CROWN CASTLE

1 Cityplace Dr, Suite 490
Creve Coeur, MO 63141

Phone: (314) 513-0147
www.crowncastle.com

February 15, 2022

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

RE: **Notice of Exempt Modification for AT&T**
Crown Site ID#829013; AT&T Site ID#CTL05258
471 South Quaker Lane, West Hartford, CT 06110
Latitude: 41° 44′ 55.59″/ Longitude: -72° 43′ 52.86″

Dear Ms. Bachman:

AT&T currently maintains (9) antennas at the 110-foot mounts on the existing 120-foot Monopole Tower located at **471 South Quaker Lane., West Hartford.** The property is owned by Church of Saint Mark, The Evangelist Corp and the Tower by Crown Castle. AT&T now intends to replace six (9) antennas. This modification/proposal includes hardware that is both 4G(LTE) and 5G capable through remote software configuration and either or both services may be turned on or off at various times.

Planned Modifications:

Tower:

REMOVE AND REPLACE
(3) Powerwave – 7770 Antennas (**REMOVE**), (3) Ericsson – AIR6419 N77G antennas stacked (**REPLACE**), (3) Ericsson – AIR6449 N77D antennas stacked (**REPLACE**)
(1) CCI-TPA-65R-LCUUUU-H8 antenna (alpha sector) (**REMOVE**), (1) CCI-DMP65R-BU8EA-K antenna (**REPLACE**)
(2) Quintel-QS66512-2 antennas (beta & gamma sectors) (**REMOVE**), (2) CCI-DMP65R-BU6EA-K (beta & gamma sectors) (**REPLACE**)
(6) Powerwave – LGP21401 TMA (**REMOVE)**
(3) CCI-TPX-070821 TMA (**REMOVE)**
(6) DC Cables (**REMOVE),** (6) DC Cables (**REPLACE**)
(6) Coax Cables (1-5/8") (**REMOVE)**
INSTALL
(3) Ericsson – 4478 B14 Remote Radio Heads
RELOCATE
(3) Ericsson – 4449 B5/B12 Remote Radio Heads
(3) Ericsson – 8843 B2/B66A Remote Radio Heads
(3) Ericsson – RRUS-32 B30 Remote Radio Heads

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Ground:

REMOVE:

(6) LGP 21901 Diplexers

(6) TPX-070821 Diplexers

INSTALL:

(1) 6673 FHG

(3) Rectifiers in existing power plant

The facility was approved by the Town of West Hartford on March 31, 2000. This approval came with conditions that would not be violated by this modification. Enclosed is a copy of the original approval.

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 Shari Cantor, Town of West Hartford Mayor, Todd Dumais, Town of West Hartford Town Planner, property owner, Church of Saint Mark, The Evangelist Corp, and Crown Castle the tower owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, AT&T respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. §16-50j-72(b)(2).

Sincerely,

Ersilia Davis
Crown Castle, Agent for AT&T
edavis@nbcllc.com
(551)804-0667

CROWN CASTLE

1 Cityplace Dr, Suite 490
Creve Coeur, MO 63141

Phone: (314) 513-0147
www.crowncastle.com

cc:

Honorable Shari Cantor, Mayor
Town of West Hartford
50 South Main Street
West Hartford, CT 06107
(860) 561-7440
(Via Fedex)

Todd Dumais, Town Planner
Town of West Hartford
50 South Main Street
West Hartford, CT 06107
(860) 561-7556
(Via Fedex)

Church of Saint Mark, The Evangelist Corp, Property Owner
455 Quaker Lane South
West Hartford, CT 06110
(Via Fedex)

Crown Castle, Property Owner

FedEx

FedEx Tracking

776053828046

ADD NICKNAME

Estimated delivery date:
Wednesday, February 16, 2022 by end of day

LABEL CREATED

Shipment information sent to FedEx

GET STATUS UPDATES

FROM

Ersilia Davis

1777 Sentry Parkway
VEVA 17, Suite 210
Blue Bell, PA US 19422
551-804-0667

TO

Shari Cantor, Mayor
Town of West Hartford

50 S. Main Street
WEST HARTFORD, CT US 06107
860-561-7440

MANAGE DELIVERY

Travel History

TIME ZONE
Local Scan Time

Tuesday, February 15, 2022

4:20 PM — Shipment information sent to FedEx

Shipment Facts

TRACKING NUMBER	**SERVICE**	**WEIGHT**
776053828046	FedEx Priority Overnight	0.5 lbs / 0.23 kgs
TOTAL PIECES	**TOTAL SHIPMENT WEIGHT**	**TERMS**
1	0.5 lbs / 0.23 kgs	Shipper
DEPARTMENT NUMBER	**SHIPPER REFERENCE**	**PACKAGING**
876328 ATT	100788/NBC	FedEx Envelope
SPECIAL HANDLING SECTION	**ANTICIPATED SHIP DATE**	**SHIPMENT-FACTS.COD-DETAIL**
Deliver Weekday	2/15/22	$0.00

FedEx

FedEx Tracking

776052310802

ADD NICKNAME

ON TIME

Delivered
Wednesday, February 16, 2022 at 9:58 am

DELIVERED

Signed for by: P.PHIL

GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

FROM

Ersilia Davis

1777 Sentry Parkway
VEVA 17, Suite 210
Blue Bell, PA US 19422
551-804-0667

TO

Todd Dumais, Town Planner
Town of West Hartford

50 S. Main Street
WEST HARTFORD, CT US 06107
860-561-7556

MANAGE DELIVERY

Travel History

TIME ZONE
Local Scan Time

Wednesday, February 16, 2022

9:58 AM	WEST HARTFORD, CT	Delivered
8:41 AM	WINDSOR LOCKS, CT	On FedEx vehicle for delivery
7:50 AM	WINDSOR LOCKS, CT	At local FedEx facility
5:34 AM	EAST GRANBY, CT	At destination sort facility

FedEx Tracking

776052359788

ADD NICKNAME

ON TIME

Delivered
Wednesday, February 16, 2022 at 9:21 am

DELIVERED

Signature not required

GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

FROM

Ersilia Davis

1777 Sentry Parkway
VEVA 17, Suite 210
Blue Bell, PA US 19422
551-804-0667

TO

Church of Saint Mark,The Evangelist

455 Quaker Lane South
WEST HARTFORD, CT US 06110
551-804-0667

MANAGE DELIVERY

Travel History

TIME ZONE
Local Scan Time

Wednesday, February 16, 2022		
9:21 AM	WEST HARTFORD, CT	Delivered Left at garage. Package delivered to recipient address - release authorized
8:09 AM	WINDSOR LOCKS, CT	On FedEx vehicle for delivery
7:50 AM	WINDSOR LOCKS, CT	At local FedEx facility
5:34 AM	EAST GRANBY, CT	At destination sort facility
4:48 AM	NEWARK, NJ	Departed FedEx hub

Exhibit A

Original Facility Approval

TOWN PLAN AND ZONING COMMISSION

CERTIFIED MAIL

March 10, 2000

Dennis Brown
Ominipoint Communications, Inc.
100 Filley Street
Bloomfield, CT 06002

SUBJECT: 457 South Quaker Lane – SUP #893

Dear Mr. Brown:

At its regular meeting of March 6, 2000 the West Hartford Town Plan and Zoning Commission gave consideration to the following item:

> **457 South Quaker Lane – St. Mark's Church** – Application (SUP #893) of the Archdiocese of Hartford, R.O., Omnipoint Communications, Inc., Dennis Brown of Omnipoint and Agent for Special Use Permit application. Omnipoint Communications, Inc. proposes to erect a 120 foot tall telecommunications monopole behind St. Mark's Rectory and abutting the right-of-way for Interstate 84. The 120 foot monopole would provide location for Omnipoint antenna and co-location for two other carriers. At the base of the monopole would be an equipment box the size of two filing cabinets. The site would be surrounded by a chain link fenced area, 50' x 50', with security gate and landscape buffering. (Submitted for TPZ receipt on February 7, 2000. Suggest required public hearing be scheduled for March 6, 2000. Required TPZ public hearing scheduled for March 6, 2000.)
> **R-6 ZONE**

After a review of the application and its related exhibits and after consideration of staff technical comments and the public hearing record, the TPZ acted by **majority vote** (Motion/Kearns; Second/Kappes) (Kappes seated for Wirth) to **CONDITIONALLY APPROVE** the subject application. During its discussions and deliberations on this matter, the Commission made the following findings:

1. **The landscape plan shall be revised to substitute the proposed hemlocks with Austrian Pines. The landscape plan shall provide the number, type and size of all proposed plantings.**
2. **As required by Section 177.16.7D(4) Telecommunication towers and antennas of the West Hartford Code of Ordinances the applicant shall make payment to the "Town Abandonment Fund". The applicant shall provide to the Town of West Hartford a statement setting forth the estimated cost of construction for the approved antennas, ancillary facilities and supporting structure, together with a payment equal to 5% of the estimated cost of the**

construction. The payment shall be deposited to the Tower Abandonment Fund.

3. **The proposed Special Use Permit will comply with the finding requirements of Section 177-42A(5a & 5b) of the West Hartford Code of Ordinances.**

You should now contact the Planning Staff to discuss the submission requirements for your plans. A ten dollar ($10) filing fee is required to file a notice of approval on the West Hartford Land Records. My staff will happy to assist you in completing these requirements. The TPZ approval is not final until the legal requirements for filing are completed. The effective date of approval is March 31, 2000.

If you have questions, please feel free to call the Planning Staff at 523-3123.

Very truly yours,

Donald R. Foster
Town Planner

C: Ronald Van Winkle, Director of Community
Kevin O'Connor, Corporation Counsel
Norma Cronin, Town Clerk
William Farrell, Town Engineer
Subject TPZ File

457Soqkr-Mar00

Exhibit B

Property Card

471 SOUTH QUAKER LANE

Location	471 SOUTH QUAKER LANE	**Mblu**	G11/ 5096/ 471/ /
Parcel ID	5096 1 471 0002	**Owner**	CHURCH OF ST MARK THE EVANGELIST CORP
Assessment	$301,350	**Appraisal**	$430,500
Vision Id #	18999	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$130,500	$300,000	$430,500
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$91,350	$210,000	$301,350

Owner of Record

Owner	CHURCH OF ST MARK THE EVANGELIST CORP	**Sale Price**	$0
Co-Owner		**Certificate**	1
Address	C/O CROWN CASTLE PMB 331 4017 WASHINGTON ROAD MCMURRAY, PA 15317	**Book & Page**	0215/0042
		Sale Date	
		Instrument	U

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
CHURCH OF ST MARK THE EVANGELIST CORP	$0	1	0215/0042	U	

Building Information

Building 1 : Section 1

Year Built:	2002
Living Area:	700
Replacement Cost:	$154,389
Building Percent Good:	81
Replacement Cost Less Depreciation:	$125,100

Building Attributes	
Field	**Description**
STYLE	Telephone Exchange
MODEL	Comm/Ind
Grade	B 1.05
Stories:	1
Occupancy	
Exterior Wall 1	Reinf Concrete
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Floor Type	
Floor Cover	
Heating Fuel	
Heating Type	
AC Type	
As Built Use	
Bldg Use	Commercial
Num of Bedrooms	
Total Baths	
Type	
Wet Sprinkler	
Dry Sprinkler	
1st Floor Use:	
Class	
Frame Type	
Plumbing	
Ceiling	
Group1	
Wall Height	0.00
Adjustment	

Building Photo

(http://images.vgsi.com/photos/WestHartfordCTPhotos//default.jpg)

Building Layout

(http://images.vgsi.com/photos/WestHartfordCTPhotos//Sketches/18999_1

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
TEL	TELEPHONE BUILDING	700	700
		700	700

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	201
Description	Commercial
Zone	R-6
Neighborhood	
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0
Frontage	
Depth	
Assessed Value	$210,000
Appraised Value	$300,000

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
CP18	Chn Link Fence 8' hght			200.00 LF	$5,400	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$130,500	$300,000	$430,500
2020	$119,100	$180,000	$299,100
2019	$119,100	$180,000	$299,100

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$91,350	$210,000	$301,350
2020	$83,370	$126,000	$209,370
2019	$83,370	$126,000	$209,370

Exhibit C

Construction Drawings

AT&T

AT&T SITE NUMBER:	**CTL05258**	**BUSINESS UNIT #:**	**829013**
AT&T SITE NAME:	**WEST HARTFORD**	**SITE ADDRESS:**	**471 SOUTH QUAKER LANE WEST HARTFORD, CT 06110**
AT&T FA CODE:	**10071355**	**COUNTY:**	**HARTFORD**
AT&T PACE NUMBER:	**MRCTB052108, MRCTB051084, MRCTB050862, MRCTB051217**	**SITE TYPE:**	**MONOPOLE**
AT&T PROJECT:	**5G NR 1SR CBAND, 6C LTE, RFMOD BBU RECONFIGUATION**	**TOWER HEIGHT:**	**120'-0"**

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	WEST HARTFORD/I-84/X43
SITE ADDRESS:	471 SOUTH QUAKER LANE WEST HARTFORD, CT 06110
COUNTY:	HARTFORD
MAP/PARCEL #:	5096-1-471-0001
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41° 44' 55.59"
LONGITUDE:	-72° 43' 52.86"
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	135.0 FT.
CURRENT ZONING:	R-6
JURISDICTION:	TOWN OF WEST HARTFOED
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	CHURCH OF SAINT MARK, THE EVANGELIST CORP 455 QUAKER LANE SOUTH WEST HARTFORD, CT 06110
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	AT&T TOWER ASSET GROUP 575 MOROSGO DRIVE ATLANTA, GA 30324-3300
ELECTRIC PROVIDER:	CONNECTICUT LIGHT & POWER CO
TELCO PROVIDER:	AT&T

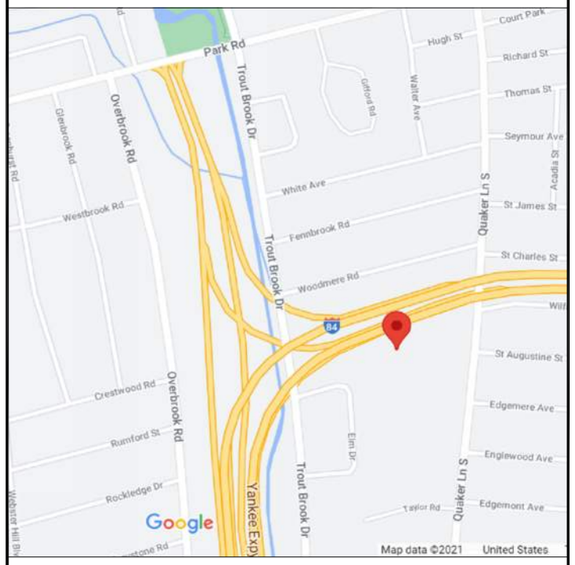
DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	SITE PLAN
C-1.2	EXISTING & FINAL EQUIPMENT PLANS
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	FINAL EQUIPMENT SCHEDULE
C-4	EQUIPMENT MOUNTING DETAILS
C-5	EQUIPMENT SPECS
E-1	POWER ANALYSIS
G-1	GROUNDING SCHEMATIC
G-2	GROUNDING DETAILS
ATTACHED	PLUMBING DIAGRAM

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 11X17. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

CALL CONNECTICUT ONE CALL
(800) 922-4455 CBYD.COM
CALL 2 WORKING DAYS
BEFORE YOU DIG!

LOCATION MAP



NO SCALE

SITE PHOTO

PROJECT TEAM

A&E FIRM:	ENGINEERED TOWER SOLUTIONS, PLLC 3227 WELLINGTON COURT RALEIGH, NC 27615 CROWNAESERVICES@ETS-PLLC.COM
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3 CORPORATE PARK DRIVE, SUITE 101 CLIFTON PARK, NY 12065

NOTE:
PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER.

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:
- REMOVE (3) POWERWAVE - 7770 ANTENNAS
- REMOVE (2) QUINTEL QS66512-2 ANTENNAS
- REMOVE (1) CCI - TPA-65R-LCUUUU-H8
- REMOVE (3) CCI - TPX-070821 TMAs
- REMOVE (6) POWERWAVE - LG21401
- RELOCATED (3) ERICSSON - 4449 B5/B12 RRUs
- RELOCATED (3) ERICSSON - 8843 B2/B66A RRUs
- RELOCATED (3) ERICSSON - RRUS-32 B30 RRUs
- REMOVE (6) DC CABLES
- INSTALL (3) ERICSSON - AIR6449 N77D ANTENNAS
- INSTALL (3) ERICSSON - AIR6419 N77G ANTENNAS
- INSTALL (1) CCI - DMP65R-BU8EA-K ANTENNAS
- INSTALL (2) CCI - DMP65R-BU6EA-K ANTENNAS
- INSTALL (3) ERICSSON - 4478 B14 RRUs
- INSTALL (6) DC CABLES
- ISTALL (6) Y CABLES

GROUND SCOPE OF WORK:
- INSTALL (1) 6673 FHG
- INSTALL (3) RECTIFIERS IN EXISTING POWER PLANT

APPLICABLE CODES/REFERENCE DOCUMENTS

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:

CODE TYPE	CODE
BUILDING	2018 CONNECTICUT STATE BUILDING CODE
MECHANICAL	2018 CONNECTICUT STATE BUILDING CODE
ELECTRICAL	2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	B&T GROUP
DATED:	11/23/2021
MOUNT ANALYSIS:	INFINIGY ENGIEERING, PLLC
DATED:	09/09/2021
RFDS REVISION:	2
DATED:	07/30/2021
ORDER ID:	556517
REVISION:	0

AT&T
AT&T TOWER ASSET GROUP
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

ENGINEERED TOWER SOLUTIONS
3227 WELLINGTON COURT
RALEIGH, NC 27615
919-782-2710
www.engineeredtowersolutions.com

AT&T SITE NUMBER:
CTL05258

BU #: **829013**
WEST HARTFORD/I-84/X43

471 SOUTH QUAKER LANE
WEST HARTFORD, CT 06110

EXISTING 120'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	09/23/2021	AM	PRELIMINARY	AS
0	12/20/2021	CP	CONSTRUCTION	AS
1	12/23/2021	CP	CONSTRUCTION	VA
2	02/01/2022	VA	CONSTRUCTION	VA

02/01/2022

SHEET NUMBER: T-1

REVISION: 2

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED– NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800–788–7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" – CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT:
   THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED–STD–10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA–322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH QAS–STD–10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE," CED–STD–10294 "STANDARD FOR INSTALLATION OF MOUNTS AND APPURTENANCES," AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
   CARRIER: AT&T
   TOWER OWNER: CROWN CASTLE USA INC.
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CROWN CASTLE.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF CROWN CASTLE USA INC.
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONCRETE.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE–THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER–TO–CEMENT RATIO (W/C) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
   #4 BARS AND SMALLER......40 ksi
   #5 BARS AND LARGER......60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH......3"
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 BARS AND LARGER......2"
   #5 BARS AND SMALLER......1–1/2"
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
   SLAB AND WALLS......3/4"
   BEAMS AND COLUMNS......1–1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
   4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
   4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERYIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI–CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL–CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON–PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER–ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "AT&T".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

CONDUCTOR COLOR CODE		
SYSTEM	CONDUCTOR	COLOR
120/240V, 1Ø	A PHASE	BLACK
	B PHASE	RED
	NEUTRAL	WHITE
	GROUND	GREEN
120/208V, 3Ø	A PHASE	BLACK
	B PHASE	RED
	C PHASE	BLUE
	NEUTRAL	WHITE
	GROUND	GREEN
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
DC VOLTAGE	POS (+)	RED**
	NEG (–)	BLACK**

* SEE NEC 210.5(C)(1) AND (2)
** POLARITY MARKED AT TERMINATION

APWA UNIFORM COLOR CODE:

WHITE	PROPOSED EXCAVATION
PINK	TEMPORARY SURVEY MARKINGS
RED	ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
YELLOW	GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
ORANGE	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
BLUE	POTABLE WATER
PURPLE	RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
GREEN	SEWERS AND DRAIN LINES

GREENFIELD GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL–OF–POTENTAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON–METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON–METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD–WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

ABBREVIATIONS:

ANT	ANTENNA
(E)	EXISTING
FIF	FACILITY INTERFACE FRAME
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
GSM	GLOBAL SYSTEM FOR MOBILE
LTE	LONG TERM EVOLUTION
MGB	MASTER GROUND BAR
MW	MICROWAVE
(N)	NEW
NEC	NATIONAL ELECTRIC CODE
(P)	PROPOSED
PP	POWER PLANT
QTY	QUANTITY
RECT	RECTIFIER
RBS	RADIO BASE STATION
RET	REMOTE ELECTRIC TILT
RFDS	RADIO FREQUENCY DATA SHEET
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
SIAD	SMART INTEGRATED DEVICE
TMA	TOWER MOUNTED AMPLIFIER
TYP	TYPICAL
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
W.P.	WORK POINT

AT&T

AT&T TOWER ASSET GROUP
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

ENGINEERED TOWER SOLUTIONS
3227 WELLINGTON COURT
RALEIGH, NC 27615
919-782-2710
www.engineeredtowersolutions.com

AT&T SITE NUMBER:
CTL05258

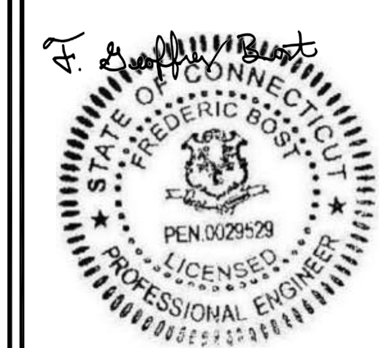
BU #: **829013**
WEST HARTFORD/I-84/X43

471 SOUTH QUAKER LANE
WEST HARTFORD, CT 06110

EXISTING 120'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	09/23/2021	AM	PRELIMINARY	AS
0	12/20/2021	CP	CONSTRUCTION	AS
1	12/23/2021	CP	CONSTRUCTION	VA
2	02/01/2022	VA	CONSTRUCTION	VA

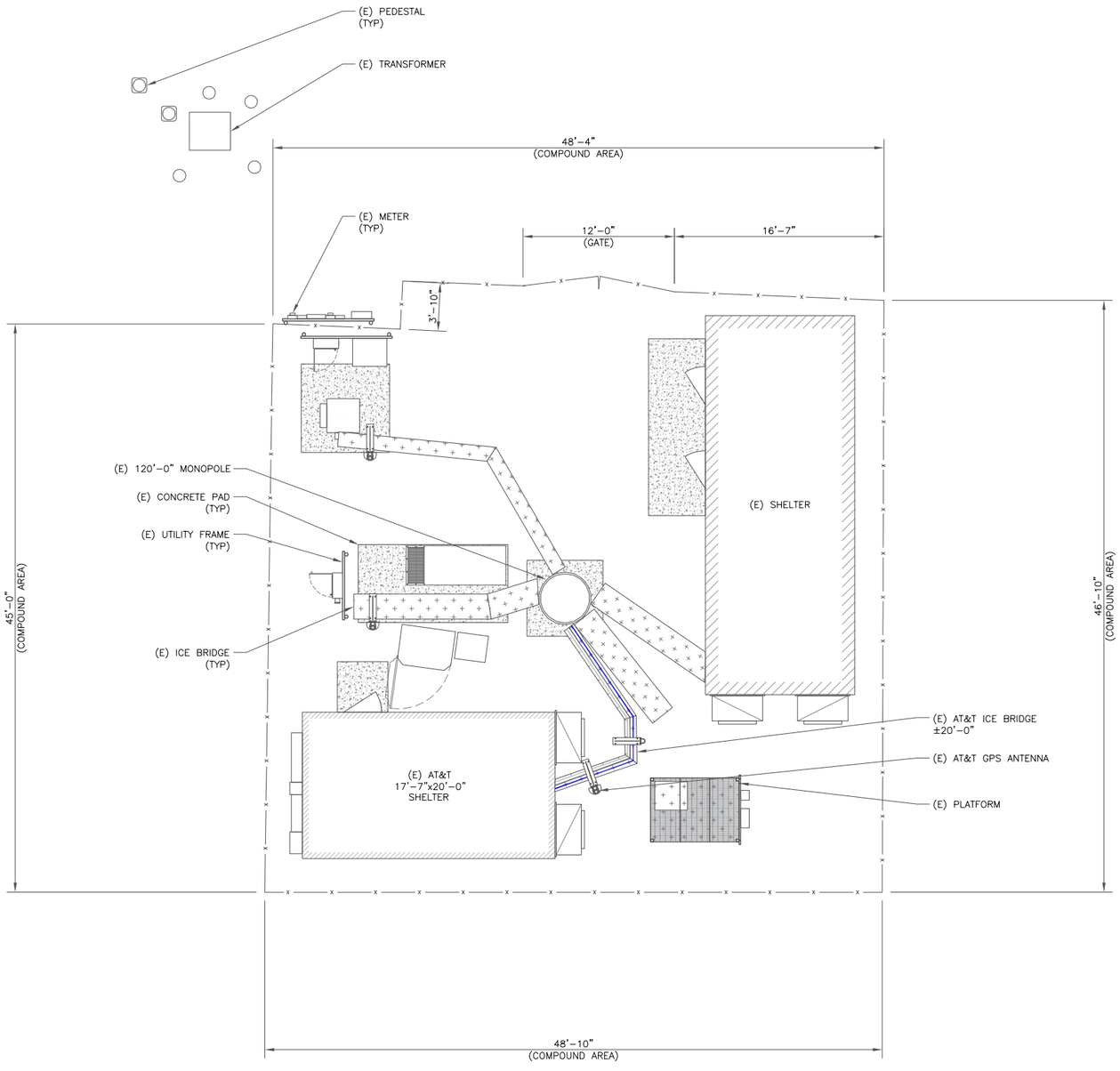


02/01/2022

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: T-2

REVISION: 2



1 SITE PLAN
SCALE: 4' 2' 0 4'
3/16"=1'-0" (FULL SIZE)
3/32"=1'-0" (11x17)

N

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EXISTING 120'-0" MONOPOLE

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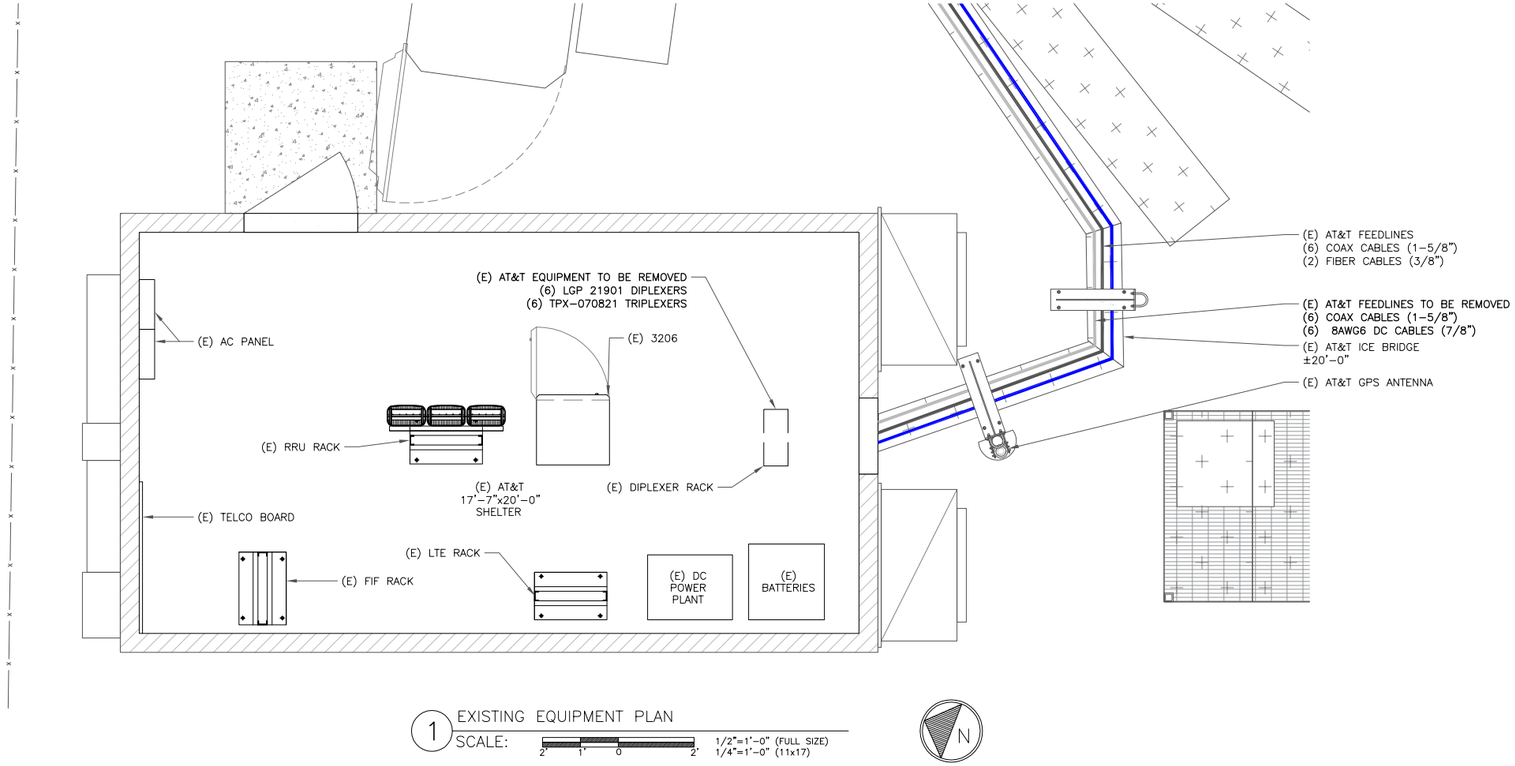
0	12/20/2021	CP	CONSTRUCTION	AS
1	12/23/2021	CP	CONSTRUCTION	VA
2	02/01/2022	VA	CONSTRUCTION	VA

STATE OF CONNECTICUT
FREDERIC BOST
PEN.0029529
LICENSED
PROFESSIONAL ENGINEER

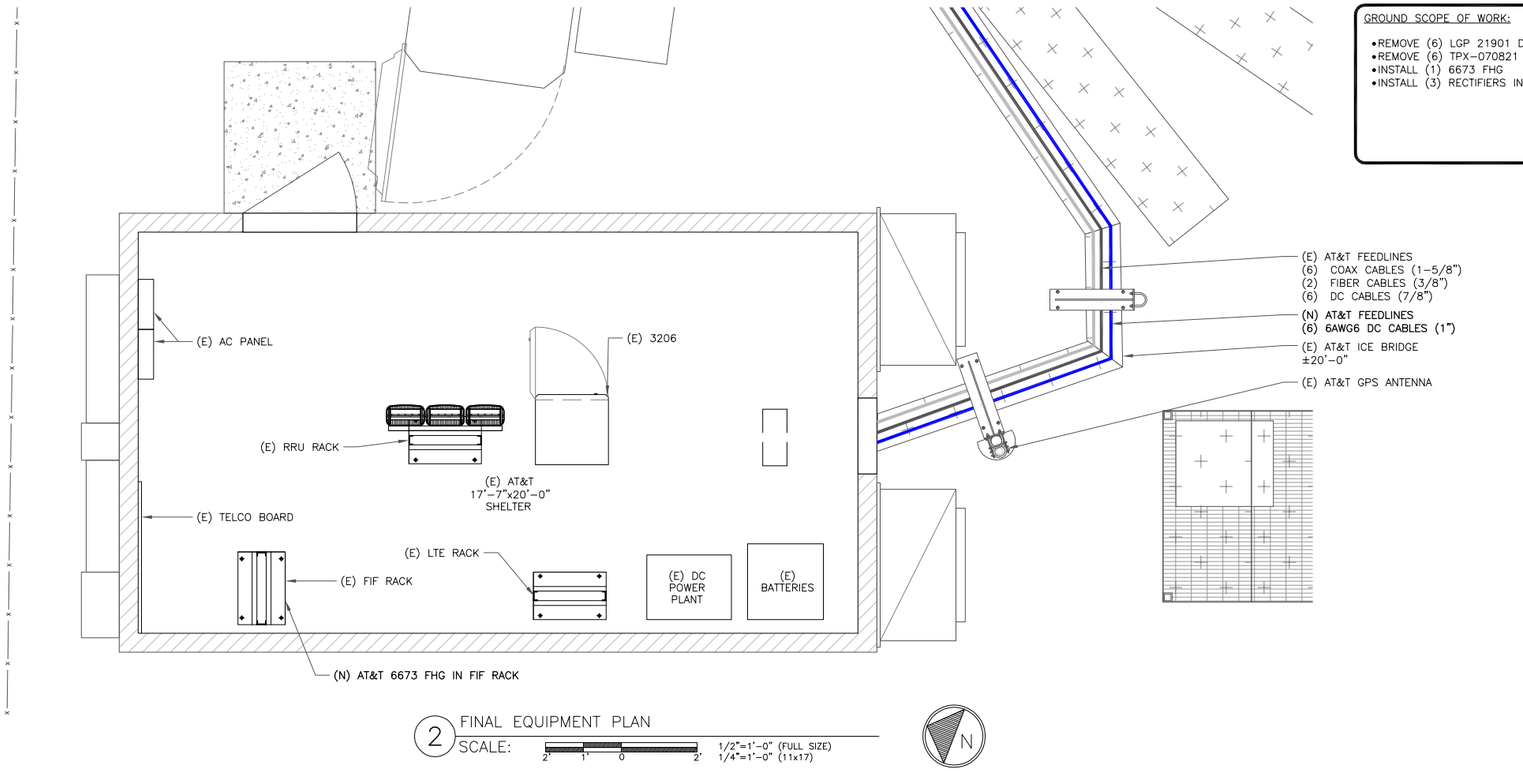
02/01/2022

SHEET NUMBER: C-1.1
REVISION: 2



1 EXISTING EQUIPMENT PLAN

SCALE: 2' 1' 0 2' — 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)



2 FINAL EQUIPMENT PLAN

SCALE: 2' 1' 0 2' — 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)

GROUND SCOPE OF WORK:

- REMOVE (6) LGP 21901 DIPLEXERS
- REMOVE (6) TPX-070821 TRIPLEXERS
- INSTALL (1) 6673 FHG
- INSTALL (3) RECTIFIERS IN EXISTING POWER PLANT

AT&T
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575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

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919-782-2710
www.engineeredtowersolutions.com

AT&T SITE NUMBER:
CTL05258

BU #: **829013**
WEST HARTFORD/I-84/X43

471 SOUTH QUAKER LANE
WEST HARTFORD, CT 06110

EXISTING 120'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	09/23/2021	AM	PRELIMINARY	AS
0	12/20/2021	CP	CONSTRUCTION	AS
1	12/23/2021	CP	CONSTRUCTION	VA
2	02/01/2022	VA	CONSTRUCTION	VA

STATE OF CONNECTICUT
FREDERIC BOST
PEN.0029529
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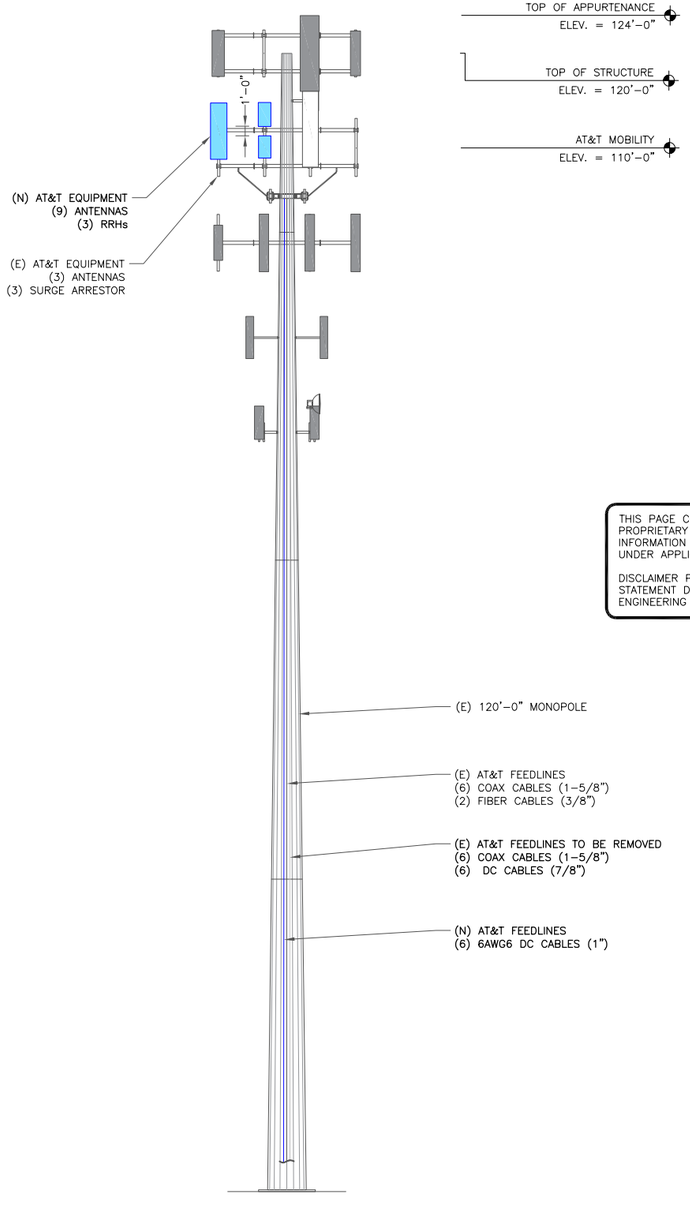
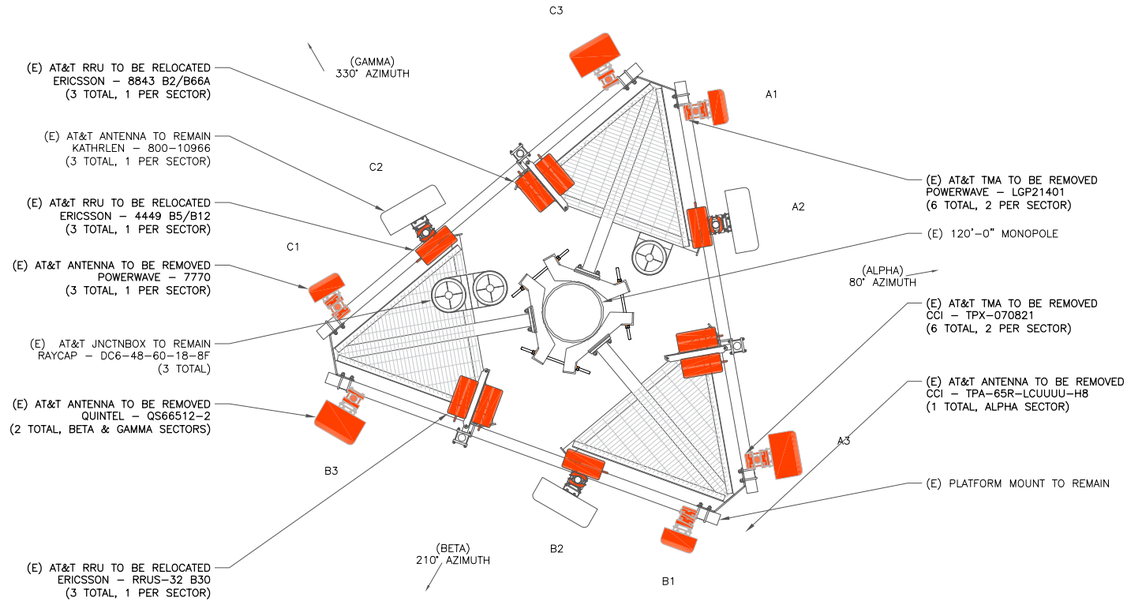
02/01/2022

SHEET NUMBER: C-1.2

REVISION: 2



1 FINAL ELEVATION
SCALE: NOT TO SCALE



2 EXISTING ANTENNA PLAN
SCALE: 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)

N

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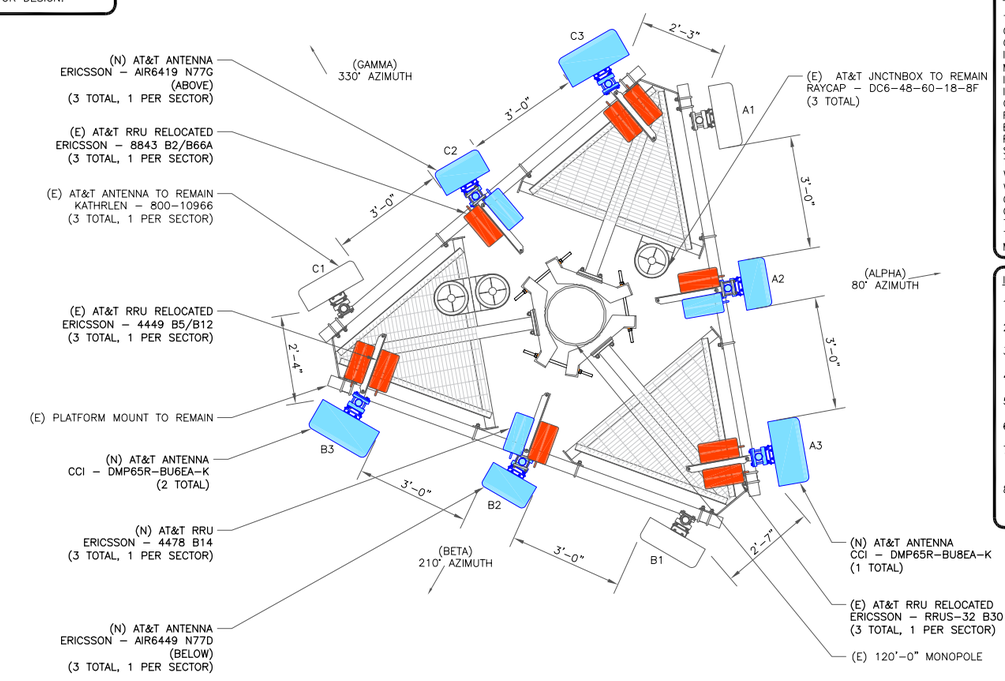

3 FINAL ANTENNA PLAN
SCALE: 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)

N

"LOOK UP" – CROWN CASTLE USA INC.
SAFETY CLIMB REQUIREMENT:

THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.

INSTALLER NOTES:

1. REFERENCE C-3 FOR FINAL EQUIPMENT SCHEDULE.
2. REFERENCE C-4 FOR NEW EQUIPMENT SPECIFICATIONS.
3. CONTRACTOR TO VERIFY ALL ANTENNA TIP HEIGHTS DO NOT EXCEED BEACON BASE HEIGHT.
4. 3'-0" MINIMUM DISTANCE REQUIRED BETWEEN LTE ANTENNAS ON SAME SECTOR.
5. 6'-0" MINIMUM DISTANCE REQUIRED BETWEEN 700BC & 700DE ANTENNAS ON SAME SECTOR.
6. 4'-0" MINIMUM DISTANCE REQUIRED BETWEEN LTE 700 ANTENNAS ON OPPOSING SECTORS.
7. ALL ANTENNA MEASUREMENT DISTANCES MUST BE EDGE TO EDGE (RELOCATE ANTENNAS AS NEEDED).
8. 8" MINIMUM DISTANCE REQUIRED BETWEEN ANTENNA & RADIO. SEE GENERIC EXAMPLE DETAIL ON SHEET C-4.

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LICENSED
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02/01/2022

SHEET NUMBER: C-2

REVISION: 2

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FINAL EQUIPMENT SCHEDULE
(VERIFY WITH CURRENT RFDS)

POSITION	ANTENNA				RADIO			DIPLEXER			TMA			SURGE PROTECTION		CABLES			
	TECH.	STATUS/MANUFACTURER MODEL	AZIMUTH	RAD CENTER	QTY.	STATUS/MODEL	LOCATION	QTY.	STATUS	LOCATION	QTY.	STATUS/MANUFACTURER MODEL	QTY.	STATUS/MODEL	QTY.	STATUS/TYPE	SIZE	LENGTH
ALPHA																			
A1	LTE 700/AWS 5G AWS	(E) KATHRIEN – 800–10966	80°	112'	1	(N) 4478 14	TOWER	–	–	–	–	–	–	–	6	(E) COAX	1–5/8"	160'–0"
					1	(E) 8843 B2/B66A	TOWER											
A2	5G	(N) ERICSSON AIR 6419 N77G	80°	112'	–	–	TOWER	–	–	–	–	–	1	(E) DC6–48–60–18–8F	2	(E) FIBER	3/8"	xxx'–0"
		(N) ERICSSON AIR 6449 N77D			–	–	TOWER											
A3	LTE WCS/1900 5G 1900	(N) CCI – DMP65R–BU8EA–K	80°	112'	1	(E) 4449 B5/B12	TOWER	–	–	–	–	–	–	–	6	(N) DC	1"	160'–0"
					1	(E) RRUS–32 B30	TOWER											
BETA																			
B1	LTE 700/AWS 5G AWS	(E) KATHRIEN – 800–10965	210°	112'	1	(N) 4478 14	TOWER	–	–	–	–	–	–	–	2	(E) COAX	1–5/8"	160'–0"
					1	(E) 8843 B2/B66A	TOWER											
B2	5G	(N) ERICSSON AIR 6419 N77G	210°	112'	–	–	TOWER	–	–	–	–	–	–	–	–	–	–	–
		(N) ERICSSON AIR 6449 N77D			–	–	TOWER											
B3	LTE WCS/1900 5G 1900	(N) CCI – DMP65R–BU6EA–K	210°	112'	1	(E) 4449 B5/B12	TOWER	–	–	–	–	–	–	–	–	–	–	–
					1	(E) RRUS–32 B30	TOWER											
GAMMA																			
C1	LTE 700/AWS 5G AWS	(E) KATHRIEN – 800–10965	330°	112'	1	(N) 4478 14	TOWER	–	–	–	–	–	–	–	2	(E) COAX	1–5/8"	160'–0"
					1	(E) 8843 B2/B66A	TOWER											
C2	5G	(N) ERICSSON AIR 6419 N77G	–	–	–	–	TOWER	–	–	–	–	–	1	(E) DC6–48–60–18–8F	–	–	–	–
		(N) ERICSSON AIR 6449 N77D			–	–	TOWER											
C3	LTE WCS/1900 5G 1900	(N) CCI – DMP65R–BU6EA–K	330°	112'	1	(E) 4449 B5/B12	TOWER	–	–	–	–	–	1	(E) DC6–48–60–18–8F	–	–	–	–
					1	(E) RRUS–32 B30	TOWER											

NOTE:
(E) – EXISTING
(N) – NEW

1 FINAL EQUIPMENT SCHEDULE
SCALE: NOT TO SCALE

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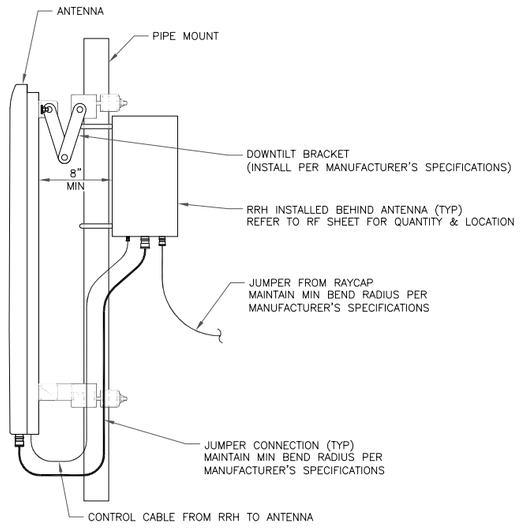
02/01/2022

SHEET NUMBER: C-3

REVISION: 2



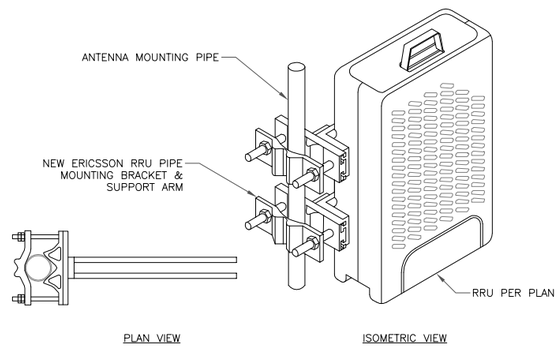
1 GENERIC ANTENNA MOUNTING ELEVATION
SCALE: NOT TO SCALE

ERICSSON RRU MOUNTING KIT:

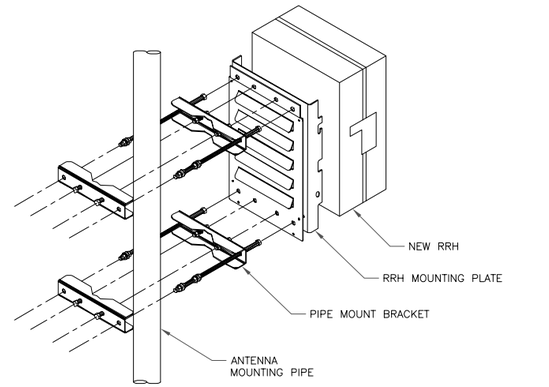
SXK 107 2839/1: SINGLE RRU SUPPORT KIT (PART # 5335) (OR ENGINEER APPROVED EQUIVALENT)
SXK 107 2839/2: EXPANSION KIT (PART # 5336) (OR ENGINEER APPROVED EQUIVALENT)

MOUNTING NOTES:

REFER TO PRODUCT SPECS FOR BOLT SIZE & PIPE
DIAMETER TOLERANCES. THE PART NO. SXK107-2839/2 IS REQUIRED FOR (2) RRUS.



2 ERICSSON – SXK 107 2839
SCALE: NOT TO SCALE



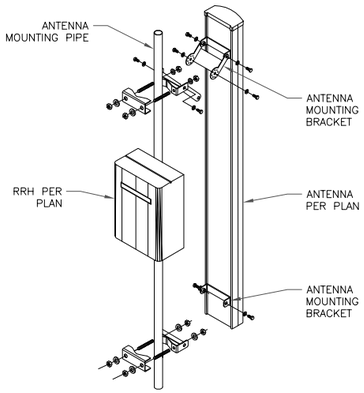
NOTE:

ANTENNA NOT SHOWN FOR CLARITY

3 SINGLE RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

INSTALLER NOTES:

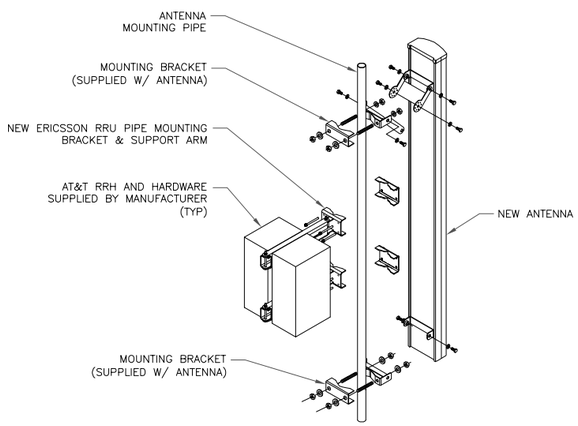
1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



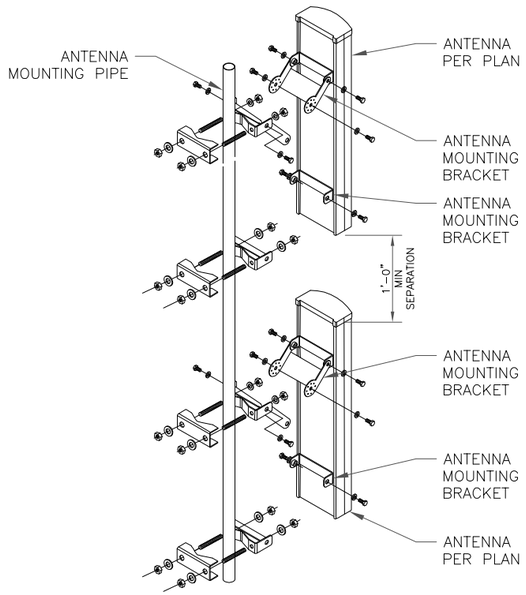
4 ANTENNA WITH RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

INSTALLER NOTES:

1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



5 ANTENNA WITH DUAL RRH MOUNTING DETAIL
SCALE: NOT TO SCALE



6 DUAL ANTENNA MOUNTING DETAIL
SCALE: NOT TO SCALE

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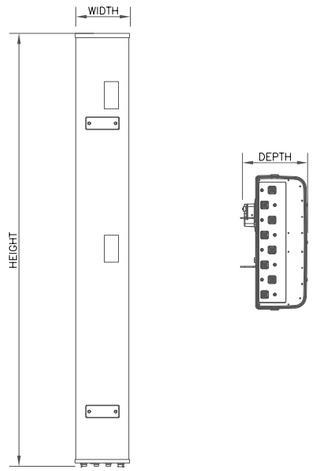
02/01/2022

SHEET NUMBER: C-4

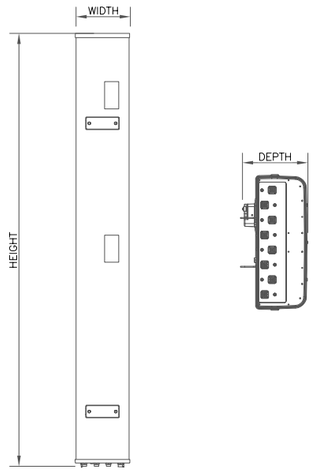
REVISION: 2

HEIGHT	WIDTH	DEPTH	WEIGHT
96.00"	20.70"	7.70"	105.60 LBS



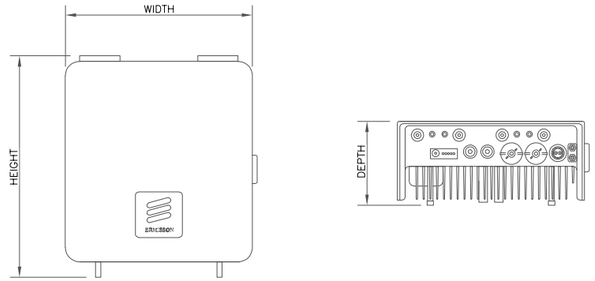
1 CCI – DMP65R-BU8E
SCALE: NOT TO SCALE

HEIGHT	WIDTH	DEPTH	WEIGHT
71.00"	20.70"	9.70"	103.80 LBS



2 CCI – DMP65R-BU6e
SCALE: NOT TO SCALE

HEIGHT	WIDTH	DEPTH	WEIGHT
16.50"	13.40"	7.70"	59.90 LBS



3 ERICSSON – RRUS 4478 B14
SCALE: NOT TO SCALE

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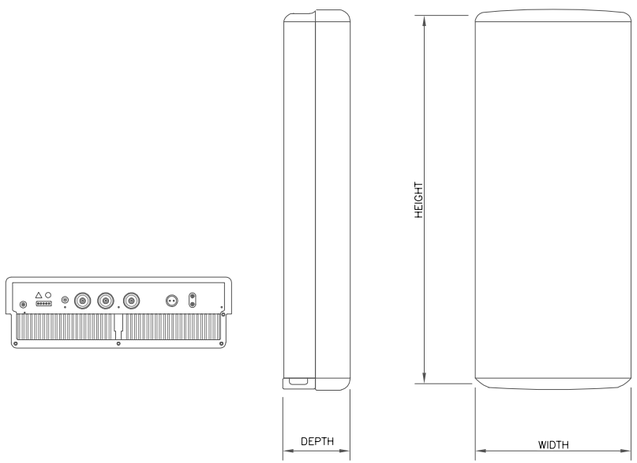
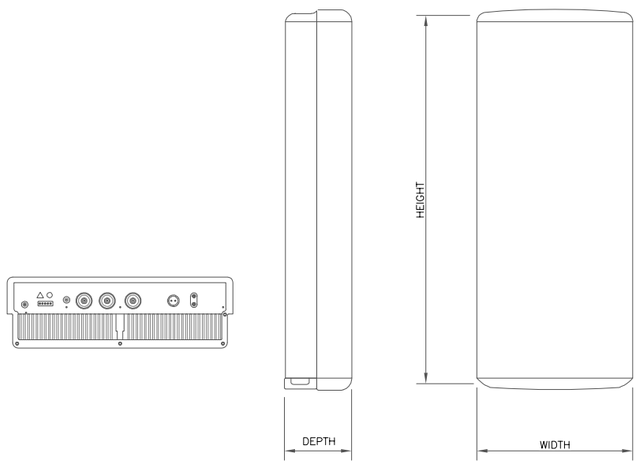
HEIGHT	WIDTH	DEPTH	WEIGHT
27.95"	15.75"	6.68"	66.20 LBS



4 ERICSSON – AIR 6419 N77G
SCALE: NOT TO SCALE

HEIGHT	WIDTH	DEPTH	WEIGHT
30.39"	15.87"	8.07"	81.60 LBS



5 ERICSSON – AIR 6449 N77D
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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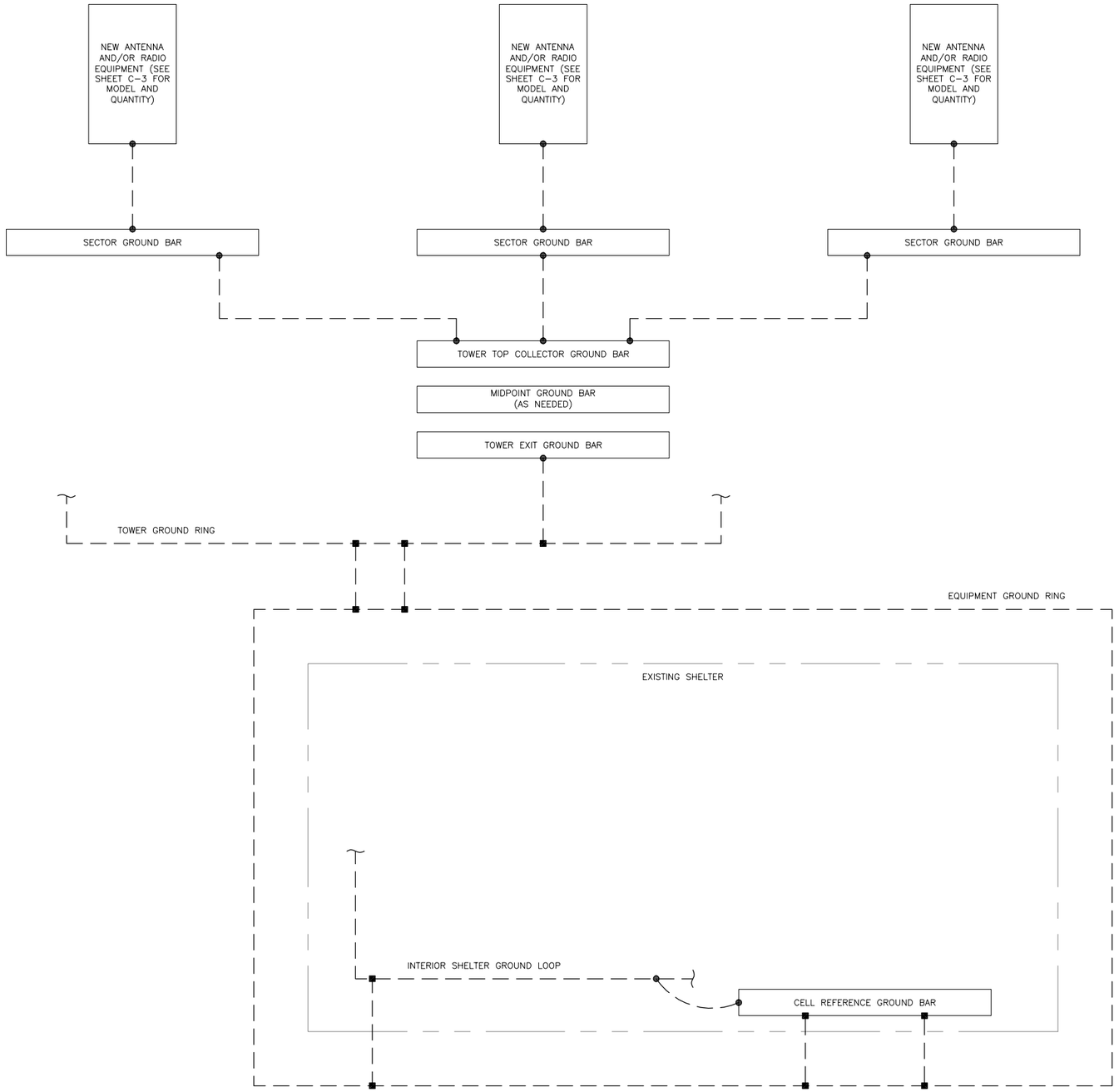

1 GROUNDING SCHEMATIC
SCALE: NOT TO SCALE

GROUNDING PLAN LEGEND:

--- GROUND WIRE
■ EXOTHERMIC WELD
● MECHANICAL CONNECTION
COPPER GROUND ROD
GROUND ROD W/ TEST WELL

CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUITS (ATT-TP-76416 7.6.7).

HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH (2) #2 STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CELL SITE REFERENCE GROUND BAR MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) #2 STRANDED GREEN INSULATED COPPER CONDUCTORS.

EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE (ATT-TP-76416 7.6.7.2).

DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICES CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR PER TP76300 SECTION H 6 AND TP76416 FIGURE 7-11 REQUIREMENTS.

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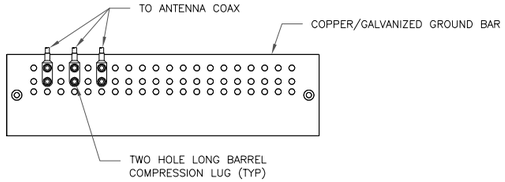
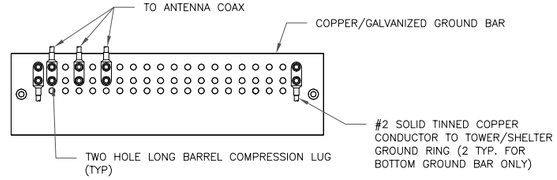
SHEET NUMBER: G-1
REVISION: 2



NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO ANTENNA MOUNT STEEL.

1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE

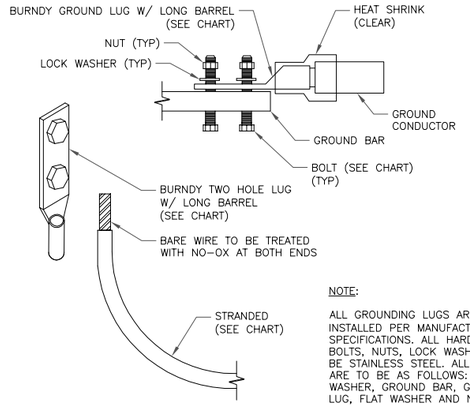


NOTES:

1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE

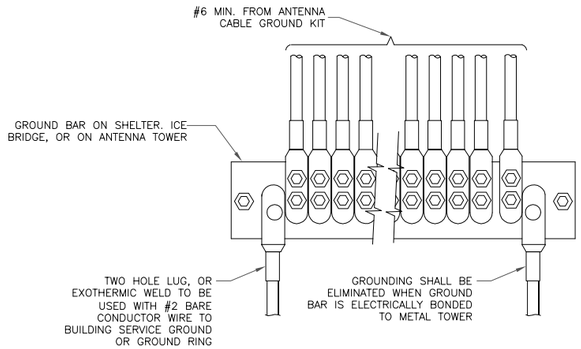
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 SOLID TINNED	YA3C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 STRANDED	YA2C-2TC38	3/8" - 16 NC SS 2 BOLT
#2/0 STRANDED	YA26-2TC38	3/8" - 16 NC SS 2 BOLT
#4/0 STRANDED	YA28-2N	1/2" - 16 NC SS 2 BOLT



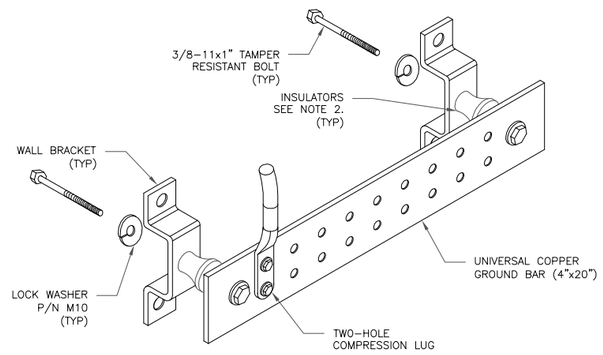
NOTE:

ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

3 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



4 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE

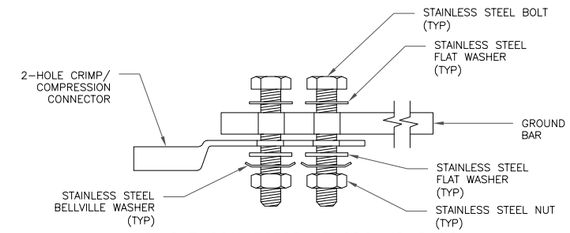


NOTES:

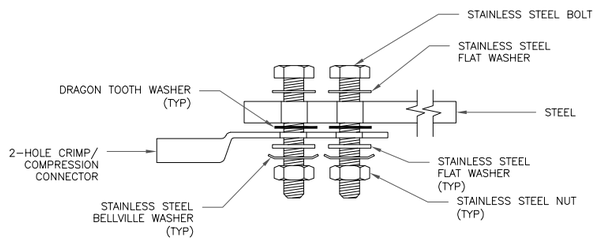
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.

2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

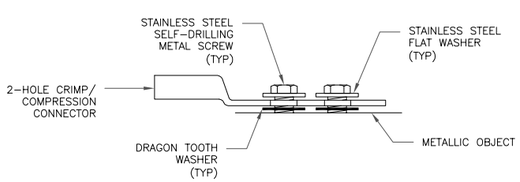
5 GROUND BAR DETAIL
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

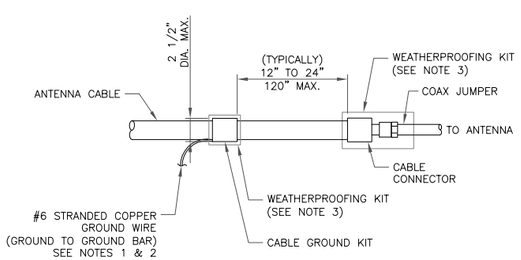


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

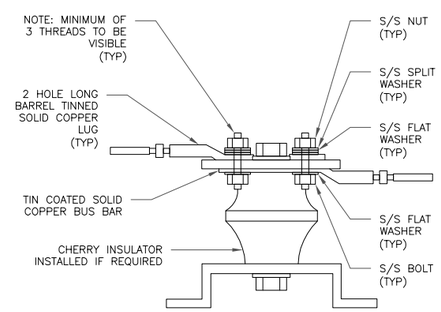
8 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

6 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE

AT&T TOWER ASSET GROUP
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

ENGINEERED TOWER SOLUTIONS
3227 WELLINGTON COURT
RALEIGH, NC 27615
919-782-2710
www.engineeredtowersolutions.com

AT&T SITE NUMBER:
CTL05258

BU #: **829013**
WEST HARTFORD/I-84/X43

471 SOUTH QUAKER LANE
WEST HARTFORD, CT 06110

EXISTING 120'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	09/23/2021	AM	PRELIMINARY	AS
0	12/20/2021	CP	CONSTRUCTION	AS
1	12/23/2021	CP	CONSTRUCTION	VA
2	02/01/2022	VA	CONSTRUCTION	VA

02/01/2022

SHEET NUMBER:	REVISION:
G-2	2

Exhibit D

Structural Analysis Report

Date: **September 15, 2021**

Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
(919) 661-6351

Subject: Structural Analysis Report

Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Site Number:	CTL05258
	Site Name:	WEST HARTFORD
	FA Number:	10071355
Crown Castle Designation:	**BU Number:**	829013
	Site Name:	WEST HARTFORD/I-84/X43
	JDE Job Number:	649388
	Work Order Number:	2019504
	Order Number:	556517 Rev. 0
Engineering Firm Designation:	**TEP Project Number:**	25680.600944
Site Data:	**471 South Quaker Lane (Church Of St. Mark), West Hartford, Hartford County, CT 06110** **Latitude *41° 44' 55.59"*, Longitude *-72° 43' 52.86"*** **119.1 Foot - Monopole Tower**	

Tower Engineering Professionals is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above-mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

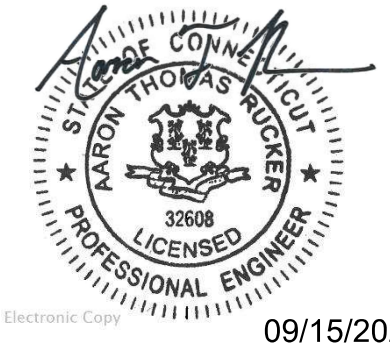
LC7: Proposed Equipment Configuration **Sufficient Capacity – 77.4%**

This analysis utilizes an ultimate 3-second gust wind speed of 117 mph as required by the 2012/2015 International Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Connor D. Ritter / RAL

Respectfully submitted by:

Aaron T. Rucker, P.E.



Electronic Copy

09/15/2021

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 119.1-ft monopole tower designed by Pirod Manufacturers, Inc. The tower has been modified multiple times in the past to accommodate additional loading.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	117 mph
Exposure Category:	C
Topographic Factor:	1.0
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
110.0	112.0	3	Ericsson	AIR 6419 B77G w/ Mount Pipe	6 2 6	1-5/8 3/8 7/8
		1	Kathrein	80010966 w/ Mount Pipe		
		1	CCI Antennas	DMP65R-BU8E w/ Mount Pipe		
		3	Ericsson	AIR 6449 B77D w/ Mount Pipe		
		2	Kathrein	80010965 w/ Mount Pipe		
		2	CCI Antennas	DMP65R-BU6e w/ Mount Pipe		
		3	Ericsson	RRUS 4478 B14_CCIV2		
	110.0	3	Ericsson	RRUS 4449 B5/B12		
		3	Ericsson	RRUS 8843 B2/B66A		
		3	Ericsson	RRUS 32 B30		
		3	Raycap	DC6-48-60-18-8F		
		1	SitePro1	RMQP-12-H5		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
120.0	120.0	3	Ericsson	AIR -32 B2A/B66AA w/ Mount Pipe	2 2	1-5/8 1-1/2
		3	RFS Celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
		3	Ericsson	AIR6449 B41 w/ Mount Pipe		
		3	Ericsson	AIR 3246 B66 w/ Mount Pipe		
		3	Ericsson	RADIO 4449 B71/B85A		
		3	Ericsson	RRUS 4415 B25_CCIV2		
		1	Tower Mounts	Platform Mount [LP 404-1_KCKR]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
115.0	115.0	1	Andrew	VHLP2-18	1	1/2
		1	Aviat Networks	ODU600		
		1	Tower Mounts	Side Arm Mount [SO 102-3]		
100.0	100.0	3	Amphenol	BXA-80063-4BF-EDIN-X w/ Mount Pipe	8	1-5/8
		3	Commscope	NHH-65B-R2B w/ Mount Pipe		
		3	Commscope	NHHSS-65B-R2B w/ Mount Pipe		
		3	Samsung Telecom.	MT6407-77A w/ Mount Pipe		
		3	Samsung Telecom.	CBRS RT4401-48A		
		6	Samsung Telecom.	RF4440D-13A		
		3	Samsung Telecom.	RF4439D-25A		
		1	Raycap	RVZDC-6627-PF-48		
		1	Tower Mounts	Platform Mount [LP 403-1]		
90.0	90.0	3	JMA Wireless	MX08FRO665-21 w/ Mount Pipe	1 1	1-1/2 7/8
		3	Fujitsu	TA08025-B605		
		3	Fujitsu	TA08025-B604		
		1	Raycap	RDIDC-9181-PF-48		
		1	Tower Mounts	Commscope MC-PK8-DSH		
80.0	81.0	3	Argus Technologies	LLPX310R-V4 w/ Mount Pipe	6 3	5/16 1-5/8
		3	Commscope	NNVV-65B-R4 w/ Mount Pipe		
		3	Nokia	AAHC		
		3	Nokia	AHFIB_CCIV2		
	80.0	1	Clearwire	CW JUNCTION BOX		
		3	Samsung Telecom.	WIMAX DAP HEAD		
		1	Tower Mounts	Side Arm Mount [SO 101-3]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
Supplemental Geotechnical Report	3636697	CCISites
Tower Foundation Drawings	3636698	CCISites
Tower Manufacturer Drawings	3525378	CCISites
Tower Reinforcement Drawings	3525386	CCISites
Post-Modification Inspection	3974228	CCISites
Tower Reinforcement Drawings	5650111	CCISites
Post-Modification Inspection	5852136	CCISites

3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 Standard.

RISA-3D, a commercially available analysis software package, was used to model and analyze the foundation. Selected output from the analysis is included in Appendix C.

3.2) Assumptions

1) The tower and structures were maintained in accordance with the TIA-222 Standard.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2, and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Tower Engineering Professionals should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (k)	ΦP_{allow} (k)	% Capacity	Pass / Fail
L1	119.083 - 101.083	Pole	TP26x22.13x0.25	1	-10.89	1224.51	19.7	Pass
L2	101.083 - 66.5	Pole	TP34.06x24.87x0.31	2	-24.33	1999.02	49.5	Pass
L3	66.5 - 32.8333	Pole	TP41.75x32.5x0.38	3	-32.40	2940.80	55.3	Pass
L4	32.8333 - 0	Pole	TP49.06x39.85x0.38	4	-43.57	3559.59	65.2	Pass
							Summary	
						Pole (L4)	65.2	Pass
						RATING =	**65.2**	**Pass**

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Slip Splice Connection	101.1	21.1	Pass
1,2	Slip Splice Connection	66.5	52.7	Pass
1,2	Slip Splice Connection	32.8	59.7	Pass
1,2	Anchor Rods	-	73.2	Pass
1,2	Base Plate	-	59.3	Pass
1,2	Base Foundation Structural	-	77.4	Pass
1,2	Base Foundation Soil Interaction	-	39.0	Pass

Structure Rating (max from all components) =	77.4%

Notes:
1) See additional documentation in "Appendix C - Additional Calculations" for calculations supporting the % capacity listed.
2) Rating per TIA-222-H Section 15.5

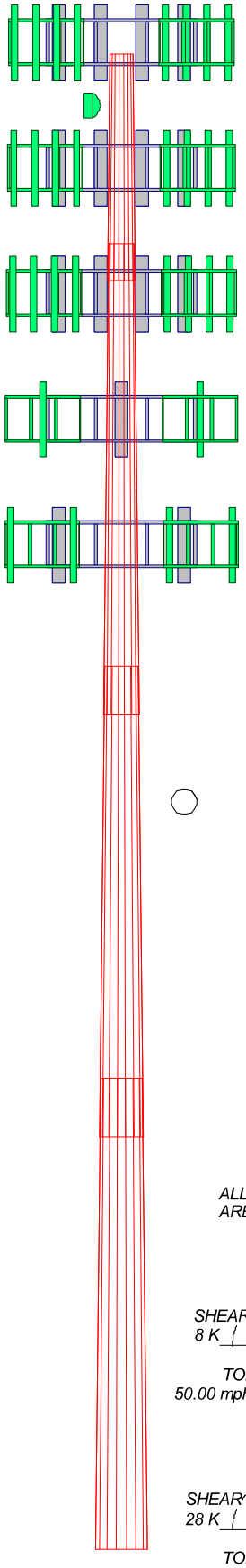
4.1) Recommendations

1) The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	18.00	18	0.25	2.92	22.13	26.00	A572-65	1.2
2	37.50	18	0.31	3.83	24.87	34.06		3.7
3	37.50	18	0.38	4.67	32.50	41.75		5.6
4	37.50	18	0.38		39.85	49.06		6.7



ALL REACTIONS ARE FACTORED

AXIAL 75 K

SHEAR 8 K *MOMENT 804 kip-ft*

TORQUE 0 kip-ft
50.00 mph WIND - 1.50 in ICE

AXIAL 44 K

SHEAR 28 K *MOMENT 2641 kip-ft*

TORQUE 0 kip-ft
REACTIONS - 117.00 mph WIND

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower designed for Exposure C to the TIA-222-H Standard.
2. Tower designed for a 117.00 mph basic wind in accordance with the TIA-222-H Standard.
3. Tower is also designed for a 50.00 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60.00 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 65.2%

Tower Engineering Professionals

Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
Phone: (919) 661-6351
FAX: (919) 661-6350

Job: ***WEST HARTFORD/I-84/X43 (BU 829013)***			
Project: ***TEP No. 25680.600944***			
Client: Crown Castle	Drawn by: Connor Ritter	App'd:	
Code: TIA-222-H	Date: 09/15/21	Scale: NTS	
Path:		Dwg No. E-1	

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower base elevation above sea level: 119.00 ft.
Basic wind speed of 117.00 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.50 in.
Ice thickness is considered to increase with height.
Ice density of 56.00 pcf.
A wind speed of 50.00 mph is used in combination with ice.
Temperature drop of 50.00 °F.
Deflections calculated using a wind speed of 60.00 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Maximum demand-capacity ratio is: 1.05.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-H Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	119.08-101.08	18.00	2.92	18	22.13	26.00	0.25	1.00	A572-65 (65 ksi)
L2	101.08-66.50	37.50	3.83	18	24.87	34.06	0.31	1.25	A572-65 (65 ksi)
L3	66.50-32.83	37.50	4.67	18	32.50	41.75	0.38	1.50	A572-65 (65 ksi)
L4	32.83-0.00	37.50		18	39.85	49.06	0.38	1.50	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	22.43	17.36	1050.09	7.77	11.24	93.41	2101.56	8.68	3.45	13.82
	26.36	20.43	1711.65	9.14	13.21	129.59	3425.56	10.22	4.14	16.544
L2	25.93	24.36	1856.53	8.72	12.64	146.93	3715.50	12.18	3.83	12.248
	34.54	33.48	4817.43	11.98	17.30	278.40	9641.21	16.74	5.45	17.424
L3	33.90	38.23	4984.58	11.40	16.51	301.93	9975.72	19.12	5.06	13.492
	42.34	49.25	10650.98	14.69	21.21	502.19	21315.98	24.63	6.69	17.835
L4	41.57	46.98	9249.06	14.01	20.24	456.90	18510.29	23.50	6.35	16.942
	49.76	57.95	17355.14	17.28	24.92	696.33	34733.11	28.98	7.97	21.267

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 119.08-101.08				1	1	1			
L2 101.08-66.50				1	1	1			
L3 66.50-32.83				1	1	1			
L4 32.83-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
Safety Line 3/8	B	No	Surface Ar (CaAa)	119.00 - 0.00	1	1	0.250 0.250	0.38		0.22
Rung 5/8" dia. x 12.5"w x 16" step *** 120' ***	B	No	Surface Ar (CaAa)	119.00 - 0.00	1	1	0.250 0.250	0.47		0.80
LDF7-50A(1-5/8) *** 115' ***	A	No	Surface Ar (CaAa)	119.08 - 0.00	4	4	0.500 0.500	1.98		0.82
LDF4-50A(1/2") *** 90' ***	B	No	Surface Ar (CaAa)	115.00 - 0.00	1	1	0.000 0.000	0.63		0.15

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
CU12PSM9P6XXX(1-1/2)	C	No	Surface Ar (CaAa)	90.00 - 0.00	1	1	0.000 0.000	1.60		2.35
DSHYBKIT-18612-XXM(7/8)	C	No	Surface Ar (CaAa)	90.00 - 0.00	1	1	0.500 0.500	0.88		1.24
*** 80' *** *** ***										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
*** 110' ***									
LDF7-50A(1-5/8")	C	No	No	Inside Pole	110.00 - 0.00	6	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82
FB-L98B-002-XXX(3/8)	C	No	No	Inside Pole	110.00 - 0.00	2	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06
2.5" Flexible Conduit	C	No	No	Inside Pole	110.00 - 0.00	1	No Ice	0.00	0.38
							1/2" Ice	0.00	0.38
							1" Ice	0.00	0.38
							2" Ice	0.00	0.38
PWRT-606-S(7/8")	C	No	No	Inside Pole	110.00 - 0.00	6	No Ice	0.00	0.89
							1/2" Ice	0.00	0.89
							1" Ice	0.00	0.89
							2" Ice	0.00	0.89
*** 100' ***									
LDF7-50A(1-5/8")	C	No	No	Inside Pole	100.00 - 0.00	8	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82
7957A(5/16")	B	No	No	Inside Pole	80.00 - 0.00	6	No Ice	0.00	0.05
							1/2" Ice	0.00	0.05
							1" Ice	0.00	0.05
							2" Ice	0.00	0.05
HB158-21U6M48-30F(1-5/8)	B	No	No	Inside Pole	80.00 - 0.00	3	No Ice	0.00	2.39
							1/2" Ice	0.00	2.39
							1" Ice	0.00	2.39
							2" Ice	0.00	2.39
*** ***									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	119.08-101.08	A	0.000	0.000	14.256	0.000	0.06
		B	0.000	0.000	2.389	0.000	0.02
		C	0.000	0.000	0.000	0.000	0.10
L2	101.08-66.50	A	0.000	0.000	27.390	0.000	0.11
		B	0.000	0.000	5.098	0.000	0.14
		C	0.000	0.000	5.816	0.000	0.68
L3	66.50-32.83	A	0.000	0.000	26.664	0.000	0.11
		B	0.000	0.000	4.962	0.000	0.29
		C	0.000	0.000	8.333	0.000	0.70
L4	32.83-0.00	A	0.000	0.000	26.004	0.000	0.11
		B	0.000	0.000	4.840	0.000	0.28
		C	0.000	0.000	8.126	0.000	0.69

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	119.08-101.08	A	1.438	0.000	0.000	24.291	0.000	0.30
		B		0.000	0.000	16.696	0.000	0.19
		C		0.000	0.000	0.000	0.000	0.10
L2	101.08-66.50	A	1.398	0.000	0.000	46.670	0.000	0.58
		B		0.000	0.000	34.934	0.000	0.49
		C		0.000	0.000	19.333	0.000	0.90
L3	66.50-32.83	A	1.327	0.000	0.000	45.100	0.000	0.56
		B		0.000	0.000	33.211	0.000	0.62
		C		0.000	0.000	27.165	0.000	1.01
L4	32.83-0.00	A	1.188	0.000	0.000	43.400	0.000	0.52
		B		0.000	0.000	30.988	0.000	0.57
		C		0.000	0.000	25.559	0.000	0.96

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	119.08-101.08	0.65	-4.41	1.96	-3.44
L2	101.08-66.50	0.44	-3.67	1.62	-2.50
L3	66.50-32.83	0.34	-3.51	1.51	-2.26
L4	32.83-0.00	0.36	-3.68	1.60	-2.47

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	1	Safety Line 3/8	101.08 - 119.00	1.0000	1.0000
L1	2	Rung 5/8" dia. x 12.5"w x 16" step	101.08 - 119.00	1.0000	1.0000
L1	4	LDF7-50A(1-5/8)	101.08 - 119.08	1.0000	1.0000
L1	8	LDF4-50A(1/2")	101.08 - 115.00	1.0000	1.0000
L2	1	Safety Line 3/8	66.50 - 101.08	1.0000	1.0000
L2	2	Rung 5/8" dia. x 12.5"w x 16" step	66.50 - 101.08	1.0000	1.0000
L2	4	LDF7-50A(1-5/8)	66.50 - 101.08	1.0000	1.0000
L2	8	LDF4-50A(1/2")	66.50 - 101.08	1.0000	1.0000
L2	19	CU12PSM9P6XXX(1-1/2)	66.50 - 90.00	1.0000	1.0000
L2	20	DSHYBKIT-18612-XXM(7/8)	66.50 - 90.00	1.0000	1.0000
L3	1	Safety Line 3/8	32.83 - 66.50	1.0000	1.0000
L3	2	Rung 5/8" dia. x 12.5"w x 16" step	32.83 - 66.50	1.0000	1.0000
L3	4	LDF7-50A(1-5/8)	32.83 - 66.50	1.0000	1.0000
L3	8	LDF4-50A(1/2")	32.83 - 66.50	1.0000	1.0000
L3	19	CU12PSM9P6XXX(1-1/2)	32.83 - 66.50	1.0000	1.0000
L3	20	DSHYBKIT-18612-XXM(7/8)	32.83 - 66.50	1.0000	1.0000
L4	1	Safety Line 3/8	0.00 - 32.83	1.0000	1.0000
L4	2	Rung 5/8" dia. x 12.5"w x 16" step	0.00 - 32.83	1.0000	1.0000
L4	4	LDF7-50A(1-5/8)	0.00 - 32.83	1.0000	1.0000
L4	8	LDF4-50A(1/2")	0.00 - 32.83	1.0000	1.0000
L4	19	CU12PSM9P6XXX(1-1/2)	0.00 - 32.83	1.0000	1.0000
L4	20	DSHYBKIT-18612-XXM(7/8)	0.00 - 32.83	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
120									
AIR -32 B2A/B66AA w/ Mount Pipe	A	From Centroid-Face	4.00 0.00 0.00	0.00	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.76 4.12 4.48 5.24	3.15 3.49 3.84 4.58	0.19 0.25 0.32 0.48
AIR -32 B2A/B66AA w/ Mount Pipe	B	From Centroid-Face	4.00 0.00 0.00	0.00	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.76 4.12 4.48 5.24	3.15 3.49 3.84 4.58	0.19 0.25 0.32 0.48
AIR -32 B2A/B66AA w/ Mount Pipe	C	From Centroid-Face	4.00 0.00 0.00	0.00	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.76 4.12 4.48 5.24	3.15 3.49 3.84 4.58	0.19 0.25 0.32 0.48

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Centroid-Face	4.00 0.00 0.00	0.00	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	0.19 0.31 0.46 0.79
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Centroid-Face	4.00 0.00 0.00	0.00	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	0.19 0.31 0.46 0.79
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Centroid-Face	4.00 0.00 0.00	0.00	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	0.19 0.31 0.46 0.79
AIR6449 B41 w/ Mount Pipe	A	From Centroid-Face	4.00 0.00 0.00	0.00	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.18 5.59 6.01 6.90	2.72 3.05 3.39 4.13	0.12 0.16 0.22 0.34
AIR6449 B41 w/ Mount Pipe	B	From Centroid-Face	4.00 0.00 0.00	0.00	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.18 5.59 6.01 6.90	2.72 3.05 3.39 4.13	0.12 0.16 0.22 0.34
AIR6449 B41 w/ Mount Pipe	C	From Centroid-Face	4.00 0.00 0.00	0.00	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.18 5.59 6.01 6.90	2.72 3.05 3.39 4.13	0.12 0.16 0.22 0.34
AIR 3246 B66 w/ Mount Pipe	A	From Centroid-Face	4.00 0.00 0.00	0.00	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.31 7.89 8.48 9.72	5.46 6.00 6.57 7.74	0.20 0.27 0.34 0.52
AIR 3246 B66 w/ Mount Pipe	B	From Centroid-Face	4.00 0.00 0.00	0.00	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.31 7.89 8.48 9.72	5.46 6.00 6.57 7.74	0.20 0.27 0.34 0.52
AIR 3246 B66 w/ Mount Pipe	C	From Centroid-Face	4.00 0.00 0.00	0.00	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.31 7.89 8.48 9.72	5.46 6.00 6.57 7.74	0.20 0.27 0.34 0.52
RADIO 4449 B71/B85A	A	From Centroid-Face	4.00 0.00 0.00	0.00	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.33	1.31 1.46 1.61 1.94	0.07 0.09 0.11 0.16
RADIO 4449 B71/B85A	B	From Centroid-Face	4.00 0.00 0.00	0.00	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.33	1.31 1.46 1.61 1.94	0.07 0.09 0.11 0.16
RADIO 4449 B71/B85A	C	From Centroid-Face	4.00 0.00 0.00	0.00	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.33	1.31 1.46 1.61 1.94	0.07 0.09 0.11 0.16
RRUS 4415 B25_CCIV2	A	From Centroid-Face	4.00 0.00 0.00	0.00	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.84 2.01 2.19 2.57	0.82 0.94 1.07 1.37	0.05 0.06 0.08 0.12
RRUS 4415 B25_CCIV2	B	From Centroid-Face	4.00 0.00 0.00	0.00	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.84 2.01 2.19 2.57	0.82 0.94 1.07 1.37	0.05 0.06 0.08 0.12
RRUS 4415 B25_CCIV2	C	From	4.00	0.00	120.00	No Ice	1.84	0.82	0.05

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
		Centroid-Face	0.00 0.00			1/2" Ice 1" Ice 2" Ice	2.01 2.19 2.57	0.94 1.07 1.37	0.06 0.08 0.12
2.4" Dia x 6-ft Mount Pipe	B	From Centroid-Face	4.00 0.00 0.00	0.00	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.93 2.30 3.06	1.43 1.93 2.30 3.06	0.02 0.03 0.05 0.09
2.4" Dia x 8.5-ft Mount Pipe	B	From Leg	1.00 0.00 3.00	0.00	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.02 2.90 3.71 4.76	2.02 2.90 3.71 4.76	0.03 0.04 0.06 0.12
Platform Mount [LP 404-1_KCKR]	C	None		0.00	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	35.82 45.85 55.76 75.77	35.82 45.85 55.76 75.77	2.32 3.02 3.89 6.14
*** ***115*** ODU600	C	From Leg	0.50 0.00 0.00	0.00	115.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.90 1.02 1.15 1.42	0.42 0.51 0.61 0.82	0.01 0.02 0.03 0.05
(2) 2.4" Dia x 6-ft Mount Pipe	C	From Leg	0.50 0.00 0.00	0.00	115.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.93 2.30 3.06	1.43 1.93 2.30 3.06	0.02 0.03 0.05 0.09
Side Arm Mount [SO 102-3]	C	None		0.00	115.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.60 4.18 4.75 5.90	3.60 4.18 4.75 5.90	0.07 0.11 0.14 0.20
110									
AIR 6419 B77G w/ Mount Pipe	A	From Centroid-Face	4.00 0.00 2.00	0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.87 4.18 4.50 5.16	2.32 2.72 3.13 4.01	0.08 0.11 0.15 0.25
AIR 6419 B77G w/ Mount Pipe	B	From Centroid-Face	4.00 0.00 2.00	0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.87 4.18 4.50 5.16	2.32 2.72 3.13 4.01	0.08 0.11 0.15 0.25
AIR 6419 B77G w/ Mount Pipe	C	From Centroid-Face	4.00 0.00 2.00	0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.87 4.18 4.50 5.16	2.32 2.72 3.13 4.01	0.08 0.11 0.15 0.25
80010966 w/ Mount Pipe	B	From Centroid-Face	4.00 0.00 2.00	0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.61 15.47 16.35 18.14	6.84 7.63 8.42 10.06	0.16 0.27 0.39 0.68
DMP65R-BU8E w/ Mount Pipe	B	From Centroid-Face	4.00 0.00 2.00	0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	17.16 18.17 19.19 21.28	10.13 11.06 12.01 13.95	0.16 0.28 0.42 0.73
AIR 6449 B77D w/ Mount Pipe	A	From Centroid-Face	4.00 0.00 2.00	0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.58 3.92 4.27 5.02	2.31 2.60 2.91 3.57	0.09 0.13 0.17 0.28
AIR 6449 B77D w/ Mount Pipe	B	From Centroid-Face	4.00 0.00 2.00	0.00	110.00	No Ice 1/2" Ice 1" Ice	3.58 3.92 4.27	2.31 2.60 2.91	0.09 0.13 0.17

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	5.02	3.57	0.28
AIR 6449 B77D w/ Mount Pipe	C	From Centroid-Face	4.00 0.00 2.00	0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.58 3.92 4.27 5.02	2.31 2.60 2.91 3.57	0.09 0.13 0.17 0.28
80010965 w/ Mount Pipe	A	From Centroid-Face	4.00 0.00 2.00	0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	12.26 13.03 13.80 15.41	5.79 6.47 7.17 8.60	0.14 0.23 0.33 0.57
80010965 w/ Mount Pipe	C	From Centroid-Face	4.00 0.00 2.00	0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	12.26 13.03 13.80 15.41	5.79 6.47 7.17 8.60	0.14 0.23 0.33 0.57
DMP65R-BU6e w/ Mount Pipe	A	From Centroid-Face	4.00 0.00 2.00	0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	12.52 13.29 14.09 15.72	7.41 8.12 8.84 10.33	0.13 0.22 0.33 0.57
DMP65R-BU6e w/ Mount Pipe	C	From Centroid-Face	4.00 0.00 2.00	0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	12.52 13.29 14.09 15.72	7.41 8.12 8.84 10.33	0.13 0.22 0.33 0.57
RRUS 4478 B14_CCIV2	A	From Centroid-Face	4.00 0.00 2.00	0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.02 2.20 2.39 2.78	1.25 1.40 1.55 1.89	0.06 0.08 0.10 0.15
RRUS 4478 B14_CCIV2	B	From Centroid-Face	4.00 0.00 2.00	0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.02 2.20 2.39 2.78	1.25 1.40 1.55 1.89	0.06 0.08 0.10 0.15
RRUS 4478 B14_CCIV2	C	From Centroid-Face	4.00 0.00 2.00	0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.02 2.20 2.39 2.78	1.25 1.40 1.55 1.89	0.06 0.08 0.10 0.15
RRUS 4449 B5/B12	A	From Centroid-Face	4.00 0.00 0.00	0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.14 2.33 2.72	1.41 1.56 1.73 2.07	0.07 0.09 0.11 0.16
RRUS 4449 B5/B12	B	From Centroid-Face	4.00 0.00 0.00	0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.14 2.33 2.72	1.41 1.56 1.73 2.07	0.07 0.09 0.11 0.16
RRUS 4449 B5/B12	C	From Centroid-Face	4.00 0.00 0.00	0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.14 2.33 2.72	1.41 1.56 1.73 2.07	0.07 0.09 0.11 0.16
RRUS 8843 B2/B66A	A	From Centroid-Face	4.00 0.00 0.00	0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.32	1.35 1.50 1.65 1.99	0.07 0.09 0.11 0.16
RRUS 8843 B2/B66A	B	From Centroid-Face	4.00 0.00 0.00	0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.32	1.35 1.50 1.65 1.99	0.07 0.09 0.11 0.16
RRUS 8843 B2/B66A	C	From Centroid-Face	4.00 0.00 0.00	0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.32	1.35 1.50 1.65 1.99	0.07 0.09 0.11 0.16

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RRUS 32 B30	A	From Centroid-Face	4.00 0.00 0.00	0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.73 2.95 3.18 3.66	1.67 1.86 2.05 2.46	0.05 0.07 0.10 0.16
RRUS 32 B30	B	From Centroid-Face	4.00 0.00 0.00	0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.73 2.95 3.18 3.66	1.67 1.86 2.05 2.46	0.05 0.07 0.10 0.16
RRUS 32 B30	C	From Centroid-Face	4.00 0.00 0.00	0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.73 2.95 3.18 3.66	1.67 1.86 2.05 2.46	0.05 0.07 0.10 0.16
DC6-48-60-18-8F	A	From Centroid-Face	4.00 0.00 0.00	0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.21 1.89 2.11 2.57	1.21 1.89 2.11 2.57	0.03 0.05 0.08 0.14
DC6-48-60-18-8F	B	From Centroid-Face	4.00 0.00 0.00	0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.21 1.89 2.11 2.57	1.21 1.89 2.11 2.57	0.03 0.05 0.08 0.14
DC6-48-60-18-8F	C	From Centroid-Face	4.00 0.00 0.00	0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.21 1.89 2.11 2.57	1.21 1.89 2.11 2.57	0.03 0.05 0.08 0.14
SitePro1 RMQP-12-H5	C	None		0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 18.01 21.34 28.08	14.69 18.01 21.34 28.08	1.25 1.57 1.94 2.85
Walkway Kit	C	None		0.00	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	10.54 13.60 16.46 22.18	10.54 13.60 16.46 22.18	0.32 0.47 0.66 1.03
*** **100**									
BXA-80063-4BF-EDIN-X w/ Mount Pipe	A	From Centroid-Face	4.00 0.00 0.00	0.00	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.62 4.99 5.36 6.13	3.47 4.04 4.63 5.83	0.03 0.07 0.12 0.23
BXA-80063-4BF-EDIN-X w/ Mount Pipe	B	From Centroid-Face	4.00 0.00 0.00	0.00	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.62 4.99 5.36 6.13	3.47 4.04 4.63 5.83	0.03 0.07 0.12 0.23
BXA-80063-4BF-EDIN-X w/ Mount Pipe	C	From Centroid-Face	4.00 0.00 0.00	0.00	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.62 4.99 5.36 6.13	3.47 4.04 4.63 5.83	0.03 0.07 0.12 0.23
NHH-65B-R2B w/ Mount Pipe	A	From Centroid-Face	4.00 0.00 0.00	0.00	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.70	3.29 3.67 4.06 4.86	0.07 0.13 0.21 0.39
NHH-65B-R2B w/ Mount Pipe	B	From Centroid-Face	4.00 0.00 0.00	0.00	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.70	3.29 3.67 4.06 4.86	0.07 0.13 0.21 0.39
NHH-65B-R2B w/ Mount Pipe	C	From Centroid-Face	4.00 0.00 0.00	0.00	100.00	No Ice 1/2" Ice 1" Ice	4.09 4.48 4.88	3.29 3.67 4.06	0.07 0.13 0.21

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	5.70	4.86	0.39
NHHSS-65B-R2B w/ Mount Pipe	A	From Centroid-Face	4.00 0.00 0.00	0.00	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.89 4.27 4.65 5.43	3.14 3.50 3.87 4.63	0.09 0.15 0.23 0.41
NHHSS-65B-R2B w/ Mount Pipe	B	From Centroid-Face	4.00 0.00 0.00	0.00	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.89 4.27 4.65 5.43	3.14 3.50 3.87 4.63	0.09 0.15 0.23 0.41
NHHSS-65B-R2B w/ Mount Pipe	C	From Centroid-Face	4.00 0.00 0.00	0.00	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.89 4.27 4.65 5.43	3.14 3.50 3.87 4.63	0.09 0.15 0.23 0.41
MT6407-77A w/ Mount Pipe	A	From Centroid-Face	4.00 0.00 0.00	0.00	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.91 5.26 5.61 6.36	2.68 3.14 3.62 4.63	0.10 0.14 0.18 0.29
MT6407-77A w/ Mount Pipe	B	From Centroid-Face	4.00 0.00 0.00	0.00	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.91 5.26 5.61 6.36	2.68 3.14 3.62 4.63	0.10 0.14 0.18 0.29
MT6407-77A w/ Mount Pipe	C	From Centroid-Face	4.00 0.00 0.00	0.00	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.91 5.26 5.61 6.36	2.68 3.14 3.62 4.63	0.10 0.14 0.18 0.29
CBRS RT4401-48A	A	From Centroid-Face	4.00 0.00 0.00	0.00	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.99 1.12 1.26 1.55	0.50 0.60 0.70 0.94	0.02 0.03 0.04 0.06
CBRS RT4401-48A	B	From Centroid-Face	4.00 0.00 0.00	0.00	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.99 1.12 1.26 1.55	0.50 0.60 0.70 0.94	0.02 0.03 0.04 0.06
CBRS RT4401-48A	C	From Centroid-Face	4.00 0.00 0.00	0.00	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.99 1.12 1.26 1.55	0.50 0.60 0.70 0.94	0.02 0.03 0.04 0.06
(2) RF4440D-13A	A	From Centroid-Face	4.00 0.00 0.00	0.00	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.87 2.03 2.21 2.59	1.13 1.27 1.41 1.72	0.07 0.09 0.11 0.16
(2) RF4440D-13A	B	From Centroid-Face	4.00 0.00 0.00	0.00	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.87 2.03 2.21 2.59	1.13 1.27 1.41 1.72	0.07 0.09 0.11 0.16
(2) RF4440D-13A	C	From Centroid-Face	4.00 0.00 0.00	0.00	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.87 2.03 2.21 2.59	1.13 1.27 1.41 1.72	0.07 0.09 0.11 0.16
RF4439D-25A	A	From Centroid-Face	4.00 0.00 0.00	0.00	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.87 2.03 2.21 2.59	1.25 1.39 1.54 1.87	0.07 0.09 0.11 0.17
RF4439D-25A	B	From Centroid-Face	4.00 0.00 0.00	0.00	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.87 2.03 2.21 2.59	1.25 1.39 1.54 1.87	0.07 0.09 0.11 0.17

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RF4439D-25A	C	From Centroid-Face	4.00 0.00 0.00	0.00	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.87 2.03 2.21 2.59	1.25 1.39 1.54 1.87	0.07 0.09 0.11 0.17
RVZDC-6627-PF-48	B	From Centroid-Face	4.00 0.00 0.00	0.00	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.79 4.04 4.30 4.84	2.51 2.73 2.95 3.42	0.03 0.06 0.10 0.18
Platform Mount [LP 403-1]	C	None		0.00	100.00	No Ice 1/2" Ice 1" Ice 2" Ice	18.94 23.31 27.74 36.77	18.94 23.31 27.74 36.77	1.50 1.90 2.37 3.53
90									
MX08FRO665-21 w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 0.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.01 8.52 9.04 10.11	4.23 4.69 5.16 6.12	0.11 0.19 0.29 0.52
MX08FRO665-21 w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 0.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.01 8.52 9.04 10.11	4.23 4.69 5.16 6.12	0.11 0.19 0.29 0.52
MX08FRO665-21 w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.01 8.52 9.04 10.11	4.23 4.69 5.16 6.12	0.11 0.19 0.29 0.52
TA08025-B605	A	From Centroid-Leg	4.00 0.00 0.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
TA08025-B605	B	From Centroid-Leg	4.00 0.00 0.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
TA08025-B605	C	From Centroid-Leg	4.00 0.00 0.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
TA08025-B604	A	From Centroid-Leg	4.00 0.00 0.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B604	B	From Centroid-Leg	4.00 0.00 0.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B604	C	From Centroid-Leg	4.00 0.00 0.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
RDIDC-9181-PF-48	B	From Centroid-Leg	4.00 0.00 0.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.01 2.19 2.37 2.76	1.17 1.31 1.46 1.78	0.02 0.04 0.06 0.11
(2) 8' x 2" Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) 8' x 2" Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
(2) 8' x 2" Mount Pipe	C	From Centroid-Leg	4.00 0.00 0.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
Commscope MC-PK8-DSH	C	None		0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	34.24 62.95 91.66 149.08	34.24 62.95 91.66 149.08	1.75 2.10 2.45 3.15
*** ***80***									
LLPX310R-V4 w/ Mount Pipe	A	From Leg	2.00 0.00 1.00	0.00	80.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.88 4.29 4.72 5.61	2.36 2.73 3.12 3.94	0.06 0.09 0.13 0.24
LLPX310R-V4 w/ Mount Pipe	B	From Leg	2.00 0.00 1.00	0.00	80.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.88 4.29 4.72 5.61	2.36 2.73 3.12 3.94	0.06 0.09 0.13 0.24
LLPX310R-V4 w/ Mount Pipe	C	From Leg	2.00 0.00 1.00	0.00	80.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.88 4.29 4.72 5.61	2.36 2.73 3.12 3.94	0.06 0.09 0.13 0.24
NNVV-65B-R4 w/ Mount Pipe	A	From Leg	2.00 0.00 1.00	0.00	80.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.55 8.04 8.53 9.56	4.23 4.67 5.12 6.05	0.11 0.20 0.30 0.53
NNVV-65B-R4 w/ Mount Pipe	B	From Leg	2.00 0.00 1.00	0.00	80.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.55 8.04 8.53 9.56	4.23 4.67 5.12 6.05	0.11 0.20 0.30 0.53
NNVV-65B-R4 w/ Mount Pipe	C	From Leg	2.00 0.00 1.00	0.00	80.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.55 8.04 8.53 9.56	4.23 4.67 5.12 6.05	0.11 0.20 0.30 0.53
CW JUNCTION BOX	A	From Leg	2.00 0.00 0.00	0.00	80.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.20 1.34 1.48 1.79	0.60 0.70 0.81 1.06	0.00 0.01 0.02 0.05
(2) AAHC	A	From Leg	2.00 0.00 1.00	0.00	80.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.21 4.47 4.73 5.28	2.07 2.26 2.47 2.90	0.10 0.14 0.17 0.26
AAHC	B	From Leg	2.00 0.00 1.00	0.00	80.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.21 4.47 4.73 5.28	2.07 2.26 2.47 2.90	0.10 0.14 0.17 0.26
AHFIB_CCIV2	A	From Leg	2.00 0.00 1.00	0.00	80.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.79 3.01 3.24 3.72	1.53 1.71 1.90 2.29	0.07 0.09 0.11 0.17
AHFIB_CCIV2	B	From Leg	2.00 0.00 1.00	0.00	80.00	No Ice 1/2" Ice 1" Ice	2.79 3.01 3.24	1.53 1.71 1.90	0.07 0.09 0.11

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	3.72	2.29	0.17
AHFIB_CCIV2	C	From Leg	2.00	0.00	80.00	No Ice	2.79	1.53	0.07
			0.00			1/2" Ice	3.01	1.71	0.09
			1.00			1" Ice	3.24	1.90	0.11
						2" Ice	3.72	2.29	0.17
WIMAX DAP HEAD	A	From Leg	2.00	0.00	80.00	No Ice	1.55	0.68	0.03
			0.00			1/2" Ice	1.70	0.80	0.04
			0.00			1" Ice	1.87	0.92	0.06
						2" Ice	2.22	1.19	0.09
WIMAX DAP HEAD	B	From Leg	2.00	0.00	80.00	No Ice	1.55	0.68	0.03
			0.00			1/2" Ice	1.70	0.80	0.04
			0.00			1" Ice	1.87	0.92	0.06
						2" Ice	2.22	1.19	0.09
WIMAX DAP HEAD	C	From Leg	2.00	0.00	80.00	No Ice	1.55	0.68	0.03
			0.00			1/2" Ice	1.70	0.80	0.04
			0.00			1" Ice	1.87	0.92	0.06
						2" Ice	2.22	1.19	0.09
Side Arm Mount [SO 101-3]	C	None		0.00	80.00	No Ice	5.81	5.81	0.25
						1/2" Ice	6.95	6.95	0.34
						1" Ice	8.28	8.28	0.46
						2" Ice	11.54	11.54	0.78
***									
***									
****									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
*** 115' ***											
VHLP2-18	C	Paraboloid w/Shroud (HP)	From Leg	1.00	-17.00		115.00	2.00	No Ice	3.14	0.03
				0.00					1/2" Ice	3.41	0.05
				0.00					1" Ice	3.68	0.07
									2" Ice	4.21	0.10
***											

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice

Comb. No.	Description
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	119.083 - 101.083	15.92	41	1.13	0.00
L2	104 - 66.5	12.39	41	1.08	0.00
L3	70.3333 - 32.8333	5.71	41	0.76	0.00
L4	37.5 - 0	1.64	40	0.40	0.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
120.00	AIR -32 B2A/B66AA w/ Mount Pipe	41	15.92	1.13	0.00	26291
115.00	VHLP2-18	41	14.95	1.12	0.00	26291
110.00	AIR 6419 B77G w/ Mount Pipe	41	13.78	1.11	0.00	14472
100.00	BXA-80063-4BF-EDIN-X w/ Mount Pipe	41	11.50	1.06	0.00	8081
90.00	MX08FRO665-21 w/ Mount Pipe	41	9.37	0.98	0.00	6831
80.00	LLPX310R-V4 w/ Mount Pipe	41	7.41	0.87	0.00	5917

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	119.083 - 101.083	64.72	6	4.61	0.00
L2	104 - 66.5	50.39	6	4.41	0.00
L3	70.3333 - 32.8333	23.23	6	3.11	0.00
L4	37.5 - 0	6.66	6	1.63	0.00

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
120.00	AIR -32 B2A/B66AA w/ Mount Pipe	6	64.72	4.61	0.00	6563
115.00	VHLP2-18	6	60.79	4.57	0.00	6563
110.00	AIR 6419 B77G w/ Mount Pipe	6	56.01	4.51	0.00	3612
100.00	BXA-80063-4BF-EDIN-X w/ Mount Pipe	6	46.75	4.31	0.00	2013
90.00	MX08FRO665-21 w/ Mount Pipe	6	38.09	3.98	0.00	1696
80.00	LLPX310R-V4 w/ Mount Pipe	6	30.14	3.56	0.00	1465

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	119.083 - 101.083 (1)	TP26x22.13x0.25	18.00	0.00	0.0	19.93	-10.89	1166.20	0.009
L2	101.083 - 66.5	TP34.06x24.87x0.31	37.50	0.00	0.0	32.54	-24.33	1903.83	0.013

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L3	66.5 - 32.8333 (2)	TP41.75x32.5x0.38	37.50	0.00	0.0	47.88	-32.40	2800.76	0.012
L4	32.8333 - 0 (3)	TP49.06x39.85x0.38	37.50	0.00	0.0	57.95	-43.57	3390.09	0.013

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	119.083 - 101.083 (1)	TP26x22.13x0.25	147.47	753.16	0.196	0.00	753.16	0.000
L2	101.083 - 66.5 (2)	TP34.06x24.87x0.31	802.25	1588.07	0.505	0.00	1588.07	0.000
L3	66.5 - 32.8333 (3)	TP41.75x32.5x0.38	1618.56	2847.93	0.568	0.00	2847.93	0.000
L4	32.8333 - 0 (4)	TP49.06x39.85x0.38	2641.31	3935.25	0.671	0.00	3935.25	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	119.083 - 101.083 (1)	TP26x22.13x0.25	12.87	349.86	0.037	0.09	769.74	0.000
L2	101.083 - 66.5 (2)	TP34.06x24.87x0.31	23.64	571.15	0.041	0.02	1641.13	0.000
L3	66.5 - 32.8333 (3)	TP41.75x32.5x0.38	26.06	840.23	0.031	0.02	2959.78	0.000
L4	32.8333 - 0 (4)	TP49.06x39.85x0.38	28.38	1017.03	0.028	0.02	4336.41	0.000

Pole Interaction Design Data

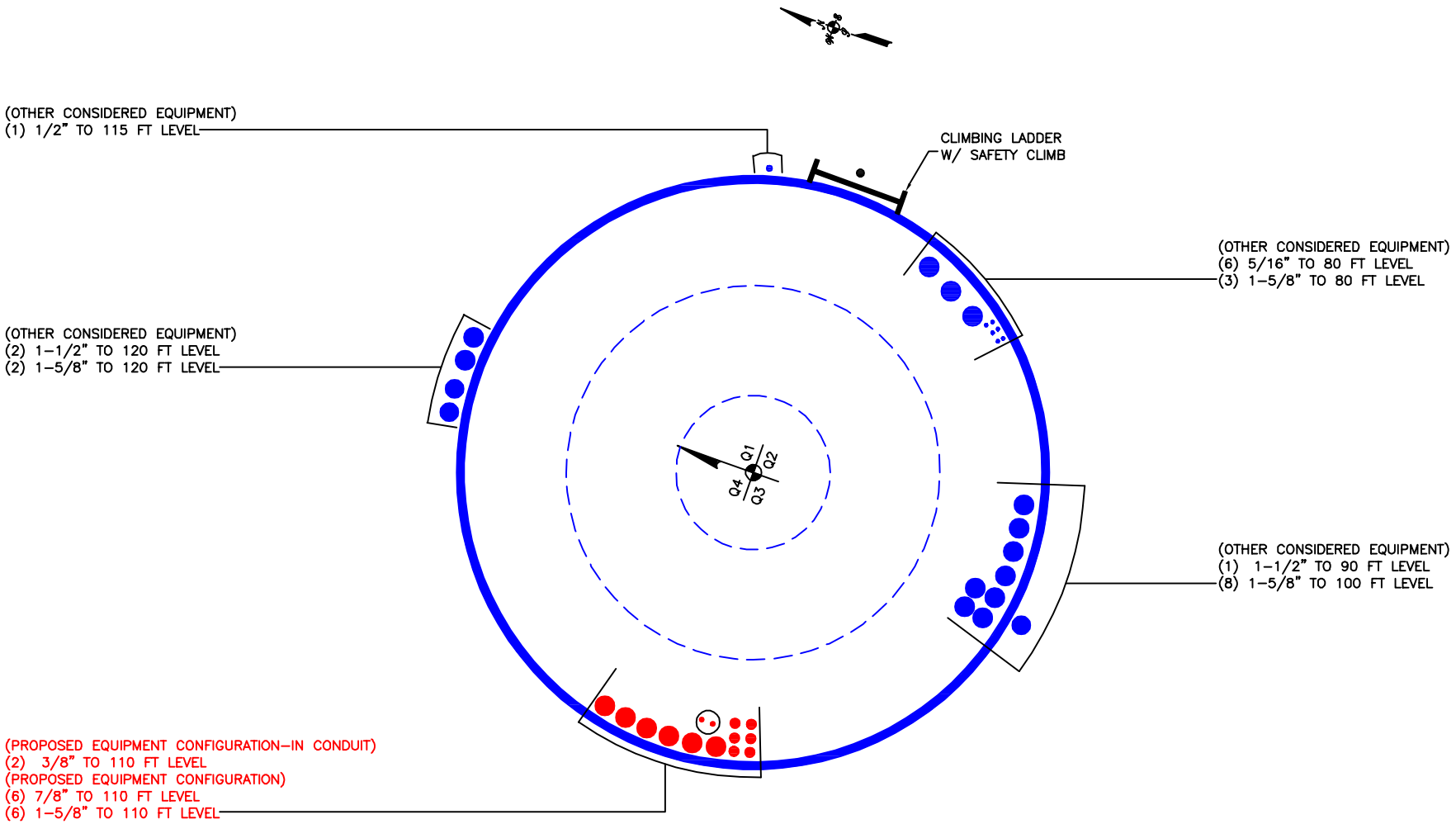
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	119.083 - 101.083 (1)	0.009	0.196	0.000	0.037	0.000	0.206	1.050	4.8.2
L2	101.083 - 66.5 (2)	0.013	0.505	0.000	0.041	0.000	0.520	1.050	4.8.2
L3	66.5 - 32.8333 (3)	0.012	0.568	0.000	0.031	0.000	0.581	1.050	4.8.2
L4	32.8333 - 0 (4)	0.013	0.671	0.000	0.028	0.000	0.685	1.050	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	119.083 - 101.083	Pole	TP26x22.13x0.25	1	-10.89	1224.51	19.7	Pass
L2	101.083 - 66.5	Pole	TP34.06x24.87x0.31	2	-24.33	1999.02	49.5	Pass
L3	66.5 - 32.8333	Pole	TP41.75x32.5x0.38	3	-32.40	2940.80	55.3	Pass
L4	32.8333 - 0	Pole	TP49.06x39.85x0.38	4	-43.57	3559.59	65.2	Pass
							Summary	
						Pole (L4)	65.2	Pass
						RATING =	**65.2**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 115 FT LEVEL
CLIMBING LADDER
W/ SAFETY CLIMB
(OTHER CONSIDERED EQUIPMENT)
(6) 5/16" TO 80 FT LEVEL
(3) 1-5/8" TO 80 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(2) 1-1/2" TO 120 FT LEVEL
(2) 1-5/8" TO 120 FT LEVEL
Q1
Q2
Q3
Q4
(OTHER CONSIDERED EQUIPMENT)
(1) 1-1/2" TO 90 FT LEVEL
(8) 1-5/8" TO 100 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION-IN CONDUIT)
(2) 3/8" TO 110 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION)
(6) 7/8" TO 110 FT LEVEL
(6) 1-5/8" TO 110 FT LEVEL

APPENDIX C

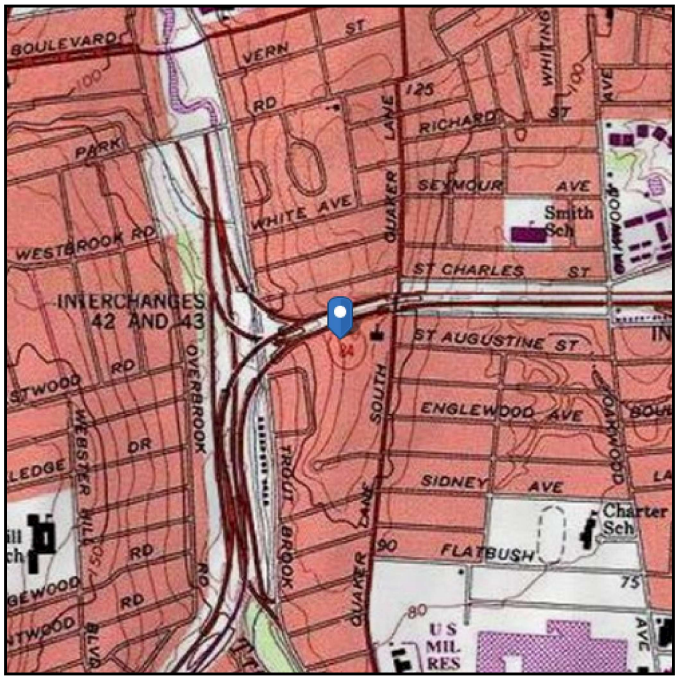
ADDITIONAL CALCULATIONS

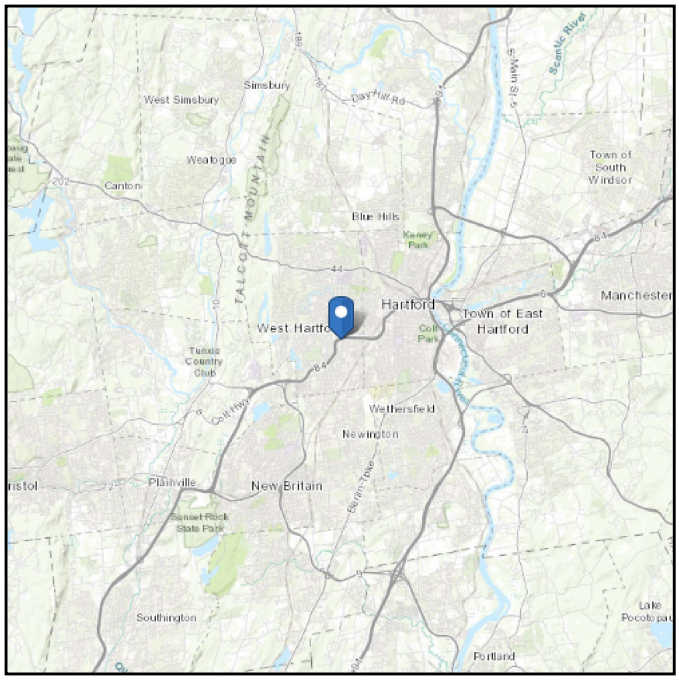
ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Elevation: 118.67 ft (NAVD 88)
Latitude: 41.748775
Longitude: -72.73135





Wind

Results:

Wind Speed:	117 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	97 Vmph

Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Thu Sep 09 2021

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

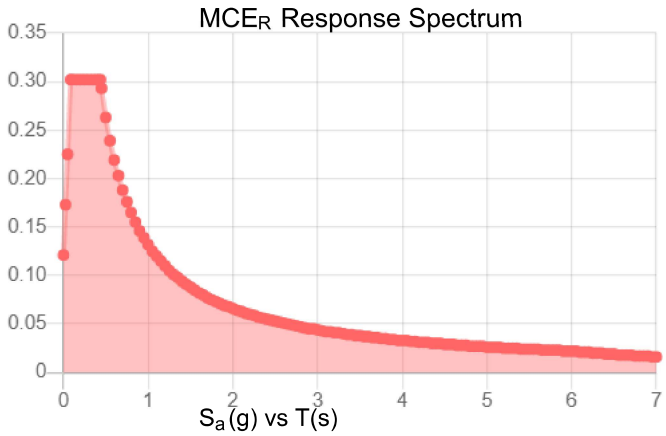
Seismic

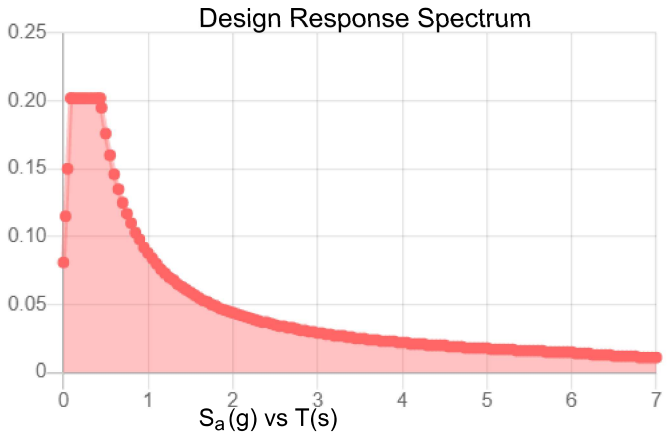
Site Soil Class: D - Default (see Section 11.4.3)

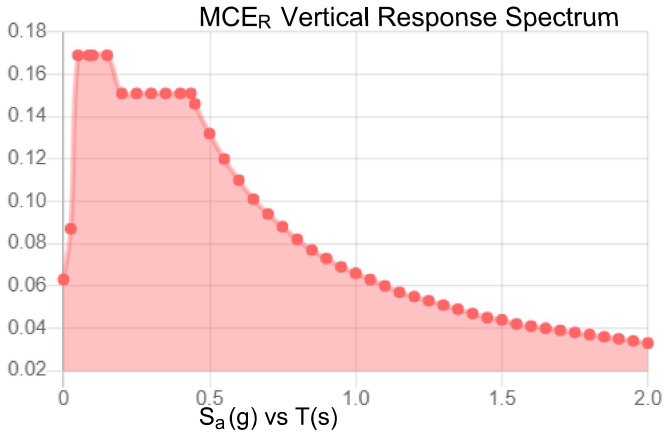
Results:

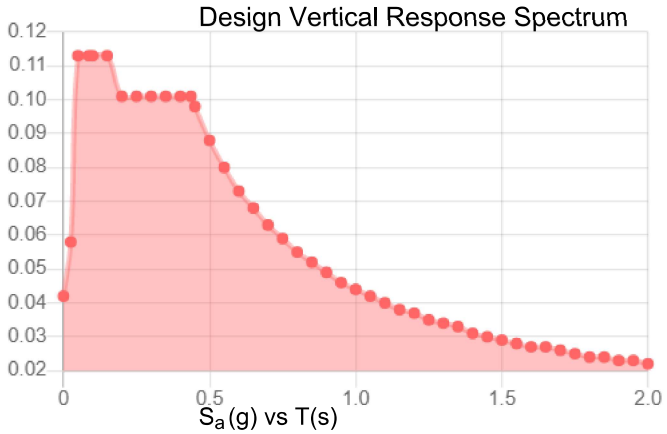
S_S :	0.189	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.102
F_v :	2.4	PGA_M :	0.163
S_{MS} :	0.302	F_{PGA} :	1.596
S_{M1} :	0.132	I_e :	1
S_{DS} :	0.202	C_v :	0.7

Seismic Design Category B









Data Accessed: Thu Sep 09 2021

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	1.50 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Thu Sep 09 2021

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

TOWER ENGINEERING PROFESSIONALS

West Hartford/I-84/X43 (BU 829013)

TEP #: 25680.600944

Analysis: CDR 9/14/2021

Check: RAL 9/14/2021

Tubular Polygonal Members Capacity Check - ANSI/TIA-222-H-2017

Reaction Input

Elevation:	101.1	ft
Moment:	147.47	kip-ft
Axial:	10.89	kip
Shear:	12.87	kip
Torsion:	0.09	kip-ft

Actual Slip-Splice Length: 35.00 in

Required Slip-Splice Length: 38.25 in (per TIA-222-H 4.9.7.1)

Section Properties

Diameter:	26.00	in
Thickness:	0.250	in
No. of Sides:	18	
Flat Width:	4.14	in
Area:	20.43	in^2

Tip Diameter: 26.33 in

Material Properties

F_y:	65	ksi
E:	29000	ksi

Filled w/ Concrete? No

***Rating per TIA-222-H Section 15.5:** 1.05

Check Bending

S: 130.02 in^3

F'$_y$: 71.47 ksi (reduced to account for actual slip-splice length per TIA-222-H 13.3.5)

ϕM_n: 696.93 kip-ft 20.2% **PASS** $0.9*F'_y*S$

Check Axial

ϕP_n: 1314.18 kip 0.8% **PASS** $0.9*F'_y*A_g$

Check Shear

ϕV_n: 358.58 kip 3.4% **PASS** $0.9*0.6*F_y*A_g/2$

Check Torsion

m: 1.58

C_t: 261.91 in^3

ϕT_n: 808.65 kip-ft 0.0% **PASS** $0.95*0.6*F_y*C_t$

Interaction*: 21.1% **PASS** $(P_u/\varphi P_n) + (M_u/\varphi M_n) + [(V_u/\varphi V_n) + T_u/\phi T_n)]^2$

TOWER ENGINEERING PROFESSIONALS

West Hartford/I-84/X43 (BU 829013)

TEP #: 25680.600944

Analysis: CDR 9/14/2021

Check: RAL 9/14/2021

Tubular Polygonal Members Capacity Check - ANSI/TIA-222-H-2017

Reaction Input

Elevation:	66.5	ft
Moment:	802.25	kip-ft
Axial:	24.33	kip
Shear:	23.64	kip
Torsion:	0.02	kip-ft

Actual Slip-Splice Length: 46.00 in

Required Slip-Splice Length: 50.16 in (per TIA-222-H 4.9.7.1)

Section Properties

Diameter:	34.0625	in
Thickness:	0.3125	in
No. of Sides:	18	
Flat Width:	5.46	in
Area:	33.47	in^2

Tip Diameter: 34.50 in

Material Properties

F_y:	65	ksi
E:	29000	ksi

Filled w/ Concrete? No

***Rating per TIA-222-H Section 15.5:** 1.05

Check Bending

S: 279.30 in^3

F'$_y$: 70.82 ksi (reduced to account for actual slip-splice length per TIA-222-H 13.3.5)

ϕM_n: 1483.43 kip-ft 51.5% **PASS** $0.9*F'_y*S$

Check Axial

ϕP_n: 2133.50 kip 1.1% **PASS** $0.9*F'_y*A_g$

Check Shear

ϕV_n: 587.48 kip 3.8% **PASS** $0.9*0.6*F_y*A_g/2$

Check Torsion

m: 1.58

C_t: 562.41 in^3

ϕT_n: 1736.45 kip-ft 0.0% **PASS** $0.95*0.6*F_y*C_t$

Interaction*: 52.7% **PASS** $(P_u/\varphi P_n) + (M_u/\varphi M_n) + [(V_u/\varphi V_n) + T_u/\phi T_n)]^2$

TOWER ENGINEERING PROFESSIONALS

West Hartford/I-84/X43 (BU 829013)

TEP #: 25680.600944

Analysis: CDR 9/14/2021

Check: RAL 9/14/2021

Tubular Polygonal Members Capacity Check - ANSI/TIA-222-H-2017

Reaction Input

Elevation:	32.8	ft
Moment:	1618.56	kip-ft
Axial:	32.40	kip
Shear:	26.06	kip
Torsion:	0.02	kip-ft

Actual Slip-Splice Length: 56.00 in

Required Slip-Splice Length: 61.50 in (per TIA-222-H 4.9.7.1)

Section Properties

Diameter:	41.75	in
Thickness:	0.375	in
No. of Sides:	18	
Flat Width:	6.70	in
Area:	49.24	in^2

Tip Diameter: 42.28 in

Material Properties

F_y:	65	ksi
E:	29000	ksi

Filled w/ Concrete? No

***Rating per TIA-222-H Section 15.5:** 1.05

Check Bending

S:	503.78	in^3			
F'$_y$:	69.60	ksi	(reduced to account for actual slip-splice length per TIA-222-H 13.3.5)		
ϕM_n:	2629.78	kip-ft	58.6%	**PASS**	$0.9*F'_y*S$

Check Axial

ϕP_n:	3084.76	kip	1.0%	**PASS**	$0.9*F'_y*A_g$

Check Shear

ϕV_n:	864.25	kip	2.9%	**PASS**	$0.9*0.6*F_y*A_g/2$

Check Torsion

m: 1.58

C_t: 1014.30 in^3

ϕT_n:	3131.64	kip-ft	0.0%	**PASS**	$0.95*0.6*F_y*C_t$

Interaction*:	59.7%	**PASS**	$(P_u/\varphi P_n) + (M_u/\varphi M_n) + [(V_u/\varphi V_n) + T_u/\phi T_n)]^2$

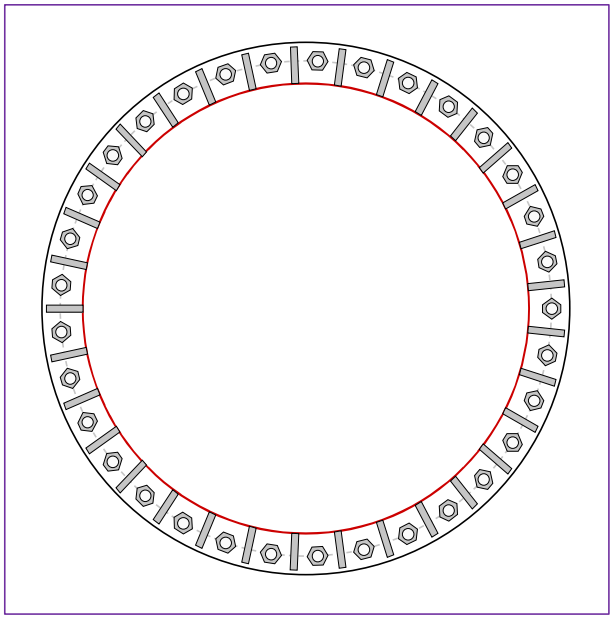
Monopole Base Plate Connection

Site Info	
BU #	829013
Site Name	West Hartford/I-84/X4
Order #	556517 Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	2

Applied Loads	
Moment (kip-ft)	2641.31
Axial Force (kips)	43.57
Shear Force (kips)	28.38

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(33) 1-1/4" ø bolts (A687 N; Fy=105 ksi, Fu=125 ksi) on 54" BC

Base Plate Data

58" OD x 1.5" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Stiffener Data

(33) 12"H x 4"W x 0.75"T, Notch: 0.5"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.5" fillet
vert. weld: 0.25" fillet

Pole Data

49.0625" x 0.375" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

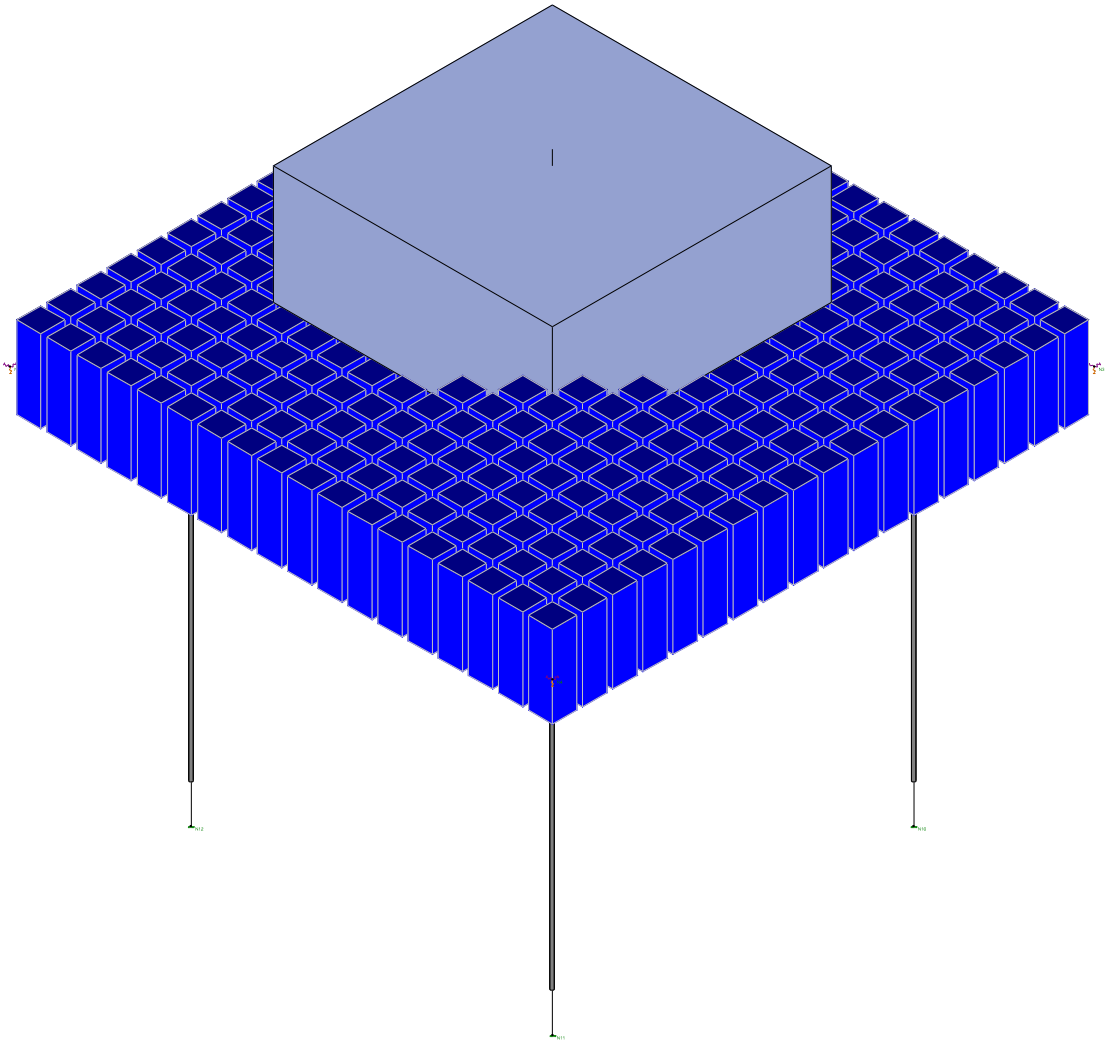
Analysis Results

Anchor Rod Summary		*(units of kips, kip-in)*
Pu_t = 69.81	ϕPn_t = 90.84	**Stress Rating**
Vu = 0.86	ϕVn = 57.52	**73.2%**
Mu = 1.12	ϕMn = 30.76	Pass

Base Plate Summary		
Max Stress (ksi):	24.73	(Roark's Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	**52.3%**	Pass

Stiffener Summary		
Horizontal Weld:	**59.3%**	Pass
Vertical Weld:	**39.5%**	Pass
Plate Flexure+Shear:	**14.6%**	Pass
Plate Tension+Shear:	**57.5%**	Pass
Plate Compression:	**58.1%**	Pass

Pole Summary		
Punching Shear:	**7.1%**	Pass



Crown Castle	West Hartford/I-84/X43 (BU 829013)	SK - 1
CDR		Sept 14, 2021 at 5:00 PM
TEP No. 25680.600944		Foundation.r3d

Concrete Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E..	Density[lb/f...	f'c[ksi]	Lambda	Flex Steel[...	Shear Stee...
1	Conc3000NW	3156	1372	.15	.6	145	3	1	60	60
2	Conc3500NW	3409	1482	.15	.6	145	3.5	1	60	60
3	Conc4000NW	3644	1584	.15	.6	145	4	1	60	60
4	Conc3000LW	2085	907	.15	.6	109.999	3	.75	60	60
5	Conc3500LW	2252	979	.15	.6	109.999	3.5	.75	60	60
6	Conc4000LW	2408	1047	.15	.6	109.999	4	.75	60	60

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N8	N12			1"WF Rock	Column	None	A722	Typical
2	M2	N7	N11			1"WF Rock	Column	None	A722	Typical
3	M3	N6	N10			1"WF Rock	Column	None	A722	Typical
4	M4	N5	N9			1"WF Rock	Column	None	A722	Typical
5	M5	TL1	N367			CRECT102X1...	Column	Rectangular	Conc3000...	Typical
6	M6	N367	TOWER			6' rigid offset	Column	None	RIGID	Typical

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Dead	DL		-1		1				324
2	Wind 0	WL				2				
3	Wind 90	WL				2				
4	Wind 45	WL				4				
5	Prestress	None						4		
6	Soil Strength 45	None				37				
7	Soil Strength 0	None				19				
8	Soil Strength 90	None				19				

Load Combinations

	Description	So...	P...	S...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
1	1.2D+1.0...	Yes	Y		1	1.2	2	1	7	1														
2	1.2D+1.0...	Yes	Y		1	1.2	3	1	8	1														
3	1.2D+1.0...	Yes	Y		1	1.2	4	1	6	1														
4	0.9D+1.0...	Yes	Y		1	.9	2	1	7	1														
5	0.9D+1.0...	Yes	Y		1	.9	3	1	8	1														
6	0.9D+1.0...	Yes	Y		1	.9	4	1	6	1														
7	Prestress	Yes	Y		5	1																		

Joint Loads and Enforced Displacements (BLC 1 : Dead)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	TL1	L	Y	-36.32

Joint Loads and Enforced Displacements (BLC 2 : Wind 0)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	TL1	L	X	28.38

Joint Loads and Enforced Displacements (BLC 2 : Wind 0) (Continued)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
2	TL1	L	Mz	-2641.31

Joint Loads and Enforced Displacements (BLC 3 : Wind 90)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	TL1	L	Z	28.38
2	TL1	L	Mx	2641.31

Joint Loads and Enforced Displacements (BLC 4 : Wind 45)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	TL1	L	X	20.068
2	TL1	L	Mz	-1867.688
3	TL1	L	Z	20.068
4	TL1	L	Mx	1867.688

Joint Loads and Enforced Displacements (BLC 6 : Soil Strength 45)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N1	L	Y	-.706
2	N2	L	Y	-.706
3	N31	L	Y	-.706
4	N32	L	Y	-.706
5	N33	L	Y	-.706
6	N34	L	Y	-.706
7	N35	L	Y	-.706
8	N36	L	Y	-.706
9	N37	L	Y	-.706
10	N38	L	Y	-.706
11	N39	L	Y	-.706
12	N40	L	Y	-.706
13	N41	L	Y	-.706
14	N42	L	Y	-.706
15	N43	L	Y	-.706
16	N44	L	Y	-.706
17	N45	L	Y	-.706
18	N46	L	Y	-.706
19	N47	L	Y	-.706
20	N3	L	Y	-.706
21	N14	L	Y	-.706
22	N15	L	Y	-.706
23	N16	L	Y	-.706
24	N17	L	Y	-.706
25	N18	L	Y	-.706
26	N19	L	Y	-.706
27	N20	L	Y	-.706
28	N21	L	Y	-.706
29	N22	L	Y	-.706
30	N23	L	Y	-.706
31	N24	L	Y	-.706
32	N25	L	Y	-.706
33	N26	L	Y	-.706
34	N27	L	Y	-.706

Joint Loads and Enforced Displacements (BLC 6 : Soil Strength 45) (Continued)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
35	N28	L	Y	-.706
36	N29	L	Y	-.706
37	N30	L	Y	-.706

Joint Loads and Enforced Displacements (BLC 7 : Soil Strength 0)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N1	L	Y	-.706
2	N2	L	Y	-.706
3	N31	L	Y	-.706
4	N32	L	Y	-.706
5	N33	L	Y	-.706
6	N34	L	Y	-.706
7	N35	L	Y	-.706
8	N36	L	Y	-.706
9	N37	L	Y	-.706
10	N38	L	Y	-.706
11	N39	L	Y	-.706
12	N40	L	Y	-.706
13	N41	L	Y	-.706
14	N42	L	Y	-.706
15	N43	L	Y	-.706
16	N44	L	Y	-.706
17	N45	L	Y	-.706
18	N46	L	Y	-.706
19	N47	L	Y	-.706

Joint Loads and Enforced Displacements (BLC 8 : Soil Strength 90)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N1	L	Y	-.706
2	N3	L	Y	-.706
3	N14	L	Y	-.706
4	N15	L	Y	-.706
5	N16	L	Y	-.706
6	N17	L	Y	-.706
7	N18	L	Y	-.706
8	N19	L	Y	-.706
9	N20	L	Y	-.706
10	N21	L	Y	-.706
11	N22	L	Y	-.706
12	N23	L	Y	-.706
13	N24	L	Y	-.706
14	N25	L	Y	-.706
15	N26	L	Y	-.706
16	N27	L	Y	-.706
17	N28	L	Y	-.706
18	N29	L	Y	-.706
19	N30	L	Y	-.706

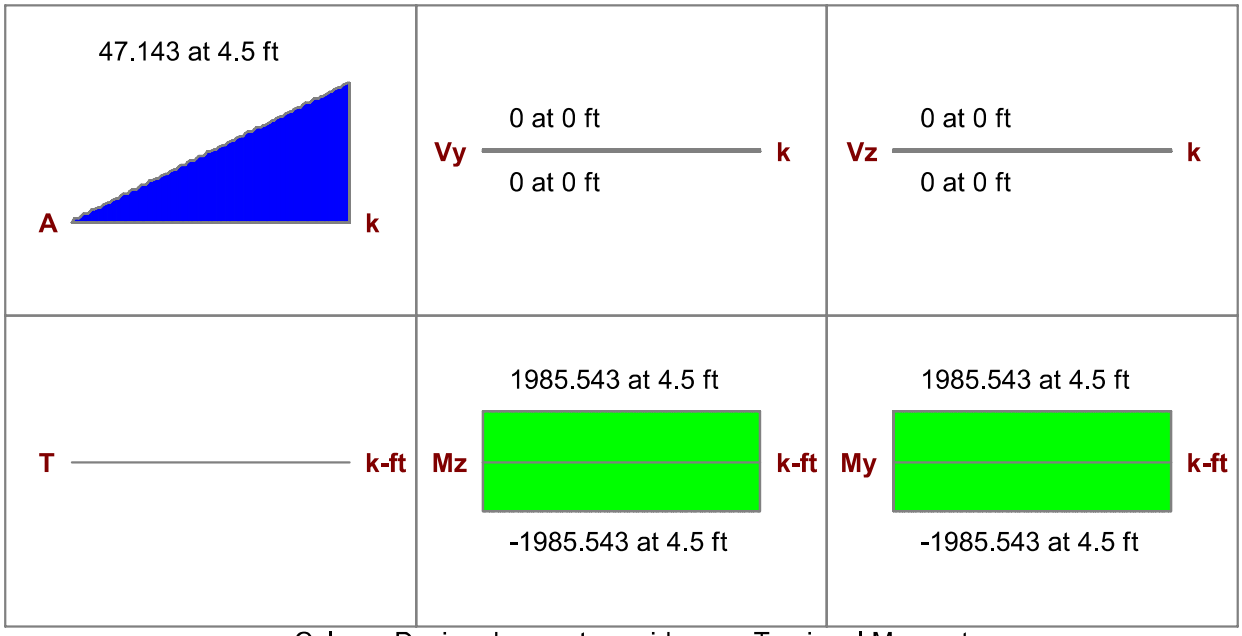
Envelope Member End Reactions

	Member	Me...		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
1	M1	I	max	0	5	0	5	0	4	0	7	.01	3	0	5
2			min	-49.607	4	-.003	1	-.002	3	0	1	0	4	-.014	1
3		J	max	0	5	0	5	0	4	0	7	0	4	.019	1
4			min	-49.575	4	-.003	1	-.002	3	0	1	-.014	3	0	2
5	M2	I	max	0	6	0	7	0	7	0	7	0	6	0	7
6			min	-19.524	7	0	1	0	1	0	1	0	7	0	1
7		J	max	0	6	0	7	0	7	0	7	0	7	0	6
8			min	-19.524	7	0	1	0	1	0	1	0	1	0	7
9	M3	I	max	0	4	0	5	0	4	0	7	.014	2	0	5
10			min	-49.607	5	-.002	3	-.003	2	0	1	0	1	-.01	3
11		J	max	0	4	0	5	0	4	0	7	0	4	.014	3
12			min	-49.575	5	-.002	3	-.003	2	0	1	-.019	2	0	5
13	M4	I	max	-19.524	7	0	7	0	7	0	7	.014	2	0	7
14			min	-59.924	6	-.003	1	-.003	2	0	1	0	7	-.014	1
15		J	max	-19.524	7	0	7	0	7	0	7	0	7	.019	1
16			min	-59.892	6	-.003	1	-.003	2	0	1	-.019	2	0	7
17	M5	I	max	43.584	3	0	7	0	7	0	7	0	7	2641.31	4
18			min	0	7	-28.811	1	-28.811	2	0	1	-2641.31	2	0	2
19		J	max	100.156	3	0	7	0	7	0	7	0	7	2770.96	1
20			min	0	7	-28.811	1	-28.811	2	0	1	-2770.96	2	0	2
21	M6	I	max	100.156	3	0	7	0	7	0	7	0	7	2770.96	1
22			min	0	7	-28.976	1	-28.976	2	0	1	-2770.96	2	0	2
23		J	max	100.156	3	0	7	0	7	0	7	0	7	2807.18	1
24			min	0	7	-28.976	1	-28.976	2	0	1	-2807.18	2	0	2

Column: ***Pier***

Shape:	**CRECT102X102**	Concrete Stress Block:	**Rectangular**
Material:	**Conc3000NW**	Cracked Sections Used:	**Yes**
Length:	**4.5 ft**	Cracked 'I' Factor:	**.70**
I Joint:	**TL1**	Effective 'I':	**6.31419e+6 in^4**
J Joint:	**N367**	Effective 'I'(Service):	**9.02929e+6 in^4**
		Biaxial Bending Solution:	**PCA Load Contour**

Code Check: **0.511 (LC 1)**
Report Based On 97 Sections



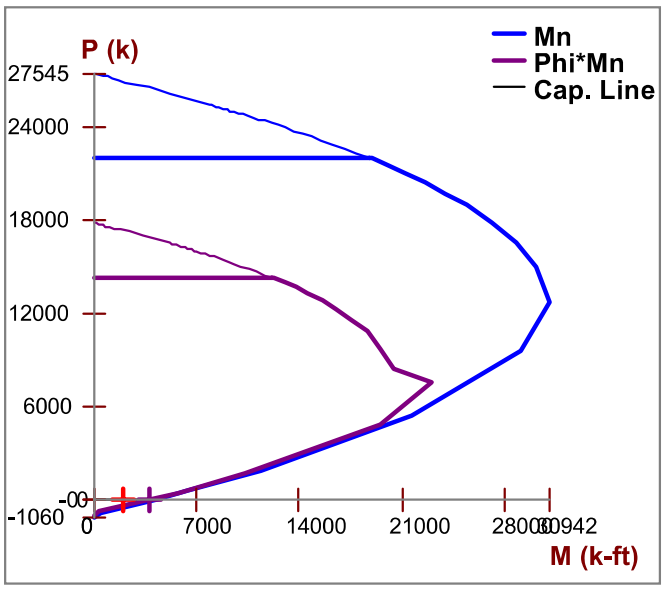
Column Design does not consider any Torsional Moments

Warning: Exact Integration selected but PCA method used
Custom rebar layout does not meet min steel (As,min) per Global Parameters

ACI 318-14 Code Check

		Bending Check	**0.511**	Shear Check	**0.000 (y)**
Gov LC	**7**	Location	**4.5 ft**	Location	**4.5 ft**
				Gov LC	**1**
Gov Pu	**0 k**	Gov Muy	**1985.543 k-ft**	Gov Vuy	**0 k**
phi*Pn		Gov Muz	**0 k-ft**	Gov Vuz	**0 k**
Phi eff.	**.9**	phi*Mnoy	**-.9 k-ft**	phi*Vny	**1111.305 k**
		phi*Mnoz		phi*Vnz	**1111.305 k**
Tension Bar Fy	**60 ksi**	Concrete Weight	**145 lb/ft^3**		
Shear Bar Fy	**60 ksi**	λ	**1**	Sway yy	**No**
F'c	**3 ksi**	E_Concrete	**3156 ksi**	Sway zz	**No**
Flex. Rebar Set	**ASTM A615**	Shear Rebar Set	**ASTM A615**	Thres. Torsion	**913.817k-ft(LC:17)**
Flex. Bars	**9 #6 , 9 #6 , 11 #6 , 11 #6**				
Shear Bars	**#4 @6in**				

Column Interaction Diagram



Span Information

Span	Span Length (ft)	I-Face Dist. (in)	J-Face Dist. (in)
1	0 - 4.5	0	0

Column Steel

Span	Main Bars	UC Max	Gov LC	Loc (ft)	Pu (k)	Muy (k-ft)	Muz (k-ft)
1	40 #6	0.511	7	4.5 ft	0	1985.543	0

Axial Span Results

Span	Phi_eff	Pn (k)	Po (k)	Rho Gross	As Prvd (in^2)
1	.9		27545.425	.0017	17.671

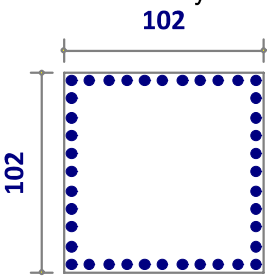
Bending Span Results

Span	ecc. y (ft)	ecc. z (ft)	NA y-y (ft)	NA z-z (ft)	Mny (k-ft)	Mnz (k-ft)	Mnoy (k-ft)	Mnoz (k-ft)
1	0	0		3.949	4319.59			

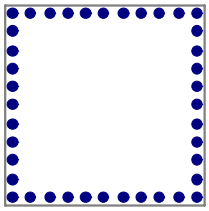
Rebar Detailing

Span	Region(ft)	Shear Steel
1	4.5 -	
		9 #4 @6in
	0 -	

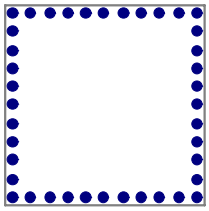
Flexural Layout



Total No. of Bars - Top : 4.5 ft
11#6 Top
9#6 Left
9#6 Right
11#6 Bottom



Total No. of Bars - Middle : 2.25 ft
11#6 Top
9#6 Left
9#6 Right
11#6 Bottom



Total No. of Bars - Bottom : 0 ft
11#6 Top
9#6 Left
9#6 Right
11#6 Bottom

Monopole on Pad & Pier Foundation w/ Rock Anchors - TIA-222-H

Site Data	
Site Name:	West Hartford/I-84/X43
Site Number:	BU 829013
TEP No.	25680.600944

Factored Reactions from TNX*		
Axial	43.570	k
Shear	28.380	k
Moment	2641.310	k-ft

*Assumed LC: 1.2D+1.0W

Tower & Foundation Properties		
Pad Width/Length	16.5	ft
Pad Thickness	2.5	ft
Pier Width/Diameter	8.5	ft
Pier Height	4.5	ft
Concrete Weight	150	pcf
Concrete f'c	3000	psi
Pad Rebar Size	#7	
Qty. Bars*	15	
Clear Cover	3	in

*Qty. reduced due to anticipated damage during drilling

Soil Properties				
q_{allow}	10.8	ksf	ASIF?	Yes
FS	2.0			
Subgrade Mod.	292.5	kcf		

Bar Selection				
Rod Size	Solid Bar			
Rod Size	WF R71-08			
Fy	120	ksi	ϕ_y	0.90
Fu	150	ksi	ϕ_r	0.75
Outer Diameter	1.00	in		
Effective Area	0.85	in^2		
Axial Rigidity	24650	k		
Design Strength	91.8	k		
Drill Bit Diameter	95	mm		
Drill Bit Diameter	3.75	in		

Steel to Grout Bond Length		
Ult Bond Strength	230	psi
Bar Circum.	3.142	in
Required Length	127.0	in
Pile Cap Thickness	30.0	in
Actual Length	157.0	in
Effective Stiffness	157	k/in

Grout to Soil Bond Length		
α_{bond}	100	psi (ult.)
ϕ Factor	0.75	
Shaft Circum.	11.8	in
Required Length	8.66	ft
Rock Weight	160	pcf
Rock Cone Angle	30	deg

Mat Foundation Results

Max Bearing Stress (RISA)	8.7	ksf
Bearing Capacity, ϕq_{allow}	16.3	ksf
Capacity*	**51.2%**	**Pass**

Mat Flexural Results

Mat Flexure (RISA)	827.4	k-ft
Flexural Capacity, ϕMn	1018.7	k-ft
Capacity*	**77.4%**	**Pass**

Rock Anchor Results

Max Force (RISA)	59.9	k
Pile Capacity, ϕPn	91.8	k
Capacity*	**62.1%**	**Pass**

Rock Anchor Pullout Results

Req. Bond Length, ld	9.2	ft
Req. Cone Height, h	12.2	ft
Total Req. Embedment	19.3	ft
Pullout Capacity, ϕTn	146.2	k
Capacity*	**39.0%**	**Pass**

***Rating Per TIA-222-H Section 15.5**

		PASS	PASS	West Hartford/I-84/X43 (BU 829013)	
	Results Summary:	LC1	LC2	TEP #:	25680.600944
	Soil Interaction*:	N/A	N/A	Analysis:	CDR 9/14/2021
Drilled Caisson Tool - Original Pier	Foundation Structural*:	29.3%	9.5%	Check:	RAL 9/14/2021

*Rating Per TIA-222-H Section 15.5

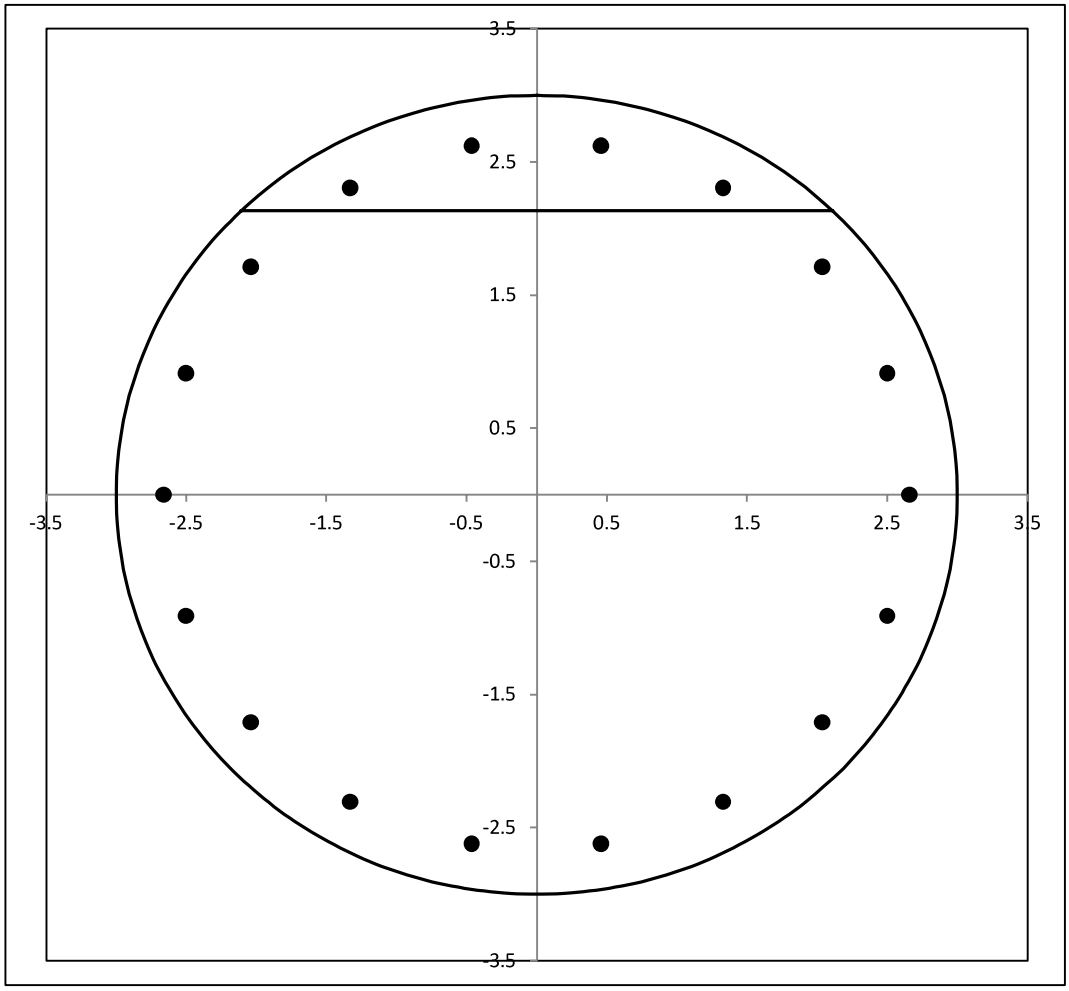
Code Revisions: TIA-222-H ACI 318-14 **Tower Type:** Monopole

	LC1	LC2	
Moment:	783.48	263.45	kip-ft
Axial (download):	43.57	88.00	kip
Shear:	28.38	9.00	kip
Axial (uplift):			kip

Shaft Information		
Diameter:	6.00	ft
Projection:	0.50	ft
Caisson Length:	4.50	ft
f'c:	3.000	ksi
Max εc:	0.003	in/in

Cage 1 Reinforcement		
Tie Bar Size:	4	*(fy = 60.0 ksi)*
Clear Cover to Tie:	3.00	*in (Cage Ø = 63.87in)*
Tie Bar Spacing:	6.00	in
Vertical Bar Size:	9	
Vertical Bar Quantity:	18	*(ρ =0.442%)* *per rebar mapping
fy:	60.0	ksi
E:	29,000	ksi

Reinforcement Capacity



		LC1	LC2	
	Vu =	28.4	9.0	kip
	Vc =	448.4	450.8	kip
fy,tie = 60.0	Vs =	269.8	269.8	kip
	ϕVn =	538.7	540.5	kip
	Capacity* =	5.0%	1.6%	
		PASS	PASS	

		LC1	LC2	
	Mu =	783.5	263.4	kip-ft
	ϕMn =	2550.8	2647.8	kip-ft
	Capacity* =	29.3%	9.5%	
		PASS	PASS	

*Rating Per TIA-222-H Section 15.5

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Exhibit E

Mount Analysis

Date: **September 9, 2021**

Michael McWilliams
Crown Castle
8000 Avalon Blvd., Suite 700
Alpharetta, GA 30009
(770) 375-4936

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
Infinigy Engineering, PLLC
1033 Watervliet Shaker Road
Albany, NY 12205
518-690-0790
structural@infinigy.com

Subject:	**Mount Analysis Report**	
Carrier Designation:	**AT&T Mobility Direct**	
	Carrier Site Number:	CTL05258
	Carrier Site Name:	WEST HARTFORD
	Carrier FA Number:	10071355
Crown Castle Designation:	**Crown Castle BU Number:**	829013
	Crown Castle Site Name:	WEST HARTFORD/I-84/X43
	Crown Castle JDE Job Number:	649388
	Crown Castle Order Number:	556517 Rev. 0
Engineering Firm Designation:	**Infinigy Engineering, PLLC Report Designation:** 1039-Z0001-B	
Site Data:	**471 South Quaker Lane (Church of St. Mark), West Hartford, Hartford County, CT, 06110** **Latitude 41°44'55.59", Longitude -72°43'52.86"**	
Structure Information:	**Tower Height & Type:**	**119.1 ft Monopole**
	Mount Elevation:	**110.0 ft**
	Mount Type:	**12.5 ft Platform**

Dear Michael McWilliams,

Infinigy Engineering, PLLC is pleased to submit this **"Mount Analysis Report"** to determine the structural integrity of AT&T Mobility's antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

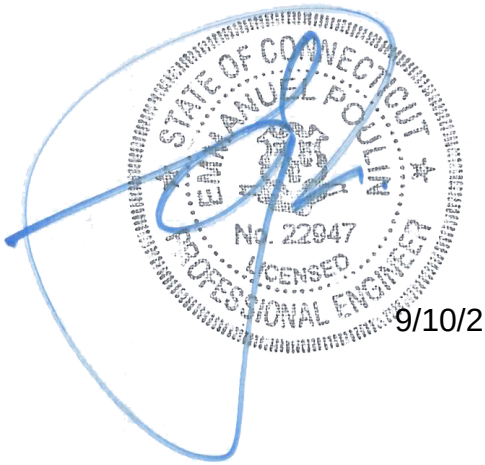
The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

Platform **Sufficient - 71.5%**

This analysis has been performed in accordance with the 2018 International Building Code based upon an ultimate 3-second gust wind speed of 117 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Andrew Gloriani, E.I.T.

Respectfully Submitted by:
Emmanuel Poulin, P.E.
518-690-0790
structural@infinigy.com
CT PE License No. 22947



9/10/21

TABLE OF CONTENTS

1) INTRODUCTION

This is an existing 3 sector 12.5 ft Platform, designed by Site Pro 1.

2) ANALYSIS CRITERIA

Building Code:	2018 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	117 mph
Exposure Category:	C
Topographic Factor at Base:	1.00
Topographic Factor at Mount:	1.00
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.189
Seismic S_1:	0.055
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
110.0	112.0	2	Kathrein	80010965	12.5 ft Platform
		1	Kathrein	80010966	
		2	CCI Antennas	DMP65R-BU6e	
		1	CCI Antennas	DMP65R-BU8E	
		3	Ericsson	AIR 6419 B77G	
		3	Ericsson	AIR 6449 B77D	
		3	Ericsson	RRUS 4478 B14_CCIV2	
	110.0	3	Ericsson	RRUS 32 B30	
		3	Ericsson	RRUS 4449 B5/B12	
		3	Ericsson	RRUS 8843 B2/B66A	
		3	Raycap	DC6-48-60-18-8F	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	AT&T Mobility Application	556517 Rev. 0	CCI Sites
Loading Document	AT&T Mobility	RFDS ID: 4392717	TSA
Mount Manufacturer Drawings	Site Pro 1	Part No. RMQP-12-H5	Infinigy
Previous Mount Analysis	Infinigy Engineering	8221658	CCI Sites

3.1) Analysis Method

RISA-3D (Version 19.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

Infinigy Mount Analysis Tool V2.1.6, a tool internally developed by Infinigy, was used to calculate wind loading on all appurtenances, dishes and mount members for various loading cases. Selected output from the analysis is included in Appendix B “Software Input Calculations”.

This analysis was performed in accordance with Crown Castle’s ENG-SOW-10208 *Tower Mount Analysis* (Revision B).

3.2) Assumptions

1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and the referenced drawings.
3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
4) The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
5) Prior structural modifications to the tower mounting system are assumed to be installed as shown per available data.
6) Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate	Q345 (GR 36)
HSS (Rectangular)	Q235-GB (GR 35)
Pipe	Q235-GB (GR 35)
Connection Bolts	ASTM A325

This analysis may be affected if any assumptions are not valid or have been made in error. Infinigy Engineering, PLLC should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (Platform, All Sectors)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1, 2	Mount Pipe(s)	MP4	110.0	71.5	Pass
	Horizontal(s)	MH2		28.3	Pass
	Standoff(s)	MS1		66.3	Pass
	Mount Connection(s)	-		41.1	Pass

Structure Rating (max from all components) =	71.5%

Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
2) See additional documentation in “Appendix D - Additional Calculations” for detailed mount connection calculations.

4.1) Recommendations

The mount has sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

APPENDIX A

WIRE FRAME AND RENDERED MODELS

Infinigy Engineering, PLLC	829013	Render
AG		Sep 09, 2021
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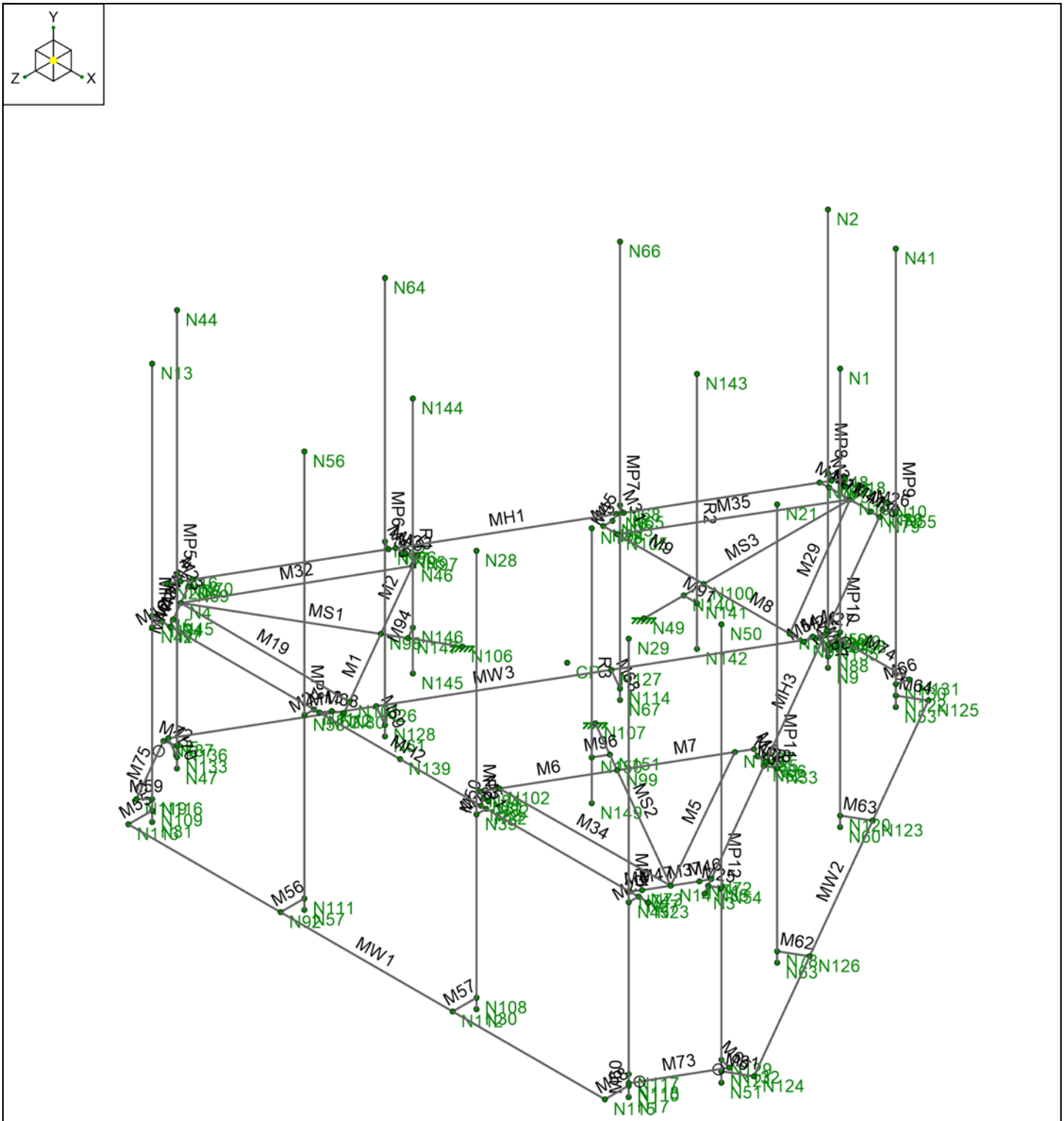

Infinigy Engineering, PLLC	829013	Wireframe
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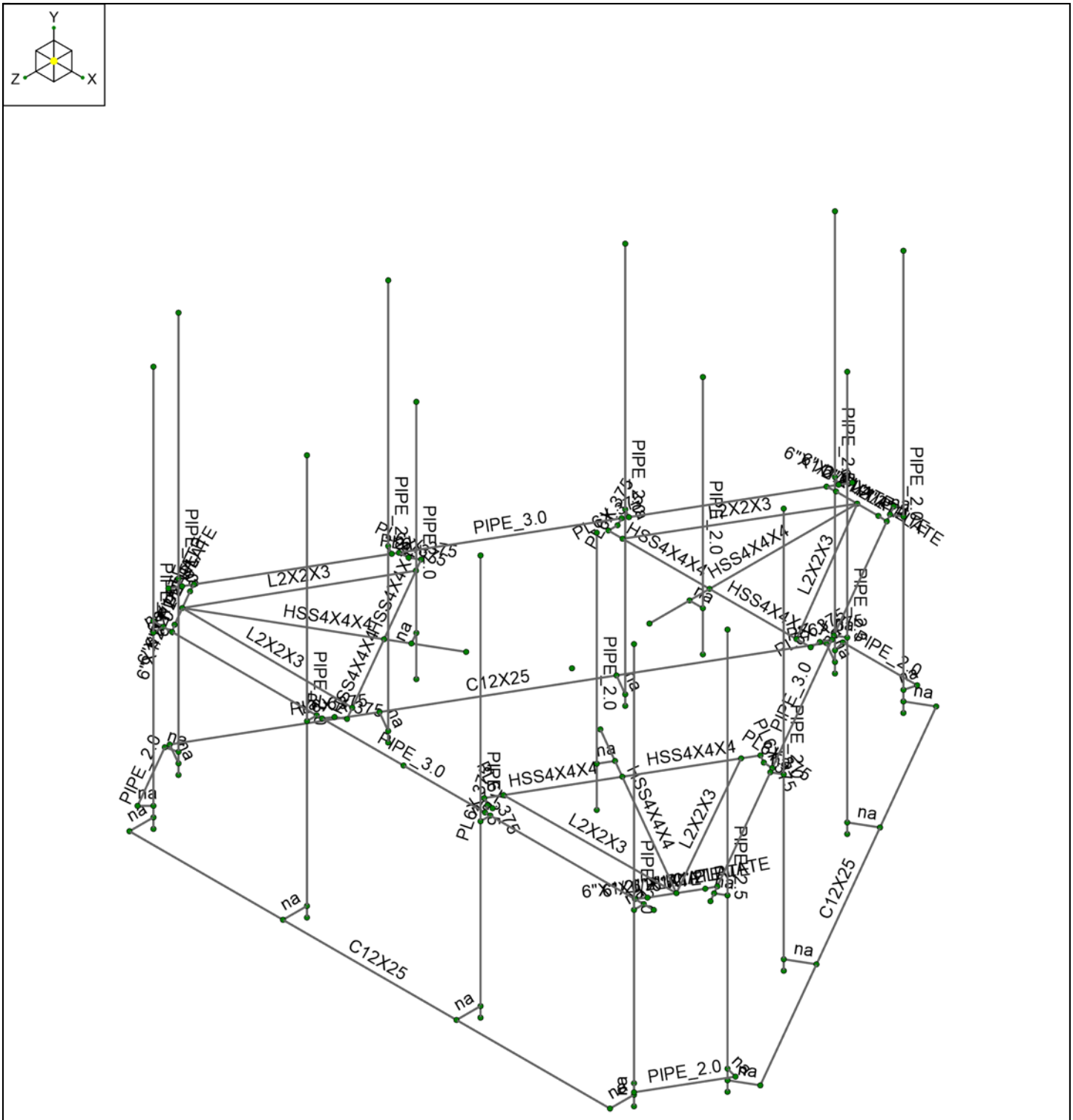

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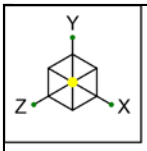

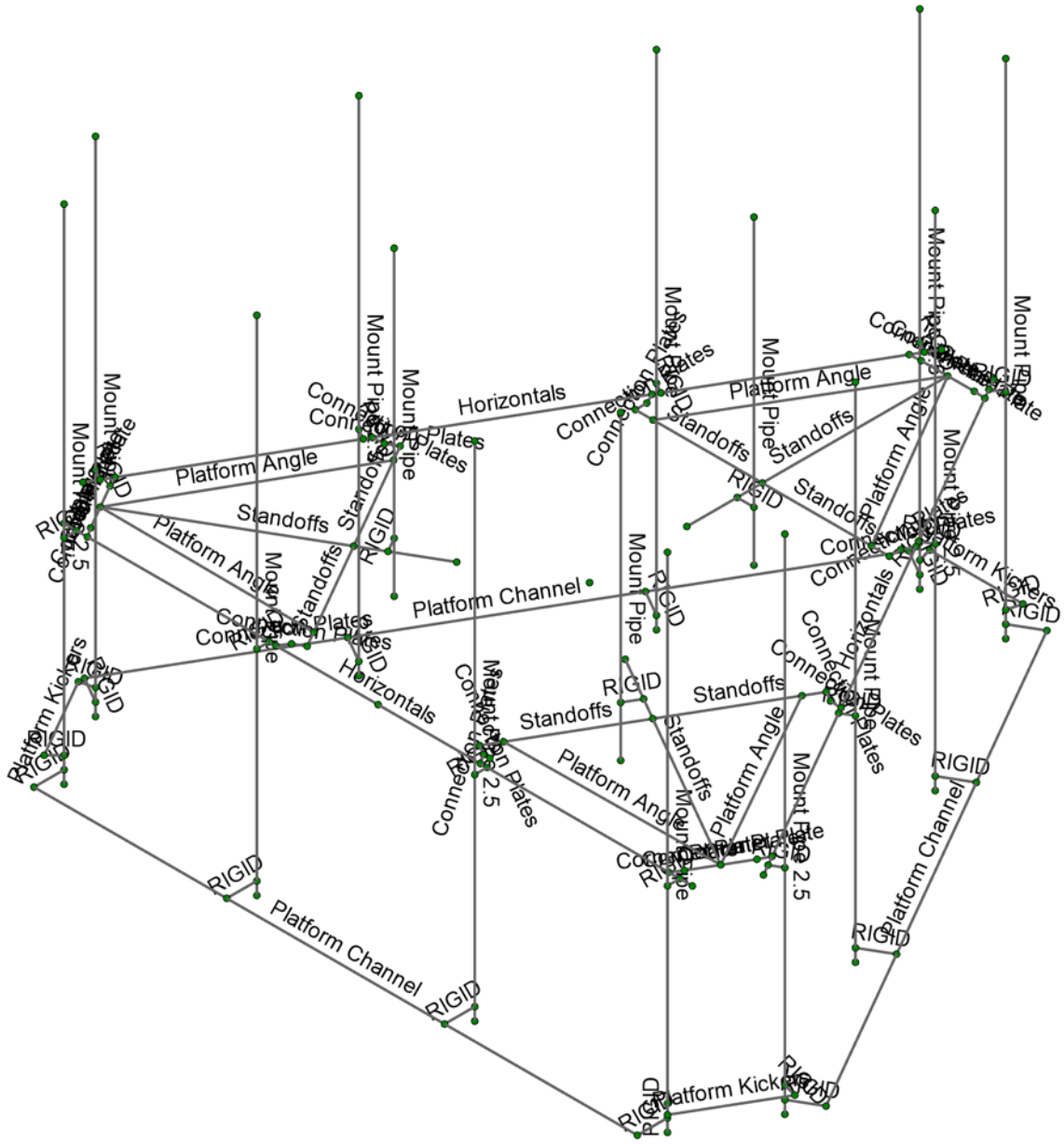

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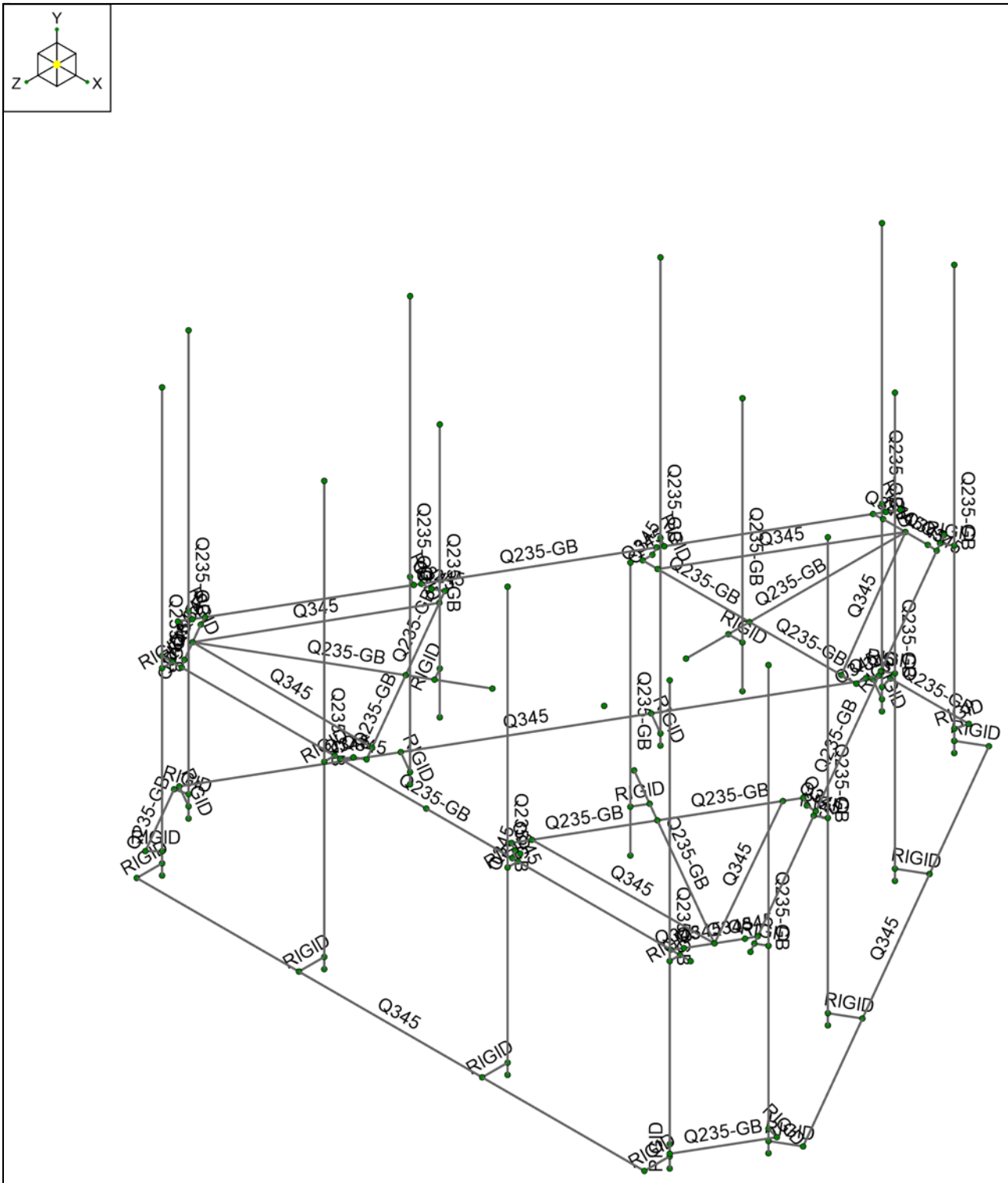

Infinigy Engineering, PLLC	829013	Grade
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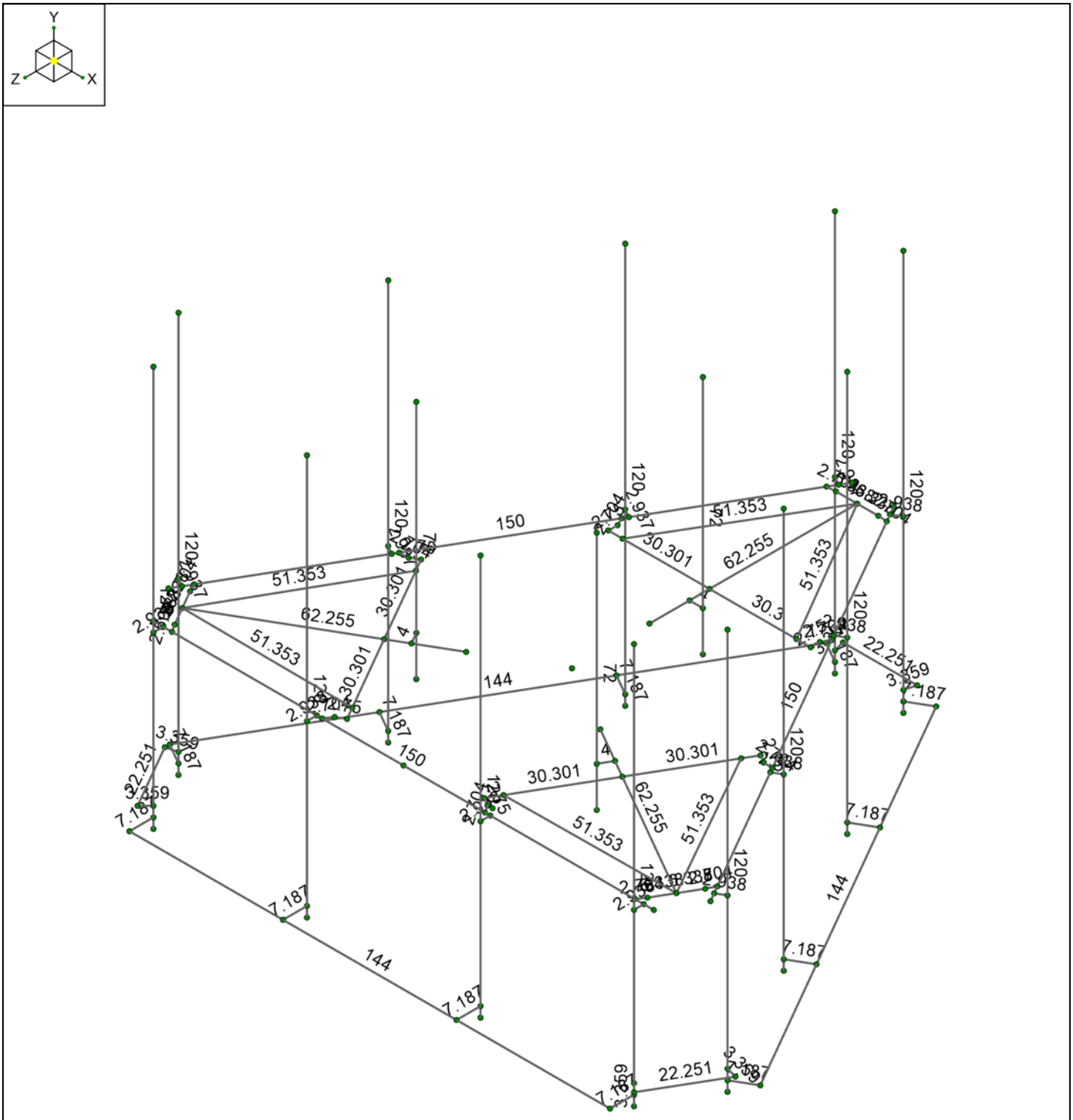

Member Length (in) Displayed

Infinigy Engineering, PLLC	829013	Length
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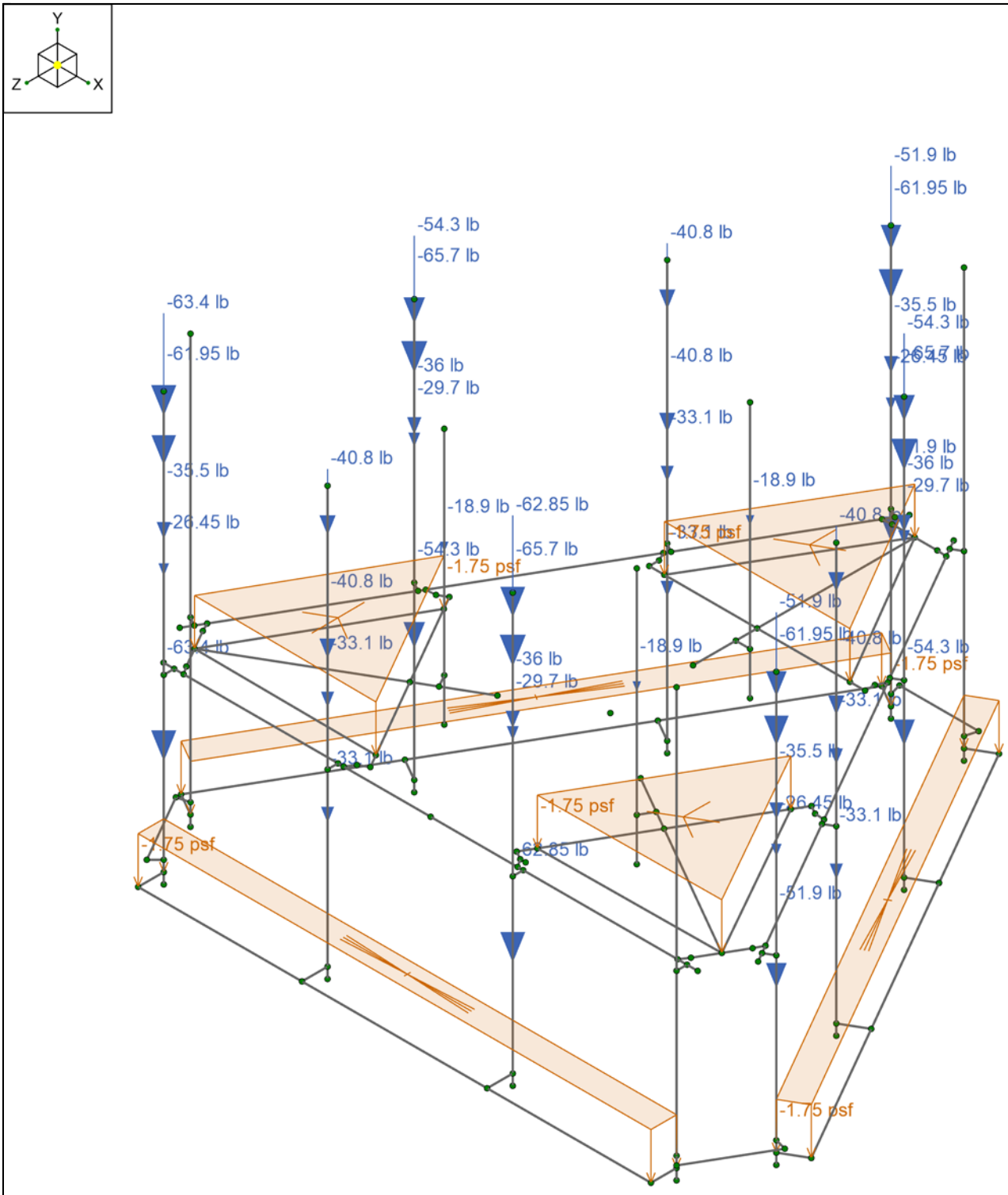

Loads: BLC 1, Self Weight

Infinigy Engineering, PLLC	829013	Self Weight
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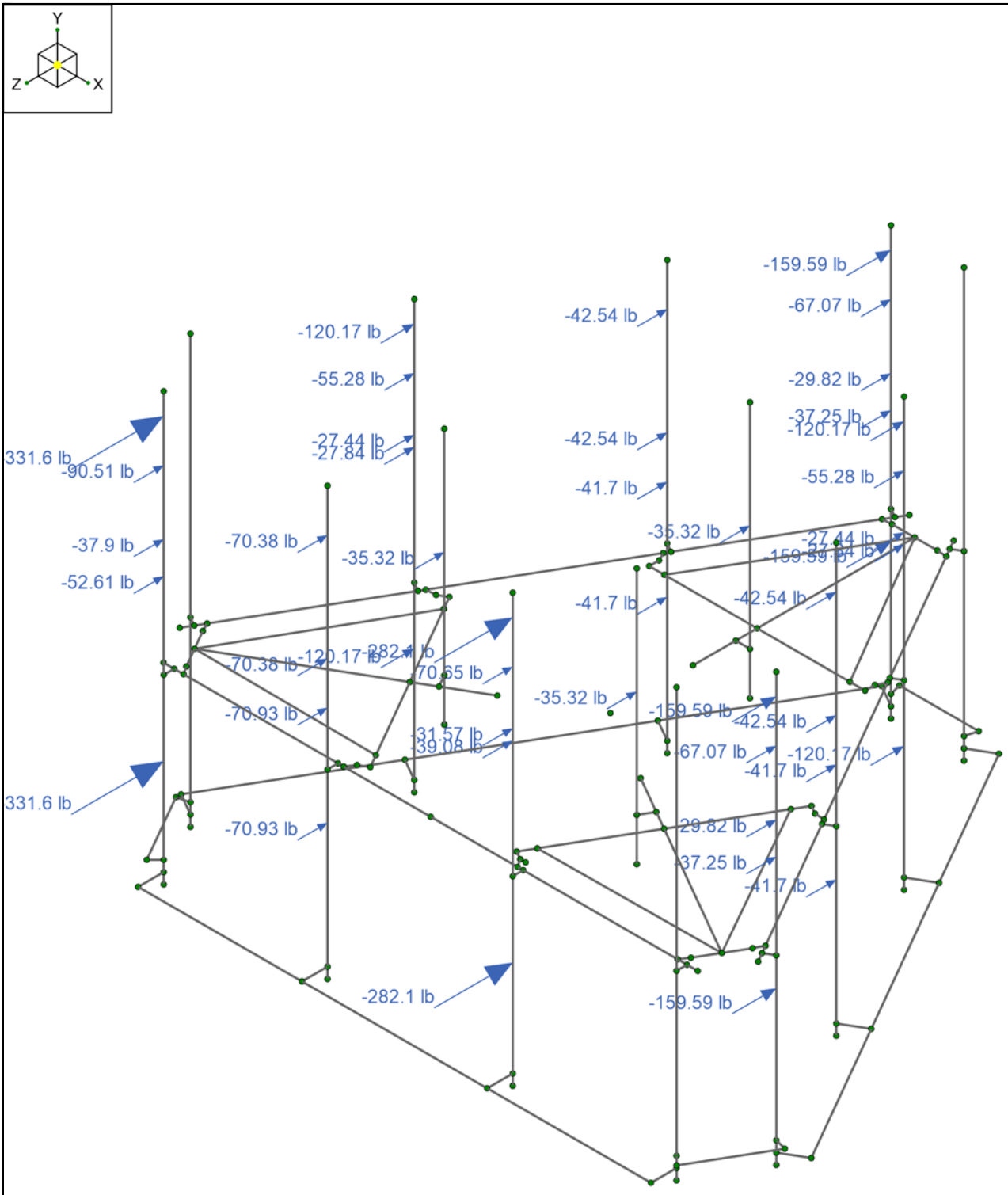

Loads: BLC 2, Wind Load AZI 0

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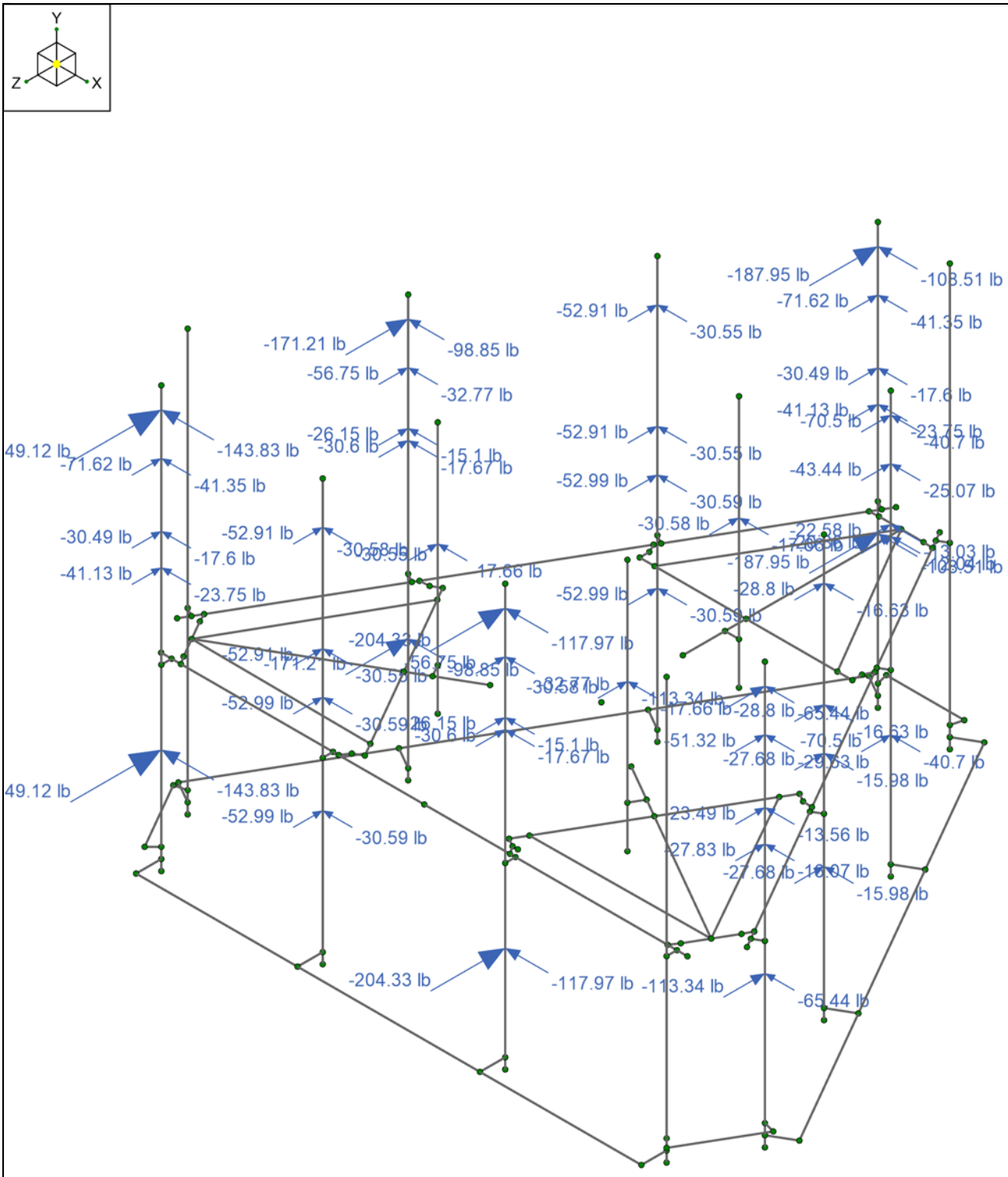

Loads: BLC 3, Wind Load AZI 30

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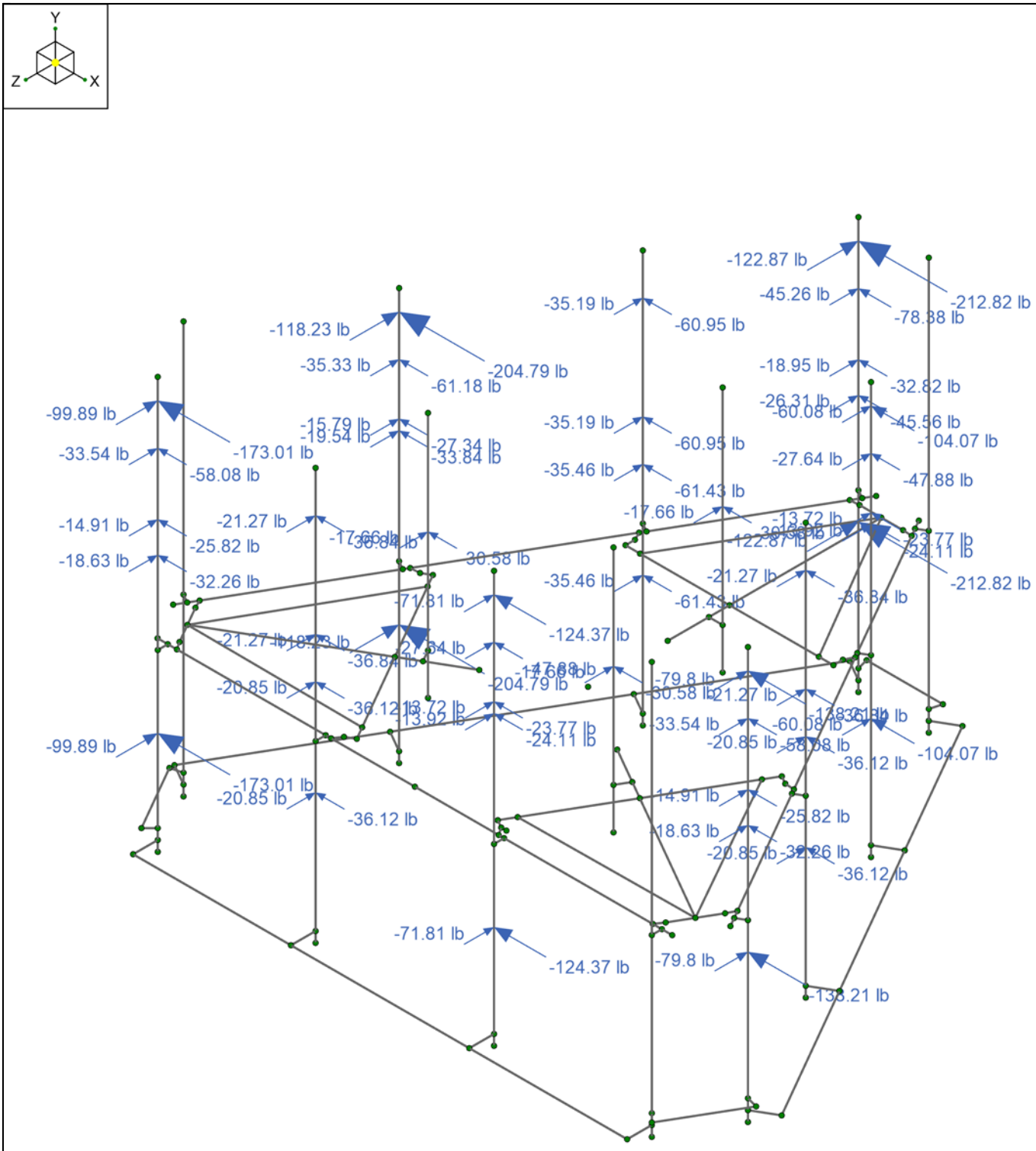

Loads: BLC 4, Wind Load AZI 60

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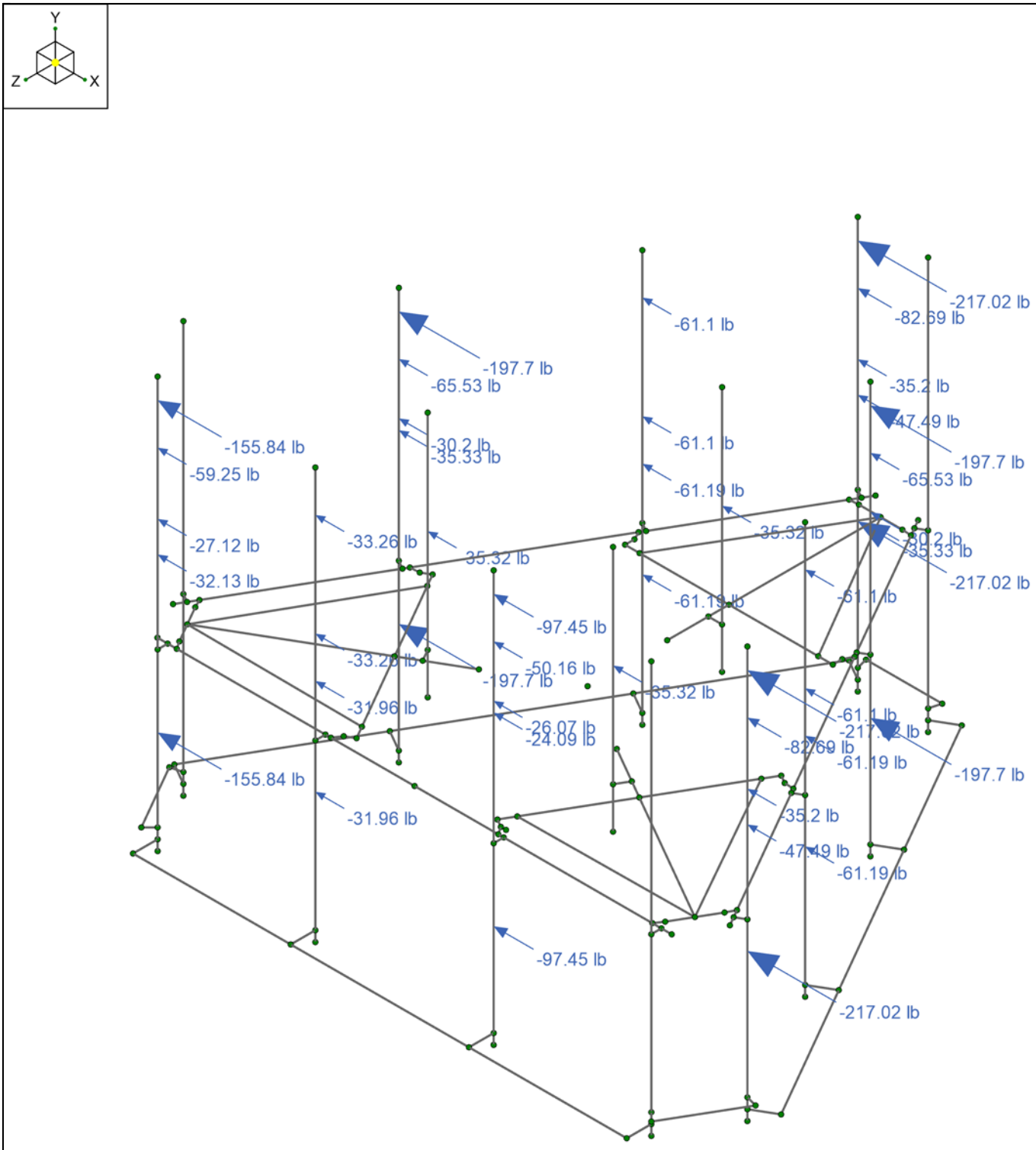

Loads: BLC 5, Wind Load AZI 90

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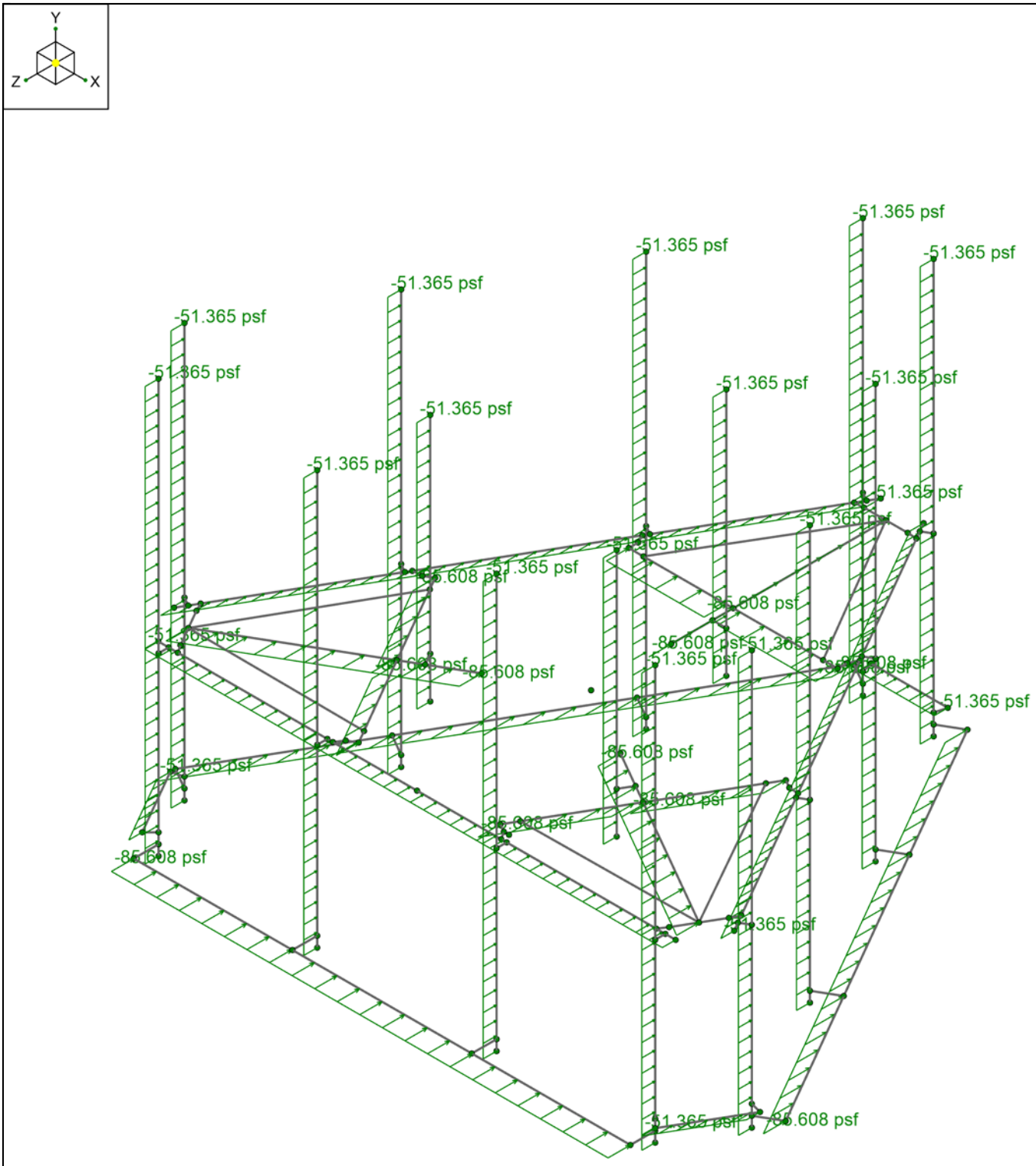

Loads: BLC 14, Distr. Wind Load Z

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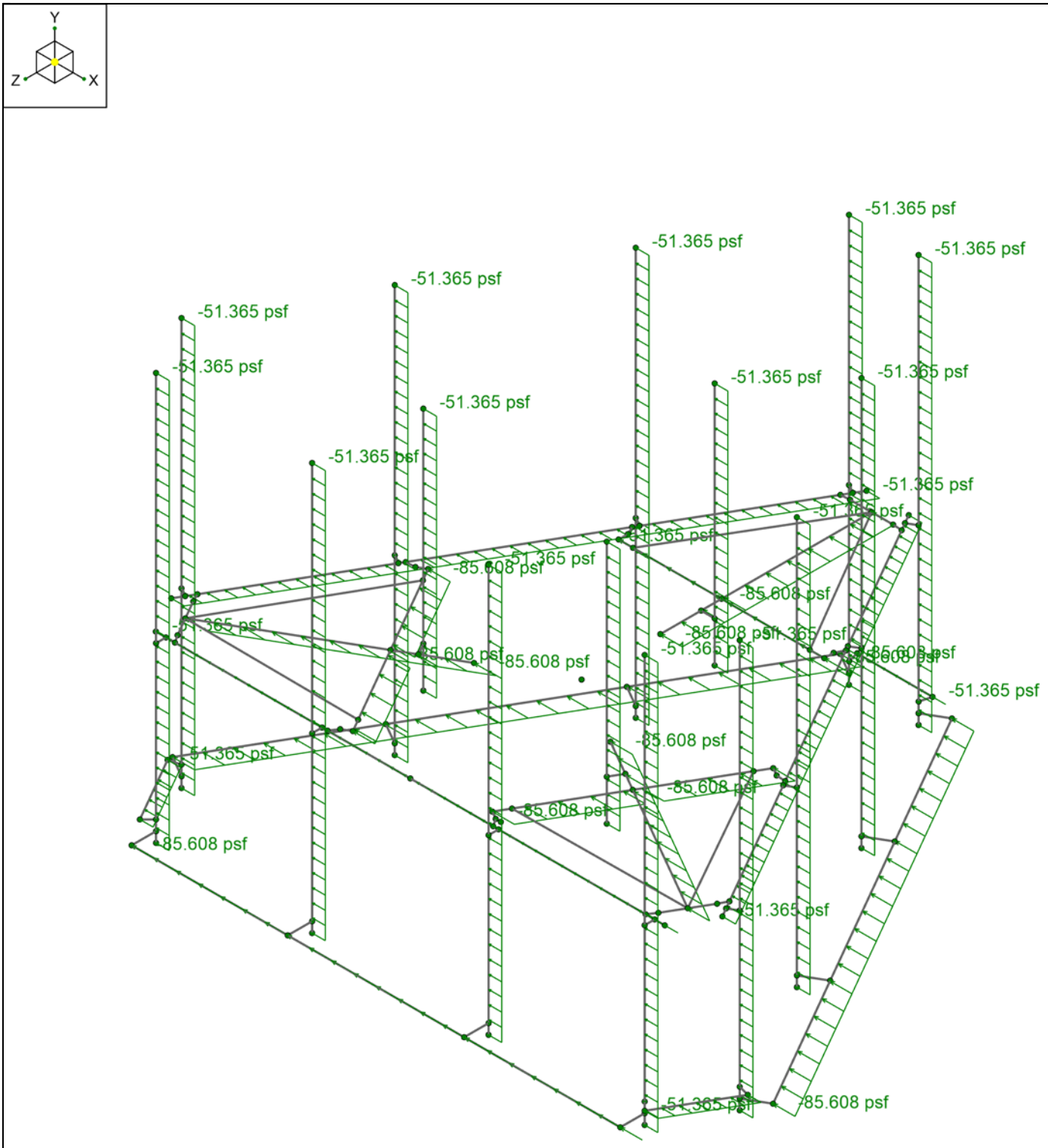

Loads: BLC 15, Distr. Wind Load X

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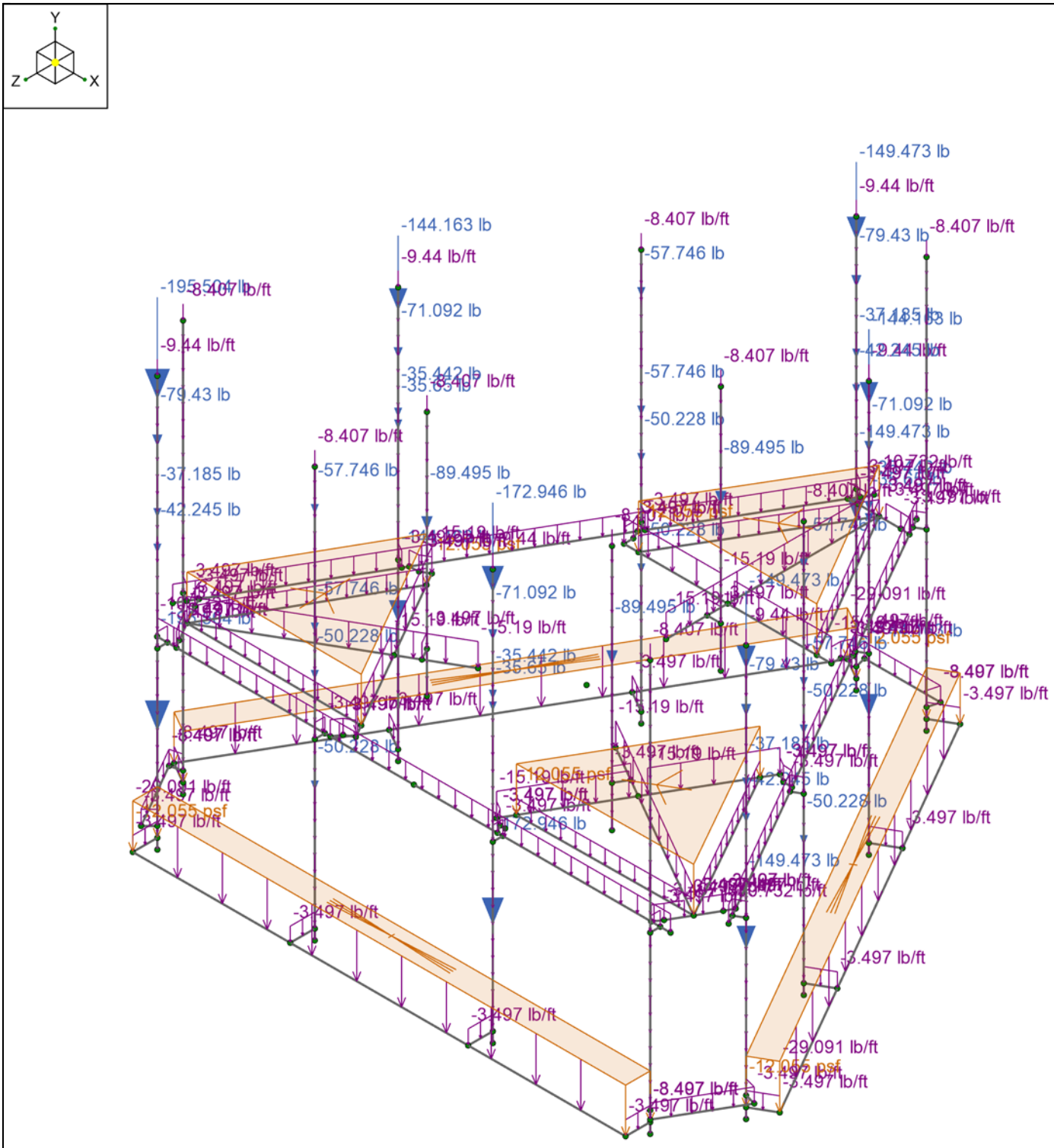
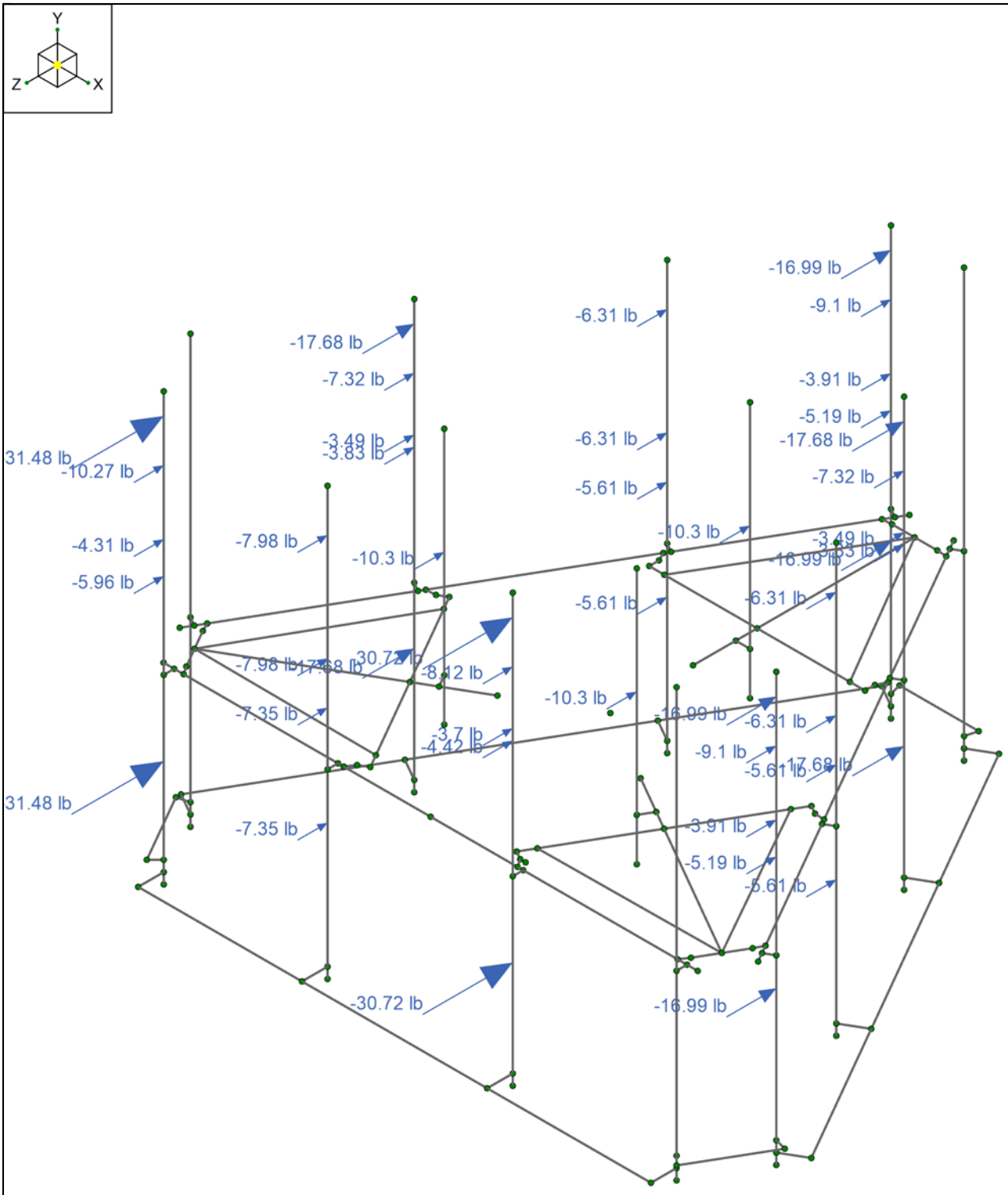


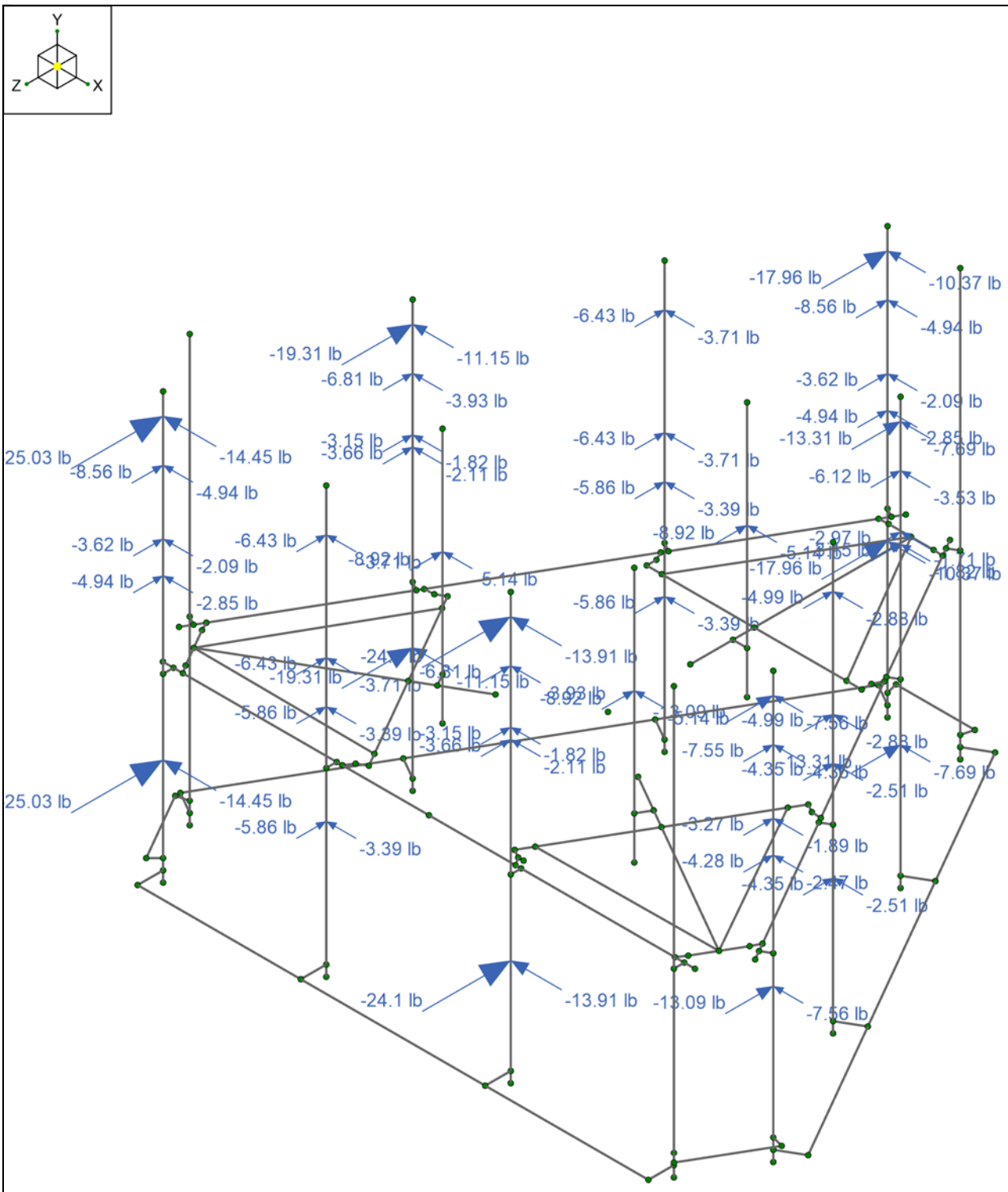
Loads: BLC 16, Ice Weight

Infinigy Engineering, PLLC	829013	Ice Weight
AG		Sep 09, 2021
1039-Z0001-B		829013_loaded.r3d



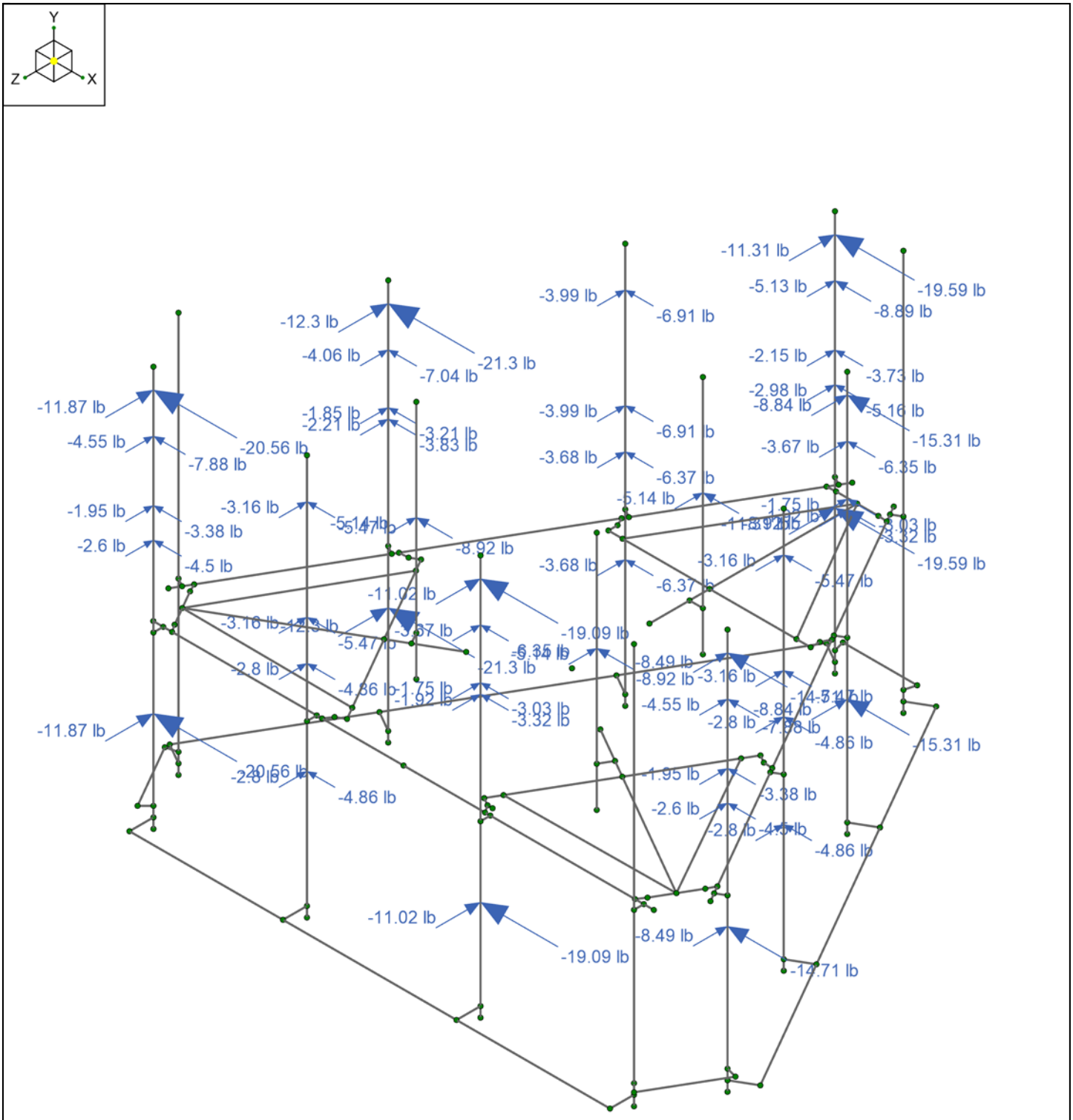
Loads: BLC 17, Ice Wind Load AZI 0

Infinigy Engineering, PLLC	829013	Ice Wind Loading 0
AG		Sep 09, 2021
1039-Z0001-B		829013_loaded.r3d



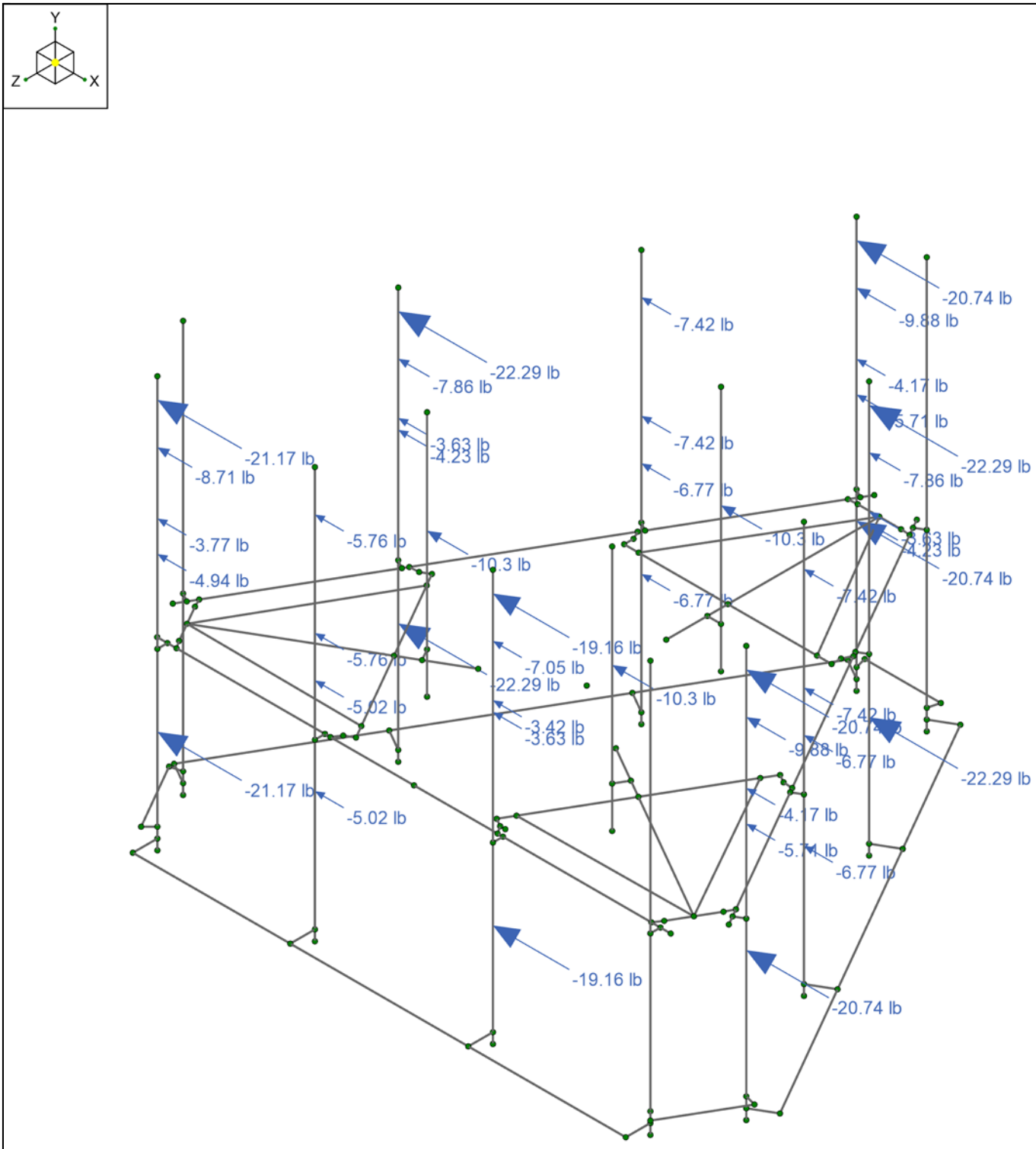
Loads: BLC 18, Ice Wind Load AZI 30

Infinigy Engineering, PLLC	829013	Ice Wind Loading 30
AG		Sep 09, 2021
1039-Z0001-B		829013_loaded.r3d



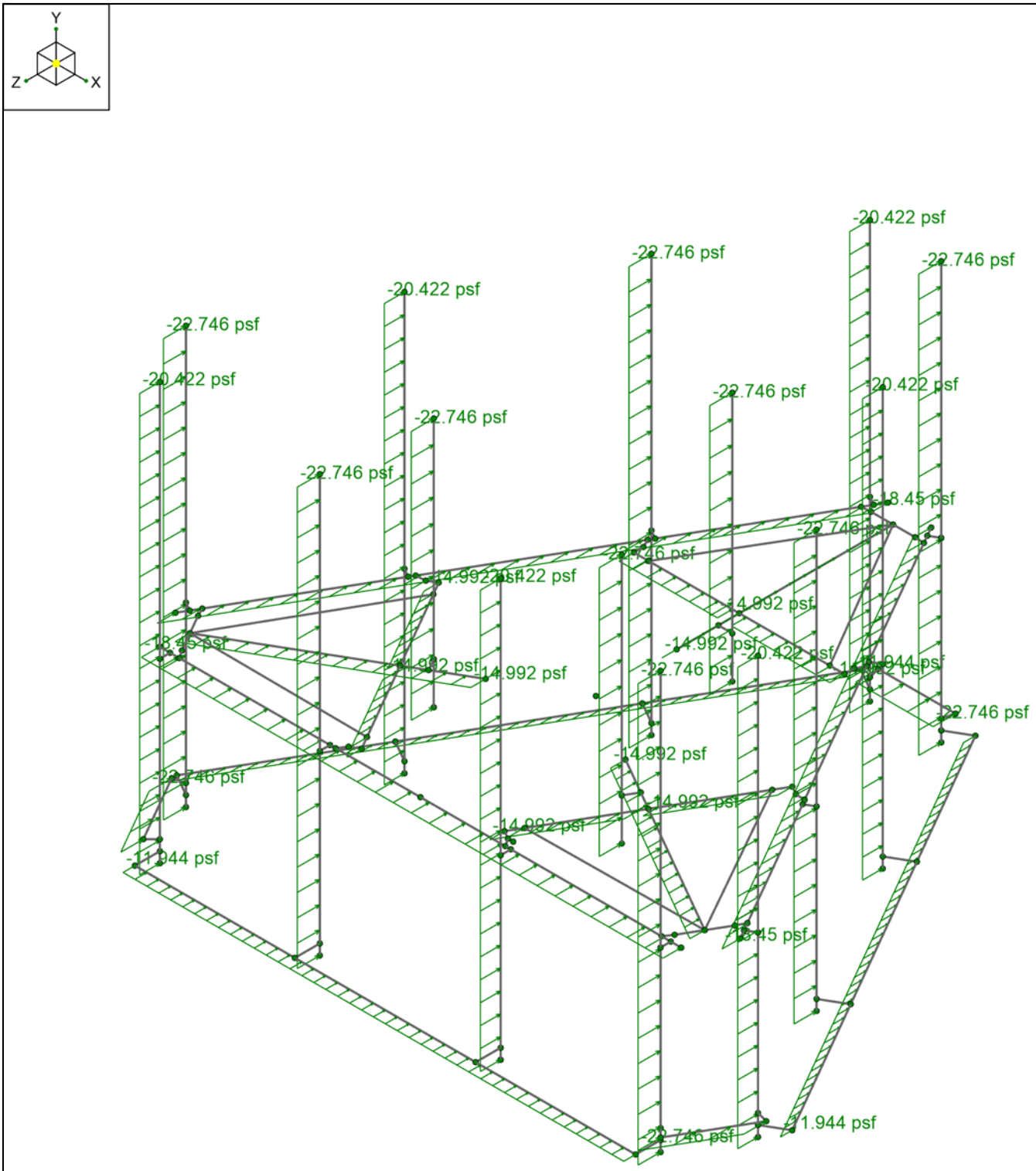
Loads: BLC 19, Ice Wind Load AZI 60

Infinigy Engineering, PLLC	829013	Ice Wind Loading 60
AG		Sep 09, 2021
1039-Z0001-B		829013_loaded.r3d



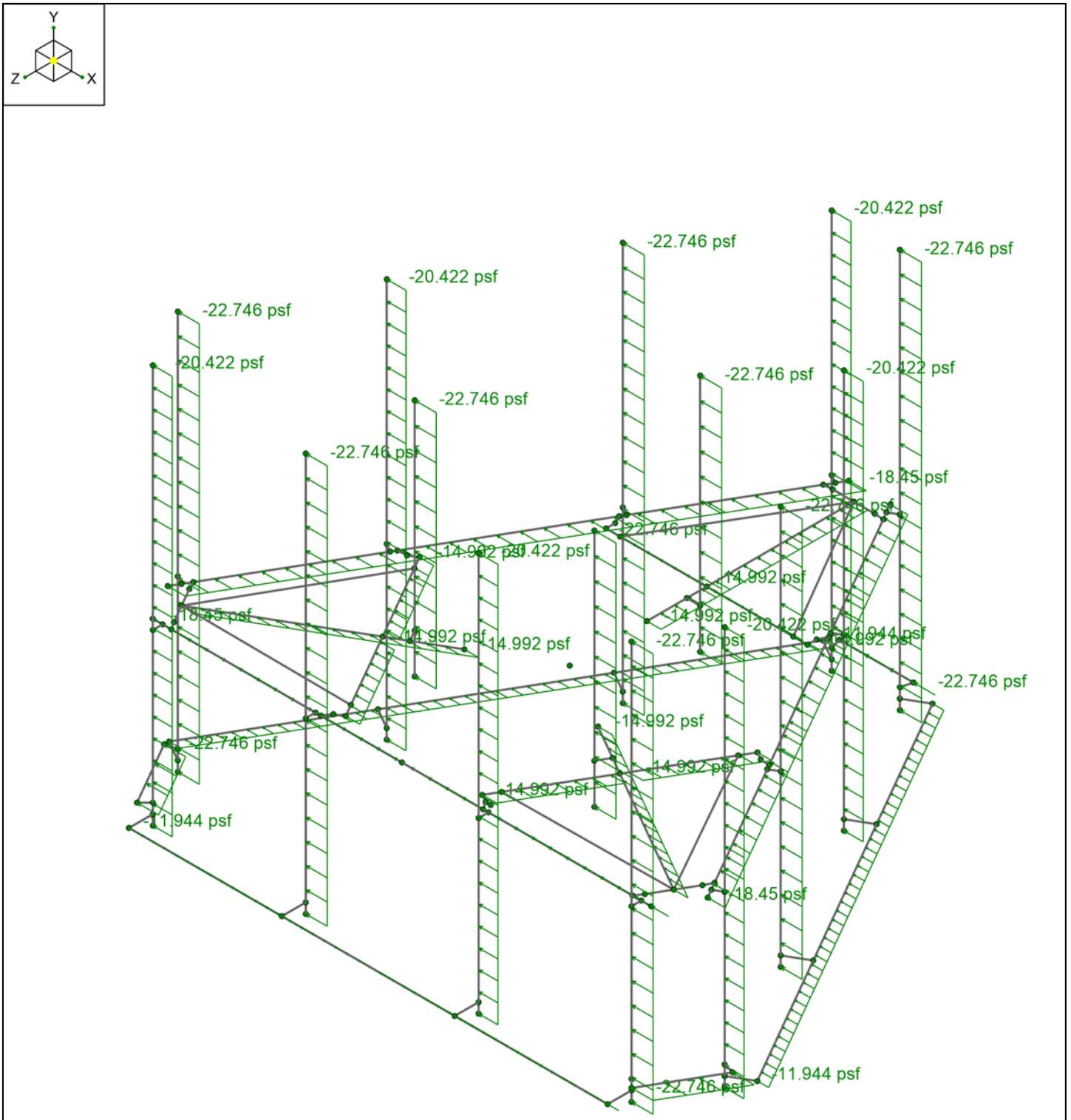
Loads: BLC 20, Ice Wind Load AZI 90

Infinigy Engineering, PLLC	829013	Ice Wind Loading 90
AG		Sep 09, 2021
1039-Z0001-B		829013_loaded.r3d



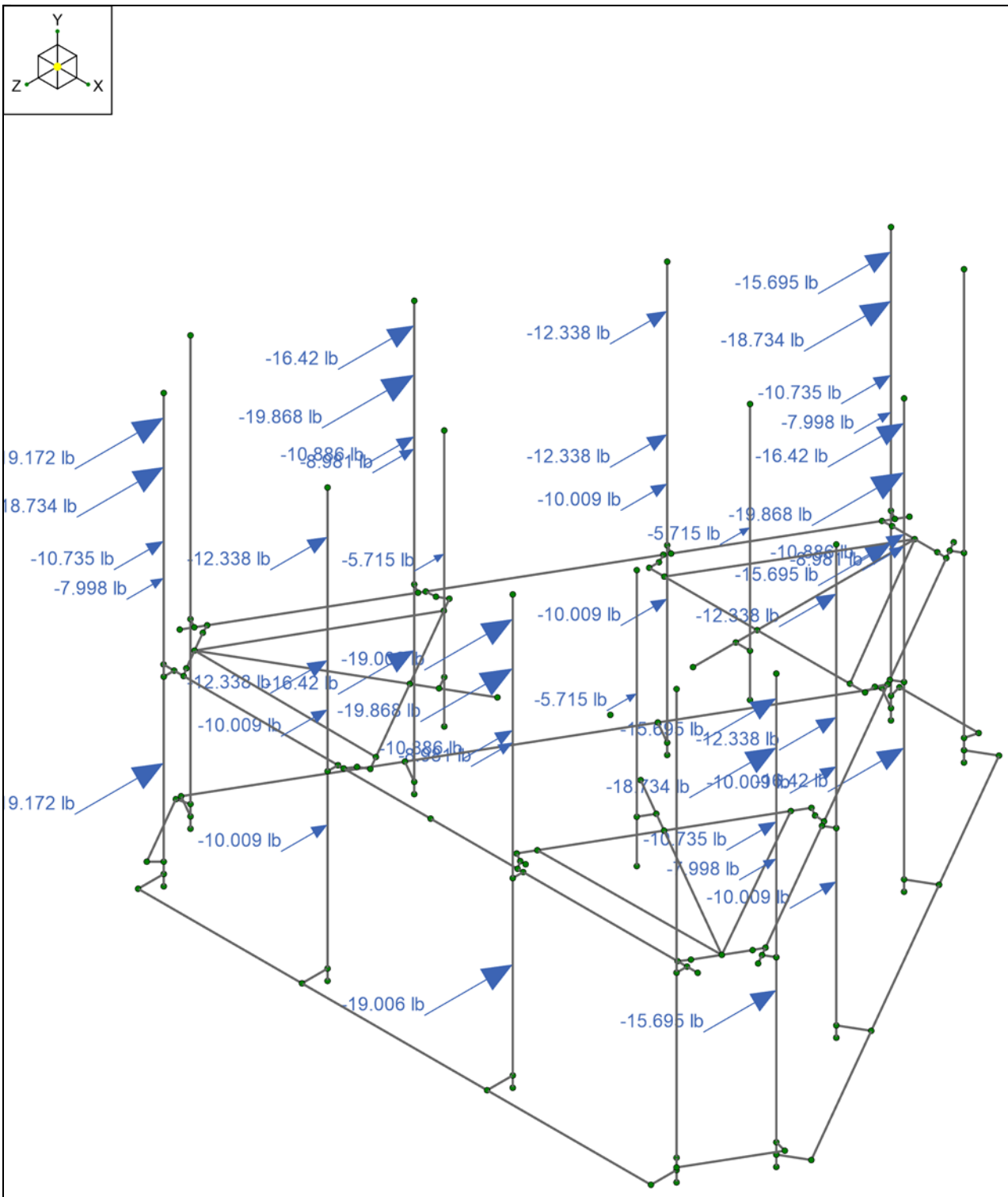
Loads: BLC 29, Distr. Ice Wind Load Z

Infinigy Engineering, PLLC	829013	Dist. Ice Wind Loading 0
AG		Sep 09, 2021
1039-Z0001-B		829013_loaded.r3d



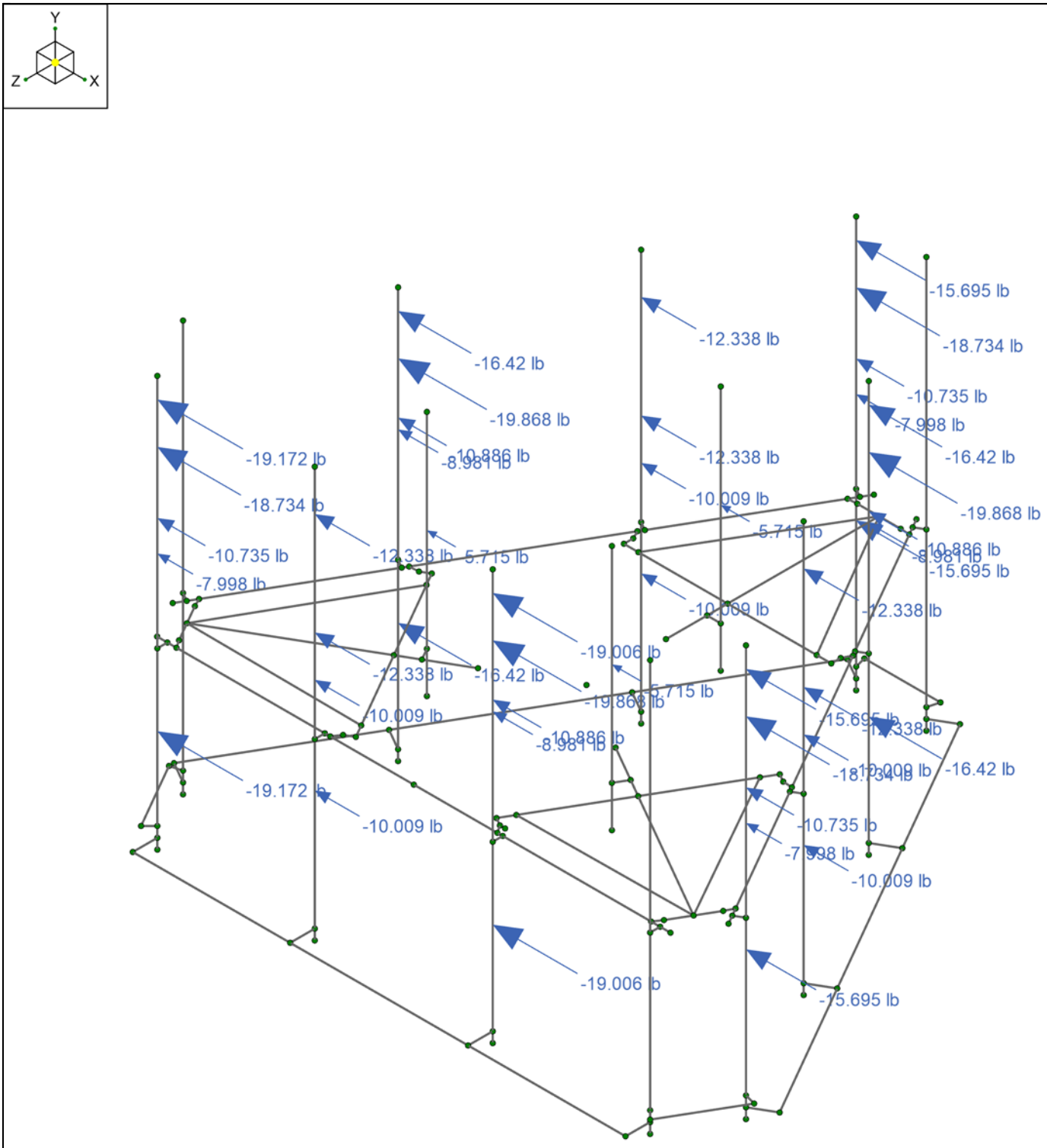
Loads: BLC 30, Distr. Ice Wind Load X

Infinigy Engineering, PLLC	829013	Dist. Ice Wind Loading 90
AG		Sep 09, 2021
1039-Z0001-B		829013_loaded.r3d



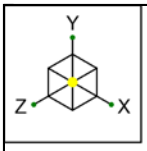
Loads: BLC 31, Seismic Load Z

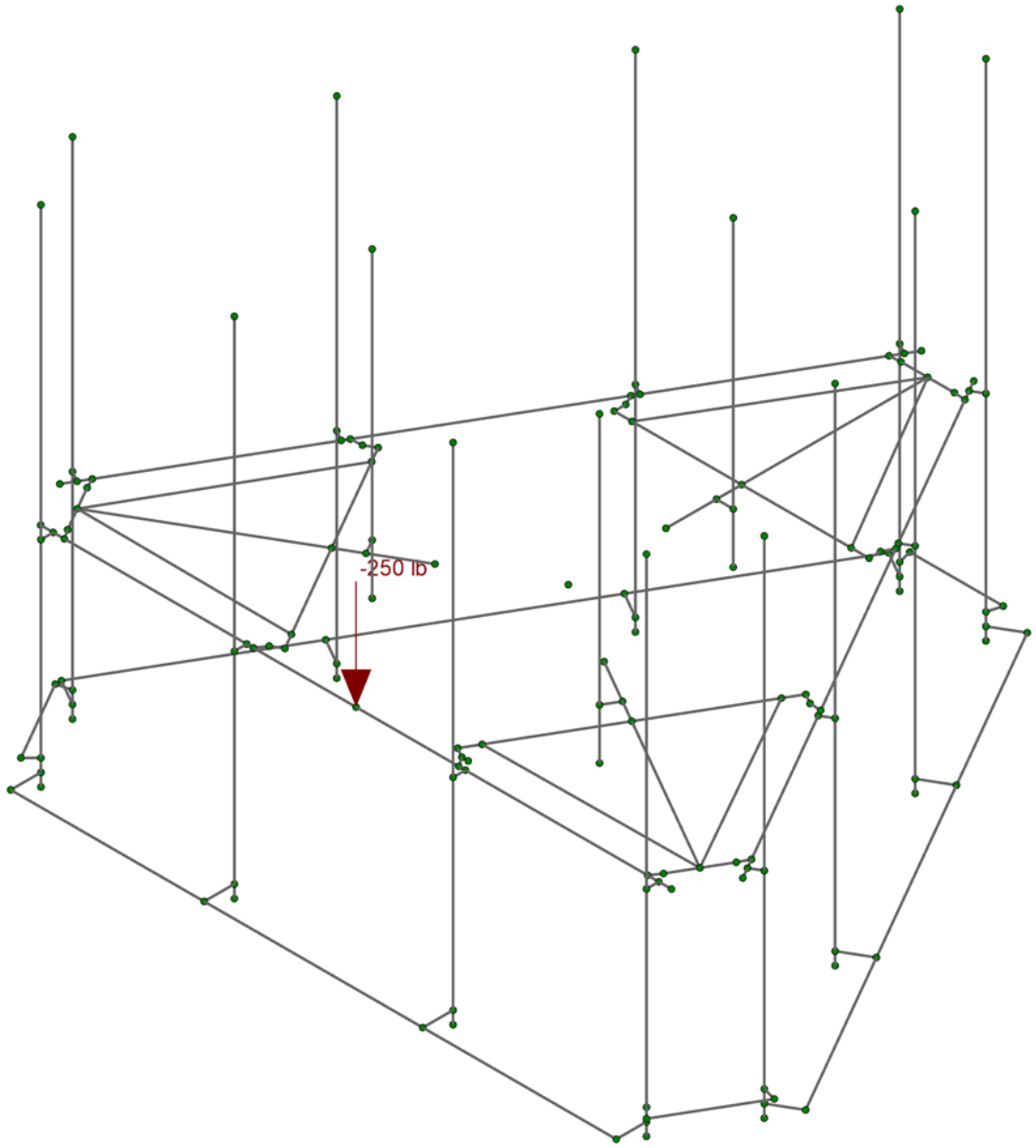
Infinigy Engineering, PLLC	829013	Seismic Loading 0
AG		Sep 09, 2021
1039-Z0001-B		829013_loaded.r3d



Loads: BLC 32, Seismic Load X

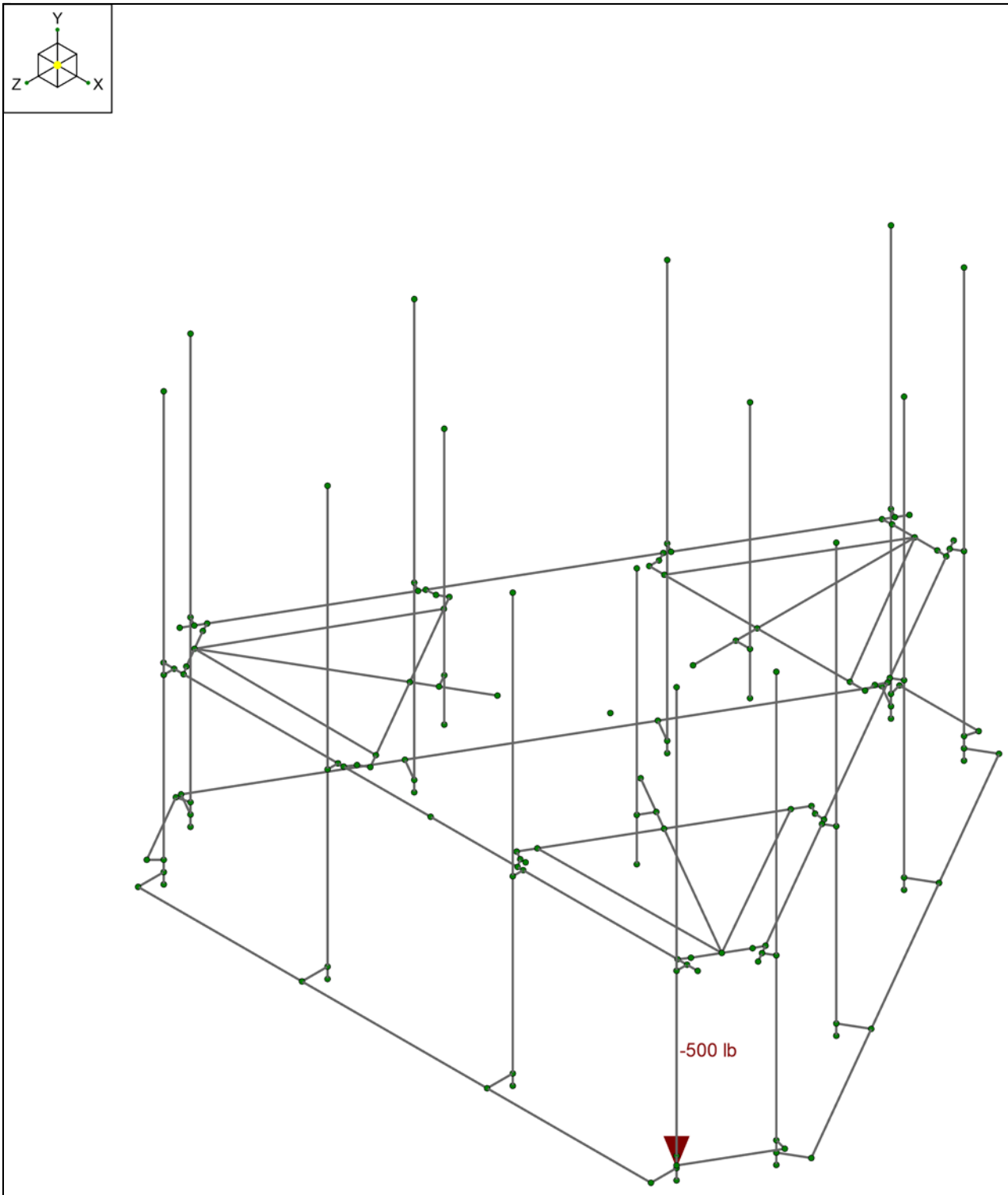
Infinigy Engineering, PLLC	829013	Seismic Loading 90
AG		Sep 09, 2021
1039-Z0001-B		829013_loaded.r3d





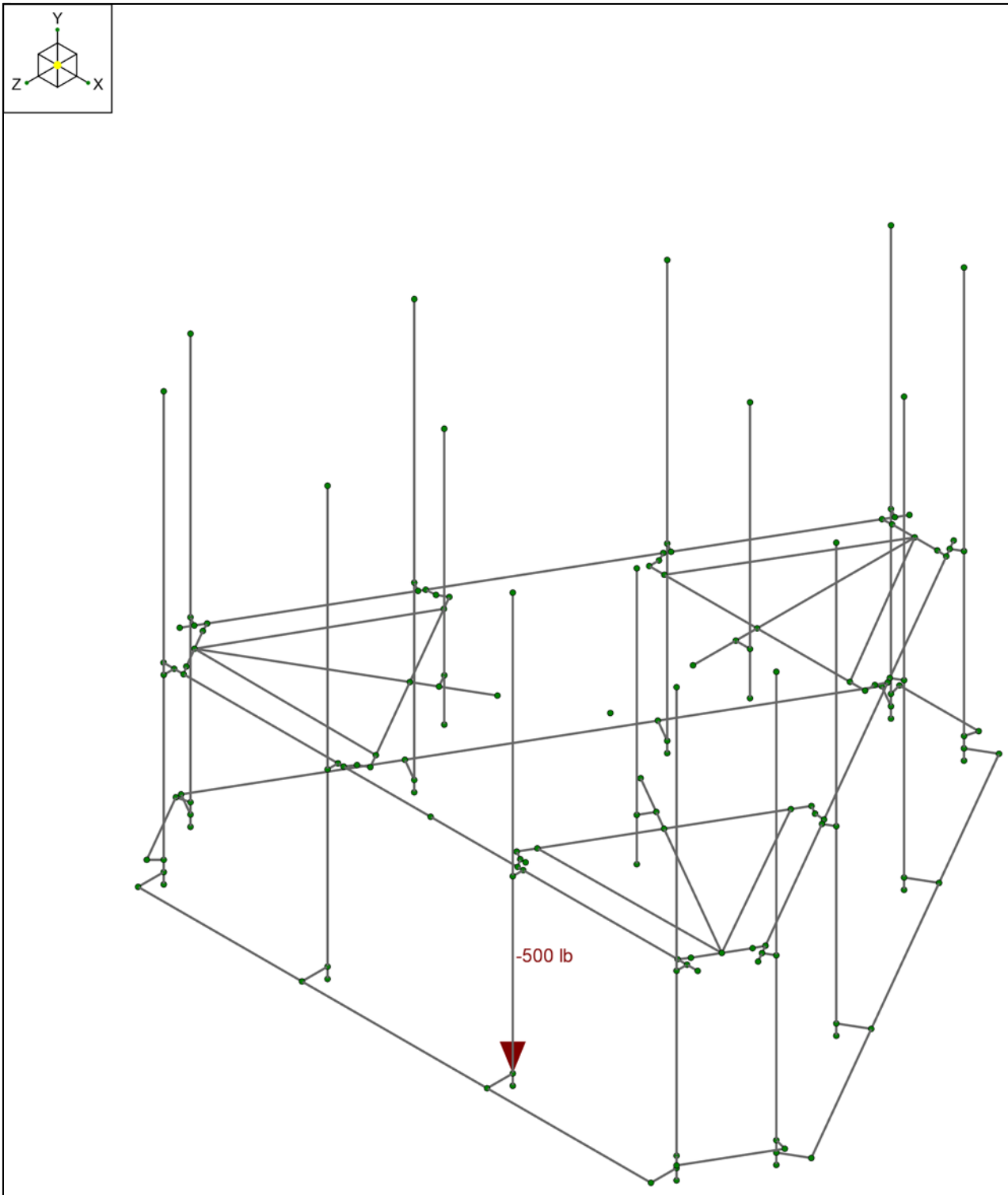
Loads: BLC 33, Service Live Loads

Infinigy Engineering, PLLC	829013	Service Load
AG		Sep 09, 2021
1039-Z0001-B		829013_loaded.r3d



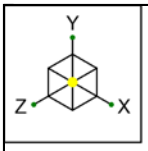
Loads: BLC 34, Maintenance Load 1

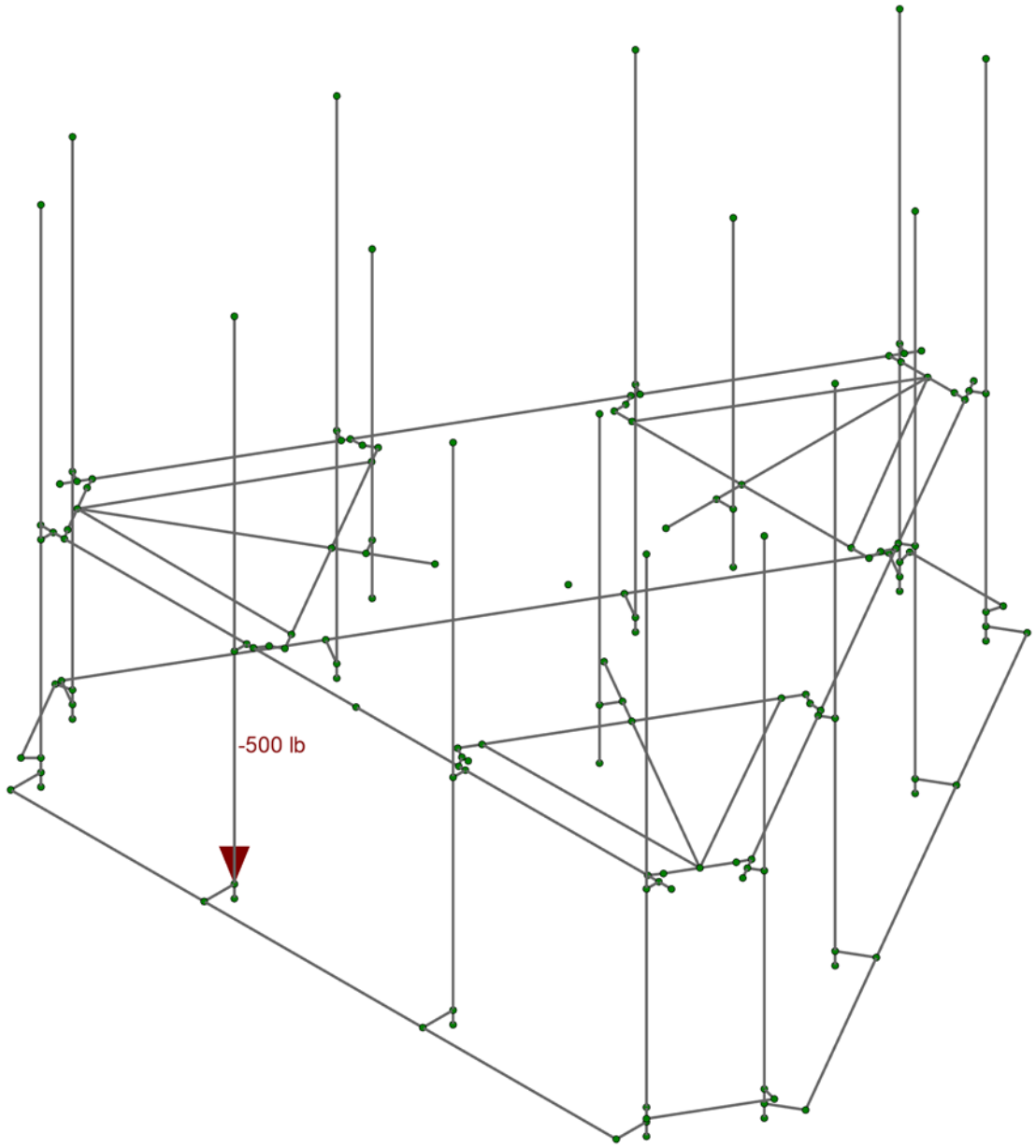
Infinigy Engineering, PLLC	829013	Maintenance Load 1
AG		Sep 09, 2021
1039-Z0001-B		829013_loaded.r3d



Loads: BLC 35, Maintenance Load 2

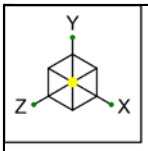
Infinigy Engineering, PLLC	829013	Maintenance Load 2
AG		Sep 09, 2021
1039-Z0001-B		829013_loaded.r3d

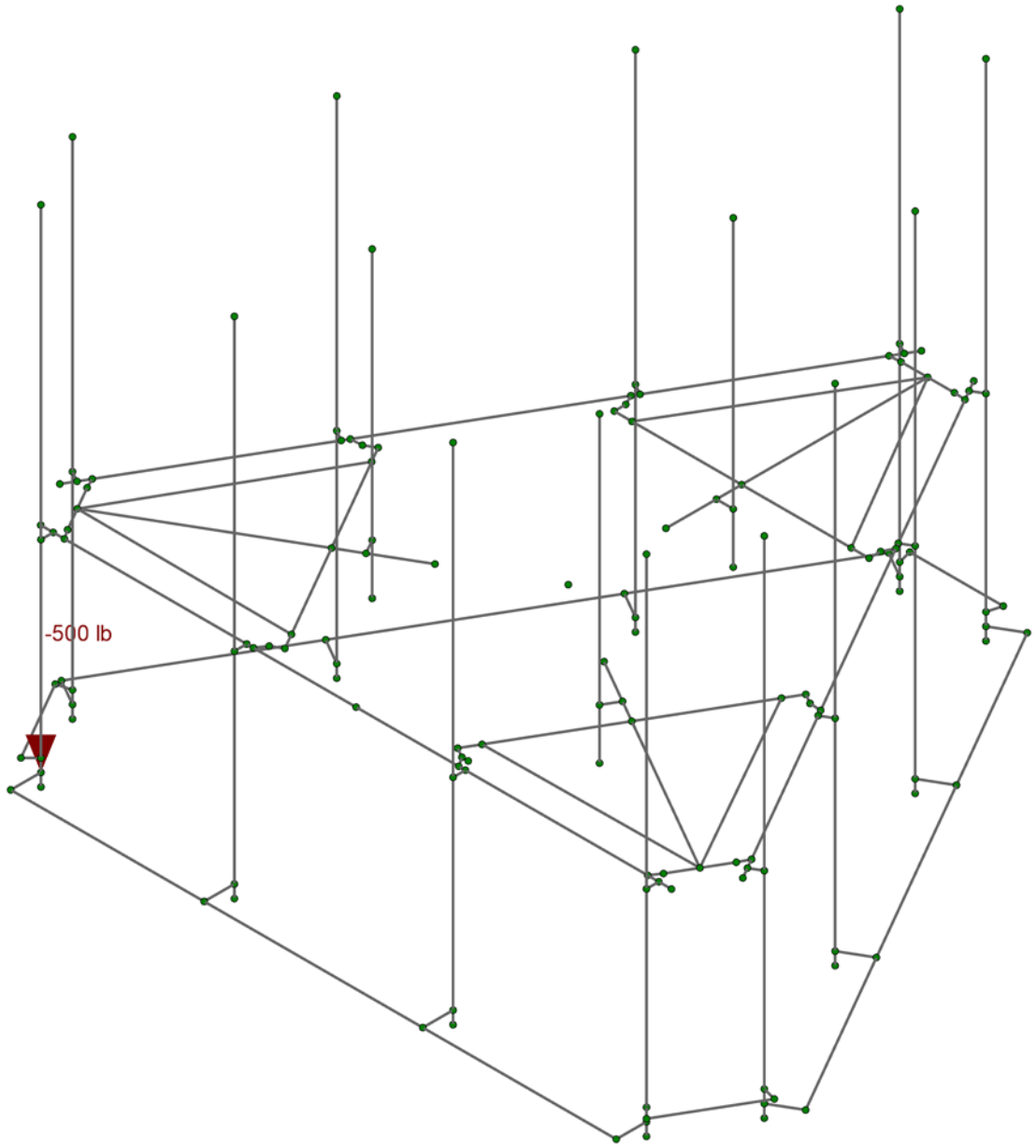




Loads: BLC 41, Maintenance Load 8

Infinigy Engineering, PLLC	829013	Maintenance Load 3
AG		Sep 09, 2021
1039-Z0001-B		829013_loaded.r3d





Loads: BLC 36, Maintenance Load 3

Infinigy Engineering, PLLC	829013	Maintenance Load 4
AG		Sep 09, 2021
1039-Z0001-B		829013_loaded.r3d

APPENDIX B

SOFTWARE INPUT CALCULATIONS

Program Inputs

PROJECT INFORMATION	
Client:	Crown Castle
Carrier:	AT&T Mobility
Engineer:	Andrew Gloriani

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	C	
Topo Factor Procedure:	Method 1, Category 1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	118.67	ft *Rev H

MOUNT INFORMATION		
Mount Type:	Platform	
Num Sectors:	3	
Centerline AGL:	110.00	ft
Tower Height AGL:	119.10	ft

TOPOGRAPHIC DATA		
Topo Feature:	N/A	
Slope Distance:	N/A	ft
Crest Distance:	N/A	ft
Crest Height:	N/A	ft

FACTORS		
Directionality Fact. (K_d):	0.950	
Ground Ele. Factor (K_e):	0.996	*Rev H Only
Rooftop Speed-Up (K_s):	1.000	*Rev H Only
Topographic Factor (K_{zt}):	1.000	
Gust Effect Factor (G_h):	1.000	

CODE STANDARDS		
Building Code:	2018 IBC	
TIA Standard:	TIA-222-H	
ASCE Standard:	ASCE 7-16	

WIND AND ICE DATA		
Ultimate Wind (V_{ult}):	117	mph
Design Wind (V):	N/A	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	1.5	in
Flat Pressure:	85.608	psf
Round Pressure:	51.365	psf
Ice Wind Pressure:	9.381	psf

SEISMIC DATA		
Short-Period Accel. (S_s):	0.189	g
1-Second Accel. (S_1):	0.055	g
Short-Period Design (S_{DS}):	0.202	
1-Second Design (S_{D1}):	0.088	
Short-Period Coeff. (F_a):	1.600	
1-Second Coeff. (F_v):	2.400	
Amplification Factor (A_s):	3.000	
Response Mod. Coeff. (R):	2.000	

INFINIGY

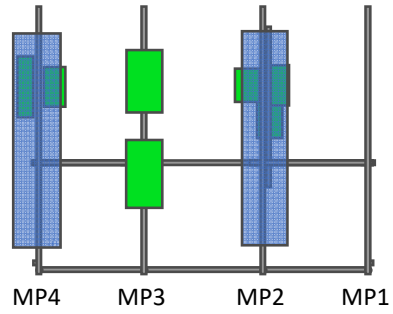
FROM ZERO TO INFINIGY

the solutions are endless

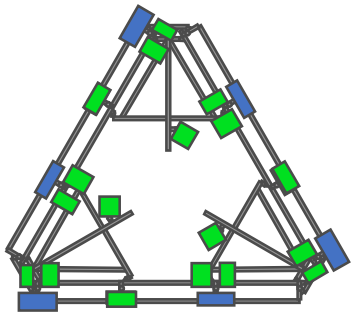
Infinigy Load Calculator V2.1.6

Program Inputs

ELEVATION VIEW



PLAN VIEW



INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

Infinigy Load Calculator V2.1.6

APPURTENANCE INFORMATION

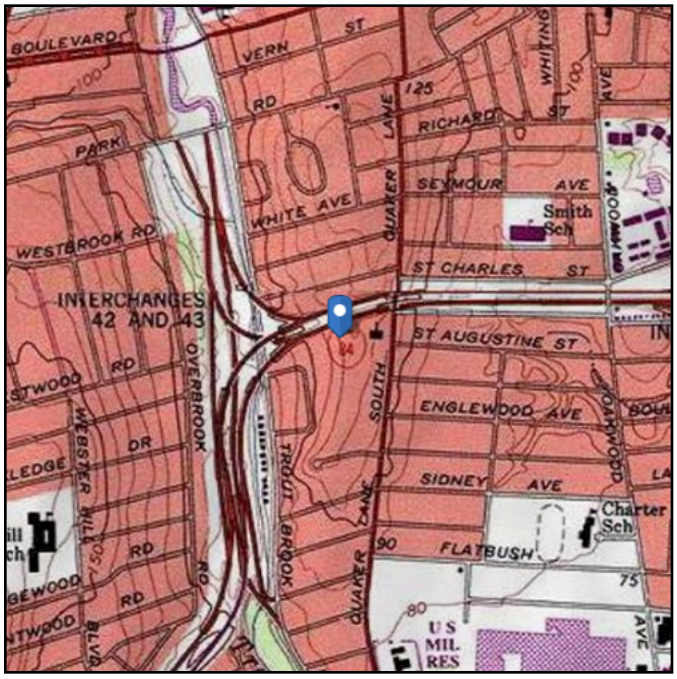
Appurtenance Name	Elevation	Qty.	K_a	q_z (psf)	EPA_N (ft^2)	EPA_T (ft^2)	Wind F_z (lbs)	Wind F_x (lbs)	Weight (lbs)	Seismic F (lbs)	Member (α sector)
KATHREIN 80010965	112.0	2	0.90	42.97	12.23	4.21	472.94	162.80	108.60	32.84	Leg/Flush
KATHREIN 80010966	112.0	1	0.90	42.97	14.59	5.04	564.20	194.90	125.70	38.01	MP2
CCI ANTENNAS DMP65R-BU6E	112.0	2	0.90	42.97	12.71	6.77	491.48	261.76	103.80	31.39	Leg/Flush
CCI ANTENNAS DMP65R-BU8E	112.0	1	0.90	42.97	17.15	8.06	663.19	311.68	126.80	38.34	MP4
ERICSSON AIR 6419 B77G	112.0	3	0.90	42.97	3.67	1.65	141.86	63.92	66.20	20.02	MP3
ERICSSON AIR 6449 B77D	112.0	3	0.90	42.97	3.64	1.72	140.76	66.51	81.60	24.68	MP3
ERICSSON TME-RRUS 32 B30	110.0	3	0.90	42.80	2.73	1.67	105.22	64.26	52.90	16.00	MP4
ERICSSON RRUS 4449 B5/B12	110.0	3	0.90	42.80	1.97	1.41	75.80	54.25	71.00	21.47	MP4
ERICSSON RRUS 8843 B2/B66A	110.0	3	0.90	42.80	1.64	1.35	63.14	52.14	72.00	21.77	MP2
RAYCAP DC6-48-60-18-8F	110.0	3	0.90	42.80	0.92	0.92	35.31	35.31	18.90	5.72	R1
ERICSSON RRUS 4478 B14_CCIV2	112.0	3	0.90	42.97	2.02	1.25	78.16	48.18	59.40	17.96	MP2

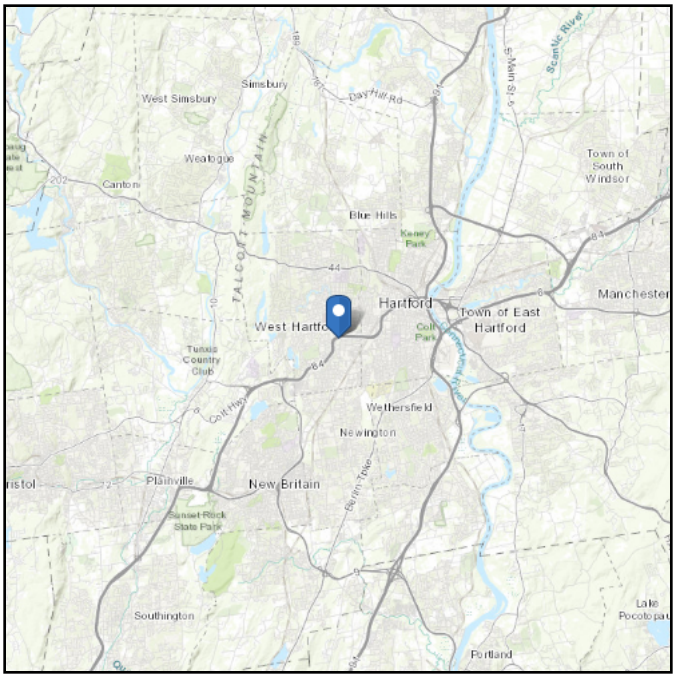
ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 118.67 ft (NAVD 88)
Latitude: 41.748775
Longitude: -72.73135





Wind

Results:

Wind Speed:	117 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	97 Vmph

Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Thu Sep 09 2021

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

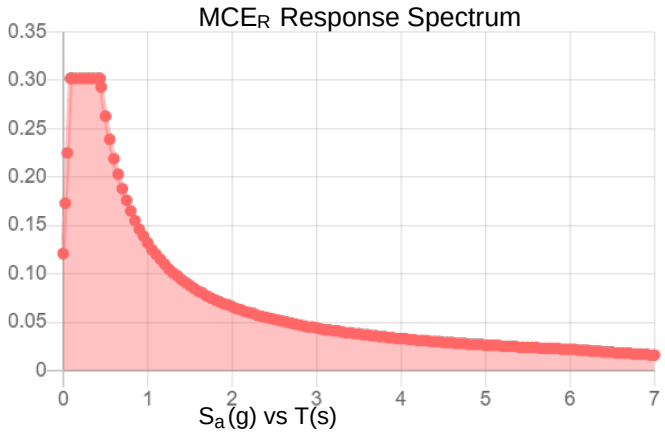
Seismic

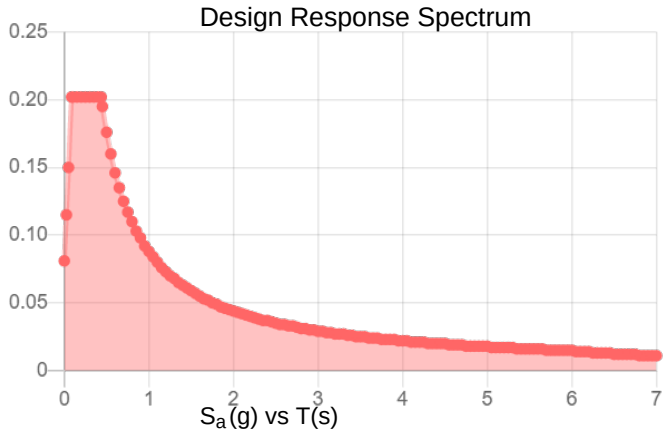
Site Soil Class: D - Stiff Soil

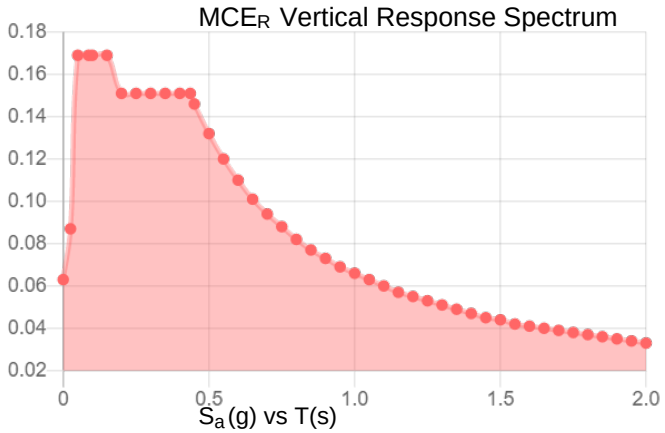
Results:

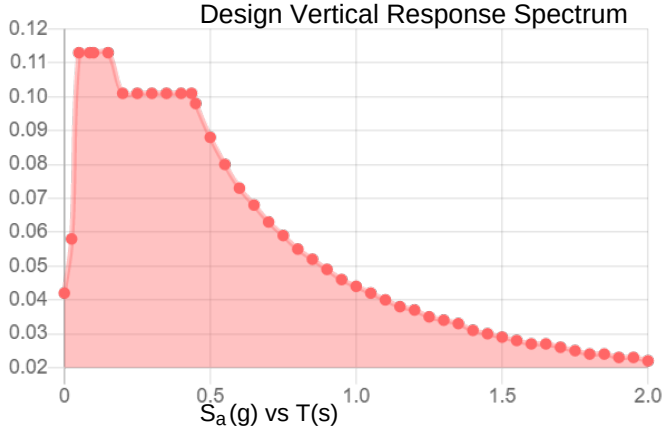
S_S :	0.189	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.102
F_v :	2.4	PGA_M :	0.163
S_{MS} :	0.302	F_{PGA} :	1.596
S_{M1} :	0.132	I_e :	1
S_{DS} :	0.202	C_v :	0.7

Seismic Design Category B









Data Accessed: Thu Sep 09 2021

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	1.50 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Thu Sep 09 2021

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	MS1	N106	N4		Standoffs	Beam	None	Q235-GB	Typical
2	MS2	N107	N14		Standoffs	Beam	None	Q235-GB	Typical
3	MS3	N49	N19		Standoffs	Beam	None	Q235-GB	Typical
4	M2	N97	N98		Standoffs	Beam	None	Q235-GB	Typical
5	M1	N98	N80		Standoffs	Beam	None	Q235-GB	Typical
6	M6	N84	N99		Standoffs	Beam	None	Q235-GB	Typical
7	M7	N99	N87		Standoffs	Beam	None	Q235-GB	Typical
8	M8	N91	N100		Standoffs	Beam	None	Q235-GB	Typical
9	M9	N100	N94		Standoffs	Beam	None	Q235-GB	Typical
10	M16	N24	N42		RIGID	None	None	RIGID	Typical
11	M18	N22	N39		RIGID	None	None	RIGID	Typical
12	M20	N27	N43		RIGID	None	None	RIGID	Typical
13	M22	N25	N48		RIGID	None	None	RIGID	Typical
14	M23	N38	N16		RIGID	None	None	RIGID	Typical
15	M25	N35	N54		RIGID	None	None	RIGID	Typical
16	M26	N36	N55		RIGID	None	None	RIGID	Typical
17	M21	N11	N58		RIGID	None	None	RIGID	Typical
18	M27	N59	N40		RIGID	None	None	RIGID	Typical
19	M28	N62	N33		RIGID	None	None	RIGID	Typical
20	M30	N37	N32		RIGID	None	None	RIGID	Typical
21	M31	N65	N68		RIGID	None	None	RIGID	Typical
22	M19	N4	N101	270	Platform Angle	Beam	None	Q345	Typical
23	M32	N4	N46		Platform Angle	Beam	None	Q345	Typical
24	M5	N14	N103	270	Platform Angle	Beam	None	Q345	Typical
25	M34	N14	N102		Platform Angle	Beam	None	Q345	Typical
26	M35	N19	N105	270	Platform Angle	Beam	None	Q345	Typical
27	M29	N19	N104		Platform Angle	Beam	None	Q345	Typical
28	MP1	N29	N17		Mount Pipe	Column	None	Q235-GB	Typical
29	MP2	N28	N30		Mount Pipe 2.5	Column	None	Q235-GB	Typical
30	MP4	N13	N31		Mount Pipe 2.5	Column	None	Q235-GB	Typical
31	MP5	N44	N47		Mount Pipe	Column	None	Q235-GB	Typical
32	MP8	N2	N9		Mount Pipe 2.5	Column	None	Q235-GB	Typical
33	MP9	N41	N53		Mount Pipe	Column	None	Q235-GB	Typical
34	MP12	N50	N51		Mount Pipe 2.5	Column	None	Q235-GB	Typical
35	MP3	N56	N57		Mount Pipe	Column	None	Q235-GB	Typical
36	MP10	N1	N60		Mount Pipe 2.5	Column	None	Q235-GB	Typical
37	MP11	N21	N63		Mount Pipe	Column	None	Q235-GB	Typical
38	MP6	N64	N61		Mount Pipe 2.5	Column	None	Q235-GB	Typical
39	MP7	N66	N67		Mount Pipe	Column	None	Q235-GB	Typical
40	MH1	N18	N20		Horizontals	Beam	None	Q235-GB	Typical
41	MH2	N15	N23		Horizontals	Beam	None	Q235-GB	Typical
42	MH3	N3	N10		Horizontals	Beam	None	Q235-GB	Typical
43	M42	N45	N7		Corner Plate	Beam	None	Q345	Typical
44	M14	N69	N70		Corner Plate	Beam	None	Q345	Typical
45	M43	N45	N4		Corner Plate	Beam	None	Q345	Typical
46	M44	N4	N69		Corner Plate	Beam	None	Q345	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
47	M46	N71	N72		Corner Plate	Beam	None	Q345	Typical
48	M4	N73	N74		Corner Plate	Beam	None	Q345	Typical
49	M37	N71	N14		Corner Plate	Beam	None	Q345	Typical
50	M47	N14	N73		Corner Plate	Beam	None	Q345	Typical
51	M48	N75	N76		Corner Plate	Beam	None	Q345	Typical
52	M36	N77	N79		Corner Plate	Beam	None	Q345	Typical
53	M17	N75	N19		Corner Plate	Beam	None	Q345	Typical
54	M41	N19	N77		Corner Plate	Beam	None	Q345	Typical
55	M13	N12	N52		Connection Plates	Beam	None	Q345	Typical
56	M38	N12	N80		Connection Plates	Beam	None	Q345	Typical
57	M50	N81	N83		Connection Plates	Beam	None	Q345	Typical
58	M51	N81	N84		Connection Plates	Beam	None	Q345	Typical
59	M52	N85	N86		Connection Plates	Beam	None	Q345	Typical
60	M53	N85	N87		Connection Plates	Beam	None	Q345	Typical
61	M24	N89	N90		Connection Plates	Beam	None	Q345	Typical
62	M54	N89	N91		Connection Plates	Beam	None	Q345	Typical
63	M45	N93	N8		Connection Plates	Beam	None	Q345	Typical
64	M3	N93	N94		Connection Plates	Beam	None	Q345	Typical
65	M49	N95	N96		Connection Plates	Beam	None	Q345	Typical
66	M33	N95	N97		Connection Plates	Beam	None	Q345	Typical
67	M55	N113	N109		RIGID	None	None	RIGID	Typical
68	M56	N92	N111		RIGID	None	None	RIGID	Typical
69	M57	N112	N108		RIGID	None	None	RIGID	Typical
70	M58	N115	N110		RIGID	None	None	RIGID	Typical
71	MW1	N113	N115	90	Platform Channel	Beam	None	Q345	Typical
72	M59	N119	N116		RIGID	None	None	RIGID	Typical
73	M60	N118	N117		RIGID	None	None	RIGID	Typical
74	M61	N124	N121		RIGID	None	None	RIGID	Typical
75	M62	N126	N78		RIGID	None	None	RIGID	Typical
76	M63	N123	N120		RIGID	None	None	RIGID	Typical
77	M64	N125	N122		RIGID	None	None	RIGID	Typical
78	MW2	N124	N125	90	Platform Channel	Beam	None	Q345	Typical
79	M65	N132	N129		RIGID	None	None	RIGID	Typical
80	M66	N131	N130		RIGID	None	None	RIGID	Typical
81	M67	N134	N88		RIGID	None	None	RIGID	Typical
82	M68	N127	N114		RIGID	None	None	RIGID	Typical
83	M69	N26	N128		RIGID	None	None	RIGID	Typical
84	M70	N5	N133		RIGID	None	None	RIGID	Typical
85	MW3	N134	N5	90	Platform Channel	Beam	None	Q345	Typical
86	M71	N138	N135		RIGID	None	None	RIGID	Typical
87	M72	N137	N136		RIGID	None	None	RIGID	Typical
88	M73	N118	N132		Platform Kickers	Beam	None	Q235-GB	Typical
89	M74	N131	N138		Platform Kickers	Beam	None	Q235-GB	Typical
90	M75	N137	N119		Platform Kickers	Beam	None	Q235-GB	Typical
91	M91	N141	N140		RIGID	None	None	RIGID	Typical
92	R2	N143	N142		Mount Pipe	Column	None	Q235-GB	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
93	R1	N144	N145		Mount Pipe	Column	None	Q235-GB	Typical
94	M94	N146	N147		RIGID	None	None	RIGID	Typical
95	R3	N148	N149		Mount Pipe	Column	None	Q235-GB	Typical
96	M96	N150	N151		RIGID	None	None	RIGID	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
1	MS1					Yes	N/A	None
2	MS2					Yes	N/A	None
3	MS3					Yes	N/A	None
4	M2				2	Yes	Default	None
5	M1			2		Yes	Default	None
6	M6				2	Yes	Default	None
7	M7			2		Yes	Default	None
8	M8				2	Yes	Default	None
9	M9			2		Yes	Default	None
10	M16					Yes	** NA **	None
11	M18					Yes	** NA **	None
12	M20					Yes	** NA **	None
13	M22					Yes	** NA **	None
14	M23					Yes	** NA **	None
15	M25					Yes	** NA **	None
16	M26					Yes	** NA **	None
17	M21					Yes	** NA **	None
18	M27					Yes	** NA **	None
19	M28					Yes	** NA **	None
20	M30					Yes	** NA **	None
21	M31					Yes	** NA **	None
22	M19					Yes	N/A	None
23	M32					Yes	N/A	None
24	M5					Yes	N/A	None
25	M34					Yes	N/A	None
26	M35					Yes	N/A	None
27	M29					Yes	N/A	None
28	MP1					Yes	** NA **	None
29	MP2					Yes	** NA **	None
30	MP4					Yes	** NA **	None
31	MP5					Yes	** NA **	None
32	MP8					Yes	** NA **	None
33	MP9					Yes	** NA **	None
34	MP12					Yes	** NA **	None
35	MP3					Yes	** NA **	None
36	MP10					Yes	** NA **	None
37	MP11					Yes	** NA **	None
38	MP6					Yes	** NA **	None
39	MP7					Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
40	MH1					Yes	N/A	None
41	MH2					Yes	N/A	None
42	MH3					Yes	N/A	None
43	M42					Yes	Default	None
44	M14					Yes	Default	None
45	M43				2	Yes	N/A	None
46	M44			2		Yes	Default	None
47	M46					Yes	Default	None
48	M4					Yes	Default	None
49	M37				2	Yes	N/A	None
50	M47			2		Yes	Default	None
51	M48					Yes	Default	None
52	M36					Yes	Default	None
53	M17				2	Yes	N/A	None
54	M41			2		Yes	Default	None
55	M13					Yes	Default	None
56	M38					Yes	N/A	None
57	M50					Yes	Default	None
58	M51					Yes	N/A	None
59	M52					Yes	Default	None
60	M53					Yes	N/A	None
61	M24					Yes	Default	None
62	M54					Yes	N/A	None
63	M45					Yes	Default	None
64	M3					Yes	N/A	None
65	M49					Yes	Default	None
66	M33					Yes	Default	None
67	M55					Yes	** NA **	None
68	M56					Yes	** NA **	None
69	M57					Yes	** NA **	None
70	M58					Yes	** NA **	None
71	MW1					Yes	Default	None
72	M59					Yes	** NA **	None
73	M60					Yes	** NA **	None
74	M61					Yes	** NA **	None
75	M62					Yes	** NA **	None
76	M63					Yes	** NA **	None
77	M64					Yes	** NA **	None
78	MW2					Yes	Default	None
79	M65					Yes	** NA **	None
80	M66					Yes	** NA **	None
81	M67					Yes	** NA **	None
82	M68					Yes	** NA **	None
83	M69					Yes	** NA **	None
84	M70					Yes	** NA **	None
85	MW3					Yes	Default	None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
86	M71					Yes	** NA **	None
87	M72					Yes	** NA **	None
88	M73	BenPIN	BenPIN			Yes	N/A	None
89	M74	BenPIN	BenPIN			Yes	N/A	None
90	M75	BenPIN	BenPIN			Yes	N/A	None
91	M91					Yes	** NA **	None
92	R2					Yes	** NA **	None
93	R1					Yes	** NA **	None
94	M94					Yes	** NA **	None
95	R3					Yes	** NA **	None
96	M96					Yes	** NA **	None

Node Boundary Conditions

	Node 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	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N106	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N107	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Material Take-Off

	Material	Size	Pieces	Length[in]	Weight[K]
1	General Members				
2	RIGID		33	153.7	0
3	Total General		33	153.7	0
4					
5	Hot Rolled Steel				
6	Q235-GB	HSS4X4X4	9	356.6	0.341
7	Q235-GB	PIPE_2.0	12	1002.8	0.29
8	Q235-GB	PIPE_2.5	6	720	0.329
9	Q235-GB	PIPE_3.0	3	450	0.264
10	Q345	6"x1/2" Plate	12	42.3	0.036
11	Q345	C12X25	3	432	0.899
12	Q345	L2x2x3	6	308.1	0.063
13	Q345	PL6x.375	12	32.7	0.021
14	Total HR Steel		63	3344.4	2.243

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Nodal	Point	Distributed	Area(Member)
1	Self Weight	DL		-1			54		6
2	Wind Load AZI 0	WLZ					108		
3	Wind Load AZI 30	None					108		
4	Wind Load AZI 60	None					108		
5	Wind Load AZI 90	WLX					108		
6	Wind Load AZI 120	None					108		

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Nodal	Point	Distributed	Area(Member)
7	Wind Load AZI 150	None					108		
8	Wind Load AZI 180	None					108		
9	Wind Load AZI 210	None					108		
10	Wind Load AZI 240	None					108		
11	Wind Load AZI 270	None					108		
12	Wind Load AZI 300	None					108		
13	Wind Load AZI 330	None					108		
14	Distr. Wind Load Z	WLZ						96	
15	Distr. Wind Load X	WLX						96	
16	Ice Weight	OL1					54	96	6
17	Ice Wind Load AZI 0	OL2					108		
18	Ice Wind Load AZI 30	None					108		
19	Ice Wind Load AZI 60	None					108		
20	Ice Wind Load AZI 90	OL3					108		
21	Ice Wind Load AZI 120	None					108		
22	Ice Wind Load AZI 150	None					108		
23	Ice Wind Load AZI 180	None					108		
24	Ice Wind Load AZI 210	None					108		
25	Ice Wind Load AZI 240	None					108		
26	Ice Wind Load AZI 270	None					108		
27	Ice Wind Load AZI 300	None					108		
28	Ice Wind Load AZI 330	None					108		
29	Distr. Ice Wind Load Z	OL2						96	
30	Distr. Ice Wind Load X	OL3						96	
31	Seismic Load Z	ELZ			-0.302		54		
32	Seismic Load X	ELX	-0.302				54		
33	Service Live Loads	LL				1			
34	Maintenance Load 1	LL				1			
35	Maintenance Load 2	LL				1			
36	Maintenance Load 3	LL				1			
37	Maintenance Load 4	LL				1			
38	Maintenance Load 5	LL				1			
39	Maintenance Load 6	LL				1			
40	Maintenance Load 7	LL				1			
41	Maintenance Load 8	LL				1			
42	Maintenance Load 9	LL				1			
43	Maintenance Load 10	LL				1			
44	Maintenance Load 11	LL				1			
45	Maintenance Load 12	LL				1			
46	BLC 1 Transient Area Loads	None						49	
47	BLC 16 Transient Area Loads	None						49	

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4DL	Yes	Y	1	1.4								
2	1.2DL + 1WL AZI 0	Yes	Y	1	1.2	2	1	14	1	15			

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
3	1.2DL + 1WL AZI 30	Yes	Y	1	1.2	3	1	14	0.866	15	0.5		
4	1.2DL + 1WL AZI 60	Yes	Y	1	1.2	4	1	14	0.5	15	0.866		
5	1.2DL + 1WL AZI 90	Yes	Y	1	1.2	5	1	14		15	1		
6	1.2DL + 1WL AZI 120	Yes	Y	1	1.2	6	1	14	-0.5	15	0.866		
7	1.2DL + 1WL AZI 150	Yes	Y	1	1.2	7	1	14	-0.866	15	0.5		
8	1.2DL + 1WL AZI 180	Yes	Y	1	1.2	8	1	14	-1	15			
9	1.2DL + 1WL AZI 210	Yes	Y	1	1.2	9	1	14	-0.866	15	-0.5		
10	1.2DL + 1WL AZI 240	Yes	Y	1	1.2	10	1	14	-0.5	15	-0.866		
11	1.2DL + 1WL AZI 270	Yes	Y	1	1.2	11	1	14		15	-1		
12	1.2DL + 1WL AZI 300	Yes	Y	1	1.2	12	1	14	0.5	15	-0.866		
13	1.2DL + 1WL AZI 330	Yes	Y	1	1.2	13	1	14	0.866	15	-0.5		
14	0.9DL + 1WL AZI 0	Yes	Y	1	0.9	2	1	14	1	15			
15	0.9DL + 1WL AZI 30	Yes	Y	1	0.9	3	1	14	0.866	15	0.5		
16	0.9DL + 1WL AZI 60	Yes	Y	1	0.9	4	1	14	0.5	15	0.866		
17	0.9DL + 1WL AZI 90	Yes	Y	1	0.9	5	1	14		15	1		
18	0.9DL + 1WL AZI 120	Yes	Y	1	0.9	6	1	14	-0.5	15	0.866		
19	0.9DL + 1WL AZI 150	Yes	Y	1	0.9	7	1	14	-0.866	15	0.5		
20	0.9DL + 1WL AZI 180	Yes	Y	1	0.9	8	1	14	-1	15			
21	0.9DL + 1WL AZI 210	Yes	Y	1	0.9	9	1	14	-0.866	15	-0.5		
22	0.9DL + 1WL AZI 240	Yes	Y	1	0.9	10	1	14	-0.5	15	-0.866		
23	0.9DL + 1WL AZI 270	Yes	Y	1	0.9	11	1	14		15	-1		
24	0.9DL + 1WL AZI 300	Yes	Y	1	0.9	12	1	14	0.5	15	-0.866		
25	0.9DL + 1WL AZI 330	Yes	Y	1	0.9	13	1	14	0.866	15	-0.5		
26	1.2D + 1.0Di	Yes	Y	1	1.2	16	1						
27	1.2D + 1.0Di +1.0Wi AZI 0	Yes	Y	1	1.2	16	1	17	1	29	1	30	
28	1.2D + 1.0Di +1.0Wi AZI 30	Yes	Y	1	1.2	16	1	18	1	29	0.866	30	0.5
29	1.2D + 1.0Di +1.0Wi AZI 60	Yes	Y	1	1.2	16	1	19	1	29	0.5	30	0.866
30	1.2D + 1.0Di +1.0Wi AZI 90	Yes	Y	1	1.2	16	1	20	1	29		30	1
31	1.2D + 1.0Di +1.0Wi AZI 120	Yes	Y	1	1.2	16	1	21	1	29	-0.5	30	0.866
32	1.2D + 1.0Di +1.0Wi AZI 150	Yes	Y	1	1.2	16	1	22	1	29	-0.866	30	0.5
33	1.2D + 1.0Di +1.0Wi AZI 180	Yes	Y	1	1.2	16	1	23	1	29	-1	30	
34	1.2D + 1.0Di +1.0Wi AZI 210	Yes	Y	1	1.2	16	1	24	1	29	-0.866	30	-0.5
35	1.2D + 1.0Di +1.0Wi AZI 240	Yes	Y	1	1.2	16	1	25	1	29	-0.5	30	-0.866
36	1.2D + 1.0Di +1.0Wi AZI 270	Yes	Y	1	1.2	16	1	26	1	29		30	-1
37	1.2D + 1.0Di +1.0Wi AZI 300	Yes	Y	1	1.2	16	1	27	1	29	0.5	30	-0.866
38	1.2D + 1.0Di +1.0Wi AZI 330	Yes	Y	1	1.2	16	1	28	1	29	0.866	30	-0.5
39	(1.2 + 0.2Sds)DL + 1.0E AZI 0	Yes	Y	1	1.24	31	1	32					
40	(1.2 + 0.2Sds)DL + 1.0E AZI 30	Yes	Y	1	1.24	31	0.866	32	0.5				
41	(1.2 + 0.2Sds)DL + 1.0E AZI 60	Yes	Y	1	1.24	31	0.5	32	0.866				
42	(1.2 + 0.2Sds)DL + 1.0E AZI 90	Yes	Y	1	1.24	31		32	1				
43	(1.2 + 0.2Sds)DL + 1.0E AZI 120	Yes	Y	1	1.24	31	-0.5	32	0.866				
44	(1.2 + 0.2Sds)DL + 1.0E AZI 150	Yes	Y	1	1.24	31	-0.866	32	0.5				
45	(1.2 + 0.2Sds)DL + 1.0E AZI 180	Yes	Y	1	1.24	31	-1	32					
46	(1.2 + 0.2Sds)DL + 1.0E AZI 210	Yes	Y	1	1.24	31	-0.866	32	-0.5				
47	(1.2 + 0.2Sds)DL + 1.0E AZI 240	Yes	Y	1	1.24	31	-0.5	32	-0.866				
48	(1.2 + 0.2Sds)DL + 1.0E AZI 270	Yes	Y	1	1.24	31		32	-1				

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
49	(1.2 + 0.2Sds)DL + 1.0E AZI 300	Yes	Y	1	1.24	31	0.5	32	-0.866				
50	(1.2 + 0.2Sds)DL + 1.0E AZI 330	Yes	Y	1	1.24	31	0.866	32	-0.5				
51	(0.9 - 0.2Sds)DL + 1.0E AZI 0	Yes	Y	1	0.86	31	1	32					
52	(0.9 - 0.2Sds)DL + 1.0E AZI 30	Yes	Y	1	0.86	31	0.866	32	0.5				
53	(0.9 - 0.2Sds)DL + 1.0E AZI 60	Yes	Y	1	0.86	31	0.5	32	0.866				
54	(0.9 - 0.2Sds)DL + 1.0E AZI 90	Yes	Y	1	0.86	31		32	1				
55	(0.9 - 0.2Sds)DL + 1.0E AZI 120	Yes	Y	1	0.86	31	-0.5	32	0.866				
56	(0.9 - 0.2Sds)DL + 1.0E AZI 150	Yes	Y	1	0.86	31	-0.866	32	0.5				
57	(0.9 - 0.2Sds)DL + 1.0E AZI 180	Yes	Y	1	0.86	31	-1	32					
58	(0.9 - 0.2Sds)DL + 1.0E AZI 210	Yes	Y	1	0.86	31	-0.866	32	-0.5				
59	(0.9 - 0.2Sds)DL + 1.0E AZI 240	Yes	Y	1	0.86	31	-0.5	32	-0.866				
60	(0.9 - 0.2Sds)DL + 1.0E AZI 270	Yes	Y	1	0.86	31		32	-1				
61	(0.9 - 0.2Sds)DL + 1.0E AZI 300	Yes	Y	1	0.86	31	0.5	32	-0.866				
62	(0.9 - 0.2Sds)DL + 1.0E AZI 330	Yes	Y	1	0.86	31	0.866	32	-0.5				
63	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 0	Yes	Y	1	1	2	0.263	14	0.263	15		33	1.5
64	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 30	Yes	Y	1	1	3	0.263	14	0.228	15	0.131	33	1.5
65	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 60	Yes	Y	1	1	4	0.263	14	0.131	15	0.228	33	1.5
66	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 90	Yes	Y	1	1	5	0.263	14		15	0.263	33	1.5
67	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 120	Yes	Y	1	1	6	0.263	14	-0.131	15	0.228	33	1.5
68	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 150	Yes	Y	1	1	7	0.263	14	-0.228	15	0.131	33	1.5
69	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 180	Yes	Y	1	1	8	0.263	14	-0.263	15		33	1.5
70	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 210	Yes	Y	1	1	9	0.263	14	-0.228	15	-0.131	33	1.5
71	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 240	Yes	Y	1	1	10	0.263	14	-0.131	15	-0.228	33	1.5
72	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 270	Yes	Y	1	1	11	0.263	14		15	-0.263	33	1.5
73	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 300	Yes	Y	1	1	12	0.263	14	0.131	15	-0.228	33	1.5
74	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 330	Yes	Y	1	1	13	0.263	14	0.228	15	-0.131	33	1.5
75	1.2DL + 1.5LL	Yes	Y	1	1.2	33	1.5						
76	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	34	1.5	2	0.066	14	0.066	15	
77	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	34	1.5	3	0.066	14	0.057	15	0.033
78	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	34	1.5	4	0.066	14	0.033	15	0.057
79	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	34	1.5	5	0.066	14		15	0.066
80	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	34	1.5	6	0.066	14	-0.033	15	0.057
81	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	34	1.5	7	0.066	14	-0.057	15	0.033
82	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	34	1.5	8	0.066	14	-0.066	15	
83	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	34	1.5	9	0.066	14	-0.057	15	-0.033
84	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	34	1.5	10	0.066	14	-0.033	15	-0.057
85	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	34	1.5	11	0.066	14		15	-0.066
86	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	34	1.5	12	0.066	14	0.033	15	-0.057
87	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	34	1.5	13	0.066	14	0.057	15	-0.033
88	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	35	1.5	2	0.066	14	0.066	15	
89	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	35	1.5	3	0.066	14	0.057	15	0.033
90	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	35	1.5	4	0.066	14	0.033	15	0.057
91	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	35	1.5	5	0.066	14		15	0.066
92	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	35	1.5	6	0.066	14	-0.033	15	0.057
93	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	35	1.5	7	0.066	14	-0.057	15	0.033
94	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	35	1.5	8	0.066	14	-0.066	15	

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
95	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	35	1.5	9	0.066	14	-0.057	15	-0.033
96	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	35	1.5	10	0.066	14	-0.033	15	-0.057
97	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	35	1.5	11	0.066	14		15	-0.066
98	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	35	1.5	12	0.066	14	0.033	15	-0.057
99	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	35	1.5	13	0.066	14	0.057	15	-0.033
100	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	36	1.5	2	0.066	14	0.066	15	
101	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	36	1.5	3	0.066	14	0.057	15	0.033
102	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	36	1.5	4	0.066	14	0.033	15	0.057
103	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	36	1.5	5	0.066	14		15	0.066
104	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	36	1.5	6	0.066	14	-0.033	15	0.057
105	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	36	1.5	7	0.066	14	-0.057	15	0.033
106	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	36	1.5	8	0.066	14	-0.066	15	
107	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	36	1.5	9	0.066	14	-0.057	15	-0.033
108	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	36	1.5	10	0.066	14	-0.033	15	-0.057
109	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	36	1.5	11	0.066	14		15	-0.066
110	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	36	1.5	12	0.066	14	0.033	15	-0.057
111	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	36	1.5	13	0.066	14	0.057	15	-0.033
112	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	37	1.5	2	0.066	14	0.066	15	
113	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	37	1.5	3	0.066	14	0.057	15	0.033
114	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	37	1.5	4	0.066	14	0.033	15	0.057
115	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	37	1.5	5	0.066	14		15	0.066
116	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	37	1.5	6	0.066	14	-0.033	15	0.057
117	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	37	1.5	7	0.066	14	-0.057	15	0.033
118	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	37	1.5	8	0.066	14	-0.066	15	
119	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	37	1.5	9	0.066	14	-0.057	15	-0.033
120	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	37	1.5	10	0.066	14	-0.033	15	-0.057
121	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	37	1.5	11	0.066	14		15	-0.066
122	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	37	1.5	12	0.066	14	0.033	15	-0.057
123	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	37	1.5	13	0.066	14	0.057	15	-0.033
124	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	38	1.5	2	0.066	14	0.066	15	
125	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	38	1.5	3	0.066	14	0.057	15	0.033
126	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	38	1.5	4	0.066	14	0.033	15	0.057
127	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	38	1.5	5	0.066	14		15	0.066
128	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	38	1.5	6	0.066	14	-0.033	15	0.057
129	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	38	1.5	7	0.066	14	-0.057	15	0.033
130	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	38	1.5	8	0.066	14	-0.066	15	
131	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	38	1.5	9	0.066	14	-0.057	15	-0.033
132	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	38	1.5	10	0.066	14	-0.033	15	-0.057
133	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	38	1.5	11	0.066	14		15	-0.066
134	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	38	1.5	12	0.066	14	0.033	15	-0.057
135	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	38	1.5	13	0.066	14	0.057	15	-0.033
136	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	39	1.5	2	0.066	14	0.066	15	
137	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	39	1.5	3	0.066	14	0.057	15	0.033
138	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	39	1.5	4	0.066	14	0.033	15	0.057
139	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	39	1.5	5	0.066	14		15	0.066
140	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	39	1.5	6	0.066	14	-0.033	15	0.057

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
141	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	39	1.5	7	0.066	14	-0.057	15	0.033
142	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	39	1.5	8	0.066	14	-0.066	15	
143	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	39	1.5	9	0.066	14	-0.057	15	-0.033
144	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	39	1.5	10	0.066	14	-0.033	15	-0.057
145	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	39	1.5	11	0.066	14		15	-0.066
146	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	39	1.5	12	0.066	14	0.033	15	-0.057
147	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	39	1.5	13	0.066	14	0.057	15	-0.033
148	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	40	1.5	2	0.066	14	0.066	15	
149	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	40	1.5	3	0.066	14	0.057	15	0.033
150	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	40	1.5	4	0.066	14	0.033	15	0.057
151	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	40	1.5	5	0.066	14		15	0.066
152	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	40	1.5	6	0.066	14	-0.033	15	0.057
153	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	40	1.5	7	0.066	14	-0.057	15	0.033
154	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	40	1.5	8	0.066	14	-0.066	15	
155	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	40	1.5	9	0.066	14	-0.057	15	-0.033
156	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	40	1.5	10	0.066	14	-0.033	15	-0.057
157	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	40	1.5	11	0.066	14		15	-0.066
158	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	40	1.5	12	0.066	14	0.033	15	-0.057
159	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	40	1.5	13	0.066	14	0.057	15	-0.033
160	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	41	1.5	2	0.066	14	0.066	15	
161	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	41	1.5	3	0.066	14	0.057	15	0.033
162	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	41	1.5	4	0.066	14	0.033	15	0.057
163	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	41	1.5	5	0.066	14		15	0.066
164	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	41	1.5	6	0.066	14	-0.033	15	0.057
165	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	41	1.5	7	0.066	14	-0.057	15	0.033
166	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	41	1.5	8	0.066	14	-0.066	15	
167	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	41	1.5	9	0.066	14	-0.057	15	-0.033
168	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	41	1.5	10	0.066	14	-0.033	15	-0.057
169	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	41	1.5	11	0.066	14		15	-0.066
170	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	41	1.5	12	0.066	14	0.033	15	-0.057
171	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	41	1.5	13	0.066	14	0.057	15	-0.033
172	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	42	1.5	2	0.066	14	0.066	15	
173	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	42	1.5	3	0.066	14	0.057	15	0.033
174	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	42	1.5	4	0.066	14	0.033	15	0.057
175	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	42	1.5	5	0.066	14		15	0.066
176	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	42	1.5	6	0.066	14	-0.033	15	0.057
177	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	42	1.5	7	0.066	14	-0.057	15	0.033
178	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	42	1.5	8	0.066	14	-0.066	15	
179	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	42	1.5	9	0.066	14	-0.057	15	-0.033
180	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	42	1.5	10	0.066	14	-0.033	15	-0.057
181	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	42	1.5	11	0.066	14		15	-0.066
182	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	42	1.5	12	0.066	14	0.033	15	-0.057
183	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	42	1.5	13	0.066	14	0.057	15	-0.033
184	1.2DL + 1.5LM-MP10 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	43	1.5	2	0.066	14	0.066	15	
185	1.2DL + 1.5LM-MP10 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	43	1.5	3	0.066	14	0.057	15	0.033
186	1.2DL + 1.5LM-MP10 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	43	1.5	4	0.066	14	0.033	15	0.057

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
187	1.2DL + 1.5LM-MP10 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	43	1.5	5	0.066	14		15	0.066
188	1.2DL + 1.5LM-MP10 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	43	1.5	6	0.066	14	-0.033	15	0.057
189	1.2DL + 1.5LM-MP10 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	43	1.5	7	0.066	14	-0.057	15	0.033
190	1.2DL + 1.5LM-MP10 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	43	1.5	8	0.066	14	-0.066	15	
191	1.2DL + 1.5LM-MP10 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	43	1.5	9	0.066	14	-0.057	15	-0.033
192	1.2DL + 1.5LM-MP10 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	43	1.5	10	0.066	14	-0.033	15	-0.057
193	1.2DL + 1.5LM-MP10 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	43	1.5	11	0.066	14		15	-0.066
194	1.2DL + 1.5LM-MP10 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	43	1.5	12	0.066	14	0.033	15	-0.057
195	1.2DL + 1.5LM-MP10 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	43	1.5	13	0.066	14	0.057	15	-0.033
196	1.2DL + 1.5LM-MP11 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	44	1.5	2	0.066	14	0.066	15	
197	1.2DL + 1.5LM-MP11 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	44	1.5	3	0.066	14	0.057	15	0.033
198	1.2DL + 1.5LM-MP11 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	44	1.5	4	0.066	14	0.033	15	0.057
199	1.2DL + 1.5LM-MP11 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	44	1.5	5	0.066	14		15	0.066
200	1.2DL + 1.5LM-MP11 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	44	1.5	6	0.066	14	-0.033	15	0.057
201	1.2DL + 1.5LM-MP11 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	44	1.5	7	0.066	14	-0.057	15	0.033
202	1.2DL + 1.5LM-MP11 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	44	1.5	8	0.066	14	-0.066	15	
203	1.2DL + 1.5LM-MP11 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	44	1.5	9	0.066	14	-0.057	15	-0.033
204	1.2DL + 1.5LM-MP11 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	44	1.5	10	0.066	14	-0.033	15	-0.057
205	1.2DL + 1.5LM-MP11 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	44	1.5	11	0.066	14		15	-0.066
206	1.2DL + 1.5LM-MP11 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	44	1.5	12	0.066	14	0.033	15	-0.057
207	1.2DL + 1.5LM-MP11 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	44	1.5	13	0.066	14	0.057	15	-0.033
208	1.2DL + 1.5LM-MP12 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	45	1.5	2	0.066	14	0.066	15	
209	1.2DL + 1.5LM-MP12 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	45	1.5	3	0.066	14	0.057	15	0.033
210	1.2DL + 1.5LM-MP12 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	45	1.5	4	0.066	14	0.033	15	0.057
211	1.2DL + 1.5LM-MP12 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	45	1.5	5	0.066	14		15	0.066
212	1.2DL + 1.5LM-MP12 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	45	1.5	6	0.066	14	-0.033	15	0.057
213	1.2DL + 1.5LM-MP12 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	45	1.5	7	0.066	14	-0.057	15	0.033
214	1.2DL + 1.5LM-MP12 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	45	1.5	8	0.066	14	-0.066	15	
215	1.2DL + 1.5LM-MP12 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	45	1.5	9	0.066	14	-0.057	15	-0.033
216	1.2DL + 1.5LM-MP12 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	45	1.5	10	0.066	14	-0.033	15	-0.057
217	1.2DL + 1.5LM-MP12 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	45	1.5	11	0.066	14		15	-0.066
218	1.2DL + 1.5LM-MP12 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	45	1.5	12	0.066	14	0.033	15	-0.057

Member Point Loads (BLC 1 : Self Weight)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	Y	-62.85	6
2	MP2	Y	-62.85	90
3	MP4	Y	-63.4	6
4	MP4	Y	-63.4	90
5	MP3	Y	-33.1	54
6	MP3	Y	-33.1	82
7	MP3	Y	-40.8	12
8	MP3	Y	-40.8	42
9	MP4	Y	-26.45	18
10	MP4	Y	-26.45	45
11	MP4	Y	-35.5	18

Member Point Loads (BLC 1 : Self Weight) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
12	MP4	Y	-35.5	36
13	MP2	Y	-36	18
14	MP2	Y	-36	33
15	R1	Y	-9.45	30
16	R1	Y	-9.45	30
17	MP2	Y	-29.7	18
18	MP2	Y	-29.7	36
19	MP6	Y	-54.3	6
20	MP6	Y	-54.3	85
21	MP8	Y	-51.9	6
22	MP8	Y	-51.9	77
23	MP7	Y	-33.1	54
24	MP7	Y	-33.1	82
25	MP7	Y	-40.8	12
26	MP7	Y	-40.8	42
27	MP8	Y	-26.45	18
28	MP8	Y	-26.45	45
29	MP8	Y	-35.5	18
30	MP8	Y	-35.5	36
31	MP6	Y	-36	18
32	MP6	Y	-36	33
33	R2	Y	-9.45	30
34	R2	Y	-9.45	30
35	MP6	Y	-29.7	18
36	MP6	Y	-29.7	36
37	MP10	Y	-54.3	6
38	MP10	Y	-54.3	85
39	MP12	Y	-51.9	6
40	MP12	Y	-51.9	77
41	MP11	Y	-33.1	54
42	MP11	Y	-33.1	82
43	MP11	Y	-40.8	12
44	MP11	Y	-40.8	42
45	MP12	Y	-26.45	18
46	MP12	Y	-26.45	45
47	MP12	Y	-35.5	18
48	MP12	Y	-35.5	36
49	MP10	Y	-36	18
50	MP10	Y	-36	33
51	R3	Y	-9.45	30
52	R3	Y	-9.45	30
53	MP10	Y	-29.7	18
54	MP10	Y	-29.7	36

Member Point Loads (BLC 2 : Wind Load AZI 0)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	0	6
2	MP2	Z	-282.1	6
3	MP2	X	0	90
4	MP2	Z	-282.1	90
5	MP4	X	0	6
6	MP4	Z	-331.6	6
7	MP4	X	0	90
8	MP4	Z	-331.6	90
9	MP3	X	0	54
10	MP3	Z	-70.93	54
11	MP3	X	0	82
12	MP3	Z	-70.93	82
13	MP3	X	0	12
14	MP3	Z	-70.38	12
15	MP3	X	0	42
16	MP3	Z	-70.38	42
17	MP4	X	0	18
18	MP4	Z	-52.61	18
19	MP4	X	0	45
20	MP4	Z	-52.61	45
21	MP4	X	0	18
22	MP4	Z	-37.9	18
23	MP4	X	0	36
24	MP4	Z	-37.9	36
25	MP2	X	0	18
26	MP2	Z	-31.57	18
27	MP2	X	0	33
28	MP2	Z	-31.57	33
29	R1	X	0	30
30	R1	Z	-17.66	30
31	R1	X	0	30
32	R1	Z	-17.66	30
33	MP2	X	0	18
34	MP2	Z	-39.08	18
35	MP2	X	0	36
36	MP2	Z	-39.08	36
37	MP6	X	0	6
38	MP6	Z	-120.17	6
39	MP6	X	0	85
40	MP6	Z	-120.17	85
41	MP8	X	0	6
42	MP8	Z	-159.59	6
43	MP8	X	0	77
44	MP8	Z	-159.59	77
45	MP7	X	0	54
46	MP7	Z	-41.7	54

Member Point Loads (BLC 2 : Wind Load AZI 0) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
47	MP7	X	0	82
48	MP7	Z	-41.7	82
49	MP7	X	0	12
50	MP7	Z	-42.54	12
51	MP7	X	0	42
52	MP7	Z	-42.54	42
53	MP8	X	0	18
54	MP8	Z	-37.25	18
55	MP8	X	0	45
56	MP8	Z	-37.25	45
57	MP8	X	0	18
58	MP8	Z	-29.82	18
59	MP8	X	0	36
60	MP8	Z	-29.82	36
61	MP6	X	0	18
62	MP6	Z	-27.44	18
63	MP6	X	0	33
64	MP6	Z	-27.44	33
65	R2	X	0	30
66	R2	Z	-17.66	30
67	R2	X	0	30
68	R2	Z	-17.66	30
69	MP6	X	0	18
70	MP6	Z	-27.84	18
71	MP6	X	0	36
72	MP6	Z	-27.84	36
73	MP10	X	0	6
74	MP10	Z	-120.17	6
75	MP10	X	0	85
76	MP10	Z	-120.17	85
77	MP12	X	0	6
78	MP12	Z	-159.59	6
79	MP12	X	0	77
80	MP12	Z	-159.59	77
81	MP11	X	0	54
82	MP11	Z	-41.7	54
83	MP11	X	0	82
84	MP11	Z	-41.7	82
85	MP11	X	0	12
86	MP11	Z	-42.54	12
87	MP11	X	0	42
88	MP11	Z	-42.54	42
89	MP12	X	0	18
90	MP12	Z	-37.25	18
91	MP12	X	0	45
92	MP12	Z	-37.25	45

Member Point Loads (BLC 2 : Wind Load AZI 0) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
93	MP12	X	0	18
94	MP12	Z	-29.82	18
95	MP12	X	0	36
96	MP12	Z	-29.82	36
97	MP10	X	0	18
98	MP10	Z	-27.44	18
99	MP10	X	0	33
100	MP10	Z	-27.44	33
101	R3	X	0	30
102	R3	Z	-17.66	30
103	R3	X	0	30
104	R3	Z	-17.66	30
105	MP10	X	0	18
106	MP10	Z	-27.84	18
107	MP10	X	0	36
108	MP10	Z	-27.84	36

Member Point Loads (BLC 3 : Wind Load AZI 30)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	-117.97	6
2	MP2	Z	-204.33	6
3	MP2	X	-117.97	90
4	MP2	Z	-204.33	90
5	MP4	X	-143.83	6
6	MP4	Z	-249.12	6
7	MP4	X	-143.83	90
8	MP4	Z	-249.12	90
9	MP3	X	-30.59	54
10	MP3	Z	-52.99	54
11	MP3	X	-30.59	82
12	MP3	Z	-52.99	82
13	MP3	X	-30.55	12
14	MP3	Z	-52.91	12
15	MP3	X	-30.55	42
16	MP3	Z	-52.91	42
17	MP4	X	-23.75	18
18	MP4	Z	-41.13	18
19	MP4	X	-23.75	45
20	MP4	Z	-41.13	45
21	MP4	X	-17.6	18
22	MP4	Z	-30.49	18
23	MP4	X	-17.6	36
24	MP4	Z	-30.49	36
25	MP2	X	-15.1	18
26	MP2	Z	-26.15	18
27	MP2	X	-15.1	33

Member Point Loads (BLC 3 : Wind Load AZI 30) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
28	MP2	Z	-26.15	33
29	R1	X	-8.83	30
30	R1	Z	-15.29	30
31	R1	X	-8.83	30
32	R1	Z	-15.29	30
33	MP2	X	-17.67	18
34	MP2	Z	-30.6	18
35	MP2	X	-17.67	36
36	MP2	Z	-30.6	36
37	MP6	X	-98.85	6
38	MP6	Z	-171.21	6
39	MP6	X	-98.85	85
40	MP6	Z	-171.21	85
41	MP8	X	-108.51	6
42	MP8	Z	-187.95	6
43	MP8	X	-108.51	77
44	MP8	Z	-187.95	77
45	MP7	X	-30.59	54
46	MP7	Z	-52.99	54
47	MP7	X	-30.59	82
48	MP7	Z	-52.99	82
49	MP7	X	-30.55	12
50	MP7	Z	-52.91	12
51	MP7	X	-30.55	42
52	MP7	Z	-52.91	42
53	MP8	X	-23.75	18
54	MP8	Z	-41.13	18
55	MP8	X	-23.75	45
56	MP8	Z	-41.13	45
57	MP8	X	-17.6	18
58	MP8	Z	-30.49	18
59	MP8	X	-17.6	36
60	MP8	Z	-30.49	36
61	MP6	X	-15.1	18
62	MP6	Z	-26.15	18
63	MP6	X	-15.1	33
64	MP6	Z	-26.15	33
65	R2	X	-8.83	30
66	R2	Z	-15.29	30
67	R2	X	-8.83	30
68	R2	Z	-15.29	30
69	MP6	X	-17.67	18
70	MP6	Z	-30.6	18
71	MP6	X	-17.67	36
72	MP6	Z	-30.6	36
73	MP10	X	-40.7	6

Member Point Loads (BLC 3 : Wind Load AZI 30) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
74	MP10	Z	-70.5	6
75	MP10	X	-40.7	85
76	MP10	Z	-70.5	85
77	MP12	X	-65.44	6
78	MP12	Z	-113.34	6
79	MP12	X	-65.44	77
80	MP12	Z	-113.34	77
81	MP11	X	-15.98	54
82	MP11	Z	-27.68	54
83	MP11	X	-15.98	82
84	MP11	Z	-27.68	82
85	MP11	X	-16.63	12
86	MP11	Z	-28.8	12
87	MP11	X	-16.63	42
88	MP11	Z	-28.8	42
89	MP12	X	-16.07	18
90	MP12	Z	-27.83	18
91	MP12	X	-16.07	45
92	MP12	Z	-27.83	45
93	MP12	X	-13.56	18
94	MP12	Z	-23.49	18
95	MP12	X	-13.56	36
96	MP12	Z	-23.49	36
97	MP10	X	-13.03	18
98	MP10	Z	-22.58	18
99	MP10	X	-13.03	33
100	MP10	Z	-22.58	33
101	R3	X	-8.83	30
102	R3	Z	-15.29	30
103	R3	X	-8.83	30
104	R3	Z	-15.29	30
105	MP10	X	-12.04	18
106	MP10	Z	-20.86	18
107	MP10	X	-12.04	36
108	MP10	Z	-20.86	36

Member Point Loads (BLC 4 : Wind Load AZI 60)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	-124.37	6
2	MP2	Z	-71.81	6
3	MP2	X	-124.37	90
4	MP2	Z	-71.81	90
5	MP4	X	-173.01	6
6	MP4	Z	-99.89	6
7	MP4	X	-173.01	90
8	MP4	Z	-99.89	90

Member Point Loads (BLC 4 : Wind Load AZI 60) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
9	MP3	X	-36.12	54
10	MP3	Z	-20.85	54
11	MP3	X	-36.12	82
12	MP3	Z	-20.85	82
13	MP3	X	-36.84	12
14	MP3	Z	-21.27	12
15	MP3	X	-36.84	42
16	MP3	Z	-21.27	42
17	MP4	X	-32.26	18
18	MP4	Z	-18.63	18
19	MP4	X	-32.26	45
20	MP4	Z	-18.63	45
21	MP4	X	-25.82	18
22	MP4	Z	-14.91	18
23	MP4	X	-25.82	36
24	MP4	Z	-14.91	36
25	MP2	X	-23.77	18
26	MP2	Z	-13.72	18
27	MP2	X	-23.77	33
28	MP2	Z	-13.72	33
29	R1	X	-15.29	30
30	R1	Z	-8.83	30
31	R1	X	-15.29	30
32	R1	Z	-8.83	30
33	MP2	X	-24.11	18
34	MP2	Z	-13.92	18
35	MP2	X	-24.11	36
36	MP2	Z	-13.92	36
37	MP6	X	-204.79	6
38	MP6	Z	-118.23	6
39	MP6	X	-204.79	85
40	MP6	Z	-118.23	85
41	MP8	X	-212.82	6
42	MP8	Z	-122.87	6
43	MP8	X	-212.82	77
44	MP8	Z	-122.87	77
45	MP7	X	-61.43	54
46	MP7	Z	-35.46	54
47	MP7	X	-61.43	82
48	MP7	Z	-35.46	82
49	MP7	X	-60.95	12
50	MP7	Z	-35.19	12
51	MP7	X	-60.95	42
52	MP7	Z	-35.19	42
53	MP8	X	-45.56	18
54	MP8	Z	-26.31	18

Member Point Loads (BLC 4 : Wind Load AZI 60) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
55	MP8	X	-45.56	45
56	MP8	Z	-26.31	45
57	MP8	X	-32.82	18
58	MP8	Z	-18.95	18
59	MP8	X	-32.82	36
60	MP8	Z	-18.95	36
61	MP6	X	-27.34	18
62	MP6	Z	-15.79	18
63	MP6	X	-27.34	33
64	MP6	Z	-15.79	33
65	R2	X	-15.29	30
66	R2	Z	-8.83	30
67	R2	X	-15.29	30
68	R2	Z	-8.83	30
69	MP6	X	-33.84	18
70	MP6	Z	-19.54	18
71	MP6	X	-33.84	36
72	MP6	Z	-19.54	36
73	MP10	X	-104.07	6
74	MP10	Z	-60.08	6
75	MP10	X	-104.07	85
76	MP10	Z	-60.08	85
77	MP12	X	-138.21	6
78	MP12	Z	-79.8	6
79	MP12	X	-138.21	77
80	MP12	Z	-79.8	77
81	MP11	X	-36.12	54
82	MP11	Z	-20.85	54
83	MP11	X	-36.12	82
84	MP11	Z	-20.85	82
85	MP11	X	-36.84	12
86	MP11	Z	-21.27	12
87	MP11	X	-36.84	42
88	MP11	Z	-21.27	42
89	MP12	X	-32.26	18
90	MP12	Z	-18.63	18
91	MP12	X	-32.26	45
92	MP12	Z	-18.63	45
93	MP12	X	-25.82	18
94	MP12	Z	-14.91	18
95	MP12	X	-25.82	36
96	MP12	Z	-14.91	36
97	MP10	X	-23.77	18
98	MP10	Z	-13.72	18
99	MP10	X	-23.77	33
100	MP10	Z	-13.72	33

Member Point Loads (BLC 4 : Wind Load AZI 60) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
101	R3	X	-15.29	30
102	R3	Z	-8.83	30
103	R3	X	-15.29	30
104	R3	Z	-8.83	30
105	MP10	X	-24.11	18
106	MP10	Z	-13.92	18
107	MP10	X	-24.11	36
108	MP10	Z	-13.92	36

Member Point Loads (BLC 5 : Wind Load AZI 90)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	-97.45	6
2	MP2	Z	0	6
3	MP2	X	-97.45	90
4	MP2	Z	0	90
5	MP4	X	-155.84	6
6	MP4	Z	0	6
7	MP4	X	-155.84	90
8	MP4	Z	0	90
9	MP3	X	-31.96	54
10	MP3	Z	0	54
11	MP3	X	-31.96	82
12	MP3	Z	0	82
13	MP3	X	-33.26	12
14	MP3	Z	0	12
15	MP3	X	-33.26	42
16	MP3	Z	0	42
17	MP4	X	-32.13	18
18	MP4	Z	0	18
19	MP4	X	-32.13	45
20	MP4	Z	0	45
21	MP4	X	-27.12	18
22	MP4	Z	0	18
23	MP4	X	-27.12	36
24	MP4	Z	0	36
25	MP2	X	-26.07	18
26	MP2	Z	0	18
27	MP2	X	-26.07	33
28	MP2	Z	0	33
29	R1	X	-17.66	30
30	R1	Z	0	30
31	R1	X	-17.66	30
32	R1	Z	0	30
33	MP2	X	-24.09	18
34	MP2	Z	0	18
35	MP2	X	-24.09	36

Member Point Loads (BLC 5 : Wind Load AZI 90) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
36	MP2	Z	0	36
37	MP6	X	-197.7	6
38	MP6	Z	0	6
39	MP6	X	-197.7	85
40	MP6	Z	0	85
41	MP8	X	-217.02	6
42	MP8	Z	0	6
43	MP8	X	-217.02	77
44	MP8	Z	0	77
45	MP7	X	-61.19	54
46	MP7	Z	0	54
47	MP7	X	-61.19	82
48	MP7	Z	0	82
49	MP7	X	-61.1	12
50	MP7	Z	0	12
51	MP7	X	-61.1	42
52	MP7	Z	0	42
53	MP8	X	-47.49	18
54	MP8	Z	0	18
55	MP8	X	-47.49	45
56	MP8	Z	0	45
57	MP8	X	-35.2	18
58	MP8	Z	0	18
59	MP8	X	-35.2	36
60	MP8	Z	0	36
61	MP6	X	-30.2	18
62	MP6	Z	0	18
63	MP6	X	-30.2	33
64	MP6	Z	0	33
65	R2	X	-17.66	30
66	R2	Z	0	30
67	R2	X	-17.66	30
68	R2	Z	0	30
69	MP6	X	-35.33	18
70	MP6	Z	0	18
71	MP6	X	-35.33	36
72	MP6	Z	0	36
73	MP10	X	-197.7	6
74	MP10	Z	0	6
75	MP10	X	-197.7	85
76	MP10	Z	0	85
77	MP12	X	-217.02	6
78	MP12	Z	0	6
79	MP12	X	-217.02	77
80	MP12	Z	0	77
81	MP11	X	-61.19	54

Member Point Loads (BLC 5 : Wind Load AZI 90) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
82	MP11	Z	0	54
83	MP11	X	-61.19	82
84	MP11	Z	0	82
85	MP11	X	-61.1	12
86	MP11	Z	0	12
87	MP11	X	-61.1	42
88	MP11	Z	0	42
89	MP12	X	-47.49	18
90	MP12	Z	0	18
91	MP12	X	-47.49	45
92	MP12	Z	0	45
93	MP12	X	-35.2	18
94	MP12	Z	0	18
95	MP12	X	-35.2	36
96	MP12	Z	0	36
97	MP10	X	-30.2	18
98	MP10	Z	0	18
99	MP10	X	-30.2	33
100	MP10	Z	0	33
101	R3	X	-17.66	30
102	R3	Z	0	30
103	R3	X	-17.66	30
104	R3	Z	0	30
105	MP10	X	-35.33	18
106	MP10	Z	0	18
107	MP10	X	-35.33	36
108	MP10	Z	0	36

Member Point Loads (BLC 6 : Wind Load AZI 120)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	-124.37	6
2	MP2	Z	71.81	6
3	MP2	X	-124.37	90
4	MP2	Z	71.81	90
5	MP4	X	-173.01	6
6	MP4	Z	99.89	6
7	MP4	X	-173.01	90
8	MP4	Z	99.89	90
9	MP3	X	-36.12	54
10	MP3	Z	20.85	54
11	MP3	X	-36.12	82
12	MP3	Z	20.85	82
13	MP3	X	-36.84	12
14	MP3	Z	21.27	12
15	MP3	X	-36.84	42
16	MP3	Z	21.27	42

Member Point Loads (BLC 6 : Wind Load AZI 120) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
17	MP4	X	-32.26	18
18	MP4	Z	18.63	18
19	MP4	X	-32.26	45
20	MP4	Z	18.63	45
21	MP4	X	-25.82	18
22	MP4	Z	14.91	18
23	MP4	X	-25.82	36
24	MP4	Z	14.91	36
25	MP2	X	-23.77	18
26	MP2	Z	13.72	18
27	MP2	X	-23.77	33
28	MP2	Z	13.72	33
29	R1	X	-15.29	30
30	R1	Z	8.83	30
31	R1	X	-15.29	30
32	R1	Z	8.83	30
33	MP2	X	-24.11	18
34	MP2	Z	13.92	18
35	MP2	X	-24.11	36
36	MP2	Z	13.92	36
37	MP6	X	-104.07	6
38	MP6	Z	60.08	6
39	MP6	X	-104.07	85
40	MP6	Z	60.08	85
41	MP8	X	-138.21	6
42	MP8	Z	79.8	6
43	MP8	X	-138.21	77
44	MP8	Z	79.8	77
45	MP7	X	-36.12	54
46	MP7	Z	20.85	54
47	MP7	X	-36.12	82
48	MP7	Z	20.85	82
49	MP7	X	-36.84	12
50	MP7	Z	21.27	12
51	MP7	X	-36.84	42
52	MP7	Z	21.27	42
53	MP8	X	-32.26	18
54	MP8	Z	18.63	18
55	MP8	X	-32.26	45
56	MP8	Z	18.63	45
57	MP8	X	-25.82	18
58	MP8	Z	14.91	18
59	MP8	X	-25.82	36
60	MP8	Z	14.91	36
61	MP6	X	-23.77	18
62	MP6	Z	13.72	18

Member Point Loads (BLC 6 : Wind Load AZI 120) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
63	MP6	X	-23.77	33
64	MP6	Z	13.72	33
65	R2	X	-15.29	30
66	R2	Z	8.83	30
67	R2	X	-15.29	30
68	R2	Z	8.83	30
69	MP6	X	-24.11	18
70	MP6	Z	13.92	18
71	MP6	X	-24.11	36
72	MP6	Z	13.92	36
73	MP10	X	-204.79	6
74	MP10	Z	118.23	6
75	MP10	X	-204.79	85
76	MP10	Z	118.23	85
77	MP12	X	-212.82	6
78	MP12	Z	122.87	6
79	MP12	X	-212.82	77
80	MP12	Z	122.87	77
81	MP11	X	-61.43	54
82	MP11	Z	35.46	54
83	MP11	X	-61.43	82
84	MP11	Z	35.46	82
85	MP11	X	-60.95	12
86	MP11	Z	35.19	12
87	MP11	X	-60.95	42
88	MP11	Z	35.19	42
89	MP12	X	-45.56	18
90	MP12	Z	26.31	18
91	MP12	X	-45.56	45
92	MP12	Z	26.31	45
93	MP12	X	-32.82	18
94	MP12	Z	18.95	18
95	MP12	X	-32.82	36
96	MP12	Z	18.95	36
97	MP10	X	-27.34	18
98	MP10	Z	15.79	18
99	MP10	X	-27.34	33
100	MP10	Z	15.79	33
101	R3	X	-15.29	30
102	R3	Z	8.83	30
103	R3	X	-15.29	30
104	R3	Z	8.83	30
105	MP10	X	-33.84	18
106	MP10	Z	19.54	18
107	MP10	X	-33.84	36
108	MP10	Z	19.54	36

Member Point Loads (BLC 6 : Wind Load AZI 120) (Continued)

Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]

Member Point Loads (BLC 7 : Wind Load AZI 150)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	-117.97	6
2	MP2	Z	204.33	6
3	MP2	X	-117.97	90
4	MP2	Z	204.33	90
5	MP4	X	-143.83	6
6	MP4	Z	249.12	6
7	MP4	X	-143.83	90
8	MP4	Z	249.12	90
9	MP3	X	-30.59	54
10	MP3	Z	52.99	54
11	MP3	X	-30.59	82
12	MP3	Z	52.99	82
13	MP3	X	-30.55	12
14	MP3	Z	52.91	12
15	MP3	X	-30.55	42
16	MP3	Z	52.91	42
17	MP4	X	-23.75	18
18	MP4	Z	41.13	18
19	MP4	X	-23.75	45
20	MP4	Z	41.13	45
21	MP4	X	-17.6	18
22	MP4	Z	30.49	18
23	MP4	X	-17.6	36
24	MP4	Z	30.49	36
25	MP2	X	-15.1	18
26	MP2	Z	26.15	18
27	MP2	X	-15.1	33
28	MP2	Z	26.15	33
29	R1	X	-8.83	30
30	R1	Z	15.29	30
31	R1	X	-8.83	30
32	R1	Z	15.29	30
33	MP2	X	-17.67	18
34	MP2	Z	30.6	18
35	MP2	X	-17.67	36
36	MP2	Z	30.6	36
37	MP6	X	-40.7	6
38	MP6	Z	70.5	6
39	MP6	X	-40.7	85
40	MP6	Z	70.5	85
41	MP8	X	-65.44	6
42	MP8	Z	113.34	6
43	MP8	X	-65.44	77
44	MP8	Z	113.34	77
45	MP7	X	-15.98	54
46	MP7	Z	27.68	54

Member Point Loads (BLC 7 : Wind Load AZI 150) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
47	MP7	X	-15.98	82
48	MP7	Z	27.68	82
49	MP7	X	-16.63	12
50	MP7	Z	28.8	12
51	MP7	X	-16.63	42
52	MP7	Z	28.8	42
53	MP8	X	-16.07	18
54	MP8	Z	27.83	18
55	MP8	X	-16.07	45
56	MP8	Z	27.83	45
57	MP8	X	-13.56	18
58	MP8	Z	23.49	18
59	MP8	X	-13.56	36
60	MP8	Z	23.49	36
61	MP6	X	-13.03	18
62	MP6	Z	22.58	18
63	MP6	X	-13.03	33
64	MP6	Z	22.58	33
65	R2	X	-8.83	30
66	R2	Z	15.29	30
67	R2	X	-8.83	30
68	R2	Z	15.29	30
69	MP6	X	-12.04	18
70	MP6	Z	20.86	18
71	MP6	X	-12.04	36
72	MP6	Z	20.86	36
73	MP10	X	-98.85	6
74	MP10	Z	171.21	6
75	MP10	X	-98.85	85
76	MP10	Z	171.21	85
77	MP12	X	-108.51	6
78	MP12	Z	187.95	6
79	MP12	X	-108.51	77
80	MP12	Z	187.95	77
81	MP11	X	-30.59	54
82	MP11	Z	52.99	54
83	MP11	X	-30.59	82
84	MP11	Z	52.99	82
85	MP11	X	-30.55	12
86	MP11	Z	52.91	12
87	MP11	X	-30.55	42
88	MP11	Z	52.91	42
89	MP12	X	-23.75	18
90	MP12	Z	41.13	18
91	MP12	X	-23.75	45
92	MP12	Z	41.13	45

Member Point Loads (BLC 7 : Wind Load AZI 150) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
93	MP12	X	-17.6	18
94	MP12	Z	30.49	18
95	MP12	X	-17.6	36
96	MP12	Z	30.49	36
97	MP10	X	-15.1	18
98	MP10	Z	26.15	18
99	MP10	X	-15.1	33
100	MP10	Z	26.15	33
101	R3	X	-8.83	30
102	R3	Z	15.29	30
103	R3	X	-8.83	30
104	R3	Z	15.29	30
105	MP10	X	-17.67	18
106	MP10	Z	30.6	18
107	MP10	X	-17.67	36
108	MP10	Z	30.6	36

Member Point Loads (BLC 8 : Wind Load AZI 180)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	0	6
2	MP2	Z	282.1	6
3	MP2	X	0	90
4	MP2	Z	282.1	90
5	MP4	X	0	6
6	MP4	Z	331.6	6
7	MP4	X	0	90
8	MP4	Z	331.6	90
9	MP3	X	0	54
10	MP3	Z	70.93	54
11	MP3	X	0	82
12	MP3	Z	70.93	82
13	MP3	X	0	12
14	MP3	Z	70.38	12
15	MP3	X	0	42
16	MP3	Z	70.38	42
17	MP4	X	0	18
18	MP4	Z	52.61	18
19	MP4	X	0	45
20	MP4	Z	52.61	45
21	MP4	X	0	18
22	MP4	Z	37.9	18
23	MP4	X	0	36
24	MP4	Z	37.9	36
25	MP2	X	0	18
26	MP2	Z	31.57	18
27	MP2	X	0	33

Member Point Loads (BLC 8 : Wind Load AZI 180) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
28	MP2	Z	31.57	33
29	R1	X	0	30
30	R1	Z	17.66	30
31	R1	X	0	30
32	R1	Z	17.66	30
33	MP2	X	0	18
34	MP2	Z	39.08	18
35	MP2	X	0	36
36	MP2	Z	39.08	36
37	MP6	X	0	6
38	MP6	Z	120.17	6
39	MP6	X	0	85
40	MP6	Z	120.17	85
41	MP8	X	0	6
42	MP8	Z	159.59	6
43	MP8	X	0	77
44	MP8	Z	159.59	77
45	MP7	X	0	54
46	MP7	Z	41.7	54
47	MP7	X	0	82
48	MP7	Z	41.7	82
49	MP7	X	0	12
50	MP7	Z	42.54	12
51	MP7	X	0	42
52	MP7	Z	42.54	42
53	MP8	X	0	18
54	MP8	Z	37.25	18
55	MP8	X	0	45
56	MP8	Z	37.25	45
57	MP8	X	0	18
58	MP8	Z	29.82	18
59	MP8	X	0	36
60	MP8	Z	29.82	36
61	MP6	X	0	18
62	MP6	Z	27.44	18
63	MP6	X	0	33
64	MP6	Z	27.44	33
65	R2	X	0	30
66	R2	Z	17.66	30
67	R2	X	0	30
68	R2	Z	17.66	30
69	MP6	X	0	18
70	MP6	Z	27.84	18
71	MP6	X	0	36
72	MP6	Z	27.84	36
73	MP10	X	0	6

Member Point Loads (BLC 8 : Wind Load AZI 180) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
74	MP10	Z	120.17	6
75	MP10	X	0	85
76	MP10	Z	120.17	85
77	MP12	X	0	6
78	MP12	Z	159.59	6
79	MP12	X	0	77
80	MP12	Z	159.59	77
81	MP11	X	0	54
82	MP11	Z	41.7	54
83	MP11	X	0	82
84	MP11	Z	41.7	82
85	MP11	X	0	12
86	MP11	Z	42.54	12
87	MP11	X	0	42
88	MP11	Z	42.54	42
89	MP12	X	0	18
90	MP12	Z	37.25	18
91	MP12	X	0	45
92	MP12	Z	37.25	45
93	MP12	X	0	18
94	MP12	Z	29.82	18
95	MP12	X	0	36
96	MP12	Z	29.82	36
97	MP10	X	0	18
98	MP10	Z	27.44	18
99	MP10	X	0	33
100	MP10	Z	27.44	33
101	R3	X	0	30
102	R3	Z	17.66	30
103	R3	X	0	30
104	R3	Z	17.66	30
105	MP10	X	0	18
106	MP10	Z	27.84	18
107	MP10	X	0	36
108	MP10	Z	27.84	36

Member Point Loads (BLC 9 : Wind Load AZI 210)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	117.97	6
2	MP2	Z	204.33	6
3	MP2	X	117.97	90
4	MP2	Z	204.33	90
5	MP4	X	143.83	6
6	MP4	Z	249.12	6
7	MP4	X	143.83	90
8	MP4	Z	249.12	90

Member Point Loads (BLC 9 : Wind Load AZI 210) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
9	MP3	X	30.59	54
10	MP3	Z	52.99	54
11	MP3	X	30.59	82
12	MP3	Z	52.99	82
13	MP3	X	30.55	12
14	MP3	Z	52.91	12
15	MP3	X	30.55	42
16	MP3	Z	52.91	42
17	MP4	X	23.75	18
18	MP4	Z	41.13	18
19	MP4	X	23.75	45
20	MP4	Z	41.13	45
21	MP4	X	17.6	18
22	MP4	Z	30.49	18
23	MP4	X	17.6	36
24	MP4	Z	30.49	36
25	MP2	X	15.1	18
26	MP2	Z	26.15	18
27	MP2	X	15.1	33
28	MP2	Z	26.15	33
29	R1	X	8.83	30
30	R1	Z	15.29	30
31	R1	X	8.83	30
32	R1	Z	15.29	30
33	MP2	X	17.67	18
34	MP2	Z	30.6	18
35	MP2	X	17.67	36
36	MP2	Z	30.6	36
37	MP6	X	98.85	6
38	MP6	Z	171.21	6
39	MP6	X	98.85	85
40	MP6	Z	171.21	85
41	MP8	X	108.51	6
42	MP8	Z	187.95	6
43	MP8	X	108.51	77
44	MP8	Z	187.95	77
45	MP7	X	30.59	54
46	MP7	Z	52.99	54
47	MP7	X	30.59	82
48	MP7	Z	52.99	82
49	MP7	X	30.55	12
50	MP7	Z	52.91	12
51	MP7	X	30.55	42
52	MP7	Z	52.91	42
53	MP8	X	23.75	18
54	MP8	Z	41.13	18

Member Point Loads (BLC 9 : Wind Load AZI 210) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
55	MP8	X	23.75	45
56	MP8	Z	41.13	45
57	MP8	X	17.6	18
58	MP8	Z	30.49	18
59	MP8	X	17.6	36
60	MP8	Z	30.49	36
61	MP6	X	15.1	18
62	MP6	Z	26.15	18
63	MP6	X	15.1	33
64	MP6	Z	26.15	33
65	R2	X	8.83	30
66	R2	Z	15.29	30
67	R2	X	8.83	30
68	R2	Z	15.29	30
69	MP6	X	17.67	18
70	MP6	Z	30.6	18
71	MP6	X	17.67	36
72	MP6	Z	30.6	36
73	MP10	X	40.7	6
74	MP10	Z	70.5	6
75	MP10	X	40.7	85
76	MP10	Z	70.5	85
77	MP12	X	65.44	6
78	MP12	Z	113.34	6
79	MP12	X	65.44	77
80	MP12	Z	113.34	77
81	MP11	X	15.98	54
82	MP11	Z	27.68	54
83	MP11	X	15.98	82
84	MP11	Z	27.68	82
85	MP11	X	16.63	12
86	MP11	Z	28.8	12
87	MP11	X	16.63	42
88	MP11	Z	28.8	42
89	MP12	X	16.07	18
90	MP12	Z	27.83	18
91	MP12	X	16.07	45
92	MP12	Z	27.83	45
93	MP12	X	13.56	18
94	MP12	Z	23.49	18
95	MP12	X	13.56	36
96	MP12	Z	23.49	36
97	MP10	X	13.03	18
98	MP10	Z	22.58	18
99	MP10	X	13.03	33
100	MP10	Z	22.58	33

Member Point Loads (BLC 9 : Wind Load AZI 210) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
101	R3	X	8.83	30
102	R3	Z	15.29	30
103	R3	X	8.83	30
104	R3	Z	15.29	30
105	MP10	X	12.04	18
106	MP10	Z	20.86	18
107	MP10	X	12.04	36
108	MP10	Z	20.86	36

Member Point Loads (BLC 10 : Wind Load AZI 240)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	124.37	6
2	MP2	Z	71.81	6
3	MP2	X	124.37	90
4	MP2	Z	71.81	90
5	MP4	X	173.01	6
6	MP4	Z	99.89	6
7	MP4	X	173.01	90
8	MP4	Z	99.89	90
9	MP3	X	36.12	54
10	MP3	Z	20.85	54
11	MP3	X	36.12	82
12	MP3	Z	20.85	82
13	MP3	X	36.84	12
14	MP3	Z	21.27	12
15	MP3	X	36.84	42
16	MP3	Z	21.27	42
17	MP4	X	32.26	18
18	MP4	Z	18.63	18
19	MP4	X	32.26	45
20	MP4	Z	18.63	45
21	MP4	X	25.82	18
22	MP4	Z	14.91	18
23	MP4	X	25.82	36
24	MP4	Z	14.91	36
25	MP2	X	23.77	18
26	MP2	Z	13.72	18
27	MP2	X	23.77	33
28	MP2	Z	13.72	33
29	R1	X	15.29	30
30	R1	Z	8.83	30
31	R1	X	15.29	30
32	R1	Z	8.83	30
33	MP2	X	24.11	18
34	MP2	Z	13.92	18
35	MP2	X	24.11	36

Member Point Loads (BLC 10 : Wind Load AZI 240) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
36	MP2	Z	13.92	36
37	MP6	X	204.79	6
38	MP6	Z	118.23	6
39	MP6	X	204.79	85
40	MP6	Z	118.23	85
41	MP8	X	212.82	6
42	MP8	Z	122.87	6
43	MP8	X	212.82	77
44	MP8	Z	122.87	77
45	MP7	X	61.43	54
46	MP7	Z	35.46	54
47	MP7	X	61.43	82
48	MP7	Z	35.46	82
49	MP7	X	60.95	12
50	MP7	Z	35.19	12
51	MP7	X	60.95	42
52	MP7	Z	35.19	42
53	MP8	X	45.56	18
54	MP8	Z	26.31	18
55	MP8	X	45.56	45
56	MP8	Z	26.31	45
57	MP8	X	32.82	18
58	MP8	Z	18.95	18
59	MP8	X	32.82	36
60	MP8	Z	18.95	36
61	MP6	X	27.34	18
62	MP6	Z	15.79	18
63	MP6	X	27.34	33
64	MP6	Z	15.79	33
65	R2	X	15.29	30
66	R2	Z	8.83	30
67	R2	X	15.29	30
68	R2	Z	8.83	30
69	MP6	X	33.84	18
70	MP6	Z	19.54	18
71	MP6	X	33.84	36
72	MP6	Z	19.54	36
73	MP10	X	104.07	6
74	MP10	Z	60.08	6
75	MP10	X	104.07	85
76	MP10	Z	60.08	85
77	MP12	X	138.21	6
78	MP12	Z	79.8	6
79	MP12	X	138.21	77
80	MP12	Z	79.8	77
81	MP11	X	36.12	54

Member Point Loads (BLC 10 : Wind Load AZI 240) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
82	MP11	Z	20.85	54
83	MP11	X	36.12	82
84	MP11	Z	20.85	82
85	MP11	X	36.84	12
86	MP11	Z	21.27	12
87	MP11	X	36.84	42
88	MP11	Z	21.27	42
89	MP12	X	32.26	18
90	MP12	Z	18.63	18
91	MP12	X	32.26	45
92	MP12	Z	18.63	45
93	MP12	X	25.82	18
94	MP12	Z	14.91	18
95	MP12	X	25.82	36
96	MP12	Z	14.91	36
97	MP10	X	23.77	18
98	MP10	Z	13.72	18
99	MP10	X	23.77	33
100	MP10	Z	13.72	33
101	R3	X	15.29	30
102	R3	Z	8.83	30
103	R3	X	15.29	30
104	R3	Z	8.83	30
105	MP10	X	24.11	18
106	MP10	Z	13.92	18
107	MP10	X	24.11	36
108	MP10	Z	13.92	36

Member Point Loads (BLC 11 : Wind Load AZI 270)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	97.45	6
2	MP2	Z	0	6
3	MP2	X	97.45	90
4	MP2	Z	0	90
5	MP4	X	155.84	6
6	MP4	Z	0	6
7	MP4	X	155.84	90
8	MP4	Z	0	90
9	MP3	X	31.96	54
10	MP3	Z	0	54
11	MP3	X	31.96	82
12	MP3	Z	0	82
13	MP3	X	33.26	12
14	MP3	Z	0	12
15	MP3	X	33.26	42
16	MP3	Z	0	42

Member Point Loads (BLC 11 : Wind Load AZI 270) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
17	MP4	X	32.13	18
18	MP4	Z	0	18
19	MP4	X	32.13	45
20	MP4	Z	0	45
21	MP4	X	27.12	18
22	MP4	Z	0	18
23	MP4	X	27.12	36
24	MP4	Z	0	36
25	MP2	X	26.07	18
26	MP2	Z	0	18
27	MP2	X	26.07	33
28	MP2	Z	0	33
29	R1	X	17.66	30
30	R1	Z	0	30
31	R1	X	17.66	30
32	R1	Z	0	30
33	MP2	X	24.09	18
34	MP2	Z	0	18
35	MP2	X	24.09	36
36	MP2	Z	0	36
37	MP6	X	197.7	6
38	MP6	Z	0	6
39	MP6	X	197.7	85
40	MP6	Z	0	85
41	MP8	X	217.02	6
42	MP8	Z	0	6
43	MP8	X	217.02	77
44	MP8	Z	0	77
45	MP7	X	61.19	54
46	MP7	Z	0	54
47	MP7	X	61.19	82
48	MP7	Z	0	82
49	MP7	X	61.1	12
50	MP7	Z	0	12
51	MP7	X	61.1	42
52	MP7	Z	0	42
53	MP8	X	47.49	18
54	MP8	Z	0	18
55	MP8	X	47.49	45
56	MP8	Z	0	45
57	MP8	X	35.2	18
58	MP8	Z	0	18
59	MP8	X	35.2	36
60	MP8	Z	0	36
61	MP6	X	30.2	18
62	MP6	Z	0	18

Member Point Loads (BLC 11 : Wind Load AZI 270) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
63	MP6	X	30.2	33
64	MP6	Z	0	33
65	R2	X	17.66	30
66	R2	Z	0	30
67	R2	X	17.66	30
68	R2	Z	0	30
69	MP6	X	35.33	18
70	MP6	Z	0	18
71	MP6	X	35.33	36
72	MP6	Z	0	36
73	MP10	X	197.7	6
74	MP10	Z	0	6
75	MP10	X	197.7	85
76	MP10	Z	0	85
77	MP12	X	217.02	6
78	MP12	Z	0	6
79	MP12	X	217.02	77
80	MP12	Z	0	77
81	MP11	X	61.19	54
82	MP11	Z	0	54
83	MP11	X	61.19	82
84	MP11	Z	0	82
85	MP11	X	61.1	12
86	MP11	Z	0	12
87	MP11	X	61.1	42
88	MP11	Z	0	42
89	MP12	X	47.49	18
90	MP12	Z	0	18
91	MP12	X	47.49	45
92	MP12	Z	0	45
93	MP12	X	35.2	18
94	MP12	Z	0	18
95	MP12	X	35.2	36
96	MP12	Z	0	36
97	MP10	X	30.2	18
98	MP10	Z	0	18
99	MP10	X	30.2	33
100	MP10	Z	0	33
101	R3	X	17.66	30
102	R3	Z	0	30
103	R3	X	17.66	30
104	R3	Z	0	30
105	MP10	X	35.33	18
106	MP10	Z	0	18
107	MP10	X	35.33	36
108	MP10	Z	0	36

Member Point Loads (BLC 11 : Wind Load AZI 270) (Continued)

Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]

Member Point Loads (BLC 12 : Wind Load AZI 300)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	124.37	6
2	MP2	Z	-71.81	6
3	MP2	X	124.37	90
4	MP2	Z	-71.81	90
5	MP4	X	173.01	6
6	MP4	Z	-99.89	6
7	MP4	X	173.01	90
8	MP4	Z	-99.89	90
9	MP3	X	36.12	54
10	MP3	Z	-20.85	54
11	MP3	X	36.12	82
12	MP3	Z	-20.85	82
13	MP3	X	36.84	12
14	MP3	Z	-21.27	12
15	MP3	X	36.84	42
16	MP3	Z	-21.27	42
17	MP4	X	32.26	18
18	MP4	Z	-18.63	18
19	MP4	X	32.26	45
20	MP4	Z	-18.63	45
21	MP4	X	25.82	18
22	MP4	Z	-14.91	18
23	MP4	X	25.82	36
24	MP4	Z	-14.91	36
25	MP2	X	23.77	18
26	MP2	Z	-13.72	18
27	MP2	X	23.77	33
28	MP2	Z	-13.72	33
29	R1	X	15.29	30
30	R1	Z	-8.83	30
31	R1	X	15.29	30
32	R1	Z	-8.83	30
33	MP2	X	24.11	18
34	MP2	Z	-13.92	18
35	MP2	X	24.11	36
36	MP2	Z	-13.92	36
37	MP6	X	104.07	6
38	MP6	Z	-60.08	6
39	MP6	X	104.07	85
40	MP6	Z	-60.08	85
41	MP8	X	138.21	6
42	MP8	Z	-79.8	6
43	MP8	X	138.21	77
44	MP8	Z	-79.8	77
45	MP7	X	36.12	54
46	MP7	Z	-20.85	54

Member Point Loads (BLC 12 : Wind Load AZI 300) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
47	MP7	X	36.12	82
48	MP7	Z	-20.85	82
49	MP7	X	36.84	12
50	MP7	Z	-21.27	12
51	MP7	X	36.84	42
52	MP7	Z	-21.27	42
53	MP8	X	32.26	18
54	MP8	Z	-18.63	18
55	MP8	X	32.26	45
56	MP8	Z	-18.63	45
57	MP8	X	25.82	18
58	MP8	Z	-14.91	18
59	MP8	X	25.82	36
60	MP8	Z	-14.91	36
61	MP6	X	23.77	18
62	MP6	Z	-13.72	18
63	MP6	X	23.77	33
64	MP6	Z	-13.72	33
65	R2	X	15.29	30
66	R2	Z	-8.83	30
67	R2	X	15.29	30
68	R2	Z	-8.83	30
69	MP6	X	24.11	18
70	MP6	Z	-13.92	18
71	MP6	X	24.11	36
72	MP6	Z	-13.92	36
73	MP10	X	204.79	6
74	MP10	Z	-118.23	6
75	MP10	X	204.79	85
76	MP10	Z	-118.23	85
77	MP12	X	212.82	6
78	MP12	Z	-122.87	6
79	MP12	X	212.82	77
80	MP12	Z	-122.87	77
81	MP11	X	61.43	54
82	MP11	Z	-35.46	54
83	MP11	X	61.43	82
84	MP11	Z	-35.46	82
85	MP11	X	60.95	12
86	MP11	Z	-35.19	12
87	MP11	X	60.95	42
88	MP11	Z	-35.19	42
89	MP12	X	45.56	18
90	MP12	Z	-26.31	18
91	MP12	X	45.56	45
92	MP12	Z	-26.31	45

Member Point Loads (BLC 12 : Wind Load AZI 300) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
93	MP12	X	32.82	18
94	MP12	Z	-18.95	18
95	MP12	X	32.82	36
96	MP12	Z	-18.95	36
97	MP10	X	27.34	18
98	MP10	Z	-15.79	18
99	MP10	X	27.34	33
100	MP10	Z	-15.79	33
101	R3	X	15.29	30
102	R3	Z	-8.83	30
103	R3	X	15.29	30
104	R3	Z	-8.83	30
105	MP10	X	33.84	18
106	MP10	Z	-19.54	18
107	MP10	X	33.84	36
108	MP10	Z	-19.54	36

Member Point Loads (BLC 13 : Wind Load AZI 330)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	117.97	6
2	MP2	Z	-204.33	6
3	MP2	X	117.97	90
4	MP2	Z	-204.33	90
5	MP4	X	143.83	6
6	MP4	Z	-249.12	6
7	MP4	X	143.83	90
8	MP4	Z	-249.12	90
9	MP3	X	30.59	54
10	MP3	Z	-52.99	54
11	MP3	X	30.59	82
12	MP3	Z	-52.99	82
13	MP3	X	30.55	12
14	MP3	Z	-52.91	12
15	MP3	X	30.55	42
16	MP3	Z	-52.91	42
17	MP4	X	23.75	18
18	MP4	Z	-41.13	18
19	MP4	X	23.75	45
20	MP4	Z	-41.13	45
21	MP4	X	17.6	18
22	MP4	Z	-30.49	18
23	MP4	X	17.6	36
24	MP4	Z	-30.49	36
25	MP2	X	15.1	18
26	MP2	Z	-26.15	18
27	MP2	X	15.1	33

Member Point Loads (BLC 13 : Wind Load AZI 330) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
28	MP2	Z	-26.15	33
29	R1	X	8.83	30
30	R1	Z	-15.29	30
31	R1	X	8.83	30
32	R1	Z	-15.29	30
33	MP2	X	17.67	18
34	MP2	Z	-30.6	18
35	MP2	X	17.67	36
36	MP2	Z	-30.6	36
37	MP6	X	40.7	6
38	MP6	Z	-70.5	6
39	MP6	X	40.7	85
40	MP6	Z	-70.5	85
41	MP8	X	65.44	6
42	MP8	Z	-113.34	6
43	MP8	X	65.44	77
44	MP8	Z	-113.34	77
45	MP7	X	15.98	54
46	MP7	Z	-27.68	54
47	MP7	X	15.98	82
48	MP7	Z	-27.68	82
49	MP7	X	16.63	12
50	MP7	Z	-28.8	12
51	MP7	X	16.63	42
52	MP7	Z	-28.8	42
53	MP8	X	16.07	18
54	MP8	Z	-27.83	18
55	MP8	X	16.07	45
56	MP8	Z	-27.83	45
57	MP8	X	13.56	18
58	MP8	Z	-23.49	18
59	MP8	X	13.56	36
60	MP8	Z	-23.49	36
61	MP6	X	13.03	18
62	MP6	Z	-22.58	18
63	MP6	X	13.03	33
64	MP6	Z	-22.58	33
65	R2	X	8.83	30
66	R2	Z	-15.29	30
67	R2	X	8.83	30
68	R2	Z	-15.29	30
69	MP6	X	12.04	18
70	MP6	Z	-20.86	18
71	MP6	X	12.04	36
72	MP6	Z	-20.86	36
73	MP10	X	98.85	6

Member Point Loads (BLC 13 : Wind Load AZI 330) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
74	MP10	Z	-171.21	6
75	MP10	X	98.85	85
76	MP10	Z	-171.21	85
77	MP12	X	108.51	6
78	MP12	Z	-187.95	6
79	MP12	X	108.51	77
80	MP12	Z	-187.95	77
81	MP11	X	30.59	54
82	MP11	Z	-52.99	54
83	MP11	X	30.59	82
84	MP11	Z	-52.99	82
85	MP11	X	30.55	12
86	MP11	Z	-52.91	12
87	MP11	X	30.55	42
88	MP11	Z	-52.91	42
89	MP12	X	23.75	18
90	MP12	Z	-41.13	18
91	MP12	X	23.75	45
92	MP12	Z	-41.13	45
93	MP12	X	17.6	18
94	MP12	Z	-30.49	18
95	MP12	X	17.6	36
96	MP12	Z	-30.49	36
97	MP10	X	15.1	18
98	MP10	Z	-26.15	18
99	MP10	X	15.1	33
100	MP10	Z	-26.15	33
101	R3	X	8.83	30
102	R3	Z	-15.29	30
103	R3	X	8.83	30
104	R3	Z	-15.29	30
105	MP10	X	17.67	18
106	MP10	Z	-30.6	18
107	MP10	X	17.67	36
108	MP10	Z	-30.6	36

Member Point Loads (BLC 16 : Ice Weight)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	Y	-172.946	6
2	MP2	Y	-172.946	90
3	MP4	Y	-195.504	6
4	MP4	Y	-195.504	90
5	MP3	Y	-50.228	54
6	MP3	Y	-50.228	82
7	MP3	Y	-57.746	12
8	MP3	Y	-57.746	42

Member Point Loads (BLC 16 : Ice Weight) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
9	MP4	Y	-42.245	18
10	MP4	Y	-42.245	45
11	MP4	Y	-37.185	18
12	MP4	Y	-37.185	36
13	MP2	Y	-35.442	18
14	MP2	Y	-35.442	33
15	R1	Y	-44.748	30
16	R1	Y	-44.748	30
17	MP2	Y	-35.65	18
18	MP2	Y	-35.65	36
19	MP6	Y	-144.163	6
20	MP6	Y	-144.163	85
21	MP8	Y	-149.473	6
22	MP8	Y	-149.473	77
23	MP7	Y	-50.228	54
24	MP7	Y	-50.228	82
25	MP7	Y	-57.746	12
26	MP7	Y	-57.746	42
27	MP8	Y	-42.245	18
28	MP8	Y	-42.245	45
29	MP8	Y	-37.185	18
30	MP8	Y	-37.185	36
31	MP6	Y	-35.442	18
32	MP6	Y	-35.442	33
33	R2	Y	-44.748	30
34	R2	Y	-44.748	30
35	MP6	Y	-35.65	18
36	MP6	Y	-35.65	36
37	MP10	Y	-144.163	6
38	MP10	Y	-144.163	85
39	MP12	Y	-149.473	6
40	MP12	Y	-149.473	77
41	MP11	Y	-50.228	54
42	MP11	Y	-50.228	82
43	MP11	Y	-57.746	12
44	MP11	Y	-57.746	42
45	MP12	Y	-42.245	18
46	MP12	Y	-42.245	45
47	MP12	Y	-37.185	18
48	MP12	Y	-37.185	36
49	MP10	Y	-35.442	18
50	MP10	Y	-35.442	33
51	R3	Y	-44.748	30
52	R3	Y	-44.748	30
53	MP10	Y	-35.65	18
54	MP10	Y	-35.65	36

Member Point Loads (BLC 16 : Ice Weight) (Continued)

Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]

Member Point Loads (BLC 17 : Ice Wind Load AZI 0)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	0	6
2	MP2	Z	-30.72	6
3	MP2	X	0	90
4	MP2	Z	-30.72	90
5	MP4	X	0	6
6	MP4	Z	-31.48	6
7	MP4	X	0	90
8	MP4	Z	-31.48	90
9	MP3	X	0	54
10	MP3	Z	-7.35	54
11	MP3	X	0	82
12	MP3	Z	-7.35	82
13	MP3	X	0	12
14	MP3	Z	-7.98	12
15	MP3	X	0	42
16	MP3	Z	-7.98	42
17	MP4	X	0	18
18	MP4	Z	-5.96	18
19	MP4	X	0	45
20	MP4	Z	-5.96	45
21	MP4	X	0	18
22	MP4	Z	-4.31	18
23	MP4	X	0	36
24	MP4	Z	-4.31	36
25	MP2	X	0	18
26	MP2	Z	-3.7	18
27	MP2	X	0	33
28	MP2	Z	-3.7	33
29	R1	X	0	30
30	R1	Z	-5.15	30
31	R1	X	0	30
32	R1	Z	-5.15	30
33	MP2	X	0	18
34	MP2	Z	-4.42	18
35	MP2	X	0	36
36	MP2	Z	-4.42	36
37	MP6	X	0	6
38	MP6	Z	-17.68	6
39	MP6	X	0	85
40	MP6	Z	-17.68	85
41	MP8	X	0	6
42	MP8	Z	-16.99	6
43	MP8	X	0	77
44	MP8	Z	-16.99	77
45	MP7	X	0	54
46	MP7	Z	-5.61	54

Member Point Loads (BLC 17 : Ice Wind Load AZI 0) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
47	MP7	X	0	82
48	MP7	Z	-5.61	82
49	MP7	X	0	12
50	MP7	Z	-6.31	12
51	MP7	X	0	42
52	MP7	Z	-6.31	42
53	MP8	X	0	18
54	MP8	Z	-5.19	18
55	MP8	X	0	45
56	MP8	Z	-5.19	45
57	MP8	X	0	18
58	MP8	Z	-3.91	18
59	MP8	X	0	36
60	MP8	Z	-3.91	36
61	MP6	X	0	18
62	MP6	Z	-3.49	18
63	MP6	X	0	33
64	MP6	Z	-3.49	33
65	R2	X	0	30
66	R2	Z	-5.15	30
67	R2	X	0	30
68	R2	Z	-5.15	30
69	MP6	X	0	18
70	MP6	Z	-3.83	18
71	MP6	X	0	36
72	MP6	Z	-3.83	36
73	MP10	X	0	6
74	MP10	Z	-17.68	6
75	MP10	X	0	85
76	MP10	Z	-17.68	85
77	MP12	X	0	6
78	MP12	Z	-16.99	6
79	MP12	X	0	77
80	MP12	Z	-16.99	77
81	MP11	X	0	54
82	MP11	Z	-5.61	54
83	MP11	X	0	82
84	MP11	Z	-5.61	82
85	MP11	X	0	12
86	MP11	Z	-6.31	12
87	MP11	X	0	42
88	MP11	Z	-6.31	42
89	MP12	X	0	18
90	MP12	Z	-5.19	18
91	MP12	X	0	45
92	MP12	Z	-5.19	45

Member Point Loads (BLC 17 : Ice Wind Load AZI 0) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
93	MP12	X	0	18
94	MP12	Z	-3.91	18
95	MP12	X	0	36
96	MP12	Z	-3.91	36
97	MP10	X	0	18
98	MP10	Z	-3.49	18
99	MP10	X	0	33
100	MP10	Z	-3.49	33
101	R3	X	0	30
102	R3	Z	-5.15	30
103	R3	X	0	30
104	R3	Z	-5.15	30
105	MP10	X	0	18
106	MP10	Z	-3.83	18
107	MP10	X	0	36
108	MP10	Z	-3.83	36

Member Point Loads (BLC 18 : Ice Wind Load AZI 30)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	-13.91	6
2	MP2	Z	-24.1	6
3	MP2	X	-13.91	90
4	MP2	Z	-24.1	90
5	MP4	X	-14.45	6
6	MP4	Z	-25.03	6
7	MP4	X	-14.45	90
8	MP4	Z	-25.03	90
9	MP3	X	-3.39	54
10	MP3	Z	-5.86	54
11	MP3	X	-3.39	82
12	MP3	Z	-5.86	82
13	MP3	X	-3.71	12
14	MP3	Z	-6.43	12
15	MP3	X	-3.71	42
16	MP3	Z	-6.43	42
17	MP4	X	-2.85	18
18	MP4	Z	-4.94	18
19	MP4	X	-2.85	45
20	MP4	Z	-4.94	45
21	MP4	X	-2.09	18
22	MP4	Z	-3.62	18
23	MP4	X	-2.09	36
24	MP4	Z	-3.62	36
25	MP2	X	-1.82	18
26	MP2	Z	-3.15	18
27	MP2	X	-1.82	33

Member Point Loads (BLC 18 : Ice Wind Load AZI 30) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
28	MP2	Z	-3.15	33
29	R1	X	-2.57	30
30	R1	Z	-4.46	30
31	R1	X	-2.57	30
32	R1	Z	-4.46	30
33	MP2	X	-2.11	18
34	MP2	Z	-3.66	18
35	MP2	X	-2.11	36
36	MP2	Z	-3.66	36
37	MP6	X	-11.15	6
38	MP6	Z	-19.31	6
39	MP6	X	-11.15	85
40	MP6	Z	-19.31	85
41	MP8	X	-10.37	6
42	MP8	Z	-17.96	6
43	MP8	X	-10.37	77
44	MP8	Z	-17.96	77
45	MP7	X	-3.39	54
46	MP7	Z	-5.86	54
47	MP7	X	-3.39	82
48	MP7	Z	-5.86	82
49	MP7	X	-3.71	12
50	MP7	Z	-6.43	12
51	MP7	X	-3.71	42
52	MP7	Z	-6.43	42
53	MP8	X	-2.85	18
54	MP8	Z	-4.94	18
55	MP8	X	-2.85	45
56	MP8	Z	-4.94	45
57	MP8	X	-2.09	18
58	MP8	Z	-3.62	18
59	MP8	X	-2.09	36
60	MP8	Z	-3.62	36
61	MP6	X	-1.82	18
62	MP6	Z	-3.15	18
63	MP6	X	-1.82	33
64	MP6	Z	-3.15	33
65	R2	X	-2.57	30
66	R2	Z	-4.46	30
67	R2	X	-2.57	30
68	R2	Z	-4.46	30
69	MP6	X	-2.11	18
70	MP6	Z	-3.66	18
71	MP6	X	-2.11	36
72	MP6	Z	-3.66	36
73	MP10	X	-7.69	6

Member Point Loads (BLC 18 : Ice Wind Load AZI 30) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
74	MP10	Z	-13.31	6
75	MP10	X	-7.69	85
76	MP10	Z	-13.31	85
77	MP12	X	-7.56	6
78	MP12	Z	-13.09	6
79	MP12	X	-7.56	77
80	MP12	Z	-13.09	77
81	MP11	X	-2.51	54
82	MP11	Z	-4.35	54
83	MP11	X	-2.51	82
84	MP11	Z	-4.35	82
85	MP11	X	-2.88	12
86	MP11	Z	-4.99	12
87	MP11	X	-2.88	42
88	MP11	Z	-4.99	42
89	MP12	X	-2.47	18
90	MP12	Z	-4.28	18
91	MP12	X	-2.47	45
92	MP12	Z	-4.28	45
93	MP12	X	-1.89	18
94	MP12	Z	-3.27	18
95	MP12	X	-1.89	36
96	MP12	Z	-3.27	36
97	MP10	X	-1.71	18
98	MP10	Z	-2.97	18
99	MP10	X	-1.71	33
100	MP10	Z	-2.97	33
101	R3	X	-2.57	30
102	R3	Z	-4.46	30
103	R3	X	-2.57	30
104	R3	Z	-4.46	30
105	MP10	X	-1.82	18
106	MP10	Z	-3.15	18
107	MP10	X	-1.82	36
108	MP10	Z	-3.15	36

Member Point Loads (BLC 19 : Ice Wind Load AZI 60)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	-19.09	6
2	MP2	Z	-11.02	6
3	MP2	X	-19.09	90
4	MP2	Z	-11.02	90
5	MP4	X	-20.56	6
6	MP4	Z	-11.87	6
7	MP4	X	-20.56	90
8	MP4	Z	-11.87	90

Member Point Loads (BLC 19 : Ice Wind Load AZI 60) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
9	MP3	X	-4.86	54
10	MP3	Z	-2.8	54
11	MP3	X	-4.86	82
12	MP3	Z	-2.8	82
13	MP3	X	-5.47	12
14	MP3	Z	-3.16	12
15	MP3	X	-5.47	42
16	MP3	Z	-3.16	42
17	MP4	X	-4.5	18
18	MP4	Z	-2.6	18
19	MP4	X	-4.5	45
20	MP4	Z	-2.6	45
21	MP4	X	-3.38	18
22	MP4	Z	-1.95	18
23	MP4	X	-3.38	36
24	MP4	Z	-1.95	36
25	MP2	X	-3.03	18
26	MP2	Z	-1.75	18
27	MP2	X	-3.03	33
28	MP2	Z	-1.75	33
29	R1	X	-4.46	30
30	R1	Z	-2.57	30
31	R1	X	-4.46	30
32	R1	Z	-2.57	30
33	MP2	X	-3.32	18
34	MP2	Z	-1.92	18
35	MP2	X	-3.32	36
36	MP2	Z	-1.92	36
37	MP6	X	-21.3	6
38	MP6	Z	-12.3	6
39	MP6	X	-21.3	85
40	MP6	Z	-12.3	85
41	MP8	X	-19.59	6
42	MP8	Z	-11.31	6
43	MP8	X	-19.59	77
44	MP8	Z	-11.31	77
45	MP7	X	-6.37	54
46	MP7	Z	-3.68	54
47	MP7	X	-6.37	82
48	MP7	Z	-3.68	82
49	MP7	X	-6.91	12
50	MP7	Z	-3.99	12
51	MP7	X	-6.91	42
52	MP7	Z	-3.99	42
53	MP8	X	-5.16	18
54	MP8	Z	-2.98	18

Member Point Loads (BLC 19 : Ice Wind Load AZI 60) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
55	MP8	X	-5.16	45
56	MP8	Z	-2.98	45
57	MP8	X	-3.73	18
58	MP8	Z	-2.15	18
59	MP8	X	-3.73	36
60	MP8	Z	-2.15	36
61	MP6	X	-3.21	18
62	MP6	Z	-1.85	18
63	MP6	X	-3.21	33
64	MP6	Z	-1.85	33
65	R2	X	-4.46	30
66	R2	Z	-2.57	30
67	R2	X	-4.46	30
68	R2	Z	-2.57	30
69	MP6	X	-3.83	18
70	MP6	Z	-2.21	18
71	MP6	X	-3.83	36
72	MP6	Z	-2.21	36
73	MP10	X	-15.31	6
74	MP10	Z	-8.84	6
75	MP10	X	-15.31	85
76	MP10	Z	-8.84	85
77	MP12	X	-14.71	6
78	MP12	Z	-8.49	6
79	MP12	X	-14.71	77
80	MP12	Z	-8.49	77
81	MP11	X	-4.86	54
82	MP11	Z	-2.8	54
83	MP11	X	-4.86	82
84	MP11	Z	-2.8	82
85	MP11	X	-5.47	12
86	MP11	Z	-3.16	12
87	MP11	X	-5.47	42
88	MP11	Z	-3.16	42
89	MP12	X	-4.5	18
90	MP12	Z	-2.6	18
91	MP12	X	-4.5	45
92	MP12	Z	-2.6	45
93	MP12	X	-3.38	18
94	MP12	Z	-1.95	18
95	MP12	X	-3.38	36
96	MP12	Z	-1.95	36
97	MP10	X	-3.03	18
98	MP10	Z	-1.75	18
99	MP10	X	-3.03	33
100	MP10	Z	-1.75	33

Member Point Loads (BLC 19 : Ice Wind Load AZI 60) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
101	R3	X	-4.46	30
102	R3	Z	-2.57	30
103	R3	X	-4.46	30
104	R3	Z	-2.57	30
105	MP10	X	-3.32	18
106	MP10	Z	-1.92	18
107	MP10	X	-3.32	36
108	MP10	Z	-1.92	36

Member Point Loads (BLC 20 : Ice Wind Load AZI 90)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	-19.16	6
2	MP2	Z	0	6
3	MP2	X	-19.16	90
4	MP2	Z	0	90
5	MP4	X	-21.17	6
6	MP4	Z	0	6
7	MP4	X	-21.17	90
8	MP4	Z	0	90
9	MP3	X	-5.02	54
10	MP3	Z	0	54
11	MP3	X	-5.02	82
12	MP3	Z	0	82
13	MP3	X	-5.76	12
14	MP3	Z	0	12
15	MP3	X	-5.76	42
16	MP3	Z	0	42
17	MP4	X	-4.94	18
18	MP4	Z	0	18
19	MP4	X	-4.94	45
20	MP4	Z	0	45
21	MP4	X	-3.77	18
22	MP4	Z	0	18
23	MP4	X	-3.77	36
24	MP4	Z	0	36
25	MP2	X	-3.42	18
26	MP2	Z	0	18
27	MP2	X	-3.42	33
28	MP2	Z	0	33
29	R1	X	-5.15	30
30	R1	Z	0	30
31	R1	X	-5.15	30
32	R1	Z	0	30
33	MP2	X	-3.63	18
34	MP2	Z	0	18
35	MP2	X	-3.63	36

Member Point Loads (BLC 20 : Ice Wind Load AZI 90) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
36	MP2	Z	0	36
37	MP6	X	-22.29	6
38	MP6	Z	0	6
39	MP6	X	-22.29	85
40	MP6	Z	0	85
41	MP8	X	-20.74	6
42	MP8	Z	0	6
43	MP8	X	-20.74	77
44	MP8	Z	0	77
45	MP7	X	-6.77	54
46	MP7	Z	0	54
47	MP7	X	-6.77	82
48	MP7	Z	0	82
49	MP7	X	-7.42	12
50	MP7	Z	0	12
51	MP7	X	-7.42	42
52	MP7	Z	0	42
53	MP8	X	-5.71	18
54	MP8	Z	0	18
55	MP8	X	-5.71	45
56	MP8	Z	0	45
57	MP8	X	-4.17	18
58	MP8	Z	0	18
59	MP8	X	-4.17	36
60	MP8	Z	0	36
61	MP6	X	-3.63	18
62	MP6	Z	0	18
63	MP6	X	-3.63	33
64	MP6	Z	0	33
65	R2	X	-5.15	30
66	R2	Z	0	30
67	R2	X	-5.15	30
68	R2	Z	0	30
69	MP6	X	-4.23	18
70	MP6	Z	0	18
71	MP6	X	-4.23	36
72	MP6	Z	0	36
73	MP10	X	-22.29	6
74	MP10	Z	0	6
75	MP10	X	-22.29	85
76	MP10	Z	0	85
77	MP12	X	-20.74	6
78	MP12	Z	0	6
79	MP12	X	-20.74	77
80	MP12	Z	0	77
81	MP11	X	-6.77	54

Member Point Loads (BLC 20 : Ice Wind Load AZI 90) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
82	MP11	Z	0	54
83	MP11	X	-6.77	82
84	MP11	Z	0	82
85	MP11	X	-7.42	12
86	MP11	Z	0	12
87	MP11	X	-7.42	42
88	MP11	Z	0	42
89	MP12	X	-5.71	18
90	MP12	Z	0	18
91	MP12	X	-5.71	45
92	MP12	Z	0	45
93	MP12	X	-4.17	18
94	MP12	Z	0	18
95	MP12	X	-4.17	36
96	MP12	Z	0	36
97	MP10	X	-3.63	18
98	MP10	Z	0	18
99	MP10	X	-3.63	33
100	MP10	Z	0	33
101	R3	X	-5.15	30
102	R3	Z	0	30
103	R3	X	-5.15	30
104	R3	Z	0	30
105	MP10	X	-4.23	18
106	MP10	Z	0	18
107	MP10	X	-4.23	36
108	MP10	Z	0	36

Member Point Loads (BLC 21 : Ice Wind Load AZI 120)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	-19.09	6
2	MP2	Z	11.02	6
3	MP2	X	-19.09	90
4	MP2	Z	11.02	90
5	MP4	X	-20.56	6
6	MP4	Z	11.87	6
7	MP4	X	-20.56	90
8	MP4	Z	11.87	90
9	MP3	X	-4.86	54
10	MP3	Z	2.8	54
11	MP3	X	-4.86	82
12	MP3	Z	2.8	82
13	MP3	X	-5.47	12
14	MP3	Z	3.16	12
15	MP3	X	-5.47	42
16	MP3	Z	3.16	42

Member Point Loads (BLC 21 : Ice Wind Load AZI 120) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
17	MP4	X	-4.5	18
18	MP4	Z	2.6	18
19	MP4	X	-4.5	45
20	MP4	Z	2.6	45
21	MP4	X	-3.38	18
22	MP4	Z	1.95	18
23	MP4	X	-3.38	36
24	MP4	Z	1.95	36
25	MP2	X	-3.03	18
26	MP2	Z	1.75	18
27	MP2	X	-3.03	33
28	MP2	Z	1.75	33
29	R1	X	-4.46	30
30	R1	Z	2.57	30
31	R1	X	-4.46	30
32	R1	Z	2.57	30
33	MP2	X	-3.32	18
34	MP2	Z	1.92	18
35	MP2	X	-3.32	36
36	MP2	Z	1.92	36
37	MP6	X	-15.31	6
38	MP6	Z	8.84	6
39	MP6	X	-15.31	85
40	MP6	Z	8.84	85
41	MP8	X	-14.71	6
42	MP8	Z	8.49	6
43	MP8	X	-14.71	77
44	MP8	Z	8.49	77
45	MP7	X	-4.86	54
46	MP7	Z	2.8	54
47	MP7	X	-4.86	82
48	MP7	Z	2.8	82
49	MP7	X	-5.47	12
50	MP7	Z	3.16	12
51	MP7	X	-5.47	42
52	MP7	Z	3.16	42
53	MP8	X	-4.5	18
54	MP8	Z	2.6	18
55	MP8	X	-4.5	45
56	MP8	Z	2.6	45
57	MP8	X	-3.38	18
58	MP8	Z	1.95	18
59	MP8	X	-3.38	36
60	MP8	Z	1.95	36
61	MP6	X	-3.03	18
62	MP6	Z	1.75	18

Member Point Loads (BLC 21 : Ice Wind Load AZI 120) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
63	MP6	X	-3.03	33
64	MP6	Z	1.75	33
65	R2	X	-4.46	30
66	R2	Z	2.57	30
67	R2	X	-4.46	30
68	R2	Z	2.57	30
69	MP6	X	-3.32	18
70	MP6	Z	1.92	18
71	MP6	X	-3.32	36
72	MP6	Z	1.92	36
73	MP10	X	-21.3	6
74	MP10	Z	12.3	6
75	MP10	X	-21.3	85
76	MP10	Z	12.3	85
77	MP12	X	-19.59	6
78	MP12	Z	11.31	6
79	MP12	X	-19.59	77
80	MP12	Z	11.31	77
81	MP11	X	-6.37	54
82	MP11	Z	3.68	54
83	MP11	X	-6.37	82
84	MP11	Z	3.68	82
85	MP11	X	-6.91	12
86	MP11	Z	3.99	12
87	MP11	X	-6.91	42
88	MP11	Z	3.99	42
89	MP12	X	-5.16	18
90	MP12	Z	2.98	18
91	MP12	X	-5.16	45
92	MP12	Z	2.98	45
93	MP12	X	-3.73	18
94	MP12	Z	2.15	18
95	MP12	X	-3.73	36
96	MP12	Z	2.15	36
97	MP10	X	-3.21	18
98	MP10	Z	1.85	18
99	MP10	X	-3.21	33
100	MP10	Z	1.85	33
101	R3	X	-4.46	30
102	R3	Z	2.57	30
103	R3	X	-4.46	30
104	R3	Z	2.57	30
105	MP10	X	-3.83	18
106	MP10	Z	2.21	18
107	MP10	X	-3.83	36
108	MP10	Z	2.21	36

Member Point Loads (BLC 21 : Ice Wind Load AZI 120) (Continued)

Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]

Member Point Loads (BLC 22 : Ice Wind Load AZI 150)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	-13.91	6
2	MP2	Z	24.1	6
3	MP2	X	-13.91	90
4	MP2	Z	24.1	90
5	MP4	X	-14.45	6
6	MP4	Z	25.03	6
7	MP4	X	-14.45	90
8	MP4	Z	25.03	90
9	MP3	X	-3.39	54
10	MP3	Z	5.86	54
11	MP3	X	-3.39	82
12	MP3	Z	5.86	82
13	MP3	X	-3.71	12
14	MP3	Z	6.43	12
15	MP3	X	-3.71	42
16	MP3	Z	6.43	42
17	MP4	X	-2.85	18
18	MP4	Z	4.94	18
19	MP4	X	-2.85	45
20	MP4	Z	4.94	45
21	MP4	X	-2.09	18
22	MP4	Z	3.62	18
23	MP4	X	-2.09	36
24	MP4	Z	3.62	36
25	MP2	X	-1.82	18
26	MP2	Z	3.15	18
27	MP2	X	-1.82	33
28	MP2	Z	3.15	33
29	R1	X	-2.57	30
30	R1	Z	4.46	30
31	R1	X	-2.57	30
32	R1	Z	4.46	30
33	MP2	X	-2.11	18
34	MP2	Z	3.66	18
35	MP2	X	-2.11	36
36	MP2	Z	3.66	36
37	MP6	X	-7.69	6
38	MP6	Z	13.31	6
39	MP6	X	-7.69	85
40	MP6	Z	13.31	85
41	MP8	X	-7.56	6
42	MP8	Z	13.09	6
43	MP8	X	-7.56	77
44	MP8	Z	13.09	77
45	MP7	X	-2.51	54
46	MP7	Z	4.35	54

Member Point Loads (BLC 22 : Ice Wind Load AZI 150) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
47	MP7	X	-2.51	82
48	MP7	Z	4.35	82
49	MP7	X	-2.88	12
50	MP7	Z	4.99	12
51	MP7	X	-2.88	42
52	MP7	Z	4.99	42
53	MP8	X	-2.47	18
54	MP8	Z	4.28	18
55	MP8	X	-2.47	45
56	MP8	Z	4.28	45
57	MP8	X	-1.89	18
58	MP8	Z	3.27	18
59	MP8	X	-1.89	36
60	MP8	Z	3.27	36
61	MP6	X	-1.71	18
62	MP6	Z	2.97	18
63	MP6	X	-1.71	33
64	MP6	Z	2.97	33
65	R2	X	-2.57	30
66	R2	Z	4.46	30
67	R2	X	-2.57	30
68	R2	Z	4.46	30
69	MP6	X	-1.82	18
70	MP6	Z	3.15	18
71	MP6	X	-1.82	36
72	MP6	Z	3.15	36
73	MP10	X	-11.15	6
74	MP10	Z	19.31	6
75	MP10	X	-11.15	85
76	MP10	Z	19.31	85
77	MP12	X	-10.37	6
78	MP12	Z	17.96	6
79	MP12	X	-10.37	77
80	MP12	Z	17.96	77
81	MP11	X	-3.39	54
82	MP11	Z	5.86	54
83	MP11	X	-3.39	82
84	MP11	Z	5.86	82
85	MP11	X	-3.71	12
86	MP11	Z	6.43	12
87	MP11	X	-3.71	42
88	MP11	Z	6.43	42
89	MP12	X	-2.85	18
90	MP12	Z	4.94	18
91	MP12	X	-2.85	45
92	MP12	Z	4.94	45

Member Point Loads (BLC 22 : Ice Wind Load AZI 150) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
93	MP12	X	-2.09	18
94	MP12	Z	3.62	18
95	MP12	X	-2.09	36
96	MP12	Z	3.62	36
97	MP10	X	-1.82	18
98	MP10	Z	3.15	18
99	MP10	X	-1.82	33
100	MP10	Z	3.15	33
101	R3	X	-2.57	30
102	R3	Z	4.46	30
103	R3	X	-2.57	30
104	R3	Z	4.46	30
105	MP10	X	-2.11	18
106	MP10	Z	3.66	18
107	MP10	X	-2.11	36
108	MP10	Z	3.66	36

Member Point Loads (BLC 23 : Ice Wind Load AZI 180)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	0	6
2	MP2	Z	30.72	6
3	MP2	X	0	90
4	MP2	Z	30.72	90
5	MP4	X	0	6
6	MP4	Z	31.48	6
7	MP4	X	0	90
8	MP4	Z	31.48	90
9	MP3	X	0	54
10	MP3	Z	7.35	54
11	MP3	X	0	82
12	MP3	Z	7.35	82
13	MP3	X	0	12
14	MP3	Z	7.98	12
15	MP3	X	0	42
16	MP3	Z	7.98	42
17	MP4	X	0	18
18	MP4	Z	5.96	18
19	MP4	X	0	45
20	MP4	Z	5.96	45
21	MP4	X	0	18
22	MP4	Z	4.31	18
23	MP4	X	0	36
24	MP4	Z	4.31	36
25	MP2	X	0	18
26	MP2	Z	3.7	18
27	MP2	X	0	33

Member Point Loads (BLC 23 : Ice Wind Load AZI 180) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
28	MP2	Z	3.7	33
29	R1	X	0	30
30	R1	Z	5.15	30
31	R1	X	0	30
32	R1	Z	5.15	30
33	MP2	X	0	18
34	MP2	Z	4.42	18
35	MP2	X	0	36
36	MP2	Z	4.42	36
37	MP6	X	0	6
38	MP6	Z	17.68	6
39	MP6	X	0	85
40	MP6	Z	17.68	85
41	MP8	X	0	6
42	MP8	Z	16.99	6
43	MP8	X	0	77
44	MP8	Z	16.99	77
45	MP7	X	0	54
46	MP7	Z	5.61	54
47	MP7	X	0	82
48	MP7	Z	5.61	82
49	MP7	X	0	12
50	MP7	Z	6.31	12
51	MP7	X	0	42
52	MP7	Z	6.31	42
53	MP8	X	0	18
54	MP8	Z	5.19	18
55	MP8	X	0	45
56	MP8	Z	5.19	45
57	MP8	X	0	18
58	MP8	Z	3.91	18
59	MP8	X	0	36
60	MP8	Z	3.91	36
61	MP6	X	0	18
62	MP6	Z	3.49	18
63	MP6	X	0	33
64	MP6	Z	3.49	33
65	R2	X	0	30
66	R2	Z	5.15	30
67	R2	X	0	30
68	R2	Z	5.15	30
69	MP6	X	0	18
70	MP6	Z	3.83	18
71	MP6	X	0	36
72	MP6	Z	3.83	36
73	MP10	X	0	6

Member Point Loads (BLC 23 : Ice Wind Load AZI 180) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
74	MP10	Z	17.68	6
75	MP10	X	0	85
76	MP10	Z	17.68	85
77	MP12	X	0	6
78	MP12	Z	16.99	6
79	MP12	X	0	77
80	MP12	Z	16.99	77
81	MP11	X	0	54
82	MP11	Z	5.61	54
83	MP11	X	0	82
84	MP11	Z	5.61	82
85	MP11	X	0	12
86	MP11	Z	6.31	12
87	MP11	X	0	42
88	MP11	Z	6.31	42
89	MP12	X	0	18
90	MP12	Z	5.19	18
91	MP12	X	0	45
92	MP12	Z	5.19	45
93	MP12	X	0	18
94	MP12	Z	3.91	18
95	MP12	X	0	36
96	MP12	Z	3.91	36
97	MP10	X	0	18
98	MP10	Z	3.49	18
99	MP10	X	0	33
100	MP10	Z	3.49	33
101	R3	X	0	30
102	R3	Z	5.15	30
103	R3	X	0	30
104	R3	Z	5.15	30
105	MP10	X	0	18
106	MP10	Z	3.83	18
107	MP10	X	0	36
108	MP10	Z	3.83	36

Member Point Loads (BLC 24 : Ice Wind Load AZI 210)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	13.91	6
2	MP2	Z	24.1	6
3	MP2	X	13.91	90
4	MP2	Z	24.1	90
5	MP4	X	14.45	6
6	MP4	Z	25.03	6
7	MP4	X	14.45	90
8	MP4	Z	25.03	90

Member Point Loads (BLC 24 : Ice Wind Load AZI 210) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
9	MP3	X	3.39	54
10	MP3	Z	5.86	54
11	MP3	X	3.39	82
12	MP3	Z	5.86	82
13	MP3	X	3.71	12
14	MP3	Z	6.43	12
15	MP3	X	3.71	42
16	MP3	Z	6.43	42
17	MP4	X	2.85	18
18	MP4	Z	4.94	18
19	MP4	X	2.85	45
20	MP4	Z	4.94	45
21	MP4	X	2.09	18
22	MP4	Z	3.62	18
23	MP4	X	2.09	36
24	MP4	Z	3.62	36
25	MP2	X	1.82	18
26	MP2	Z	3.15	18
27	MP2	X	1.82	33
28	MP2	Z	3.15	33
29	R1	X	2.57	30
30	R1	Z	4.46	30
31	R1	X	2.57	30
32	R1	Z	4.46	30
33	MP2	X	2.11	18
34	MP2	Z	3.66	18
35	MP2	X	2.11	36
36	MP2	Z	3.66	36
37	MP6	X	11.15	6
38	MP6	Z	19.31	6
39	MP6	X	11.15	85
40	MP6	Z	19.31	85
41	MP8	X	10.37	6
42	MP8	Z	17.96	6
43	MP8	X	10.37	77
44	MP8	Z	17.96	77
45	MP7	X	3.39	54
46	MP7	Z	5.86	54
47	MP7	X	3.39	82
48	MP7	Z	5.86	82
49	MP7	X	3.71	12
50	MP7	Z	6.43	12
51	MP7	X	3.71	42
52	MP7	Z	6.43	42
53	MP8	X	2.85	18
54	MP8	Z	4.94	18

Member Point Loads (BLC 24 : Ice Wind Load AZI 210) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
55	MP8	X	2.85	45
56	MP8	Z	4.94	45
57	MP8	X	2.09	18
58	MP8	Z	3.62	18
59	MP8	X	2.09	36
60	MP8	Z	3.62	36
61	MP6	X	1.82	18
62	MP6	Z	3.15	18
63	MP6	X	1.82	33
64	MP6	Z	3.15	33
65	R2	X	2.57	30
66	R2	Z	4.46	30
67	R2	X	2.57	30
68	R2	Z	4.46	30
69	MP6	X	2.11	18
70	MP6	Z	3.66	18
71	MP6	X	2.11	36
72	MP6	Z	3.66	36
73	MP10	X	7.69	6
74	MP10	Z	13.31	6
75	MP10	X	7.69	85
76	MP10	Z	13.31	85
77	MP12	X	7.56	6
78	MP12	Z	13.09	6
79	MP12	X	7.56	77
80	MP12	Z	13.09	77
81	MP11	X	2.51	54
82	MP11	Z	4.35	54
83	MP11	X	2.51	82
84	MP11	Z	4.35	82
85	MP11	X	2.88	12
86	MP11	Z	4.99	12
87	MP11	X	2.88	42
88	MP11	Z	4.99	42
89	MP12	X	2.47	18
90	MP12	Z	4.28	18
91	MP12	X	2.47	45
92	MP12	Z	4.28	45
93	MP12	X	1.89	18
94	MP12	Z	3.27	18
95	MP12	X	1.89	36
96	MP12	Z	3.27	36
97	MP10	X	1.71	18
98	MP10	Z	2.97	18
99	MP10	X	1.71	33
100	MP10	Z	2.97	33

Member Point Loads (BLC 24 : Ice Wind Load AZI 210) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
101	R3	X	2.57	30
102	R3	Z	4.46	30
103	R3	X	2.57	30
104	R3	Z	4.46	30
105	MP10	X	1.82	18
106	MP10	Z	3.15	18
107	MP10	X	1.82	36
108	MP10	Z	3.15	36

Member Point Loads (BLC 25 : Ice Wind Load AZI 240)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	19.09	6
2	MP2	Z	11.02	6
3	MP2	X	19.09	90
4	MP2	Z	11.02	90
5	MP4	X	20.56	6
6	MP4	Z	11.87	6
7	MP4	X	20.56	90
8	MP4	Z	11.87	90
9	MP3	X	4.86	54
10	MP3	Z	2.8	54
11	MP3	X	4.86	82
12	MP3	Z	2.8	82
13	MP3	X	5.47	12
14	MP3	Z	3.16	12
15	MP3	X	5.47	42
16	MP3	Z	3.16	42
17	MP4	X	4.5	18
18	MP4	Z	2.6	18
19	MP4	X	4.5	45
20	MP4	Z	2.6	45
21	MP4	X	3.38	18
22	MP4	Z	1.95	18
23	MP4	X	3.38	36
24	MP4	Z	1.95	36
25	MP2	X	3.03	18
26	MP2	Z	1.75	18
27	MP2	X	3.03	33
28	MP2	Z	1.75	33
29	R1	X	4.46	30
30	R1	Z	2.57	30
31	R1	X	4.46	30
32	R1	Z	2.57	30
33	MP2	X	3.32	18
34	MP2	Z	1.92	18
35	MP2	X	3.32	36

Member Point Loads (BLC 25 : Ice Wind Load AZI 240) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
36	MP2	Z	1.92	36
37	MP6	X	21.3	6
38	MP6	Z	12.3	6
39	MP6	X	21.3	85
40	MP6	Z	12.3	85
41	MP8	X	19.59	6
42	MP8	Z	11.31	6
43	MP8	X	19.59	77
44	MP8	Z	11.31	77
45	MP7	X	6.37	54
46	MP7	Z	3.68	54
47	MP7	X	6.37	82
48	MP7	Z	3.68	82
49	MP7	X	6.91	12
50	MP7	Z	3.99	12
51	MP7	X	6.91	42
52	MP7	Z	3.99	42
53	MP8	X	5.16	18
54	MP8	Z	2.98	18
55	MP8	X	5.16	45
56	MP8	Z	2.98	45
57	MP8	X	3.73	18
58	MP8	Z	2.15	18
59	MP8	X	3.73	36
60	MP8	Z	2.15	36
61	MP6	X	3.21	18
62	MP6	Z	1.85	18
63	MP6	X	3.21	33
64	MP6	Z	1.85	33
65	R2	X	4.46	30
66	R2	Z	2.57	30
67	R2	X	4.46	30
68	R2	Z	2.57	30
69	MP6	X	3.83	18
70	MP6	Z	2.21	18
71	MP6	X	3.83	36
72	MP6	Z	2.21	36
73	MP10	X	15.31	6
74	MP10	Z	8.84	6
75	MP10	X	15.31	85
76	MP10	Z	8.84	85
77	MP12	X	14.71	6
78	MP12	Z	8.49	6
79	MP12	X	14.71	77
80	MP12	Z	8.49	77
81	MP11	X	4.86	54

Member Point Loads (BLC 25 : Ice Wind Load AZI 240) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
82	MP11	Z	2.8	54
83	MP11	X	4.86	82
84	MP11	Z	2.8	82
85	MP11	X	5.47	12
86	MP11	Z	3.16	12
87	MP11	X	5.47	42
88	MP11	Z	3.16	42
89	MP12	X	4.5	18
90	MP12	Z	2.6	18
91	MP12	X	4.5	45
92	MP12	Z	2.6	45
93	MP12	X	3.38	18
94	MP12	Z	1.95	18
95	MP12	X	3.38	36
96	MP12	Z	1.95	36
97	MP10	X	3.03	18
98	MP10	Z	1.75	18
99	MP10	X	3.03	33
100	MP10	Z	1.75	33
101	R3	X	4.46	30
102	R3	Z	2.57	30
103	R3	X	4.46	30
104	R3	Z	2.57	30
105	MP10	X	3.32	18
106	MP10	Z	1.92	18
107	MP10	X	3.32	36
108	MP10	Z	1.92	36

Member Point Loads (BLC 26 : Ice Wind Load AZI 270)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	19.16	6
2	MP2	Z	0	6
3	MP2	X	19.16	90
4	MP2	Z	0	90
5	MP4	X	21.17	6
6	MP4	Z	0	6
7	MP4	X	21.17	90
8	MP4	Z	0	90
9	MP3	X	5.02	54
10	MP3	Z	0	54
11	MP3	X	5.02	82
12	MP3	Z	0	82
13	MP3	X	5.76	12
14	MP3	Z	0	12
15	MP3	X	5.76	42
16	MP3	Z	0	42

Member Point Loads (BLC 26 : Ice Wind Load AZI 270) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
17	MP4	X	4.94	18
18	MP4	Z	0	18
19	MP4	X	4.94	45
20	MP4	Z	0	45
21	MP4	X	3.77	18
22	MP4	Z	0	18
23	MP4	X	3.77	36
24	MP4	Z	0	36
25	MP2	X	3.42	18
26	MP2	Z	0	18
27	MP2	X	3.42	33
28	MP2	Z	0	33
29	R1	X	5.15	30
30	R1	Z	0	30
31	R1	X	5.15	30
32	R1	Z	0	30
33	MP2	X	3.63	18
34	MP2	Z	0	18
35	MP2	X	3.63	36
36	MP2	Z	0	36
37	MP6	X	22.29	6
38	MP6	Z	0	6
39	MP6	X	22.29	85
40	MP6	Z	0	85
41	MP8	X	20.74	6
42	MP8	Z	0	6
43	MP8	X	20.74	77
44	MP8	Z	0	77
45	MP7	X	6.77	54
46	MP7	Z	0	54
47	MP7	X	6.77	82
48	MP7	Z	0	82
49	MP7	X	7.42	12
50	MP7	Z	0	12
51	MP7	X	7.42	42
52	MP7	Z	0	42
53	MP8	X	5.71	18
54	MP8	Z	0	18
55	MP8	X	5.71	45
56	MP8	Z	0	45
57	MP8	X	4.17	18
58	MP8	Z	0	18
59	MP8	X	4.17	36
60	MP8	Z	0	36
61	MP6	X	3.63	18
62	MP6	Z	0	18

Member Point Loads (BLC 26 : Ice Wind Load AZI 270) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
63	MP6	X	3.63	33
64	MP6	Z	0	33
65	R2	X	5.15	30
66	R2	Z	0	30
67	R2	X	5.15	30
68	R2	Z	0	30
69	MP6	X	4.23	18
70	MP6	Z	0	18
71	MP6	X	4.23	36
72	MP6	Z	0	36
73	MP10	X	22.29	6
74	MP10	Z	0	6
75	MP10	X	22.29	85
76	MP10	Z	0	85
77	MP12	X	20.74	6
78	MP12	Z	0	6
79	MP12	X	20.74	77
80	MP12	Z	0	77
81	MP11	X	6.77	54
82	MP11	Z	0	54
83	MP11	X	6.77	82
84	MP11	Z	0	82
85	MP11	X	7.42	12
86	MP11	Z	0	12
87	MP11	X	7.42	42
88	MP11	Z	0	42
89	MP12	X	5.71	18
90	MP12	Z	0	18
91	MP12	X	5.71	45
92	MP12	Z	0	45
93	MP12	X	4.17	18
94	MP12	Z	0	18
95	MP12	X	4.17	36
96	MP12	Z	0	36
97	MP10	X	3.63	18
98	MP10	Z	0	18
99	MP10	X	3.63	33
100	MP10	Z	0	33
101	R3	X	5.15	30
102	R3	Z	0	30
103	R3	X	5.15	30
104	R3	Z	0	30
105	MP10	X	4.23	18
106	MP10	Z	0	18
107	MP10	X	4.23	36
108	MP10	Z	0	36

Member Point Loads (BLC 26 : Ice Wind Load AZI 270) (Continued)

Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]

Member Point Loads (BLC 27 : Ice Wind Load AZI 300)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	19.09	6
2	MP2	Z	-11.02	6
3	MP2	X	19.09	90
4	MP2	Z	-11.02	90
5	MP4	X	20.56	6
6	MP4	Z	-11.87	6
7	MP4	X	20.56	90
8	MP4	Z	-11.87	90
9	MP3	X	4.86	54
10	MP3	Z	-2.8	54
11	MP3	X	4.86	82
12	MP3	Z	-2.8	82
13	MP3	X	5.47	12
14	MP3	Z	-3.16	12
15	MP3	X	5.47	42
16	MP3	Z	-3.16	42
17	MP4	X	4.5	18
18	MP4	Z	-2.6	18
19	MP4	X	4.5	45
20	MP4	Z	-2.6	45
21	MP4	X	3.38	18
22	MP4	Z	-1.95	18
23	MP4	X	3.38	36
24	MP4	Z	-1.95	36
25	MP2	X	3.03	18
26	MP2	Z	-1.75	18
27	MP2	X	3.03	33
28	MP2	Z	-1.75	33
29	R1	X	4.46	30
30	R1	Z	-2.57	30
31	R1	X	4.46	30
32	R1	Z	-2.57	30
33	MP2	X	3.32	18
34	MP2	Z	-1.92	18
35	MP2	X	3.32	36
36	MP2	Z	-1.92	36
37	MP6	X	15.31	6
38	MP6	Z	-8.84	6
39	MP6	X	15.31	85
40	MP6	Z	-8.84	85
41	MP8	X	14.71	6
42	MP8	Z	-8.49	6
43	MP8	X	14.71	77
44	MP8	Z	-8.49	77
45	MP7	X	4.86	54
46	MP7	Z	-2.8	54

Member Point Loads (BLC 27 : Ice Wind Load AZI 300) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
47	MP7	X	4.86	82
48	MP7	Z	-2.8	82
49	MP7	X	5.47	12
50	MP7	Z	-3.16	12
51	MP7	X	5.47	42
52	MP7	Z	-3.16	42
53	MP8	X	4.5	18
54	MP8	Z	-2.6	18
55	MP8	X	4.5	45
56	MP8	Z	-2.6	45
57	MP8	X	3.38	18
58	MP8	Z	-1.95	18
59	MP8	X	3.38	36
60	MP8	Z	-1.95	36
61	MP6	X	3.03	18
62	MP6	Z	-1.75	18
63	MP6	X	3.03	33
64	MP6	Z	-1.75	33
65	R2	X	4.46	30
66	R2	Z	-2.57	30
67	R2	X	4.46	30
68	R2	Z	-2.57	30
69	MP6	X	3.32	18
70	MP6	Z	-1.92	18
71	MP6	X	3.32	36
72	MP6	Z	-1.92	36
73	MP10	X	21.3	6
74	MP10	Z	-12.3	6
75	MP10	X	21.3	85
76	MP10	Z	-12.3	85
77	MP12	X	19.59	6
78	MP12	Z	-11.31	6
79	MP12	X	19.59	77
80	MP12	Z	-11.31	77
81	MP11	X	6.37	54
82	MP11	Z	-3.68	54
83	MP11	X	6.37	82
84	MP11	Z	-3.68	82
85	MP11	X	6.91	12
86	MP11	Z	-3.99	12
87	MP11	X	6.91	42
88	MP11	Z	-3.99	42
89	MP12	X	5.16	18
90	MP12	Z	-2.98	18
91	MP12	X	5.16	45
92	MP12	Z	-2.98	45

Member Point Loads (BLC 27 : Ice Wind Load AZI 300) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
93	MP12	X	3.73	18
94	MP12	Z	-2.15	18
95	MP12	X	3.73	36
96	MP12	Z	-2.15	36
97	MP10	X	3.21	18
98	MP10	Z	-1.85	18
99	MP10	X	3.21	33
100	MP10	Z	-1.85	33
101	R3	X	4.46	30
102	R3	Z	-2.57	30
103	R3	X	4.46	30
104	R3	Z	-2.57	30
105	MP10	X	3.83	18
106	MP10	Z	-2.21	18
107	MP10	X	3.83	36
108	MP10	Z	-2.21	36

Member Point Loads (BLC 28 : Ice Wind Load AZI 330)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	13.91	6
2	MP2	Z	-24.1	6
3	MP2	X	13.91	90
4	MP2	Z	-24.1	90
5	MP4	X	14.45	6
6	MP4	Z	-25.03	6
7	MP4	X	14.45	90
8	MP4	Z	-25.03	90
9	MP3	X	3.39	54
10	MP3	Z	-5.86	54
11	MP3	X	3.39	82
12	MP3	Z	-5.86	82
13	MP3	X	3.71	12
14	MP3	Z	-6.43	12
15	MP3	X	3.71	42
16	MP3	Z	-6.43	42
17	MP4	X	2.85	18
18	MP4	Z	-4.94	18
19	MP4	X	2.85	45
20	MP4	Z	-4.94	45
21	MP4	X	2.09	18
22	MP4	Z	-3.62	18
23	MP4	X	2.09	36
24	MP4	Z	-3.62	36
25	MP2	X	1.82	18
26	MP2	Z	-3.15	18
27	MP2	X	1.82	33

Member Point Loads (BLC 28 : Ice Wind Load AZI 330) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
28	MP2	Z	-3.15	33
29	R1	X	2.57	30
30	R1	Z	-4.46	30
31	R1	X	2.57	30
32	R1	Z	-4.46	30
33	MP2	X	2.11	18
34	MP2	Z	-3.66	18
35	MP2	X	2.11	36
36	MP2	Z	-3.66	36
37	MP6	X	7.69	6
38	MP6	Z	-13.31	6
39	MP6	X	7.69	85
40	MP6	Z	-13.31	85
41	MP8	X	7.56	6
42	MP8	Z	-13.09	6
43	MP8	X	7.56	77
44	MP8	Z	-13.09	77
45	MP7	X	2.51	54
46	MP7	Z	-4.35	54
47	MP7	X	2.51	82
48	MP7	Z	-4.35	82
49	MP7	X	2.88	12
50	MP7	Z	-4.99	12
51	MP7	X	2.88	42
52	MP7	Z	-4.99	42
53	MP8	X	2.47	18
54	MP8	Z	-4.28	18
55	MP8	X	2.47	45
56	MP8	Z	-4.28	45
57	MP8	X	1.89	18
58	MP8	Z	-3.27	18
59	MP8	X	1.89	36
60	MP8	Z	-3.27	36
61	MP6	X	1.71	18
62	MP6	Z	-2.97	18
63	MP6	X	1.71	33
64	MP6	Z	-2.97	33
65	R2	X	2.57	30
66	R2	Z	-4.46	30
67	R2	X	2.57	30
68	R2	Z	-4.46	30
69	MP6	X	1.82	18
70	MP6	Z	-3.15	18
71	MP6	X	1.82	36
72	MP6	Z	-3.15	36
73	MP10	X	11.15	6

Member Point Loads (BLC 28 : Ice Wind Load AZI 330) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
74	MP10	Z	-19.31	6
75	MP10	X	11.15	85
76	MP10	Z	-19.31	85
77	MP12	X	10.37	6
78	MP12	Z	-17.96	6
79	MP12	X	10.37	77
80	MP12	Z	-17.96	77
81	MP11	X	3.39	54
82	MP11	Z	-5.86	54
83	MP11	X	3.39	82
84	MP11	Z	-5.86	82
85	MP11	X	3.71	12
86	MP11	Z	-6.43	12
87	MP11	X	3.71	42
88	MP11	Z	-6.43	42
89	MP12	X	2.85	18
90	MP12	Z	-4.94	18
91	MP12	X	2.85	45
92	MP12	Z	-4.94	45
93	MP12	X	2.09	18
94	MP12	Z	-3.62	18
95	MP12	X	2.09	36
96	MP12	Z	-3.62	36
97	MP10	X	1.82	18
98	MP10	Z	-3.15	18
99	MP10	X	1.82	33
100	MP10	Z	-3.15	33
101	R3	X	2.57	30
102	R3	Z	-4.46	30
103	R3	X	2.57	30
104	R3	Z	-4.46	30
105	MP10	X	2.11	18
106	MP10	Z	-3.66	18
107	MP10	X	2.11	36
108	MP10	Z	-3.66	36

Member Point Loads (BLC 31 : Seismic Load Z)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	Z	-19.006	6
2	MP2	Z	-19.006	90
3	MP4	Z	-19.172	6
4	MP4	Z	-19.172	90
5	MP3	Z	-10.009	54
6	MP3	Z	-10.009	82
7	MP3	Z	-12.338	12
8	MP3	Z	-12.338	42

Member Point Loads (BLC 31 : Seismic Load Z) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
9	MP4	Z	-7.998	18
10	MP4	Z	-7.998	45
11	MP4	Z	-10.735	18
12	MP4	Z	-10.735	36
13	MP2	Z	-10.886	18
14	MP2	Z	-10.886	33
15	R1	Z	-2.858	30
16	R1	Z	-2.858	30
17	MP2	Z	-8.981	18
18	MP2	Z	-8.981	36
19	MP6	Z	-16.42	6
20	MP6	Z	-16.42	85
21	MP8	Z	-15.695	6
22	MP8	Z	-15.695	77
23	MP7	Z	-10.009	54
24	MP7	Z	-10.009	82
25	MP7	Z	-12.338	12
26	MP7	Z	-12.338	42
27	MP8	Z	-7.998	18
28	MP8	Z	-7.998	45
29	MP8	Z	-10.735	18
30	MP8	Z	-10.735	36
31	MP6	Z	-10.886	18
32	MP6	Z	-10.886	33
33	R2	Z	-2.858	30
34	R2	Z	-2.858	30
35	MP6	Z	-8.981	18
36	MP6	Z	-8.981	36
37	MP10	Z	-16.42	6
38	MP10	Z	-16.42	85
39	MP12	Z	-15.695	6
40	MP12	Z	-15.695	77
41	MP11	Z	-10.009	54
42	MP11	Z	-10.009	82
43	MP11	Z	-12.338	12
44	MP11	Z	-12.338	42
45	MP12	Z	-7.998	18
46	MP12	Z	-7.998	45
47	MP12	Z	-10.735	18
48	MP12	Z	-10.735	36
49	MP10	Z	-10.886	18
50	MP10	Z	-10.886	33
51	R3	Z	-2.858	30
52	R3	Z	-2.858	30
53	MP10	Z	-8.981	18
54	MP10	Z	-8.981	36

Member Point Loads (BLC 31 : Seismic Load Z) (Continued)

Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]

Member Point Loads (BLC 32 : Seismic Load X)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
1	MP2	X	-19.006	6
2	MP2	X	-19.006	90
3	MP4	X	-19.172	6
4	MP4	X	-19.172	90
5	MP3	X	-10.009	54
6	MP3	X	-10.009	82
7	MP3	X	-12.338	12
8	MP3	X	-12.338	42
9	MP4	X	-7.998	18
10	MP4	X	-7.998	45
11	MP4	X	-10.735	18
12	MP4	X	-10.735	36
13	MP2	X	-10.886	18
14	MP2	X	-10.886	33
15	R1	X	-2.858	30
16	R1	X	-2.858	30
17	MP2	X	-8.981	18
18	MP2	X	-8.981	36
19	MP6	X	-16.42	6
20	MP6	X	-16.42	85
21	MP8	X	-15.695	6
22	MP8	X	-15.695	77
23	MP7	X	-10.009	54
24	MP7	X	-10.009	82
25	MP7	X	-12.338	12
26	MP7	X	-12.338	42
27	MP8	X	-7.998	18
28	MP8	X	-7.998	45
29	MP8	X	-10.735	18
30	MP8	X	-10.735	36
31	MP6	X	-10.886	18
32	MP6	X	-10.886	33
33	R2	X	-2.858	30
34	R2	X	-2.858	30
35	MP6	X	-8.981	18
36	MP6	X	-8.981	36
37	MP10	X	-16.42	6
38	MP10	X	-16.42	85
39	MP12	X	-15.695	6
40	MP12	X	-15.695	77
41	MP11	X	-10.009	54
42	MP11	X	-10.009	82
43	MP11	X	-12.338	12
44	MP11	X	-12.338	42
45	MP12	X	-7.998	18
46	MP12	X	-7.998	45

Member Point Loads (BLC 32 : Seismic Load X) (Continued)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [(in, %)]
47	MP12	X	-10.735	18
48	MP12	X	-10.735	36
49	MP10	X	-10.886	18
50	MP10	X	-10.886	33
51	R3	X	-2.858	30
52	R3	X	-2.858	30
53	MP10	X	-8.981	18
54	MP10	X	-8.981	36

Member Area Loads (BLC 1 : Self Weight)

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [psf]
1	N46	N4	N101	N46	Y	Two Way	-1.75
2	N105	N19	N104	N105	Y	Two Way	-1.75
3	N102	N103	N14	N102	Y	Two Way	-1.75
4	N113	N109	N110	N115	Y	Two Way	-1.75
5	N121	N124	N125	N122	Y	Two Way	-1.75
6	N88	N134	N5	N133	Y	Two Way	-1.75

Member Area Loads (BLC 16 : Ice Weight)

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [psf]
1	N46	N4	N101	N46	Y	Two Way	-12.055
2	N105	N19	N104	N105	Y	Two Way	-12.055
3	N102	N103	N14	N102	Y	Two Way	-12.055
4	N113	N109	N110	N115	Y	Two Way	-12.055
5	N121	N124	N125	N122	Y	Two Way	-12.055
6	N88	N134	N5	N133	Y	Two Way	-12.055

Node Loads and Enforced Displacements (BLC 33 : Service Live Loads)

	Node Label	L, D, M	Direction	Magnitude [(lb, lb-ft), (in, rad), (lb*s²/in, lb*s²*in)]
1	N139	L	Y	-250

Node Loads and Enforced Displacements (BLC 34 : Maintenance Load 1)

	Node Label	L, D, M	Direction	Magnitude [(lb, lb-ft), (in, rad), (lb*s²/in, lb*s²*in)]
1	N110	L	Y	-500

Node Loads and Enforced Displacements (BLC 35 : Maintenance Load 2)

	Node Label	L, D, M	Direction	Magnitude [(lb, lb-ft), (in, rad), (lb*s²/in, lb*s²*in)]
1	N108	L	Y	-500

Node Loads and Enforced Displacements (BLC 36 : Maintenance Load 3)

	Node Label	L, D, M	Direction	Magnitude [(lb, lb-ft), (in, rad), (lb*s²/in, lb*s²*in)]
1	N109	L	Y	-500

Node Loads and Enforced Displacements (BLC 37 : Maintenance Load 4)

	Node Label	L, D, M	Direction	Magnitude [(lb, lb-ft), (in, rad), (lb*s²/in, lb*s²*in)]
1	N133	L	Y	-500

Node Loads and Enforced Displacements (BLC 38 : Maintenance Load 5)

	Node Label	L, D, M	Direction	Magnitude [(lb, lb-ft), (in, rad), (lb*s²/in, lb*s²*in)]
1	N88	L	Y	-500

Node Loads and Enforced Displacements (BLC 39 : Maintenance Load 6)

	Node Label	L, D, M	Direction	Magnitude [(lb, lb-ft), (in, rad), (lb*s²/in, lb*s²*in)]
1	N122	L	Y	-500

Node Loads and Enforced Displacements (BLC 40 : Maintenance Load 7)

	Node Label	L, D, M	Direction	Magnitude [(lb, lb-ft), (in, rad), (lb*s²/in, lb*s²*in)]
1	N121	L	Y	-500

Node Loads and Enforced Displacements (BLC 41 : Maintenance Load 8)

	Node Label	L, D, M	Direction	Magnitude [(lb, lb-ft), (in, rad), (lb*s²/in, lb*s²*in)]
1	N111	L	Y	-500

Node Loads and Enforced Displacements (BLC 42 : Maintenance Load 9)

	Node Label	L, D, M	Direction	Magnitude [(lb, lb-ft), (in, rad), (lb*s²/in, lb*s²*in)]
1	N120	L	Y	-500

Node Loads and Enforced Displacements (BLC 43 : Maintenance Load 10)

	Node Label	L, D, M	Direction	Magnitude [(lb, lb-ft), (in, rad), (lb*s²/in, lb*s²*in)]
1	N78	L	Y	-500

Node Loads and Enforced Displacements (BLC 44 : Maintenance Load 11)

	Node Label	L, D, M	Direction	Magnitude [(lb, lb-ft), (in, rad), (lb*s²/in, lb*s²*in)]
1	N128	L	Y	-500

Node Loads and Enforced Displacements (BLC 45 : Maintenance Load 12)

	Node Label	L, D, M	Direction	Magnitude [(lb, lb-ft), (in, rad), (lb*s²/in, lb*s²*in)]
1	N114	L	Y	-500

Envelope Node Reactions

	Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N49	max	1706.196	17	4255.156	27	3076.875	2	7397.615	27	2045.751	23	1240.643	11
2		min	-1718.794	11	423.221	20	-2754.744	20	-146.169	20	-2071.505	5	-1252.539	5
3	N106	max	2694.587	6	4504.764	31	1986.588	14	667.405	25	1920.084	15	80.002	23
4		min	-2408.003	24	442.457	24	-2136.422	8	-4141.754	32	-1946.048	9	-6859.972	30
5	N107	max	2300.385	16	4376.585	35	1858.079	14	283.985	15	1695.542	19	6569.68	36
6		min	-2572.912	10	424.244	16	-2030.046	8	-3937.11	34	-1722.622	13	-414.501	17
7	Totals:	max	6572.482	5	12725.666	35	6875.108	2						
8		min	-6572.48	23	3667.172	54	-6875.107	20						

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
1	MP4	PIPE_2.5	0.715	68.75	8	0.074	116.25		34	22373.407	50715	3596.25	3596.25	3	H1-1b
2	MS1	HSS4X4X4	0.663	0	32	0.198	0	y	8	97436.013	106155	12311.25	12311.25	3	H1-1b
3	MS2	HSS4X4X4	0.627	0	36	0.188	0	y	12	97436.013	106155	12311.25	12311.25	3	H1-1b
4	MP2	PIPE_2.5	0.617	68.75	8	0.054	70		9	22373.407	50715	3596.25	3596.25	3	H1-1b
5	MS3	HSS4X4X4	0.615	0	29	0.19	0	y	4	97436.013	106155	12311.25	12311.25	3	H1-1b
6	MP8	PIPE_2.5	0.588	68.75	4	0.074	116.25		29	22373.407	50715	3596.25	3596.25	1.737	H1-1b
7	MP12	PIPE_2.5	0.588	68.75	12	0.072	116.25		38	22373.407	50715	3596.25	3596.25	1.683	H1-1b
8	MP6	PIPE_2.5	0.55	68.75	4	0.056	70		5	22373.407	50715	3596.25	3596.25	1.66	H1-1b
9	MP10	PIPE_2.5	0.55	68.75	12	0.056	70		13	22373.407	50715	3596.25	3596.25	1.678	H1-1b
10	MP3	PIPE_2.0	0.411	68.75	8	0.046	70		8	9836.597	32130	1871.625	1871.625	3	H1-1b
11	MP11	PIPE_2.0	0.411	68.75	12	0.047	70		12	9836.597	32130	1871.625	1871.625	1.864	H1-1b
12	MP7	PIPE_2.0	0.411	68.75	4	0.047	70		4	9836.597	32130	1871.625	1871.625	1.852	H1-1b
13	M2	HSS4X4X4	0.374	28.301	30	0.105	4.127	z	4	104291.443	106155	12311.25	12311.25	1.713	H1-1b
14	M6	HSS4X4X4	0.37	28.301	34	0.112	4.127	z	8	104291.443	106155	12311.25	12311.25	1.709	H1-1b
15	M1	HSS4X4X4	0.356	0	32	0.11	24.174	z	8	104291.36	106155	12311.25	12311.25	1.698	H1-1b
16	M8	HSS4X4X4	0.354	28.3	38	0.105	4.127	z	12	104291.454	106155	12311.25	12311.25	1.713	H1-1b
17	M7	HSS4X4X4	0.345	0	36	0.105	24.174	z	12	104291.36	106155	12311.25	12311.25	1.701	H1-1b
18	M9	HSS4X4X4	0.337	0	28	0.105	24.174	z	4	104291.349	106155	12311.25	12311.25	1.7	H1-1b
19	M52	PL6x.375	0.336	2.704	5	0.226	0	y	7	70544.2	72900	569.533	9112.5	1.059	H1-1b
20	M45	PL6x.375	0.324	2.704	9	0.222	0	y	11	70544.2	72900	569.533	9112.5	1.059	H1-1b
21	M42	6"x1/2" Plate	0.322	2.704	8	0.303	0	y	2	95420.398	97200	1012.5	12150	1.006	H1-1b
22	M43	6"x1/2" Plate	0.322	4.338	7	0.191	4.338	y	13	92686.458	97200	1012.5	12150	1.028	H1-1b
23	M13	PL6x.375	0.318	2.704	13	0.229	0	y	3	70544.2	72900	569.533	9112.5	1.061	H1-1b
24	M37	6"x1/2" Plate	0.308	4.338	11	0.174	4.338	y	5	92686.461	97200	1012.5	12150	1.023	H1-1b
25	M17	6"x1/2" Plate	0.307	4.338	3	0.178	4.338	y	9	92685.858	97200	1012.5	12150	1.025	H1-1b
26	M46	6"x1/2" Plate	0.301	2.704	11	0.281	0	y	6	95420.398	97200	1012.5	12150	1.015	H1-1b
27	M48	6"x1/2" Plate	0.3	2.704	3	0.283	0	y	10	95420.398	97200	1012.5	12150	1.016	H1-1b
28	MH2	PIPE_3.0	0.283	3.125	9	0.363	4.687		2	28250.554	65205	5748.75	5748.75	3	H3-6

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
29	MP5	PIPE_2.0	0.263	70	31	0.091	116.25		27	9836.597	32130	1871.625	1871.625	3	H1-1b
30	MP1	PIPE_2.0	0.252	70	34	0.088	115		28	9836.597	32130	1871.625	1871.625	3	H1-1b
31	MP9	PIPE_2.0	0.245	70	27	0.088	116.25		36	9836.597	32130	1871.625	1871.625	3	H1-1b
32	M54	PL6x.375	0.236	2.75	11	0.677	2.75	y	6	70464.934	72900	569.533	9112.5	1.117	H1-1b
33	M19	L2x2x3	0.226	0	20	0.009	51.353	z	28	9346.076	23392.8	557.717	1107.886	1.341	H2-1
34	M49	PL6x.375	0.225	2.704	11	0.261	0	y	34	70544.2	72900	569.533	9112.5	1.057	H1-1b
35	M51	PL6x.375	0.221	2.75	7	0.715	2.75	y	2	70464.934	72900	569.533	9112.5	1.113	H1-1b
36	M33	PL6x.375	0.212	2.75	3	0.676	2.75	y	10	70464.934	72900	569.533	9112.5	1.125	H1-1b
37	M35	L2x2x3	0.21	0	16	0.009	51.353	z	36	9346.157	23392.8	557.717	1108.702	1.345	H2-1
38	M50	PL6x.375	0.207	2.704	3	0.249	0	y	27	70544.2	72900	569.533	9112.5	1.056	H1-1b
39	M5	L2x2x3	0.206	0	24	0.009	51.353	z	32	9346.076	23392.8	557.717	1101.261	1.304	H2-1
40	M34	L2x2x3	0.203	51.353	8	0.012	0	y	37	9346.209	23392.8	557.717	1134.001	1.5	H2-1
41	MH3	PIPE_3.0	0.201	3.125	2	0.325	4.688		6	28250.554	65205	5748.75	5748.75	3	H1-1b
42	MH1	PIPE_3.0	0.201	3.125	6	0.323	4.687		10	28250.554	65205	5748.75	5748.75	3	H1-1b
43	M32	L2x2x3	0.196	0	6	0.012	0	y	8	9346.21	23392.8	557.717	1134.001	1.5	H2-1
44	M29	L2x2x3	0.195	0	2	0.012	0	y	4	9346.27	23392.8	557.717	1134.001	1.5	H2-1
45	M24	PL6x.375	0.191	2.704	7	0.246	0	y	30	70544.2	72900	569.533	9112.5	1.056	H1-1b
46	M53	PL6x.375	0.189	2.75	5	0.593	2.75	y	6	70464.934	72900	569.533	9112.5	1.076	H1-1b
47	M3	PL6x.375	0.179	2.75	9	0.59	2.75	y	10	70465.57	72900	569.533	9112.5	1.077	H1-1b
48	M38	PL6x.375	0.168	2.75	13	0.605	2.75	y	2	70464.934	72900	569.533	9112.5	1.079	H1-1b
49	MW3	C12X25	0.163	99	31	0.032	45	z	38	197899.053	237816	8090.909	79380	1.878	H1-1b
50	M47	6"x1/2" Plate	0.159	0	9	0.186	0	y	12	92686.455	97200	1012.5	12150	1.033	H1-1b
51	M44	6"x1/2" Plate	0.158	0	5	0.19	0	y	8	92686.458	97200	1012.5	12150	1.05	H1-1b
52	M14	6"x1/2" Plate	0.155	2.704	5	0.164	0	y	9	95420.398	97200	1012.5	12150	1.029	H1-1b
53	M41	6"x1/2" Plate	0.155	0	13	0.184	0	y	4	92687.058	97200	1012.5	12150	1.039	H1-1b
54	MW1	C12X25	0.155	99	35	0.034	45	z	30	197899.053	237816	8090.909	79380	1.868	H1-1b
55	M4	6"x1/2" Plate	0.154	2.704	9	0.174	0	y	13	95420.398	97200	1012.5	12150	1.02	H1-1b
56	M36	6"x1/2" Plate	0.152	2.704	13	0.168	0	y	5	95420.398	97200	1012.5	12150	1.023	H1-1b
57	MW2	C12X25	0.152	99	27	0.033	45	z	34	197899.053	237816	8090.909	79380	1.856	H1-1b
58	R2	PIPE_2.0	0.116	60	2	0.009	60		2	20866.733	32130	1871.625	1871.625	1.471	H1-1b
59	R1	PIPE_2.0	0.116	60	6	0.009	60		6	20866.733	32130	1871.625	1871.625	1.996	H1-1b
60	R3	PIPE_2.0	0.116	60	11	0.009	60		11	20866.733	32130	1871.625	1871.625	1.996	H1-1b
61	M73	PIPE_2.0	0.011	22.251	37	0.075	22.251		12	30832.35	32130	1871.625	1871.625	1.136	H1-1b*
62	M75	PIPE_2.0	0.011	0	29	0.071	22.251		8	30832.35	32130	1871.625	1871.625	1.136	H1-1b*
63	M74	PIPE_2.0	0.011	22.251	28	0.081	22.251		4	30832.35	32130	1871.625	1871.625	1.136	H1-1b*

APPENDIX D

ADDITIONAL CALCUATIONS

INFINIGY

FROM ZERO TO INFINIGY

the solutions are endless

Bolt Calculation Tool, V1.5.1

PROJECT DATA	
Site Name:	WEST HARTFORD/I-84/X43
Site Number:	829013
Connection Description:	Standoff to Collar

MAXIMUM BOLT LOADS		
Bolt Tension:	8363.83	lbs
Bolt Shear:	1544.61	lbs

WORST CASE BOLT LOADS[1]		
Bolt Tension:	8363.83	lbs
Bolt Shear:	1027.00	lbs

BOLT PROPERTIES		
Bolt Type:	Bolt	-
Bolt Diameter:	0.625	in
Bolt Grade:	A325	-
# of Bolts:	4	-
Threads Excluded?	No	-

[1] *Worst case bolt loads correspond to Load combination #32 on member MS1 in RISA-3D, which causes the maximum demand on the bolts.*

Member Information
I nodes of MS1, MS2, MS3

BOLT CHECK		
Tensile Strength	20340.15	
Shear Strength	13805.83	
Max Tensile Usage	41.1%	
Max Shear Usage	11.2%	
Interaction Check (Worst Case)	0.17	***≤1.05***
Result	Pass	

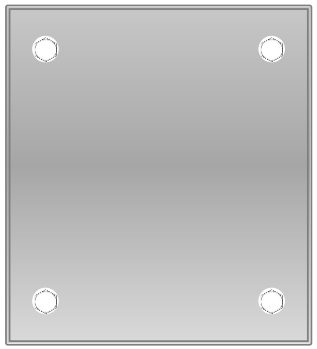


Exhibit F

Power Density/RF Emissions Report

EBI Consulting

environmental | engineering | due diligence

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

AT&T Existing Facility

Site ID: CTL05258

829013
471 South Quaker Lane
West Hartford, Connecticut 06110

February 11, 2022

EBI Project Number: 6222000332

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**68.28%**

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

February 11, 2022

AT&T

Emissions Analysis for Site: CTL05258 - 829013

EBI Consulting was directed to analyze the proposed AT&T facility located at **471 South Quaker Lane** in **West Hartford, Connecticut** for the purpose of determining whether the emissions from the Proposed AT&T 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 ($\mu W/cm^2$). 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.

Public 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 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency 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 AT&T Wireless antenna facility located at 471 South Quaker Lane in West Hartford, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T 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 manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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 power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

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

1) 4 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

2) 4 LTE FN channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

3) 4 5G channels (850 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

4) 4 LTE / 5G channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

5) 4 LTE / 5G channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

6) 4 LTE channels (WCS Band – 2300 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 25 Watts per Channel.

7) 2 C-Band Channels (3700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 144.58 Watts per Channel.

8) 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.

9) 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 manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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.

10) The antennas used in this modeling are the Kathrein 800-10966 for the 700 MHz / 2100 MHz channel(s), the Ericsson AIR 6419 for the 3700 MHz channel(s), the Ericsson AIR 6449 for the 3700 MHz channel(s), the CCI DMP65R-BU8EA-K for the 700 MHz / 850 MHz / 1900 MHz / 2300 MHz channel(s) in Sector A, the Kathrein 800-10965 for the 700 MHz / 2100 MHz channel(s), the Ericsson AIR 6419 for the 3700 MHz channel(s), the Ericsson AIR 6449 for the 3700 MHz channel(s), the CCI DMP65R-BU8EA-K for the 700 MHz / 850 MHz / 1900 MHz / 2300 MHz channel(s) in Sector B, the Kathrein 800-10965 for the 700 MHz / 2100 MHz channel(s), the Ericsson AIR 6419 for the 3700 MHz channel(s), the Ericsson AIR 6449 for the 3700 MHz channel(s), the CCI DMP65R-BU6EA-K for the 700 MHz / 850 MHz / 1900 MHz / 2300 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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.

11) The antenna mounting height centerline of the proposed antennas is 112 feet above ground level (AGL).

12) 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.

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

AT&T Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Kathrein 800-10966	Make / Model:	Kathrein 800-10965	Make / Model:	Kathrein 800-10965
Frequency Bands:	700 MHz / 2100 MHz	Frequency Bands:	700 MHz / 2100 MHz	Frequency Bands:	700 MHz / 2100 MHz
Gain:	13.45 dBd / 15.95 dBd	Gain:	12.65 dBd / 15.95 dBd	Gain:	12.65 dBd / 15.95 dBd
Height (AGL):	112 feet	Height (AGL):	112 feet	Height (AGL):	112 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	320.00 Watts	Total TX Power (W):	320.00 Watts	Total TX Power (W):	320.00 Watts
ERP (W):	9,837.75	ERP (W):	9,242.04	ERP (W):	9,242.04
Antenna A1 MPE %:	**4.44%**	Antenna B1 MPE %:	**4.03%**	Antenna C1 MPE %:	**4.03%**
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR 6419	Make / Model:	Ericsson AIR 6419	Make / Model:	Ericsson AIR 6419
Frequency Bands:	3700 MHz	Frequency Bands:	3700 MHz	Frequency Bands:	3700 MHz
Gain:	23.45 dBd	Gain:	23.45 dBd	Gain:	23.45 dBd
Height (AGL):	112 feet	Height (AGL):	112 feet	Height (AGL):	112 feet
Channel Count:	1	Channel Count:	1	Channel Count:	1
Total TX Power (W):	144.58 Watts	Total TX Power (W):	144.58 Watts	Total TX Power (W):	144.58 Watts
ERP (W):	31,996.92	ERP (W):	31,996.92	ERP (W):	31,996.92
Antenna A2 MPE %:	**10.24%**	Antenna B2 MPE %:	**10.24%**	Antenna C2 MPE %:	**10.24%**
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	3700 MHz	Frequency Bands:	3700 MHz	Frequency Bands:	3700 MHz
Gain:	23.45 dBd	Gain:	23.45 dBd	Gain:	23.45 dBd
Height (AGL):	112 feet	Height (AGL):	112 feet	Height (AGL):	112 feet
Channel Count:	1	Channel Count:	1	Channel Count:	1
Total TX Power (W):	144.58 Watts	Total TX Power (W):	144.58 Watts	Total TX Power (W):	144.58 Watts
ERP (W):	31,996.92	ERP (W):	31,996.92	ERP (W):	31,996.92
Antenna A3 MPE %:	**10.24%**	Antenna B3 MPE %:	**10.24%**	Antenna C3 MPE %:	**10.24%**
Antenna #:	4	Antenna #:	4	Antenna #:	4
Make / Model:	CCI DMP65R-BU8EA-K	Make / Model:	CCI DMP65R-BU8EA-K	Make / Model:	CCI DMP65R-BU6EA-K
Frequency Bands:	700 MHz / 850 MHz / 1900 MHz / 2300 MHz	Frequency Bands:	700 MHz / 850 MHz / 1900 MHz / 2300 MHz	Frequency Bands:	700 MHz / 850 MHz / 1900 MHz / 2300 MHz
Gain:	12.35 dBd / 13.35 dBd / 13.55 dBd / 15.35 dBd	Gain:	11.65 dBd / 11.65 dBd / 14.85 dBd / 15.65 dBd	Gain:	11.65 dBd / 11.65 dBd / 14.85 dBd / 15.65 dBd
Height (AGL):	112 feet	Height (AGL):	112 feet	Height (AGL):	112 feet
Channel Count:	16	Channel Count:	16	Channel Count:	16
Total TX Power (W):	580.00 Watts	Total TX Power (W):	580.00 Watts	Total TX Power (W):	580.00 Watts
ERP (W):	13,260.11	ERP (W):	13,239.66	ERP (W):	13,239.66
Antenna A4 MPE %:	**6.09%**	Antenna B4 MPE %:	**5.66%**	Antenna C4 MPE %:	**5.66%**

• An adjusted power reduction factor of 0.32 was applied to the AIR 6449 antennas per guidance from AT&T.

• Specifications were not available for the Ericsson AIR 6419 antenna. Per AT&T, specifications for the AIR 6449 antenna were used to model the 6419 due to its similarity.

Site Composite MPE %	
Carrier	**MPE %**
AT&T (Max at Sector A):	31.01%
Dish	1.1%
Clearwire	0.34%
T-Mobile	15.62%
Verizon	20.21%
Site Total MPE % :	68.28%

AT&T MPE % Per Sector	
AT&T Sector A Total:	31.01%
AT&T Sector B Total:	30.17%
AT&T Sector C Total:	30.17%
Site Total MPE % :	68.28%

AT&T Maximum MPE Power Values (Sector A)

AT&T Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
AT&T 700 MHz LTE FN	4	885.24	112.0	11.33	700 MHz LTE FN	467	2.43%
AT&T 2100 MHz LTE/5G	4	1574.20	112.0	20.15	2100 MHz LTE/5G	1000	2.01%
AT&T 3700 MHz C-Band	1	31996.92	112.0	102.38	3700 MHz C-Band	1000	10.24%
AT&T 3700 MHz C-Band	1	31996.92	112.0	102.38	3700 MHz C-Band	1000	10.24%
AT&T 700 MHz LTE	4	687.16	112.0	8.79	700 MHz LTE	467	1.88%
AT&T 850 MHz 5G	4	865.09	112.0	11.07	850 MHz 5G	567	1.95%
AT&T 1900 MHz LTE/5G	4	905.86	112.0	11.59	1900 MHz LTE/5G	1000	1.16%
AT&T 2300 MHz LTE	4	856.92	112.0	10.97	2300 MHz LTE	1000	1.10%
						Total:	**31.01%**

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

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 AT&T 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:

AT&T Sector	Power Density Value (%)
Sector A:	31.01%
Sector B:	30.17%
Sector C:	30.17%
AT&T Maximum MPE % (Sector A):	31.01%
Site Total:	68.28%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **68.28%** 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.