July 11, 2018

VIA EMAIL AND HAND DELIVERY

Ms. Melanie A. Bachman
Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Sprint Spectrum Realty Company, L.P. – CT03XC103
Notice of Exempt Modification
26 Washington Street, New London, CT 06320
LAT: 41.35388N
LNG:-72.09786W

Dear Ms. Bachman:

Sprint Spectrum Realty Company L.P. ("Sprint") currently maintains three (3) antennas at the 173' level on the existing rooftop tower located at 26 Washington Street, New London, CT. The property is owned by Frontier Communications. Sprint now intends to replace the three (3) existing antennas with three (3) 800/1900 MHz antennas and three (3) 2500 MHz antennas. These antennas would be installed at the 173' level of the tower. Sprint also intends to replace three (3) existing RRH's with three (3) new RRH's, and install one (1) hybriflex cable.

The existing facility was approved by the City of New London pursuant to an Application for Building Permit dated December 21, 1966. The following is a list of subsequent decisions:

1. Sprint PCS notice of intent to modify an existing telecommunications facility located on Washington Street in New London
2. EM-SPRINT-095-131008 – Sprint Spectrum L.P. notice of intent to modify an existing telecommunications facility located at 26 Washington Street, New London
3. EM-SPRINT-095-150831 – Sprint Spectrum L.P. notice of intent to modify an existing telecommunications facility located at 26 Washington Street, New London

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. 16-50j-72(b)(2). In accordance with R.C.S.A. 16-50j-73, a copy of this letter is being sent to Michael Passero, Mayor for the City of New London, Felix Reyes, Director of the Office of Development & Planning for the City of New London, as well as the property owner and the tower owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. 16-50j-72(b)(s).

1. The proposed modifications will not result in an increase in the height of the existing structure. Sprint proposes to replace three (3) existing antennas with six (6) new antennas at a centerline height of 173' on the existing 206'-11" rooftop tower.

2. The proposed modifications will not require the extension of the site boundary. Sprint will replace two (2) existing cabinets and install one (1) fiber distribution cabinet in the existing equipment room on the 5th floor. Thus, there will be no effect on the site compound or Sprint's leased area.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria. The incremental effect of the proposed changes will be negligible.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations, Sprint's operations at the site will result in a power density of 1.83%; the combined site operations will result in a total power density of 5.21%.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site. Sprint will install antennas on existing mounts.

6. The existing structure and its foundation can support the proposed loading. As indicated in the attached structural analysis the subject tower is adequate to support the proposed Sprint equipment upgrade.

For the foregoing reasons, Sprint respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitute an exempt modification under R.C.S.A. 16-50j-72(b)(2).

Respectfully submitted,

By: _____
Eric Dahl, Agent for Sprint
860-227-1975
edahl@transcendwireless.com

Attachments

cc: The Honorable Michael E. Passero, Mayor, City of New London

Tammy Daughtery, Director of the Office of Development & Planning, City of New London
Frontier Communications, Tower Owner
Southern New England Telephone Company, Property Owner

26 WASHINGTON ST

Location	26 WASHINGTON ST	**Mblu**	F12/ 144/ 9/ /
Acct#	29/ 144/ 9/ /	**Owner**	SOUTHERN NEW ENGLAND TEL CO
Assessment	$1,785,000	**Appraisal**	$2,550,000
PID	4665	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2013	$2,239,400	$310,600	$2,550,000
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2013	$1,567,580	$217,420	$1,785,000

Owner of Record

Owner	SOUTHERN NEW ENGLAND TEL CO	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	401 MERRITT SEVEN NORWALK, CT 06851	**Book & Page**	294/ 611
		Sale Date	01/01/1700

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
SOUTHERN NEW ENGLAND TEL CO	$0		294/ 611	01/01/1700

Building Information

Building 1 : Section 1

Year Built:	1961
Living Area:	66,688
Replacement Cost:	$5,256,121
Building Percent	47

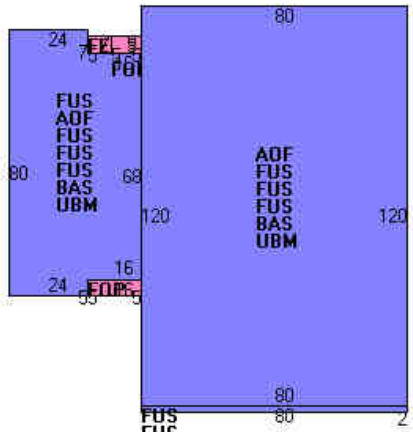
Good:
Replacement Cost
Less Depreciation: $2,470,400

Building Attributes	
Field	**Description**
STYLE	Telephone Bldg
MODEL	Commercial
Grade	Average
Stories:	5
Occupancy	1
Exterior Wall 1	Brick Veneer
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Tar & Gravel
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Floor 1	Vinyl/Asphalt
Interior Floor 2	
Heating Fuel	Oil
Heating Type	Hot Water
AC Type	Central
Bldg Use	OTH MTR SS
Total Rooms	
Total Bedrms	00
Total Baths	0
Conv Type	
1st Floor Use:	3380
Heat/AC	HEAT/AC SPLIT
Frame Type	STEEL
Baths/Plumbing	AVERAGE
Ceiling/Wall	SUS-CEIL & WL
Rooms/Prtns	AVERAGE
Wall Height	16
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos/NewLondonCTPhotos//\00\01\

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
FUS	Upper Story, Finished	41,472	41,472
AOF	Office, (Average)	12,608	12,608
BAS	First Floor	12,608	12,608
FEP	Porch, Enclosed, Finished	35	0
FOP	Porch, Open, Finished	285	0
UBM	Basement, Unfinished	12,768	0
		79,776	66,688

Extra Features

Extra Features				Legend
Code	**Description**	**Size**	**Value**	**Bldg #**

ELS1	Pass Stops	6 UNITS	$10,600	1
ELV1	Elevator, Pass	1 UNITS	$37,600	1
SPR1	SPRINKLERS-WET	9600 S.F.	$4,500	1

Land

Land Use

Use Code	3380
Description	OTH MTR SS
Zone	CBD2
Neighborhood	CBD2
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	1.55
Frontage	0
Depth	0
Assessed Value	$217,420
Appraised Value	$310,600

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
PAV1	PAVING-ASPHALT			54000 S.F.	$81,000	1
FN2	FENCE-5' CHAIN			248 L.F.	$2,500	1
GT1	GATE			5 UNITS	$1,800	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$2,239,400	$310,600	$2,550,000
2015	$2,239,400	$310,600	$2,550,000
2014	$2,608,400	$310,600	$2,919,000

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$1,567,580	$217,420	$1,785,000
2015	$1,567,580	$217,420	$1,785,000
2014	$1,825,880	$217,420	$2,043,300

PROJECT INFORMATION:

TOWER INFORMATION

CASCADE: CT03XC103

ADDRESS: 26 WASHINGTON STREET
NEW LONDON, CT 06320
NEW LONDON COUNTY

LAT: 41.35388°
LONG: -72.09786°
SITE TYPE: 206'-11" ROOFTOP TOWER

LANDLORD

SOUTHERN NEW ENGLAND TEL CO
PHONE: (800) 921-8102

APPLICANT

SPRINT
1 INTERNATIONAL BLVD., SUITE 800
MAHWAH, NJ 07495
CONTACT: TBD
PHONE: TBD
EMAIL: TBD

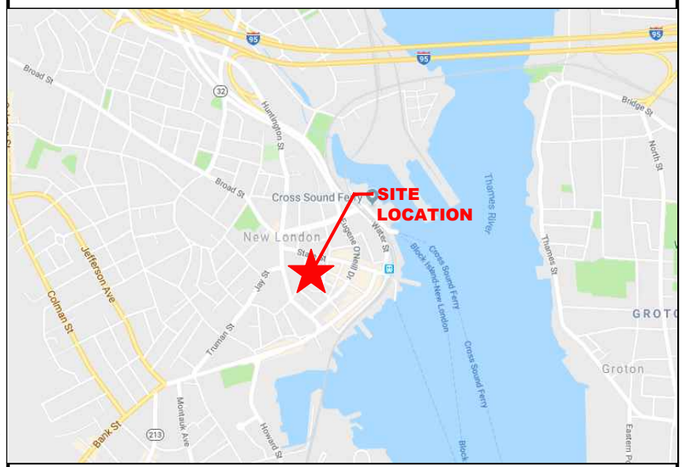
A&E FIRM

RAMAKER & ASSOCIATES, INC.
CONTACT: KEITH BOHNSACK
PROJECT MANAGER
PHONE: (608) 643-4100
EMAIL: kbohnsack@ramaker.com

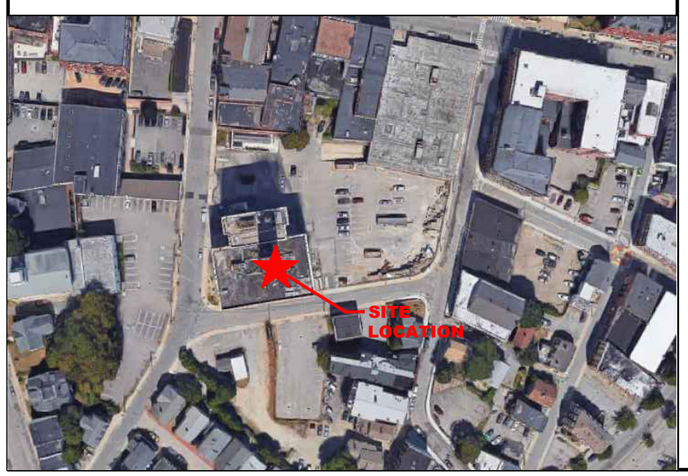
SCOPE OF WORK:

- ADD (6) NEW ANTENNAS ON EXISTING PIPE MASTS
- REPLACE (3) EXISTING RRHS WITH (3) NEW RRHS
- ADD (1) HYBRIFLEX CABLE
- REPLACE EXISTING 9928 BTS CABINET WITH NEW 9927 BTS CABINET
- REPLACE EXISTING BBU CABINET WITH NEW 60ECv2 BBU CABINET

VICINITY MAP:



AERIAL MAP:



SHEET INDEX:

SHEET #	SHEET DESCRIPTION	REVISION
T-1	COVER SHEET & SITE PLAN	-
A-1	ANTENNA LAYOUTS & EQUIPMENT LAYOUT	-
A-2	BUILDING/TOWER ELEVATION	-
A-3	ANTENNA DETAILS	-
A-4	ANTENNA SCHEDULE & DETAILS	-
A-5	PLUMBING DIAGRAM & CABINET DETAILS	-
A-6	CABINET DETAILS	-

CODE COMPLIANCE:

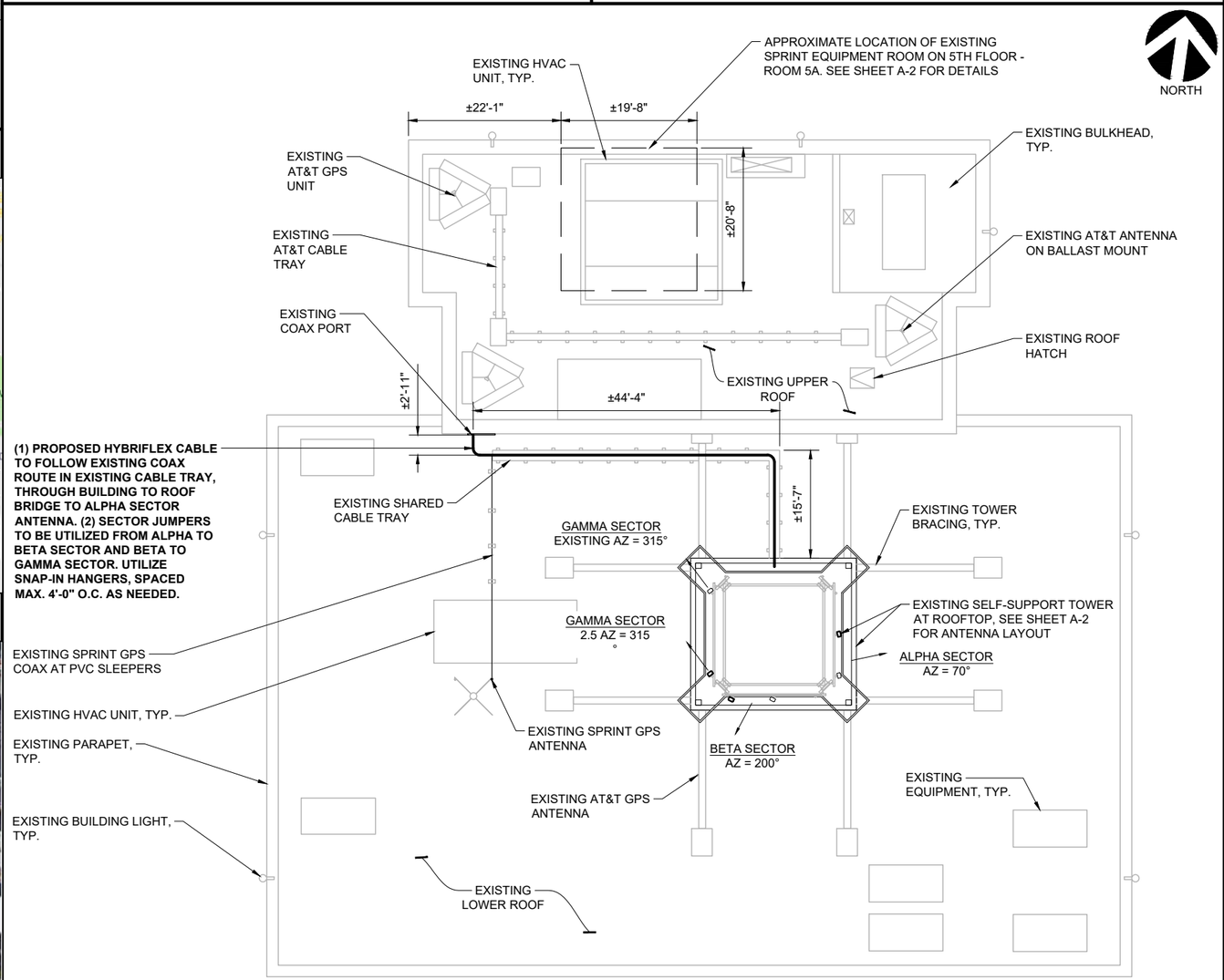
ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

1. INTERNATIONAL BUILDING CODE
2. ANSI/TIA-222 STRUCTURAL STANDARD FOR ANTENNA STRUCTURES
3. NFPA 780 - LIGHTNING PROTECTION CODE
4. NATIONAL ELECTRIC CODE

811 Know what's **below.** **Call** before you dig.
www.call811.com

MIMO UPGRADE

SITE CASCADE:
CT03XC103



OVERALL SITE PLAN (1)
SCALE: 1" = 20'

Sprint
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495

RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED
123 Broadway, Woodcliff Lake, NJ 07677
608-643-4100 www.Ramaker.com
Sauk City, WI • Willmar, MN
Woodcliff Lake, NJ • Bayamon, PR

Transcend Wireless
10 INDUSTRIAL AVE., SUITE 3
MAHWAH, NJ 07430

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT · JAMES R. SKOWRONSKI · 26266 · LICENSED PROFESSIONAL ENGINEER

Signature: 5/15/2018 Date:

MARK	DATE	DESCRIPTION

ISSUE PHASE: FINAL
DATE ISSUED: 05/15/2018

PROJECT TITLE:
CT03XC103

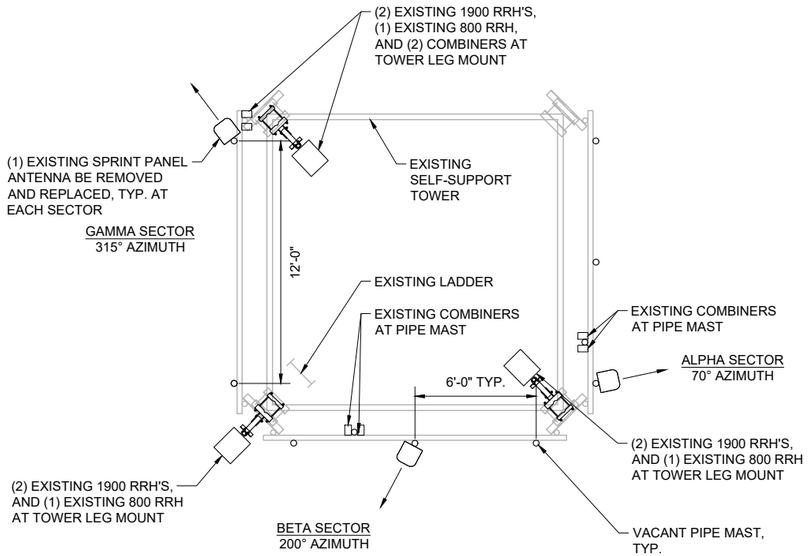
PROJECT INFORMATION:
26 WASHINGTON STREET
NEW LONDON, CT 06320
NEW LONDON COUNTY

SHEET TITLE:
COVER SHEET & SITE PLAN

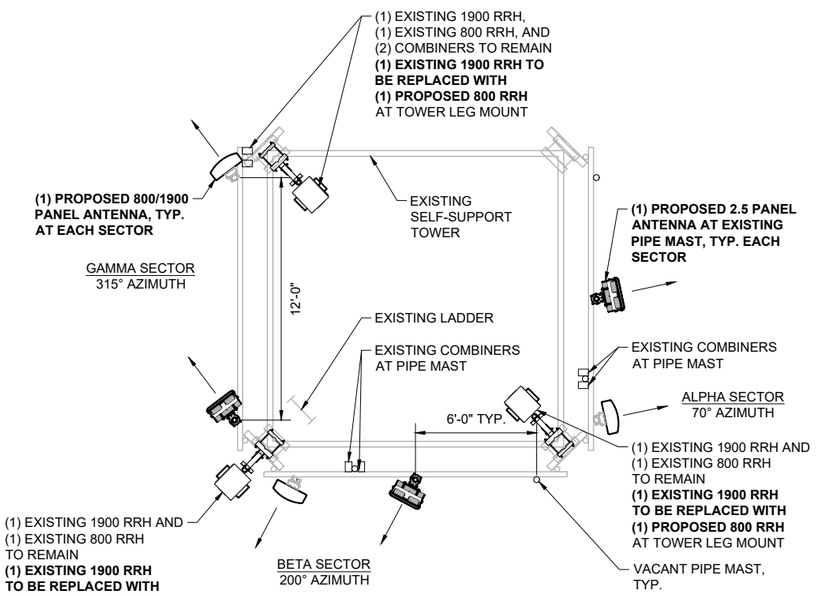
0 10' 20' 40'
11" x 17" - 1" = 20'
22" x 34" - 1" = 10'

PROJECT NUMBER: 37750
SHEET NUMBER: T-1

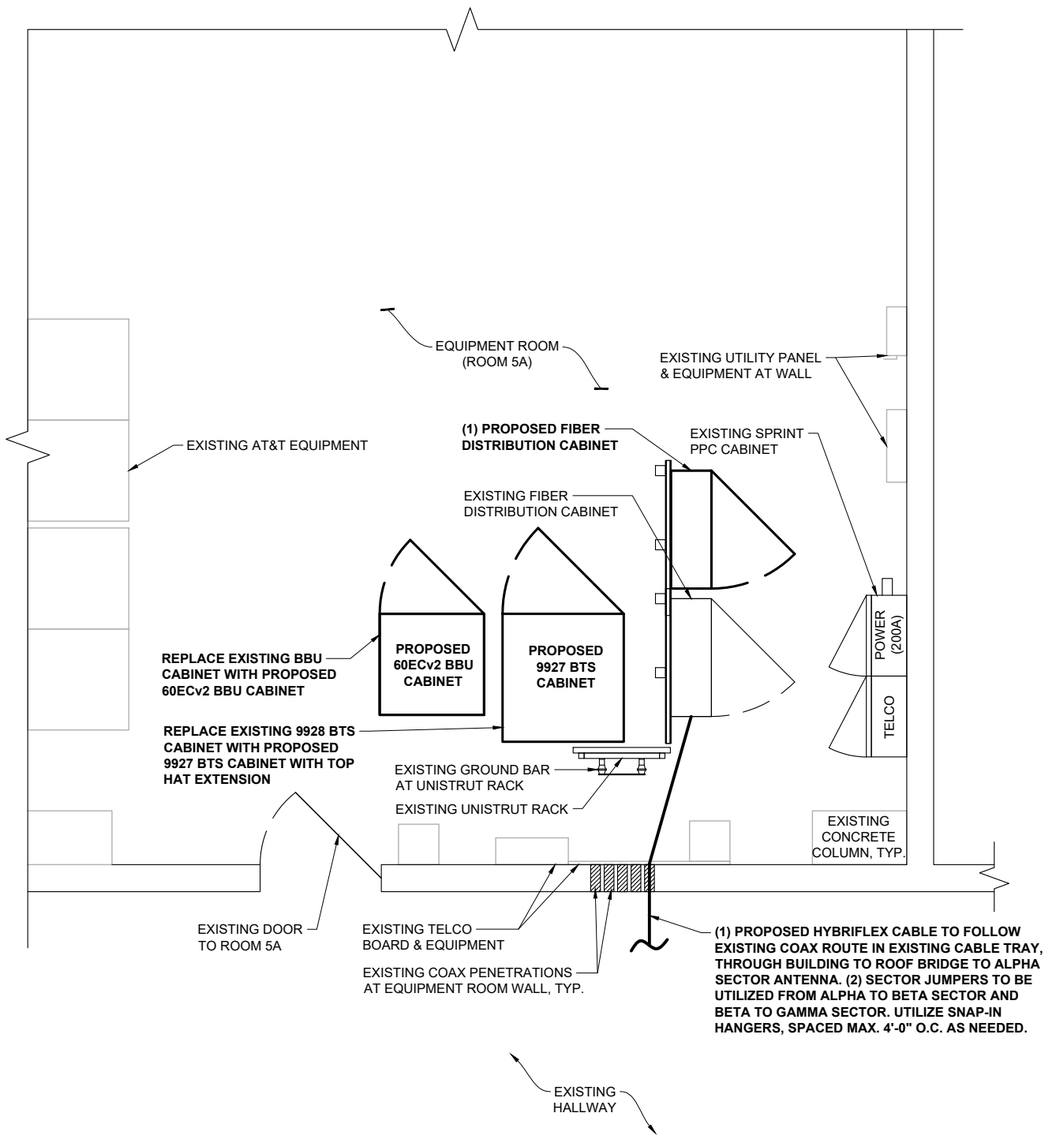
I:\37700\37750\CAD\37750_CT03XC103_MIMO_CDs.dwg Printed by: bwitmer on May 15, 2018 - 6:03pm



EXISTING ANTENNA PLAN 1
SCALE: NTS



PROPOSED ANTENNA PLAN 2
SCALE: NTS



EQUIPMENT PLAN 3
SCALE: 1" = 3.75'

NORTH

Sprint
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495

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MAHWAH, NJ 07430

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DATE ISSUED: 05/15/2018

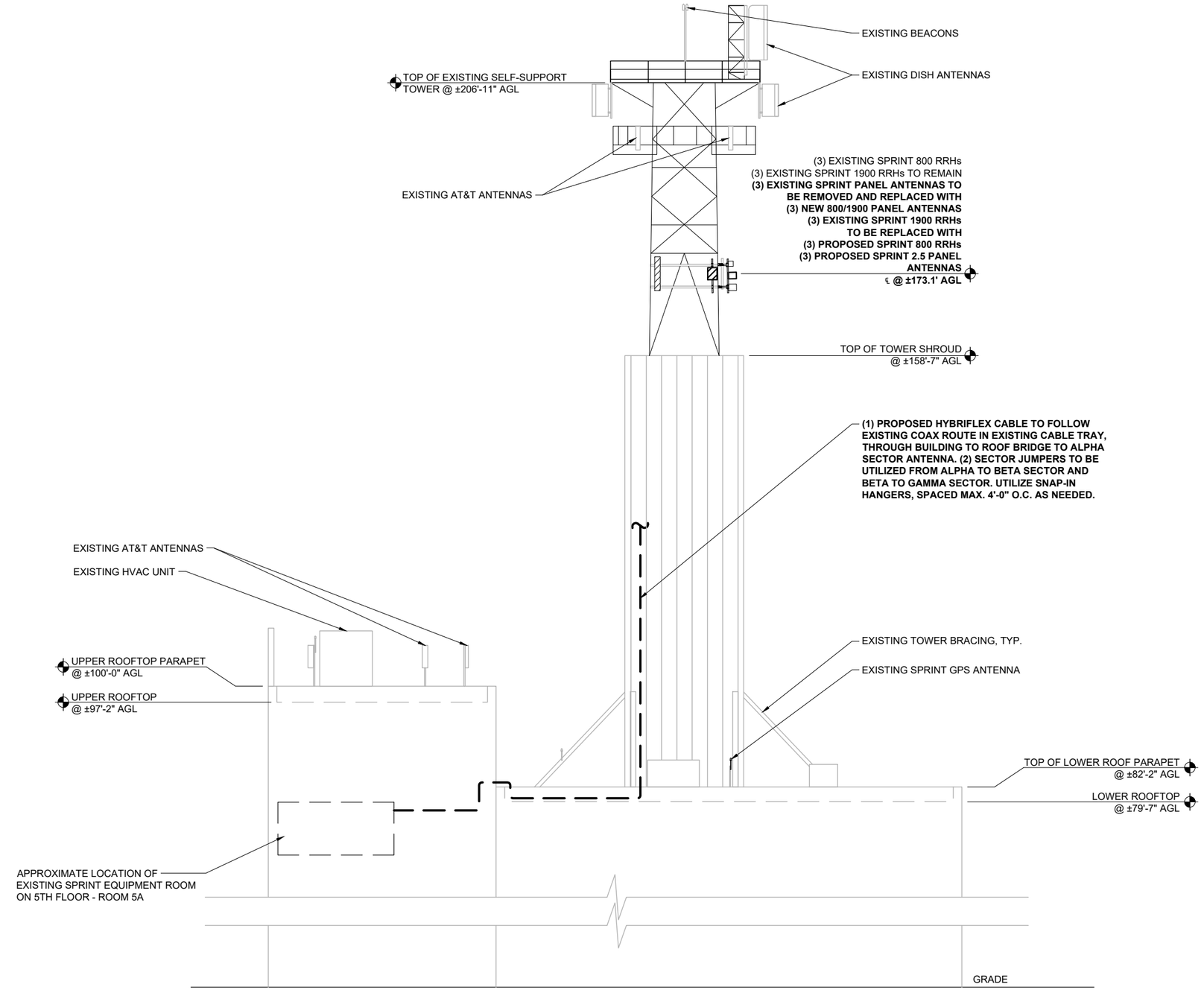
PROJECT TITLE:
CT03XC103

PROJECT INFORMATION:
26 WASHINGTON STREET
NEW LONDON, CT 06320
NEW LONDON COUNTY

SHEET TITLE:
ANTENNA LAYOUTS &
EQUIPMENT LAYOUT

0 1.875' 3.75' 7.5'
11" x 17" - 1" = 3.75'
22" x 34" - 1" = 1.875'

PROJECT NUMBER: 37750
SHEET NUMBER: A-1



BUILDING/TOWER ELEVATION (WEST) 1

SCALE: 1" = 20'

Sprint

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MARK	DATE	DESCRIPTION

ISSUE PHASE: FINAL
DATE ISSUED: 05/15/2018

PROJECT TITLE:

CT03XC103

PROJECT INFORMATION:
26 WASHINGTON STREET
NEW LONDON, CT 06320
NEW LONDON COUNTY

SHEET TITLE:

BUILDING/TOWER ELEVATION

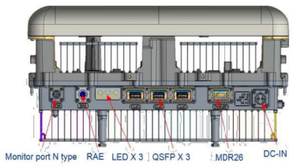
0 10' 20' 40'

11" x 17" - 1" = 20'
22" x 34" - 1" = 10'

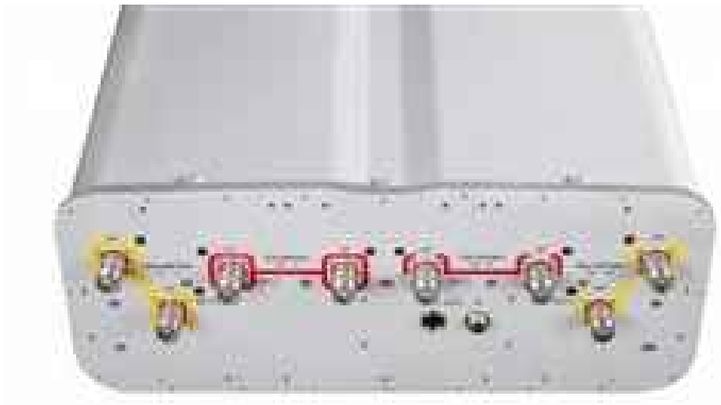
PROJECT NUMBER: 37750

SHEET NUMBER: A-2

MECHANICAL	
DIMENSION (HxWxD)	25.6" x 19.7" x 9.64"
WEIGHT	103.7 lbs



ANTENNA MODEL: NOKIA #AAHC - ANTENNA SPECS



MECHANICAL	
DIMENSION (HxWxD)	72.0" x 19.6" x 7.8"
WEIGHT	77.4 lbs

ANTENNA MODEL: COMMSCOPE #NNVV-65B-R4 - ANTENNA SPECS

800MHz 2X50W Remote Radio Head (RRH)

Simultaneous CDMA & LTE Multi technology RRH 862-869 MHz

- Any combination of CDMA and LTE carriers supported by 100W RF Power

2 CPRI-like Optical Connections for daisy chaining

Software Switchable External Filter for use before Public Safety is cleared

Dimensions:	w/o Filter	w/ Filter
Height:	480 mm (19")	480 mm (19")
Width:	330 mm (13")	330 mm (13")
Depth:	218 mm (8.6")	310 (12.2")
Weight:	24 kg (53 lbs)	29 kg (64 lbs)
	49 liters, <29kg	

Power Supply: -48 VDC

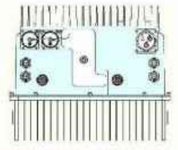
Power Consumption: <400W Typical

Operating Temp range -40° C to +55° C

Option to mount on Ground at tower base

Front/Top View

Bottom View



Alcatel-Lucent's 800 RRH satisfies Sprint's requirements.

MECHANICAL	
DIMENSION (HxWxD)	19" x 13" x 12.2"
WEIGHT	64 lbs

RRH MODEL: ALU #800 MHz 2x50W - RADIO SPECS

Sprint

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DATE ISSUED: 05/15/2018

PROJECT TITLE:

CT03XC103

PROJECT INFORMATION:
26 WASHINGTON STREET
NEW LONDON, CT 06320
NEW LONDON COUNTY

SHEET TITLE:

ANTENNA DETAILS

SCALE: NONE

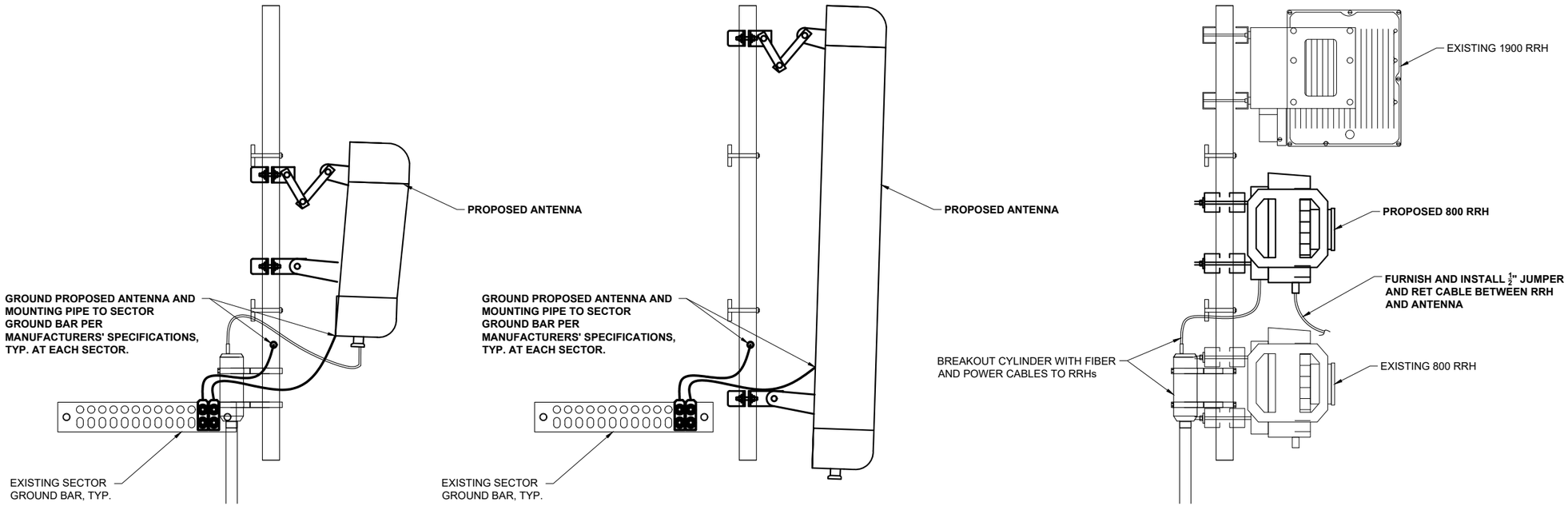
PROJECT NUMBER: 37750

SHEET NUMBER: A-3

800/1900/2.5 EQUIPMENT SCHEDULE

SECTOR	POSITION	ANTENNA MAKE/MODEL	AZIMUTH	CENTERLINE	RRH	CABLE TYPE	CABLE LENGTH	JUMPER TYPE
ALPHA	1	VACANT	-	-	-	-	-	-
	2	**PROPOSED 2.5 ANTENNA (NOKIA AAHC)**	**70°**	**173'-1"**	**INTEGRATED WITHIN PROPOSED ANTENNA**	**(1) PROPOSED HYBRIFLEX**	**157'**	**-**
	3	**PROPOSED 800/1900 PANEL ANTENNA (COMMSCOPE NNVV-65B-R4)**	**70°**	**173'-1"**	**(1) PROPOSED RRH 800 MHz 2x50W**	EXISTING HYBRIFLEX	157'	**8' HYBRID**
					(1) EXISTING RRH 800 MHz 2x50W			EXISTING
					(1) EXISTING RRH 1900 4X45 65 MHz			
BETA	1	VACANT	-	-	-	-	-	-
	2	**PROPOSED 2.5 ANTENNA (NOKIA AAHC)**	**200°**	**173'-1"**	**INTEGRATED WITHIN PROPOSED ANTENNA**	**SHARED W/ ALPHA & GAMMA**	**157'**	**-**
	3	**PROPOSED 800/1900 PANEL ANTENNA (COMMSCOPE NNVV-65B-R4)**	**200°**	**173'-1"**	(1) EXISTING RRH 800 MHz 2x50W	EXISTING HYBRIFLEX	157'	EXISTING
					(1) EXISTING RRH 1900 4X45 65 MHz			
					(1) PROPOSED RRH 800 MHz 2x50W			**8' HYBRID**
GAMMA	**1**	**PROPOSED 2.5 ANTENNA (NOKIA AAHC)**	**315°**	**173'-1"**	**INTEGRATED WITHIN PROPOSED ANTENNA**	**SHARED W/ ALPHA & GAMMA**	**157'**	**-**
	2	**PROPOSED 800/1900 PANEL ANTENNA (COMMSCOPE NNVV-65B-R4)**	**315°**	**173'-1"**	**(1) PROPOSED RRH 800 MHz 2x50W**	EXISTING HYBRIFLEX	157'	**8' HYBRID**
					(1) EXISTING RRH 800 MHz 2x50W			EXISTING
					(1) EXISTING RRH 1900 4X45 65 MHz			

EQUIPMENT & CABLE SCHEDULE (1)
SCALE: NTS



ANTENNA & RRH MOUNTING DETAIL (2)
SCALE: NTS

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Signature: James R. Skowronski Date: 5/15/2018

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ISSUE PHASE: FINAL
DATE ISSUED: 05/15/2018

PROJECT TITLE:
CT03XC103

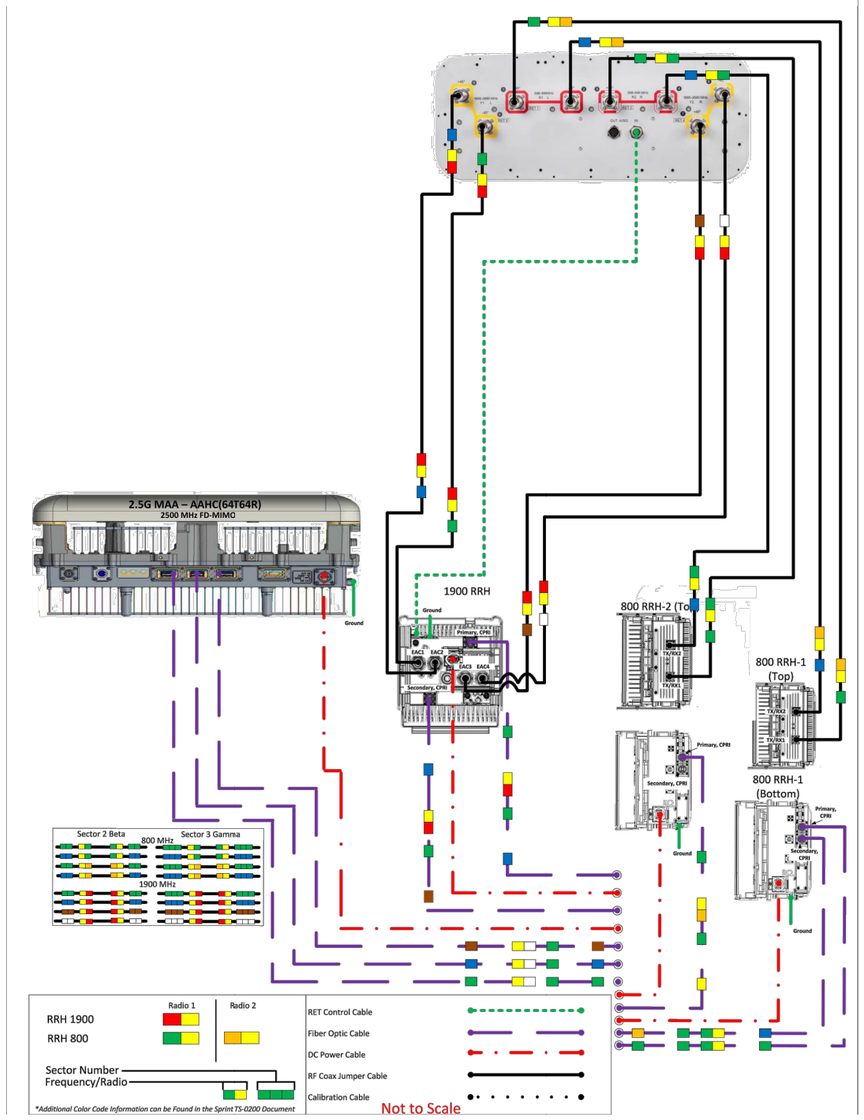
PROJECT INFORMATION:
26 WASHINGTON STREET
NEW LONDON, CT 06320
NEW LONDON COUNTY

SHEET TITLE:
ANTENNA SCHEDULE & DETAIL

SCALE: NONE

PROJECT NUMBER: 37750
SHEET NUMBER: A-4

ALU 21-MIMO NNVV-65B-R4 wo Filters



ANTENNA COLOR CODING CHART (1)
SCALE: NTS

TECHNICAL SPECIFICATIONS

PHYSICAL DIMENSIONS
¬ Height: 269.9 mm (10.6 in)
¬ Width: 751.6 mm (29.5 in)
¬ Depth: 512.25 mm (20.1 in)

WEIGHT
¬ 17.2 kg (~38 lbs) unloaded
¬ Up to 50.0 kg (~110 lbs) fully loaded

POWER
Power supply:
¬ -48 DC – DC Converter
¬ 230V AC (single phase)
Rectifier:
¬ up to 4.5kW DC -48V output power
¬ Rectifier redundancy N+1

SUPPORTED TELECOM EQUIPMENT
¬ LTE 9926 BBU
¬ CDMA 9926 BBU
¬ SAR Aggregation router

OPERATING ENVIRONMENT
¬ Outdoor temperature range: -40°C to +50°C
¬ Direct Air Cooling
¬ Enclosure:
¬ IP46 (International Protection rating)
¬ Zone 4 Earthquake

STANDARDS COMPLIANCY
¬ UL 60950-1 / CAN/CSA C22.2 No. 60950-1-07
¬ UL 50/50E CSA C22.2 No. 94.1- 07/94.2-07
¬ EN50272-2
¬ EIA-310-D

EMC& ENVIRONNEMENTAL CONDITIONS
¬ FCC Part 15 class B
¬ GR-63-CORE
¬ GR-487-CORE
¬ GR-1089-CORE

"Top Hat" shown in Power Annex configuration

TOP HAT CABINET EXTENSION (2)
SCALE: NTS

Sprint
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495

RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED
123 Broadway, Woodcliff Lake, NJ 07677
608-643-4100 www.Ramaker.com
Sauk City, WI • Willmar, MN
Woodcliff Lake, NJ • Bayamon, PR

Transcend Wireless
10 INDUSTRIAL AVE., SUITE 3
MAHWAH, NJ 07430

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT · JAMES R. SKOWRONSKI · 26266 · LICENSED PROFESSIONAL ENGINEER

Signature: James R Skowronski Date: 5/15/2018

MARK	DATE	DESCRIPTION

ISSUE PHASE: FINAL
DATE ISSUED: 05/15/2018

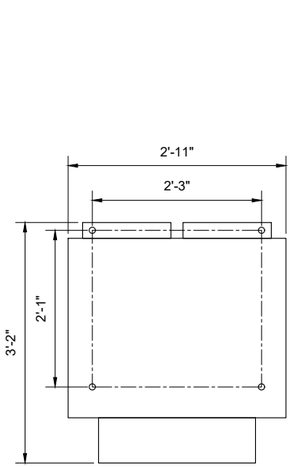
PROJECT TITLE:
CT03XC103

PROJECT INFORMATION:
26 WASHINGTON STREET
NEW LONDON, CT 06320
NEW LONDON COUNTY

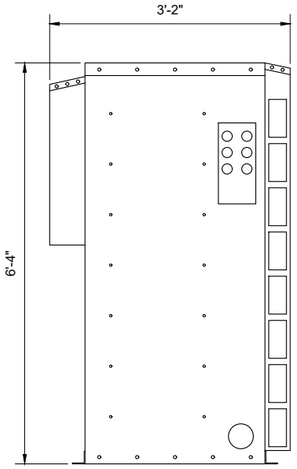
SHEET TITLE:
PLUMBING DIAGRAM & CABINET DETAILS

SCALE: NONE

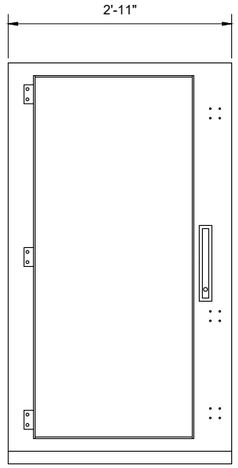
PROJECT NUMBER: 37750
SHEET NUMBER: A-5



TOP VIEW



SIDE VIEW



FRONT VIEW

FRONT VIEW
60ECv2 BATTERY CABINET
(FRONT DOOR REMOVED)

REAR VIEW
60ECv2 BATTERY CABINET
(REAR PANEL REMOVED)

Cabinets	Configuration	Shipped Weight including pallet (estimate)	Maximum Installed Weight (estimate)	Reference Dimensions (Width x Depth x Height)
9927 Distributed Base Station Outdoor Cabinet with Integrated Power	Half loaded • CDMA • One BBU • One 7210 • One SAR 8 • Three DC-DC convertors	470 kg (1033 lbs)	430 kg (945 lbs)	900 mm x 960 mm x 1925 mm (35.4 inches x 37.8 inches x 75.8 inches)
	Fully loaded • CDMA • Four BBUs • Two 7210s • One SAR 8 • Six DC-DC convertors • 8 Injectors	529 kg (1162 lbs)	489 kg (1074 lbs)	

General Specifications

Cabinet Dimensions:	Height: 60 in. (152.4 cm) Width: 31 in. (78.7 cm) Depth: 30 in. (76.2 cm)
Approximate Weight:	425 lbs., (Empty)
Cabinet Operating Temperature Range:	-40°C to 46°C

9927 DISTRIBUTED BASE STATION
OUTDOOR CABINET DETAIL (1)
SCALE: NTS

BATTERY BACKUP CABINET
DETAIL (60ECv2) (2)
SCALE: NTS

Sprint
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495

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Sauk City, WI • Willmar, MN
Woodcliff Lake, NJ • Bayamon, PR

Transcend Wireless
10 INDUSTRIAL AVE., SUITE 3
MAHWAH, NJ 07430

Certification & Seal:
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.

STATE OF CONNECTICUT · JAMES R. SKOWRONSKI · 26266 LICENSED PROFESSIONAL ENGINEER

Signature: James R. Skowronski Date: 5/15/2018

MARK	DATE	DESCRIPTION

ISSUE PHASE: FINAL
DATE ISSUED: 05/15/2018

PROJECT TITLE:
CT03XC103

PROJECT INFORMATION:
26 WASHINGTON STREET
NEW LONDON, CT 06320
NEW LONDON COUNTY

SHEET TITLE:
CABINET DETAILS

SCALE: NONE

PROJECT NUMBER: 37750
SHEET NUMBER: A-6

RAMAKER & ASSOCIATES, INC.

May 14, 2018

Mike Kithcart
Transcend Wireless
10 Industrial Avenue, Suite 3
Mahwah, NJ 07430

Ramaker & Associates, Inc.
855 Community Drive
Sauk City, WI 53583

SUBJECT: **STRUCTURAL ASSESSMENT**
126-FOOT ROOFTOP SELF-SUPPORT TOWER

CARRIER: **SPRINT**

SITE: **CT03XC103**
26 WASHINGTON STREET
NEW LONDON, NEW LONDON COUNTY, CONNECTICUT 06320
RAMAKER & ASSOCIATES PROJECT NUMBER: 37750

RESULTS: **TOWER:** **87.0%** **PASS**

Dear Mike Kithcart:

Ramaker & Associates, Inc. (RAMAKER) respectfully submits this structural assessment for the above-mentioned site. The purpose of this report is to determine the structural integrity of the existing structure with the existing and proposed loading. Engineering recommendations regarding the analysis results are provided in the following pages.

RAMAKER developed a finite element model of the tower using tnxTower and RISA analysis software. All information contained herein is valid only for the described structure configuration and loading conditions. RAMAKER reserves the right to modify our recommendations should alterations to the tower loading occur.

If you have any questions or comments, please do not hesitate to contact our office.

Sincerely,

RAMAKER & ASSOCIATES, INC.

Ryan J. Nelson
Project Engineer

James R. Skowronski, P.E.
Supervising Engineer

STATE OF CONNECTICUT
JAMES R. SKOWRONSKI
26266
LICENSED
PROFESSIONAL ENGINEER

ANALYSIS CRITERIA

State Building Code	2016 CT State Building Code
Adopted Building Code	2012 IBC
Referenced Standard	TIA-222-G
Risk Category	II
Ultimate Design Wind Speed, V_{ult}	135 mph (3 sec. gust)
Nominal Design Wind Speed, V_{asd}	105 mph (3 sec. gust)
Design Wind Speed w/ Ice	50 mph (3 sec. gust)
Ice Thickness	3/4 inch
Exposure Category	C
Topographic Category	1
Crest Height	N/A

SUPPORTING DOCUMENTATION

- Structural analysis by Malouf Engineering Intl., Inc., job number CT02769S-11V0, dated June 21, 2011
- Tower mapping report by Hightower Solutions, dated July 01, 2015
- Structural analysis by RAMAKER, job number 30511, dated June 13, 2017
- Construction drawings by RAMAKER, project number 37750
- Site visit(s) conducted by RAMAKER
- Other pertinent data procured or assumed by RAMAKER during site due diligence activities

TOWER LOADING

RAMAKER understands that the loading to be used for this analysis will consist of the antenna equipment, mount, and cable configurations as shown in the following chart:

Elevation	Appurtenance	Mount	Coax	Owner	Status
221.9	Lightning Rod	(1) 13' Extension	--	Tower	Existing
220.3	(2) Beacons		(1) 1		
215.1	(2) Gabriel USR10P-59FP	(2) Truss Frames	(2) EW52	AT&T	
203.6	---	Pipe Mount	--	Unknown	Existing
199.6	---	Pipe Mount	--	Unknown	Existing
196.6	(3) Powerwave 7770.00	Handrail	(12) 1-5/8 (6) DC (3) Fiber	AT&T	Existing
	(3) Powerwave 7770.00				
	(3) Raycap DC6-48-60-18-8F				
	(6) Powerwave LGP21401				
	(3) Andrew SBNHH-1D65A				
	(3) Ericsson RRUS-32				
196.3	---	Pipe Mount	--	Unknown	Existing
173.1	**(3) RFS APXV9ERR18-C**	(3) 16' Face Mounts	(1) 1-1/4 Hybrid (6) 1-5/8 **(1) 1-1/4 Hybrid**	Sprint	**Remove**
	(3) ALU 1900 MHz RRUs				
	(3) ALU 1900 MHz RRUs				Existing
	(3) ALU 800 MHz RRUs				
	(3) Combiners				
	(3) Commscope NNVV-65B-R4				**Proposed**
	(3) Nokia AAHC				
	(3) ALU 800MHz RRH 2x50W				

TOWER RESULTS

The maximum tower member stress capacities under the loading conditions previously described are as follows:

Component Type	Percent Capacity	Pass/Fail
Leg	48.1	Pass
Diagonal	85.2	Pass
Horizontal	35.5	Pass
Secondary Horizontal	25.1	Pass
Redundant Horizontal	7.4	Pass
Redundant Diagonal	84.5	Pass
Redundant Sub Horizontal	41.0	Pass
Redundant Vertical	87.0	Pass
Inner Bracing	31.9	Pass
Bolts	49.4	Pass
RATING	**87.0**	**PASS**

Note: A rating of 105% or less is within engineering tolerances and considered acceptable.

Results of the analysis show that the existing tower will be stressed to a maximum of 87.0 percent of capacity. Therefore, the existing tower will pass the TIA-222-G analysis requirements under proposed loading conditions.

BUILDING STRUCTURE

The tower connection to the building was determined to provide sufficient capacity under the proposed loading configuration. Therefore, the building supporting structure was assumed to provide adequate support.

LIMITATIONS

The recommendations contained within this report were developed using the supporting documentation as previously described. All recommendations pertain only to the proposed antenna installation activities as described in this report. RAMAKER assumes no responsibility for failures caused by factors beyond our control. These include but are not limited to the following:

- Missing, corroding, and/or deteriorating members
- Improper manufacturing and/or construction
- Improper maintenance

RAMAKER assumes no responsibility for modifications completed prior to or hereafter in which RAMAKER was not directly involved. These modifications include but are not limited to the following:

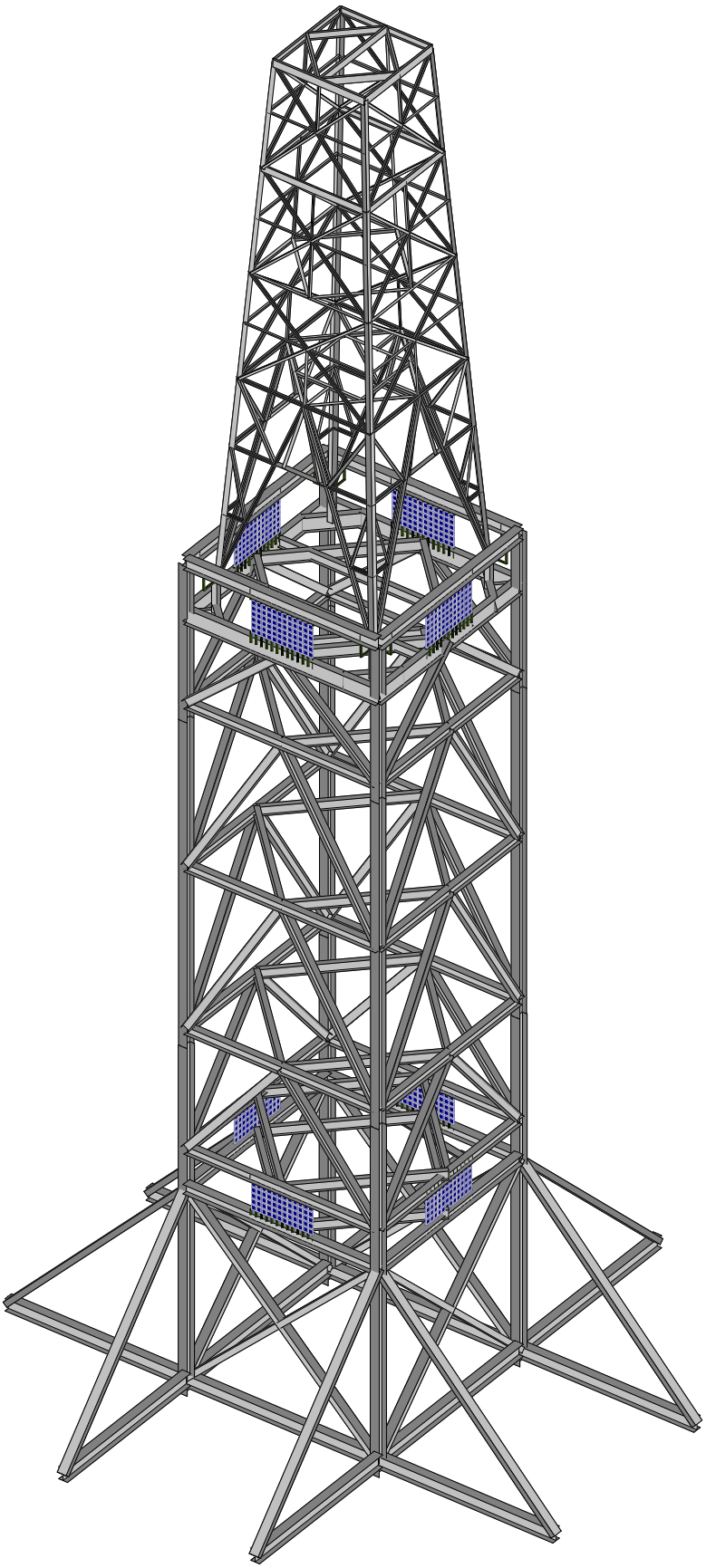
- Replacing or strengthening bracing members
- Reinforcing or extending vertical members
- Installing or removing antenna mounting gates or side arms
- Changing loading configurations

The tower owner is responsible for verifying that the existing loading on the structure is consistent with the loading applied to the structure within this report. If there is any information contrary to that contained herein, or if there are any defects arising from the original design, material, fabrication and erection deficiencies, this report should be disregarded and RAMAKER should be contacted immediately. RAMAKER is not liable for any representation, recommendation, or conclusion not expressly stated herein.

This analysis pertains only to the tower structure, and no analyses or conclusions were made regarding the antenna and equipment mounting structure(s). Analysis and certification of the antenna and equipment mounting structure(s) is performed and submitted separately.

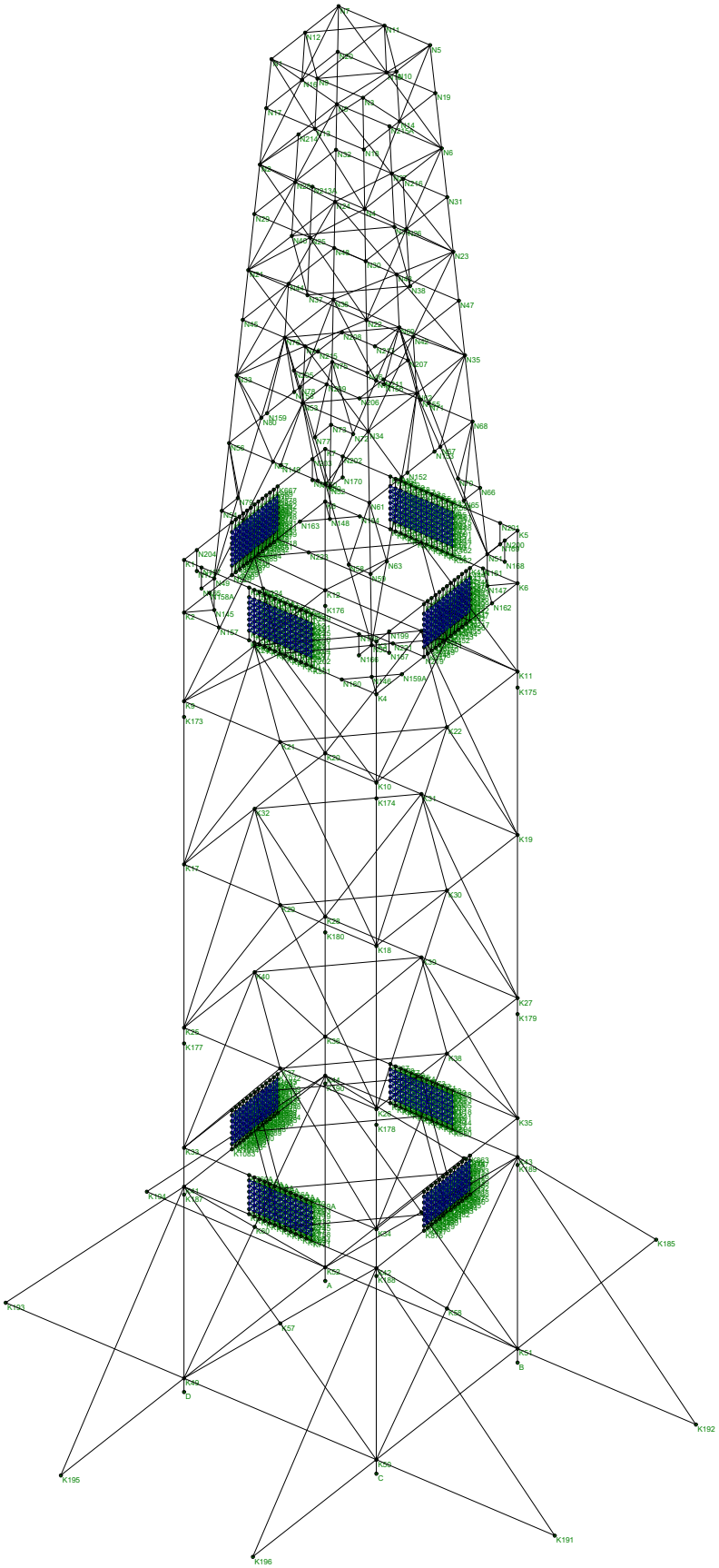
ATTACHMENTS

- Analysis Figures
- Analysis Calculations



Envelope Only Solution

Ramaker and Associates, I...		SK - 1
RJN	CT03XC103	May 1, 2018 at 1:00 PM
37750		37750 Tower.rt3



Envelope Only Solution

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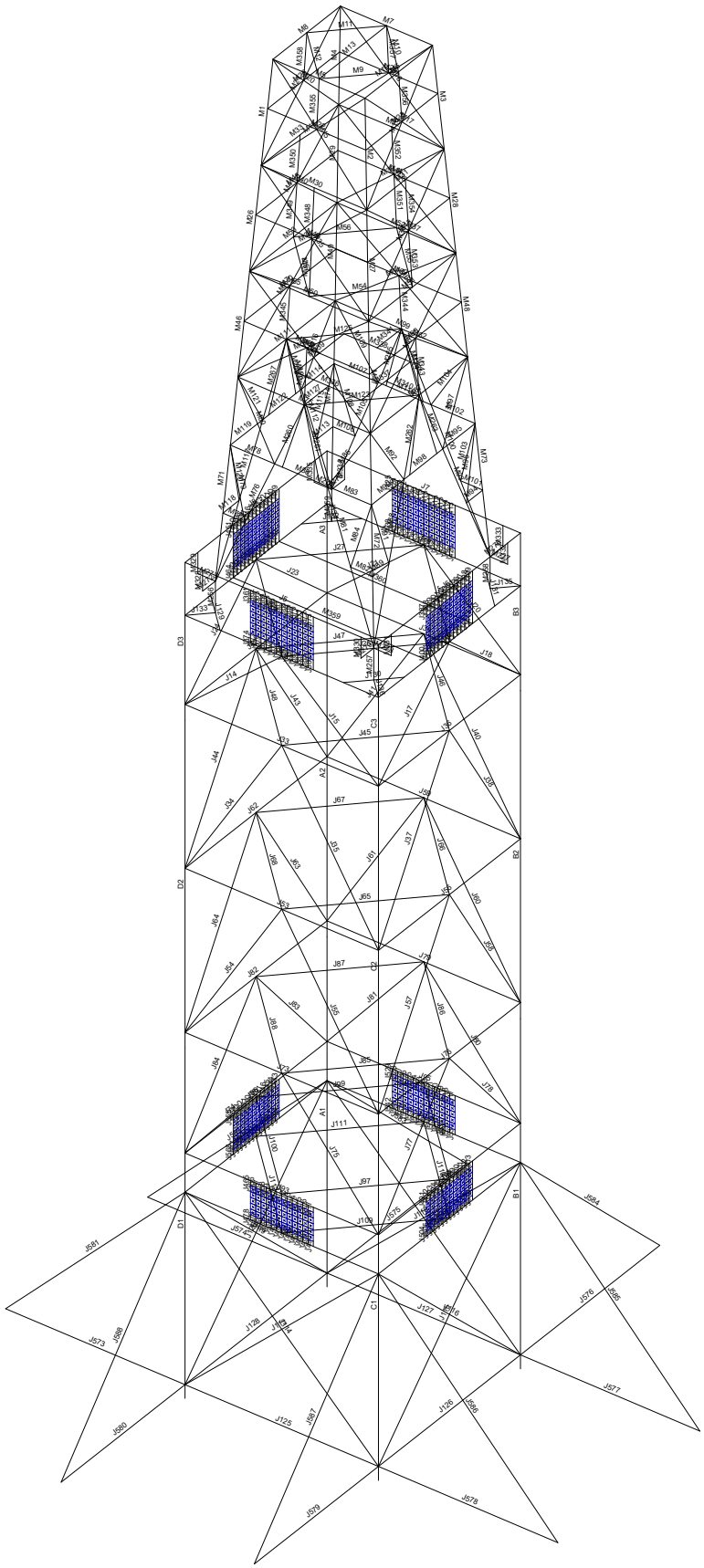

Envelope Only Solution

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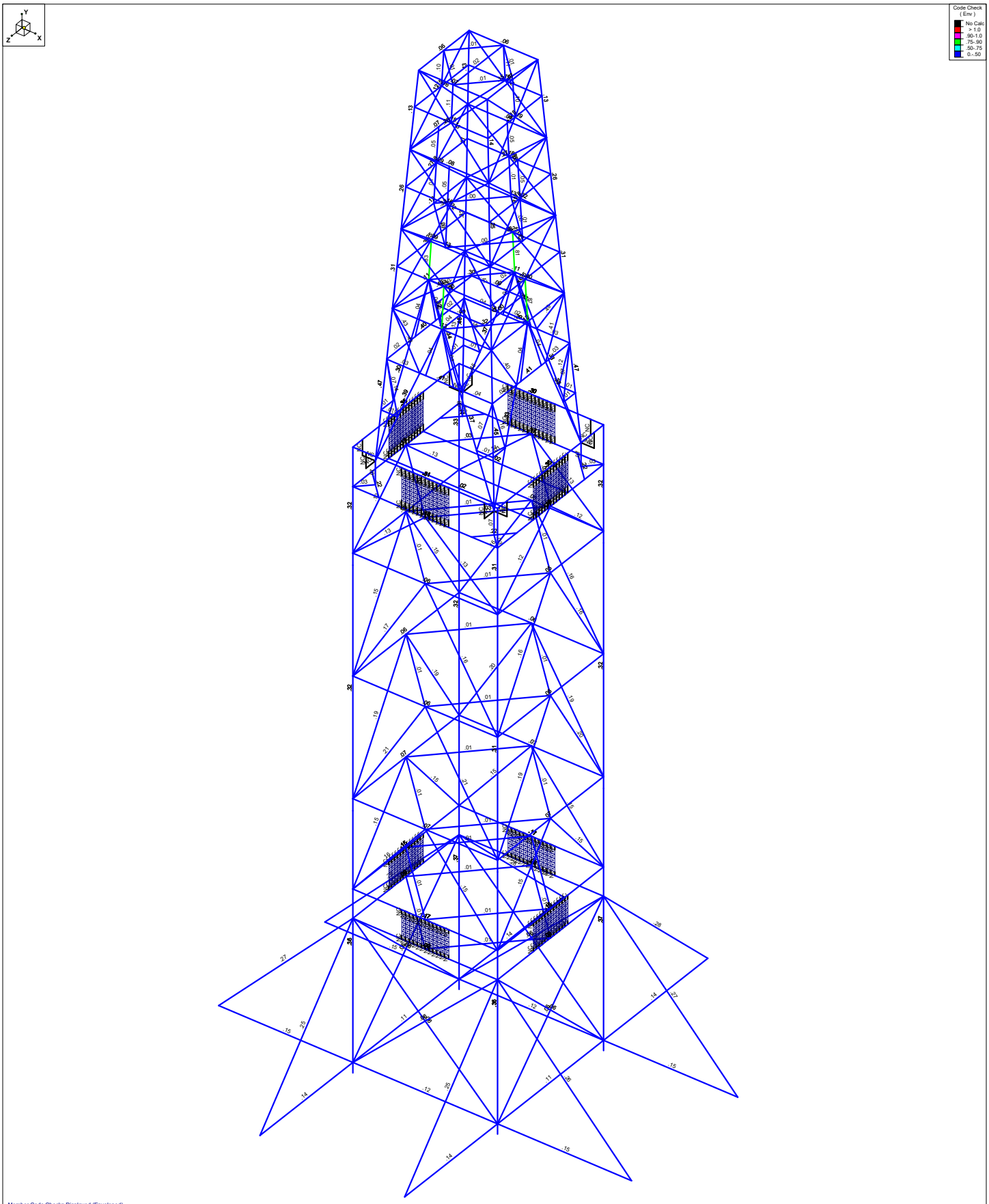

Ramaker and Associates, I...		SK - 4
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37750		37750 Tower.rt3

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1...	Density[k/...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36	29000	11200	.295	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
3	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.4	58	1.3
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.4	58	1.3
6	A53 Gr. B	29000	11154	.3	.65	.49	35	1.5	60	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	TWR_LEG_T1	L5x5x1/2	Column	Single Angle	A36	Typical	4.75	11.3	11.3	.417
2	TWR_TOP_GIRT_T1	C8x11.5	Beam	Channel	A36	Typical	3.37	1.31	32.5	.13
3	TWR_INNER_SUPP_...	C8x11.5	Beam	Channel	A36	Typical	3.37	1.31	32.5	.13
4	TWR_DIAG_T1	2L2 1/2x2x3/16...	Column	Double Angle (3/...	A36	Typical	1.62	1.378	1.02	.019
5	TWR_STEP_T1	L2 1/2x2x3/16	Beam	Single Angle	A36	Typical	.809	.291	.509	.01
6	TWR_LEG_T2	L5x5x1/2	Column	Single Angle	A36	Typical	4.75	11.3	11.3	.417
7	TWR_HORZ_T2	C7x9.8	Beam	Channel	A36	Typical	2.87	.957	21.2	.1
8	TWR_DIAG_T2	2L2 1/2x2x3/16...	Column	Double Angle (3/...	A36	Typical	1.62	1.378	1.02	.019
9	TWR_STEP_T2	L2 1/2x2x3/16	Beam	Single Angle	A36	Typical	.809	.291	.509	.01
10	TWR_LEG_T3	L5x5x1/2	Column	Single Angle	A36	Typical	4.75	11.3	11.3	.417
11	TWR_HORZ_T3	L3x3x1/4	Beam	Single Angle	A36	Typical	1.44	1.24	1.24	.032
12	TWR_INNER_SUPP_...	L3x3x1/4	Beam	Single Angle	A36	Typical	1.44	1.24	1.24	.032
13	TWR_DIAG_T3	2L2 1/2x2x3/16...	Column	Double Angle (3/...	A36	Typical	1.62	1.378	1.02	.019
14	TWR_STEP_T3	L2 1/2x2x3/16	Beam	Single Angle	A36	Typical	.809	.291	.509	.01
15	TWR_LEG_T4	L6x6x1/2	Column	Single Angle	A36	Typical	5.75	19.9	19.9	.501
16	TWR_HORZ_T4	2L2 1/2x2 1/2x...	Beam	Double Angle (3/...	A36	Typical	2.38	3.347	1.41	.049
17	TWR_DIAG_T4	2L2 1/2x3 1/2x...	Column	Double Angle (3/...	A36	Typical	3.55	10.623	1.88	.116
18	TWR_RED_HORZ_T4	2L2 1/2x2x3/16...	Beam	Double Angle (3/...	A36	Typical	1.62	1.378	1.02	.019
19	TWR_RED_HORZ_2_...	2L2 1/2x2 1/2x...	Beam	Double Angle (3/...	A36	Typical	1.8	2.499	1.09	.021
20	TWR_RED_DIAG_T4	L2 1/2x2x3/16	Column	Single Angle	A36	Typical	.809	.291	.509	.01
21	TWR_RED_DIAG_2_T4	L3x3x3/16	Column	Single Angle	A36	Typical	1.09	.96	.96	.014
22	TWR_RED_SUBHOR...	L5x3x1/4	Beam	Single Angle	A36	Typical	1.94	1.44	5.11	.044
23	TWR_INNER_SUPP_...	L3x3x3/16	Beam	Single Angle	A36	Typical	1.09	.96	.96	.014
24	TWR_LEG_T1_1	W10x77	Column	Wide Flange	A36	Typical	22.7	154	455	5.11
25	TWR_TOP_GIRT_T1_1	W12x53	Beam	Wide Flange	A36	Typical	15.6	95.8	425	1.58
26	TWR_LEG_T2_1	W10x77	Column	Wide Flange	A36	Typical	22.7	154	455	5.11
27	TWR_HORZ_T2_1	W18x65	Beam	Wide Flange	A36	Typical	19.1	54.8	1070	2.73
28	TWR_DIAG_T2_1	W8x31	Column	Wide Flange	A36	Typical	9.13	37.1	110	.536
29	TWR_INNER_SUPP_...	W12x26	Beam	Wide Flange	A36	Typical	7.65	17.3	204	.3
30	TWR_LEG_T3_1	W10x77	Column	Wide Flange	A36	Typical	22.7	154	455	5.11
31	TWR_HORZ_T3_1	W10x33	Beam	Wide Flange	A36	Typical	9.71	36.6	171	.583
32	TWR_DIAG_T3_1	W8x31	Column	Wide Flange	A36	Typical	9.13	37.1	110	.536
33	TWR_INNER_SUPP_...	W10x26	Beam	Wide Flange	A36	Typical	7.61	14.1	144	.402
34	TWR_LEG_T4_1	W10x77	Column	Wide Flange	A36	Typical	22.7	154	455	5.11
35	TWR_HORZ_T4_1	W10x33	Beam	Wide Flange	A36	Typical	9.71	36.6	171	.583
36	TWR_DIAG_T4_1	W8x31	Column	Wide Flange	A36	Typical	9.13	37.1	110	.536
37	TWR_INNER_SUPP_...	W10x26	Beam	Wide Flange	A36	Typical	7.61	14.1	144	.402
38	TWR_LEG_T5	W10x112	Column	Wide Flange	A36	Typical	32.9	236	716	15.1
39	TWR_HORZ_T5	W10x33	Beam	Wide Flange	A36	Typical	9.71	36.6	171	.583
40	TWR_DIAG_T5	W8x31	Column	Wide Flange	A36	Typical	9.13	37.1	110	.536
41	TWR_INNER_SUPP_...	W10x26	Beam	Wide Flange	A36	Typical	7.61	14.1	144	.402
42	TWR_LEG_T6	W10x112	Column	Wide Flange	A36	Typical	32.9	236	716	15.1
43	TWR_TOP_GIRT_T6	W10x33	Beam	Wide Flange	A36	Typical	9.71	36.6	171	.583
44	TWR_INNER_SUPP_...	W10x26	Beam	Wide Flange	A36	Typical	7.61	14.1	144	.402
45	TWR_LEG_T7	W10x112	Column	Wide Flange	A36	Typical	32.9	236	716	15.1

Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
46	TWR_TOP_GIRT_T7	W10x77	Beam	Wide Flange	A36	Typical	22.7	154	455	5.11
47	TWR_INNER_SUPP_...	W10x26	Beam	Wide Flange	A36	Typical	7.61	14.1	144	.402
48	TWR_DIAG_T7	TS6x10x.375	Column	Tube	A500 Gr.46	Typical	11.1	145	65.4	147
49	TWR_LEG_T8	W10x112	Column	Wide Flange	A36	Typical	32.9	236	716	15.1
50	TWR_TOP_GIRT_T8	W14x61	Beam	Wide Flange	A36	Typical	17.9	107	640	2.19
51	TWR_LEG_SUPPORT	HSS6x6x10	Column	Tube	A500 Gr.46	Typical	11.7	55.2	55.2	94.9
52	TWR_RED_DIAG_T5	L3x3x3	Beam	Single Angle	A36	Typical	1.09	.948	.948	.014
53	TWR_LEG_SUPPOR...	W16x50	Beam	Wide Flange	A36	Typical	14.7	37.2	659	1.52
54	W8x15	W8x15	Beam	Wide Flange	A36	Typical	4.44	3.41	48	.137
55	W14x61	W14x61	Beam	Wide Flange	A36	Typical	17.9	107	640	2.19
56	HSS10x6x6	HSS10x6x6	Beam	Tube	A500 Gr.46	Typical	10.4	61.8	137	139
57	L2.5x2x3	L2.5x2x3	Beam	Single Angle	A36	Typical	.818	.292	.511	.01
58	W10x22	W10x22	Beam	Wide Flange	A36	Typical	6.49	11.4	118	.239

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design R...
1	J573	K49	K193			W14x61	Beam	Wide Flange	A36	Typical
2	J574	K52	K194			W14x61	Beam	Wide Flange	A36	Typical
3	J575	K52	K186			W14x61	Beam	Wide Flange	A36	Typical
4	J576	K51	K185			W14x61	Beam	Wide Flange	A36	Typical
5	J577	K51	K192			W14x61	Beam	Wide Flange	A36	Typical
6	J578	K50	K191			W14x61	Beam	Wide Flange	A36	Typical
7	J579	K50	K196			W14x61	Beam	Wide Flange	A36	Typical
8	J580	K49	K195			W14x61	Beam	Wide Flange	A36	Typical
9	M359	N220	N219			W10x22	Beam	Wide Flange	A36	Typical
10	M360	N218	N217			W10x22	Beam	Wide Flange	A36	Typical
11	J133	N145	K2			W8x15	Beam	Wide Flange	A36	Typical
12	J134	N148	K8			W8x15	Beam	Wide Flange	A36	Typical
13	J135	N147	K6			W8x15	Beam	Wide Flange	A36	Typical
14	J136	N146	K4			W8x15	Beam	Wide Flange	A36	Typical
15	J125	K49	K50			TWR_TOP_GIRT_T8	Beam	Wide Flange	A36	Typical
16	J126	K50	K51			TWR_TOP_GIRT_T8	Beam	Wide Flange	A36	Typical
17	J127	K51	K52			TWR_TOP_GIRT_T8	Beam	Wide Flange	A36	Typical
18	J128	K52	K49			TWR_TOP_GIRT_T8	Beam	Wide Flange	A36	Typical
19	J105	K41	K42			TWR_TOP_GIRT_T7	Beam	Wide Flange	A36	Typical
20	J106	K42	K43			TWR_TOP_GIRT_T7	Beam	Wide Flange	A36	Typical
21	J107	K43	K44			TWR_TOP_GIRT_T7	Beam	Wide Flange	A36	Typical
22	J108	K44	K41			TWR_TOP_GIRT_T7	Beam	Wide Flange	A36	Typical
23	J93	K33	K34			TWR_TOP_GIRT_T6	Beam	Wide Flange	A36	Typical
24	J94	K34	K35			TWR_TOP_GIRT_T6	Beam	Wide Flange	A36	Typical
25	J95	K35	K36			TWR_TOP_GIRT_T6	Beam	Wide Flange	A36	Typical
26	J96	K36	K33			TWR_TOP_GIRT_T6	Beam	Wide Flange	A36	Typical
27	J5	K1	K3			TWR_TOP_GIRT_T1_1	Beam	Wide Flange	A36	Typical
28	J6	K3	K5			TWR_TOP_GIRT_T1_1	Beam	Wide Flange	A36	Typical
29	J7	K5	K7			TWR_TOP_GIRT_T1_1	Beam	Wide Flange	A36	Typical
30	J8	K7	K1			TWR_TOP_GIRT_T1_1	Beam	Wide Flange	A36	Typical
31	M5	N1	N3		176.265	TWR_TOP_GIRT_T1	Beam	Channel	A36	Typical
32	M6	N3	N5		176.265	TWR_TOP_GIRT_T1	Beam	Channel	A36	Typical
33	M7	N5	N7		176.265	TWR_TOP_GIRT_T1	Beam	Channel	A36	Typical
34	M8	N7	N1		176.265	TWR_TOP_GIRT_T1	Beam	Channel	A36	Typical
35	M67	N45	N46		86.265	TWR_STEP_T3	Beam	Single Angle	A36	Typical
36	M68	N46	N47		86.265	TWR_STEP_T3	Beam	Single Angle	A36	Typical
37	M69	N47	N48		86.265	TWR_STEP_T3	Beam	Single Angle	A36	Typical
38	M70	N48	N45		86.265	TWR_STEP_T3	Beam	Single Angle	A36	Typical
39	M42	N29	N30		86.265	TWR_STEP_T2	Beam	Single Angle	A36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design R...
40	M43	N30	N31		86.265	TWR_STEP_T2	Beam	Single Angle	A36	Typical
41	M44	N31	N32		86.265	TWR_STEP_T2	Beam	Single Angle	A36	Typical
42	M45	N32	N29		86.265	TWR_STEP_T2	Beam	Single Angle	A36	Typical
43	M22	N17	N18		86.265	TWR_STEP_T1	Beam	Single Angle	A36	Typical
44	M23	N18	N19		86.265	TWR_STEP_T1	Beam	Single Angle	A36	Typical
45	M24	N19	N20		86.265	TWR_STEP_T1	Beam	Single Angle	A36	Typical
46	M25	N20	N17		86.265	TWR_STEP_T1	Beam	Single Angle	A36	Typical
47	M86	N57	N60		266.265	TWR_RED_SUBHOR_T4	Beam	Single Angle	A36	Typical
48	M98	N64	N67		266.265	TWR_RED_SUBHOR_T4	Beam	Single Angle	A36	Typical
49	M110	N71	N74		266.265	TWR_RED_SUBHOR_T4	Beam	Single Angle	A36	Typical
50	M122	N78	N80		266.265	TWR_RED_SUBHOR_T4	Beam	Single Angle	A36	Typical
51	M77	N54	N55		356.265	TWR_RED_HORZ_T4	Beam	Double Ang...	A36	Typical
52	M82	N58	N59		356.265	TWR_RED_HORZ_T4	Beam	Double Ang...	A36	Typical
53	M89	N59	N63		356.265	TWR_RED_HORZ_T4	Beam	Double Ang...	A36	Typical
54	M94	N65	N66		356.265	TWR_RED_HORZ_T4	Beam	Double Ang...	A36	Typical
55	M101	N66	N70		356.265	TWR_RED_HORZ_T4	Beam	Double Ang...	A36	Typical
56	M106	N72	N73		356.265	TWR_RED_HORZ_T4	Beam	Double Ang...	A36	Typical
57	M113	N73	N77		356.265	TWR_RED_HORZ_T4	Beam	Double Ang...	A36	Typical
58	M118	N79	N54		356.265	TWR_RED_HORZ_T4	Beam	Double Ang...	A36	Typical
59	M78	N56	N57		356.265	TWR_RED_HORZ_2_T4	Beam	Double Ang...	A36	Typical
60	M83	N60	N61		356.265	TWR_RED_HORZ_2_T4	Beam	Double Ang...	A36	Typical
61	M90	N61	N64		356.265	TWR_RED_HORZ_2_T4	Beam	Double Ang...	A36	Typical
62	M95	N67	N68		356.265	TWR_RED_HORZ_2_T4	Beam	Double Ang...	A36	Typical
63	M102	N68	N71		356.265	TWR_RED_HORZ_2_T4	Beam	Double Ang...	A36	Typical
64	M107	N74	N75		356.265	TWR_RED_HORZ_2_T4	Beam	Double Ang...	A36	Typical
65	M114	N75	N78		356.265	TWR_RED_HORZ_2_T4	Beam	Double Ang...	A36	Typical
66	M119	N80	N56		356.265	TWR_RED_HORZ_2_T4	Beam	Double Ang...	A36	Typical
67	M260	N149	N53		180	TWR_RED_DIAG_T5	Beam	Single Angle	A36	Typical
68	M261	N150	N53		90	TWR_RED_DIAG_T5	Beam	Single Angle	A36	Typical
69	M262	N152	N62		180	TWR_RED_DIAG_T5	Beam	Single Angle	A36	Typical
70	M263	N153	N62		90	TWR_RED_DIAG_T5	Beam	Single Angle	A36	Typical
71	M264	N155	N69		180	TWR_RED_DIAG_T5	Beam	Single Angle	A36	Typical
72	M265	N156	N69		90	TWR_RED_DIAG_T5	Beam	Single Angle	A36	Typical
73	M266	N158	N76		180	TWR_RED_DIAG_T5	Beam	Single Angle	A36	Typical
74	M267	N159	N76		90	TWR_RED_DIAG_T5	Beam	Single Angle	A36	Typical
75	M79	N55	N56		104.235	TWR_RED_DIAG_T4	Column	Single Angle	A36	Typical
76	M84	N58	N61		75.765	TWR_RED_DIAG_T4	Column	Single Angle	A36	Typical
77	M91	N63	N61		104.235	TWR_RED_DIAG_T4	Column	Single Angle	A36	Typical
78	M96	N65	N68		75.765	TWR_RED_DIAG_T4	Column	Single Angle	A36	Typical
79	M103	N70	N68		104.235	TWR_RED_DIAG_T4	Column	Single Angle	A36	Typical
80	M108	N72	N75		75.765	TWR_RED_DIAG_T4	Column	Single Angle	A36	Typical
81	M115	N77	N75		104.235	TWR_RED_DIAG_T4	Column	Single Angle	A36	Typical
82	M120	N79	N56		75.765	TWR_RED_DIAG_T4	Column	Single Angle	A36	Typical
83	M320	N55	N79			TWR_RED_DIAG_T4	Column	Single Angle	A36	Typical
84	M321	N63	N58			TWR_RED_DIAG_T4	Column	Single Angle	A36	Typical
85	M322	N70	N65			TWR_RED_DIAG_T4	Column	Single Angle	A36	Typical
86	M323	N77	N72			TWR_RED_DIAG_T4	Column	Single Angle	A36	Typical
87	M324	N80	N57			TWR_RED_DIAG_T4	Column	Single Angle	A36	Typical
88	M325	N60	N64			TWR_RED_DIAG_T4	Column	Single Angle	A36	Typical
89	M326	N67	N71			TWR_RED_DIAG_T4	Column	Single Angle	A36	Typical
90	M327	N74	N78			TWR_RED_DIAG_T4	Column	Single Angle	A36	Typical
91	M80	N57	N33		97.251	TWR_RED_DIAG_2_T4	Column	Single Angle	A36	Typical
92	M85	N60	N34		82.749	TWR_RED_DIAG_2_T4	Column	Single Angle	A36	Typical
93	M92	N64	N34		97.251	TWR_RED_DIAG_2_T4	Column	Single Angle	A36	Typical
94	M97	N67	N35		82.749	TWR_RED_DIAG_2_T4	Column	Single Angle	A36	Typical
95	M104	N71	N35		97.251	TWR_RED_DIAG_2_T4	Column	Single Angle	A36	Typical
96	M109	N74	N36		82.749	TWR_RED_DIAG_2_T4	Column	Single Angle	A36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design R...
97	M116	N78	N36		97.251	TWR_RED_DIAG_2_T4	Column	Single Angle	A36	Typical
98	M121	N80	N33		82.749	TWR_RED_DIAG_2_T4	Column	Single Angle	A36	Typical
99	J121	D	K49		90	TWR_LEG_T8	Column	Wide Flange	A36	Typical
100	J122	C	K50		90	TWR_LEG_T8	Column	Wide Flange	A36	Typical
101	J123	B	K51		90	TWR_LEG_T8	Column	Wide Flange	A36	Typical
102	J124	A	K52		90	TWR_LEG_T8	Column	Wide Flange	A36	Typical
103	D1	D	K177		90	TWR_LEG_T8	Column	Wide Flange	A36	Typical
104	C1	C	K178		90	TWR_LEG_T8	Column	Wide Flange	A36	Typical
105	B1	B	K179		90	TWR_LEG_T8	Column	Wide Flange	A36	Typical
106	A1	A	K180		90	TWR_LEG_T8	Column	Wide Flange	A36	Typical
107	J101	K49	K41		90	TWR_LEG_T7	Column	Wide Flange	A36	Typical
108	J102	K50	K42		90	TWR_LEG_T7	Column	Wide Flange	A36	Typical
109	J103	K51	K43		90	TWR_LEG_T7	Column	Wide Flange	A36	Typical
110	J104	K52	K44		90	TWR_LEG_T7	Column	Wide Flange	A36	Typical
111	J89	K41	K33		45	TWR_LEG_T6	Column	Wide Flange	A36	Typical
112	J90	K42	K34		90	TWR_LEG_T6	Column	Wide Flange	A36	Typical
113	J91	K43	K35		90	TWR_LEG_T6	Column	Wide Flange	A36	Typical
114	J92	K44	K36		90	TWR_LEG_T6	Column	Wide Flange	A36	Typical
115	J69	K33	K25		90	TWR_LEG_T5	Column	Wide Flange	A36	Typical
116	J70	K34	K26		90	TWR_LEG_T5	Column	Wide Flange	A36	Typical
117	J71	K35	K27		90	TWR_LEG_T5	Column	Wide Flange	A36	Typical
118	J72	K36	K28		90	TWR_LEG_T5	Column	Wide Flange	A36	Typical
119	J49	K25	K17		90	TWR_LEG_T4_1	Column	Wide Flange	A36	Typical
120	J50	K26	K18		90	TWR_LEG_T4_1	Column	Wide Flange	A36	Typical
121	J51	K27	K19		90	TWR_LEG_T4_1	Column	Wide Flange	A36	Typical
122	J52	K28	K20		90	TWR_LEG_T4_1	Column	Wide Flange	A36	Typical
123	M71	N49	N33		135	TWR_LEG_T4	Column	Single Angle	A36	Typical
124	M72	N50	N34		135	TWR_LEG_T4	Column	Single Angle	A36	Typical
125	M73	N51	N35		135	TWR_LEG_T4	Column	Single Angle	A36	Typical
126	M74	N52	N36		135	TWR_LEG_T4	Column	Single Angle	A36	Typical
127	J29	K17	K9		90	TWR_LEG_T3_1	Column	Wide Flange	A36	Typical
128	J30	K18	K10		90	TWR_LEG_T3_1	Column	Wide Flange	A36	Typical
129	J31	K19	K11		90	TWR_LEG_T3_1	Column	Wide Flange	A36	Typical
130	J32	K20	K12		90	TWR_LEG_T3_1	Column	Wide Flange	A36	Typical
131	M46	N33	N21		135	TWR_LEG_T3	Column	Single Angle	A36	Typical
132	M47	N34	N22		135	TWR_LEG_T3	Column	Single Angle	A36	Typical
133	M48	N35	N23		135	TWR_LEG_T3	Column	Single Angle	A36	Typical
134	M49	N36	N24		135	TWR_LEG_T3	Column	Single Angle	A36	Typical
135	J9	K9	K2		90	TWR_LEG_T2_1	Column	Wide Flange	A36	Typical
136	J10	K10	K4		90	TWR_LEG_T2_1	Column	Wide Flange	A36	Typical
137	J11	K11	K6		90	TWR_LEG_T2_1	Column	Wide Flange	A36	Typical
138	J12	K12	K8		90	TWR_LEG_T2_1	Column	Wide Flange	A36	Typical
139	M26	N21	N2		135	TWR_LEG_T2	Column	Single Angle	A36	Typical
140	M27	N22	N4		135	TWR_LEG_T2	Column	Single Angle	A36	Typical
141	M28	N23	N6		135	TWR_LEG_T2	Column	Single Angle	A36	Typical
142	M29	N24	N8		135	TWR_LEG_T2	Column	Single Angle	A36	Typical
143	J1	K2	K1		90	TWR_LEG_T1_1	Column	Wide Flange	A36	Typical
144	J2	K4	K3		90	TWR_LEG_T1_1	Column	Wide Flange	A36	Typical
145	J3	K6	K5		90	TWR_LEG_T1_1	Column	Wide Flange	A36	Typical
146	J4	K8	K7		90	TWR_LEG_T1_1	Column	Wide Flange	A36	Typical
147	D2	K177	K173		90	TWR_LEG_T1_1	Column	Wide Flange	A36	Typical
148	C2	K178	K174		90	TWR_LEG_T1_1	Column	Wide Flange	A36	Typical
149	B2	K179	K175		90	TWR_LEG_T1_1	Column	Wide Flange	A36	Typical
150	A2	K180	K176		90	TWR_LEG_T1_1	Column	Wide Flange	A36	Typical
151	D3	K173	K1		90	TWR_LEG_T1_1	Column	Wide Flange	A36	Typical
152	C3	K174	K3		90	TWR_LEG_T1_1	Column	Wide Flange	A36	Typical
153	B3	K175	K5		90	TWR_LEG_T1_1	Column	Wide Flange	A36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design R...
154	A3	K176	K7		90	TWR_LEG_T1_1	Column	Wide Flange	A36	Typical
155	M1	N2	N1		135	TWR_LEG_T1	Column	Single Angle	A36	Typical
156	M2	N4	N3		135	TWR_LEG_T1	Column	Single Angle	A36	Typical
157	M3	N6	N5		135	TWR_LEG_T1	Column	Single Angle	A36	Typical
158	M4	N8	N7		135	TWR_LEG_T1	Column	Single Angle	A36	Typical
159	J129	N157	N158A			TWR_LEG_SUPPORT_HORIZ	Beam	Wide Flange	A36	Typical
160	J130	N159A	N160			TWR_LEG_SUPPORT_HORIZ	Beam	Wide Flange	A36	Typical
161	J131	N161	N162			TWR_LEG_SUPPORT_HORIZ	Beam	Wide Flange	A36	Typical
162	J132	N163	N164			TWR_LEG_SUPPORT_HORIZ	Beam	Wide Flange	A36	Typical
163	M256	N145	N49			TWR_LEG_SUPPORT	Column	Tube	A500 Gr...	Typical
164	M257	N146	N50			TWR_LEG_SUPPORT	Column	Tube	A500 Gr...	Typical
165	M258	N147	N51			TWR_LEG_SUPPORT	Column	Tube	A500 Gr...	Typical
166	M259	N148	N52			TWR_LEG_SUPPORT	Column	Tube	A500 Gr...	Typical
167	J109	K53	K54			TWR_INNER_SUPP_T7	Beam	Wide Flange	A36	Typical
168	J110	K54	K55			TWR_INNER_SUPP_T7	Beam	Wide Flange	A36	Typical
169	J111	K55	K56			TWR_INNER_SUPP_T7	Beam	Wide Flange	A36	Typical
170	J112	K56	K53			TWR_INNER_SUPP_T7	Beam	Wide Flange	A36	Typical
171	J97	K45	K46			TWR_INNER_SUPP_T6	Beam	Wide Flange	A36	Typical
172	J98	K46	K47			TWR_INNER_SUPP_T6	Beam	Wide Flange	A36	Typical
173	J99	K47	K48			TWR_INNER_SUPP_T6	Beam	Wide Flange	A36	Typical
174	J100	K48	K45			TWR_INNER_SUPP_T6	Beam	Wide Flange	A36	Typical
175	J85	K37	K38			TWR_INNER_SUPP_T5	Beam	Wide Flange	A36	Typical
176	J86	K38	K39			TWR_INNER_SUPP_T5	Beam	Wide Flange	A36	Typical
177	J87	K39	K40			TWR_INNER_SUPP_T5	Beam	Wide Flange	A36	Typical
178	J88	K40	K37			TWR_INNER_SUPP_T5	Beam	Wide Flange	A36	Typical
179	J65	K29	K30			TWR_INNER_SUPP_T4_1	Beam	Wide Flange	A36	Typical
180	J66	K30	K31			TWR_INNER_SUPP_T4_1	Beam	Wide Flange	A36	Typical
181	J67	K31	K32			TWR_INNER_SUPP_T4_1	Beam	Wide Flange	A36	Typical
182	J68	K32	K29			TWR_INNER_SUPP_T4_1	Beam	Wide Flange	A36	Typical
183	M123	N53	N62		90	TWR_INNER_SUPP_T4	Beam	Single Angle	A36	Typical
184	M124	N62	N69		90	TWR_INNER_SUPP_T4	Beam	Single Angle	A36	Typical
185	M125	N69	N76		90	TWR_INNER_SUPP_T4	Beam	Single Angle	A36	Typical
186	M126	N76	N53		90	TWR_INNER_SUPP_T4	Beam	Single Angle	A36	Typical
187	M127	N53	N209		90	TWR_INNER_SUPP_T4	Beam	Single Angle	A36	Typical
188	M336	N205	N206			TWR_INNER_SUPP_T4	Beam	Single Angle	A36	Typical
189	M337	N206	N207			TWR_INNER_SUPP_T4	Beam	Single Angle	A36	Typical
190	M338	N207	N208			TWR_INNER_SUPP_T4	Beam	Single Angle	A36	Typical
191	M339	N208	N205			TWR_INNER_SUPP_T4	Beam	Single Angle	A36	Typical
192	M340	N62	N211		90	TWR_INNER_SUPP_T4	Beam	Single Angle	A36	Typical
193	M341	N69	N213		90	TWR_INNER_SUPP_T4	Beam	Single Angle	A36	Typical
194	M342	N76	N215		90	TWR_INNER_SUPP_T4	Beam	Single Angle	A36	Typical
195	J45	K21	K22			TWR_INNER_SUPP_T3_1	Beam	Wide Flange	A36	Typical
196	J46	K22	K23			TWR_INNER_SUPP_T3_1	Beam	Wide Flange	A36	Typical
197	J47	K23	K24			TWR_INNER_SUPP_T3_1	Beam	Wide Flange	A36	Typical
198	J48	K24	K21			TWR_INNER_SUPP_T3_1	Beam	Wide Flange	A36	Typical
199	M54	N37	N38		90	TWR_INNER_SUPP_T3	Beam	Single Angle	A36	Typical
200	M55	N38	N39		90	TWR_INNER_SUPP_T3	Beam	Single Angle	A36	Typical
201	M56	N39	N40		90	TWR_INNER_SUPP_T3	Beam	Single Angle	A36	Typical
202	M57	N40	N37		90	TWR_INNER_SUPP_T3	Beam	Single Angle	A36	Typical
203	M58	N37	N39		90	TWR_INNER_SUPP_T3	Beam	Single Angle	A36	Typical
204	J25	K13	K14			TWR_INNER_SUPP_T2	Beam	Wide Flange	A36	Typical
205	J26	K14	K15			TWR_INNER_SUPP_T2	Beam	Wide Flange	A36	Typical
206	J27	K15	K16			TWR_INNER_SUPP_T2	Beam	Wide Flange	A36	Typical
207	J28	K16	K13			TWR_INNER_SUPP_T2	Beam	Wide Flange	A36	Typical
208	M9	N9	N10		180	TWR_INNER_SUPP_T1	Beam	Channel	A36	Typical
209	M10	N10	N11		180	TWR_INNER_SUPP_T1	Beam	Channel	A36	Typical
210	M11	N11	N12		180	TWR_INNER_SUPP_T1	Beam	Channel	A36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design R...
211	M12	N12	N9		180	TWR_INNER_SUPP_T1	Beam	Channel	A36	Typical
212	M13	N9	N11		180	TWR_INNER_SUPP_T1	Beam	Channel	A36	Typical
213	J73	K25	K26			TWR_HORZ_T5	Beam	Wide Flange	A36	Typical
214	J76	K26	K27			TWR_HORZ_T5	Beam	Wide Flange	A36	Typical
215	J79	K27	K28			TWR_HORZ_T5	Beam	Wide Flange	A36	Typical
216	J82	K28	K25			TWR_HORZ_T5	Beam	Wide Flange	A36	Typical
217	J53	K17	K18			TWR_HORZ_T4_1	Beam	Wide Flange	A36	Typical
218	J56	K18	K19			TWR_HORZ_T4_1	Beam	Wide Flange	A36	Typical
219	J59	K19	K20			TWR_HORZ_T4_1	Beam	Wide Flange	A36	Typical
220	J62	K20	K17			TWR_HORZ_T4_1	Beam	Wide Flange	A36	Typical
221	M75	N33	N34		356.265	TWR_HORZ_T4	Beam	Double Ang...	A36	Typical
222	M87	N34	N35		356.265	TWR_HORZ_T4	Beam	Double Ang...	A36	Typical
223	M99	N35	N36		356.265	TWR_HORZ_T4	Beam	Double Ang...	A36	Typical
224	M111	N36	N33		356.265	TWR_HORZ_T4	Beam	Double Ang...	A36	Typical
225	J33	K9	K10			TWR_HORZ_T3_1	Beam	Wide Flange	A36	Typical
226	J36	K10	K11			TWR_HORZ_T3_1	Beam	Wide Flange	A36	Typical
227	J39	K11	K12			TWR_HORZ_T3_1	Beam	Wide Flange	A36	Typical
228	J42	K12	K9			TWR_HORZ_T3_1	Beam	Wide Flange	A36	Typical
229	M50	N21	N22		86.265	TWR_HORZ_T3	Beam	Single Angle	A36	Typical
230	M51	N22	N23		86.265	TWR_HORZ_T3	Beam	Single Angle	A36	Typical
231	M52	N23	N24		86.265	TWR_HORZ_T3	Beam	Single Angle	A36	Typical
232	M53	N24	N21		86.265	TWR_HORZ_T3	Beam	Single Angle	A36	Typical
233	J13	K2	K4			TWR_HORZ_T2_1	Beam	Wide Flange	A36	Typical
234	J16	K4	K6			TWR_HORZ_T2_1	Beam	Wide Flange	A36	Typical
235	J19	K6	K8			TWR_HORZ_T2_1	Beam	Wide Flange	A36	Typical
236	J22	K8	K2			TWR_HORZ_T2_1	Beam	Wide Flange	A36	Typical
237	M30	N2	N4		176.265	TWR_HORZ_T2	Beam	Channel	A36	Typical
238	M31	N4	N6		176.265	TWR_HORZ_T2	Beam	Channel	A36	Typical
239	M32	N6	N8		176.265	TWR_HORZ_T2	Beam	Channel	A36	Typical
240	M33	N8	N2		176.265	TWR_HORZ_T2	Beam	Channel	A36	Typical
241	J113	K49	K42			TWR_DIAG_T7	Column	Tube	A500 Gr...	Typical
242	J114	K50	K41			TWR_DIAG_T7	Column	Tube	A500 Gr...	Typical
243	J115	K50	K43			TWR_DIAG_T7	Column	Tube	A500 Gr...	Typical
244	J116	K51	K42			TWR_DIAG_T7	Column	Tube	A500 Gr...	Typical
245	J117	K51	K44			TWR_DIAG_T7	Column	Tube	A500 Gr...	Typical
246	J118	K52	K43			TWR_DIAG_T7	Column	Tube	A500 Gr...	Typical
247	J119	K52	K41			TWR_DIAG_T7	Column	Tube	A500 Gr...	Typical
248	J120	K49	K44			TWR_DIAG_T7	Column	Tube	A500 Gr...	Typical
249	J74	K33	K37			TWR_DIAG_T5	Column	Wide Flange	A36	Typical
250	J75	K34	K37			TWR_DIAG_T5	Column	Wide Flange	A36	Typical
251	J77	K34	K38			TWR_DIAG_T5	Column	Wide Flange	A36	Typical
252	J78	K35	K38			TWR_DIAG_T5	Column	Wide Flange	A36	Typical
253	J80	K35	K39			TWR_DIAG_T5	Column	Wide Flange	A36	Typical
254	J81	K36	K39			TWR_DIAG_T5	Column	Wide Flange	A36	Typical
255	J83	K36	K40			TWR_DIAG_T5	Column	Wide Flange	A36	Typical
256	J84	K33	K40			TWR_DIAG_T5	Column	Wide Flange	A36	Typical
257	J54	K25	K29			TWR_DIAG_T4_1	Column	Wide Flange	A36	Typical
258	J55	K26	K29			TWR_DIAG_T4_1	Column	Wide Flange	A36	Typical
259	J57	K26	K30			TWR_DIAG_T4_1	Column	Wide Flange	A36	Typical
260	J58	K27	K30			TWR_DIAG_T4_1	Column	Wide Flange	A36	Typical
261	J60	K27	K31			TWR_DIAG_T4_1	Column	Wide Flange	A36	Typical
262	J61	K28	K31			TWR_DIAG_T4_1	Column	Wide Flange	A36	Typical
263	J63	K28	K32			TWR_DIAG_T4_1	Column	Wide Flange	A36	Typical
264	J64	K25	K32			TWR_DIAG_T4_1	Column	Wide Flange	A36	Typical
265	M76	N49	N53		169.958	TWR_DIAG_T4	Column	Double Ang...	A36	Typical
266	M81	N50	N53		190.042	TWR_DIAG_T4	Column	Double Ang...	A36	Typical
267	M88	N50	N62		169.958	TWR_DIAG_T4	Column	Double Ang...	A36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design R...
268	M93	N51	N62		190.042	TWR_DIAG_T4	Column	Double Ang...	A36	Typical
269	M100	N51	N69		169.958	TWR_DIAG_T4	Column	Double Ang...	A36	Typical
270	M105	N52	N69		190.042	TWR_DIAG_T4	Column	Double Ang...	A36	Typical
271	M112	N52	N76		169.958	TWR_DIAG_T4	Column	Double Ang...	A36	Typical
272	M117	N49	N76		190.042	TWR_DIAG_T4	Column	Double Ang...	A36	Typical
273	J34	K17	K21			TWR_DIAG_T3_1	Column	Wide Flange	A36	Typical
274	J35	K18	K21			TWR_DIAG_T3_1	Column	Wide Flange	A36	Typical
275	J37	K18	K22			TWR_DIAG_T3_1	Column	Wide Flange	A36	Typical
276	J38	K19	K22			TWR_DIAG_T3_1	Column	Wide Flange	A36	Typical
277	J40	K19	K23			TWR_DIAG_T3_1	Column	Wide Flange	A36	Typical
278	J41	K20	K23			TWR_DIAG_T3_1	Column	Wide Flange	A36	Typical
279	J43	K20	K24			TWR_DIAG_T3_1	Column	Wide Flange	A36	Typical
280	J44	K17	K24			TWR_DIAG_T3_1	Column	Wide Flange	A36	Typical
281	M59	N33	N22		355.16	TWR_DIAG_T3	Column	Double Ang...	A36	Typical
282	M60	N34	N21		4.84	TWR_DIAG_T3	Column	Double Ang...	A36	Typical
283	M61	N34	N23		355.16	TWR_DIAG_T3	Column	Double Ang...	A36	Typical
284	M62	N35	N22		4.84	TWR_DIAG_T3	Column	Double Ang...	A36	Typical
285	M63	N35	N24		355.16	TWR_DIAG_T3	Column	Double Ang...	A36	Typical
286	M64	N36	N23		4.84	TWR_DIAG_T3	Column	Double Ang...	A36	Typical
287	M65	N36	N21		355.16	TWR_DIAG_T3	Column	Double Ang...	A36	Typical
288	M66	N33	N24		4.84	TWR_DIAG_T3	Column	Double Ang...	A36	Typical
289	J14	K9	K13			TWR_DIAG_T2_1	Column	Wide Flange	A36	Typical
290	J15	K10	K13			TWR_DIAG_T2_1	Column	Wide Flange	A36	Typical
291	J17	K10	K14			TWR_DIAG_T2_1	Column	Wide Flange	A36	Typical
292	J18	K11	K14			TWR_DIAG_T2_1	Column	Wide Flange	A36	Typical
293	J20	K11	K15			TWR_DIAG_T2_1	Column	Wide Flange	A36	Typical
294	J21	K12	K15			TWR_DIAG_T2_1	Column	Wide Flange	A36	Typical
295	J23	K12	K16			TWR_DIAG_T2_1	Column	Wide Flange	A36	Typical
296	J24	K9	K16			TWR_DIAG_T2_1	Column	Wide Flange	A36	Typical
297	M34	N21	N4		354.917	TWR_DIAG_T2	Column	Double Ang...	A36	Typical
298	M35	N22	N2		5.083	TWR_DIAG_T2	Column	Double Ang...	A36	Typical
299	M36	N22	N6		354.917	TWR_DIAG_T2	Column	Double Ang...	A36	Typical
300	M37	N23	N4		5.083	TWR_DIAG_T2	Column	Double Ang...	A36	Typical
301	M38	N23	N8		354.917	TWR_DIAG_T2	Column	Double Ang...	A36	Typical
302	M39	N24	N6		5.083	TWR_DIAG_T2	Column	Double Ang...	A36	Typical
303	M40	N24	N2		354.917	TWR_DIAG_T2	Column	Double Ang...	A36	Typical
304	M41	N21	N8		5.083	TWR_DIAG_T2	Column	Double Ang...	A36	Typical
305	M14	N2	N3		354.586	TWR_DIAG_T1	Column	Double Ang...	A36	Typical
306	M15	N4	N1		5.414	TWR_DIAG_T1	Column	Double Ang...	A36	Typical
307	M16	N4	N5		354.586	TWR_DIAG_T1	Column	Double Ang...	A36	Typical
308	M17	N6	N3		5.414	TWR_DIAG_T1	Column	Double Ang...	A36	Typical
309	M18	N6	N7		354.586	TWR_DIAG_T1	Column	Double Ang...	A36	Typical
310	M19	N8	N5		5.414	TWR_DIAG_T1	Column	Double Ang...	A36	Typical
311	M20	N8	N1		354.586	TWR_DIAG_T1	Column	Double Ang...	A36	Typical
312	M21	N2	N7		5.414	TWR_DIAG_T1	Column	Double Ang...	A36	Typical
313	M272	N49	N165			RIGID	None	None	RIGID	DR1
314	M273	N49	N172			RIGID	None	None	RIGID	DR1
315	M274	N52	N171			RIGID	None	None	RIGID	DR1
316	M275	N52	N170			RIGID	None	None	RIGID	DR1
317	M276	N51	N169			RIGID	None	None	RIGID	DR1
318	M277	N51	N168			RIGID	None	None	RIGID	DR1
319	M278	N50	N167			RIGID	None	None	RIGID	DR1
320	M279	N50	N166			RIGID	None	None	RIGID	DR1
321	J296	K13	K181		90	RIGID	None	None	RIGID	DR1
322	J297	K14	K182		90	RIGID	None	None	RIGID	DR1
323	J298	K15	K183		90	RIGID	None	None	RIGID	DR1
324	J299	K16	K184		90	RIGID	None	None	RIGID	DR1

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design R...
325	J300	K53	K45		90	RIGID	None	None	RIGID	DR1
326	J301	K54	K46		90	RIGID	None	None	RIGID	DR1
327	J302	K55	K47		90	RIGID	None	None	RIGID	DR1
328	J303	K56	K48		90	RIGID	None	None	RIGID	DR1
329	M328	N165	N197			RIGID	None	None	RIGID	DR1
330	M329	N172	N204			RIGID	None	None	RIGID	DR1
331	M330	N166	N198			RIGID	None	None	RIGID	DR1
332	M331	N167	N199			RIGID	None	None	RIGID	DR1
333	M332	N168	N200			RIGID	None	None	RIGID	DR1
334	M333	N169	N201			RIGID	None	None	RIGID	DR1
335	M334	N170	N202			RIGID	None	None	RIGID	DR1
336	M335	N171	N203			RIGID	None	None	RIGID	DR1
337	J361	K199	K288			RIGID	None	None	RIGID	DR1
338	J362	K203	K290			RIGID	None	None	RIGID	DR1
339	J363	K204	K291			RIGID	None	None	RIGID	DR1
340	J364	K205	K292			RIGID	None	None	RIGID	DR1
341	J365	K206	K293			RIGID	None	None	RIGID	DR1
342	J366	K207	K294			RIGID	None	None	RIGID	DR1
343	J367	K197	K181			RIGID	None	None	RIGID	DR1
344	J368	K208	K295			RIGID	None	None	RIGID	DR1
345	J369	K209	K296			RIGID	None	None	RIGID	DR1
346	J370	K210	K297			RIGID	None	None	RIGID	DR1
347	J371	K211	K298			RIGID	None	None	RIGID	DR1
348	J372	K212	K299			RIGID	None	None	RIGID	DR1
349	J373	K201	K289			RIGID	None	None	RIGID	DR1
350	J374	K200	K300			RIGID	None	None	RIGID	DR1
351	J375	K278	K302			RIGID	None	None	RIGID	DR1
352	J376	K279	K303			RIGID	None	None	RIGID	DR1
353	J377	K280	K304			RIGID	None	None	RIGID	DR1
354	J378	K281	K305			RIGID	None	None	RIGID	DR1
355	J379	K282	K306			RIGID	None	None	RIGID	DR1
356	J380	K198	K13			RIGID	None	None	RIGID	DR1
357	J381	K283	K307			RIGID	None	None	RIGID	DR1
358	J382	K284	K308			RIGID	None	None	RIGID	DR1
359	J383	K285	K309			RIGID	None	None	RIGID	DR1
360	J384	K286	K310			RIGID	None	None	RIGID	DR1
361	J385	K287	K311			RIGID	None	None	RIGID	DR1
362	J386	K202	K301			RIGID	None	None	RIGID	DR1
363	J387	K344	K433			RIGID	None	None	RIGID	DR1
364	J388	K348	K435			RIGID	None	None	RIGID	DR1
365	J389	K349	K436			RIGID	None	None	RIGID	DR1
366	J390	K350	K437			RIGID	None	None	RIGID	DR1
367	J391	K351	K438			RIGID	None	None	RIGID	DR1
368	J392	K352	K439			RIGID	None	None	RIGID	DR1
369	J393	K342	K182			RIGID	None	None	RIGID	DR1
370	J394	K353	K440			RIGID	None	None	RIGID	DR1
371	J395	K354	K441			RIGID	None	None	RIGID	DR1
372	J396	K355	K442			RIGID	None	None	RIGID	DR1
373	J397	K356	K443			RIGID	None	None	RIGID	DR1
374	J398	K357	K444			RIGID	None	None	RIGID	DR1
375	J399	K346	K434			RIGID	None	None	RIGID	DR1
376	J400	K345	N219			RIGID	None	None	RIGID	DR1
377	J401	K423	K447			RIGID	None	None	RIGID	DR1
378	J402	K424	K448			RIGID	None	None	RIGID	DR1
379	J403	K425	K449			RIGID	None	None	RIGID	DR1
380	J404	K426	K450			RIGID	None	None	RIGID	DR1
381	J405	K427	K451			RIGID	None	None	RIGID	DR1

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design R...
382	J406	K343	K14			RIGID	None	None	RIGID	DR1
383	J407	K428	K452			RIGID	None	None	RIGID	DR1
384	J408	K429	K453			RIGID	None	None	RIGID	DR1
385	J409	K430	K454			RIGID	None	None	RIGID	DR1
386	J410	K431	K455			RIGID	None	None	RIGID	DR1
387	J411	K432	K456			RIGID	None	None	RIGID	DR1
388	J412	K347	N217			RIGID	None	None	RIGID	DR1
389	J413	K461	K550			RIGID	None	None	RIGID	DR1
390	J414	K465	K552			RIGID	None	None	RIGID	DR1
391	J415	K466	K553			RIGID	None	None	RIGID	DR1
392	J416	K467	K554			RIGID	None	None	RIGID	DR1
393	J417	K468	K555			RIGID	None	None	RIGID	DR1
394	J418	K469	K556			RIGID	None	None	RIGID	DR1
395	J419	K459	K183			RIGID	None	None	RIGID	DR1
396	J420	K470	K557			RIGID	None	None	RIGID	DR1
397	J421	K471	K558			RIGID	None	None	RIGID	DR1
398	J422	K472	K559			RIGID	None	None	RIGID	DR1
399	J423	K473	K560			RIGID	None	None	RIGID	DR1
400	J424	K474	K561			RIGID	None	None	RIGID	DR1
401	J425	K463	K551			RIGID	None	None	RIGID	DR1
402	J426	K462	K562			RIGID	None	None	RIGID	DR1
403	J427	K540	K564			RIGID	None	None	RIGID	DR1
404	J428	K541	K565			RIGID	None	None	RIGID	DR1
405	J429	K542	K566			RIGID	None	None	RIGID	DR1
406	J430	K543	K567			RIGID	None	None	RIGID	DR1
407	J431	K544	K568			RIGID	None	None	RIGID	DR1
408	J432	K460	K15			RIGID	None	None	RIGID	DR1
409	J433	K545	K569			RIGID	None	None	RIGID	DR1
410	J434	K546	K570			RIGID	None	None	RIGID	DR1
411	J435	K547	K571			RIGID	None	None	RIGID	DR1
412	J436	K548	K572			RIGID	None	None	RIGID	DR1
413	J437	K549	K573			RIGID	None	None	RIGID	DR1
414	J438	K464	K563			RIGID	None	None	RIGID	DR1
415	J439	K578	K667			RIGID	None	None	RIGID	DR1
416	J440	K582	K669			RIGID	None	None	RIGID	DR1
417	J441	K583	K670			RIGID	None	None	RIGID	DR1
418	J442	K584	K671			RIGID	None	None	RIGID	DR1
419	J443	K585	K672			RIGID	None	None	RIGID	DR1
420	J444	K586	K673			RIGID	None	None	RIGID	DR1
421	J445	K576	K184			RIGID	None	None	RIGID	DR1
422	J446	K587	K674			RIGID	None	None	RIGID	DR1
423	J447	K588	K675			RIGID	None	None	RIGID	DR1
424	J448	K589	K676			RIGID	None	None	RIGID	DR1
425	J449	K590	K677			RIGID	None	None	RIGID	DR1
426	J450	K591	K678			RIGID	None	None	RIGID	DR1
427	J451	K580	K668			RIGID	None	None	RIGID	DR1
428	J452	K579	N218			RIGID	None	None	RIGID	DR1
429	J453	K657	K681			RIGID	None	None	RIGID	DR1
430	J454	K658	K682			RIGID	None	None	RIGID	DR1
431	J455	K659	K683			RIGID	None	None	RIGID	DR1
432	J456	K660	K684			RIGID	None	None	RIGID	DR1
433	J457	K661	K685			RIGID	None	None	RIGID	DR1
434	J458	K577	K16			RIGID	None	None	RIGID	DR1
435	J459	K662	K686			RIGID	None	None	RIGID	DR1
436	J460	K663	K687			RIGID	None	None	RIGID	DR1
437	J461	K664	K688			RIGID	None	None	RIGID	DR1
438	J462	K665	K689			RIGID	None	None	RIGID	DR1

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design R...
439	J463	K666	K690			RIGID	None	None	RIGID	DR1
440	J464	K581	N220			RIGID	None	None	RIGID	DR1
441	J465	K695	K760A			RIGID	None	None	RIGID	DR1
442	J466	K697	K761A			RIGID	None	None	RIGID	DR1
443	J467	K698	K762A			RIGID	None	None	RIGID	DR1
444	J468	K699	K763A			RIGID	None	None	RIGID	DR1
445	J469	K700	K764A			RIGID	None	None	RIGID	DR1
446	J470	K701	K765A			RIGID	None	None	RIGID	DR1
447	J471	K691	K45			RIGID	None	None	RIGID	DR1
448	J472	K702	K766A			RIGID	None	None	RIGID	DR1
449	J473	K703	K767A			RIGID	None	None	RIGID	DR1
450	J474	K704	K768A			RIGID	None	None	RIGID	DR1
451	J475	K705	K769			RIGID	None	None	RIGID	DR1
452	J476	K706	K770			RIGID	None	None	RIGID	DR1
453	J477	K693	K759A			RIGID	None	None	RIGID	DR1
454	J478	K696	K772			RIGID	None	None	RIGID	DR1
455	J479	K759	K773			RIGID	None	None	RIGID	DR1
456	J480	K760	K774			RIGID	None	None	RIGID	DR1
457	J481	K761	K775			RIGID	None	None	RIGID	DR1
458	J482	K762	K776			RIGID	None	None	RIGID	DR1
459	J483	K763	K777			RIGID	None	None	RIGID	DR1
460	J484	K692	K53			RIGID	None	None	RIGID	DR1
461	J485	K764	K778			RIGID	None	None	RIGID	DR1
462	J486	K765	K779			RIGID	None	None	RIGID	DR1
463	J487	K766	K780			RIGID	None	None	RIGID	DR1
464	J488	K767	K781			RIGID	None	None	RIGID	DR1
465	J489	K768	K782			RIGID	None	None	RIGID	DR1
466	J490	K694	K771			RIGID	None	None	RIGID	DR1
467	J491	K789	K864			RIGID	None	None	RIGID	DR1
468	J492	K791	K865			RIGID	None	None	RIGID	DR1
469	J493	K792	K866			RIGID	None	None	RIGID	DR1
470	J494	K793	K867			RIGID	None	None	RIGID	DR1
471	J495	K794	K868			RIGID	None	None	RIGID	DR1
472	J496	K795	K869			RIGID	None	None	RIGID	DR1
473	J497	K785	K46			RIGID	None	None	RIGID	DR1
474	J498	K796	K870			RIGID	None	None	RIGID	DR1
475	J499	K797	K871			RIGID	None	None	RIGID	DR1
476	J500	K798	K872			RIGID	None	None	RIGID	DR1
477	J501	K799	K873			RIGID	None	None	RIGID	DR1
478	J502	K800	K874			RIGID	None	None	RIGID	DR1
479	J503	K787	K863			RIGID	None	None	RIGID	DR1
480	J504	K790	K876			RIGID	None	None	RIGID	DR1
481	J505	K853	K877			RIGID	None	None	RIGID	DR1
482	J506	K854	K878			RIGID	None	None	RIGID	DR1
483	J507	K855	K879			RIGID	None	None	RIGID	DR1
484	J508	K856	K880			RIGID	None	None	RIGID	DR1
485	J509	K857	K881			RIGID	None	None	RIGID	DR1
486	J510	K786	K54			RIGID	None	None	RIGID	DR1
487	J511	K858	K882			RIGID	None	None	RIGID	DR1
488	J512	K859	K883			RIGID	None	None	RIGID	DR1
489	J513	K860	K884			RIGID	None	None	RIGID	DR1
490	J514	K861	K885			RIGID	None	None	RIGID	DR1
491	J515	K862	K886			RIGID	None	None	RIGID	DR1
492	J516	K788	K875			RIGID	None	None	RIGID	DR1
493	J517	K893	K968			RIGID	None	None	RIGID	DR1
494	J518	K895	K969			RIGID	None	None	RIGID	DR1
495	J519	K896	K970			RIGID	None	None	RIGID	DR1

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design R...
496	J520	K897	K971			RIGID	None	None	RIGID	DR1
497	J521	K898	K972			RIGID	None	None	RIGID	DR1
498	J522	K899	K973			RIGID	None	None	RIGID	DR1
499	J523	K889	K47			RIGID	None	None	RIGID	DR1
500	J524	K900	K974			RIGID	None	None	RIGID	DR1
501	J525	K901	K975			RIGID	None	None	RIGID	DR1
502	J526	K902	K976			RIGID	None	None	RIGID	DR1
503	J527	K903	K977			RIGID	None	None	RIGID	DR1
504	J528	K904	K978			RIGID	None	None	RIGID	DR1
505	J529	K891	K967			RIGID	None	None	RIGID	DR1
506	J530	K894	K980			RIGID	None	None	RIGID	DR1
507	J531	K957	K981			RIGID	None	None	RIGID	DR1
508	J532	K958	K982			RIGID	None	None	RIGID	DR1
509	J533	K959	K983			RIGID	None	None	RIGID	DR1
510	J534	K960	K984			RIGID	None	None	RIGID	DR1
511	J535	K961	K985			RIGID	None	None	RIGID	DR1
512	J536	K890	K55			RIGID	None	None	RIGID	DR1
513	J537	K962	K986			RIGID	None	None	RIGID	DR1
514	J538	K963	K987			RIGID	None	None	RIGID	DR1
515	J539	K964	K988			RIGID	None	None	RIGID	DR1
516	J540	K965	K989			RIGID	None	None	RIGID	DR1
517	J541	K966	K990			RIGID	None	None	RIGID	DR1
518	J542	K892	K979			RIGID	None	None	RIGID	DR1
519	J543	K997	K1072			RIGID	None	None	RIGID	DR1
520	J544	K999	K1073			RIGID	None	None	RIGID	DR1
521	J545	K1000	K1074			RIGID	None	None	RIGID	DR1
522	J546	K1001	K1075			RIGID	None	None	RIGID	DR1
523	J547	K1002	K1076			RIGID	None	None	RIGID	DR1
524	J548	K1003	K1077			RIGID	None	None	RIGID	DR1
525	J549	K993	K48			RIGID	None	None	RIGID	DR1
526	J550	K1004	K1078			RIGID	None	None	RIGID	DR1
527	J551	K1005	K1079			RIGID	None	None	RIGID	DR1
528	J552	K1006	K1080			RIGID	None	None	RIGID	DR1
529	J553	K1007	K1081			RIGID	None	None	RIGID	DR1
530	J554	K1008	K1082			RIGID	None	None	RIGID	DR1
531	J555	K995	K1071			RIGID	None	None	RIGID	DR1
532	J556	K998	K1084			RIGID	None	None	RIGID	DR1
533	J557	K1061	K1085			RIGID	None	None	RIGID	DR1
534	J558	K1062	K1086			RIGID	None	None	RIGID	DR1
535	J559	K1063	K1087			RIGID	None	None	RIGID	DR1
536	J560	K1064	K1088			RIGID	None	None	RIGID	DR1
537	J561	K1065	K1089			RIGID	None	None	RIGID	DR1
538	J562	K994	K56			RIGID	None	None	RIGID	DR1
539	J563	K1066	K1090			RIGID	None	None	RIGID	DR1
540	J564	K1067	K1091			RIGID	None	None	RIGID	DR1
541	J565	K1068	K1092			RIGID	None	None	RIGID	DR1
542	J566	K1069	K1093			RIGID	None	None	RIGID	DR1
543	J567	K1070	K1094			RIGID	None	None	RIGID	DR1
544	J568	K996	K1083			RIGID	None	None	RIGID	DR1
545	M343	N42	N62		90	L2.5x2x3	Beam	Single Angle	A36	Typical
546	M344	N69	N43		90	L2.5x2x3	Beam	Single Angle	A36	Typical
547	M345	N76	N44		90	L2.5x2x3	Beam	Single Angle	A36	Typical
548	M346	N53	N41		90	L2.5x2x3	Beam	Single Angle	A36	Typical
549	M347	N25	N37		270	L2.5x2x3	Beam	Single Angle	A36	Typical
550	M348	N25	N213A		270	L2.5x2x3	Beam	Single Angle	A36	Typical
551	M349	N40	N28		270	L2.5x2x3	Beam	Single Angle	A36	Typical
552	M350	N28	N214		270	L2.5x2x3	Beam	Single Angle	A36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design R...
553	M351	N39	N27		270	L2.5x2x3	Beam	Single Angle	A36	Typical
554	M352	N27	N215A		270	L2.5x2x3	Beam	Single Angle	A36	Typical
555	M353	N38	N26		270	L2.5x2x3	Beam	Single Angle	A36	Typical
556	M354	N26	N216		270	L2.5x2x3	Beam	Single Angle	A36	Typical
557	M355	N9	N13		270	L2.5x2x3	Beam	Single Angle	A36	Typical
558	M356	N14	N10		270	L2.5x2x3	Beam	Single Angle	A36	Typical
559	M357	N15	N11		270	L2.5x2x3	Beam	Single Angle	A36	Typical
560	M358	N16	N12		270	L2.5x2x3	Beam	Single Angle	A36	Typical
561	J581	K193	K41		90	HSS10x6x6	Beam	Tube	A500 Gr...	Typical
562	J582	K194	K44		90	HSS10x6x6	Beam	Tube	A500 Gr...	Typical
563	J583	K186	K44		90	HSS10x6x6	Beam	Tube	A500 Gr...	Typical
564	J584	K185	K43		90	HSS10x6x6	Beam	Tube	A500 Gr...	Typical
565	J585	K192	K43		90	HSS10x6x6	Beam	Tube	A500 Gr...	Typical
566	J586	K191	K42		90	HSS10x6x6	Beam	Tube	A500 Gr...	Typical
567	J587	K196	K42		90	HSS10x6x6	Beam	Tube	A500 Gr...	Typical
568	J588	K195	K41		90	HSS10x6x6	Beam	Tube	A500 Gr...	Typical

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N49						
2	N50						
3	N51						
4	N52						
5	D	Reaction	Reaction	Reaction		Reaction	
6	C	Reaction	Reaction	Reaction		Reaction	
7	B	Reaction	Reaction	Reaction		Reaction	
8	A	Reaction	Reaction	Reaction		Reaction	
9	N145						
10	N146						
11	N147						
12	N148						
13	N157						
14	N158A						
15	N159A						
16	N160						
17	N161						
18	N162						
19	N163						
20	N164						
21	N165						
22	N166						
23	N167						
24	N168						
25	N169						
26	N170						
27	N171						
28	N172						
29	K185	Reaction	Reaction	Reaction		Reaction	
30	K186	Reaction	Reaction	Reaction		Reaction	
31	K187						
32	K188						
33	K189						
34	K190						
35	K191	Reaction	Reaction	Reaction		Reaction	
36	K192	Reaction	Reaction	Reaction		Reaction	

Joint Boundary Conditions (Continued)

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
37	K193	Reaction	Reaction	Reaction		Reaction	
38	K194	Reaction	Reaction	Reaction		Reaction	
39	K195	Reaction	Reaction	Reaction		Reaction	
40	K196	Reaction	Reaction	Reaction		Reaction	
41	N197						
42	N198						
43	N199						
44	N200						
45	N201						
46	N202						
47	N203						
48	N204						

Basic Load Cases

	BLC Description	Category	X ...	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Mem...	Surface(Pl...
1	Dead	None		-1		28	230	28		
2	No Ice Wind 0 deg	None				40	596	76		
3	No Ice Wind 45 deg	None				80	572	104		
4	No Ice Wind 90 deg	None				40	588	76		
5	No Ice Wind 135 deg	None				80	584	104		
6	No Ice Wind 180 deg	None				40	596	76		
7	No Ice Wind 225 deg	None				80	572	104		
8	No Ice Wind 270 deg	None				40	588	76		
9	No Ice Wind 315 deg	None				80	584	104		
10	Ice	None				28	254	274		
11	Temperature Drop	None						258		
12	Ice Wind 0 deg	None				40	592	48		
13	Ice Wind 45 deg	None				80	568	80		
14	Ice Wind 90 deg	None				40	584	56		
15	Ice Wind 135 deg	None				80	580	80		
16	Ice Wind 180 deg	None				40	592	48		
17	Ice Wind 225 deg	None				80	568	80		
18	Ice Wind 270 deg	None				68	584	56		
19	Ice Wind 315 deg	None				80	580	80		
20	Service Wind 0 deg	None				40	596	56		
21	Service Wind 45 deg	None				80	572	48		
22	Service Wind 90 deg	None				40	588	56		
23	Service Wind 135 deg	None				80	584	80		
24	Service Wind 180 deg	None				40	596	56		
25	Service Wind 225 deg	None				80	572	48		
26	Service Wind 270 deg	None				40	588	56		
27	Service Wind 315 deg	None				80	584	80		

Load Combinations

	Description	S...	PD...	SRSS	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	Dead Only	Yes	Y		1	1	28	1	29	1	0		0		0		0		0		0			
2	Dead+Wind 0 deg - No Ice	Yes	Y		1	1	2	1	28	1	29	1	0		0		0		0		0			
3	Dead+Wind 45 deg - No ...	Yes	Y		1	1	3	1	28	1	29	1	0		0		0		0		0			
4	Dead+Wind 90 deg - No ...	Yes	Y		1	1	4	1	28	1	29	1	0		0		0		0		0			
5	Dead+Wind 135 deg - N...	Yes	Y		1	1	5	1	28	1	29	1	0		0		0		0		0			
6	Dead+Wind 180 deg - N...	Yes	Y		1	1	6	1	28	1	29	1	0		0		0		0		0			
7	Dead+Wind 225 deg - N...	Yes	Y		1	1	7	1	28	1	29	1	0		0		0		0		0			
8	Dead+Wind 270 deg - N...	Yes	Y		1	1	8	1	28	1	29	1	0		0		0		0		0			
9	Dead+Wind 315 deg - N...	Yes	Y		1	1	9	1	28	1	29	1	0		0		0		0		0			

Load Combinations (Continued)

	Description	S...	PD...	SRSS	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
10	Dead+Ice+Temp	Yes	Y		1	1	10	1	11	1	28	1	29	1	0		0		0		0			
11	Dead+Wind 0 deg+Ice+T..	Yes	Y		1	1	12	1	10	1	11	1	28	1	29	1	0		0		0			
12	Dead+Wind 45 deg+Ice+..	Yes	Y		1	1	13	1	10	1	11	1	28	1	29	1	0		0		0			
13	Dead+Wind 90 deg+Ice+..	Yes	Y		1	1	14	1	10	1	11	1	28	1	29	1	0		0		0			
14	Dead+Wind 135 deg+Ice..	Yes	Y		1	1	15	1	10	1	11	1	28	1	29	1	0		0		0			
15	Dead+Wind 180 deg+Ice..	Yes	Y		1	1	16	1	10	1	11	1	28	1	29	1	0		0		0			
16	Dead+Wind 225 deg+Ice..	Yes	Y		1	1	17	1	10	1	11	1	28	1	29	1	0		0		0			
17	Dead+Wind 270 deg+Ice..	Yes	Y		1	1	18	1	10	1	11	1	28	1	29	1	0		0		0			
18	Dead+Wind 315 deg+Ice..	Yes	Y		1	1	19	1	10	1	11	1	28	1	29	1	0		0		0			
19	Dead+Wind 0 deg - Servi...		Y		1	1	20	1	28	1	29	1	0		0		0		0		0			
20	Dead+Wind 45 deg - Ser...		Y		1	1	21	1	28	1	29	1	0		0		0		0		0			
21	Dead+Wind 90 deg - Ser...		Y		1	1	22	1	28	1	29	1	0		0		0		0		0			
22	Dead+Wind 135 deg - S...		Y		1	1	23	1	28	1	29	1	0		0		0		0		0			
23	Dead+Wind 180 deg - S...		Y		1	1	24	1	28	1	29	1	0		0		0		0		0			
24	Dead+Wind 225 deg - S...		Y		1	1	25	1	28	1	29	1	0		0		0		0		0			
25	Dead+Wind 270 deg - S...		Y		1	1	26	1	28	1	29	1	0		0		0		0		0			
26	Dead+Wind 315 deg - S...		Y		1	1	27	1	28	1	29	1	0		0		0		0		0			

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	D	max	1.792	7	167.542	7	38.464	14	0	1	.01	18	0	1
2		min	-33.855	18	-103.005	3	-2.794	7	0	1	-.004	9	0	1
3	C	max	33.881	12	164.172	5	38.428	16	0	1	.004	3	0	1
4		min	-1.908	5	-107.028	9	-2.671	5	0	1	-.01	12	0	1
5	B	max	33.904	14	169.772	3	2.615	3	0	1	.005	9	0	1
6		min	-1.967	3	-104.577	7	-40.687	18	0	1	-.004	18	0	1
7	A	max	1.846	9	173.776	9	2.748	9	0	1	.004	12	0	1
8		min	-33.876	16	-101.196	5	-40.723	12	0	1	-.005	3	0	1
9	K185	max	.358	8	27.621	3	30.925	3	0	1	1.094	13	0	1
10		min	-.353	4	-19.759	7	-62.752	16	0	1	-.329	9	0	1
11	K186	max	.351	8	27.816	9	31.314	9	0	1	.301	3	0	1
12		min	-.36	4	-19.382	5	-62.756	14	0	1	-1.095	17	0	1
13	K191	max	66.152	18	28.401	5	.349	2	0	1	1.096	15	0	1
14		min	-30.787	5	-21.95	9	-.346	6	0	1	-.297	3	0	1
15	K192	max	65.818	16	28.645	3	.344	2	0	1	.278	5	0	1
16		min	-31.161	3	-21.515	7	-.349	6	0	1	-1.122	11	0	1
17	K193	max	31.464	7	29.339	7	.35	2	0	1	.292	9	0	1
18		min	-66.163	12	-21.181	3	-.346	6	0	1	-1.094	15	0	1
19	K194	max	31.921	9	29.68	9	.344	2	0	1	1.121	11	0	1
20		min	-65.843	14	-20.855	5	-.349	6	0	1	-.272	7	0	1
21	K195	max	.321	8	29.769	7	64.941	12	0	1	1.244	17	0	1
22		min	-.33	4	-22.368	3	-30.394	7	0	1	-.321	5	0	1
23	K196	max	.329	8	29.629	5	64.95	18	0	1	.347	7	0	1
24		min	-.323	4	-22.911	9	-30.066	5	0	1	-1.252	13	0	1
25	Totals:	max	106.355	8	265.02	16	103.881	2						
26		min	-105.035	4	160.338	3	-102.561	6						

Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Member	Shape	Code Ch...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc [...	phi*Pnt [k]	phi*Mn y...	phi*Mn z...	Cb	Eqn
1	J573	W14x61	.151	0	18	.019	0	y	18	399.102	579.96	88.56	275.4	2....	H1-1b
2	J574	W14x61	.151	0	16	.019	0	y	16	399.102	579.96	88.56	275.4	2....	H1-1b
3	J575	W14x61	.137	0	12	.017	0	y	12	381.613	579.96	88.56	275.4	2....	H1-1b
4	J576	W14x61	.137	0	18	.017	0	y	18	381.613	579.96	88.56	275.4	2....	H1-1b
5	J577	W14x61	.151	0	14	.019	0	y	14	399.102	579.96	88.56	275.4	2....	H1-1b

Envelope AISC 14th(360-10): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Ch...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc [...	phi*Pnt [k]	phi*Mn y...	phi*Mn z...	Cb	Eqn
6	J578	W14x61	.151	0	12	.019	0	y	12	399.102	579.96	88.56	275.4	2....	H1-1b
7	J579	W14x61	.144	0	16	.018	.168	y	16	416.335	579.96	88.56	275.4	2....	H1-1b
8	J580	W14x61	.144	0	14	.018	.168	y	14	416.335	579.96	88.56	275.4	2....	H1-1b
9	M359	W10x22	.024	9.25	11	.005	18.5	y	2	52.256	210.276	16.47	46.976	1....	H1-1b
10	M360	W10x22	.024	9.25	15	.005	18.5	y	6	52.256	210.276	16.47	47.002	1....	H1-1b
11	J133	W8x15	.034	0	12	.004	2.357	y	8	136.18	143.856	7.209	36.72	1....	H1-1b*
12	J134	W8x15	.034	0	14	.004	2.357	y	7	136.18	143.856	7.209	36.72	1....	H1-1b*
13	J135	W8x15	.034	0	16	.004	2.357	y	5	136.18	143.856	7.209	36.72	1....	H1-1b*
14	J136	W8x15	.034	0	18	.004	2.357	y	4	136.18	143.856	7.209	36.72	1....	H1-1b*
15	J125	W14x61	.115	9.25	15	.008	0	y	13	375.749	579.96	88.56	242.111	1	H1-1b
16	J126	W14x61	.112	11.177	12	.008	0	y	11	375.749	579.96	88.56	242.111	1	H1-1b
17	J127	W14x61	.115	9.25	11	.008	18.5	y	13	375.749	579.96	88.56	242.111	1	H1-1b
18	J128	W14x61	.112	7.323	18	.008	18.5	y	11	375.749	579.96	88.56	242.111	1	H1-1b
19	J105	W10x77	.094	6.167	17	.061	6.745	y	8	668.418	735.48	123.93	263.52	1	H1-1b
20	J106	W10x77	.091	12.333	11	.057	7.323	y	11	668.418	735.48	123.93	263.52	1	H1-1b
21	J107	W10x77	.092	6.167	13	.059	11.755	y	8	668.418	735.48	123.93	263.52	1	H1-1b
22	J108	W10x77	.091	6.167	11	.057	11.177	y	11	668.418	735.48	123.93	263.52	1	H1-1b
23	J93	W10x33	.170	0	8	.132	11.37	y	13	264.868	314.604	37.8	102.523	1	H1-1b
24	J94	W10x33	.154	18.5	2	.131	11.37	y	11	264.868	314.604	37.8	102.523	1	H1-1b
25	J95	W10x33	.165	18.5	8	.132	11.37	y	17	264.868	314.604	37.8	102.523	1	H1-1b
26	J96	W10x33	.150	0	2	.131	7.708	y	11	264.868	314.604	37.8	102.523	1	H1-1b
27	J5	W12x53	.307	18.5	14	.126	11.37	y	13	331.272	505.44	78.57	186.337	1	H1-1b
28	J6	W12x53	.355	18.5	12	.138	16.958	y	3	331.272	505.44	78.57	186.337	1	H1-1b
29	J7	W12x53	.303	0	12	.125	7.13	y	13	331.272	505.44	78.57	186.337	1	H1-1b
30	J8	W12x53	.350	18.5	16	.139	1.542	y	9	331.272	505.44	78.57	186.337	1	H1-1b
31	M5	C8x11.5	.067	4.396	15	.012	4.396	y	15	74.906	109.188	3.353	23.558	1	H1-1b
32	M6	C8x11.5	.069	4.396	13	.012	4.396	y	13	74.906	109.188	3.353	23.558	1	H1-1b
33	M7	C8x11.5	.064	4.396	11	.012	4.396	y	11	74.906	109.188	3.353	23.558	1	H1-1b
34	M8	C8x11.5	.065	4.396	17	.012	4.396	y	17	74.906	109.188	3.353	23.558	1	H1-1b
35	M67	L2 1/2x2x3/16	.250	5.997	16	.006	5.997	z	17	6.435	26.212	.344	.805	1	H2-1
36	M68	L2 1/2x2x3/16	.251	5.997	14	.006	5.997	z	14	6.435	26.212	.344	.805	1	H2-1
37	M69	L2 1/2x2x3/16	.248	5.997	12	.006	5.997	z	12	6.435	26.212	.344	.805	1	H2-1
38	M70	L2 1/2x2x3/16	.248	5.997	18	.006	5.997	z	11	6.435	26.212	.344	.805	1	H2-1
39	M42	L2 1/2x2x3/16	.178	5.347	17	.005	5.347	z	12	19.237	26.212	.344	1.261	1	H2-1
40	M43	L2 1/2x2x3/16	.179	5.347	15	.005	5.347	z	18	19.237	26.212	.344	1.261	1	H2-1
41	M44	L2 1/2x2x3/16	.182	5.347	13	.005	5.347	z	15	19.237	26.212	.344	1.261	1	H2-1
42	M45	L2 1/2x2x3/16	.177	5.347	15	.005	5.347	z	13	19.237	26.212	.344	1.261	1	H2-1
43	M22	L2 1/2x2x3/16	.152	4.697	17	.005	4.697	z	18	10.457	26.212	.344	.96	1	H2-1
44	M23	L2 1/2x2x3/16	.150	4.697	11	.005	4.697	z	17	10.457	26.212	.344	.96	1	H2-1
45	M24	L2 1/2x2x3/16	.150	4.697	17	.005	4.697	z	14	10.457	26.212	.344	.96	1	H2-1
46	M25	L2 1/2x2x3/16	.152	4.697	15	.005	4.697	z	12	10.457	26.212	.344	.96	1	H2-1
47	M86	L5x3x1/4	.410	.79	16	.020	0	z	17	35.469	62.856	1.034	7.341	1	H2-1
48	M98	L5x3x1/4	.410	4.266	12	.020	5.056	z	11	35.469	62.856	1.034	7.341	1	H2-1
49	M110	L5x3x1/4	.391	4.266	18	.019	5.056	z	17	35.469	62.856	1.034	7.341	1	H2-1
50	M122	L5x3x1/4	.398	.79	18	.019	0	z	11	35.469	62.856	1.034	7.341	1	H2-1
51	M77	2L2 1/2x2x3...	.008	0	9	.001	0	y	17	41.041	52.488	2.722	2.536	1	H1-1b*
52	M82	2L2 1/2x2x3...	.006	1.056	17	.001	0	y	17	41.041	52.488	2.722	2.536	1	H1-1b
53	M89	2L2 1/2x2x3...	.010	0	7	.001	0	y	15	41.041	52.488	2.722	2.536	1	H1-1b*
54	M94	2L2 1/2x2x3...	.006	1.056	11	.001	0	y	15	41.041	52.488	2.722	2.536	1	H1-1b
55	M101	2L2 1/2x2x3...	.006	1.056	14	.001	0	y	13	41.041	52.488	2.722	2.536	1	H1-1b
56	M106	2L2 1/2x2x3...	.008	0	4	.001	0	y	13	41.041	52.488	2.722	2.536	1	H1-1b*
57	M113	2L2 1/2x2x3...	.009	0	2	.001	0	y	11	41.041	52.488	2.722	2.536	1	H1-1b*
58	M118	2L2 1/2x2x3...	.005	1.056	15	.001	0	y	11	41.041	52.488	2.722	2.536	1	H1-1b
59	M78	2L2 1/2x2 1/...	.035	0	4	.002	4.225	y	12	43.143	58.32	4.017	2.611	1	H1-1b*
60	M83	2L2 1/2x2 1/...	.043	0	8	.002	4.225	y	13	43.143	58.32	4.017	2.611	1	H1-1b*
61	M90	2L2 1/2x2 1/...	.025	2.113	12	.002	4.225	y	11	43.143	58.32	4.017	2.611	1	H1-1b
62	M95	2L2 1/2x2 1/...	.025	2.113	15	.002	4.225	y	11	43.143	58.32	4.017	2.611	1	H1-1b

Envelope AISC 14th(360-10): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Ch...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc [...	phi*Pnt [k]	phi*Mn y...	phi*Mn z...	Cb	Eqn
63	M102	2L2 1/2x2 1/...	.034	0	8	.002	4.225	y	17	43.143	58.32	4.017	2.611	1	H1-1b*
64	M107	2L2 1/2x2 1/...	.041	0	4	.002	4.225	y	16	43.143	58.32	4.017	2.611	1	H1-1b*
65	M114	2L2 1/2x2 1/...	.025	2.113	16	.002	4.225	y	15	43.143	58.32	4.017	2.611	1	H1-1b
66	M119	2L2 1/2x2 1/...	.025	2.113	11	.002	4.225	y	15	43.143	58.32	4.017	2.611	1	H1-1b
67	M260	L3x3x3	.044	3.033	8	.001	0	y	13	13.335	35.316	1.32	2.237	1....	H2-1
68	M261	L3x3x3	.043	3.033	4	.001	0	z	17	13.335	35.316	1.32	2.237	1....	H2-1
69	M262	L3x3x3	.040	3.033	15	.001	6.618	y	11	13.335	35.316	1.32	2.237	1....	H2-1
70	M263	L3x3x3	.041	3.033	11	.001	6.618	z	15	13.335	35.316	1.32	2.237	1....	H2-1
71	M264	L3x3x3	.039	3.033	13	.001	0	y	8	13.335	35.316	1.32	2.237	1....	H2-1
72	M265	L3x3x3	.040	3.033	17	.001	6.618	z	4	13.335	35.316	1.32	2.237	1....	H2-1
73	M266	L3x3x3	.040	3.033	11	.001	6.618	y	6	13.335	35.316	1.32	2.237	1....	H2-1
74	M267	L3x3x3	.038	3.033	15	.001	0	z	11	13.335	35.316	1.32	2.237	1....	H2-1
75	M79	L2 1/2x2x3/16	.135	3.092	5	.001	0	z	10	5.318	26.212	.344	1.25	1	H2-1
76	M84	L2 1/2x2x3/16	.073	3.367	17	.001	0	z	17	5.318	26.212	.344	1.16	1	H2-1
77	M91	L2 1/2x2x3/16	.158	3.092	2	.001	0	z	12	5.318	26.212	.344	1.25	1	H2-1
78	M96	L2 1/2x2x3/16	.073	3.367	11	.001	0	z	16	5.318	26.212	.344	1.16	1	H2-1
79	M103	L2 1/2x2x3/16	.120	3.092	9	.001	0	z	12	5.318	26.212	.344	1.25	1	H2-1
80	M108	L2 1/2x2x3/16	.094	3.092	8	.001	6.597	z	10	5.318	26.212	.344	1.16	1	H2-1
81	M115	L2 1/2x2x3/16	.130	3.092	6	.001	0	z	15	5.318	26.212	.344	1.25	1	H2-1
82	M120	L2 1/2x2x3/16	.069	3.367	15	.001	6.597	z	11	5.318	26.212	.344	1.16	1	H2-1
83	M80	L3x3x3/16	.430	3.636	7	.003	0	z	10	11.014	35.316	-1.851	2.054	1	H2-1
84	M85	L3x3x3/16	.448	3.636	5	.003	7.426	z	17	11.014	35.316	-1.851	2.054	1	H2-1
85	M92	L3x3x3/16	.401	3.636	4	.003	7.426	z	14	11.014	35.316	-1.851	2.054	1	H2-1
86	M97	L3x3x3/16	.412	3.636	4	.003	0	z	17	11.014	35.316	-1.851	2.054	1	H2-1
87	M104	L3x3x3/16	.491	3.636	3	.003	7.426	z	14	11.014	35.316	-1.851	2.054	1	H2-1
88	M109	L3x3x3/16	.465	3.636	9	.003	0	z	12	11.014	35.316	-1.851	2.054	1	H2-1
89	M116	L3x3x3/16	.423	3.636	8	.003	0	z	11	11.014	35.316	-1.851	2.054	1	H2-1
90	M121	L3x3x3/16	.425	3.636	8	.003	0	z	11	11.014	35.316	-1.851	2.054	1	H2-1
91	D1	W10x112	.359	1.034	16	.208	1.034	y	14	756.894	1065.96	186.84	382.875	1	H1-1b
92	C1	W10x112	.360	1.034	14	.208	1.034	y	16	756.894	1065.96	186.84	382.875	1	H1-1b
93	B1	W10x112	.367	1.034	12	.220	1.034	y	18	756.894	1065.96	186.84	382.875	1	H1-1b
94	A1	W10x112	.367	1.034	18	.220	1.034	y	12	756.894	1065.96	186.84	382.875	1	H1-1b
95	M71	L6x6x1/2	.472	0	7	.018	12.776	y	4	149.184	186.3	7.512	28.608	1	H2-1
96	M72	L6x6x1/2	.447	0	5	.017	12.776	z	8	149.184	186.3	7.512	28.608	1	H2-1
97	M73	L6x6x1/2	.473	0	3	.017	12.776	y	8	149.184	186.3	7.512	28.608	1	H2-1
98	M74	L6x6x1/2	.481	0	9	.016	12.776	z	4	149.184	186.3	7.512	28.608	1	H2-1
99	M46	L5x5x1/2	.314	5.187	7	.003	5.291	y	7	124	153.9	5.198	20.221	1	H2-1
100	M47	L5x5x1/2	.301	5.187	5	.003	5.291	y	5	124	153.9	5.198	20.221	1	H2-1
101	M48	L5x5x1/2	.310	5.187	3	.003	5.291	y	3	124	153.9	5.198	20.221	1	H2-1
102	M49	L5x5x1/2	.330	5.187	9	.003	5.291	y	9	124	153.9	5.198	20.221	1	H2-1
103	M26	L5x5x1/2	.265	5.291	7	.036	9.959	y	4	123.67	153.9	5.198	20.203	1	H2-1
104	M27	L5x5x1/2	.253	9.336	5	.036	9.959	z	8	123.67	153.9	5.198	20.203	1	H2-1
105	M28	L5x5x1/2	.256	5.291	3	.033	9.959	z	6	123.67	153.9	5.198	20.203	1	H2-1
106	M29	L5x5x1/2	.270	5.291	9	.036	9.959	y	6	123.67	153.9	5.198	20.203	1	H2-1
107	D2	W10x77	.317	1.292	7	.014	17.115	y	6	562.314	735.48	123.93	254.308	1	H1-1a
108	C2	W10x77	.310	1.292	5	.014	17.115	y	6	562.314	735.48	123.93	254.308	1	H1-1a
109	B2	W10x77	.316	1.292	3	.014	17.115	y	2	562.314	735.48	123.93	254.308	1	H1-1a
110	A2	W10x77	.325	1.292	9	.014	17.115	y	2	562.314	735.48	123.93	254.308	1	H1-1a
111	D3	W10x77	.323	14.9	7	.068	9.933	y	7	663.984	735.48	123.93	263.52	1	H1-1b
112	C3	W10x77	.311	14.9	5	.066	9.933	y	5	663.984	735.48	123.93	263.52	1	H1-1b
113	B3	W10x77	.318	14.9	3	.072	9.933	y	3	663.984	735.48	123.93	263.52	1	H1-1b
114	A3	W10x77	.334	14.9	9	.071	9.933	y	9	663.984	735.48	123.93	263.52	1	H1-1b
115	M1	L5x5x1/2	.131	0	6	.060	9.959	y	4	123.247	153.9	5.198	20.18	1	H2-1
116	M2	L5x5x1/2	.143	0	4	.067	9.959	z	8	123.247	153.9	5.198	20.18	1	H2-1
117	M3	L5x5x1/2	.132	0	2	.058	9.959	z	6	123.247	153.9	5.198	20.18	1	H2-1
118	M4	L5x5x1/2	.126	0	9	.037	9.959	y	2	123.247	153.9	5.198	20.18	1	H2-1
119	J129	W16x50	.216	2.357	16	.132	4.714	y	7	445.606	476.28	44.01	248.4	1....	H1-1b

Envelope AISC 14th(360-10): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Ch...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc [...	phi*Pnt [k]	phi*Mn y...	phi*Mn z...	Cb	Eqn
120	J130	W16x50	.222	2.357	14	.128	0	y	5	445.606	476.28	44.01	248.4	1....	H1-1b
121	J131	W16x50	.220	2.357	12	.130	4.714	y	3	445.606	476.28	44.01	248.4	1....	H1-1b
122	J132	W16x50	.216	2.357	18	.138	0	y	9	445.606	476.28	44.01	248.4	1....	H1-1b
123	M256	HSS6x6x10	.073	0	7	.026	0	y	9	475.512	484.38	80.04	80.04	1	H1-1b*
124	M257	HSS6x6x10	.071	0	5	.027	0	y	3	475.512	484.38	80.04	80.04	1	H1-1b*
125	M258	HSS6x6x10	.073	0	3	.026	0	y	9	475.512	484.38	80.04	80.04	1	H1-1b*
126	M259	HSS6x6x10	.076	0	9	.024	0	y	3	475.512	484.38	80.04	80.04	1	H1-1b*
127	J109	W10x26	.014	6.541	16	.005	13.081	y	12	122.421	246.564	20.25	66.927	1	H1-1b
128	J110	W10x26	.014	6.541	13	.005	13.081	y	13	122.421	246.564	20.25	66.927	1	H1-1b
129	J111	W10x26	.014	6.541	17	.005	13.081	y	16	122.421	246.564	20.25	66.927	1	H1-1b
130	J112	W10x26	.014	6.541	13	.005	13.081	y	18	122.421	246.564	20.25	66.927	1	H1-1b
131	J97	W10x26	.014	6.541	14	.005	13.081	y	13	122.421	246.564	20.25	66.927	1	H1-1b
132	J98	W10x26	.014	6.541	12	.005	13.081	y	13	122.421	246.564	20.25	66.927	1	H1-1b
133	J99	W10x26	.014	6.541	18	.005	13.081	y	16	122.421	246.564	20.25	66.927	1	H1-1b
134	J100	W10x26	.014	6.541	17	.005	13.081	y	11	122.421	246.564	20.25	66.927	1	H1-1b
135	J85	W10x26	.014	6.541	18	.005	13.081	y	16	122.421	246.564	20.25	66.927	1	H1-1b
136	J86	W10x26	.014	6.541	14	.005	13.081	y	18	122.421	246.564	20.25	66.927	1	H1-1b
137	J87	W10x26	.014	6.541	16	.005	13.081	y	12	122.421	246.564	20.25	66.927	1	H1-1b
138	J88	W10x26	.014	6.541	13	.005	13.081	y	14	122.421	246.564	20.25	66.927	1	H1-1b
139	J65	W10x26	.014	6.541	18	.005	13.081	y	12	122.421	246.564	20.25	66.927	1	H1-1b
140	J66	W10x26	.014	6.541	15	.005	0	y	14	122.421	246.564	20.25	66.927	1	H1-1b
141	J67	W10x26	.014	6.541	15	.005	13.081	y	16	122.421	246.564	20.25	66.927	1	H1-1b
142	J68	W10x26	.014	6.541	13	.005	0	y	18	122.421	246.564	20.25	66.927	1	H1-1b
143	M123	L3x3x3/16	.319	4.481	18	.009	0	z	15	7.561	35.316	-1.851	1.887	1	H2-1
144	M124	L3x3x3/16	.303	4.481	16	.009	0	z	17	7.561	35.316	-1.851	1.887	1	H2-1
145	M125	L3x3x3/16	.303	4.481	13	.009	8.963	z	13	7.561	35.316	-1.851	1.887	1	H2-1
146	M126	L3x3x3/16	.318	4.481	13	.009	0	z	13	7.561	35.316	-1.851	1.887	1	H2-1
147	M127	L3x3x3/16	.037	1.584	11	.003	0	z	13	3.781	35.316	-1.851	1.536	1	H2-1
148	M336	L3x3x3/16	.001	6.338	13	.002	6.338	y	13	26.426	35.316	.509	2.183	1	H2-1
149	M337	L3x3x3/16	.001	0	18	.002	6.338	y	15	26.426	35.316	.509	2.183	1	H2-1
150	M338	L3x3x3/16	.001	6.338	13	.002	0	y	13	26.426	35.316	.509	2.183	1	H2-1
151	M339	L3x3x3/16	.001	0	15	.002	0	y	15	26.426	35.316	.509	2.183	1	H2-1
152	M340	L3x3x3/16	.023	1.584	17	.002	0	z	11	3.781	35.316	-1.851	1.536	1	H2-1
153	M341	L3x3x3/16	.023	1.584	15	.002	0	z	13	3.781	35.316	-1.851	1.536	1	H2-1
154	M342	L3x3x3/16	.023	1.584	13	.002	0	z	11	3.781	35.316	-1.851	1.536	1	H2-1
155	J45	W10x26	.014	6.541	14	.005	13.081	y	12	122.421	246.564	20.25	66.927	1	H1-1b
156	J46	W10x26	.014	6.541	12	.005	13.081	y	12	122.421	246.564	20.25	66.927	1	H1-1b
157	J47	W10x26	.014	6.541	18	.005	13.081	y	16	122.421	246.564	20.25	66.927	1	H1-1b
158	J48	W10x26	.014	6.541	16	.005	13.081	y	16	122.421	246.564	20.25	66.927	1	H1-1b
159	M54	L3x3x1/4	.000	0	2	.005	8.047	z	16	12.225	46.656	.673	2.895	1	H2-1
160	M55	L3x3x1/4	.001	0	8	.005	8.047	z	18	12.225	46.656	.673	2.895	1	H2-1
161	M56	L3x3x1/4	.000	0	4	.005	8.047	z	12	12.225	46.656	.673	2.895	1	H2-1
162	M57	L3x3x1/4	.000	0	9	.005	8.047	z	18	12.225	46.656	.673	2.895	1	H2-1
163	J25	W12x26	.026	8.857	14	.009	13.081	y	5	139.661	247.86	22.059	79.432	1	H1-1b
164	J26	W12x26	.026	4.224	12	.009	0	y	3	139.661	247.86	22.059	79.432	1	H1-1b
165	J27	W12x26	.026	8.857	18	.009	13.081	y	9	139.661	247.86	22.059	79.432	1	H1-1b
166	J28	W12x26	.026	4.224	16	.009	0	y	7	139.661	247.86	22.059	79.432	1	H1-1b
167	M9	C8x11.5	.008	3.108	14	.003	6.217	y	14	51.387	109.188	3.353	21.086	1	H1-1b
168	M10	C8x11.5	.008	3.108	16	.003	6.217	y	16	51.387	109.188	3.353	21.086	1	H1-1b
169	M11	C8x11.5	.008	3.108	14	.003	6.217	y	18	51.387	109.188	3.353	21.086	1	H1-1b
170	M12	C8x11.5	.008	3.108	12	.003	6.217	y	16	51.387	109.188	3.353	21.086	1	H1-1b
171	M13	C8x11.5	.019	4.396	13	.004	0	y	13	26.589	109.188	3.353	17.592	1	H1-1b
172	J73	W10x33	.071	9.443	8	.011	18.5	y	11	264.868	314.604	37.8	102.523	1	H1-1b*
173	J76	W10x33	.069	0	2	.011	18.5	y	17	264.868	314.604	37.8	102.523	1	H1-1b*
174	J79	W10x33	.068	0	8	.011	18.5	y	15	264.868	314.604	37.8	102.523	1	H1-1b*
175	J82	W10x33	.067	9.443	2	.011	18.5	y	13	264.868	314.604	37.8	102.523	1	H1-1b*
176	J53	W10x33	.060	9.443	8	.013	18.5	y	11	264.868	314.604	37.8	102.523	1	H1-1b*

Envelope AISC 14th(360-10): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Ch...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc [...	phi*Pnt [k]	phi*Mn y...	phi*Mn z...	Cb	Eqn
177	J56	W10x33	.057	0	2	.013	18.5	y	17	264.868	314.604	37.8	102.523	1	H1-1b*
178	J59	W10x33	.058	0	8	.013	18.5	y	15	264.868	314.604	37.8	102.523	1	H1-1b*
179	J62	W10x33	.056	9.443	2	.013	18.5	y	13	264.868	314.604	37.8	102.523	1	H1-1b*
180	M75	2L2 1/2x2 1/...	.128	6.47	8	.004	6.338	y	15	46.122	77.112	5.381	2.133	1	H1-1b*
181	M87	2L2 1/2x2 1/...	.119	0	2	.004	6.338	y	13	46.122	77.112	5.381	3.414	1	H1-1b*
182	M99	2L2 1/2x2 1/...	.113	0	8	.004	6.338	y	11	46.122	77.112	5.381	3.414	1	H1-1b*
183	M111	2L2 1/2x2 1/...	.106	6.47	2	.004	6.338	y	17	46.122	77.112	5.381	2.133	1	H1-1b*
184	J33	W10x33	.055	9.25	16	.012	18.5	y	11	264.868	314.604	37.8	102.523	1	H1-1b
185	J36	W10x33	.053	9.25	12	.012	18.5	y	17	264.868	314.604	37.8	102.523	1	H1-1b
186	J39	W10x33	.055	9.25	9	.012	18.5	y	15	264.868	314.604	37.8	102.523	1	H1-1b
187	J42	W10x33	.054	9.25	9	.013	18.5	y	13	264.868	314.604	37.8	102.523	1	H1-1b
188	M50	L3x3x1/4	.131	4.742	15	.004	11.381	z	15	23.159	46.656	.673	3.203	1	H2-1
189	M51	L3x3x1/4	.129	4.742	13	.004	11.381	z	13	23.159	46.656	.673	3.203	1	H2-1
190	M52	L3x3x1/4	.116	6.639	11	.004	11.381	z	11	23.159	46.656	.673	3.203	1	H2-1
191	M53	L3x3x1/4	.120	4.742	17	.004	5.69	z	13	23.159	46.656	.673	3.203	1	H2-1
192	J13	W18x65	.177	12.333	13	.079	18.5	y	14	493.623	618.84	60.75	340.956	1	H1-1b
193	J16	W18x65	.176	3.276	14	.072	18.5	y	12	493.623	618.84	60.75	340.956	1	H1-1b
194	J19	W18x65	.174	6.167	13	.078	18.5	y	9	493.623	618.84	60.75	340.956	1	H1-1b
195	J22	W18x65	.174	15.224	16	.071	18.5	y	16	493.623	618.84	60.75	340.956	1	H1-1b
196	M30	C7x9.8	.075	5.043	15	.009	5.043	y	15	52.159	92.988	2.669	16.733	1	H1-1b
197	M31	C7x9.8	.074	5.043	13	.009	5.043	y	13	52.159	92.988	2.669	16.733	1	H1-1b
198	M32	C7x9.8	.070	5.043	11	.009	5.043	y	11	52.159	92.988	2.669	16.733	1	H1-1b
199	M33	C7x9.8	.071	5.043	17	.009	5.043	y	17	52.159	92.988	2.669	16.733	1	H1-1b
200	J113	TS6x10x.375	.056	12.976	11	.003	12.976	y	12	348.421	459.54	123.855	86.94	1	H1-1b
201	J114	TS6x10x.375	.056	12.976	11	.003	12.976	y	18	348.421	459.54	123.855	86.94	1	H1-1b
202	J115	TS6x10x.375	.057	12.976	17	.003	12.976	y	18	348.421	459.54	123.855	86.94	1	H1-1b
203	J116	TS6x10x.375	.055	12.976	17	.003	12.976	y	16	348.421	459.54	123.855	86.94	1	H1-1b
204	J117	TS6x10x.375	.056	12.976	15	.003	12.976	y	16	348.421	459.54	123.855	86.94	1	H1-1b
205	J118	TS6x10x.375	.056	12.976	15	.003	12.976	y	14	348.421	459.54	123.855	86.94	1	H1-1b
206	J119	TS6x10x.375	.056	12.976	13	.003	12.976	y	14	348.421	459.54	123.855	86.94	1	H1-1b
207	J120	TS6x10x.375	.057	12.976	13	.003	12.976	y	12	348.421	459.54	123.855	86.94	1	H1-1b
208	J74	W8x31	.158	0	8	.005	0	y	18	197.878	295.812	38.07	74.297	1	H1-1b*
209	J75	W8x31	.155	0	4	.005	14.681	y	15	197.878	295.812	38.07	74.297	1	H1-1b*
210	J77	W8x31	.150	0	6	.005	0	y	11	197.878	295.812	38.07	74.297	1	H1-1b*
211	J78	W8x31	.153	0	2	.005	0	y	17	197.878	295.812	38.07	74.297	1	H1-1b*
212	J80	W8x31	.149	0	4	.005	0	y	15	197.878	295.812	38.07	74.297	1	H1-1b*
213	J81	W8x31	.152	0	8	.005	14.681	y	13	197.878	295.812	38.07	74.297	1	H1-1b*
214	J83	W8x31	.150	0	2	.005	14.681	y	10	197.878	295.812	38.07	74.297	1	H1-1b*
215	J84	W8x31	.147	0	6	.005	14.681	y	10	197.878	295.812	38.07	74.297	1	H1-1b*
216	J54	W8x31	.212	8.273	8	.005	0	y	13	161.079	295.812	38.07	70.127	1	H1-1a
217	J55	W8x31	.208	7.709	4	.005	0	y	10	161.079	295.812	38.07	70.127	1	H1-1a
218	J57	W8x31	.192	0	6	.005	0	y	11	161.079	295.812	38.07	70.127	1	H1-1b*
219	J58	W8x31	.196	0	2	.005	0	y	18	161.079	295.812	38.07	70.127	1	H1-1b*
220	J60	W8x31	.194	0	4	.005	0	y	14	161.079	295.812	38.07	70.127	1	H1-1b*
221	J61	W8x31	.198	0	8	.005	0	y	10	161.079	295.812	38.07	70.127	1	H1-1b*
222	J63	W8x31	.191	0	2	.005	0	y	11	161.079	295.812	38.07	70.127	1	H1-1b*
223	J64	W8x31	.187	0	6	.005	0	y	15	161.079	295.812	38.07	70.127	1	H1-1b*
224	M76	2L2 1/2x3 1/...	.385	13.715	8	.002	13.715	y	16	58.671	115.02	12.446	4.361	1	H1-1a
225	M81	2L2 1/2x3 1/...	.369	3.857	4	.001	13.715	y	14	58.671	115.02	12.446	2.726	1	H1-1a
226	M88	2L2 1/2x3 1/...	.328	13.715	6	.002	13.501	y	14	58.671	115.02	12.446	4.361	1	H1-1a
227	M93	2L2 1/2x3 1/...	.349	6.858	3	.002	13.715	y	12	58.671	115.02	12.446	2.726	1	H1-1a
228	M100	2L2 1/2x3 1/...	.332	5.357	3	.001	13.715	y	12	58.671	115.02	12.446	2.726	1	H1-1a
229	M105	2L2 1/2x3 1/...	.370	5.143	9	.001	13.715	y	18	58.671	115.02	12.446	2.726	1	H1-1a
230	M112	2L2 1/2x3 1/...	.345	6.858	9	.002	13.715	y	18	58.671	115.02	12.446	2.726	1	H1-1a
231	M117	2L2 1/2x3 1/...	.303	5.357	7	.001	13.715	y	16	58.671	115.02	12.446	2.726	1	H1-1a
232	J34	W8x31	.169	0	8	.005	0	y	10	161.079	295.812	38.07	70.127	1	H1-1b*
233	J35	W8x31	.165	0	4	.005	0	y	11	161.079	295.812	38.07	70.127	1	H1-1b*

Envelope AISC 14th(360-10): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Ch...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc [...	phi*Pnt [k]	phi*Mn y...	phi*Mn z...	Cb	Eqn
234	J37	W8x31	.156	0	6	.005	0	y	13	161.079	295.812	38.07	70.127	1	H1-1b*
235	J38	W8x31	.160	0	2	.005	0	y	11	161.079	295.812	38.07	70.127	1	H1-1b*
236	J40	W8x31	.157	0	4	.005	0	y	10	161.079	295.812	38.07	70.127	1	H1-1b*
237	J41	W8x31	.161	0	8	.005	0	y	13	161.079	295.812	38.07	70.127	1	H1-1b*
238	J43	W8x31	.155	0	2	.005	0	y	15	161.079	295.812	38.07	70.127	1	H1-1b*
239	J44	W8x31	.151	0	6	.005	0	y	13	161.079	295.812	38.07	70.127	1	H1-1b*
240	M59	2L2 1/2x2x3...	.396	8.289	7	.005	8.126	y	13	23.186	52.488	2.722	1.585	1	H1-1a
241	M60	2L2 1/2x2x3...	.367	8.289	14	.005	8.126	y	17	23.186	52.488	2.722	1.585	1	H1-1a
242	M61	2L2 1/2x2x3...	.360	8.289	14	.005	8.126	y	11	23.186	52.488	2.722	1.585	1	H1-1a
243	M62	2L2 1/2x2x3...	.397	8.289	3	.005	8.126	y	15	23.186	52.488	2.722	1.585	1	H1-1a
244	M63	2L2 1/2x2x3...	.337	8.289	12	.005	8.126	y	17	23.186	52.488	2.722	1.585	1	H1-1a
245	M64	2L2 1/2x2x3...	.378	8.289	9	.005	8.126	y	13	23.186	52.488	2.722	1.585	1	H1-1a
246	M65	2L2 1/2x2x3...	.389	8.289	9	.005	8.126	y	15	23.186	52.488	2.722	1.585	1	H1-1a
247	M66	2L2 1/2x2x3...	.345	8.289	16	.005	8.126	y	11	23.186	52.488	2.722	1.585	1	H1-1a
248	J14	W8x31	.129	0	7	.005	12.495	y	10	221.067	295.812	38.07	77.002	1	H1-1b*
249	J15	W8x31	.128	0	5	.005	12.495	y	14	221.067	295.812	38.07	77.002	1	H1-1b*
250	J17	W8x31	.120	0	5	.005	12.495	y	11	221.067	295.812	38.07	77.002	1	H1-1b*
251	J18	W8x31	.124	0	3	.005	12.495	y	10	221.067	295.812	38.07	77.002	1	H1-1b*
252	J20	W8x31	.130	0	3	.005	12.495	y	10	221.067	295.812	38.07	77.002	1	H1-1b*
253	J21	W8x31	.135	0	9	.005	12.495	y	11	221.067	295.812	38.07	77.002	1	H1-1b*
254	J23	W8x31	.128	0	9	.005	12.495	y	10	221.067	295.812	38.07	77.002	1	H1-1b*
255	J24	W8x31	.124	0	7	.005	12.495	y	16	221.067	295.812	38.07	77.002	1	H1-1b*
256	M34	2L2 1/2x2x3...	.335	7.619	8	.004	7.619	y	12	25.322	52.488	2.722	1.585	1	H1-1a
257	M35	2L2 1/2x2x3...	.318	7.619	4	.004	7.619	y	18	25.322	52.488	2.722	1.585	1	H1-1a
258	M36	2L2 1/2x2x3...	.309	7.619	6	.004	7.619	y	18	25.322	52.488	2.722	1.585	1	H1-1a
259	M37	2L2 1/2x2x3...	.325	7.619	2	.004	7.619	y	16	25.322	52.488	2.722	1.585	1	H1-1a
260	M38	2L2 1/2x2x3...	.257	7.619	4	.004	7.619	y	16	25.322	52.488	2.722	1.585	1	H1-1a
261	M39	2L2 1/2x2x3...	.271	7.619	8	.004	7.619	y	14	25.322	52.488	2.722	1.585	1	H1-1a
262	M40	2L2 1/2x2x3...	.287	7.619	2	.004	7.619	y	14	25.322	52.488	2.722	1.585	1	H1-1a
263	M41	2L2 1/2x2x3...	.269	7.619	6	.004	7.619	y	12	25.322	52.488	2.722	1.585	1	H1-1a
264	M14	2L2 1/2x2x3...	.197	0	8	.004	7.281	y	11	27.351	52.488	2.722	2.536	1	H1-1b*
265	M15	2L2 1/2x2x3...	.179	0	4	.004	7.281	y	18	27.351	52.488	2.722	2.536	1	H1-1b*
266	M16	2L2 1/2x2x3...	.175	0	6	.004	7.281	y	18	27.351	52.488	2.722	2.536	1	H1-1b*
267	M17	2L2 1/2x2x3...	.195	0	3	.004	7.281	y	17	27.351	52.488	2.722	2.536	1	H1-1b*
268	M18	2L2 1/2x2x3...	.120	0	4	.004	7.281	y	16	27.351	52.488	2.722	2.536	1	H1-1b*
269	M19	2L2 1/2x2x3...	.155	0	9	.004	7.281	y	14	27.351	52.488	2.722	2.536	1	H1-1b*
270	M20	2L2 1/2x2x3...	.158	0	9	.004	7.281	y	14	27.351	52.488	2.722	2.536	1	H1-1b*
271	M21	2L2 1/2x2x3...	.120	0	6	.004	7.281	y	12	27.351	52.488	2.722	2.536	1	H1-1b*
272	M343	L2.5x2x3	.870	3.436	13	.000	5.236	z	8	10.315	26.503	.625	1.173	1	H2-1
273	M344	L2.5x2x3	.807	1.8	11	.000	0	z	7	10.315	26.503	.625	1.173	1	H2-1
274	M345	L2.5x2x3	.830	1.8	17	.000	0	z	3	10.315	26.503	.625	1.173	1	H2-1
275	M346	L2.5x2x3	.845	1.8	15	.000	0	z	3	10.315	26.503	.625	1.173	1	H2-1
276	M347	L2.5x2x3	.011	2.305	11	.000	5.269	z	8	8.39	26.503	.625	1.283	1....	H2-1
277	M348	L2.5x2x3	.052	1.508	15	.000	4.669	z	8	10.643	26.503	.625	1.326	1....	H2-1
278	M349	L2.5x2x3	.011	2.964	13	.000	5.269	z	9	8.39	26.503	.625	1.283	1....	H2-1
279	M350	L2.5x2x3	.050	1.508	17	.000	4.669	z	4	10.643	26.503	.625	1.326	1....	H2-1
280	M351	L2.5x2x3	.011	2.964	15	.000	5.269	z	9	8.39	26.503	.625	1.283	1....	H2-1
281	M352	L2.5x2x3	.050	1.508	11	.000	4.669	z	2	10.643	26.503	.625	1.326	1....	H2-1
282	M353	L2.5x2x3	.011	2.964	17	.000	0	z	3	8.39	26.503	.625	1.283	1....	H2-1
283	M354	L2.5x2x3	.051	1.508	13	.000	4.669	z	3	10.643	26.503	.625	1.326	1....	H2-1
284	M355	L2.5x2x3	.112	3.134	15	.000	0	z	7	10.811	26.503	.625	1.33	1....	H2-1
285	M356	L2.5x2x3	.099	1.495	13	.000	0	z	3	10.811	26.503	.625	1.33	1....	H2-1
286	M357	L2.5x2x3	.108	1.495	11	.000	4.628	z	3	10.811	26.503	.625	1.33	1....	H2-1
287	M358	L2.5x2x3	.096	1.495	17	.000	4.628	z	7	10.811	26.503	.625	1.33	1....	H2-1
288	J581	HSS10x6x6	.272	0	7	.010	25.019	z	4	154.892	430.56	81.765	116.61	1....	H1-1a
289	J582	HSS10x6x6	.275	0	9	.011	25.019	z	4	154.892	430.56	81.765	116.61	1....	H1-1a
290	J583	HSS10x6x6	.280	0	9	.010	25.715	z	6	146.616	430.56	81.765	116.61	1....	H1-1a

Envelope AISC 14th(360-10): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Ch...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc [...	phi*Pnt [k]	phi*Mn y...	phi*Mn z...	Cb	Eqn
291	J584	HSS10x6x6	.278	0	3	.011	25.715	z	6	146.616	430.56	81.765	116.61	1....	H1-1a
292	J585	HSS10x6x6	.266	0	3	.011	25.019	z	8	154.892	430.56	81.765	116.61	1....	H1-1a
293	J586	HSS10x6x6	.264	0	5	.010	25.019	z	8	154.892	430.56	81.765	116.61	1....	H1-1a
294	J587	HSS10x6x6	.253	0	5	.011	24.344	z	2	163.605	430.56	81.765	116.61	1....	H1-1a
295	J588	HSS10x6x6	.255	0	7	.011	24.344	z	2	163.605	430.56	81.765	116.61	1....	H1-1a

RAMAKER & ASSOCIATES, INC.
855 Community Drive, Sauk City, WI 53583
Phone: 608-643-4100 Fax: 608-643-7999

Job:	New London (CT2080)
Project:	30511
By:	RJN
Date:	5/1/18

Wind Load on Antennas ASCE 7-05

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2\ I$

$F = q_z\ G\ C_f\ A_f$

Occupancy:	II		Table 1-1
Exposure:	C		Exposure Category
V:	105	mph	Basic Wind Speed (Figure 6-1)
z:	119.1	ft	Height above ground level
I:	1.00		Importance Factor (6.5.5, Table 6-1)
K_z:	1.31		Velocity Pressure Exposure Coeffiecient (Table 6-3 page 79)
K_{zt}:	1.00		Topographic Factor (6.5.7.2)
K_d:	0.90		Wind Directionality Factor (Table 6-4)
q_z:	33.4	psf	Velocity Pressure at Height z
G:	0.85		Self Support structures 450 feet or less in height
Increase:	1.00		Rooftop Structures < 60 ft = 1.9 (6.5.15.1)

Mount & Antenna Wind Loads

Appurtenance	Height	Width	h/D	Shape	C_f	A_f	Force
	in	*in*				*sq ft*	*lb*
19' x 18.5' x 18.5' Panel	228.0	222.0	1.0	Flat	1.300	351.50	12959.4
19' x 18.5' x 18.5' Panel w/ ice	228.0	223.5	1.0	Flat	1.300	353.88	13045.8
30' x 18.5' x 18.5' Panel	360.0	222.0	1.6	Flat	1.310	555.00	20618.1
30' x 18.5' x 18.5' Panel w/ ice	360.0	223.5	1.6	Flat	1.310	558.75	20754.5
70' x 18.5' x 18.5' Panel	840.0	222.0	3.8	Flat	1.346	1295.00	49431.9
70' x 18.5' x 18.5' Panel w/ ice	840.0	223.5	3.8	Flat	1.346	1303.75	49750.2
70' x 26.2' x 26.2' Panel	840.0	314.4	2.7	Flat	1.328	1834.00	69042.5
70' x 26.2' x 26.2' Panel w/ ice	840.0	317.9	2.6	Flat	1.327	1854.42	69785.4

EBI Consulting
environmental | engineering | due diligence

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

SPRINT Existing Facility

Site ID: CT03XC103

26 Washington St / New London
26 Washington Street
New London, CT 06320

June 6, 2018

EBI Project Number: 6218004164

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	5.21 %

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

June 6, 2018

SPRINT
Attn: RF Engineering Manager
1 International Boulevard, Suite 800
Mahwah, NJ 07495

Emissions Analysis for Site: **CT03XC103 – 26 Washington St / New London**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **26 Washington Street, New London, CT**, for the purpose of determining whether the emissions from the Proposed SPRINT Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

General population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 850 MHz Band is approximately 567 $\mu W/cm^2$. The general population exposure limit for the 1900 MHz (PCS) and 2500 MHz (BRS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed SPRINT Wireless antenna facility located at **26 Washington Street, New London, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 1 CDMA channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

2) 2 LTE channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 50 Watts per Channel.

3) 5 CDMA channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 16 Watts per Channel.

4) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

5) 8 LTE channels (2500 MHz (BRS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

7) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antennas used in this modeling are the **Commscope NNVV-65B-R4 and the Nokia AAHC** for transmission in the 850 MHz, 1900 MHz (PCS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antenna mounting height centerlines of the proposed antennas are **173.08 feet** above ground level (AGL) for **Sector A**, **173.08 feet** above ground level (AGL) for **Sector B** and **173.08 feet** above ground level (AGL) for Sector C.

10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general population threshold limits.

SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4
Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd
Height (AGL):	**173.08 feet**	Height (AGL):	**173.08 feet**	Height (AGL):	**173.08 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts
ERP (W):	7,378.61	ERP (W):	7,378.61	ERP (W):	7,378.61
Antenna A1 MPE%	**1.17 %**	Antenna B1 MPE%	**1.17 %**	Antenna C1 MPE%	**1.17 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Nokia AAHC	Make / Model:	Nokia AAHC	Make / Model:	Nokia AAHC
Gain:	15.05 dBd	Gain:	15.05 dBd	Gain:	15.05 dBd
Height (AGL):	**173.08 feet**	Height (AGL):	**173.08 feet**	Height (AGL):	**173.08 feet**
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts
ERP (W):	5,118.23	ERP (W):	5,118.23	ERP (W):	5,118.23
Antenna A2 MPE%	**0.66 %**	Antenna B2 MPE%	**0.66 %**	Antenna C2 MPE%	**0.66 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**1.83 %**
AT&T	3.38 %
Microwave	0.00 %
Site Total MPE %:	**5.21 %**

SPRINT Sector A Total:	1.83 %
SPRINT Sector B Total:	1.83 %
SPRINT Sector C Total:	1.83 %
Site Total:	5.21 %

SPRINT _ Frequency Band / Technology (All Sectors)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
Sprint 850 MHz CDMA	1	376.73	173.08	0.49	850 MHz	567	0.09%
Sprint 850 MHz LTE	2	941.82	173.08	2.43	850 MHz	567	0.42%
Sprint 1900 MHz (PCS) CDMA	5	511.82	173.08	3.30	1900 MHz (PCS)	1000	0.33%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	173.08	3.30	1900 MHz (PCS)	1000	0.33%
Sprint 2500 MHz (BRS) LTE	8	639.78	173.08	6.59	2500 MHz (BRS)	1000	0.66%
						Total:	1.83%

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the SPRINT facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

SPRINT Sector	Power Density Value (%)
Sector A:	1.83 %
Sector B:	1.83 %
Sector C:	1.83 %
SPRINT Maximum Total (per sector):	1.83 %
Site Total:	5.21 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **5.21 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.