPa
fy =	420 MPa
Recubrim.(d´) =	0.075 m
ρmin =	0.002
B =	1.20 m
L =	1.20 m
Diam Pilote =	0.25 m
B Col=	0.30 m
H Col=	0.30 m
Dist Pil a borde	0.16 m

REFUERZO INFERIOR

ELEMENTO	EJE	Point	PILOTE #	CARGA (Pu) Ton	Dcol m	Dcol / 4 m	Dist entre Pil m	Distancia An m	Ángulo °	d calculado m
		7	4	16.53	0.30	0.08	0.63	0.32	45	0.31

h calculado m	h m	d m	Tu Ton	Desc. Tu	Ton	As mm^2	ρ	Asmin mm^2	Barras #5	S cm
0.39	0.50	0.43	12.33	Tux	9.24	244.38	0.00048	1020.00	6#5	23.41
				Tuy	9.24	244.38	0.00048	1020.00	6#5	23.41
								Paralelo L	6#5 @ 20	
								Paralelo B	6#5 @ 20	

REFUERZO SUPERIOR

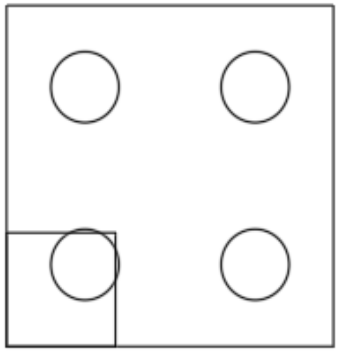
ρ min Ret. y frag.	Asmin mm^2	Barras #5	S cm
0.00180	918.00	5#5	26.01
0.00180	918.00	5#5	26.01
Paralelo a L		5#5 @ 25	
Paralelo a B		5#5 @ 25	

CHEQ.APLAST.	
208.845	O.K

Observaciones:

DISEÑO DE DADOS RÍGIDOS MEDIANTE EL MÉTODO DE BIELAS Y TIRANTE

ZAPATA Z-19



f´c =	21 MPa
fy =	420 MPa
Recubrim.(d´) =	0.075 m
ρmin =	0.002
B =	1.10 m
L =	1.10 m
Diam Pilote =	0.25 m
B Col=	0.30 m
H Col=	0.30 m
Dist Pil a borde	0.16 m

REFUERZO INFERIOR

ELEMENTO	EJE	Point	PILOTE #	CARGA (Pu) Ton	Dcol m	Dcol / 4 m	Dist entre Pil m	Distancia An m	Ángulo °	d calculado m
		0	4	14.46	0.30	0.08	0.63	0.32	45	0.31

h calculado m	h m	d m	Tu Ton	Desc. Tu	Ton	As mm^2	ρ	Asmin mm^2	Barras #5	S cm
0.39	0.50	0.43	10.78	Tux	6.38	168.73	0.00036	935.00	5#5	23.41
				Tuy	6.38	168.73	0.00036	935.00	5#5	23.41
								Paralelo L	5#5 @ 20	
								Paralelo B	5#5 @ 20	

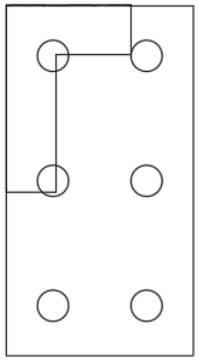
REFUERZO SUPERIOR

ρ min Ret. y frag.	Asmin mm^2	Barras #5	S cm		
0.00180	841.50	5#5	26.01	CHEQ.APLAST.	
0.00180	841.50	5#5	26.01	208.845	O.K
Paralelo a L		5#5 @ 25			
Paralelo a B		5#5 @ 25			

Observaciones:

DISEÑO DE DADOS RÍGIDOS MEDIANTE EL MÉTODO DE BIELAS Y TIRANTE

ZAPATA Z-17



f´c =	21 MPa
fy =	420 MPa
Recubrim.(d´) =	0.075 m
ρmin =	0.002
B =	1.50 m
L =	2.80 m
Diam Pilote =	0.25 m
B Col=	1.00 m
H Col=	1.50 m
Dist Pil a borde	0.25 m

REFUERZO INFERIOR

ELEMENTO	EJE	Point	PILOTE #	CARGA (Pu) Ton	Dcol m	Dcol / 4 m	Dist entre Pil m	Distancia An m	Ángulo °	d calculado m
		0	4	62.64	1.50	0.38	0.75	0.38	45	0.37

h calculado m	h m	d m	Tu Ton	Desc. Tu	Ton	As mm^2	ρ	Asmin mm^2	Barras #5	S cm
0.45	0.50	0.43	55.27	Tux	0.00	0.00	0.00000	1275.00	7#5	23.41
				Tuy	95.80	2534.41	0.00213	2534.41	13#5	21.99
								Paralelo L	7#5 @ 20	
								Paralelo B	13#5 @ 20	

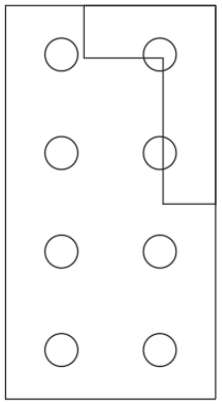
REFUERZO SUPERIOR

ρ min Ret. y frag.	Asmin mm^2	Barras #5	S cm		
0.00180	1147.50	6#5	26.01	CHEQ.APLAST.	
0.00180	2142.00	11#5	26.01	2912.20439	O.K
Paralelo a L		6#5 @ 25			
Paralelo a B		11#5 @ 25			

Observaciones:

DISEÑO DE DADOS RÍGIDOS MEDIANTE EL MÉTODO DE BIELAS Y TIRANTE

ZAPATA Z-20



f´c =	21 MPa
fy =	420 MPa
Recubrim.(d´) =	0.075 m
ρmin =	0.002
B =	1.60 m
L =	3.00 m
Diam Pilote =	0.25 m
B Col=	1.00 m
H Col=	1.50 m
Dist Pil a borde	0.30 m

REFUERZO INFERIOR

ELEMENTO	EJE	Point	PILOTE #	CARGA (Pu) Ton	Dcol m	Dcol / 4 m	Dist entre Pil m	Distancia An m	Ángulo °	d calculado m
		0	4	0.00	1.50	0.38	0.75	0.40	45	0.40

h calculado m	h m	d m	Tu Ton	Desc. Tu	Ton	As mm^2	ρ	Asmin mm^2	Barras #5	S cm
0.48	0.50	0.43	0.00	Tux	0.00	0.00	0.00000	1360.00	7#5	23.41
				Tuy	0.00	0.00	0.00000	2550.00	13#5	23.41
								Paralelo L	7#5 @ 20	
								Paralelo B	13#5 @ 20	

REFUERZO SUPERIOR

ρ min Ret. y frag.	Asmin mm^2	Barras #5	S cm
0.00180	1224.00	7#5	26.01
0.00180	2295.00	12#5	26.01
Paralelo a L		7#5 @ 25	
Paralelo B		12#5 @ 25	

CHEQ.APLAST.	
3113.27745	O.K

Observaciones:

DISEÑO DE PILOTES A MOMENTO

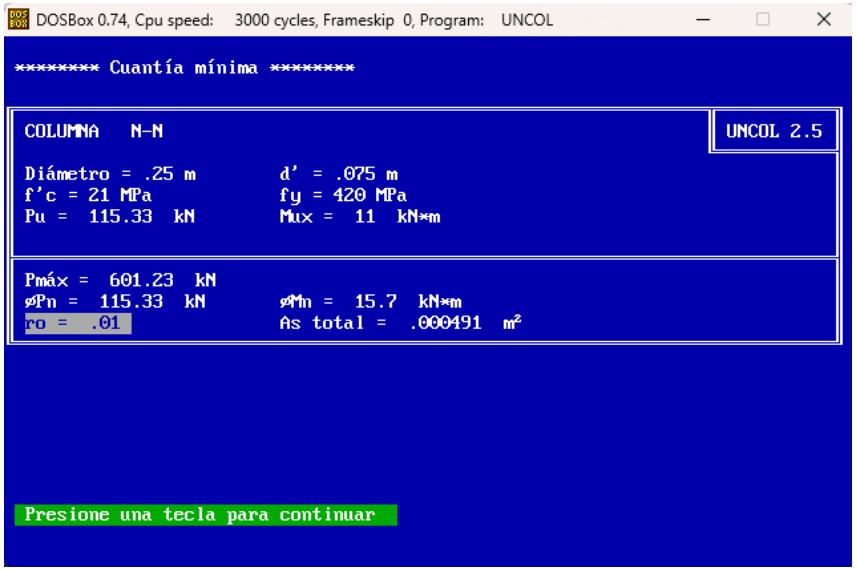
A) Propiedades de los Materiales y Geometría.

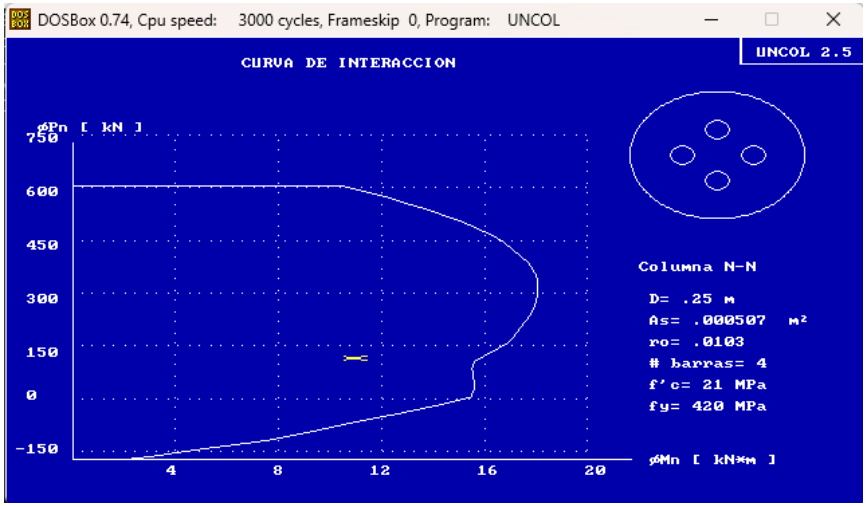
f'c = 210.0 Kg/cm² m = 23.53
Fy = 4200.0 Kg/cm² ∅ = 0.25 m

B) Diseño a Flexión.

Momeno Último Obtenido:	M_u =	1.10 T.m	
Esfuerzo a flexión:	K =	179.34 T/m²	
Cálculo de la Cuantía:	$\rho_{dis.}$ =	0.0050	
	$\rho_{mín.}$ =	0.0100	
Cálculo del Acero Requerido:	A_s =	4.91 cm²	
Varilla:	*#4*	*4*	**Se recomienda mín. 4 barras #4**

DISEÑO PILOTE





		Capilla	

DISEÑO DE PILOTES A CORTANTE

A) Propiedades de los Materiales y Geometría.

f'c =	210.0 Kg/cm²	Vu=	0.3 Ton
Fy =	4200.0 Kg/cm²	Ø =	0.25 m

B) Calculo del Cortante Suministrado por una seccion Circular

$$V_c = 0.17\lambda\sqrt{f'_c}\,b_w d$$

Vc = 38951.89 N
Vc = 3.97 Ton

B) Calculo del Cortante Maximo que puede Suministrar el Acero de Refuerzo

$$0.66\sqrt{f'_c}\,b_w d\ .$$

Vs Max = 151225.00 N
Vs Max = 15.42 Ton

C) Calculo del Cortante nominal maximo de la seccion

Ø Vn >= Vu
Vn= Vc + Vs

Vn=	3.97 Ton	+	15.42 Ton
Vn=	19.39 Ton		
Ø Vn =	14.55 Ton		Cumple

D) Calculo de la separacion y flejes a

Vs =	-3.52 Ton	
Av =	# 3	= 71 mm²
R =	2	
S =	-69.34 cm	
Lzona =	0.50 m	

E) Cortante nominal Obtenido

Ø Vn >= Vu
Vn= Vc+Vs

Vn =	3.97 Ton	+	-3.52 Ton
Vn =	7.49 Ton		
Ø Vn =	5.62 Ton		

Use estribos #3 mín. c/10cm en 0.5m; después mín. c/20cm.

VERIFICACION CUANTIA VOLUMETRICA

Ø = 0.25

Materiales: f'c = 210 k/cm^2 fy = 4200 k/cm^2

Sección : Ø = 0.25 m **Recubrimiento libre =** 0.075 m

Ø nucleo = 0.10 m

Ag = area bruta de la sección = Π x 25 ^{2} / 4 = 491 cm^2

Ac = area núcleo de la sección = Π x 10 ^{2} / 4 = 79 cm^2

Espaciamiento libre de estribos - a máx = 10.0 cm Estribos

Ecuacion C.10-5 para Espiral

Cuantias : ρ 1 = .45 x (Ag / Ac -1) x f'c / fy = 0.1181

Seccion C.21.3.5.5 ρ diseño = 0.0040

ρ 2 = 0.08 x f'c / fy = 0.0040

Ø varilla (1/8 ") = 3 S vertical estribos teorica = 11.0 definitiva = 10.0 cm

Avar requerida = ρdiseño x Φnúcleo x Sver / 4 = 0.10 cm^2 = 10 mm^2

$$\rho = \frac{Volumen\ de\ acero}{volumne\ del\ nucloe\ de\ concreto} = \frac{Av * Perimetro\ o\ Paso}{\frac{\pi Dc^4}{4} * S}$$

Se tiene que

Av = 71.26 mm^2

S = 100 mm

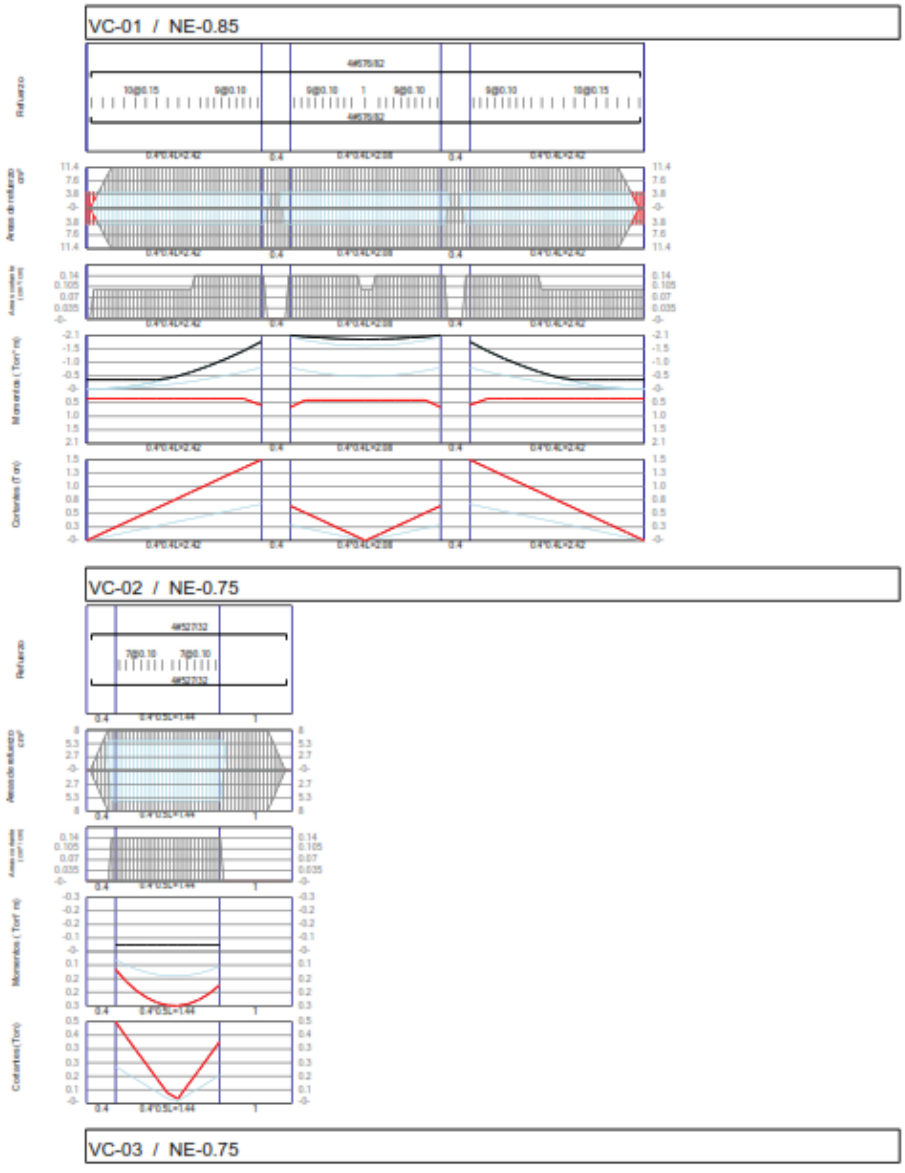
Dc= 100 mm

Entonces la Cuantia Suminstrada es $\frac{71.26 \times 314.16}{7853.98 \times 100.00}$ 0.02850

La Cuantia Volumetrica Suministrada Cumple

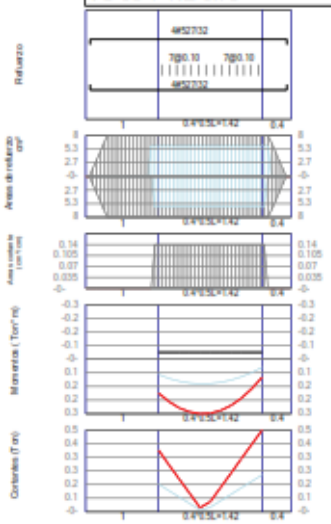
8.12.3 Vigas de Cimentación



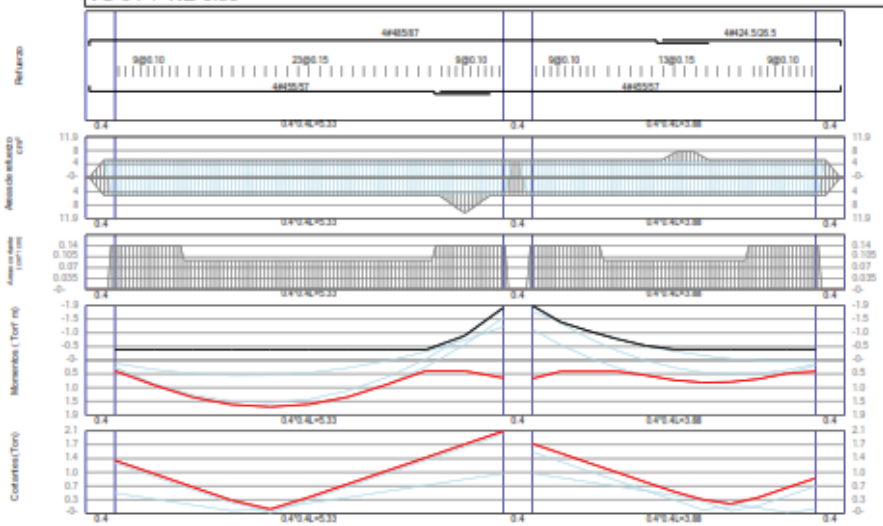


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VC-03 / NE-0.75



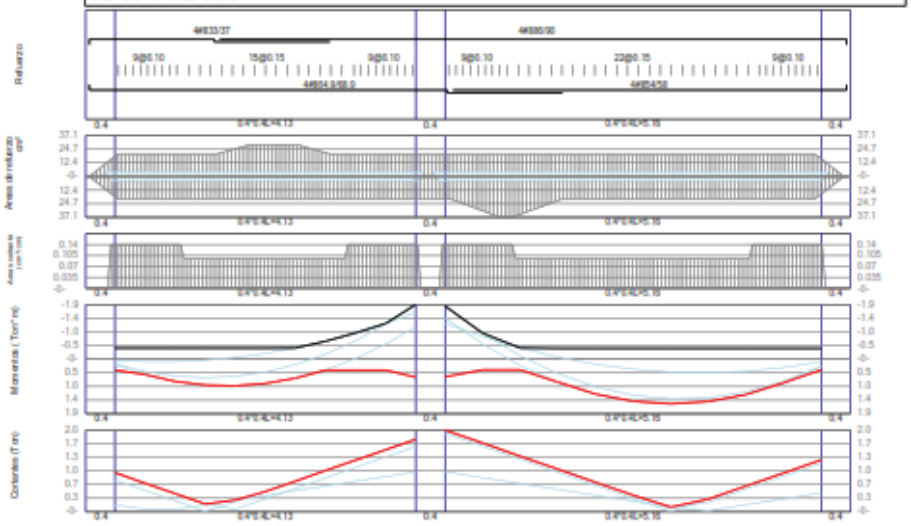
VC-04 / NE-0.85



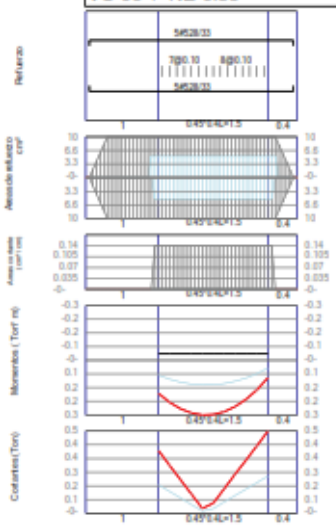
VC-05 / NE-0.85

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Código Nimbus	

VC-05 / NE-0.85



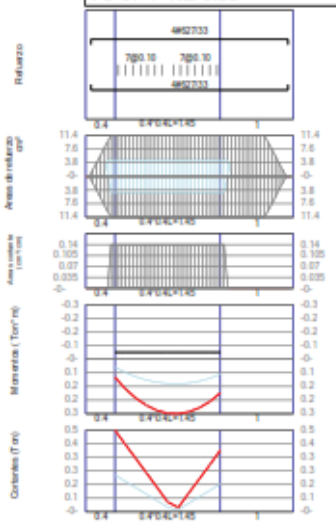
VC-06 / NE-0.85



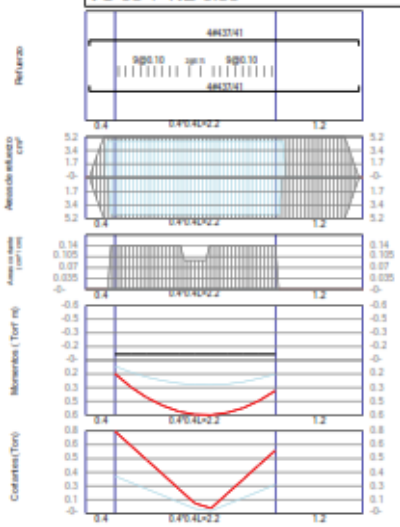
VC-07 / NE-0.85

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Contenido	Memorias de Vigas
Código Nimbus	

VC-07 / NE-0.85



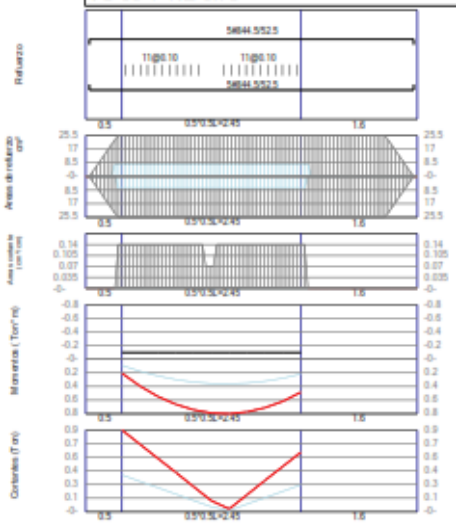
VC-08 / NE-0.85



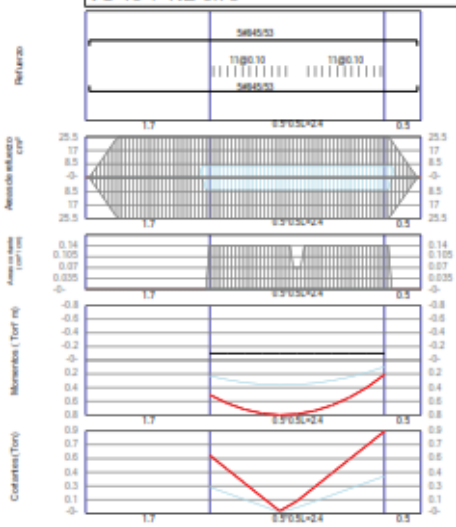
VC-09 / NE-0.75

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Código Nimbus	

VC-09 / NE-0.75



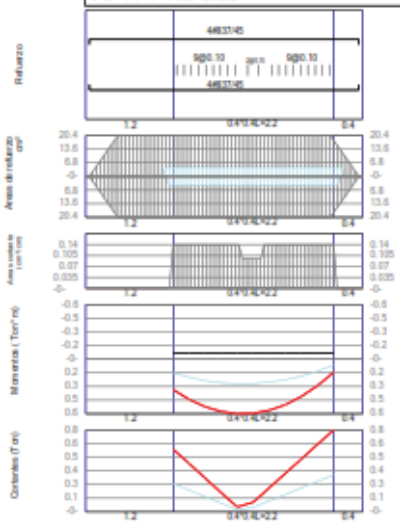
VC-10 / NE-0.75



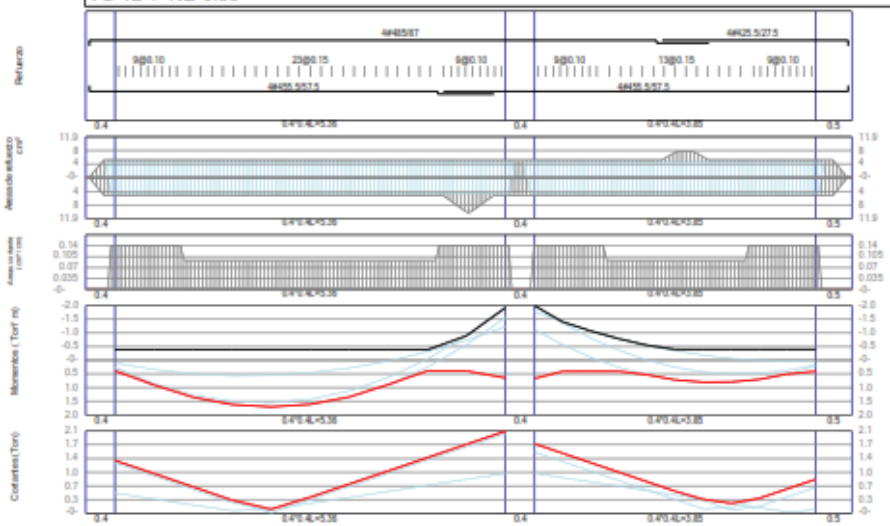
VC-11 / NE-0.85

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Código Nimbus	

VC-11 / NE-0.85



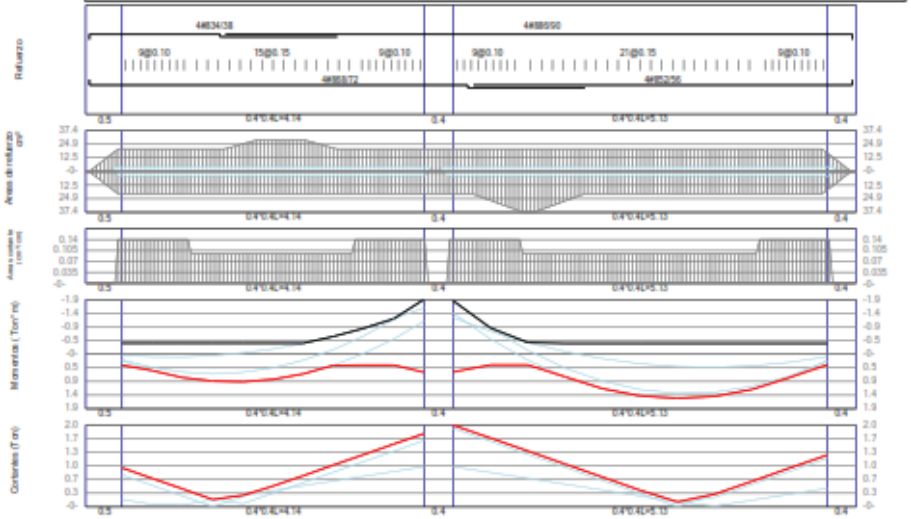
VC-12 / NE-0.85



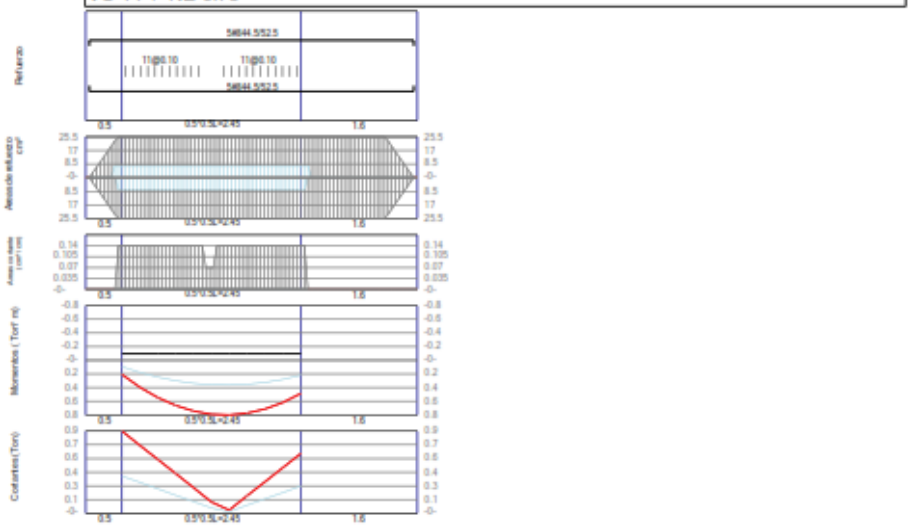
VC-13 / NE-0.85

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Código Nimbus	

VC-13 / NE-0.85



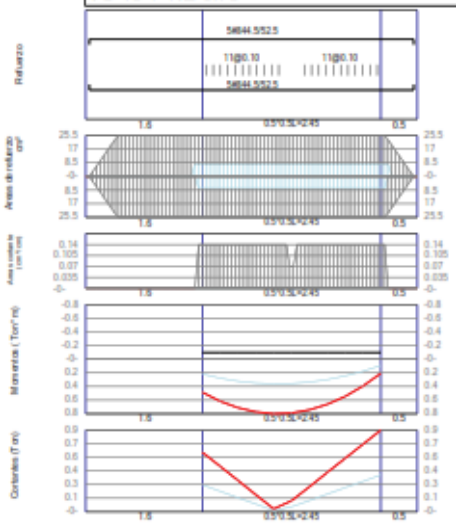
VC-14 / NE-0.75



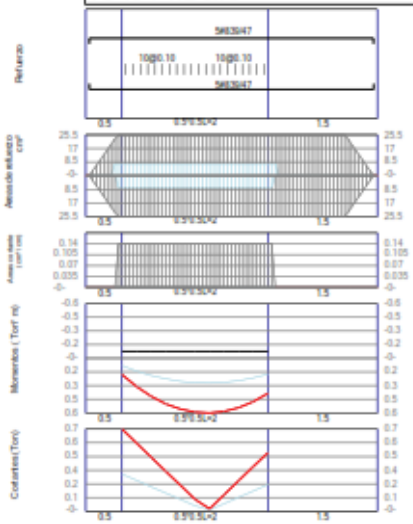
VC-15 / NE-0.75

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Código Nimbus	

VC-15 / NE-0.75



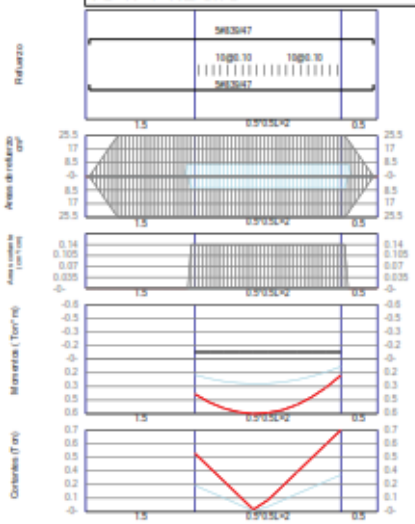
VC-16 / NE-0.75



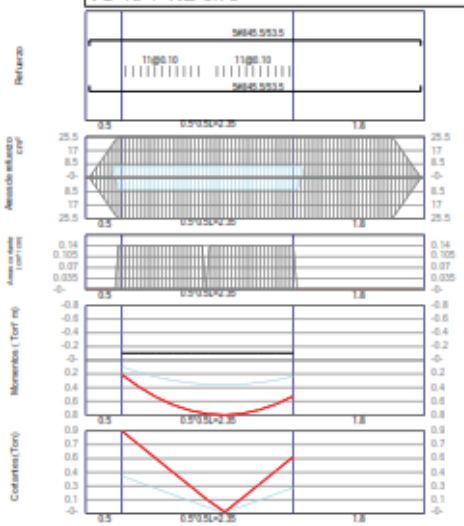
VC-17 / NE-0.75

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VC-17 / NE-0.75



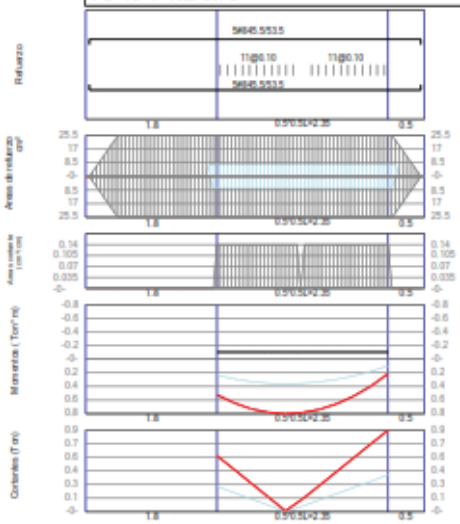
VC-18 / NE-0.75



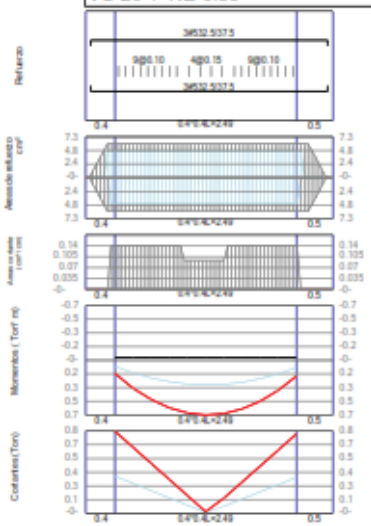
VC-19 / NE-0.75

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Contenido: Memorias de Vigas
Norma: NSR-10 DMO
Código Nimbus:

VC-19 / NE-0.75



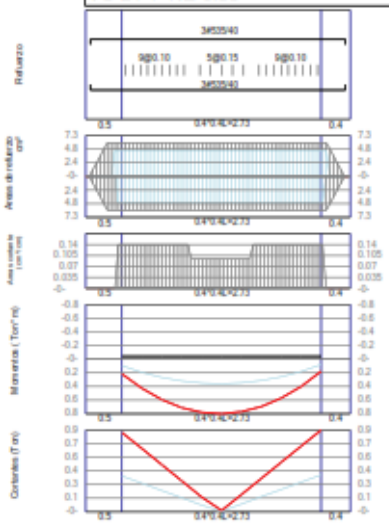
VC-20 / NE-0.85



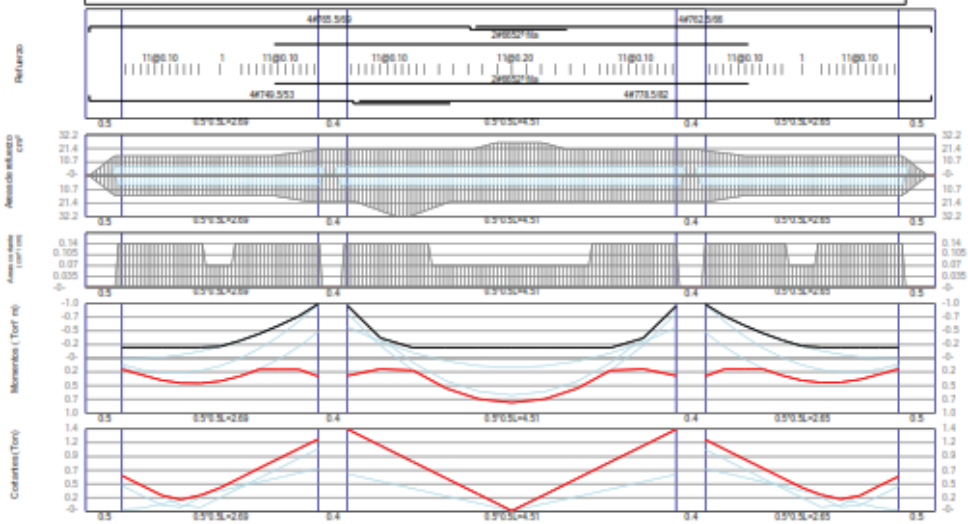
VC-21 / NE-0.85

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VC-21 / NE-0.85



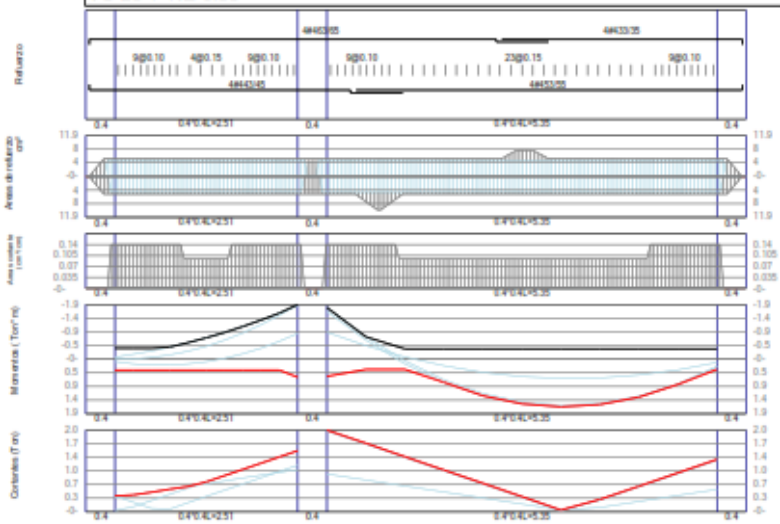
VC-22 / NE-0.75



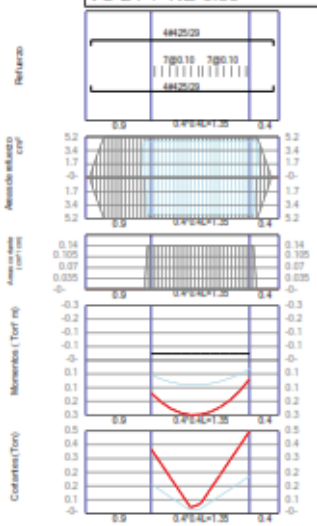
VC-23 / NE-0.85

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VC-23 / NE-0.85



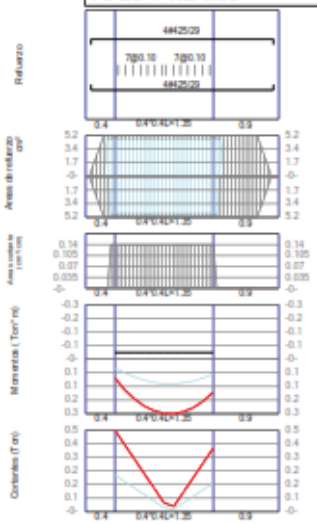
VC-24 / NE-0.85



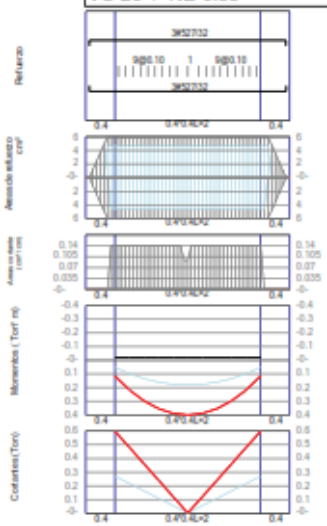
VC-25 / NE-0.85

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Código Nimbus	

VC-25 / NE-0.85



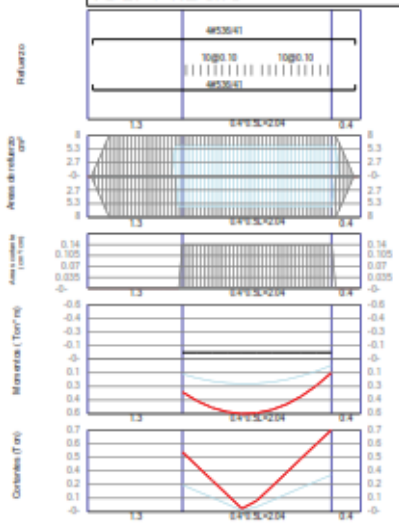
VC-26 / NE-0.85



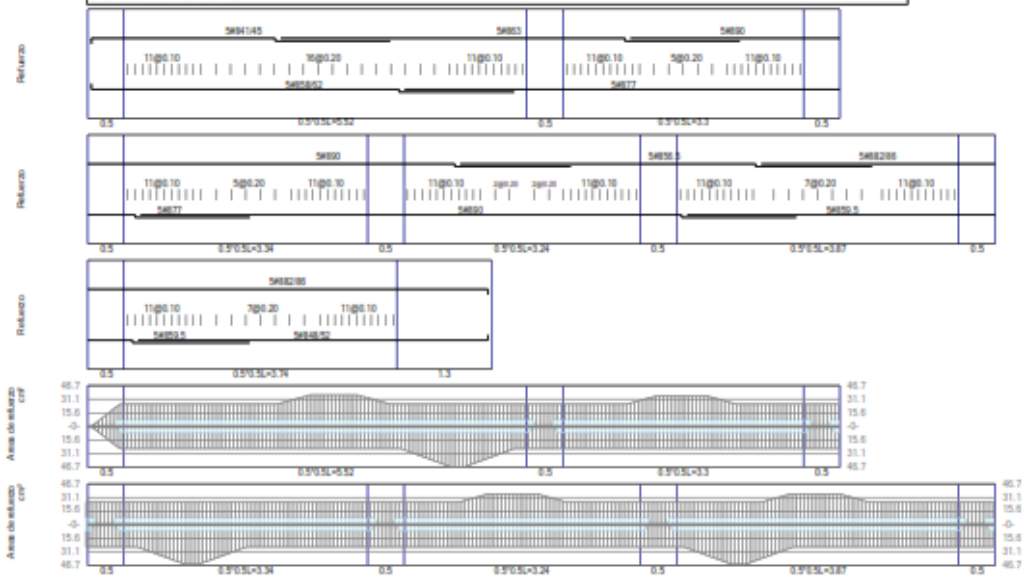
VC-27 / NE-0.75

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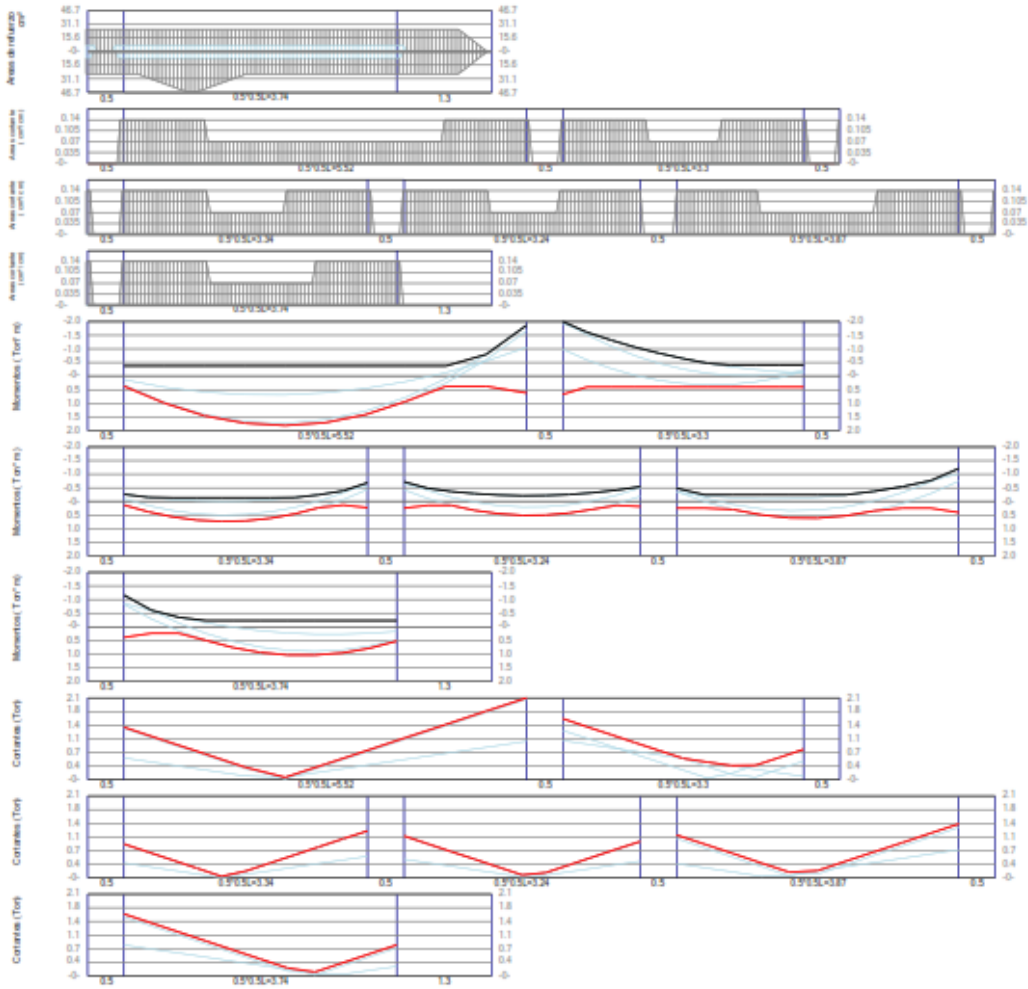
VC-27 / NE-0.75



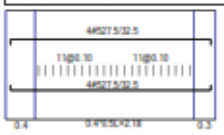
VC-28 / NE-0.75



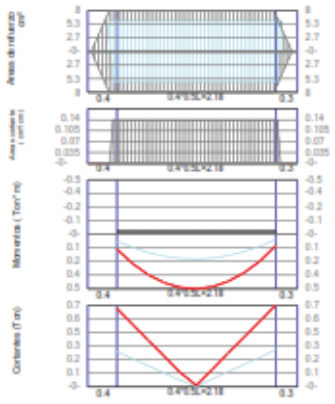
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Norma: NSR-10 DMO
Código Nimbus:



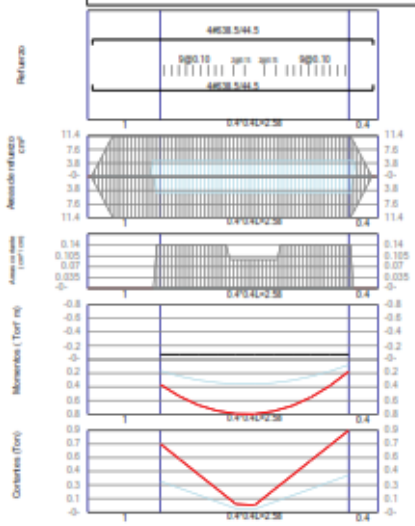
VC-29 / NE-0.75



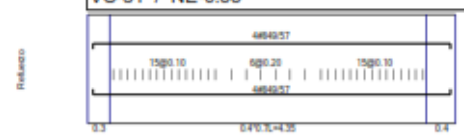
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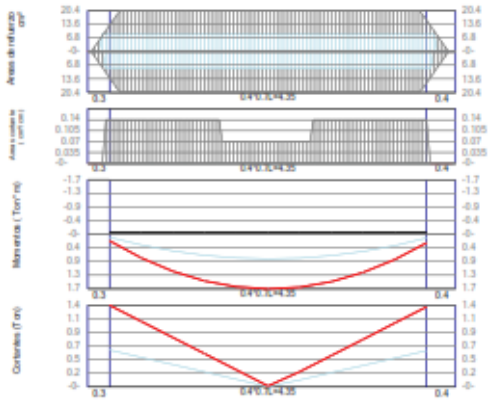
VC-30 / NE-0.85



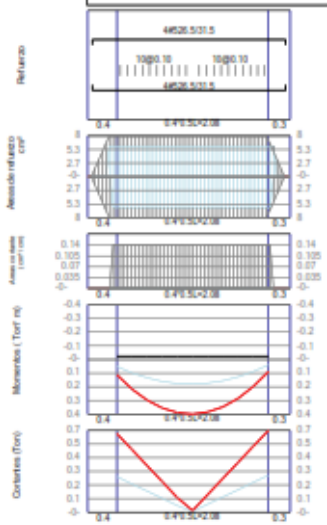
VC-31 / NE-0.55



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Dirección	
Diseño Arquitectónico	
Contenido	Memorias de Vigas
Código Nimbus	



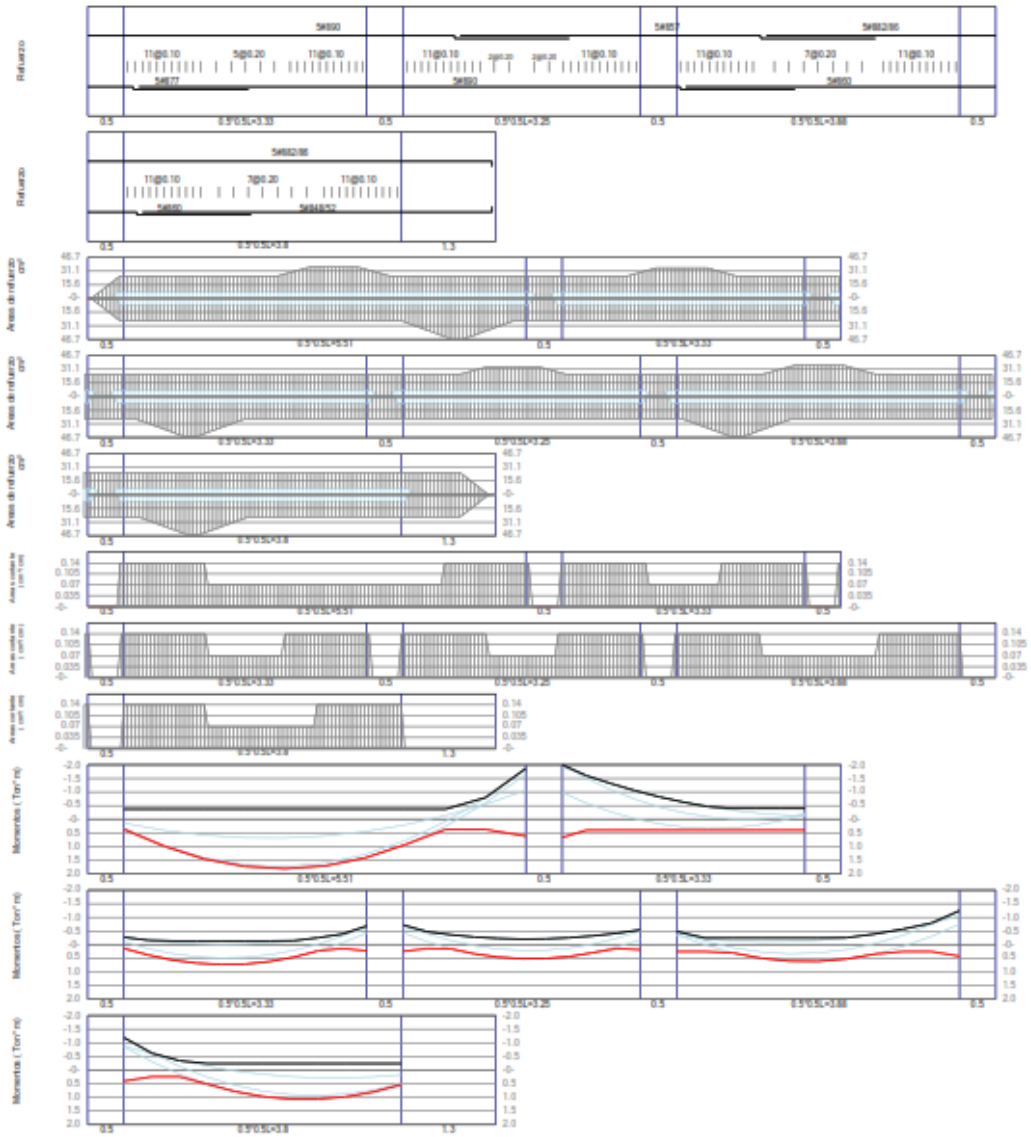
VC-32 / NE-0.75



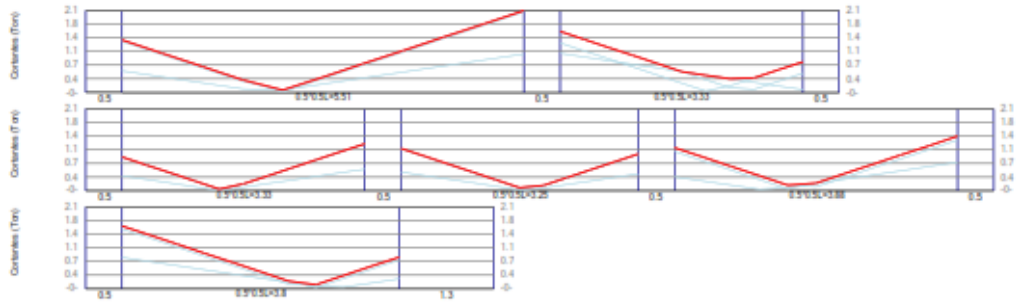
VC-33 / NE-0.75



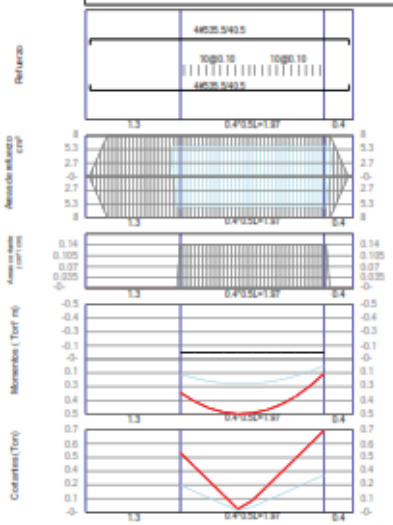

Nombre Principal
COMPLEJO HOSPITALARIO SAN JUAN DE DIOS
Nombre Auxiliar
GRUPO 2 CAPILLA
Dirección
Propietario
Diseño Arquitectónico
DC-CAD3 Licenciado a:
GUEVARA ALVAREZ INGENIEROS LTDA.
Contenido
Memorias de Vigas
Norma
NSR-10 DMO
Código Nimbus



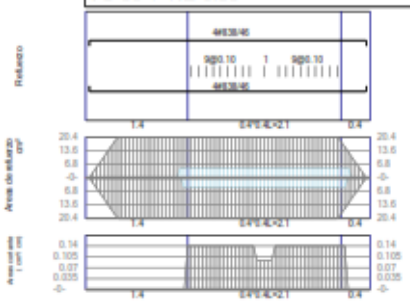
Nombre Principal: COMPLEJO HOSPITALARIO SAN JUAN DE DIOS
Nombre Auxiliar: GRUPO 2 CAPILLA
Dirección:
Propietario:
Diseño Arquitectónico:
DC-CAD3 Licenciado a: GUEVARA ALVAREZ INGENIEROS LTDA.
Contenido: Memorias de Vigas
Norma: NSR-10 DMO
Código Nimbus:



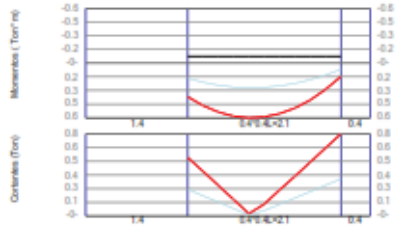
VC-34 / NE-0.75



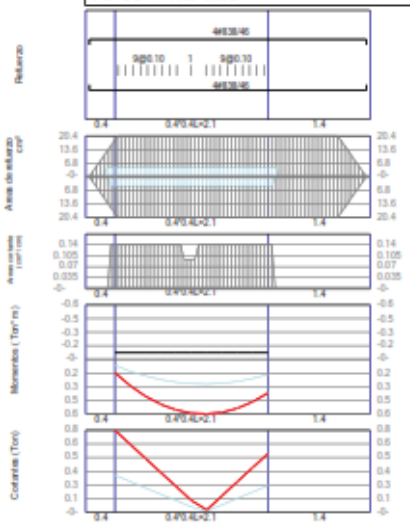
VC-35 / NE-0.85



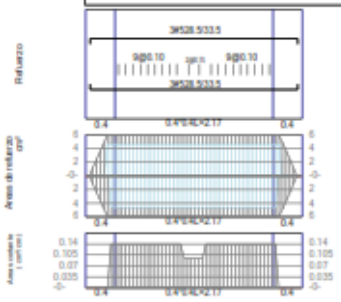
Nombre Principal: COMPLEJO HOSPITALARIO SAN JUAN DE DIOS
Nombre Auxiliar: GRUPO 2 CAPILLA
Dirección:
Propietario:
Diseño Arquitectónico:
DC-CAD3 Licenciado a: GUEVARA ALVAREZ INGENIEROS LTDA.
Contenido: Memorias de Vigas
Norma: NSR-10 DMO
Código Nimbus:



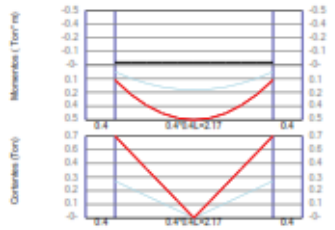
VC-36 / NE-0.85



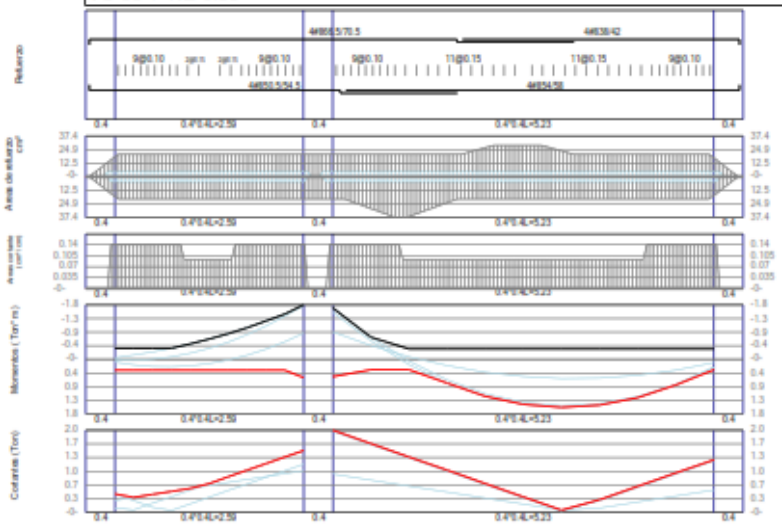
VC-37 / NE-0.85



Nombre Principal	COMPLEJO HOSPITALARIO SAN JUAN DE DIOS
Nombre Auxiliar	GRUPO 2 CAPILLA
Propietario	
DC-CAD3 Licenciado a:	GUEVARA ALVAREZ INGENIEROS LTDA.
Norma	NSR-10 DMO
Dirección	
Diseño Arquitectónico	
Contenido	Memorias de Vigas
Código Nimbus	



VC-38 / NE-0.85



8.12.4 Revisión Cimentación Existente

				CARGAS A CIMENTACION CAPILLA CIM 1 - REFORZAMIENTO		
PIER	LONGITUD	Espesor Muro	Espesor Base	0.75PP	M2	M3
	m	m	m	Ton	Ton*m	Ton*m
P1	6.47176	0.85	1.19	150.69	-1.36	0.36
P2	0.5866	0.43	0.77	6.12	0.00	0.00
P3	1.3306	0.43	0.77	11.51	0.00	0.02
P5	1.3154	0.43	0.77	11.31	0.00	-0.03
P6	0.561	0.43	0.77	5.85	0.00	0.00
P7	0.867	0.43	0.77	3.00	0.00	0.03
P8	1.4586	0.43	0.77	5.04	0.00	-0.10
P9	1.5045	0.43	0.77	5.26	0.00	-0.01
P10	1.5351	0.43	0.77	11.04	0.00	-0.32
P11	1.5198	0.43	0.77	11.03	0.00	0.36
P12	1.2955	0.43	0.77	4.87	0.00	0.06
P13	1.0557	0.43	0.77	3.98	0.00	0.01
P14	1.0761	0.43	0.77	3.79	0.00	0.03
P15	2.9172	0.43	0.77	24.27	0.00	-0.24
P18	2.8764	0.43	0.77	23.79	0.00	0.16
P21	0.9384	0.43	0.77	3.26	0.00	0.08
P22	1.1322	0.43	0.77	4.16	0.00	-0.05
P23	1.5045	0.43	0.77	5.29	0.00	-0.01
P24	1.3413	0.43	0.77	8.59	0.00	-0.18
P25	1.479	0.43	0.77	9.34	-0.01	0.23
P26	1.3159	0.43	0.77	4.29	0.00	0.14
P27	2.2643	0.43	0.77	7.26	-0.01	-0.13
P28	1.0761	0.43	0.77	3.89	0.00	0.01
P29	0.6681	0.43	0.77	4.20	0.00	0.05
P30	1.0914	0.43	0.77	7.95	-0.01	0.37
P31	1.1055	0.43	0.77	8.03	-0.01	-0.39
P32	0.6771	0.43	0.77	4.26	0.00	-0.06
P35	4.4361	0.43	0.77	44.76	-0.01	0.50
P37	4.3953	0.43	0.77	44.36	-0.01	-0.69
P38	1.2954	0.43	0.77	4.57	0.00	-0.01
P39	1.479	0.43	0.77	5.45	0.00	0.02
P40	1.6014	0.43	0.77	5.80	0.00	-0.10
P41	1.1475	0.43	0.77	4.03	0.00	-0.05
P42	0.9737	0.43	0.77	10.19	0.00	-0.01
P43	0.9639	0.43	0.77	7.38	0.00	0.42
P44	0.8	0.75	1.09	11.11	0.00	0.03
P45	3.6817	0.43	0.77	22.30	0.00	-0.01
P46	0.9	0.75	1.09	12.01	0.00	-0.62
P47	3.5217	0.43	0.77	24.18	0.00	-0.25
P48	0.9	0.75	1.09	9.98	0.00	-0.51
P49	2.874	0.43	0.77	17.04	0.00	0.33
P50	0.9	0.75	1.09	12.90	0.00	1.49
P51	2.9607	0.43	0.77	6.72	0.00	-0.07

P52	**0.9**	**0.75**	**1.09**	13.24	0.00	-1.57
P53	**2.9301**	**0.43**	**0.77**	18.31	0.00	-0.53
P54	**0.9**	**0.75**	**1.09**	11.13	0.00	0.48
P55	**4.1597**	**0.43**	**0.77**	32.43	0.00	-2.04
P56	**0.75**	**0.75**	**1.09**	12.74	0.00	-0.84
P57	**0.3417**	**0.43**	**0.77**	2.15	0.00	-0.07
P58	**1.2446**	**0.43**	**0.77**	11.46	0.00	-0.22
P59	**0.9737**	**0.43**	**0.77**	8.43	0.00	0.00
P60	**0.9639**	**0.43**	**0.77**	8.28	0.00	-0.06
P61	**0.9737**	**0.43**	**0.77**	8.41	0.00	0.00
P62	**0.9639**	**0.43**	**0.77**	8.27	0.00	-0.05
P63	**0.9737**	**0.43**	**0.77**	10.17	0.00	-0.01
P64	**0.9639**	**0.43**	**0.77**	7.39	-0.01	0.25
P65	**0.8**	**0.75**	**1.09**	11.02	-0.01	0.12
P66	**3.6817**	**0.43**	**0.77**	21.96	-0.01	0.11
P67	**0.9**	**0.75**	**1.09**	11.62	-0.01	-0.62
P68	**3.5217**	**0.43**	**0.77**	23.83	0.00	-0.18
P69	**0.9**	**0.75**	**1.09**	9.91	0.00	-0.50
P70	**2.874**	**0.43**	**0.77**	16.99	0.00	0.34
P71	**0.9**	**0.75**	**1.09**	12.89	0.00	1.49
P72	**2.9607**	**0.43**	**0.77**	6.71	0.00	-0.07
P73	**0.9**	**0.75**	**1.09**	13.23	0.00	-1.57
P74	**2.9301**	**0.43**	**0.77**	18.30	0.00	-0.53
P75	**0.9**	**0.75**	**1.09**	11.13	0.00	0.48
P76	**4.1597**	**0.43**	**0.77**	32.44	0.00	-2.04
P77	**0.75**	**0.75**	**1.09**	12.73	0.00	-0.85
P78	**0.3417**	**0.43**	**0.77**	2.15	0.00	-0.07
P79	**1.2446**	**0.43**	**0.77**	11.45	0.00	-0.23
P80	**1.8615**	**0.43**	**0.77**	6.56	0.00	-0.09
P81	**0.561**	**0.43**	**0.77**	1.55	0.00	0.00
P82	**2.0298**	**0.43**	**0.77**	6.61	0.02	0.06
P83	**1.173**	**0.43**	**0.77**	4.20	0.00	-0.05
P84	**2.1777**	**0.15**	**0.49**	1.90	0.00	-0.21
P85	**1.9686**	**0.15**	**0.49**	1.69	0.00	0.17
P86	**2.0349**	**0.15**	**0.49**	1.84	0.00	-0.22
P87	**2.4633**	**0.15**	**0.49**	2.18	0.00	-0.21
P88	**1.2699**	**0.15**	**0.49**	1.55	0.00	-0.03
P89	**1.9074**	**0.15**	**0.49**	2.17	0.00	0.07
P90	**2.0298**	**0.15**	**0.49**	2.29	0.00	-0.13
P91	**1.2087**	**0.15**	**0.49**	1.49	0.00	-0.01
P92	**4.6716**	**0.15**	**0.49**	5.57	0.00	-0.16
P93	**1.2546**	**0.15**	**0.49**	1.53	0.00	0.00
P94	**4.1208**	**0.15**	**0.49**	4.23	0.00	-0.08
P95	**1.9941**	**0.15**	**0.49**	2.72	0.00	0.03
P96	**2.8305**	**0.15**	**0.49**	2.25	0.00	-0.11
P97	**4.8552**	**0.15**	**0.49**	8.12	0.00	-0.91
P99	**1.7799**	**0.15**	**0.49**	2.43	0.00	0.02
P100	**3.9882**	**0.15**	**0.49**	4.53	0.00	-0.08
P101	**1.3209**	**0.15**	**0.49**	0.94	0.00	0.01

ESFUERZOS ADMISIBLES		DESPLANTE	Adicional Sobre Ancho		F.S>3	Cumple CM + CV		
		1.3025	Externo	Interno	2.5<F.S<3	cumple CM + CV maxima		
			0.17	0.17	FS<2.5	No Cumple		
CARGA ACTUANTE	CARGA ADMISIBLE (F.S=3.0)	Momento admisble M2	Momento admisble M3		ESTADO			
					CARGA	F.S	Momento M2	Momento M3
19.57	18.72	89.66	487.62		No Cumple	2.87	Cumple	Cumple
13.55	19.02	2.36	1.79		Cumple	4.21	Cumple	Cumple
11.23	19.02	4.43	7.65		Cumple	5.08	Cumple	Cumple
11.17	19.02	4.36	7.44		Cumple	5.11	Cumple	Cumple
13.53	19.02	2.25	1.64		Cumple	4.22	Cumple	Cumple
4.50	19.02	1.16	1.30		Cumple	12.69	Cumple	Cumple
4.49	19.02	1.94	3.68		Cumple	12.72	Cumple	Cumple
4.54	19.02	2.03	3.96		Cumple	12.56	Cumple	Cumple
9.34	19.02	4.25	8.48		Cumple	6.11	Cumple	Cumple
9.43	19.02	4.25	8.38		Cumple	6.05	Cumple	Cumple
4.89	19.02	1.88	3.16		Cumple	11.68	Cumple	Cumple
4.90	19.02	1.53	2.10		Cumple	11.65	Cumple	Cumple
4.57	19.02	1.46	2.04		Cumple	12.48	Cumple	Cumple
10.80	19.02	9.34	35.40		Cumple	5.28	Cumple	Cumple
10.74	19.02	9.16	34.21		Cumple	5.31	Cumple	Cumple
4.51	19.02	1.25	1.53		Cumple	12.66	Cumple	Cumple
4.77	19.02	1.60	2.35		Cumple	11.97	Cumple	Cumple
4.57	19.02	2.04	3.98		Cumple	12.49	Cumple	Cumple
8.32	19.02	3.31	5.76		Cumple	6.86	Cumple	Cumple
8.20	19.02	3.60	6.91		Cumple	6.96	Cumple	Cumple
4.23	19.02	1.65	2.82		Cumple	13.49	Cumple	Cumple
4.16	19.02	2.80	8.22		Cumple	13.70	Cumple	Cumple
4.69	19.02	1.50	2.09		Cumple	12.16	Cumple	Cumple
8.17	19.02	1.62	1.40		Cumple	6.98	Cumple	Cumple
9.45	19.02	3.06	4.34		Cumple	6.04	Cumple	Cumple
9.44	19.02	3.09	4.44		Cumple	6.05	Cumple	Cumple
8.17	19.02	1.64	1.44		Cumple	6.98	Cumple	Cumple
13.10	19.02	17.23	99.28		Cumple	4.35	Cumple	Cumple
13.11	19.02	17.08	97.49		Cumple	4.35	Cumple	Cumple
4.59	19.02	1.76	2.96		Cumple	12.44	Cumple	Cumple
4.78	19.02	2.10	4.03		Cumple	11.93	Cumple	Cumple
4.70	19.02	2.23	4.65		Cumple	12.13	Cumple	Cumple
4.56	19.02	1.55	2.31		Cumple	12.52	Cumple	Cumple
13.59	19.02	3.92	4.96		Cumple	4.20	Cumple	Cumple
9.94	19.02	2.84	3.55		Cumple	5.74	Cumple	Cumple
12.74	17.92	6.05	4.44		Cumple	4.22	Cumple	Cumple
7.86	19.02	8.58	41.04		Cumple	7.26	Cumple	Cumple
12.25	17.92	6.55	5.41		Cumple	4.39	Cumple	Cumple
8.92	19.02	9.31	42.58		Cumple	6.40	Cumple	Cumple
10.18	17.92	5.44	4.49		Cumple	5.28	Cumple	Cumple
7.70	19.02	6.56	24.49		Cumple	7.41	Cumple	Cumple
13.15	17.92	7.03	5.80		Cumple	4.09	Cumple	Cumple
2.95	19.02	2.59	9.95		Cumple	19.36	Cumple	Cumple

13.49	17.92	7.21	5.96	Cumple	3.98	Cumple	Cumple
8.12	19.02	7.05	26.83	Cumple	7.03	Cumple	Cumple
11.34	17.92	6.06	5.01	Cumple	4.74	Cumple	Cumple
10.13	19.02	12.49	67.45	Cumple	5.64	Cumple	Cumple
15.59	17.92	6.94	4.78	Cumple	3.45	Cumple	Cumple
8.19	19.02	0.83	0.37	Cumple	6.97	Cumple	Cumple
11.95	19.02	4.41	7.13	Cumple	4.77	Cumple	Cumple
11.24	19.02	3.25	4.10	Cumple	5.08	Cumple	Cumple
11.16	19.02	3.19	3.99	Cumple	5.11	Cumple	Cumple
11.21	19.02	3.24	4.09	Cumple	5.09	Cumple	Cumple
11.15	19.02	3.19	3.99	Cumple	5.12	Cumple	Cumple
13.56	19.02	3.92	4.95	Cumple	4.21	Cumple	Cumple
9.95	19.02	2.84	3.56	Cumple	5.73	Cumple	Cumple
12.64	17.92	6.01	4.41	Cumple	4.25	Cumple	Cumple
7.75	19.02	8.45	40.43	Cumple	7.37	Cumple	Cumple
11.84	17.92	6.33	5.23	Cumple	4.54	Cumple	Cumple
8.79	19.02	9.18	41.96	Cumple	6.49	Cumple	Cumple
10.10	17.92	5.40	4.46	Cumple	5.32	Cumple	Cumple
7.68	19.02	6.54	24.42	Cumple	7.43	Cumple	Cumple
13.14	17.92	7.02	5.80	Cumple	4.09	Cumple	Cumple
2.94	19.02	2.58	9.94	Cumple	19.38	Cumple	Cumple
13.48	17.92	7.21	5.95	Cumple	3.99	Cumple	Cumple
8.11	19.02	7.05	26.82	Cumple	7.03	Cumple	Cumple
11.34	17.92	6.07	5.01	Cumple	4.74	Cumple	Cumple
10.13	19.02	12.49	67.47	Cumple	5.63	Cumple	Cumple
15.57	17.92	6.94	4.77	Cumple	3.45	Cumple	Cumple
8.17	19.02	0.83	0.37	Cumple	6.99	Cumple	Cumple
11.95	19.02	4.41	7.13	Cumple	4.77	Cumple	Cumple
4.58	19.02	2.53	6.11	Cumple	12.47	Cumple	Cumple
3.58	19.02	0.60	0.43	Cumple	15.94	Cumple	Cumple
4.23	19.02	2.54	6.71	Cumple	13.50	Cumple	Cumple
4.65	19.02	1.62	2.46	Cumple	12.28	Cumple	Cumple
1.78	19.25	0.46	2.06	Cumple	32.50	Cumple	Cumple
1.75	19.25	0.41	1.66	Cumple	32.95	Cumple	Cumple
1.85	19.25	0.45	1.87	Cumple	31.27	Cumple	Cumple
1.80	19.25	0.53	2.68	Cumple	32.01	Cumple	Cumple
2.49	19.25	0.38	0.98	Cumple	23.21	Cumple	Cumple
2.32	19.25	0.53	2.07	Cumple	24.92	Cumple	Cumple
2.30	19.25	0.56	2.32	Cumple	25.11	Cumple	Cumple
2.52	19.25	0.37	0.90	Cumple	22.95	Cumple	Cumple
2.43	19.25	1.36	13.01	Cumple	23.73	Cumple	Cumple
2.48	19.25	0.37	0.96	Cumple	23.26	Cumple	Cumple
2.09	19.25	1.04	8.71	Cumple	27.58	Cumple	Cumple
2.78	19.25	0.67	2.71	Cumple	20.74	Cumple	Cumple
1.62	19.25	0.55	3.19	Cumple	35.55	Cumple	Cumple
3.41	19.25	1.99	19.71	Cumple	16.92	Cumple	Cumple
2.79	19.25	0.60	2.16	Cumple	20.73	Cumple	Cumple
2.32	19.25	1.11	9.03	Cumple	24.92	Cumple	Cumple
1.45	19.25	0.23	0.62	Cumple	39.88	Cumple	Cumple

8.12.5 Diseño de Conectores Vigas

DISEÑO DE VIGAS DE CONEXIÓN - REFORZAMIENTO

Proyecto: COMPLEJO HOSPITALARIO SAN JUAN DE DIOS - GRUPO 2 CAPILLA

ELEMENTO	Longitud (m)	Cu (0.75Pf (T)	Cu (0.75 F (T/m)	Separacion Vig (m)	Cortante a Soportar	Ancho Vi (m)	Altura Vig (m)	Concreto (Mpa)	M agrietamiet Ton*m	Acero Refuer AS (cm^2)	Flejes #	As Flej	cantida Ramas	Separacion Flejes (m)	Φ Vc (Ton)	Φ Vs (Ton	Φ Vn (Ton	RELACIO	Verificaicon
P1	9.07634	150.69	16.60	1.00	16.60	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.93	Cumple
P2	0.5866	6.12	10.43	1.50	6.12	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.34	Cumple
P3	1.3306	11.51	8.65	1.50	11.51	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.65	Cumple
P5	1.3154	11.31	8.60	1.50	11.31	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.64	Cumple
P6	0.561	5.85	10.42	1.50	5.85	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.33	Cumple
P7	0.867	3.00	3.46	1.50	3.00	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.17	Cumple
P8	1.4586	5.04	3.46	1.50	5.04	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.28	Cumple
P9	1.5045	5.26	3.50	1.50	5.25	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.30	Cumple
P10	1.5351	11.04	7.19	1.50	10.79	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.61	Cumple
P11	1.5198	11.03	7.26	1.50	10.89	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.61	Cumple
P12	1.2955	4.87	3.76	1.50	4.87	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.27	Cumple
P13	1.0557	3.98	3.77	1.50	3.98	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.22	Cumple
P14	1.0761	3.79	3.52	1.50	3.79	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.21	Cumple
P15	2.9172	24.27	8.32	1.50	12.48	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.70	Cumple
P18	2.8764	23.79	8.27	1.50	12.41	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.70	Cumple
P21	0.9384	3.26	3.47	1.50	3.26	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.18	Cumple
P22	1.1322	4.16	3.67	1.50	4.16	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.23	Cumple
P23	1.5045	5.29	3.52	1.50	5.28	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.30	Cumple
P24	1.3413	8.59	6.41	1.50	8.59	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.48	Cumple
P25	1.479	9.34	6.32	1.50	9.34	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.53	Cumple
P26	1.3159	4.29	3.26	1.50	4.29	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.24	Cumple
P27	2.2643	7.26	3.21	1.50	4.81	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.27	Cumple
P28	1.0761	3.89	3.61	1.50	3.89	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.22	Cumple
P29	0.6681	4.20	6.29	1.50	4.20	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.24	Cumple
P30	1.0914	7.95	7.28	1.50	7.95	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.45	Cumple
P31	1.1055	8.03	7.27	1.50	8.03	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.45	Cumple
P32	0.6771	4.26	6.29	1.50	4.26	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.24	Cumple
P35	4.4361	44.76	10.09	1.50	15.14	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.85	Cumple
P37	4.3953	44.36	10.09	1.50	15.14	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.85	Cumple
P38	1.2954	4.57	3.53	1.50	4.57	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.26	Cumple
P39	1.479	5.45	3.68	1.50	5.45	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.31	Cumple
P40	1.6014	5.80	3.62	1.50	5.43	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.31	Cumple
P41	1.1475	4.03	3.51	1.50	4.03	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.23	Cumple
P42	0.9737	10.19	10.47	1.50	10.19	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.57	Cumple
P43	0.9639	7.38	7.65	1.50	7.38	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.41	Cumple
P44	0.8	11.11	13.89	1.50	11.11	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.62	Cumple
P45	3.6817	22.30	6.06	1.50	9.08	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.51	Cumple
P46	0.9	12.01	13.35	1.50	12.01	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.68	Cumple
P47	3.5217	24.18	6.87	1.50	10.30	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.58	Cumple
P48	0.9	9.98	11.09	1.50	9.98	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.56	Cumple
P49	2.874	17.04	5.93	1.50	8.90	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.50	Cumple
P50	0.9	12.90	14.33	1.50	12.90	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.72	Cumple
P51	2.9607	6.72	2.27	1.50	3.40	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.19	Cumple
P52	0.9	13.24	14.71	1.50	13.24	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.74	Cumple
P53	2.9301	18.31	6.25	1.50	9.37	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.53	Cumple
P54	0.9	11.13	12.36	1.50	11.13	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.63	Cumple
P55	4.1597	32.43	7.80	1.50	11.69	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.66	Cumple
P56	0.75	12.74	16.99	1.50	12.74	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.72	Cumple
P57	0.3417	2.15	6.30	1.50	2.15	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.12	Cumple
P58	1.2446	11.46	9.20	1.50	11.46	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.64	Cumple
P59	0.9737	8.43	8.66	1.50	8.43	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.47	Cumple
P60	0.9639	8.28	8.59	1.50	8.28	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.47	Cumple
P61	0.9737	8.41	8.63	1.50	8.41	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.47	Cumple
P62	0.9639	8.27	8.58	1.50	8.27	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.47	Cumple
P63	0.9737	10.17	10.44	1.50	10.17	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.57	Cumple
P64	0.9639	7.39	7.66	1.50	7.39	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.42	Cumple
P65	0.8	11.02	13.77	1.50	11.02	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.62	Cumple
P66	3.6817	21.96	5.96	1.50	8.95	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.50	Cumple
P67	0.9	11.62	12.91	1.50	11.62	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.65	Cumple

P68	3.5217	23.83	6.77	1.50	10.15	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.57	Cumple
P69	0.9	9.91	11.01	1.50	9.91	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.56	Cumple
P70	2.874	16.99	5.91	1.50	8.87	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.50	Cumple
P71	0.9	12.89	14.32	1.50	12.89	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.72	Cumple
P72	2.9607	6.71	2.27	1.50	3.40	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.19	Cumple
P73	0.9	13.23	14.69	1.50	13.23	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.74	Cumple
P74	2.9301	18.30	6.25	1.50	9.37	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.53	Cumple
P75	0.9	11.13	12.37	1.50	11.13	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.63	Cumple
P76	4.1597	32.44	7.80	1.50	11.70	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.66	Cumple
P77	0.75	12.73	16.97	1.50	12.73	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.72	Cumple
P78	0.3417	2.15	6.29	1.50	2.15	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.12	Cumple
P79	1.2446	11.45	9.20	1.50	11.45	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.64	Cumple
P80	1.8615	6.56	3.52	1.50	5.29	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.30	Cumple
P81	0.561	1.55	2.76	1.50	1.55	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.09	Cumple
P82	2.0298	6.61	3.26	1.50	4.88	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.27	Cumple
P83	1.173	4.20	3.58	1.50	4.20	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.24	Cumple
P84	2.1777	1.90	0.87	1.50	1.31	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.07	Cumple
P85	1.9686	1.69	0.86	1.50	1.29	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.07	Cumple
P86	2.0349	1.84	0.91	1.50	1.36	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.08	Cumple
P87	2.4633	2.18	0.88	1.50	1.33	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.07	Cumple
P88	1.2699	1.55	1.22	1.50	1.55	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.09	Cumple
P89	1.9074	2.17	1.14	1.50	1.70	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.10	Cumple
P90	2.0298	2.29	1.13	1.50	1.69	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.10	Cumple
P91	1.2087	1.49	1.23	1.50	1.49	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.08	Cumple
P92	4.6716	5.57	1.19	1.50	1.79	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.10	Cumple
P93	1.2546	1.53	1.22	1.50	1.53	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.09	Cumple
P94	4.1208	4.23	1.03	1.50	1.54	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.09	Cumple
P95	1.9941	2.72	1.36	1.50	2.05	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.12	Cumple
P96	2.8305	2.25	0.80	1.50	1.19	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.07	Cumple
P97	4.8552	8.12	1.67	1.50	2.51	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.14	Cumple
P99	1.7799	2.43	1.36	1.50	2.05	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.12	Cumple
P100	3.9882	4.53	1.14	1.50	1.70	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.10	Cumple
P101	1.3209	0.94	0.71	1.50	0.94	0.20	0.30	21.00	1.03	2.58	3	0.71	2.00	0.0750	2.88	14.91	17.79	0.05	Cumple

CONECTORES HSJD - CAPILLA
Se utilizaran viga de 0.20 x 0.30 m, separada cada 1.50 m, con flejes # 3 de 2 ramas y separacion de 7.5 cm

VIGA DE CONEXIÓN - REFORZAMIENTO

DATOS VIGA		Viga	
b=	20	cm	
h=	30	cm	
d´=	5	cm	
d=	25	cm	
As=	Sup	2.58	cm^2
	Inf	2.58	cm^2
ρ_{SUP}=	0.00516		
ρ_{INF}=	0.00516		

Muagr=	1.03	t.m	
f´c=	210	kg/cm^2	
fy=	4200	kg/cm^2	

Momento Nominal Resistente Superior	2.29 t-m	1.03 t-m	CUMPLE
Momento Nominal Resistente Inferior	2.29 t-m	1.03 t-m	CUMPLE
Cortante Resistente Superior	17.79 t	15.14 t	CUMPLE

Ramas = **2** Av = **0.71** cm2

separacion estribos 7.5 cm
vc = 0.75* 0.53*√ f'c = 5.76 k/cm2 Vc = 2880.16 Kg
vs = 0.75*Av*R*fy/(S*b) 29.82 k/cm2 Vs = 14910.00 Kg

Cortante Nominal Vn = 17790.16 Kg

VERIFICACION C.12.5.1 -DESARROLLO DE GANCHOS ESTANDAR EN TRACCION

Materiales: f'c = 210 k/cm^2 fy = 4200 k/cm^2

Concreto con agregados livianos **NO**

db = #4 = 12.7 mm

Ldh (C.12.5.2) = (0.24 x Ψe x fy / λ x √f'c) x db

= 0.24 x 1.00 x 420 / 1 x 4.6 x db

= 22.00 x db

= 279.35 = 27.9 cm

Factores (C.12.5.3)

Gancho a Sin Gancho
Recurimiento Lateral 50 mm

Ldh Confinado NO
Separacion Confinamiento 0 mm

a) 1
b) 1
c) 1
d) 1

Longitud de desarrollo en gancho estandar 27.94 cm

VERIFICACION C.12.5.1 -DESARROLLO DE GANCHOS ESTANDAR EN TRACCION

#	db (mm	fy	f'c	0.24Ψfy/λ√f'c	Factor a	Factor b	Factor c	Factor d	ldh (cm)
2	6.4	420	21	22.00	1	1	1	1	14.08
3	9.53	420	21	22.00	1	1	1	1	20.96
4	12.7	420	21	22.00	1	1	1	1	27.94
5	15.9	420	21	22.00	1	1	1	1	34.97
6	19.1	420	21	22.00	1	1	1	1	42.01
7	22.2	420	21	22.00	1	1	1	1	48.83
8	25.4	420	21	22.00	1	1	1	1	55.87
9	28.7	420	21	22.00	1	1	1	1	63.13
10	32.3	420	21	22.00	1	1	1	1	71.05

Ancho minimo de elemento 32.94 cm
Ancho Utilizado 40.00 cm Cumple

CHEQUEO VIGAS DE CIMENTACION 40X40

COLUMNA LOC.	PU
	44 Ton

Aa=	0.15					
C ó T=	0.25*Aa*Pu	=	3.8% Pu	=	5 Ton	
Según estudio de suelos		=	12%			
Sección de viga	40 cm	x	40 cm	=	160000	mm^2
Refuerzo de viga	4	#	5	=	1586.33	mm^2
	4	#	5			
Concreto f´c=	21 Mpa					
Acero Fy=	420 Mpa					
E=	21538 Mpa					

a)RESISTENCIA AXIAL POR COMPRESION

$$\phi Pn = 0.75\phi[0.85\, f'c(Ag - Ast) + fyAst]$$

ϕPn=	170 Ton	>	5 Ton	O.K

b)RESISTENCIA AXIAL POR TRACCION

$$\phi Tn = \phi fyAst$$

ϕTn=	60 Ton	>	5 Ton	O.K

CONCLUSION:

Las vigas de cimentación resisten la carga sísmica en forma eficiente

8.13 Diseño de Elementos No Estructurales

CALCULO DE a_x (ACELERACION EN EL PUNTO DE SOPORTE)

$h_{eq} = 0.75 * h_n = 0.75 * 19.03 = 14.27$ m

NIVEL	h_x	h_{eq}	As	Sa	a_x
NE+0.00	0.00 m	14.27 m	0.15	0.91	0.15
NE+3.17	3.17 m	14.27 m	0.15	0.91	0.32
NE+4.77	4.77 m	14.27 m	0.15	0.91	0.41
NE+5.60	5.60 m	14.27 m	0.15	0.91	0.45
NE+9.01	9.01 m	14.27 m	0.15	0.91	0.63
NE+10.16	10.16 m	14.27 m	0.15	0.91	0.69
NE+11.82	11.82 m	14.27 m	0.15	0.91	0.78
NE+19.03	19.03 m	14.27 m	0.15	0.91	1.22

DISEÑO DE ELEMENTOS NO ESTRUCTURALES

MURO ANTEPECHOS H<1.20 m

Las fuerzas sísmicas de diseño (Fp) se calculan así:

$$Fp = \frac{ax\ ap}{Rp} g\ Mp > \frac{A\ a\ I}{2} g\ Mp$$ en donde:

GRADO DE DESEMPEÑO = SUPERIOR

aceleracion en el punto de soporte del elemento
NE+0.00
ax = 0.15

Amplificación dinámica del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
ap = 2.50 Considerando el caso en que la mampostería esta solo anclada abajo

Coeficiente de capacidad de disipación de energia del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
Rp = 3.00 Anclaje tipo Dúctil

Masa del elemento no estructural
Tipo de muro: Muro de fachada
γ= 1.60 Ton/m³
Espesor del muro: 0.12 m
Distanciamiento columneta: 2.50 m
Altura libre del muro: 1.20 m
Mp = 0.06 Ton -s/m

Análisis Sismico
Aa=Am= 0.15
I= 1.25

$$Fp = \frac{0.15 \times 2.50}{3.00} \times 9.81 \times 0.06 > \frac{0.15 \times 1.25}{2} \times 9.81 \times 0.06$$

Fp= 0.07 > 0.054

M= Fp x L/2 = 0.04 Ton-m
V= Fp = 0.07 Ton

Materiales
Concreto 125 kg/cm^2
Acero 4200 kg/cm^2

* ØVc= 0.85 x 0.53 x $\sqrt{f'c}$ x b x h = 0.54 Ton ok!
* Diseño para: b = 9 cm d = 6 cm
* Cuantía del Analisis: = 0.0029
* As = 0.14 cm^2 1# 3 cada 2.5 m

DISEÑO DE ELEMENTOS NO ESTRUCTURALES

MURO ANTEPECHOS H <1.20 m

Las fuerzas sísmicas de diseño (Fp) se calculan así:

$$Fp = \frac{ax\ ap}{Rp}\ g\ Mp > \frac{A\ a\ I}{2}\ g\ Mp$$ en donde:

GRADO DE DESEMPEÑO = SUPERIOR

aceleracion en el punto de soporte del elemento
NE+3.17
ax = 0.32

Amplificación dinámica del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
ap = 2.50 Considerando el caso en que la mampostería esta solo anclada abajo

Coeficiente de capacidad de disipación de energia del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
Rp = 3.00 Anclaje tipo Dúctil

Masa del elemento no estructural
Tipo de muro: Muro de fachada
γ= 1.80 Ton/m³
Espesor del muro: 0.12 m
Distanciamiento columneta: 2.50 m
Altura libre del muro: 1.20 m
Mp = 0.07 Ton -s/m

Análisis Sismico
Aa=Am= 0.15
I= 1.25

$$Fp = \frac{0.32 \times 2.50}{3.00} \times 9.81 \times 0.07 > \frac{0.15 \times 1.25}{2} \times 9.81 \times 0.07$$

Fp= 0.17 > 0.061

M= Fp x L/2 = 0.10 Ton-m
V= Fp = 0.17 Ton

Materiales
Concreto 125 kg/cm^2
Acero 4200 kg/cm^2

* ØVc= 0.85 x 0.53 x $\sqrt{f'c}$ x b x h = 0.54 Ton ok!
* Diseño para: b = 9 cm d = 6 cm
* Cuantía del Analisis: = 0.0057
* As = 0.31 cm^2 1 # 3 cada 2.50 m

DISEÑO DE ELEMENTOS NO ESTRUCTURALES

MURO ANTEPECHOS H <1.20 m

Las fuerzas sísmicas de diseño (Fp) se calculan así:

$$Fp = \frac{ax\ ap}{Rp}\ g\ Mp > \frac{A\ a\ I}{2}\ g\ Mp$$ en donde:

GRADO DE DESEMPEÑO = SUPERIOR

aceleracion en el punto de soporte del elemento
NE+4.77
ax = 0.41

Amplificación dinámica del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
ap = 2.50 Considerando el caso en que la mampostería esta solo anclada abajo

Coeficiente de capacidad de disipación de energia del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
Rp = 3.00 Anclaje tipo Dúctil

Masa del elemento no estructural
Tipo de muro: Muro de fachada
γ= 1.80 Ton/m³
Espesor del muro: 0.12 m
Distanciamiento columneta: 2.50 m
Altura libre del muro: 1.20 m
Mp = 0.07 Ton -s/m

Análisis Sismico
Aa=Am= 0.15
I= 1.25

$$Fp = \frac{0.41 \times 2.50}{3.00} \times 9.81 \times 0.07 > \frac{0.15 \times 1.25}{2} \times 9.81 \times 0.07$$

Fp= 0.22 > 0.061

M= Fp x L/2 = 0.13 Ton-m
V= Fp = 0.22 Ton

Materiales
Concreto 125 kg/cm^2
Acero 4200 kg/cm^2

* ØVc= 0.85 x 0.53 x $\sqrt{f'c}$ x b x h = 0.54 Ton ok!
* Diseño para: b = 9 cm d = 6 cm
* Cuantía del Analisis: = 0.0076
* As = 0.41 cm^2 1 # 3 cada 2.50 m

DISEÑO DE ELEMENTOS NO ESTRUCTURALES

MURO ANTEPECHOS H <1.20 m

Las fuerzas sísmicas de diseño (Fp) se calculan así:

$$Fp = \frac{ax\ ap}{Rp}\ g\ Mp > \frac{A\ a\ I}{2}\ g\ Mp$$ en donde:

GRADO DE DESEMPEÑO = SUPERIOR

aceleracion en el punto de soporte del elemento
NE+5.60
ax = 0.45

Amplificación dinámica del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
ap = 2.50 Considerando el caso en que la mampostería esta solo anclada abajo

Coeficiente de capacidad de disipación de energia del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
Rp = 3.00 Anclaje tipo Dúctil

Masa del elemento no estructural
Tipo de muro: Muro de fachada
γ= 1.80 Ton/m³
Espesor del muro: 0.12 m
Distanciamiento columneta: 2.50 m
Altura libre del muro: 1.20 m
Mp = 0.07 Ton -s/m

Análisis Sismico
Aa=Am= 0.15
I= 1.25

$$Fp = \frac{0.45 \times 2.50}{3.00} \times 9.81 \times 0.07 > \frac{0.15 \times 1.25}{2} \times 9.81 \times 0.07$$

Fp= 0.24 > 0.061

M= Fp x L/2 = 0.15 Ton-m
V= Fp = 0.24 Ton

Materiales
Concreto 125 kg/cm²
Acero 4200 kg/cm²

* ØVc= $0.85 \times 0.53 \times \sqrt{f'c} \times b \times h$ = 0.54 Ton ok!
* Diseño para: b = 9 cm d = 6 cm
* Cuantía del Analisis: = 0.0086
* As = 0.46 cm² 1 # 3 cada 2.50 m

DISEÑO DE ELEMENTOS NO ESTRUCTURALES

MURO ANTEPECHOS H <1.20 m

Las fuerzas sísmicas de diseño (Fp) se calculan así:

$$Fp = \frac{ax\ ap}{Rp}\ g\ Mp > \frac{A\ a\ I}{2}\ g\ Mp$$ en donde:

GRADO DE DESEMPEÑO = SUPERIOR

aceleracion en el punto de soporte del elemento
NE+9.01
ax = 0.63

Amplificación dinámica del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
ap = 2.50 Considerando el caso en que la mampostería esta solo anclada abajo

Coeficiente de capacidad de disipación de energia del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
Rp = 3.00 Anclaje tipo Dúctil

Masa del elemento no estructural
Tipo de muro: Muro de fachada
γ= 1.80 Ton/m³
Espesor del muro: 0.12 m
Distanciamiento columneta: 2.00 m
Altura libre del muro: 1.20 m
Mp = 0.05 Ton -s/m

Análisis Sismico
Aa=Am= 0.15
I= 1.25

$$Fp = \frac{0.63 \times 2.50}{3.00} \times 9.81 \times 0.05 > \frac{0.15 \times 1.25}{2} \times 9.81 \times 0.05$$

Fp= 0.27 > 0.049

M= Fp x L/2 = 0.16 Ton-m
V= Fp = 0.27 Ton

Materiales
Concreto 125 kg/cm²
Acero 4200 kg/cm²

* ØVc= 0.85 x 0.53 x $\sqrt{f'c}$ x b x h = 0.54 Ton ok!
* Diseño para: b = 9 cm d = 6 cm
* Cuantía del Analisis: = 0.0100
* As = 0.54 cm² 1 # 3 cada 2.0 m

DISEÑO DE ELEMENTOS NO ESTRUCTURALES

MURO ANTEPECHOS H <1.20 m

Las fuerzas sísmicas de diseño (Fp) se calculan así:

$$Fp = \frac{ax\ ap}{Rp}\ g\ Mp > \frac{A\ a\ I}{2}\ g\ Mp$$ en donde:

GRADO DE DESEMPEÑO = SUPERIOR

aceleracion en el punto de soporte del elemento
NE+10.16
ax = 0.69

Amplificación dinámica del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
ap = 2.50 Considerando el caso en que la mampostería esta solo anclada abajo

Coeficiente de capacidad de disipación de energia del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
Rp = 3.00 Anclaje tipo Dúctil

Masa del elemento no estructural
Tipo de muro: Muro de fachada
γ= 1.80 Ton/m³
Espesor del muro: 0.12 m
Distanciamiento columneta: 2.00 m
Altura libre del muro: 1.20 m
Mp = 0.05 Ton -s/m

Análisis Sismico
Aa=Am= 0.15
I= 1.25

$$Fp = \frac{0.69 \times 2.50}{3.00} \times 9.81 \times 0.05 > \frac{0.15 \times 1.25}{2} \times 9.81 \times 0.05$$

Fp= 0.30 > 0.049

M= Fp x L/2 = 0.18 Ton-m
V= Fp = 0.30 Ton

Materiales
Concreto 125 kg/cm^2
Acero 4200 kg/cm^2

* ØVc= 0.85 x 0.53 x $\sqrt{f'c}$ x b x h = 0.54 Ton ok!
* Diseño para: b = 9 cm d = 6 cm
* Cuantía del Analisis: = 0.0114
* As = 0.61 cm^2 1 # 3 cada 2.0 m

DISEÑO DE ELEMENTOS NO ESTRUCTURALES

MURO ANTEPECHOS H <1.20 m

Las fuerzas sísmicas de diseño (Fp) se calculan así:

$$Fp = \frac{ax\ ap}{Rp}\ g\ Mp > \frac{A\ a\ I}{2}\ g\ Mp$$ en donde:

GRADO DE DESEMPEÑO = SUPERIOR

aceleracion en el punto de soporte del elemento
NE+11.82
ax = 0.78

Amplificación dinámica del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
ap = 2.50 Considerando el caso en que la mampostería esta solo anclada abajo

Coeficiente de capacidad de disipación de energia del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
Rp = 3.00 Anclaje tipo Dúctil

Masa del elemento no estructural
Tipo de muro: Muro de fachada
γ= 1.80 Ton/m³
Espesor del muro: 0.12 m
Distanciamiento columneta: 1.80 m
Altura libre del muro: 1.20 m
Mp = 0.05 Ton -s/m

Análisis Sismico
Aa=Am= 0.15
I= 1.25

$$Fp = \frac{0.78 \times 2.50}{3.00} \times 9.81 \times 0.05 > \frac{0.15 \times 1.25}{2} \times 9.81 \times 0.05$$

Fp= 0.30 > 0.044

M= Fp x L/2 = 0.18 Ton-m
V= Fp = 0.30 Ton

Materiales
Concreto 125 kg/cm^2
Acero 4200 kg/cm^2

* ØVc= $0.85 \times 0.53 \times \sqrt{f'c} \times b \times h$ = 0.54 Ton ok!
* Diseño para: b = 9 cm d = 6 cm
* Cuantía del Analisis: = 0.0116
* As = 0.63 cm^2 1 # 3 cada 1.80 m

DISEÑO DE ELEMENTOS NO ESTRUCTURALES

MUROS DIVISORIOS NE+3.17

Las fuerzas sísmicas de diseño (Fp) se calculan así:

$$Fp = \frac{ax\ ap}{Rp} g\ Mp > \frac{A\ a\ I}{2} g\ Mp$$ en donde:

aceleracion en el punto de soporte del elemento
NE+3.17
ax = 0.32

Amplificación dinámica del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
ap = 1.00 Muro divisorios de altura total

Capacidad de disipación de energía en el rango inelástico del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
Rp = 3.00 Anclaje Ductil Grado de desempeño : SUPERIOR

Masa del elemento no estructural
Tipo de muro: Muro divisorios
γ = 1.80 Ton/m³
Espesor del muro: 0.12 m
Distanciamiento columneta: 2.50 m
Altura libre del muro: 2.03 m
Mp = 0.11 Ton -s/m

Análisis Sismico
Aa= 0.15
I= 1.25 GRUPO DE USO: III

$$Fp = \frac{0.32 \times 1.00}{3.0} \times 9.81 \times 0.11 > \frac{0.15 \times 1.25}{2} \times 9.81 \times 0.11$$

Fp= 0.12 > 0.10

M= Fp x L/4 = 0.06 Ton-m
V= Fp/2 = 0.06 Ton

Materiales
concreto 125 kg/cm²
Acero 4200 kg/cm²

* øVc= 0.85 x 0.53 x $\sqrt{f'c}$ x b x h = 1.15 Ton ok!
* Diseño para: b = 12 cm d = 9.5 cm
* Cuantía del Analisis: = 0.0016
* As = 0.18 cm² 1#3 cada 2.50 m

Chequeo para la varilla superior
Ø= 1/2"
Vacio superior 5 cm
V= 0.338 Ton Ok

DISEÑO DE ELEMENTOS NO ESTRUCTURALES

MUROS DIVISORIOS NE+4.77

Las fuerzas sísmicas de diseño (Fp) se calculan así:

$$Fp = \frac{ax\ ap}{Rp} g\ Mp > \frac{A\ a\ I}{2} g\ Mp$$ en donde:

aceleracion en el punto de soporte del elemento
NE+4.77
ax = 0.41

Amplificación dinámica del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
ap = 1.00 Muro divisorios de altura total

Capacidad de disipación de energía en el rango inelástico del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
Rp = 3.00 Anclaje Ductil Grado de desempeño : SUPERIOR

Masa del elemento no estructural
Tipo de muro: Muro divisorios
γ = 1.80 Ton/m³
Espesor del muro: 0.12 m
Distanciamiento columneta: 2.50 m
Altura libre del muro: 3.64 m
Mp = 0.20 Ton -s/m

Análisis Sismico
Aa= 0.15
I= 1.25 GRUPO DE USO: III

$$Fp = \frac{0.41 \times 1.00}{3.0} \times 9.81 \times 0.20 > \frac{0.15 \times 1.25}{2} \times 9.81 \times 0.20$$

Fp= 0.27 > 0.18

M= Fp x L/4 = 0.24 Ton-m
V= Fp/2 = 0.13 Ton

Materiales
concreto 125 kg/cm²
Acero 4200 kg/cm²

* øVc= 0.85 x 0.53 x $\sqrt{f'c}$ x b x h = 1.15 Ton ok!
* Diseño para: b = 12 cm d = 9.5 cm
* Cuantía del Analisis: = 0.0053
* As = 0.60 cm² 1#3 cada 2.50 m

Chequeo para la varilla superior
Ø= 1/2"
Vacio superior 5 cm
V= 0.338 Ton Ok

DISEÑO DE ELEMENTOS NO ESTRUCTURALES

TUBERIA DE DRENAJE DE DIAMETRO 6" NE+11.82

Las fuerzas sísmicas de diseño (Fp) se calculan así:

$$Fp = \frac{ax\ ap}{Rp}\ g\ Mp > \frac{A\ a\ I}{2}\ g\ Mp$$ en donde:

aceleracion en el punto de soporte del elemento
NE+11.82
ax = 0.78

Amplificación dinámica del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
ap = 2.50 Muro de fachada altura total

Capacidad de disipación de energía en el rango inelástico del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
Rp = 3.00 Anclaje tipo Dúctiles

Masa del elemento no estructural
Tipo de muro: TUBERIA
Peso de tuberia por metro: 3.5 kg/m
Distanciamiento entre sopotes: 1.20 m
Peso de agua interna del tubo: 18 kg/m

γ = 1.40 Ton/m³
Espesor del muro: 0.12 m
Distanciamiento columneta: 1.20 m
Altura libre del muro: 3 m
Mp = 0.003 Ton -s/m

Análisis Sismico
Aa=Am= 0.15
I= 1.25

$$Fp = \frac{0.78 \times 2.50}{3.0} \times 9.81 \times 0.00 > \frac{0.15 \times 1.25}{2} \times 9.81 \times 0.00$$

Fp= 0.02 > 0.00

M= Fp x L = 0.005 Ton-m
V= Fp = 0.02 Ton

Materiales
CONCRETO 245 kg/cm²
Acero var. Roscada: 2530 kg/cm²

* anclaje tipo HDI resistencia al corte: 550kg > 100 kg Ok
* anclaje tipo HDI resistencia tesion: 460kg > 21.0 kg Ok
* varilla 3/8" roscada resistencia al corte: 1077kg > 100 kg Ok
* varilla 3/8" roscada resistencia tension 1077kg > 21.0 kg Ok

8.13.1 Diseño No estructurales Altar

DISEÑO DE ELEMENTOS NO ESTRUCTURALES

Altar NE+0.00

Las fuerzas sísmicas de diseño (Fp) se calculan así:

$$Fp = \frac{ax\ ap}{Rp} g\ Mp > \frac{A\ a\ I}{2} g\ Mp$$ en donde:

aceleracion en el punto de soporte del elemento
NE+0.00
ax = 0.15

Amplificación dinámica del elemento no estructural
ap = 2.50

Capacidad de disipación de energía en el rango inelástico del elemento no estructural
Rp = 3.00 Anclaje Ductil Grado de desempeño : SUPERIOR

Masa del elemento no estructural
Tipo de muro: Altar
γ = 1.60 Ton/m³
Volumen Elemento 11.431 m^3
Peso Elemento 18.2896 Ton
Espesor del muro: 0.15 m
Distanciamiento columneta: m
Altura libre : 2.585 m
Mp = 1.86 Ton -s/m

Análisis Sismico
Aa= 0.15
I= 1.25 GRUPO DE USO: III

$$Fp = \frac{0.15 \times 2.50}{3.0} \times 9.81 \times 1.86 > \frac{0.15 \times 1.25}{2} \times 9.81 \times 1.86$$

Fp= 2.29 > 1.71

M= Fp x L/2 = 2.95 Ton-m
V= Fp = 2.29 Ton

Materiales

concreto 210 kg/cm^2

Acero 4200 kg/cm^2

* øVc=	0.85 x 0.53 x	$\sqrt{\quad}$	f'c	x b x h =	9.79	Ton	ok!
* Diseño para:			b = 100	cm	d = 7.5	cm	
* Momento Agrietamiento			1.29				
* Momento Diseño	=		2.9549				
* Cuantia Diseño	=		0.0175				
* As =		13.14	cm^2	#	5 C/0.15m		

Elemento de Cimentacion

Peso	18.2896	Ton
Perimetro	9.5	m
Ancho Viga	0.30	m
Altura Viga	0.30	m
Esfuerzo Adm	9.23	T/m^2
Esfuerzo Act	6.42	T/m^2

OK

CHEQUEO VIGAS DE CIMENTACION ALTAR 30X30

LOC.	PU
Altar	18 Ton

Aa=	0.15					
C ó T=	0.25*Aa*Pu	=	3.8%	Pu =	2 Ton	
Según estudio de suelos		=	12%			
Sección de viga	30 cm	x	30 cm	=	90000	mm^2
Refuerzo de viga	3	#	5	=	1189.75	mm^2
	3	#	5			
Concreto f´c=	21.0 Mpa					
Acero Fy=	420 Mpa					
E=	21538 Mpa					

a)RESISTENCIA AXIAL POR COMPRESION

$$\phi Pn = 0.75\phi[0.85\, f'c(Ag - Ast) + fyAst]$$

ϕPn=	102 Ton	>	2 Ton	O.K

b)RESISTENCIA AXIAL POR TRACCION

$$\phi Tn = \phi fyAst$$

ϕTn=	45 Ton	>	2 Ton	O.K

CONCLUSION:

Las vigas de cimentación resisten la carga sísmica en forma eficiente

8.13.2 Diseño No estructurales Existentes Alternativa 1

STRENGTHENING SYSTEM GEOMETRY

FRCM SYSTEM: MAPEGRID G 120 + PLANITOP HDM MAXI + MAPEWRAP G FIOCCO

1 or 2 side application	1
Thickness g_m	25.0 mm
Strengthening height h_r	200.0 mm

DESIGN OF THE STRENGTHENING SYSTEM

FRCM SYSTEM: MAPEGRID G 120 + PLANITOP HDM MAXI + MAPEWRAP G FIOCCO

The adhesion capacity is:

$$F_{ad} = min\left\{\begin{matrix}\frac{n}{FC}\cdot\sigma_{ad}\cdot\frac{h_r}{2}\cdot L\\ \frac{n}{FC}\cdot\tau\cdot g_m\cdot L\end{matrix}\right\} = 20.7\ kN$$

The anti-overturing capacity of strengthened member is:

$$M_{st,post} = M_{st,pre} + F_{ad}\cdot h = 98.4\ kNm$$

The check is satisfied because:

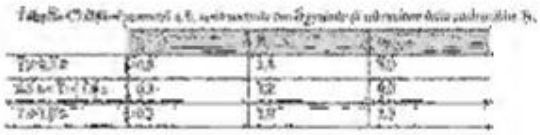
$$\frac{M_{st,post}}{M_{rib}} = 2.58 > 1$$

The indications provided about the strengthening layout such as configuration, amount of reinforcement required, are meant to be indicative and, in all cases, to be confirmed by a suitable and competent structural engineer.

For what concern the characteristic and the specification for the application of the Product stated in this document, please consult the relevant technical data sheet of the products, available on the web site at the address www.mapei.it.

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where:
α is the ratio between the maximum ground acceleration and the gravitational one g.
z is the barycentric height of the infill wall from the foundation level.
a, b, a_p inertial parameters



The seismic load on the infill elements is:

$$F_a = \frac{S_a(T_a) \cdot W_a}{q_a} \; 24.02\ kN$$

where:

Tabella 7.2.1 – *Valori di q_a per elementi non strutturali*

Elemento non strutturale	q_a
Parapetti o decorazioni aggettanti	1.0
Insegne e pannelli pubblicitari	
Ciminiere, antenne e serbatoi su supporti funzionanti come mensole senza controventi per più di metà della loro altezza	
Pareti interne ed esterne	2.0
Tramezzature e facciate	
Ciminiere, antenne e serbatoi su supporti funzionanti come mensole non controventate per meno di metà della loro altezza o connesse alla struttura in corrispondenza o al di sopra del loro centro di massa	
Elementi di ancoraggio per armadi e librerie permanenti direttamente poggianti sul pavimento	
Elementi di ancoraggio per controsoffitti e corpi illuminanti	

The overturing load is:

$$M_{rib} = F_a \cdot \frac{h}{2} = 38.07\ kNm$$

ASSESSMENT OF THE EXISTING SECTION

The anti-overturing capacity of the existing infill wall is: $M_{st,pre} = W_a \cdot \frac{s}{2} = 32.78\ kNm$

The check is not satisfiedbecause:

$$\frac{M_{st,pre}}{M_{rib}} = 0.86 \; < 1$$

TYPE OF STRENGTHENING SYSTEM

The strengthening system is composed by: 2
FRCM system composed by A.R. glass fiber mesh like **MAPEGRID G 120** and a two-component ready-mixed, high ductility pozzolan-reaction, fibre-reinforced mortar like **PLANITOP HDM MAXI**. The mechanical anchorage should be implemented by using the relevant glass or basalt fiber connectors called **MAPEWRAP G FIOCCO** produced by MAPEI S.p.a..

MECHANICAL PROPERTIES OF THE STRENGTHENING SYSTEM

FRCM SYSTEM: MAPEGRID G 120 + PLANITOP HDM MAXI + MAPEWRAP G FIOCCO

Adhesion to the substrate σ_{id}	1,0 MPa
Shear strength τ	0.15 MPa

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Tab. 3.2.IV – *Espressioni di S_S e di C_C*

Categoria sottosuolo	S_S
A	1,00
B	$1,00 \le 1,40 - 0,40 \cdot F_o \cdot \frac{a_g}{g} \le 1,20$
C	$1,00 \le 1,70 - 0,60 \cdot F_o \cdot \frac{a_g}{g} \le 1,50$
D	$0,90 \le 2,40 - 1,50 \cdot F_o \cdot \frac{a_g}{g} \le 1,80$
E	$1,00 \le 2,00 - 1,10 \cdot F_o \cdot \frac{a_g}{g} \le 1,60$

Topographic conditions - ST

Tab. 3.2.V – *Valori massimi del coefficiente di amplificazione topografica S_T*

Categoria topografica	Ubicazione dell'opera o dell'intervento	S_T
T1	-	1,0
T2	In corrispondenza della sommità del pendio	1,2
T3	In corrispondenza della cresta di un rilievo con pendenza media minore o uguale a 30°	1,2
T4	In corrispondenza della cresta di un rilievo con pendenza media maggiore di 30°	1,4

Coefficient for the topographic and soil class– $S = S_s \cdot S_T = 1.8$

Fundamental period of the structure along the principal direction of the building T1 [s]: (NTC 2018)

$$T_1 = C_1 \cdot H^{3/4} = 0.456\ s$$

Where C_1 depends on the infill wall type:

- Steel structures C_1= 0.085
- RC structures C_1= 0.075
- otherwise C_1= 0.050

H is the height of the building from the foundation.
Fundamental period of the non-structural element T_a:

$$T_a = \frac{2 \cdot h^2}{\pi} \sqrt{\frac{L \cdot s \cdot \gamma}{E \cdot \frac{L \cdot s^3}{12} \cdot g \cdot \left(1 - \frac{W_a}{N_{crit}}\right)}} = 0.027\ s$$

where:
g is the gravitational acceleration = 9,81 m/s^2
W_a is the weight of the infill wall evaluated as:

$$H \cdot L \cdot S \cdot \gamma$$

N_{crit} is the critical axial load:

$$N_{crit} = \frac{\pi^2}{h^2} E \cdot \frac{L \cdot s^3}{12} = 264000.03\ kN$$

SEISMIC LOAD CHARACTERISTICS

Maximum acceleration: $S_a(T_a) = \begin{cases} \alpha S \left(1 + \frac{z}{H}\right) \left[\frac{a_p}{1 + (a_p - 1)\left(1 - \frac{T_a}{aT_1}\right)^2}\right] & per\ T_a < aT_1 \\ \alpha S \left(1 + \frac{z}{H}\right) a_p & per\ aT_1 \le T_a < bT_1 \\ \alpha S \left(1 + \frac{z}{H}\right) \left[\frac{a_p}{1 + (a_p - 1)\left(1 - \frac{T_a}{bT_1}\right)^2}\right] \ge \alpha S & per\ T_a \ge bT_1 \end{cases} = 0.33\ g$

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OVERVIEW OF THE PROJECT

The project is related to the strengthening works to avoid the overturning of infill-masonry walls and partitions in a building owned by < - - - > located in < - - - > at the address < - - - >.

DESCRIPTION OF THE STRENGTHENING WORKS

The intervention regards the strengthening work for the anti-overturning of infill-masonry walls and partitions by using FRCM system composed by A.R. glass fiber mesh like **MAPEGRID G 120** and a two-component ready-mixed, high ductility pozzolan-reaction, fibre-reinforced mortar like **PLANITOP HDM MAXI**. The mechanical anchorage should be implemented by using the relevant glass or basalt fiber connectors called **MAPEWRAP G FIOCCO** produced by MAPEI S.p.a..

DESIGN STANDARDS

The design is performed according to:

- *Italian NTC 2018 technical standards for construction and Circolare n.7 2019;*

GEOMETRY OF THE EXISTING SECTION

The infill wall has the following geometrical characteristics:

Thickness of the wall *s*	45.0 cm
Length of the wall *L*	552.0 cm
Height of the wall *h*	317.0 cm

EXISTING MATERIALS

The infill wall has the following mechanical characteristics:

- Elasticity modulus *E* 6412.5 MPa
- Density of the wall γ 18.5 kN/m³

KNOWLEDGE LEVEL

Based on the investigation campaign carried out prior the design stage has been determined the knowledge level LC 3) of the parameters involved in the design model and has been defined the corresponding Confidence Factor FC =1.0 to be used for the design check.

DYNAMIC CHARACTERISTICS

Seismic hazard parameters

Maximum ground acceleration	$a_g = 0.15\ g$
Maximum value of the amplification factor	$F_0 = 1.95$

Ground characteristics

Soil class - Ss

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STRENGTHENING SYSTEM GEOMETRY 6
DESIGN OF THE STRENGTHENING SYSTEM 6

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DESIGN REPORT
ANTI-OVERTURNING OF INFILL-MASONRY WALLS AND PARTITIONS
HSJD-CAPILLA MUROS NIVEL 1



Client:
Designer:
Main contractor:
Contractor:
Notes:

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Topographic conditions - ST

Tab. 3.2.V – *Valori massimi del coefficiente di amplificazione topografica* S_T

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Fundamental period of the non-structural element T_a:

$$T_a = \frac{2 \cdot h^2}{\pi} \sqrt{\frac{L \cdot s \cdot \gamma}{E \cdot \frac{L \cdot s^3}{12} \cdot g \cdot \left(1 - \frac{W_a}{N_{crit}}\right)}} = 0.027\ s$$

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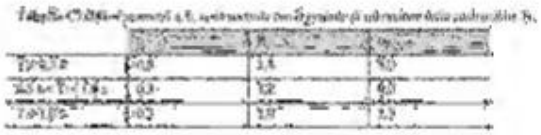
$$N_{crit} = \frac{\pi^2}{h^2} E \cdot \frac{L \cdot s^3}{12} = 264000.03\ kN$$

SEISMIC LOAD CHARACTERISTICS

Maximum acceleration: $S_a(T_a) = \begin{cases} \alpha S \left(1 + \frac{z}{H}\right) \left[\frac{a_p}{1 + (a_p - 1)\left(1 - \frac{T_a}{aT_1}\right)^2}\right] & per\ T_a < aT_1 \\ \alpha S \left(1 + \frac{z}{H}\right) a_p & per\ aT_1 \le T_a < bT_1 \\ \alpha S \left(1 + \frac{z}{H}\right) \left[\frac{a_p}{1 + (a_p - 1)\left(1 - \frac{T_a}{bT_1}\right)^2}\right] \ge \alpha S & per\ T_a \ge bT_1 \end{cases} = 0.33\ g$

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where:
α is the ratio between the maximum ground acceleration and the gravitational one g.
z is the barycentric height of the infill wall from the foundation level.
a, b, a_p inertial parameters



The seismic load on the infill elements is:

$$F_a = \frac{S_a(T_a) \cdot W_a}{q_a} \; 24.02\ kN$$

where:

Tabella 7.2.1 – *Valori di q_a per elementi non strutturali*

Elemento non strutturale	q_a
Parapetti o decorazioni aggettanti	1.0
Insegne e pannelli pubblicitari	
Ciminiere, antenne e serbatoi su supporti funzionanti come mensole senza controventi per più di metà della loro altezza	
Pareti interne ed esterne	2.0
Tramezzature e facciate	
Ciminiere, antenne e serbatoi su supporti funzionanti come mensole non controventate per meno di metà della loro altezza o connesse alla struttura in corrispondenza o al di sopra del loro centro di massa	
Elementi di ancoraggio per armadi e librerie permanenti direttamente poggianti sul pavimento	
Elementi di ancoraggio per controsoffitti e corpi illuminanti	

The overturing load is:

$$M_{rib} = F_a \cdot \frac{h}{2} = 38.07\ kNm$$

ASSESSMENT OF THE EXISTING SECTION

The anti-overturing capacity of the existing infill wall is: $M_{st,pre} = W_a \cdot \frac{s}{2} = 32.78\ kNm$

The check is not satisfiedbecause:

$$\frac{M_{st,pre}}{M_{rib}} = 0.86 \; < 1$$

TYPE OF STRENGTHENING SYSTEM

The strengthening system is composed by: 2
FRCM system composed by A.R. glass fiber mesh like **MAPEGRID G 120** and a two-component ready-mixed, high ductility pozzolan-reaction, fibre-reinforced mortar like **PLANITOP HDM MAXI**. The mechanical anchorage should be implemented by using the relevant glass or basalt fiber connectors called **MAPEWRAP G FIOCCO** produced by MAPEI S.p.a..

MECHANICAL PROPERTIES OF THE STRENGTHENING SYSTEM

FRCM SYSTEM: MAPEGRID G 120 + PLANITOP HDM MAXI + MAPEWRAP G FIOCCO

Adhesion to the substrate σ_{id}	1,0 MPa
Shear strength τ	0.15 MPa

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STRENGTHENING SYSTEM GEOMETRY

FRCM SYSTEM: MAPEGRID G 120 + PLANITOP HDM MAXI + MAPEWRAP G FIOCCO	
1 or 2 side application	1
Thickness g_m	25.0 mm
Strengthening height h_r	200.0 mm

DESIGN OF THE STRENGTHENING SYSTEM

FRCM SYSTEM: MAPEGRID G 120 + PLANITOP HDM MAXI + MAPEWRAP G FIOCCO
The adhesion capacity is:

$$F_{ad} = min\left\{\begin{matrix}\frac{n}{FC}\cdot\sigma_{ad}\cdot\frac{h_r}{2}\cdot L\\ \frac{n}{FC}\cdot\tau\cdot g_m\cdot L\end{matrix}\right\} = 20.7\ kN$$

The anti-overturing capacity of strengthened member is:

$$M_{st,post} = M_{st,pre} + F_{ad}\cdot h = 98.4\ kNm$$

The check is satisfied because:

$$\frac{M_{st,post}}{M_{rib}} = 2.58\ >\ 1$$

The indications provided about the strengthening layout such as configuration, amount of reinforcement required, are meant to be indicative and, in all cases, to be confirmed by a suitable and competent structural engineer.

For what concern the characteristic and the specification for the application of the Product stated in this document, please consult the relevant technical data sheet of the products, available on the web site at the address www.mapei.it.

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DESIGN REPORT
ANTI-OVERTURNING OF INFILL-MASONRY WALLS AND PARTITIONS
HSJD-CAPILLA MUROS NIVEL 2



Client:
Designer:
Main contractor:
Contractor:
Notes:

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OVERVIEW OF THE PROJECT

The project is related to the strengthening works to avoid the overturning of infill-masonry walls and partitions in a building owned by < - - - > located in < - - - > at the address < - - - >.

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The design is performed according to:

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GEOMETRY OF THE EXISTING SECTION

The infill wall has the following geometrical characteristics:

Thickness of the wall *s*	45.0 cm
Length of the wall *L*	552.0 cm
Height of the wall *h*	160.0 cm

EXISTING MATERIALS

The infill wall has the following mechanical characteristics:

- Elasticity modulus *E* 6412.5 MPa
- Density of the wall γ 18.5 kN/m³

KNOWLEDGE LEVEL

Based on the investigation campaign carried out prior the design stage has been determined the knowledge level LC 3] of the parameters involved in the design model and has been defined the corresponding Confidence Factor FC =1.0 to be used for the design check.

DYNAMIC CHARACTERISTICS

Seismic hazard parameters

Maximum ground acceleration	$a_g = 0.15\ g$
Maximum value of the amplification factor	$F_0 = 1.95$

Ground characteristics

Soil class - Ss

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Categoria sottosuolo	S_S
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Fundamental period of the non-structural element T_a:

$$T_a = \frac{2 \cdot h^2}{\pi} \sqrt{\frac{L \cdot s \cdot \gamma}{E \cdot \frac{L \cdot s^3}{12} \cdot g \cdot \left(1 - \frac{W_a}{N_{crit}}\right)}} = 0.007\ s$$

where:
g is the gravitational acceleration = 9,81 m/s^2
W_a is the weight of the infill wall evaluated as:

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N_{crit} is the critical axial load:

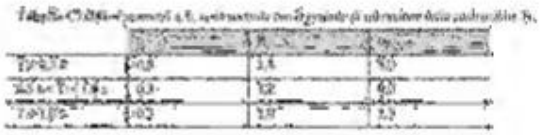
$$N_{crit} = \frac{\pi^2}{h^2} E \cdot \frac{L \cdot s^3}{12} = 1036292.92\ kN$$

SEISMIC LOAD CHARACTERISTICS

Maximum acceleration: $S_a(T_a) = \begin{cases} aS\left(1 + \frac{z}{H}\right)\left[\frac{a_p}{1+(a_p-1)\left(1-\frac{T_a}{aT_1}\right)^2}\right] & per\ T_a < aT_1 \\ aS\left(1 + \frac{z}{H}\right)a_p & per\ aT_1 \le T_a < bT_1 \\ aS\left(1 + \frac{z}{H}\right)\left[\frac{a_p}{1+(a_p-1)\left(1-\frac{T_a}{bT_1}\right)^2}\right] \ge aS & per\ T_a \ge bT_1 \end{cases} = 0.336\ g$

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where:
a is the ratio between the maximum ground acceleration and the gravitational one g.
z is the barycentric height of the infill wall from the foundation level.
a, b, a_p inertial parameters



The seismic load on the infill elements is:

$$F_a = \frac{S_a(T_a) \cdot W_a}{q_a} \; 12.36\ kN$$

where:

Tabella 7.2.1 – *Valori di q_a per elementi non strutturali*

Elemento non strutturale	q_a
Parapetti o decorazioni aggettanti	1.0
Insegne e pannelli pubblicitari	
Ciminiere, antenne e serbatoi su supporti funzionanti come mensole senza controventi per più di metà della loro altezza	
Pareti interne ed esterne	2.0
Tramezzature e facciate	
Ciminiere, antenne e serbatoi su supporti funzionanti come mensole non controventate per meno di metà della loro altezza o connesse alla struttura in corrispondenza o al di sopra del loro centro di massa	
Elementi di ancoraggio per armadi e librerie permanenti direttamente poggianti sul pavimento	
Elementi di ancoraggio per controsoffitti e corpi illuminanti	

The overturing load is:

$$M_{rib} = F_a \cdot \frac{h}{2} = 9.89\ kNm$$

ASSESSMENT OF THE EXISTING SECTION

The anti-overturing capacity of the existing infill wall is: $M_{st,pre} = W_a \cdot \frac{s}{2} = 16.54\ kNm$

The check is satisfiedbecause:

$$\frac{M_{st,pre}}{M_{rib}} = 1.67 > 1$$

TYPE OF STRENGTHENING SYSTEM

The strengthening system is composed by: 2
FRCM system composed by A.R. glass fiber mesh like **MAPEGRID G 120** and a two-component ready-mixed, high ductility pozzolan-reaction, fibre-reinforced mortar like **PLANITOP HDM MAXI**. The mechanical anchorage should be implemented by using the relevant glass or basalt fiber connectors called **MAPEWRAP G FIOCCO** produced by MAPEI S.p.a..

MECHANICAL PROPERTIES OF THE STRENGTHENING SYSTEM

FRCM SYSTEM: MAPEGRID G 120 + PLANITOP HDM MAXI + MAPEWRAP G FIOCCO

Adhesion to the substrate σ_{id}	1,0 MPa
Shear strength τ	0.15 MPa

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STRENGTHENING SYSTEM GEOMETRY

FRCM SYSTEM: MAPEGRID G 120 + PLANITOP HDM MAXI + MAPEWRAP G FIOCCO	
1 or 2 side application	1
Thickness g_m	25.0 mm
Strengthening height h_r	200.0 mm

DESIGN OF THE STRENGTHENING SYSTEM

FRCM SYSTEM: MAPEGRID G 120 + PLANITOP HDM MAXI + MAPEWRAP G FIOCCO

The adhesion capacity is:

$$F_{ad} = min\left\{\begin{matrix}\frac{n}{FC}\cdot\sigma_{ad}\cdot\frac{h_r}{2}\cdot L\\ \frac{n}{FC}\cdot\tau\cdot g_m\cdot L\end{matrix}\right\} = 20.7\ kN$$

The anti-overturing capacity of strengthened member is:

$$M_{st,post} = M_{st,pre} + F_{ad}\cdot h = 49.66\ kNm$$

The check is satisfied because:

$$\frac{M_{st,post}}{M_{rib}} = 5.02\ >\ 1$$

The indications provided about the strengthening layout such as configuration, amount of reinforcement required, are meant to be indicative and, in all cases, to be confirmed by a suitable and competent structural engineer.

For what concern the characteristic and the specification for the application of the Product stated in this document, please consult the relevant technical data sheet of the products, available on the web site at the address www.mapei.it.

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DESIGN REPORT
ANTI-OVERTURNING OF INFILL-MASONRY WALLS AND PARTITIONS
HSJD-CAPILLA MUROS NIVEL 3



Client:
Designer:
Main contractor:
Contractor:
Notes:

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OVERVIEW OF THE PROJECT

The project is related to the strengthening works to avoid the overturning of infill-masonry walls and partitions in a building owned by < - - - > located in < - - - > at the address < - - - >.

DESCRIPTION OF THE STRENGTHENING WORKS

The intervention regards the strengthening work for the anti-overturning of infill-masonry walls and partitions by using FRCM system composed by A.R. glass fiber mesh like **MAPEGRID G 120** and a two-component ready-mixed, high ductility pozzolan-reaction, fibre-reinforced mortar like **PLANITOP HDM MAXI**. The mechanical anchorage should be implemented by using the relevant glass or basalt fiber connectors called **MAPEWRAP G FIOCCO** produced by MAPEI S.p.a..

DESIGN STANDARDS

The design is performed according to:

- *Italian NTC 2018 technical standards for construction and Circolare n.7 2019;*

GEOMETRY OF THE EXISTING SECTION

The infill wall has the following geometrical characteristics:

Thickness of the wall *s*	45.0 cm
Length of the wall *L*	552.0 cm
Height of the wall *h*	83.0 cm

EXISTING MATERIALS

The infill wall has the following mechanical characteristics:

- Elasticity modulus *E* 6412.5 MPa
- Density of the wall γ 18.5 kN/m³

KNOWLEDGE LEVEL

Based on the investigation campaign carried out prior the design stage has been determined the knowledge level LC 3] of the parameters involved in the design model and has been defined the corresponding Confidence Factor FC =1.0 to be used for the design check.

DYNAMIC CHARACTERISTICS

Seismic hazard parameters

Maximum ground acceleration	$a_g = 0.15\ g$
Maximum value of the amplification factor	$F_0 = 1.95$

Ground characteristics

Soil class - Ss

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Tab. 3.2.IV – *Espressioni di S_S e di C_C*

Categoria sottosuolo	S_S
A	1,00
B	$1,00 \le 1,40 - 0,40 \cdot F_o \cdot \frac{a_g}{g} \le 1,20$
C	$1,00 \le 1,70 - 0,60 \cdot F_o \cdot \frac{a_g}{g} \le 1,50$
D	$0,90 \le 2,40 - 1,50 \cdot F_o \cdot \frac{a_g}{g} \le 1,80$
E	$1,00 \le 2,00 - 1,10 \cdot F_o \cdot \frac{a_g}{g} \le 1,60$

Topographic conditions - ST

Tab. 3.2.V – *Valori massimi del coefficiente di amplificazione topografica S_T*

Categoria topografica	Ubicazione dell'opera o dell'intervento	S_T
T1	-	1,0
T2	In corrispondenza della sommità del pendio	1,2
T3	In corrispondenza della cresta di un rilievo con pendenza media minore o uguale a 30°	1,2
T4	In corrispondenza della cresta di un rilievo con pendenza media maggiore di 30°	1,4

Coefficient for the topographic and soil class– $S = S_s \cdot S_T = 1.8$

Fundamental period of the structure along the principal direction of the building T1 [s]: (NTC 2018)

$$T_1 = C_1 \cdot H^{3/4} = 0.456\ s$$

Where C_1 depends on the infill wall type:

- Steel structures C_1= 0.085
- RC structures C_1= 0.075
- otherwise C_1= 0.050

H is the height of the building from the foundation.
Fundamental period of the non-structural element T_a:

$$T_a = \frac{2 \cdot h^2}{\pi} \sqrt{\frac{L \cdot s \cdot \gamma}{E \cdot \frac{L \cdot s^3}{12} \cdot g \cdot \left(1 - \frac{W_a}{N_{crit}}\right)}} = 0.002\ s$$

where:
g is the gravitational acceleration = 9,81 m/s^2
W_a is the weight of the infill wall evaluated as:

$$H \cdot L \cdot S \cdot \gamma$$

N_{crit} is the critical axial load:

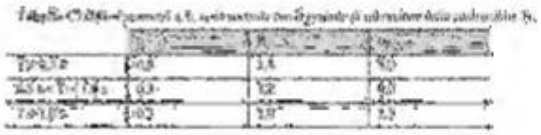
$$N_{crit} = \frac{\pi^2}{h^2} E \cdot \frac{L \cdot s^3}{12} = 3850936.1\ kN$$

SEISMIC LOAD CHARACTERISTICS

Maximum acceleration: $S_a(T_a) = \begin{cases} \alpha S \left(1 + \frac{z}{H}\right)\left[\frac{a_p}{1+(a_p-1)\left(1-\frac{T_a}{aT_1}\right)^2}\right] & per\ T_a < aT_1 \\ \alpha S \left(1 + \frac{z}{H}\right) a_p & per\ aT_1 \le T_a < bT_1 \\ \alpha S \left(1 + \frac{z}{H}\right)\left[\frac{a_p}{1+(a_p-1)\left(1-\frac{T_a}{bT_1}\right)^2}\right] \ge \alpha S & per\ T_a \ge bT_1 \end{cases} = 0.346\ g$

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where:
α is the ratio between the maximum ground acceleration and the gravitational one g.
z is the barycentric height of the infill wall from the foundation level.
a, b, a_p inertial parameters



The seismic load on the infill elements is:

$$F_a = \frac{S_a(T_a) \cdot W_a}{q_a} \; 6.61 \; kN$$

where:

Tabella 7.2.1 – *Valori di q_a per elementi non strutturali*

Elemento non strutturale	q_a
Parapetti o decorazioni aggettanti	1.0
Insegne e pannelli pubblicitari	
Ciminiere, antenne e serbatoi su supporti funzionanti come mensole senza controventi per più di metà della loro altezza	
Pareti interne ed esterne	2.0
Tramezzature e facciate	
Ciminiere, antenne e serbatoi su supporti funzionanti come mensole non controventate per meno di metà della loro altezza o connesse alla struttura in corrispondenza o al di sopra del loro centro di massa	
Elementi di ancoraggio per armadi e librerie permanenti direttamente poggianti sul pavimento	
Elementi di ancoraggio per controsoffitti e corpi illuminanti	

The overturing load is:

$$M_{rib} = F_a \cdot \frac{h}{2} = 2.74 \; kNm$$

ASSESSMENT OF THE EXISTING SECTION

The anti-overturing capacity of the existing infill wall is: $M_{st,pre} = W_a \cdot \frac{s}{2} = 8.58 \; kNm$

The check is satisfiedbecause:

$$\frac{M_{st,pre}}{M_{rib}} = 3.13 \; > 1$$

TYPE OF STRENGTHENING SYSTEM

The strengthening system is composed by: 2
FRCM system composed by A.R. glass fiber mesh like **MAPEGRID G 120** and a two-component ready-mixed, high ductility pozzolan-reaction, fibre-reinforced mortar like **PLANITOP HDM MAXI**. The mechanical anchorage should be implemented by using the relevant glass or basalt fiber connectors called **MAPEWRAP G FIOCCO** produced by MAPEI S.p.a..

MECHANICAL PROPERTIES OF THE STRENGTHENING SYSTEM

FRCM SYSTEM: MAPEGRID G 120 + PLANITOP HDM MAXI + MAPEWRAP G FIOCCO

Adhesion to the substrate σ_{id}	1,0 MPa
Shear strength τ	0.15 MPa

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STRENGTHENING SYSTEM GEOMETRY

FRCM SYSTEM: MAPEGRID G 120 + PLANITOP HDM MAXI + MAPEWRAP G FIOCCO	
1 or 2 side application	1
Thickness g_m	25.0 mm
Strengthening height h_r	200.0 mm

DESIGN OF THE STRENGTHENING SYSTEM

FRCM SYSTEM: MAPEGRID G 120 + PLANITOP HDM MAXI + MAPEWRAP G FIOCCO
The adhesion capacity is:

$$F_{ad} = min\left\{\begin{matrix}\frac{n}{FC}\cdot\sigma_{ad}\cdot\frac{h_r}{2}\cdot L\\ \frac{n}{FC}\cdot\tau\cdot g_m\cdot L\end{matrix}\right\} = 20.7\ kN$$

The anti-overturing capacity of strengthened member is:

$$M_{st,post} = M_{st,pre} + F_{ad}\cdot h = 25.76\ kNm$$

The check is satisfied because:

$$\frac{M_{st,post}}{M_{rib}} = 9.4\ >\ 1$$

The indications provided about the strengthening layout such as configuration, amount of reinforcement required, are meant to be indicative and, in all cases, to be confirmed by a suitable and competent structural engineer.

For what concern the characteristic and the specification for the application of the Product stated in this document, please consult the relevant technical data sheet of the products, available on the web site at the address www.mapei.it.

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DESIGN REPORT
ANTI-OVERTURNING OF INFILL-MASONRY WALLS AND PARTITIONS
HSJD-CAPILLA MUROS NIVEL 4



Client:
Designer:
Main contractor:
Contractor:
Notes:

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OVERVIEW OF THE PROJECT

The project is related to the strengthening works to avoid the overturning of infill-masonry walls and partitions in a building owned by < - - - > located in < - - - > at the address < - - - >.

DESCRIPTION OF THE STRENGTHENING WORKS

The intervention regards the strengthening work for the anti-overturning of infill-masonry walls and partitions by using FRCM system composed by A.R. glass fiber mesh like **MAPEGRID G 120** and a two-component ready-mixed, high ductility pozzolan-reaction, fibre-reinforced mortar like **PLANITOP HDM MAXI**. The mechanical anchorage should be implemented by using the relevant glass or basalt fiber connectors called **MAPEWRAP G FIOCCO** produced by MAPEI S.p.a..

DESIGN STANDARDS

The design is performed according to:

- *Italian NTC 2018 technical standards for construction and Circolare n.7 2019;*

GEOMETRY OF THE EXISTING SECTION

The infill wall has the following geometrical characteristics:

Thickness of the wall *s*	45.0 cm
Length of the wall *L*	552.0 cm
Height of the wall *h*	341.0 cm

EXISTING MATERIALS

The infill wall has the following mechanical characteristics:

- Elasticity modulus *E* 6412.5 MPa
- Density of the wall γ 18.5 kN/m³

KNOWLEDGE LEVEL

Based on the investigation campaign carried out prior the design stage has been determined the knowledge level LC 3] of the parameters involved in the design model and has been defined the corresponding Confidence Factor FC =1.0 to be used for the design check.

DYNAMIC CHARACTERISTICS

Seismic hazard parameters

Maximum ground acceleration	$a_g = 0.15\ g$
Maximum value of the amplification factor	$F_0 = 1.95$

Ground characteristics

Soil class - Ss

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Tab. 3.2.IV – *Espressioni di S_S e di C_C*

Categoria sottosuolo	S_S
A	1,00
B	$1,00 \le 1,40 - 0,40 \cdot F_o \cdot \frac{a_g}{g} \le 1,20$
C	$1,00 \le 1,70 - 0,60 \cdot F_o \cdot \frac{a_g}{g} \le 1,50$
D	$0,90 \le 2,40 - 1,50 \cdot F_o \cdot \frac{a_g}{g} \le 1,80$
E	$1,00 \le 2,00 - 1,10 \cdot F_o \cdot \frac{a_g}{g} \le 1,60$

Topographic conditions - ST

Tab. 3.2.V – *Valori massimi del coefficiente di amplificazione topografica S_T*

Categoria topografica	Ubicazione dell'opera o dell'intervento	S_T
T1	-	1,0
T2	In corrispondenza della sommità del pendio	1,2
T3	In corrispondenza della cresta di un rilievo con pendenza media minore o uguale a 30°	1,2
T4	In corrispondenza della cresta di un rilievo con pendenza media maggiore di 30°	1,4

Coefficient for the topographic and soil class– $S = S_s \cdot S_T = 1.8$

Fundamental period of the structure along the principal direction of the building T1 [s]: (NTC 2018)

$$T_1 = C_1 \cdot H^{3/4} = 0.456\ s$$

Where C_1 depends on the infill wall type:

- Steel structures C_1= 0.085
- RC structures C_1= 0.075
- otherwise C_1= 0.050

H is the height of the building from the foundation.
Fundamental period of the non-structural element T_a:

$$T_a = \frac{2 \cdot h^2}{\pi} \sqrt{\frac{L \cdot s \cdot \gamma}{E \cdot \frac{L \cdot s^3}{12} \cdot g \cdot \left(1 - \frac{W_a}{N_{crit}}\right)}} = 0.031\ s$$

where:
g is the gravitational acceleration = 9,81 m/s^2
W_a is the weight of the infill wall evaluated as:

$$H \cdot L \cdot S \cdot \gamma$$

N_{crit} is the critical axial load:

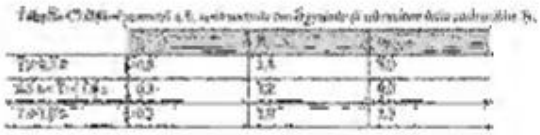
$$N_{crit} = \frac{\pi^2}{h^2} E \cdot \frac{L \cdot s^3}{12} = 228146.46\ kN$$

SEISMIC LOAD CHARACTERISTICS

Maximum acceleration: $S_a(T_a) = \begin{cases} \alpha S \left(1 + \frac{z}{H}\right) \left[\frac{a_p}{1 + (a_p - 1)\left(1 - \frac{T_a}{aT_1}\right)^2}\right] & per\ T_a < aT_1 \\ \alpha S \left(1 + \frac{z}{H}\right) a_p & per\ aT_1 \le T_a < bT_1 \\ \alpha S \left(1 + \frac{z}{H}\right) \left[\frac{a_p}{1 + (a_p - 1)\left(1 - \frac{T_a}{bT_1}\right)^2}\right] \ge \alpha S & per\ T_a \ge bT_1 \end{cases} = 0.429\ g$

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where:
α is the ratio between the maximum ground acceleration and the gravitational one g.
z is the barycentric height of the infill wall from the foundation level.
a, b, a_p inertial parameters



The seismic load on the infill elements is:

$$F_a = \frac{S_a(T_a) \cdot W_a}{q_a} \; 33.65\ kN$$

where:

Tabella 7.2.1 – *Valori di q_a per elementi non strutturali*

Elemento non strutturale	q_a
Parapetti o decorazioni aggettanti	1.0
Insegne e pannelli pubblicitari	
Ciminiere, antenne e serbatoi su supporti funzionanti come mensole senza controventi per più di metà della loro altezza	
Pareti interne ed esterne	2.0
Tramezzature e facciate	
Ciminiere, antenne e serbatoi su supporti funzionanti come mensole non controventate per meno di metà della loro altezza o connesse alla struttura in corrispondenza o al di sopra del loro centro di massa	
Elementi di ancoraggio per armadi e librerie permanenti direttamente poggianti sul pavimento	
Elementi di ancoraggio per controsoffitti e corpi illuminanti	

The overturing load is:

$$M_{rib} = F_a \cdot \frac{h}{2} = 57.38\ kNm$$

ASSESSMENT OF THE EXISTING SECTION

The anti-overturing capacity of the existing infill wall is: $M_{st,pre} = W_a \cdot \frac{s}{2} = 35.26\ kNm$

The check is not satisfiedbecause:

$$\frac{M_{st,pre}}{M_{rib}} = 0.61 \; < 1$$

TYPE OF STRENGTHENING SYSTEM

The strengthening system is composed by: 2
FRCM system composed by A.R. glass fiber mesh like **MAPEGRID G 120** and a two-component ready-mixed, high ductility pozzolan-reaction, fibre-reinforced mortar like **PLANITOP HDM MAXI**. The mechanical anchorage should be implemented by using the relevant glass or basalt fiber connectors called **MAPEWRAP G FIOCCO** produced by MAPEI S.p.a..

MECHANICAL PROPERTIES OF THE STRENGTHENING SYSTEM

FRCM SYSTEM: MAPEGRID G 120 + PLANITOP HDM MAXI + MAPEWRAP G FIOCCO

Adhesion to the substrate σ_{id}	1,0 MPa
Shear strength τ	0.15 MPa

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STRENGTHENING SYSTEM GEOMETRY

FRCM SYSTEM: MAPEGRID G 120 + PLANITOP HDM MAXI + MAPEWRAP G FIOCCO	
1 or 2 side application	1
Thickness g_m	25.0 mm
Strengthening height h_r	200.0 mm

DESIGN OF THE STRENGTHENING SYSTEM

FRCM SYSTEM: MAPEGRID G 120 + PLANITOP HDM MAXI + MAPEWRAP G FIOCCO
The adhesion capacity is:

$$F_{ad} = min\left\{\begin{matrix}\frac{n}{FC}\cdot\sigma_{ad}\cdot\frac{h_r}{2}\cdot L\\ \frac{n}{FC}\cdot\tau\cdot g_m\cdot L\end{matrix}\right\} = 20.7\ kN$$

The anti-overturing capacity of strengthened member is:

$$M_{st,post} = M_{st,pre} + F_{ad}\cdot h = 105.85\ kNm$$

The check is satisfied because:

$$\frac{M_{st,post}}{M_{rib}} = 1.84 > 1$$

The indications provided about the strengthening layout such as configuration, amount of reinforcement required, are meant to be indicative and, in all cases, to be confirmed by a suitable and competent structural engineer.

For what concern the characteristic and the specification for the application of the Product stated in this document, please consult the relevant technical data sheet of the products, available on the web site at the address www.mapei.it.

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DESIGN REPORT
ANTI-OVERTURNING OF INFILL-MASONRY WALLS AND PARTITIONS
HSJD-CAPILLA MUROS NIVEL 5



Client:
Designer:
Main contractor:
Contractor:
Notes:

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OVERVIEW OF THE PROJECT

The project is related to the strengthening works to avoid the overturning of infill-masonry walls and partitions in a building owned by < - - - > located in < - - - > at the address < - - - >.

DESCRIPTION OF THE STRENGTHENING WORKS

The intervention regards the strengthening work for the anti-overturning of infill-masonry walls and partitions by using FRCM system composed by A.R. glass fiber mesh like **MAPEGRID G 120** and a two-component ready-mixed, high ductility pozzolan-reaction, fibre-reinforced mortar like **PLANITOP HDM MAXI**. The mechanical anchorage should be implemented by using the relevant glass or basalt fiber connectors called **MAPEWRAP G FIOCCO** produced by MAPEI S.p.a..

DESIGN STANDARDS

The design is performed according to:

- *Italian NTC 2018 technical standards for construction and Circolare n.7 2019;*

GEOMETRY OF THE EXISTING SECTION

The infill wall has the following geometrical characteristics:

Thickness of the wall *s*	45.0 cm
Length of the wall *L*	552.0 cm
Height of the wall *h*	114.99999999999999 cm

EXISTING MATERIALS

The infill wall has the following mechanical characteristics:

- Elasticity modulus *E* 6412.5 MPa
- Density of the wall γ 18.5 kN/m³

KNOWLEDGE LEVEL

Based on the investigation campaign carried out prior the design stage has been determined the knowledge level LC 3] of the parameters involved in the design model and has been defined the corresponding Confidence Factor FC =1.0 to be used for the design check.

DYNAMIC CHARACTERISTICS

Seismic hazard parameters

Maximum ground acceleration	$a_g = 0.15\ g$
Maximum value of the amplification factor	$F_0 = 1.95$

Ground characteristics

Soil class - Ss

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Tab. 3.2.IV – *Espressioni di S_S e di C_C*

Categoria sottosuolo	S_S
A	1,00
B	$1,00 \le 1,40 - 0,40 \cdot F_o \cdot \frac{a_g}{g} \le 1,20$
C	$1,00 \le 1,70 - 0,60 \cdot F_o \cdot \frac{a_g}{g} \le 1,50$
D	$0,90 \le 2,40 - 1,50 \cdot F_o \cdot \frac{a_g}{g} \le 1,80$
E	$1,00 \le 2,00 - 1,10 \cdot F_o \cdot \frac{a_g}{g} \le 1,60$

Topographic conditions - ST

Tab. 3.2.V – *Valori massimi del coefficiente di amplificazione topografica* S_T

Categoria topografica	Ubicazione dell'opera o dell'intervento	S_T
T1	-	1,0
T2	In corrispondenza della sommità del pendio	1,2
T3	In corrispondenza della cresta di un rilievo con pendenza media minore o uguale a 30°	1,2
T4	In corrispondenza della cresta di un rilievo con pendenza media maggiore di 30°	1,4

Coefficient for the topographic and soil class– $S = S_s \cdot S_T = 1.8$

Fundamental period of the structure along the principal direction of the building T1 [s]: (NTC 2018)

$$T_1 = C_1 \cdot H^{3/4} = 0.456\ s$$

Where C_1 depends on the infill wall type:

- Steel structures C_1= 0.085
- RC structures C_1= 0.075
- otherwise C_1= 0.050

H is the height of the building from the foundation.
Fundamental period of the non-structural element T_a:

$$T_a = \frac{2 \cdot h^2}{\pi} \sqrt{\frac{L \cdot s \cdot \gamma}{E \cdot \frac{L \cdot s^3}{12} \cdot g \cdot \left(1 - \frac{W_a}{N_{crit}}\right)}} = 0.004\ s$$

where:
g is the gravitational acceleration = 9,81 m/s^2
W_a is the weight of the infill wall evaluated as:

$$H \cdot L \cdot S \cdot \gamma$$

N_{crit} is the critical axial load:

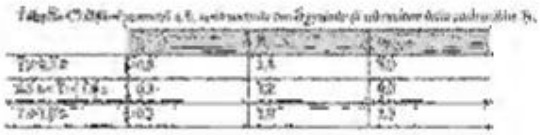
$$N_{crit} = \frac{\pi^2}{h^2} E \cdot \frac{L \cdot s^3}{12} = 2005981.0\ kN$$

SEISMIC LOAD CHARACTERISTICS

Maximum acceleration: $S_a(T_a) = \begin{cases} aS\left(1 + \frac{z}{H}\right)\left[\frac{a_p}{1+(a_p-1)\left(1-\frac{T_a}{aT_1}\right)^2}\right] & per\ T_a < aT_1 \\ aS\left(1 + \frac{z}{H}\right) a_p & per\ aT_1 \le T_a < bT_1 \\ aS\left(1 + \frac{z}{H}\right)\left[\frac{a_p}{1+(a_p-1)\left(1-\frac{T_a}{bT_1}\right)^2}\right] \ge aS & per\ T_a \ge bT_1 \end{cases} = 0.424\ g$

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where:
α is the ratio between the maximum ground acceleration and the gravitational one g.
z is the barycentric height of the infill wall from the foundation level.
a, b, a_p inertial parameters



The seismic load on the infill elements is:

$$F_a = \frac{S_a(T_a) \cdot W_a}{q_a} \; 11.21\ kN$$

where:

Tabella 7.2.1 – *Valori di q_a per elementi non strutturali*

Elemento non strutturale	q_a
Parapetti o decorazioni aggettanti	1.0
Insegne e pannelli pubblicitari	
Ciminiere, antenne e serbatoi su supporti funzionanti come mensole senza controventi per più di metà della loro altezza	
Pareti interne ed esterne	2.0
Tramezzature e facciate	
Ciminiere, antenne e serbatoi su supporti funzionanti come mensole non controventate per meno di metà della loro altezza o connesse alla struttura in corrispondenza o al di sopra del loro centro di massa	
Elementi di ancoraggio per armadi e librerie permanenti direttamente poggianti sul pavimento	
Elementi di ancoraggio per controsoffitti e corpi illuminanti	

The overturing load is:

$$M_{rib} = F_a \cdot \frac{h}{2} = 6.45\ kNm$$

ASSESSMENT OF THE EXISTING SECTION

The anti-overturing capacity of the existing infill wall is: $M_{st,pre} = W_a \cdot \frac{s}{2} = 11.89\ kNm$

The check is satisfiedbecause:

$$\frac{M_{st,pre}}{M_{rib}} = 1.84 > 1$$

TYPE OF STRENGTHENING SYSTEM

The strengthening system is composed by: 2
FRCM system composed by A.R. glass fiber mesh like **MAPEGRID G 120** and a two-component ready-mixed, high ductility pozzolan-reaction, fibre-reinforced mortar like **PLANITOP HDM MAXI**. The mechanical anchorage should be implemented by using the relevant glass or basalt fiber connectors called **MAPEWRAP G FIOCCO** produced by MAPEI S.p.a..

MECHANICAL PROPERTIES OF THE STRENGTHENING SYSTEM

FRCM SYSTEM: MAPEGRID G 120 + PLANITOP HDM MAXI + MAPEWRAP G FIOCCO

Adhesion to the substrate σ_{id}	1,0 MPa
Shear strength τ	0.15 MPa

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STRENGTHENING SYSTEM GEOMETRY

FRCM SYSTEM: MAPEGRID G 120 + PLANITOP HDM MAXI + MAPEWRAP G FIOCCO	
1 or 2 side application	1
Thickness g_m	25.0 mm
Strengthening height h_r	200.0 mm

DESIGN OF THE STRENGTHENING SYSTEM

FRCM SYSTEM: MAPEGRID G 120 + PLANITOP HDM MAXI + MAPEWRAP G FIOCCO

The adhesion capacity is:

$$F_{ad} = min\left\{\begin{matrix}\frac{n}{FC}\cdot\sigma_{ad}\cdot\frac{h_r}{2}\cdot L\\ \frac{n}{FC}\cdot\tau\cdot g_m\cdot L\end{matrix}\right\} = 20.7\ kN$$

The anti-overturing capacity of strengthened member is:

$$M_{st,post} = M_{st,pre} + F_{ad}\cdot h = 35.7\ kNm$$

The check is satisfied because:

$$\frac{M_{st,post}}{M_{rib}} = 5.54 > 1$$

The indications provided about the strengthening layout such as configuration, amount of reinforcement required, are meant to be indicative and, in all cases, to be confirmed by a suitable and competent structural engineer.

For what concern the characteristic and the specification for the application of the Product stated in this document, please consult the relevant technical data sheet of the products, available on the web site at the address www.mapei.it.

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DESIGN REPORT
ANTI-OVERTURNING OF INFILL-MASONRY WALLS AND PARTITIONS
HSJD-CAPILLA MUROS NIVEL 6



Client:
Designer:
Main contractor:
Contractor:
Notes:

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ABSTRACT

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DESCRIPTION OF THE STRENGTHENING WORKS 3
DESIGN STANDARDS 3
GEOMETRY OF THE EXISTING SECTION 3
Existing materials 3
KNOWLEDGE LEVEL 3
DYNAMIC CHARACTERISTICS 3
SEISMIC LOAD CHARACTERISTICS 4
ASSESSMENT OF THE EXISTING SECTION 5
TYPE OF STRENGTHENING SYSTEM 5
MECHANICAL PROPERTIES OF THE STRENGTHENING SYSTEM 5
STRENGTHENING SYSTEM GEOMETRY 6
DESIGN OF THE STRENGTHENING SYSTEM 6

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The intervention regards the strengthening work for the anti-overturning of infill-masonry walls and partitions by using FRCM system composed by A.R. glass fiber mesh like **MAPEGRID G 120** and a two-component ready-mixed, high ductility pozzolan-reaction, fibre-reinforced mortar like **PLANITOP HDM MAXI**. The mechanical anchorage should be implemented by using the relevant glass or basalt fiber connectors called **MAPEWRAP G FIOCCO** produced by MAPEI S.p.a..

DESIGN STANDARDS

The design is performed according to:

- *Italian NTC 2018 technical standards for construction and Circolare n.7 2019;*

GEOMETRY OF THE EXISTING SECTION

The infill wall has the following geometrical characteristics:

Thickness of the wall *s*	45.0 cm
Length of the wall *L*	552.0 cm
Height of the wall *h*	166.0 cm

EXISTING MATERIALS

The infill wall has the following mechanical characteristics:

- Elasticity modulus *E* 6412.5 MPa
- Density of the wall γ 18.5 kN/m³

KNOWLEDGE LEVEL

Based on the investigation campaign carried out prior the design stage has been determined the knowledge level LC 3] of the parameters involved in the design model and has been defined the corresponding Confidence Factor FC =1.0 to be used for the design check.

DYNAMIC CHARACTERISTICS

Seismic hazard parameters

Maximum ground acceleration	$a_g = 0.15\ g$
Maximum value of the amplification factor	$F_0 = 1.95$

Ground characteristics

Soil class - Ss

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Tab. 3.2.IV – *Espressioni di S_S e di C_C*

Categoria sottosuolo	S_S
A	1,00
B	$1,00 \le 1,40 - 0,40 \cdot F_o \cdot \frac{a_g}{g} \le 1,20$
C	$1,00 \le 1,70 - 0,60 \cdot F_o \cdot \frac{a_g}{g} \le 1,50$
D	$0,90 \le 2,40 - 1,50 \cdot F_o \cdot \frac{a_g}{g} \le 1,80$
E	$1,00 \le 2,00 - 1,10 \cdot F_o \cdot \frac{a_g}{g} \le 1,60$

Topographic conditions - ST

Tab. 3.2.V – *Valori massimi del coefficiente di amplificazione topografica S_T*

Categoria topografica	Ubicazione dell'opera o dell'intervento	S_T
T1	-	1,0
T2	In corrispondenza della sommità del pendio	1,2
T3	In corrispondenza della cresta di un rilievo con pendenza media minore o uguale a 30°	1,2
T4	In corrispondenza della cresta di un rilievo con pendenza media maggiore di 30°	1,4

Coefficient for the topographic and soil class– $S = S_s \cdot S_T = 1.8$

Fundamental period of the structure along the principal direction of the building T1 [s]: (NTC 2018)

$$T_1 = C_1 \cdot H^{3/4} = 0.456\ s$$

Where C_1 depends on the infill wall type:

- Steel structures C_1= 0.085
- RC structures C_1= 0.075
- otherwise C_1= 0.050

H is the height of the building from the foundation.
Fundamental period of the non-structural element T_a:

$$T_a = \frac{2 \cdot h^2}{\pi} \sqrt{\frac{L \cdot s \cdot \gamma}{E \cdot \frac{L \cdot s^3}{12} \cdot g \cdot \left(1 - \frac{W_a}{N_{crit}}\right)}} = 0.007\ s$$

where:
g is the gravitational acceleration = 9,81 m/s^2
W_a is the weight of the infill wall evaluated as:

$$H \cdot L \cdot S \cdot \gamma$$

N_{crit} is the critical axial load:

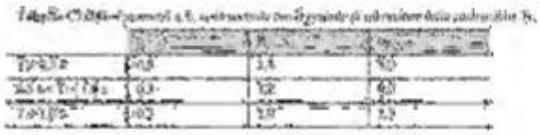
$$N_{crit} = \frac{\pi^2}{h^2} E \cdot \frac{L \cdot s^3}{12} = 962734.02\ kN$$

SEISMIC LOAD CHARACTERISTICS

Maximum acceleration: $S_a(T_a) = \begin{cases} \alpha S \left(1 + \frac{z}{H}\right)\left[\frac{a_p}{1+(a_p-1)\left(1-\frac{T_a}{aT_1}\right)^2}\right] & per\ T_a < aT_1 \\ \alpha S \left(1 + \frac{z}{H}\right) a_p & per\ aT_1 \le T_a < bT_1 \\ \alpha S \left(1 + \frac{z}{H}\right)\left[\frac{a_p}{1+(a_p-1)\left(1-\frac{T_a}{bT_1}\right)^2}\right] \ge \alpha S & per\ T_a \ge bT_1 \end{cases} = 0.432\ g$

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where:
α is the ratio between the maximum ground acceleration and the gravitational one g.
z is the barycentric height of the infill wall from the foundation level.
a, b, a_p inertial parameters



The seismic load on the infill elements is:

$$F_a = \frac{S_a(T_a) \cdot W_a}{q_a} \quad 16.46\ kN$$

where:

Tabella 7.2.1 – *Valori di q_a per elementi non strutturali*

Elemento non strutturale	q_a
Parapetti o decorazioni aggettanti	1.0
Insegne e pannelli pubblicitari	
Ciminiere, antenne e serbatoi su supporti funzionanti come mensole senza controventi per più di metà della loro altezza	
Pareti interne ed esterne	2.0
Tramezzature e facciate	
Ciminiere, antenne e serbatoi su supporti funzionanti come mensole non controventate per meno di metà della loro altezza o connesse alla struttura in corrispondenza o al di sopra del loro centro di massa	
Elementi di ancoraggio per armadi e librerie permanenti direttamente poggianti sul pavimento	
Elementi di ancoraggio per controsoffitti e corpi illuminanti	

The overturing load is:

$$M_{rib} = F_a \cdot \frac{h}{2} = 13.66\ kNm$$

ASSESSMENT OF THE EXISTING SECTION

The anti-overturing capacity of the existing infill wall is: $M_{st,pre} = W_a \cdot \frac{s}{2} = 17.16\ kNm$

The check is satisfiedbecause:

$$\frac{M_{st,pre}}{M_{rib}} = 1.26 > 1$$

TYPE OF STRENGTHENING SYSTEM

The strengthening system is composed by: 2
FRCM system composed by A.R. glass fiber mesh like **MAPEGRID G 120** and a two-component ready-mixed, high ductility pozzolan-reaction, fibre-reinforced mortar like **PLANITOP HDM MAXI**. The mechanical anchorage should be implemented by using the relevant glass or basalt fiber connectors called **MAPEWRAP G FIOCCO** produced by MAPEI S.p.a..

MECHANICAL PROPERTIES OF THE STRENGTHENING SYSTEM

FRCM SYSTEM: MAPEGRID G 120 + PLANITOP HDM MAXI + MAPEWRAP G FIOCCO

Adhesion to the substrate σ_{ad}	1,0 MPa
Shear strength τ	0.15 MPa

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STRENGTHENING SYSTEM GEOMETRY

FRCM SYSTEM: MAPEGRID G 120 + PLANITOP HDM MAXI + MAPEWRAP G FIOCCO	
1 or 2 side application	1
Thickness g_m	25.0 mm
Strengthening height h_r	200.0 mm

DESIGN OF THE STRENGTHENING SYSTEM

FRCM SYSTEM: MAPEGRID G 120 + PLANITOP HDM MAXI + MAPEWRAP G FIOCCO

The adhesion capacity is:

$$F_{ad} = min\left\{\begin{matrix}\frac{n}{FC}\cdot\sigma_{ad}\cdot\frac{h_r}{2}\cdot L\\ \frac{n}{FC}\cdot\tau\cdot g_m\cdot L\end{matrix}\right\} = 20.7\ kN$$

The anti-overturing capacity of strengthened member is:

$$M_{st,post} = M_{st,pre} + F_{ad}\cdot h = 51.53\ kNm$$

The check is satisfied because:

$$\frac{M_{st,post}}{M_{rib}} = 3.77 > 1$$

The indications provided about the strengthening layout such as configuration, amount of reinforcement required, are meant to be indicative and, in all cases, to be confirmed by a suitable and competent structural engineer.

For what concern the characteristic and the specification for the application of the Product stated in this document, please consult the relevant technical data sheet of the products, available on the web site at the address www.mapei.it.

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8.13.3 Diseño No estructurales Existentes Alternativa 2

	PROYECTO:	FECHA:
GUEVARA ÁLVAREZ INGENIEROS LTDA.	HSJD - GRUPO 2 - EDIFICIO CAPILLA - MUROS NO ESTRUCTURALES EXISTENTES	27/02/2023
	INGENIERO: IVÁN MAURICIO GUEVARA R.	No. Proy.: P-22-716

CALCULO DE a_x (ACELERACION EN EL PUNTO DE SOPORTE)

$h_{eq} = 0.75 * h_n = 0.75 * 9.57 = 7.18$ m

NIVEL	h_x	h_{eq}	As	Sa	a_x
NE+0.00	0.00 m	14.27 m	0.15	0.91	0.15
NE+3.17	3.17 m	14.27 m	0.15	0.91	0.32
NE+4.77	4.77 m	14.27 m	0.15	0.91	0.41
NE+5.60	5.60 m	14.27 m	0.15	0.91	0.45
NE+9.01	9.01 m	14.27 m	0.15	0.91	0.63
NE+10.16	10.16 m	14.27 m	0.15	0.91	0.69
NE+11.82	11.82 m	14.27 m	0.15	0.91	0.78
NE+19.03	19.03 m	14.27 m	0.15	0.91	1.22

DISEÑO DE ELEMENTOS NO ESTRUCTURALES - MUROS EXISTENTES PISO 1

MUROS DIVISORIOS NE-0.05

Las fuerzas sísmicas de diseño (Fp) se calculan así:

$$Fp = \frac{ax\ ap}{Rp}\ g\ Mp > \frac{A\ a\ I}{2}\ g\ Mp \quad \text{en donde:}$$

aceleracion en el punto de soporte del elemento
NE-0.05
ax = 0.15

Amplificación dinámica del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
ap = 1.00 Muro divisorios de altura total

Capacidad de disipación de energía en el rango inelástico del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
Rp = 3.00 Anclaje Ductil Grado de desempeño : SUPERIOR

Masa del elemento no estructural
Tipo de muro: Muro divisorios
γ = 1.85 Ton/m³
Espesor del muro: 0.45 m
Distanciamiento Columnas: 5.52 m
Altura libre del muro: 3.17 m
Mp = 1.48 Ton -s/m

Análisis Sismico
Aa= 0.15
I= 1.25 GRUPO DE USO: III

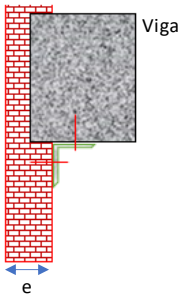
$$Fp = \frac{0.15 \times 1.00}{3.0} \times 9.81 \times 1.48 > \frac{0.15 \times 1.25}{2} \times 9.81 \times 1.48$$

Fp= 0.73 > 1.37

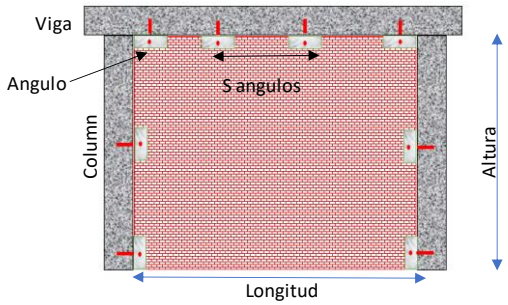
M= Fp x L/2 = 1.08 Ton-m
V= Fp/2 = 0.68 Ton

Consideracion Geometrica

Corte



Alzado



e= 0.45 m Angulo a Utilizar = L 4x4x1/4"
L= 5.52 m Separacion Angulos= 1.00 m
H= 3.17 m

Diseño Pernos A-325 Rn = 33.7 kg/mm²

Fuerza a traccion 0.12 Ton
Fuerza A Corte 0.12 Ton
Cantidad Pernos 1.0

Diamtero Pernos
ϕ = 1/2"
Área = 127 mm²

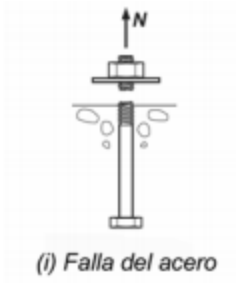
Cortante
$\Sigma\phi P_v$ = 3.20 Ton > 0.68 Ton OK

Diseño Angulos

Angulo L 4x4x1/4" Material A-36 Fu= 40.2 kg/mm²
Longitud 150 mm Espesor 6.35 mm Fy = 25.3 kg/mm²

Distancia del ultimo pernos al borde
C = 75 mm
Separacion entre pernos
S= 0 mm

Aplastamiento:	$\Sigma\phi P_p$ =	5.95	>	0.12 ok
Fluencia a cortante:	$\Sigma\phi P_f$ =	13.3	>	0.12 ok
Fractura a cortante:	$\Sigma\phi P_{fr}$ =	15.9	>	0.12 ok

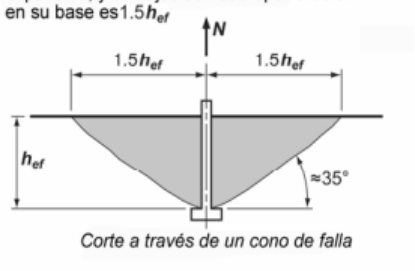
DISEÑO DE ANCLAJE PISO 1					
Tipo de anclaje					
x	Anclajes postinstalados				
	Anclajes preinstalados				
Características del Anclaje			f_{ya}		400.0 MPa
Diámetro (mm)		Barra (N/8'')		Diámetro tomado (mm)	
		X	4	12.7	
Profundidad de embebido h_{ef} (mm)			150		
FACTORES DE REDUCCIÓN DE RESISTENCIA Φ					
Cargas a tracción			0.75		
Fuerza cortante			0.65		
NSR-10 APÉNDICE C.D.4.2.2					
Diámetro del anclaje				Aplica	
Profundidad de embebido				Aplica	
C-D.5.1 - Resistencia del acero de un anclaje en tracción					
n	1	N_{sa}	48850.2 N		
A_{se} (mm^2)	97.7				
f_{uta} (MPa)	500.0				
n_t	0.6				
Nsa	4981.2 Kg		OK		
PORCENTAJE DE UTILIZACIÓN DEL ACERO EN TRACCIÓN			3.31%		

(i) Falla del acero

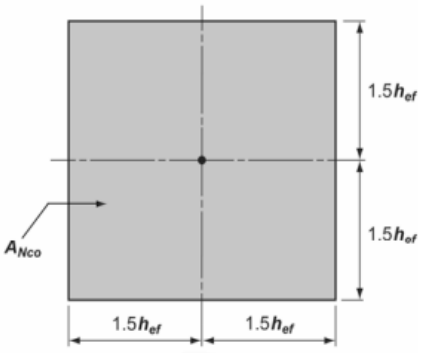
C-D.5.2 - Resistencia al arrancamiento del concreto de un anclaje a tracción

Para un solo anclaje

La distancia crítica al borde para pernos con cabeza, tornillos con cabeza, anclajes de expansión, y anclajes con sobreperforación en su base es $1.5h_{ef}$

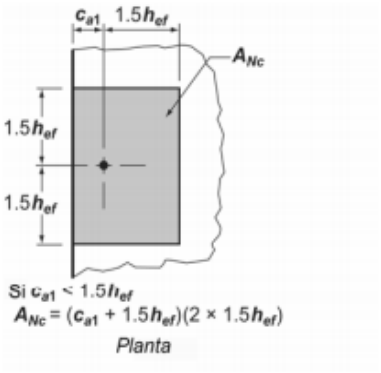


Corte a través de un cono de falla



Planta

$$A_{Nco} = (2 \times 1.5h_{ef}) \times (2 \times 1.5h_{ef}) = 9h_{ef}^2$$

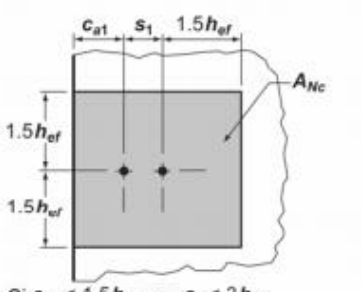


Si $c_{a1} < 1.5h_{ef}$

$A_{Nc} = (c_{a1} + 1.5h_{ef})(2 \times 1.5h_{ef})$

Planta

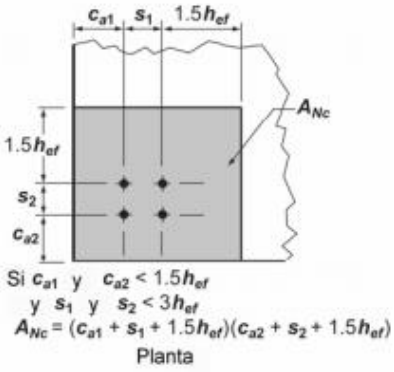
Para un grupo de anclajes



Si $c_{a1} < 1.5h_{ef}$ y $s_1 < 3h_{ef}$

$A_{Nc} = (c_{a1} + s_1 + 1.5h_{ef})(2 \times 1.5h_{ef})$

Planta



Si c_{a1} y $c_{a2} < 1.5h_{ef}$

y s_1 y $s_2 < 3h_{ef}$

$A_{Nc} = (c_{a1} + s_1 + 1.5h_{ef})(c_{a2} + s_2 + 1.5h_{ef})$

Planta

Anclaje con sobreperforación en su base	
Anclaje de torsión controlada o de desplazamiento controlado	X
Anclajes sometidos a cargas excentricas	
Anclajes sometidos a cargas concentricas	X

Ψ_{ed}	0.97		Ψ_{ec}	1.000	
Ψ_c	1.25		Ψ_{ed}	0.967733333	
Ψ_{cp}	0.33		Ψ_c	1	
N_b (N)	63652.87		Ψ_{cp}	0	
k_c	7		N_b (N)	63652.87	
C_{a1} (mm)	200.8		k_c	7	
C_{a2} (mm)			e'	0.00000	0.0 mm
			s_2	56	
			s_1	240	

	C_{ac}		600		
	f´c		24.5 MPa	λ	1
A_{Nco}	=	202500	A_{Nco}	=	202500
A_{Nc}	=	191610	A_{Nc}	=	

N_{cb}	N_{cbg}
24383.1 N	0.0 N

C-D.6.2 Resistencia al arrancamiento del concreto en anclajes a cortante

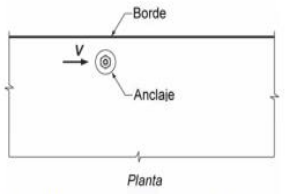
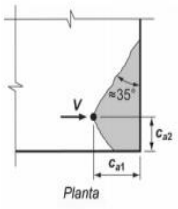
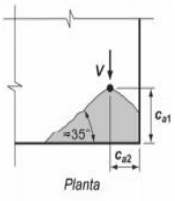
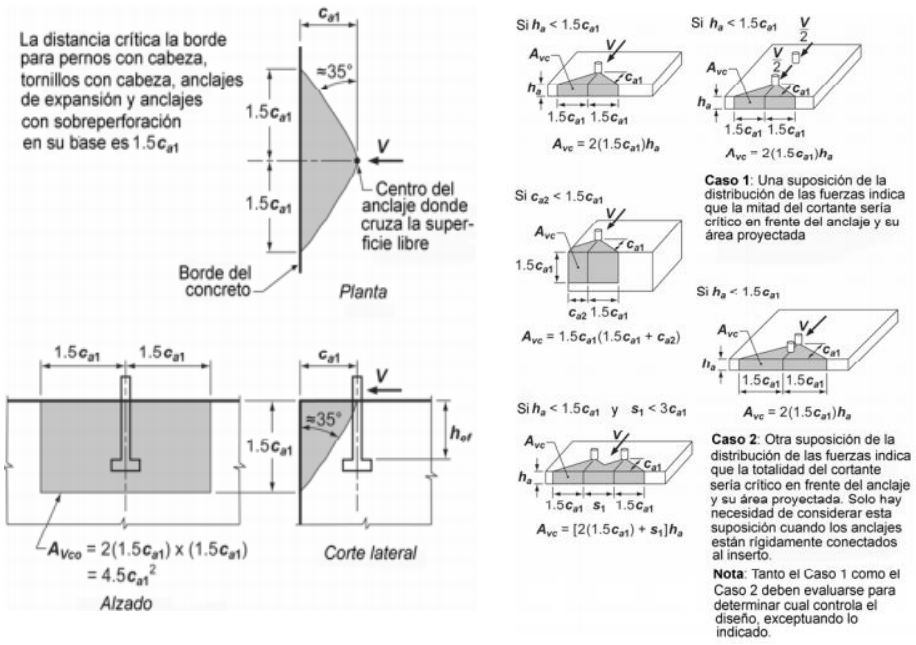


Fig. C-RD.6.2.1 (c) — Fuerza cortante paralela a un borde.





No se presenta fisuracion debido a cargas de servicio	
Si se presenta fisuracion debido a cargas de servicio	x



ψed	0.7		ψec	1.00	
ψc	ver CD.6.2.7		ψed	0.7	
ψc tomado	1.2		ψc	ver CD.6.2.7	
ψh	1.157007635		ψc tomado	1.2	
Vb (N)	54279.01		ψh	1	
			Vb (N)	54279.01	
Avc	135540		Avc		
Avco	181442.88		Avco		181442.88
	Le	150			
	e´v				
	Ca1 (mm)	200.8			
	Ca2 (mm)	0			
	ha (mm)	225			
	F´c	24.5 MPa			
Vcb	39407.1 N		**Vcb**		0.0 N
N_{ua}	123.7 Kg		ΦN_n	1850.7 Kg	Cumple
Vua	123.7 Kg		ΦV_n	2592.20 kg	Cumple
PORCENTAJE DE UTILIDAD DEL PERNO A TRACCIÓN					6.68%
PORCENTAJE DE UTILIDAD DEL PERNO A CORTANTE					4.77%

DISEÑO DE ELEMENTOS NO ESTRUCTURALES - MUROS EXISTENTES PISO 2

MUROS DIVISORIOS NE+3.17

Las fuerzas sísmicas de diseño (Fp) se calculan así:

$$Fp = \frac{ax\ ap}{Rp} g\ Mp > \frac{A\ a\ I}{2} g\ Mp \quad \text{en donde:}$$

aceleracion en el punto de soporte del elemento
NE+3.17
ax = 0.32

Amplificación dinámica del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
ap = 1.00 Muro divisorios de altura total

Capacidad de disipación de energía en el rango inelástico del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
Rp = 3.00 Anclaje Ductil Grado de desempeño : SUPERIOR

Masa del elemento no estructural
Tipo de muro: Muro divisorios
γ = 1.85 Ton/m³
Espesor del muro: 0.45 m
Distanciamiento Columnas: 5.55 m
Altura libre del muro: 4.09 m
Mp = 1.93 Ton -s/m

Análisis Sismico
Aa= 0.15
I= 1.25 GRUPO DE USO: III

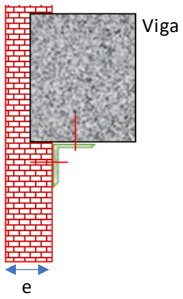
$$Fp = \frac{0.32 \times 1.00}{3.0} \times 9.81 \times 1.93 > \frac{0.15 \times 1.25}{2} \times 9.81 \times 1.93$$

Fp= 2.01 > 1.77

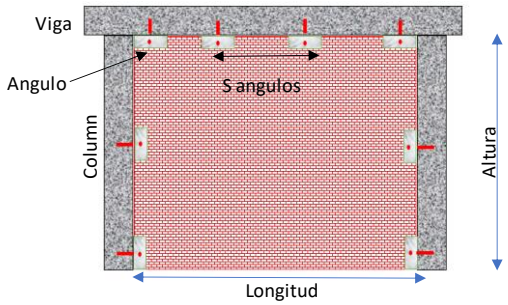
M= Fp x L/2 = 2.06 Ton-m
V= Fp/2 = 1.01 Ton

Consideracion Geometrica

Corte



Alzado



e= 0.45 m Angulo a Utilizar = L 4x4x1/4"
L= 5.55 m Separacion Angulos= 1.00 m
H= 4.09 m

Diseño Pernos A-325 Rn = 33.7 kg/mm²

Fuerza a traccion 0.18 Ton
Fuerza A Corte 0.18 Ton
Cantidad Pernos 1.0

Diamtero Pernos
ϕ = 1/2"
Área = 127 mm²

Cortante
$\Sigma\phi P_v$ = 3.20 Ton > 1.01 Ton OK

Diseño Angulos

Angulo L 4x4x1/4" Material A-36 Fu= 40.2 kg/mm²
Longitud 150 mm Espesor 6.35 mm Fy = 25.3 kg/mm²

Distancia del ultimo pernos al borde
C = 75 mm
Separacion entre pernos
S= 0 mm

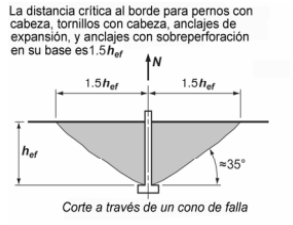
Aplastamiento:	$\Sigma\phi P_p$ =	5.95	>	0.18 ok
Fluencia a cortante:	$\Sigma\phi P_f$ =	13.3	>	0.18 ok
Fractura a cortante:	$\Sigma\phi P_{fr}$ =	15.9	>	0.18 ok

DISEÑO DE ANCLAJE - PISO 2				
Tipo de anclaje				
x	Anclajes postinstalados			
	Anclajes preinstalados			
Características del Anclaje			f_{ya}	400.0 MPa
Diámetro (mm)		Barra (N/8")		Diámetro tomado (mm)
		X	4	12.7
Profundidad de embebido h_{ef} (mm)			150	
FACTORES DE REDUCCIÓN DE RESISTENCIA Φ				
Cargas a tracción			0.75	
Fuerza cortante			0.65	
NSR-10 APÉNDICE C.D.4.2.2				
Diámetro del anclaje				Aplica
Profundidad de embebido				Aplica
C-D.5.1 - Resistencia del acero de un anclaje en tracción				
n	1	N_{sa}	48850.2 N	
A_{se} (mm^2)	97.7			
f_{uta} (MPa)	500.0			
n_t	0.6			
Nsa 4981.2 Kg			OK	
PORCENTAJE DE UTILIZACIÓN DEL ACERO EN TRACCIÓN			4.86%	

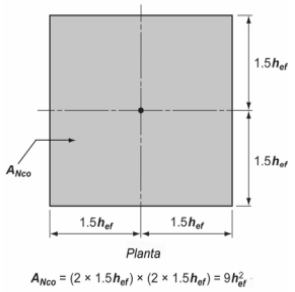
(i) Falla del acero

C-D.5.2 - Resistencia al arrancamiento del concreto de un anclaje a tracción

Para un solo anclaje	Para un grupo de anclajes

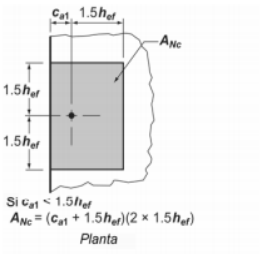


Corte a través de un cono de falla

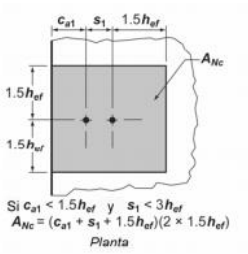


Planta

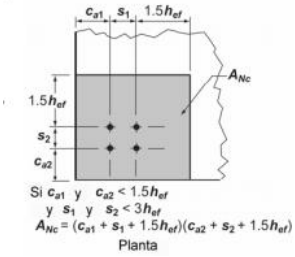
$A_{Nco} = (2 \times 1.5h_{ef}) \times (2 \times 1.5h_{ef}) = 9h_{ef}^2$



Planta



Planta



Planta

Anclaje con sobreperforación en su base	
Anclaje de torsión controlada o de desplazamiento controlado	X
Anclajes sometidos a cargas excentricas	
Anclajes sometidos a cargas concentricas	X

Ψ_{ed}	0.97		Ψ_{ec}	1.000	
Ψ_c	1.25		Ψ_{ed}	0.967733333	
Ψ_{cp}	0.33		Ψ_c	1	
N_b (N)	63652.87		Ψ_{cp}	0	
k_c	7		N_b (N)	63652.87	
C_{a1} (mm)	200.8		k_c	7	
C_{a2} (mm)			e'	0.00000	0.0 mm
			s_2	56	
			s_1	240	

	C_{ac}		600		
	f´c		24.5 MPa	λ	1
A_{Nco}	=	202500	A_{Nco}	=	202500
A_{Nc}	=	191610	A_{Nc}	=	

N_{cb}	N_{cbg}
24383.1 N	0.0 N

C-D.6.2 Resistencia al arrancamiento del concreto en anclajes a cortante

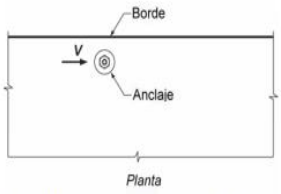
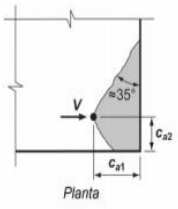
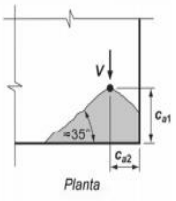
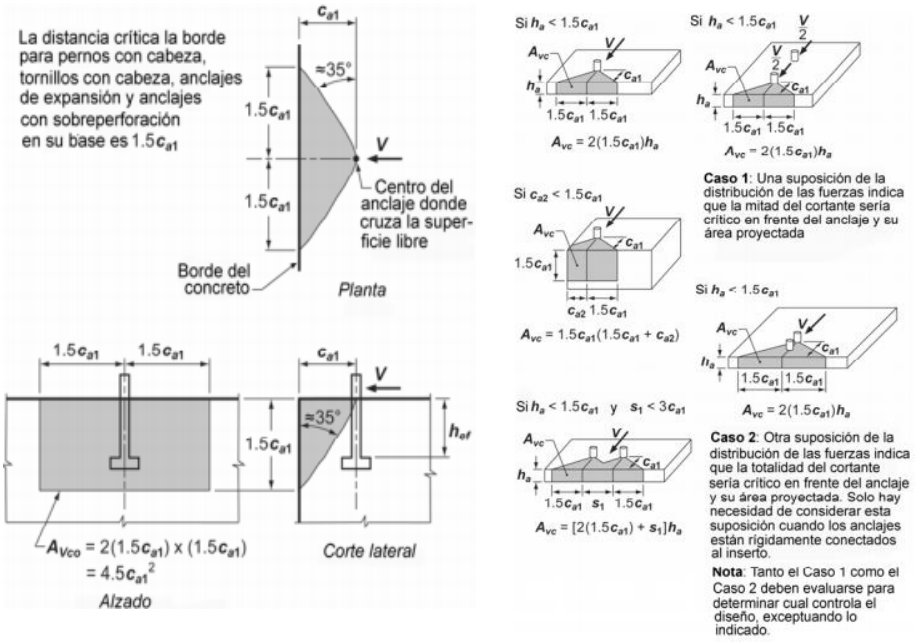


Fig. C-RD.6.2.1 (c) — Fuerza cortante paralela a un borde.





No se presenta fisuracion debido a cargas de servicio	
Si se presenta fisuracion debido a cargas de servicio	x



ψed	0.7	ψec	1.00
ψc	ver CD.6.2.7	ψed	0.7
ψc tomado	1.2	ψc	ver CD.6.2.7
ψh	1.157007635	ψc tomado	1.2
Vb (N)	54279.01	ψh	1
		Vb (N)	54279.01

Avc	135540	Avc	
Avco	181442.88	Avco	181442.88

Le	150
e´v	
Ca1 (mm)	200.8
Ca2 (mm)	0
ha (mm)	225
F´c	24.5 MPa

Vcb	39407.1 N	**Vcb**		0.0 N
N_{ua}	181.4 Kg	ΦN_n	1850.7 Kg	Cumple
Vua	181.4 Kg	ΦV_n	2592.20 kg	Cumple
PORCENTAJE DE UTILIDAD DEL PERNO A TRACCIÓN				9.80%
PORCENTAJE DE UTILIDAD DEL PERNO A CORTANTE				7.00%

DISEÑO DE ELEMENTOS NO ESTRUCTURALES - MUROS EXISTENTES PISO 3

MUROS DIVISORIOS NE+4.77

Las fuerzas sísmicas de diseño (Fp) se calculan así:

$$Fp = \frac{ax\ ap}{Rp} g\ Mp > \frac{A\ a\ I}{2} g\ Mp \quad \text{en donde:}$$

aceleracion en el punto de soporte del elemento
NE+4.77
ax = 0.41

Amplificación dinámica del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
ap = 1.00 Muro divisorios de altura total

Capacidad de disipación de energía en el rango inelástico del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
Rp = 3.00 Anclaje Ductil Grado de desempeño : SUPERIOR

Masa del elemento no estructural
Tipo de muro: Muro divisorios
γ = 1.85 Ton/m³
Espesor del muro: 0.45 m
Distanciamiento Columnas: 5.55 m
Altura libre del muro: 1.6 m
Mp = 0.75 Ton -s/m

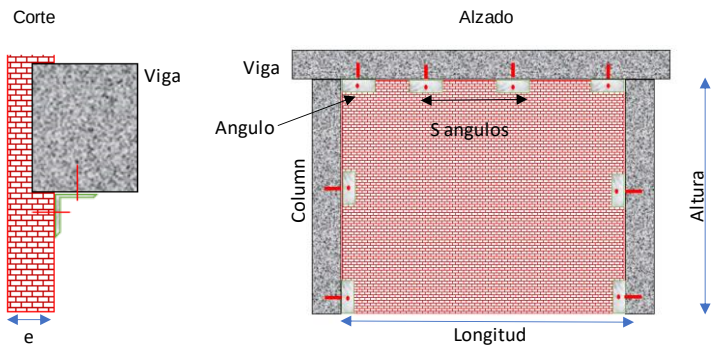
Análisis Sismico
Aa= 0.15
I= 1.25 GRUPO DE USO: III

$$Fp = \frac{0.41 \times 1.00}{3.0} \times 9.81 \times 0.75 > \frac{0.15 \times 1.25}{2} \times 9.81 \times 0.75$$

Fp= 1.00 > 0.69

M= Fp x L/2 = 0.40 Ton-m
V= Fp/2 = 0.50 Ton

Consideracion Geometrica



e= 0.45 m Angulo a Utilizar = L 4x4x1/4"
L= 5.55 m Separacion Angulos= 1.00 m
H= 1.60 m

Diseño Pernos A-325 Rn = 33.7 kg/mm²

Fuerza a traccion	0.09	Ton	Cantidad Pernos	1.0
Fuerza A Corte	0.09	Ton		

Diamtero Pernos

ϕ = 1/2"

Área = 127 mm²

Cortante

$\Sigma\phi P_v$ = 3.20 Ton > 0.50 Ton OK

Diseño Angulos

Angulo	L 4x4x1/4"	Material	A-36	Fu=	40.2 kg/mm²
Longitud	150 mm	Espesor	6.35 mm	Fy =	25.3 kg/mm²

Distancia del ultimo pernos al borde

C = 75 mm

Separacion entre pernos

S= 0 mm

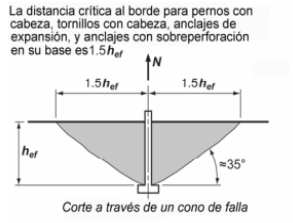
Aplastamiento:	$\Sigma\phi P_p$ =	5.95	>	0.09 ok
Fluencia a cortante:	$\Sigma\phi P_f$ =	13.3	>	0.09 ok
Fractura a cortante:	$\Sigma\phi P_{fr}$ =	15.9	>	0.09 ok

DISEÑO DE ANCLAJE - PISO 3				
Tipo de anclaje				
x	Anclajes postinstalados			
	Anclajes preinstalados			
Características del Anclaje			f_{ya}	400.0 MPa
Diámetro (mm)		Barra (N/8")		Diámetro tomado (mm)
		X	4	12.7
Profundidad de embebido h_{ef} (mm)			150	
FACTORES DE REDUCCIÓN DE RESISTENCIA Φ				
Cargas a tracción			0.75	
Fuerza cortante			0.65	
NSR-10 APÉNDICE C.D.4.2.2				
Diámetro del anclaje				Aplica
Profundidad de embebido				Aplica
C-D.5.1 - Resistencia del acero de un anclaje en tracción				
n	1	N_{sa}	48850.2 N	
A_{se} (mm^2)	97.7			
f_{uta} (MPa)	500.0			
n_t	0.6			
Nsa 4981.2 Kg			OK	
PORCENTAJE DE UTILIZACIÓN DEL ACERO EN TRACCIÓN			2.41%	

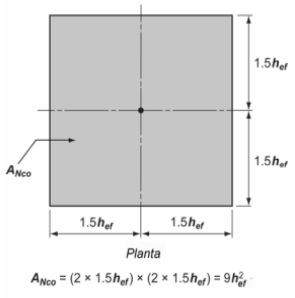
(i) Falla del acero

C-D.5.2 - Resistencia al arrancamiento del concreto de un anclaje a tracción

Para un solo anclaje	Para un grupo de anclajes

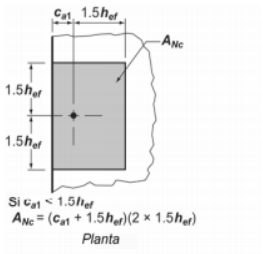


Corte a través de un cono de falla

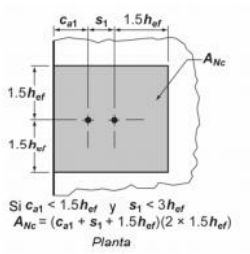


Planta

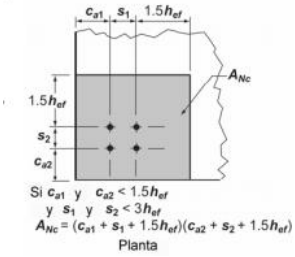
$A_{Nco} = (2 \times 1.5h_{ef}) \times (2 \times 1.5h_{ef}) = 9h_{ef}^2$



Planta



Planta



Planta

Anclaje con sobreperforación en su base	
Anclaje de torsión controlada o de desplazamiento controlado	X
Anclajes sometidos a cargas excentricas	
Anclajes sometidos a cargas concentricas	X

Ψ_{ed}	0.97		Ψ_{ec}	1.000	
Ψ_c	1.25		Ψ_{ed}	0.967733333	
Ψ_{cp}	0.33		Ψ_c	1	
N_b (N)	63652.87		Ψ_{cp}	0	
k_c	7		N_b (N)	63652.87	
C_{a1} (mm)	200.8		k_c	7	
C_{a2} (mm)			e'	0.00000	0.0 mm
			s_2	56	
			s_1	240	

	C_{ac}		600		
	f´c		24.5 MPa	λ	1
A_{Nco}	=	202500	A_{Nco}	=	202500
A_{Nc}	=	191610	A_{Nc}	=	

N_{cb}	N_{cbg}
24383.1 N	0.0 N

C-D.6.2 Resistencia al arrancamiento del concreto en anclajes a cortante

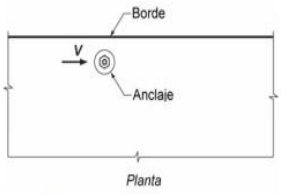
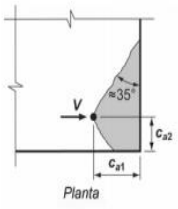
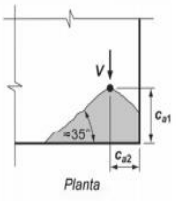
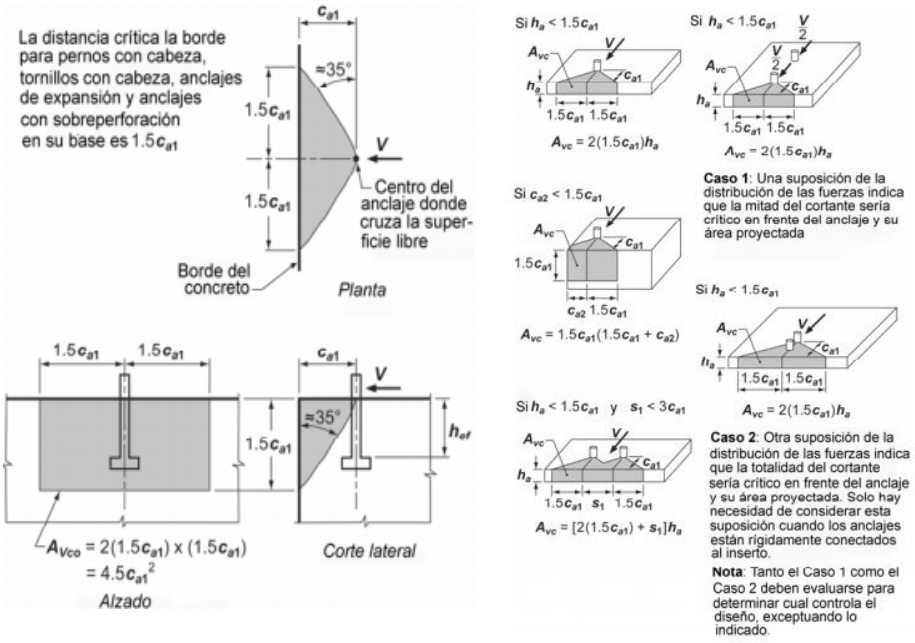


Fig. C-RD.6.2.1 (c) — Fuerza cortante paralela a un borde.





No se presenta fisuracion debido a cargas de servicio	
Si se presenta fisuracion debido a cargas de servicio	x



ψed	0.7	ψec	1.00
ψc	ver CD.6.2.7	ψed	0.7
ψc tomado	1.2	ψc	ver CD.6.2.7
ψh	1.157007635	ψc tomado	1.2
Vb (N)	54279.01	ψh	1
		Vb (N)	54279.01

Avc	135540	Avc	
Avco	181442.88	Avco	181442.88

Le	150
e´v	
Ca1 (mm)	200.8
Ca2 (mm)	0
ha (mm)	225
F´c	24.5 MPa

Vcb	39407.1 N	**Vcb**		0.0 N
N_{ua}	90.0 Kg	ΦN_n	1850.7 Kg	Cumple
Vua	90.0 Kg	ΦV_n	2592.20 kg	Cumple
PORCENTAJE DE UTILIDAD DEL PERNO A TRACCIÓN				4.86%
PORCENTAJE DE UTILIDAD DEL PERNO A CORTANTE				3.47%

DISEÑO DE ELEMENTOS NO ESTRUCTURALES - MUROS EXISTENTES PISO 4

MUROS DIVISORIOS NE+5.60

Las fuerzas sísmicas de diseño (Fp) se calculan así:

$$Fp = \frac{ax\ ap}{Rp} g\ Mp > \frac{A\ a\ I}{2} g\ Mp \quad \text{en donde:}$$

aceleracion en el punto de soporte del elemento
NE+5.60
ax = 0.45

Amplificación dinámica del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
ap = 1.00 Muro divisorios de altura total

Capacidad de disipación de energía en el rango inelástico del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
Rp = 3.00 Anclaje Ductil Grado de desempeño : SUPERIOR

Masa del elemento no estructural
Tipo de muro: Muro divisorios
γ = 1.85 Ton/m³
Espesor del muro: 0.45 m
Distanciamiento Columnas: 5.52 m
Altura libre del muro: 0.83 m
Mp = 0.39 Ton -s/m

Análisis Sismico
Aa= 0.15
I= 1.25 GRUPO DE USO: III

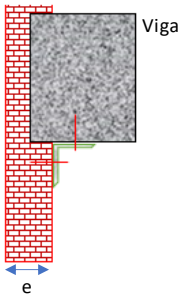
$$Fp = \frac{0.45 \times 1.00}{3.0} \times 9.81 \times 0.39 > \frac{0.15 \times 1.25}{2} \times 9.81 \times 0.39$$

Fp= 0.57 > 0.36

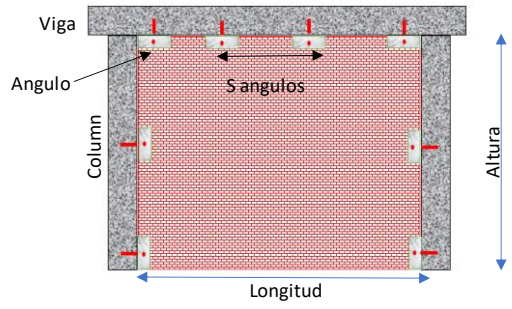
M= Fp x L/2 = 0.12 Ton-m
V= Fp/2 = 0.29 Ton

Consideracion Geometrica

Corte



Alzado



e= 0.45 m Angulo a Utilizar = L 4x4x1/4"
L= 5.52 m Separacion Angulos= 1.00 m
H= 0.83 m

Diseño Pernos A-325 Rn = 33.7 kg/mm²

Fuerza a traccion	0.05	Ton	Cantidad Pernos	1.0
Fuerza A Corte	0.05	Ton		

Diamtero Pernos

ϕ = 1/2"

Área = 127 mm²

Cortante

$\Sigma\phi P_v$ = 3.20 Ton > 0.29 Ton OK

Diseño Angulos

Angulo	L 4x4x1/4"	Material	A-36	Fu=	40.2 kg/mm²
Longitud	150 mm	Espesor	6.35 mm	Fy =	25.3 kg/mm²

Distancia del ultimo pernos al borde

C = 75 mm

Separacion entre pernos

S= 0 mm

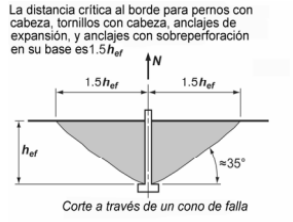
Aplastamiento:	$\Sigma\phi P_p$ =	5.95	>	0.05 ok
Fluencia a cortante:	$\Sigma\phi P_f$ =	13.3	>	0.05 ok
Fractura a cortante:	$\Sigma\phi P_{fr}$ =	15.9	>	0.05 ok

DISEÑO DE ANCLAJE - PISO 4				
Tipo de anclaje				
x	Anclajes postinstalados			
	Anclajes preinstalados			
Características del Anclaje			f_{ya}	400.0 MPa
Diámetro (mm)		Barra (N/8")		Diámetro tomado (mm)
		X	4	12.7
Profundidad de embebido h_{ef} (mm)			150	
FACTORES DE REDUCCIÓN DE RESISTENCIA Φ				
Cargas a tracción			0.75	
Fuerza cortante			0.65	
NSR-10 APÉNDICE C.D.4.2.2				
Diámetro del anclaje				Aplica
Profundidad de embebido				Aplica
C-D.5.1 - Resistencia del acero de un anclaje en tracción				
n	1	N_{sa}	48850.2 N	
A_{se} (mm^2)	97.7			
f_{uta} (MPa)	500.0			
n_t	0.6			
Nsa 4981.2 Kg			OK	
PORCENTAJE DE UTILIZACIÓN DEL ACERO EN TRACCIÓN			1.39%	

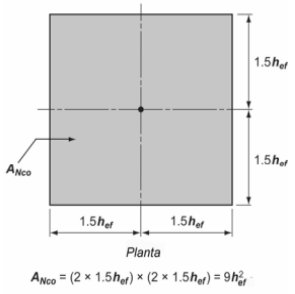
(i) Falla del acero

C-D.5.2 - Resistencia al arrancamiento del concreto de un anclaje a tracción

Para un solo anclaje	Para un grupo de anclajes

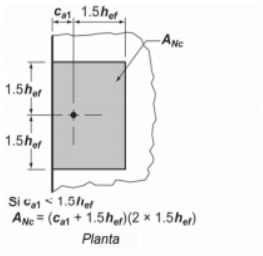


Corte a través de un cono de falla

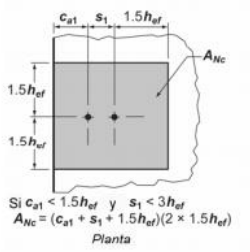


Planta

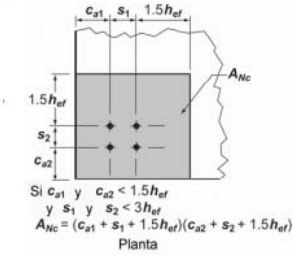
$A_{Nco} = (2 \times 1.5h_{ef}) \times (2 \times 1.5h_{ef}) = 9h_{ef}^2$



Planta



Planta



Planta

Anclaje con sobreperforación en su base	
Anclaje de torsión controlada o de desplazamiento controlado	X
Anclajes sometidos a cargas excentricas	
Anclajes sometidos a cargas concentricas	X

Ψ_{ed}	0.97		Ψ_{ec}	1.000	
Ψ_c	1.25		Ψ_{ed}	0.967733333	
Ψ_{cp}	0.33		Ψ_c	1	
N_b (N)	63652.87		Ψ_{cp}	0	
k_c	7		N_b (N)	63652.87	
C_{a1} (mm)	200.8		k_c	7	
C_{a2} (mm)			e'	0.00000	0.0 mm
			s_2	56	
			s_1	240	

	C_{ac}		600		
	f´c		24.5 MPa	λ	1
A_{Nco}	=	202500	A_{Nco}	=	202500
A_{Nc}	=	191610	A_{Nc}	=	

N_{cb}	N_{cbg}
24383.1 N	0.0 N

C-D.6.2 Resistencia al arrancamiento del concreto en anclajes a cortante

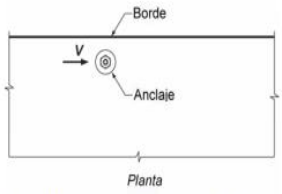
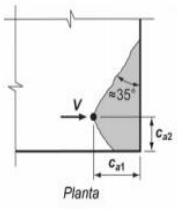
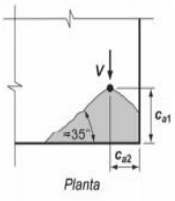
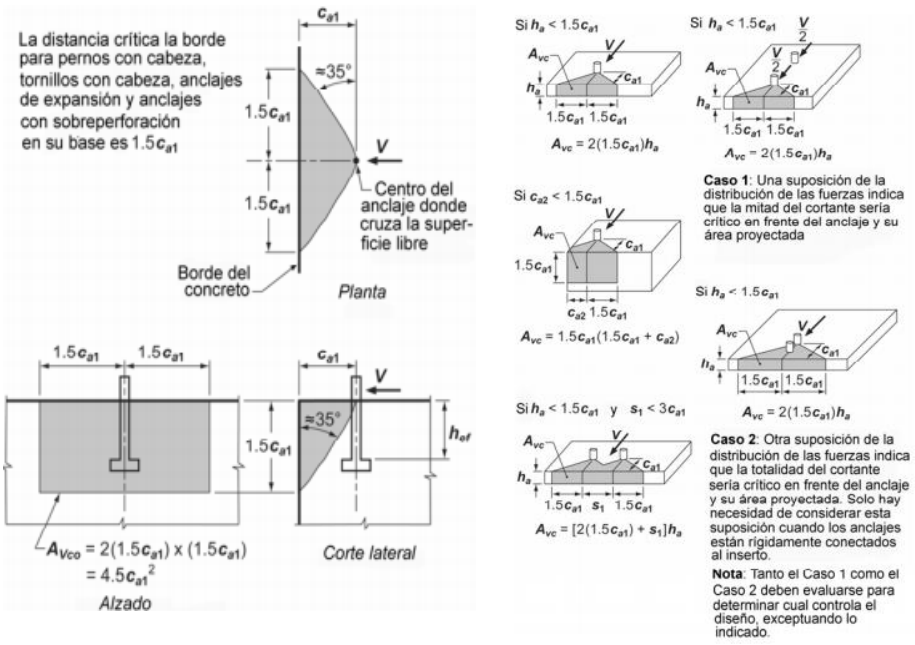


Fig. C-RD.6.2.1 (c) — Fuerza cortante paralela a un borde.





No se presenta fisuracion debido a cargas de servicio	
Si se presenta fisuracion debido a cargas de servicio	x



ψed	0.7	ψec	1.00
ψc	ver CD.6.2.7	ψed	0.7
ψc tomado	1.2	ψc	ver CD.6.2.7
ψh	1.157007635	ψc tomado	1.2
Vb (N)	54279.01	ψh	1
		Vb (N)	54279.01

Avc	135540	Avc	
Avco	181442.88	Avco	181442.88
Le	150		
e´v			
Ca1 (mm)	200.8		
Ca2 (mm)	0		
ha (mm)	225		
F´c	24.5 MPa		
Vcb	39407.1 N	**Vcb**	0.0 N

N_{ua}	51.8 Kg	ΦN_n	1850.7 Kg	Cumple
Vua	51.8 Kg	ΦV_n	2592.20 kg	Cumple

PORCENTAJE DE UTILIDAD DEL PERNO A TRACCIÓN	2.80%
PORCENTAJE DE UTILIDAD DEL PERNO A CORTANTE	2.00%

DISEÑO DE ELEMENTOS NO ESTRUCTURALES - MUROS EXISTENTES PISO 5

MUROS DIVISORIOS NE+9.01

Las fuerzas sísmicas de diseño (Fp) se calculan así:

$$Fp = \frac{ax\ ap}{Rp} g\ Mp > \frac{A\ a\ I}{2} g\ Mp \quad \text{en donde:}$$

aceleracion en el punto de soporte del elemento
NE+9.01
ax = 0.63

Amplificación dinámica del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
ap = 1.00 Muro divisorios de altura total

Capacidad de disipación de energía en el rango inelástico del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
Rp = 3.00 Anclaje Ductil Grado de desempeño : SUPERIOR

Masa del elemento no estructural
Tipo de muro: Muro divisorios
γ = 1.85 Ton/m³
Espesor del muro: 0.45 m
Distanciamiento Columnas: 5.52 m
Altura libre del muro: 2.81 m
Mp = 1.32 Ton -s/m

Análisis Sismico
Aa= 0.15
I= 1.25 GRUPO DE USO: III

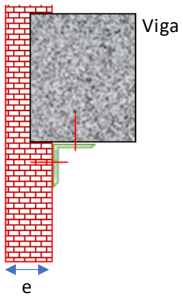
$$Fp = \frac{0.63 \times 1.00}{3.0} \times 9.81 \times 1.32 > \frac{0.15 \times 1.25}{2} \times 9.81 \times 1.32$$

Fp= 2.72 > 1.21

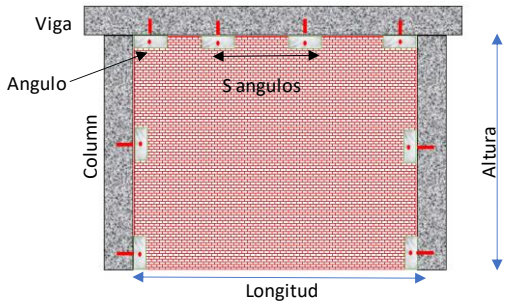
M= Fp x L/2 = 1.91 Ton-m
V= Fp/2 = 1.36 Ton

Consideracion Geometrica

Corte



Alzado



e= 0.45 m Angulo a Utilizar = L 4x4x1/4"
L= 5.52 m Separacion Angulos= 1.00 m
H= 2.81 m

Diseño Pernos A-325 Rn = 33.7 kg/mm²

Fuerza a traccion	0.25	Ton	Cantidad Pernos	1.0
Fuerza A Corte	0.25	Ton		

Diamtero Pernos

ϕ = 1/2"

Área = 127 mm²

Cortante

$\Sigma\phi P_v$ = 3.20 Ton > 1.36 Ton OK

Diseño Angulos

Angulo	L 4x4x1/4"	Material	A-36	Fu=	40.2 kg/mm²
Longitud	150 mm	Espesor	6.35 mm	Fy =	25.3 kg/mm²

Distancia del ultimo pernos al borde

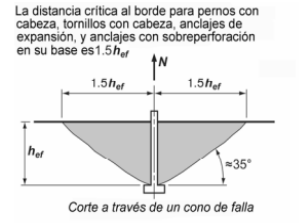
C = 75 mm

Separacion entre pernos

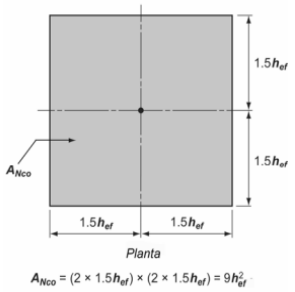
S= 0 mm

Aplastamiento:	$\Sigma\phi P_p$ =	5.95	>	0.25 ok
Fluencia a cortante:	$\Sigma\phi P_f$ =	13.3	>	0.25 ok
Fractura a cortante:	$\Sigma\phi P_{fr}$ =	15.9	>	0.25 ok

DISEÑO DE ANCLAJE - PISO 5				
Tipo de anclaje				
x	Anclajes postinstalados			
	Anclajes preinstalados			
Características del Anclaje			f_{ya}	400.0 MPa
Diámetro (mm)		Barra (N/8")		Diámetro tomado (mm)
		X	4	12.7
Profundidad de embebido h_{ef} (mm)			150	
FACTORES DE REDUCCIÓN DE RESISTENCIA Φ				
Cargas a tracción			0.75	
Fuerza cortante			0.65	
NSR-10 APÉNDICE C.D.4.2.2				
Diámetro del anclaje				Aplica
Profundidad de embebido				Aplica
C-D.5.1 - Resistencia del acero de un anclaje en tracción				
n	1	N_{sa}	48850.2 N	
A_{se} (mm^2)	97.7			
f_{uta} (MPa)	500.0			
n_t	0.6			
Nsa 4981.2 Kg			OK	
PORCENTAJE DE UTILIZACIÓN DEL ACERO EN TRACCIÓN			6.60%	
C-D.5.2 - Resistencia al arrancamiento del concreto de un anclaje a tracción				
Para un solo anclaje			Para un grupo de anclajes	

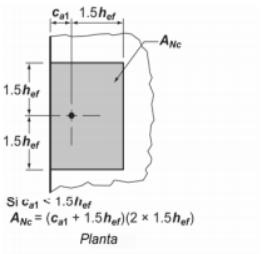


Corte a través de un cono de falla

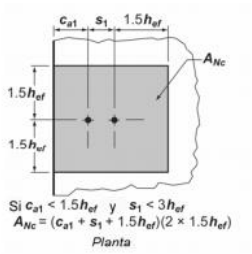


Planta

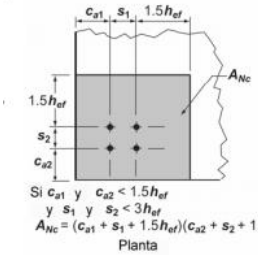
$A_{Nco} = (2 \times 1.5h_{ef}) \times (2 \times 1.5h_{ef}) = 9h_{ef}^2$



Si $c_{a1} < 1.5h_{ef}$
$A_{Nc} = (c_{a1} + 1.5h_{ef})(2 \times 1.5h_{ef})$
Planta



Si $c_{a1} < 1.5h_{ef}$ y $s_1 < 3h_{ef}$
$A_{Nc} = (c_{a1} + s_1 + 1.5h_{ef})(2 \times 1.5h_{ef})$
Planta



Si c_{a1} y $c_{a2} < 1.5h_{ef}$
y s_1 y $s_2 < 3h_{ef}$
$A_{Nc} = (c_{a1} + s_1 + 1.5h_{ef})(c_{a2} + s_2 + 1.5h_{ef})$
Planta

Anclaje con sobreperforación en su base	
Anclaje de torsión controlada o de desplazamiento controlado	X
Anclajes sometidos a cargas excentricas	
Anclajes sometidos a cargas concentricas	X

Ψ_{ed}	0.97		Ψ_{ec}	1.000	
Ψ_c	1.25		Ψ_{ed}	0.967733333	
Ψ_{cp}	0.33		Ψ_c	1	
N_b (N)	63652.87		Ψ_{cp}	0	
k_c	7		N_b (N)	63652.87	
C_{a1} (mm)	200.8		k_c	7	
C_{a2} (mm)			e'	0.00000	0.0 mm
			s_2	56	
			s_1	240	

	C_{ac}		600		
	f´c		24.5 MPa	λ	1
A_{Nco}	=	202500	A_{Nco}	=	202500
A_{Nc}	=	191610	A_{Nc}	=	

N_{cb}	N_{cbg}
24383.1 N	0.0 N

C-D.6.2 Resistencia al arrancamiento del concreto en anclajes a cortante

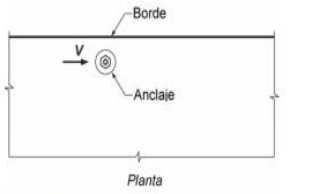
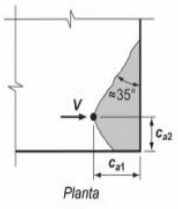
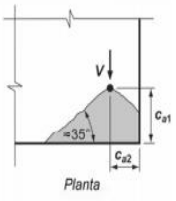
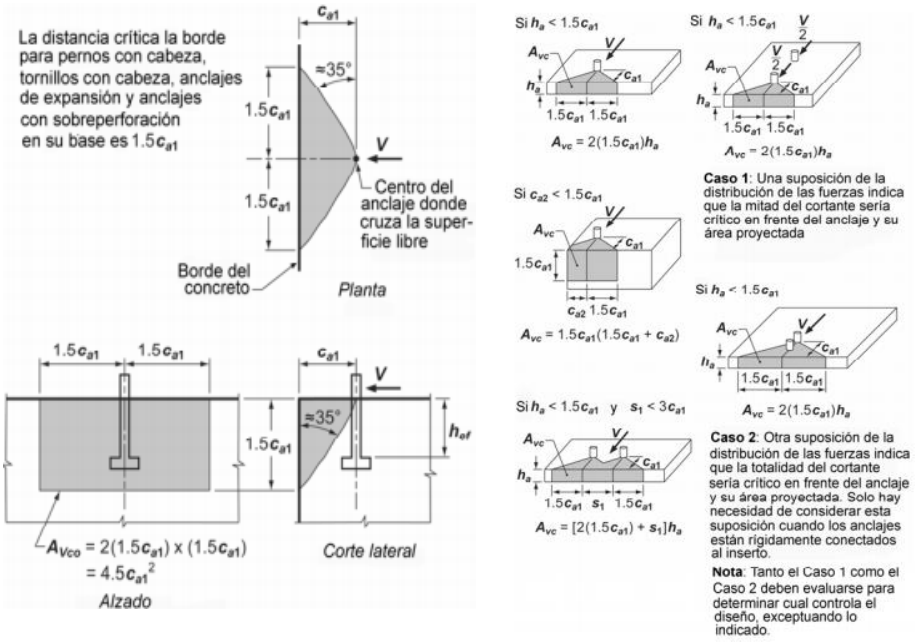


Fig. C-RD.6.2.1 (c) — Fuerza cortante paralela a un borde.





No se presenta fisuracion debido a cargas de servicio	
Si se presenta fisuracion debido a cargas de servicio	x



ψed	0.7		ψec	1.00	
ψc	ver CD.6.2.7		ψed	0.7	
ψc tomado	1.2		ψc	ver CD.6.2.7	
ψh	1.157007635		ψc tomado	1.2	
Vb (N)	54279.01		ψh	1	
			Vb (N)	54279.01	
Avc	135540		Avc		
Avco	181442.88		Avco		181442.88
	Le	150			
	e´v				
	Ca1 (mm)	200.8			
	Ca2 (mm)	0			
	ha (mm)	225			
	F´c	24.5 MPa			
Vcb	39407.1 N		**Vcb**		0.0 N
N_{ua}	246.5 Kg		ΦN_n	1850.7 Kg	Cumple
Vua	246.5 Kg		ΦV_n	2592.20 kg	Cumple
PORCENTAJE DE UTILIDAD DEL PERNO A TRACCIÓN					13.32%
PORCENTAJE DE UTILIDAD DEL PERNO A CORTANTE					9.51%

DISEÑO DE ELEMENTOS NO ESTRUCTURALES - MUROS EXISTENTES PISO 6

MUROS DIVISORIOS NE+10.16

Las fuerzas sísmicas de diseño (Fp) se calculan así:

$$Fp = \frac{ax\ ap}{Rp}\ g\ Mp > \frac{A\ a\ I}{2}\ g\ Mp \quad \text{en donde:}$$

aceleracion en el punto de soporte del elemento
NE+10.16
ax = 0.69

Amplificación dinámica del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
ap = 1.00 Muro divisorios de altura total

Capacidad de disipación de energía en el rango inelástico del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
Rp = 3.00 Anclaje Ductil Grado de desempeño : SUPERIOR

Masa del elemento no estructural
Tipo de muro: Muro divisorios
γ = 1.85 Ton/m³
Espesor del muro: 0.45 m
Distanciamiento Columnas: 5.52 m
Altura libre del muro: 1.15 m
Mp = 0.54 Ton -s/m

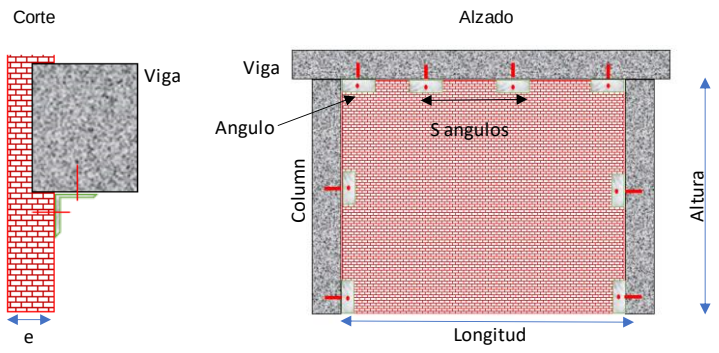
Análisis Sismico
Aa= 0.15
I= 1.25 GRUPO DE USO: III

$$Fp = \frac{0.69 \times 1.00}{3.0} \times 9.81 \times 0.54 > \frac{0.15 \times 1.25}{2} \times 9.81 \times 0.54$$

Fp= 1.22 > 0.50

M= Fp x L/2 = 0.35 Ton-m
V= Fp/2 = 0.61 Ton

Consideracion Geometrica



e= 0.45 m Angulo a Utilizar = L 4x4x1/4"
L= 5.52 m Separacion Angulos= 1.00 m
H= 1.15 m

Diseño Pernos A-325 Rn = 33.7 kg/mm²

Fuerza a traccion	0.11	Ton	Cantidad Pernos	1.0
Fuerza A Corte	0.11	Ton		

Diamtero Pernos

ϕ = 1/2"

Área = 127 mm²

Cortante

$\Sigma\phi P_v$ = 3.20 Ton > 0.61 Ton OK

Diseño Angulos

Angulo	L 4x4x1/4"	Material	A-36	Fu=	40.2 kg/mm²
Longitud	150 mm	Espesor	6.35 mm	Fy =	25.3 kg/mm²

Distancia del ultimo pernos al borde

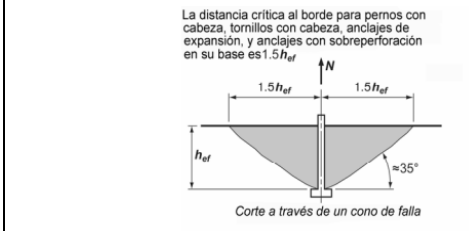
C = 75 mm

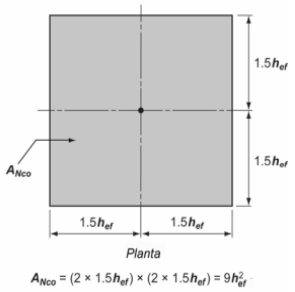
Separacion entre pernos

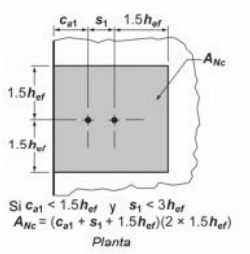
S= 0 mm

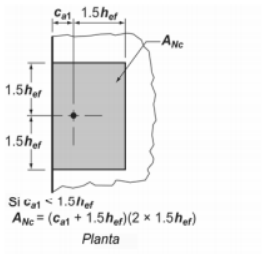
Aplastamiento:	$\Sigma\phi P_p$ =	5.95	>	0.11 ok
Fluencia a cortante:	$\Sigma\phi P_f$ =	13.3	>	0.11 ok
Fractura a cortante:	$\Sigma\phi P_{fr}$ =	15.9	>	0.11 ok

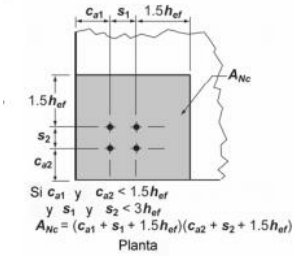
DISEÑO DE ANCLAJE - PISO 6				
Tipo de anclaje				
x	Anclajes postinstalados			
	Anclajes preinstalados			
Características del Anclaje			f_{ya}	400.0 MPa
Diámetro (mm)		Barra (N/8")		Diámetro tomado (mm)
		X	4	12.7
Profundidad de embebido h_{ef} (mm)			150	
FACTORES DE REDUCCIÓN DE RESISTENCIA Φ				
Cargas a tracción			0.75	
Fuerza cortante			0.65	
NSR-10 APÉNDICE C.D.4.2.2				
Diámetro del anclaje				Aplica
Profundidad de embebido				Aplica
C-D.5.1 - Resistencia del acero de un anclaje en tracción				
n	1	N_{sa}	48850.2 N	
A_{se} (mm^2)	97.7			
f_{uta} (MPa)	500.0			
n_t	0.6			
Nsa 4981.2 Kg			OK	
PORCENTAJE DE UTILIZACIÓN DEL ACERO EN TRACCIÓN			2.96%	
C-D.5.2 - Resistencia al arrancamiento del concreto de un anclaje a tracción				
Para un solo anclaje			Para un grupo de anclajes	











Anclaje con sobreperforación en su base	
Anclaje de torsión controlada o de desplazamiento controlado	X
Anclajes sometidos a cargas excentricas	
Anclajes sometidos a cargas concentricas	X

Ψ_{ed}	0.97		Ψ_{ec}	1.000	
Ψ_c	1.25		Ψ_{ed}	0.967733333	
Ψ_{cp}	0.33		Ψ_c	1	
N_b (N)	63652.87		Ψ_{cp}	0	
k_c	7		N_b (N)	63652.87	
C_{a1} (mm)	200.8		k_c	7	
C_{a2} (mm)			e'	0.00000	0.0 mm
			s_2	56	
			s_1	240	

		C_{ac}	600		
		f´c	24.5 MPa	λ	1
A_{Nco}	=	202500	A_{Nco}	=	202500
A_{Nc}	=	191610	A_{Nc}	=	

N_{cb}	N_{cbg}
24383.1 N	0.0 N

C-D.6.2 Resistencia al arrancamiento del concreto en anclajes a cortante

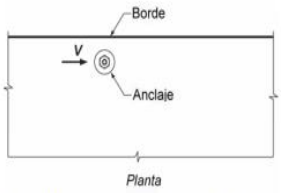
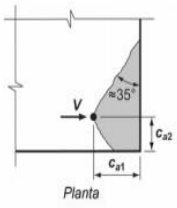
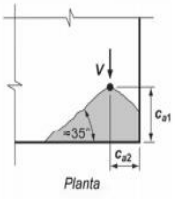
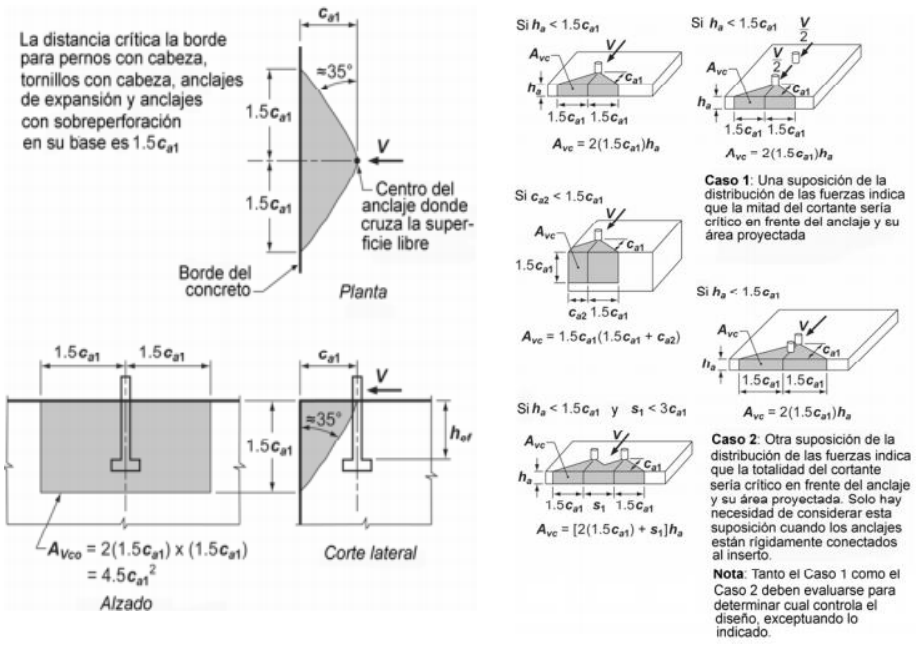


Fig. C-RD.6.2.1 (c) — Fuerza cortante paralela a un borde.





No se presenta fisuracion debido a cargas de servicio	
Si se presenta fisuracion debido a cargas de servicio	x



ψed	0.7		ψec	1.00	
ψc	ver CD.6.2.7		ψed	0.7	
ψc tomado	1.2		ψc	ver CD.6.2.7	
ψh	1.157007635		ψc tomado	1.2	
Vb (N)	54279.01		ψh	1	
			Vb (N)	54279.01	
Avc	135540		Avc		
Avco	181442.88		Avco		181442.88
	Le	150			
	e´v				
	Ca1 (mm)	200.8			
	Ca2 (mm)	0			
	ha (mm)	225			
	F´c	24.5 MPa			
Vcb	39407.1 N		**Vcb**		0.0 N
N_{ua}	110.7 Kg		ΦN_n	1850.7 Kg	Cumple
Vua	110.7 Kg		ΦV_n	2592.20 kg	Cumple
PORCENTAJE DE UTILIDAD DEL PERNO A TRACCIÓN					5.98%
PORCENTAJE DE UTILIDAD DEL PERNO A CORTANTE					4.27%

DISEÑO DE ELEMENTOS NO ESTRUCTURALES - MUROS EXISTENTES PISO 7

MUROS DIVISORIOS NE+11.82

Las fuerzas sísmicas de diseño (Fp) se calculan así:

$$Fp = \frac{ax\ ap}{Rp} g\ Mp > \frac{A\ a\ I}{2} g\ Mp \quad \text{en donde:}$$

aceleracion en el punto de soporte del elemento
NE+11.82
ax = 0.78

Amplificación dinámica del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
ap = 1.00 Muro divisorios de altura total

Capacidad de disipación de energía en el rango inelástico del elemento no estructural
(se determina de las Tablas A.9.5-1 de la NSR-10).
Rp = 3.00 Anclaje Ductil Grado de desempeño : SUPERIOR

Masa del elemento no estructural
Tipo de muro: Muro divisorios
γ = 1.85 Ton/m³
Espesor del muro: 0.45 m
Distanciamiento Columnas: 5.52 m
Altura libre del muro: 1.66 m
Mp = 0.78 Ton -s/m

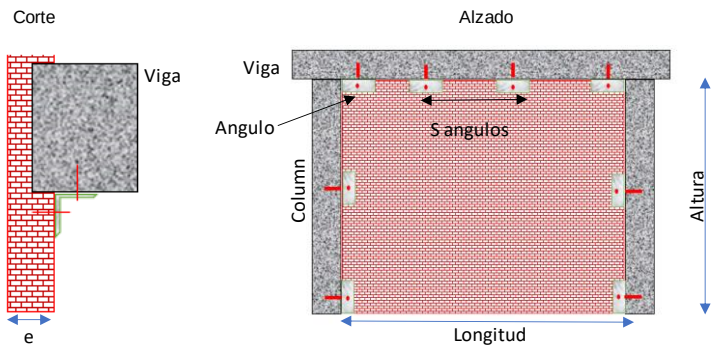
Análisis Sismico
Aa= 0.15
I= 1.25 GRUPO DE USO: III

$$Fp = \frac{0.78 \times 1.00}{3.0} \times 9.81 \times 0.78 > \frac{0.15 \times 1.25}{2} \times 9.81 \times 0.78$$

Fp= 1.99 > 0.72

M= Fp x L/2 = 0.83 Ton-m
V= Fp/2 = 1.00 Ton

Consideracion Geometrica



e= 0.45 m Angulo a Utilizar = L 4x4x1/4"
L= 5.52 m Separacion Angulos= 1.00 m
H= 1.66 m

Diseño Pernos A-325 Rn = 33.7 kg/mm²

Fuerza a traccion	0.18	Ton	Cantidad Pernos	1.0
Fuerza A Corte	0.18	Ton		

Diamtero Pernos

ϕ = 1/2"

Área = 127 mm²

Cortante

$\Sigma\phi P_v$ = 3.20 Ton > 1.00 Ton OK

Diseño Angulos

Angulo	L 4x4x1/4"	Material	A-36	Fu=	40.2 kg/mm²
Longitud	150 mm	Espesor	6.35 mm	Fy =	25.3 kg/mm²

Distancia del ultimo pernos al borde

C = 75 mm

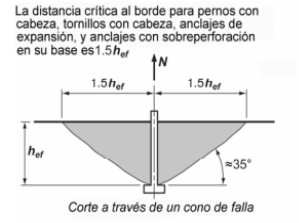
Separacion entre pernos

S= 0 mm

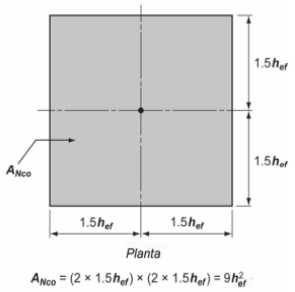
Aplastamiento:	$\Sigma\phi P_p$ =	5.95	>	0.18 ok
Fluencia a cortante:	$\Sigma\phi P_f$ =	13.3	>	0.18 ok
Fractura a cortante:	$\Sigma\phi P_{fr}$ =	15.9	>	0.18 ok

DISEÑO DE ANCLAJE - PISO 7				
Tipo de anclaje				
x	Anclajes postinstalados			
	Anclajes preinstalados			
Características del Anclaje			f_{ya}	400.0 MPa
Diámetro (mm)		Barra (N/8")		Diámetro tomado (mm)
		X	4	12.7
Profundidad de embebido h_{ef} (mm)			150	
FACTORES DE REDUCCIÓN DE RESISTENCIA Φ				
Cargas a tracción			0.75	
Fuerza cortante			0.65	
NSR-10 APÉNDICE C.D.4.2.2				
Diámetro del anclaje				Aplica
Profundidad de embebido				Aplica
C-D.5.1 - Resistencia del acero de un anclaje en tracción				
n	1	N_{sa}	48850.2 N	
A_{se} (mm^2)	97.7			
f_{uta} (MPa)	500.0			
n_t	0.6			
Nsa 4981.2 Kg			OK	
PORCENTAJE DE UTILIZACIÓN DEL ACERO EN TRACCIÓN			4.83%	
C-D.5.2 - Resistencia al arrancamiento del concreto de un anclaje a tracción				
Para un solo anclaje			Para un grupo de anclajes	

(i) Falla del acero

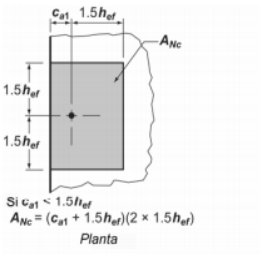


Corte a través de un cono de falla

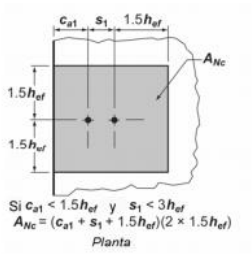


Planta

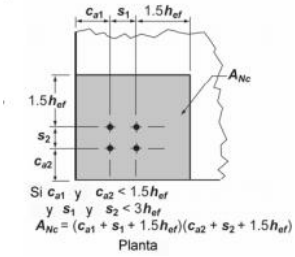
$A_{Nco} = (2 \times 1.5h_{ef}) \times (2 \times 1.5h_{ef}) = 9h_{ef}^2$



Planta



Planta



Planta

Anclaje con sobreperforación en su base	
Anclaje de torsión controlada o de desplazamiento controlado	X
Anclajes sometidos a cargas excentricas	
Anclajes sometidos a cargas concentricas	X

Ψ_{ed}	0.97		Ψ_{ec}	1.000	
Ψ_c	1.25		Ψ_{ed}	0.967733333	
Ψ_{cp}	0.33		Ψ_c	1	
N_b (N)	63652.87		Ψ_{cp}	0	
k_c	7		N_b (N)	63652.87	
C_{a1} (mm)	200.8		k_c	7	
C_{a2} (mm)			e'	0.00000	0.0 mm
			s_2	56	
			s_1	240	

		C_{ac}	600		
		f´c	24.5 MPa	λ	1
A_{Nco}	=	202500	A_{Nco}	=	202500
A_{Nc}	=	191610	A_{Nc}	=	

N_{cb}	N_{cbg}
24383.1 N	0.0 N

C-D.6.2 Resistencia al arrancamiento del concreto en anclajes a cortante

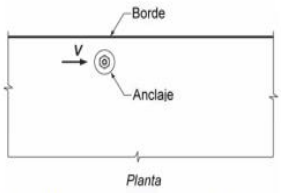
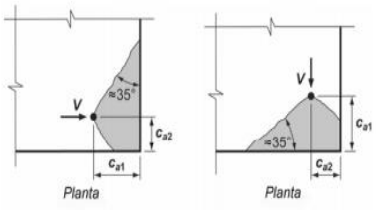
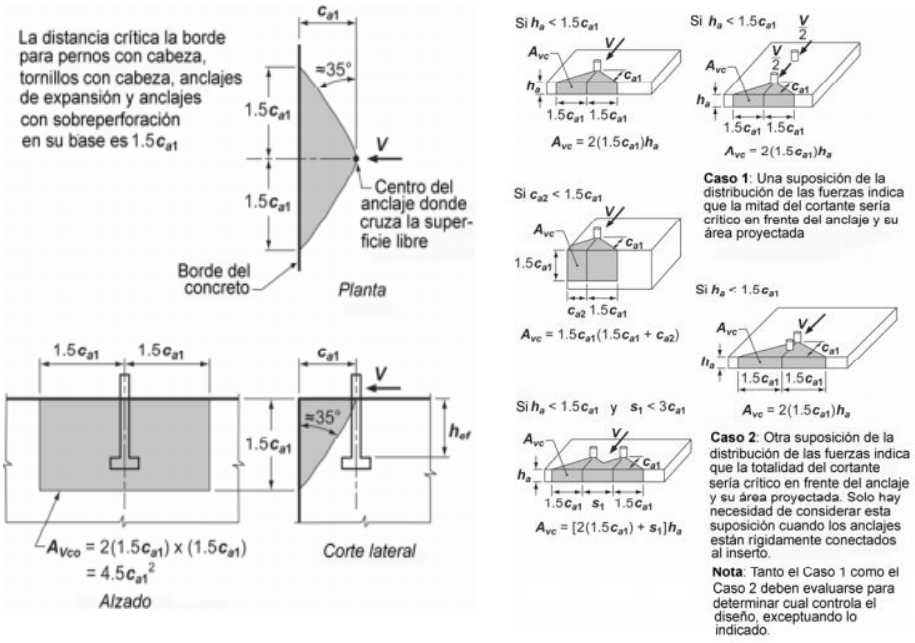


Fig. C-RD.6.2.1 (c) — Fuerza cortante paralela a un borde.



No se presenta fisuracion debido a cargas de servicio	
Si se presenta fisuracion debido a cargas de servicio	x



ψed	0.7		ψec	1.00	
ψc	ver CD.6.2.7		ψed	0.7	
ψc tomado	1.2		ψc	ver CD.6.2.7	
ψh	1.157007635		ψc tomado	1.2	
Vb (N)	54279.01		ψh	1	
			Vb (N)	54279.01	
Avc		135540	Avc		
Avco		181442.88	Avco		181442.88
		Le	150		
		e´v			
		Ca1 (mm)	200.8		
		Ca2 (mm)	0		
		ha (mm)	225		
		F´c	24.5 MPa		
Vcb		39407.1 N	**Vcb**		0.0 N
N_{ua}	180.3 Kg		ΦN_n	1850.7 Kg	Cumple
Vua	180.3 Kg		ΦV_n	2592.20 kg	Cumple
PORCENTAJE DE UTILIDAD DEL PERNO A TRACCIÓN					9.74%
PORCENTAJE DE UTILIDAD DEL PERNO A CORTANTE					6.96%

BUILDING TRUST

Proyecto	HSJD-CAPILLA	1 / 7
N° de proyecto		Versión 1.2.0.7
Contacto	GAL	27/02/2023

Cálculo de anclaje AnchorFix-3001 - Acero al carbono F1554 A36 1/2"

Información sobre el producto

AnchorFix-3001 - Acero al carbono F1554 A36



Material	Acero al carbono F1554 A36
Tipo	Anclaje químico
Homologación	
Profundidad del taladro	70.0 mm
Diámetro nominal de broca	9/16"
Profundidad efectiva del anclaje	70.0 mm

Material

Hormigón (peso normal)	
Fuerza compresora del hormigón	3500 psi (24.1 N/mm²)
Zona	Hormigón fisurado (Zona de tracción)
Hormigón armado	
Armadura para fuerzas de tracción	No
Armadura para fuerzas de cortadura	No
Refuerzo para controlar la fisura	No
No evaluar rotura de hormigón a tracción	No
No evaluar rotura de hormigón a cortadura	No
Condiciones	
Temperatura máxima a corto plazo	55 °C
Temperatura máxima a largo plazo	43 °C
Inspección	Continuo
Condiciones de instalación	Seco
Instrucciones de instalación	Arriba

Geometría

Anclaje		
Configuracion de los anclajes		Anclaje aislado sin agujero rasgado
Eccentricidad		
Desplazamientos	y	0.0 mm
Desplazamientos	z	0.0 mm
Distancias de bordes / Espesor del hormigón		
Distancia al borde superior		300.0 mm
Distancia al borde inferior		200.0 mm
Espesor del hormigón	h	500.0 mm
Dimensiones de la placa de anclaje		
Anchura de la placa de anclaje	y	150.0 mm

Sika Services AG

(P) +41 58 436 6500 (F) +41 58 436 6550
www.sika.com info@sika.com

Cálculo de anclaje AnchorFix-3001 - Acero al carbono F1554 A36 1/2"

Dimensiones de la placa de anclaje

Longitud de la placa de anclaje	z	100.0 mm
Espesor de la placa de anclaje		6.3 mm

Perfil conectado - Excentricidad

Desplazamientos	y	0.0 mm
Desplazamientos	z	0.0 mm

Carga

Carga

Tracción	N_u	2.50 kN
Cortadura	V_{uy}	0.00 kN
Cortadura	V_{uz}	2.50 kN
Momento flector	M_{uy}	0.00 kNm
Momento flector	M_{uz}	0.00 kNm

Condiciones de carga de tracción

Tracción permanente	Si

Condiciones de carga a cortante

Usar anclajes con almohadillas de lechada inyectadas	No

Combinación de carga

Factor de carga	ACI 318 capítulo 9.2

Sísmico

Categoría sísmica C, D, E o F	No

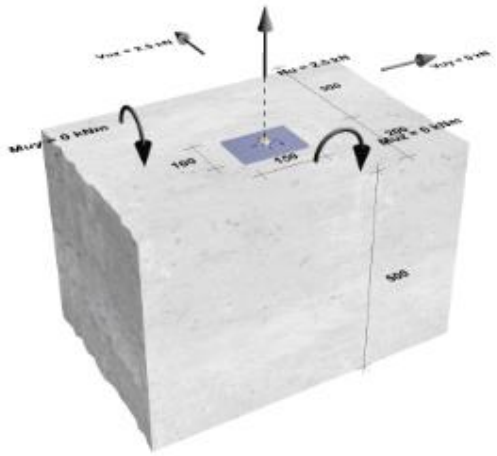
Fuerzas de sección

Anclaje Nr.	Tracción [kN]	Cortadura [kN]
1	2.50 kN	2.50 kN

Sika Services AG

(P) +41 58 436 6500 (F) +41 58 436 6550
www.sika.com info@sika.com

Cálculo de anclaje AnchorFix-3001 - Acero al carbono F1554 A36 1/2"



Verificaciones ACI 318-11 (IBC 2012)

Capacidad total por fallo del acero

$$\beta_N = \frac{N_{ua}}{\Phi N_{sa}} = \frac{2.50\,\text{kN}}{27.45\,\text{kN}}$$

N_{ua} [kN]	Φ	N_{sa} [kN]	ΦN_{sa} [kN]	β_N [%]
2.50	0.75	36.60	27.45	9.11

Sika Services AG

(P) +41 58 436 6600
www.sika.com

(F) +41 58 436 6650
info@sika.com

Cálculo de anclaje AnchorFix-3001 - Acero al carbono F1554 A36 1/2"

Capacidad total por cono del hormigón (Anclaje de control: 1)

$$N_b = k_c \cdot \lambda_a \cdot \sqrt{f_c} \cdot h_{ef}^{1.5}$$

	k_c	λ_a	f_c [N/mm²]	h_{ef} [mm]	N_b [kN]
	7	1.00	24.13	70.0	20.14

$$N_{cb} = \frac{A_{Nc}}{A_{Nc0}} \cdot \psi_{ec,N} \cdot \psi_{ed,N} \cdot \psi_{c,N} \cdot \psi_{cp,N} \cdot N_b$$

	A_{Nc} [mm²]	A_{Nc0} [mm²]	$\psi_{ec,N}$	$\psi_{ed,N}$	$\psi_{c,N}$	$\psi_{cp,N}$
	44100	44100	1.000	1.000	1.000	1.000

	N_b [kN]	N_{cb} [kN]
	20.14	20.14

$$\beta_N = \frac{N_{ua}}{\Phi N_{cb}} = \frac{2.50\,\text{kN}}{13.09\,\text{kN}}$$

	N_{ua} [kN]	Φ	N_{cb} [kN]	ΦN_{cb} [kN]	β_N [%]
	2.50	0.65	20.14	13.09	19.10

Fallo de adhesión - Tracción (Anclaje de control: 1)

$$N_{ba} = \lambda_a \cdot k_{sust} \cdot \tau_{k,cr} \cdot \pi \cdot d \cdot h_{ef}$$

	λ_a	k_{sust}	$\tau_{k,cr}$ [N/mm²]	d [mm]	h_{ef} [mm]	N_{ba} [kN]
	1.00	0.73	7.5	12.7	70.0	15.29

$$N_a = \frac{A_{Na}}{A_{Na0}} \cdot \psi_{ed,Na} \cdot \psi_{ec,Na} \cdot \psi_{cp,Na} \cdot N_{ba}$$

	A_{Na} [mm²]	A_{Na0} [mm²]	$\psi_{ed,Na}$	$\psi_{ec,Na}$	$\psi_{cp,Na}$
	80000	80000	1.000	1.000	1.000

	N_{ba} [kN]	N_a [kN]
	15.29	15.29

$$\beta_N = \frac{N_{ua}}{\Phi N_a} = \frac{2.50\,\text{kN}}{9.94\,\text{kN}}$$

	N_{ua} [kN]	Φ	N_a [kN]	ΦN_a [kN]	β_N [%]
	2.50	0.65	15.29	9.94	25.15

Cálculo de anclaje AnchorFix-3001 - Acero al carbono F1554 A36 1/2"

Fallo de adherencia (sostenida) - Tracción

$$N_{ba} = \lambda_a \cdot k_{sust} \cdot \tau_{k,cr} \cdot \pi \cdot d \cdot h_{ef}$$

	λ_a	k_{sust}	$\tau_{k,cr}$ [N/mm²]	d [mm]	h_{ef} [mm]	N_{ba} [kN]
	1.00	0.73	7.5	12.7	70.0	15.29

$$\beta_N = \frac{N_{ua}}{0.55 \cdot \Phi N_{ba}} = \frac{2.50\,\text{kN}}{5.47\,\text{kN}}$$

	N_{ua} [kN]	Φ	N_{ba} [kN]	$0.55 \cdot \Phi N_{ba}$ [kN]	β_N [%]
	2.50	0.65	15.29	5.47	45.73

Capacidad total por fallo del acero en la fuerza cortante

$$\beta_V = \frac{V_{ua}}{\Phi V_{sa}} = \frac{2.50\,\text{kN}}{14.30\,\text{kN}}$$

	V_{ua} [kN]	Φ	V_{sa} [kN]	ΦV_{sa} [kN]	β_V [%]
	2.50	0.65	22.00	14.30	17.48

Capacidad total por fallo del borde del hormigón - Borde superior (Anclaje de control: 1)

$$V_b = 0.6 \cdot \left(\frac{h_{ef}}{d}\right)^{0.2} \cdot \lambda_a \cdot \sqrt{d} \cdot \sqrt{f_c'} \cdot c_{a1}^{1.5}$$

	h_{ef} [mm]	d [mm]	λ_a	f_c' [N/mm²]	c_{a1} [mm]	V_b [kN]
	70.0	12.7	1.00	24.13	300.0	76.79

$$V_{cb} = \frac{A_{Vc}}{A_{Vc0}} \cdot \psi_{ec,V} \cdot \psi_{ed,V} \cdot \psi_{c,V} \cdot \psi_{h,V} \cdot V_b$$

	A_{Vc} [mm²]	A_{Vc0} [mm²]	$\psi_{ec,V}$	$\psi_{ed,V}$	$\psi_{c,V}$	$\psi_{h,V}$
	405000	405000	1.000	1.000	1.000	1.000

	V_b [kN]	V_{cb} [kN]
	76.79	76.79

$$\beta_V = \sqrt{\left(\frac{V_{ua} \cdot \cos\alpha}{\Phi V_{cb}}\right)^2 + \left(\frac{V_{ua} \cdot \sin\alpha}{2\Phi V_{cb}}\right)^2}$$

	V_{ua} [kN]	α [°]	Φ	V_{cb} [kN]	ΦV_{cb} [kN]	β_V [%]
	2.50	0.00	0.70	76.79	53.75	4.65

Sika Services AG

(P) +41 58 436 6600 (F) +41 58 436 6650
www.sika.com info@sika.com

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Fallo de ruptura del hormigón - Cortante - Grupo de anclajes (Anclaje de control: 1)

$$N_b = k_c \cdot \lambda_a \cdot \sqrt{f_c} \cdot h_{ef}^{1.5}$$

k_c	λ_a	f_c [N/mm²]	h_{ef} [mm]	N_b [kN]
7	1.00	24.13	70.0	20.14

$$N_{cbg} = \frac{A_{Nc}}{A_{Nc0}} \cdot \psi_{ec,N} \cdot \psi_{ed,N} \cdot \psi_{c,N} \cdot \psi_{cp,N} \cdot N_b$$

A_{Nc} [mm²]	A_{Nc0} [mm²]	$\psi_{ec,N}$	$\psi_{ed,N}$	$\psi_{c,N}$	$\psi_{cp,N}$
44100	44100	1.000	1.000	1.000	1.000

N_b [kN]	N_{cbg} [kN]
20.14	20.14

$$N_{ba} = \lambda_a \cdot \tau_{k,cr} \cdot \pi \cdot d \cdot h_{ef}$$

λ_a	$\tau_{k,cr}$ [N/mm²]	d [mm]	h_{ef} [mm]	N_{ba} [kN]
1.00	7.5	12.7	70.0	20.95

$$N_{ag} = \frac{A_{Na}}{A_{N0}} \cdot \psi'_{ed,Na} \cdot \psi'_{ec,Na} \cdot \psi'_{p,Na} \cdot N_{ba}$$

A_{Na} [mm²]	A_{N0} [mm²]	$\psi'_{ed,Na}$	$\psi'_{ec,Na}$	$\psi'_{p,Na}$
80000	80000	1.000	1.000	1.000

N_{ba} [kN]	N_{ag} [kN]
20.95	20.95

$$V_{cpg} = k_{cp} \cdot \min\left(N_{cbg}; N_{ag}\right)$$

k_{cp}	N_{cbg} [kN]	N_{ag} [kN]	V_{cpg} [kN]
2	20.14	20.95	40.28

$$\beta_N = \frac{V_{ua}}{\Phi V_{cpg}} = \frac{2.50\ \text{kN}}{28.19\ \text{kN}}$$

V_{ua} [kN]	Φ	V_{cpg} [kN]	ΦV_{cpg} [kN]	β_N [%]
2.50	0.70	40.28	28.19	8.87

El anclaje seleccionado es aplicable

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Sugerencias

comprobar la capacidad de carga de los anclajes consulte los siguientes documentos:Homologación Técnica EuropeaSe han realizado las siguientes hipótesis para el cálulo: - Se ha comprobado la calidad del material de construcción elegido - todos los anclajes de un grupo son del mismo tipo y tamaño- La placa de anclaje permanece plana durante la cargaSe comprobó la transferencia local de cargas al material base, debiendo comprobarse por separado la transferencia de estas cargas al resto de la estructura.El cálculo se basa en numerosos valores específicos del anclaje. Si se sustituye un anclaje o se modifican los valores de entrada, se requiere un nuevo cálculo. Deben respetarse las exigencias o disposiciones de la homologación técnica de los anclajes, especialmente si los anclajes estan sometidos a cargas dinámicas.
La conversión a unidades métricas puede provocar errores de redondeo.

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(P) +41 58 436 6500 (F) +41 58 436 6550
www.sika.com info@sika.com