CONSULTANT TEAM

PROJECT CONSULTANT:	COLLIERS ENGINEERING & DESIGN 1500 LAKE SHORE DR., SUITE 225 COLUMBUS, OH 43204 (614) 395-9695
STRUCTURAL CONSULTANT: (TOWER ANALYSIS)	COLLIERS ENGINEERING & DESIGN
STRUCTURAL CONSULTANT: (MOUNT ANALYSIS)	PAUL J. FORD & COMPANY
MOUNT ANALYSIS STATUS:	COMPLETE
MOUNT ANALYSIS RESULT:	PASS W/ MODIFICATIONS
MOUNT ANALYSIS DATE:	06/23/25
STRUCTURAL ANALYSIS STATUS:	COMPLETE
STRUCTURAL ANALYSIS RESULT:	PASS
STRUCTURAL ANALYSIS DATE:	7/29/26

verizon

SITE NAME: DUBLIN
FUZE ID #16234090
MDG LOCATION ID #5000089136

PROPOSED ANTENNA MODIFICATION ON AN EXISTING WIRELESS SITE

STATE OF OHIO
JOHN MICHAEL SCHUELER
55581
REGISTERED
PROFESSIONAL ENGINEER

7-29-2026

OHIO811.org
Before You Dig

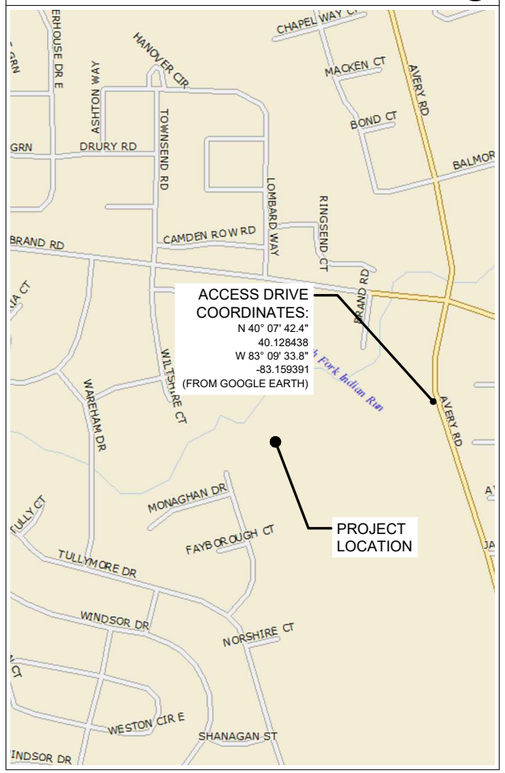
verizon

LATITUDE: N 40° 7' 40.1988"
40.127833
LONGITUDE: W 83° 9' 47.5992"
-83.163222

TERRA CONSULTING GROUP
has joined Colliers Engineering & Design

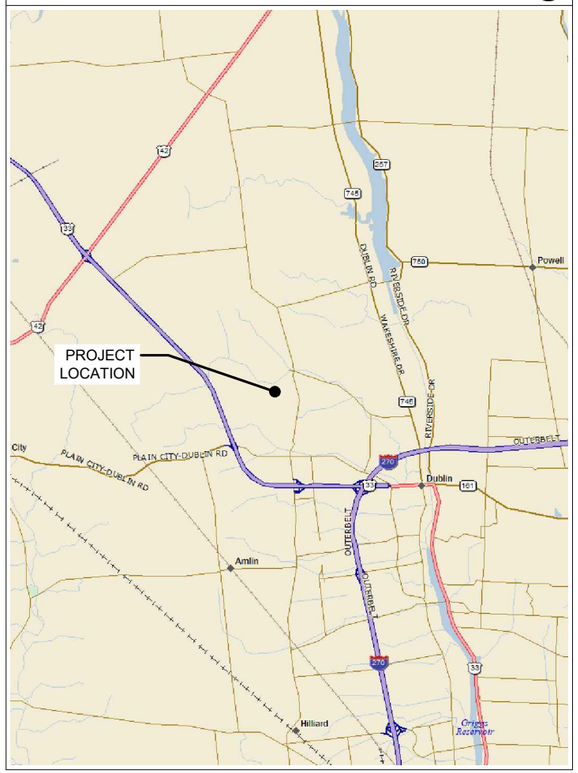
VICINITY MAP

N.T.S.



REGIONAL MAP

N.T.S.



PROJECT INFORMATION

SITE NAME:	DUBLIN
SITE ADDRESS:	7697 AVERY ROAD DUBLIN, OH 43016
LATITUDE:	N 40° 7' 40.1988" (FROM RFDS)
LONGITUDE:	W 83° 9' 47.5992" (FROM RFDS)
USE & OCCUPANCY CLASSIFICATION:	GROUP U - UTILITY & MISCELLANEOUS
CONSTRUCTION TYPE FOR EQUIPMENT SHELTER:	VB
STRUCTURE TYPE:	175' HIGH WATER TOWER
OVERALL STRUCTURE HEIGHT:	200'
VZW ANTENNA CL HEIGHT:	188' A.G.L.
APPLICANT:	VERIZON WIRELESS 7575 COMMERCE CT. LEWIS CENTER, OH 43035
TOWER OWNER:	CITY OF DUBLIN
REAL ESTATE MANAGER:	KAREN SWEENEY karen.sweeney@verizonwireless.com
CONSTRUCTION ENGINEER:	DUSTIN McDANIEL dustin.mcdaniel@verizonwireless.com

APPLICABLE BUILDING CODES

OBC 2024
OMC 2024
NEC 2023

SHEET INDEX

SHEET	DESCRIPTION	REVISION
T-1	TITLE SHEET	1
ANT-1	TOWER ELEVATION & NOTES	1
ANT-2	EXISTING ANTENNA LAYOUT	1
ANT-2A	PROPOSED ANTENNA LAYOUT	1
ANT-3	ANTENNA PLACEMENT DIAGRAMS	1
ANT-4	ANTENNA PLACEMENT DIAGRAM	1
GN-1	PMI REQUIREMENTS	1

ATTACHMENTS

ST-1	TITLE SHEET	-
SBOM	BILL OF MATERIALS	-
SGN-1	GENERAL NOTES	-
SS-1	MODIFICATION DETAILS	-
SS-2	MODIFICATION DETAILS	-
SS-3	MODIFICATION DETAILS	-
SS-4	MODIFICATION DETAILS	-
SS-5	MODIFICATION DETAILS	-
SS-6	MOUNT PHOTOS	-

CONTRACTOR PMI REQUIREMENTS

PMI DOCUMENTATION:	PJFMOUNT@PAULJFORD.COM
PROJECT #	16234090
VZW LOCATION CODE (PSLC)	149800

* PMI AND REQUIREMENTS ALSO EMBEDDED WITHIN MOUNT ANALYSIS REPORT

MOUNT MODIFICATION REQUIRED

YES

VERIZON APPROVED VENDORS

* REFER TO MOUNT MODIFICATION DRAWINGS

FULL SCALE PRINT IS ON 22"x34" MEDIA

SPECIAL NOTES

FAA AND FCC REQUIREMENTS :
THIS FACILITY SHALL MEET ALL FAA AND FCC REQUIREMENTS

CONSTRUCTION REQUIREMENTS :
ALL WORK MUST CONFORM TO VERIZON WIRELESS CONSTRUCTION INSTALLATION STANDARDS & ALL APPLICABLE CODES AND ORDINANCES.

HANDICAPPED REQUIREMENTS :
FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION HANDICAPPED ACCESS REQUIREMENTS NOT REQUIRED

PLUMBING REQUIREMENTS :
FACILITY HAS NO PLUMBING OR REFRIGERANTS

REVISIONS

NO.	DESCRIPTION	DATE	BY
A	ISSUED FOR PERMIT	7/2/25	ML
0	ISSUED FOR FINAL	7/29/25	JAY
1	RE-ISSUED FOR FINAL	7/29/26	JAY

FUZE #16234090
DUBLIN

7697 AVERY ROAD
DUBLIN, OH 43016

DRAWN BY:	JV
CHECKED BY:	JS
DATE:	4/3/24
PROJECT #:	179-507

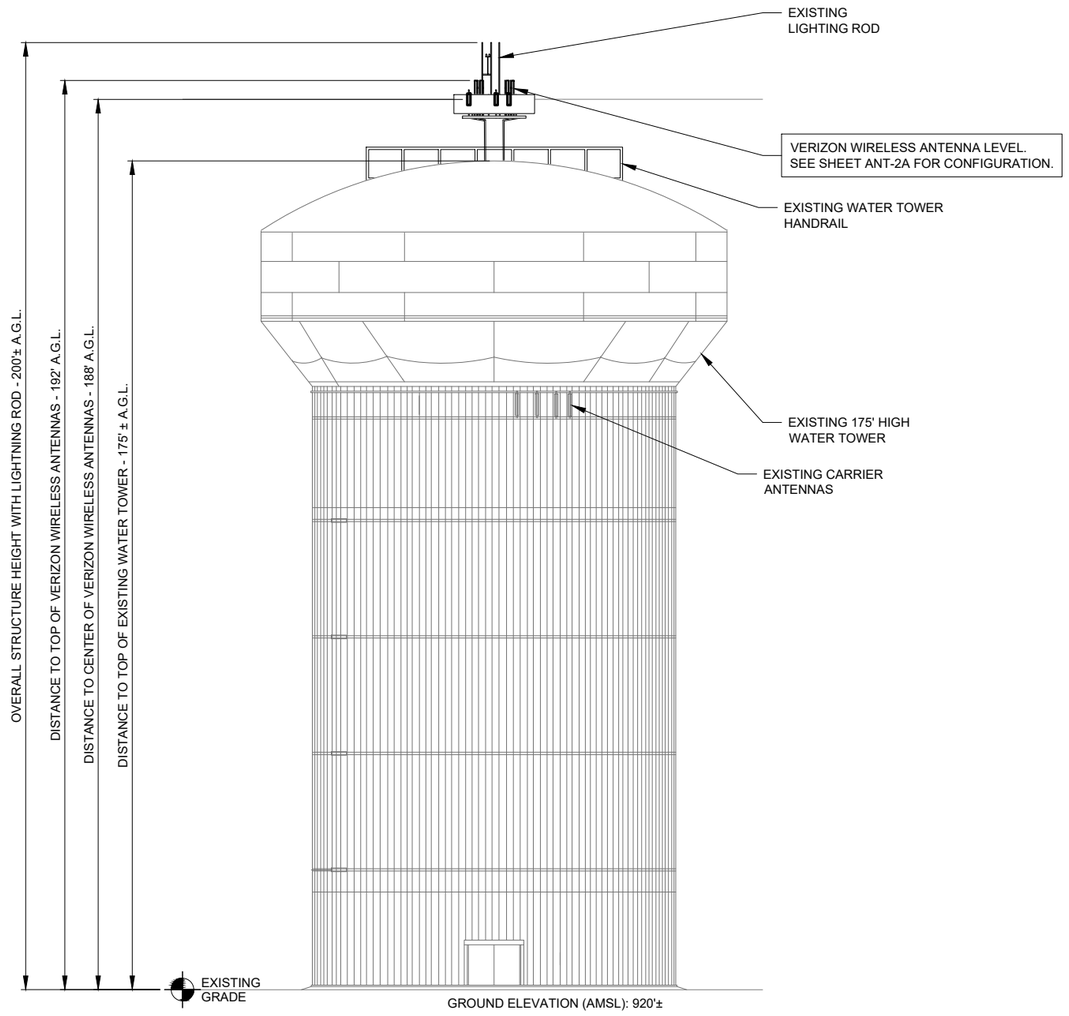
SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

NOTE:
THIS DRAWING IS FOR EXHIBIT AND LAYOUT PURPOSES ONLY.
PLEASE REFER TO TOWER STRUCTURAL ANALYSIS AND MOUNT ANALYSIS FOR CONFIRMATION OF ADEQUATE STRUCTURE CAPACITY.

1 FINAL COAX/HYBRID CABLE COUNT
(12) 1-5/8" COAX CABLES
(2) 1-5/8" HYBRID CABLES

NOTE:
POST-MODIFICATION INSPECTION (PMI) REQUIRED ON ALL SITES. REFER TO THE SHEET SS-1 OF THE CONSTRUCTION DRAWINGS, AS WELL AS THE MOUNT ANALYSIS PREPARED BY PAUL J. FORD & COMPANY, DATED 06/23/25 FOR ADDITIONAL DETAILS.



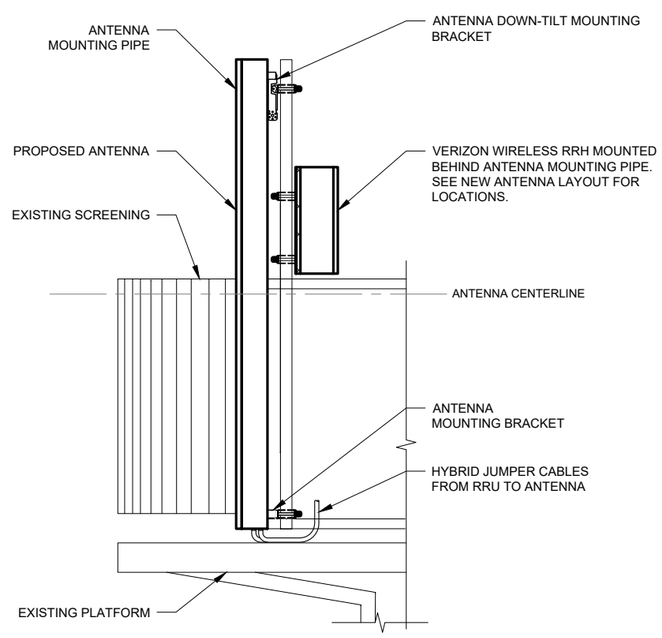
1 PROPOSED TOWER ELEVATION

NOTES:

1. THIS DRAWING IS FOR EXHIBIT PURPOSES ONLY
2. PLEASE REFER TO STRUCTURAL REPORT PROVIDED BY OTHERS
3. NO LINE OR ANTENNA WORK TO BEGIN PRIOR TO CONFIRMATION OF ADEQUATE TOWER AND MOUNT CAPACITY USING THE FINAL CONFIGURATION.
4. ALL EXISTING & PROPOSED INFORMATION PROVIDED BY LL AND VERIZON WIRELESS.
5. NO NEW ELECTRICAL WORK BEING DONE AND NO NEW VOLTAGE REQUIRED.
6. ALL NEW OVPs MUST BE INSTALLED ON A MOUNT, NOT DIRECTLY ON THE TOWER LEG.
7. G.C. TO INSTALL NEW 2.5" DIA. (2.875" O.D.) MOUNT PIPE WHERE ANTENNAS, RRHs AND DIPLEXERS ARE SWAPPED OR ADDED.

ANTENNA REPLACEMENT NOTES:

1. CONTRACTOR TO INSPECT THE CONDITION OF EXISTING MOUNTING PIPES. CONFIRM THE FOLLOWING:
   - CORROSION; IF MOUNTS ARE FOUND TO BE CORRODED, CONTACT VERIZON REP. FOR DIRECTION.
   - CHECK CONDITION OF ATTACHMENT BOLTS. IF FOUND LOOSE, TIGHTEN TO ORIGINAL SPECIFICATIONS (ALSO, TURN OF THE NUT METHOD).
   - IF BOLTS ARE MISSING, REPLACE TO SUITE.
   - CONFIRM MOUNTING PIPE IS ADEQUATELY SIZE TO ACCOMMODATE PROPOSED ANTENNA INSTALL.
2. ALL WORK DEPICTED ON THIS DRAWING DESIGNED IN ACCORDANCE WITH 2024 OBC AND AMENDMENTS.



2 PROPOSED OVP/RRH/ANTENNA DETAIL
N.T.S.

STATE OF OHIO
JOHN MICHAEL SCHUELER
55581
REGISTERED PROFESSIONAL ENGINEER
7-29-2026

verizon

LATITUDE: N 40° 7' 40.1988" 40.127833
LONGITUDE: W 83° 9' 47.5992" -83.163222

TERRA CONSULTING GROUP has joined Colliers Engineering & Design

REVISIONS

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FUZE #16234090
DUBLIN

7697 AVERY ROAD
DUBLIN, OH 43016

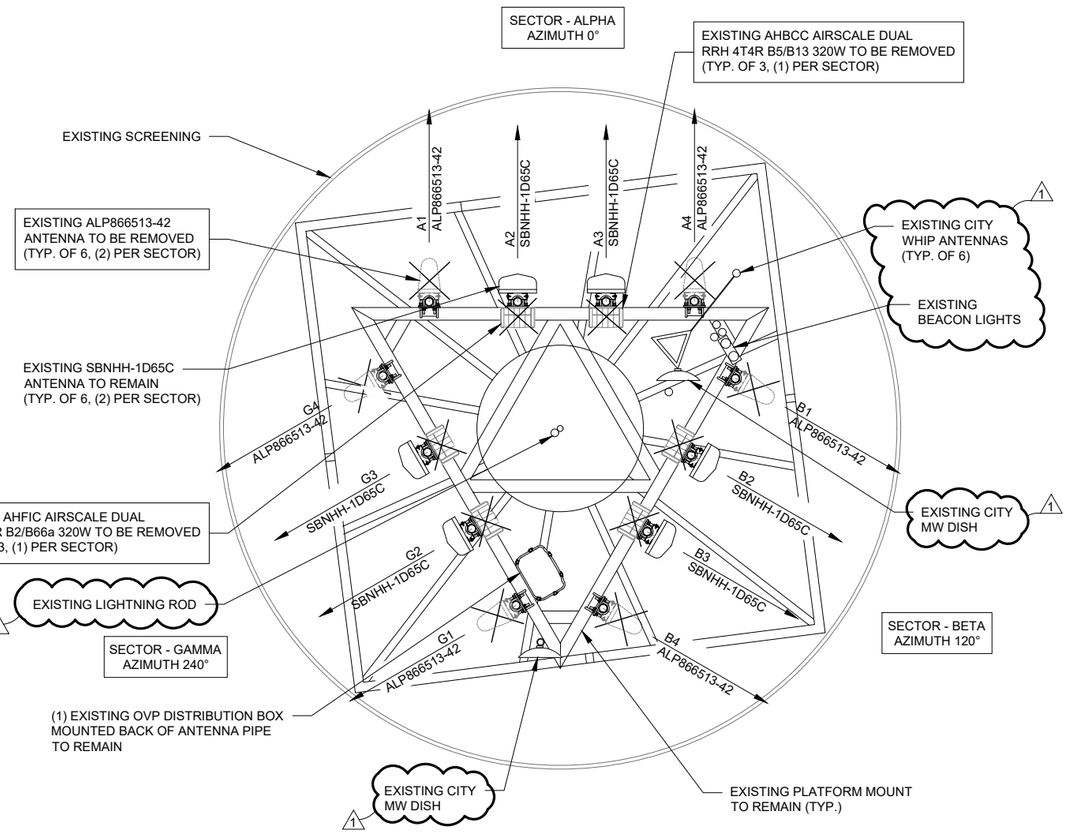
DRAWN BY:	JV
CHECKED BY:	JS
DATE:	4/3/24
PROJECT #:	179-507

SHEET TITLE
TOWER ELEVATION & NOTES

SHEET NUMBER
ANT-1

SEQUENCE OF OPERATION:

1. REMOVE (6) EXISTING ANTENNAS & MOUNTING HARDWARE AT ELEV. 188'-0". EXISTING MOUNTING PIPES TO BE REMOVED.
2. REMOVE (3) EXISTING AHBCC B5/B13 RRH & (3) EXISTING AHFIC B2/B66A RRH AT TOWER LEVEL.
3. REMOVE (1) EXISTING SPARE COAX CABLE.
4. INSTALL (3) NEW 5G ANTENNAS ON NEW MOUNTING HARDWARE AT ELEV. 188'-0" ON POSITIONS A4, B4 & G4. (3) NEW MOUNT PIPES TO BE 2-1/2" Ø STANDARD STEEL PIPES (2-7/8" O.D.).
5. INSTALL (3) NEW B2/B66A RRH ORAN & (3) NEW RF4461d-13A GEN2 RRH MOUNTED TO NEW PIPE MOUNTS BEHIND ANTENNAS.
6. INSTALL (1) TOWER OVP DISTRIBUTION BOX MOUNTED ON BEHIND ANTENNA & (1) NEW RACK MOUNT OVP DISTRIBUTION BOX INSIDE SHELTER.
7. INSTALL (1) NEW HYBRID CABLE TO BE TERMINATED AT EXISTING & NEW OVP DISTRIBUTION BOXES.
8. RETURN ALL REMOVED EQUIPMENT TO VERIZON WIRELESS.



1 EXISTING ANTENNA LAYOUT @ 188' A.G.L.
N.T.S.

TRUE NORTH
ORIENTATION 0°

verizon

LATITUDE: N 40° 7' 40.1988"
40.127833
LONGITUDE: W 83° 9' 47.5992"
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FUZE #16234090
DUBLIN

7697 AVERY ROAD
DUBLIN, OH 43016

DRAWN BY:	JV
CHECKED BY:	JS
DATE:	4/3/24
PROJECT #:	179-507

SHEET TITLE
EXISTING
ANTENNA LAYOUT

SHEET NUMBER
ANT-2

STATE OF OHIO
JOHN
MICHAEL
SCHUELER
55581
REGISTERED
PROFESSIONAL ENGINEER

7-29-2026

NOTE:
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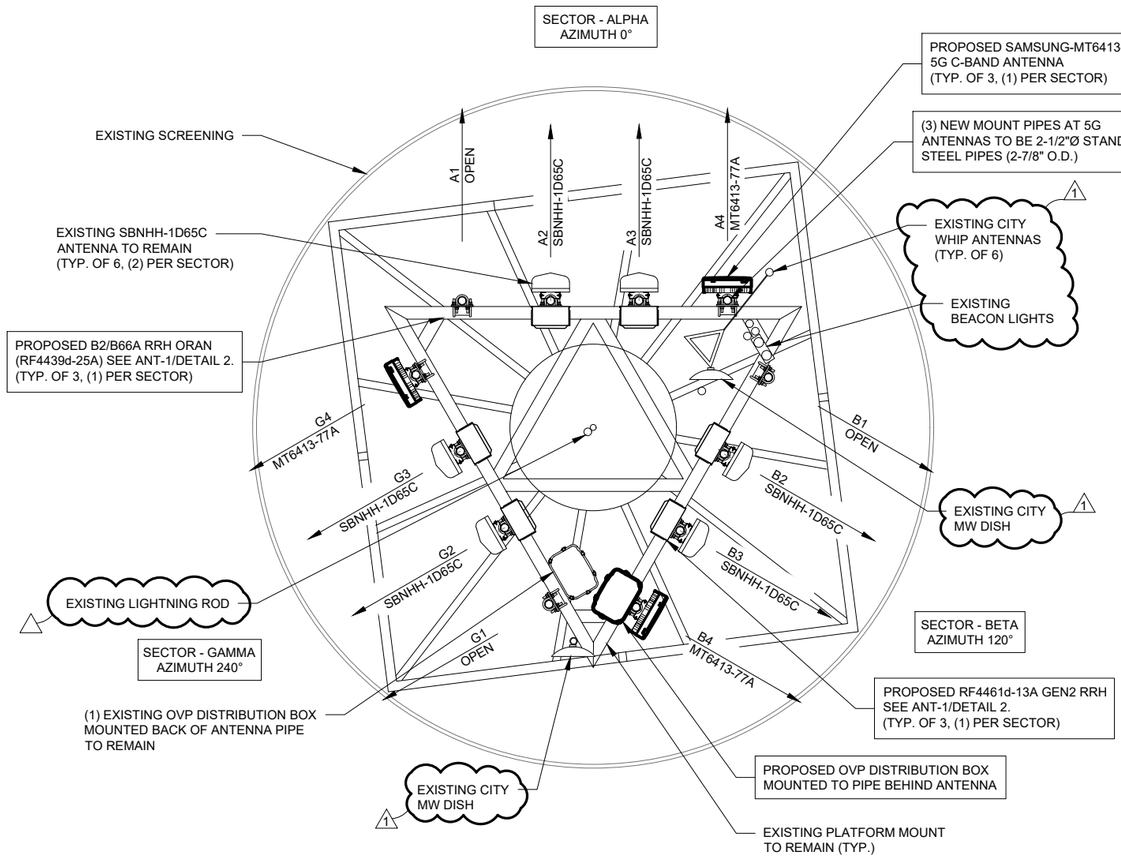
TRUE NORTH
ORIENTATION 0°



1 PROPOSED ANTENNA LAYOUT @ 188' A.G.L.
N.T.S.

verizon

LATITUDE: N 40° 7' 40.1988"
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FUZE #16234090
DUBLIN

7697 AVERY ROAD
DUBLIN, OH 43016

DRAWN BY:	JV
CHECKED BY:	JS
DATE:	4/3/24
PROJECT #:	179-507

SHEET TITLE
PROPOSED
ANTENNA LAYOUT

SHEET NUMBER
ANT-2A

STATE OF OHIO
JOHN
MICHAEL
SCHUELER
55581
REGISTERED
PROFESSIONAL ENGINEER

7-29-2026

NOTE:
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Structure: 5000089136-VZW - DUBLIN

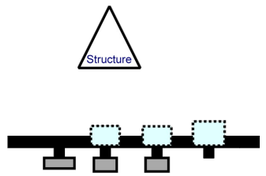
Sector: **A** 6/16/2025

Structure Type: Water Tank 10235654

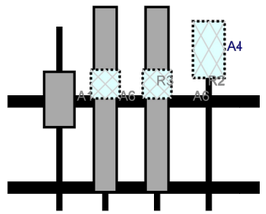
Mount Elev: 188.00 Page: 1

PAUL J. FORD & COMPANY

Plan View



Front View - Looking at Structure



4 3 2 1

Ref#	Model	Height (in)	Width (in)	H Dist Frm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
A4	RVZDC-6627-PF-48	29.5	16.5	105	1	a	Behind	12	0	Added	
A6	SBNHH-1D65C	96.6	11.9	78	2	a	Front	38.04	0	Retained	
R2	B2/B66A RRH ORAN	15	15	78	2	a	Behind	30	0	Added	
A6	SBNHH-1D65C	96.6	11.9	51	3	a	Front	38.04	0	Retained	
R3	RF4461d-13A	15	15	51	3	a	Behind	30	0	Added	
A1	MT6413-77A	28.9	15.8	27	4	a	Front	38.04	0	Added	

Structure: 5000089136-VZW - DUBLIN

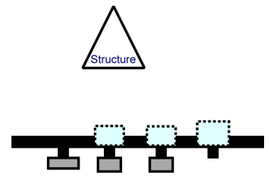
Sector: **B** 6/16/2025

Structure Type: Water Tank 10235654

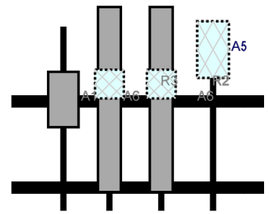
Mount Elev: 188.00 Page: 2

PAUL J. FORD & COMPANY

Plan View



Front View - Looking at Structure



4 3 2 1

Ref#	Model	Height (in)	Width (in)	H Dist Frm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
A5	RC3DC-3315-PF-48	29.5	16.5	105	1	a	Behind	12	0	Retained	
A6	SBNHH-1D65C	96.6	11.9	78	2	a	Front	38.04	0	Retained	
R2	B2/B66A RRH ORAN	15	15	78	2	a	Behind	30	0	Added	
A6	SBNHH-1D65C	96.6	11.9	51	3	a	Front	38.04	0	Retained	
R3	RF4461d-13A	15	15	51	3	a	Behind	30	0	Added	
A1	MT6413-77A	28.9	15.8	27	4	a	Front	38.04	0	Added	

1 ANTENNA PLACEMENT DIAGRAMS
N.T.S.

verizon

LATITUDE: N 40° 7' 40.1988" 40.127833
LONGITUDE: W 83° 9' 47.5992" -83.163222

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REVISIONS

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FUZE #16234090
DUBLIN

7697 AVERY ROAD
DUBLIN, OH 43016

DRAWN BY:	JV
CHECKED BY:	JS
DATE:	4/3/24
PROJECT #:	179-507

SHEET TITLE
ANTENNA PLACEMENT DIAGRAMS

SHEET NUMBER
ANT-3

NOTE:
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Structure: 5000089136-VZW - DUBLIN

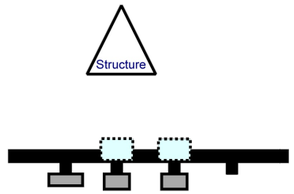
Sector: **C** 6/16/2025

Structure Type: Water Tank 10235654

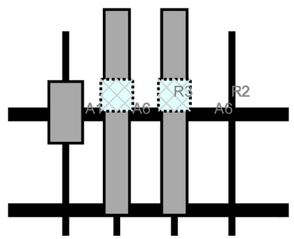
Mount Elev: 188.00 Page: 3

PAUL J. FORD & COMPANY

Plan View



Front View - Looking at Structure



4 3 2 1

Ref#	Model	Height (in)	Width (in)	H Dist Frm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
A6	SBNHH-1D65C	96.6	11.9	78	2	a	Front	38.04	0	Retained	
R2	B2/B66A RRH ORAN	15	15	78	2	a	Behind	30	0	Added	
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R3	RF4461d-13A	15	15	51	3	a	Behind	30	0	Added	
A1	MT6413-77A	28.9	15.8	27	4	a	Front	38.04	0	Added	

1 ANTENNA PLACEMENT DIAGRAM
N.T.S.

STATE OF OHIO
JOHN MICHAEL SCHUELER
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REGISTERED PROFESSIONAL ENGINEER
7-29-2026

verizon

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7697 AVERY ROAD
DUBLIN, OH 43016

DRAWN BY:	JV
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PROJECT #:	179-507

SHEET TITLE
ANTENNA PLACEMENT DIAGRAM

SHEET NUMBER
ANT-4

POST-MODIFICATION INSPECTION (PMI) REQUIREMENT

1. PMI REQUIRED FOR ALL SITES, REFER TO VERIZON NSTD-446 SECTIONS 1.5 AND 2.3 FOR MORE INFORMATION.
2. REFER TO THE MOUNT ANALYSIS BY PAUL J. FORD & COMPANY, DATED 06/23/25 FOR ADDITIONAL DETAILS.
3. GENERAL CONTRACTOR SHALL PROVIDE THE BELOW DOCUMENTATION TO THE ENGINEERING OF RECORD VIA EMAIL TO PJFMOUNT@PAULJFORD.COM, OR OTHER FILE SHARE METHOD. PROVIDE HIGH RESOLUTION PHOTOS (DO NOT COMPRESS).
4. ENGINEER OF RECORD WILL CONDUCT A REVIEW OF THE PROVIDED DOCUMENTS TO PREPARE A PMI REPORT. ENGINEER OF RECORD WILL NOTIFY GENERAL CONTRACTOR IF ANY ADDITIONAL DOCUMENTATION IS REQUIRED TO COMPLETE THE PMI.
5. PMI DOCUMENTATION SHALL BE SUFFICIENT TO CONFIRM THE UPGRADE WAS BUILT AS DESIGNED, INCLUDING EQUIPMENT CHANGES AND STRUCTURAL MODIFICATIONS, AND IS IN ADDITION TO ANY OTHER REQUIRED CLOSEOUT PACKAGE DOCUMENTATION.
6. REQUIRED DOCUMENTATION FOR PMI INCLUDES THE FOLLOWING AT A MINIMUM. REFER TO THE MOUNT ANALYSIS FOR POSSIBLE ADDITIONAL INFORMATION. IF STRUCTURAL MODIFICATIONS ARE REQUIRED, REFER TO THE MODIFICATION DRAWINGS FOR POSSIBLE ADDITIONAL REQUIREMENTS.
   A. PROVIDE PRE-AND-POST CONSTRUCTION PHOTOS OF EACH SECTOR FROM THE MOUNT ELEVATION AND THE GROUND. CONTRACTOR IS RESPONSIBLE FOR ENSURING THE PHOTOS PROVIDED PROVIDE POSITIVE CONFIRMATION THAT THE MODIFICATION/UPGRADE WAS COMPLETED IN ACCORDANCE WITH THESE CONSTRUCTION DRAWINGS AND ANY STRUCTURAL/MOUNT MODIFICATION DRAWINGS. CONTRACTOR SHALL RELAY ANY DATA THAT CAN IMPACT THE PERFORMANCE OF THE MOUNT OR MOUNT MODIFICATION, INCLUDING SAFETY ISSUES. PHOTOS SHALL HAVE A DATE/TIME STAMP IN THE PHOTO. REFER TO THE MOUNT ANALYSIS FOR FILE STRUCTURE SCHEDULE OF PHOTOS. PROVIDE PHOTOS OF THE GATE SIGNS AND CARRIER SHELTER TO IDENTIFY THE TOWER OWNER, SITE NAME, SITE NUMBER, ETC.
   B. VERIFICATION OF THE MEMBER CONNECTIONS, BRACING, AND RELEVANT DIMENSIONS.
   C. VERIFICATION OF THE ANTENNA AND OTHER EQUIPMENT CONFIGURATION (PHOTOS OF MODEL NUMBERS/TAGS/ FOR ALL EQUIPMENT, AS WELL AS THE FEEDLINE CONFIGURATION). TAKE PHOTOS OF THE BACK SIDE OF EACH SECTOR AS WELL AS CLOSE-UPS OF ALL EQUIPMENT. PHOTOS SHOULD CONFIRM THE HORIZONTAL AND VERTICAL POSITIONING OF THE ANTENNAS AND EQUIPMENT AND SHALL HAVE TAPE MEASURES IN THE PHOTOS TO CONFIRM.
   D. FOR TIE-BACKS, STRUTS, MOUNT PIPES, PHOTOS TO CONFIRM THE ANGLES AND LOCATION OF ATTACHMENT POINT AT BOTH ENDS OF MEMBER, AS WELL AS DIMENSIONS, THICKNESS, AND LENGTHS OF THE MEMBERS. REFER TO THE CHECKLIST IN THE MOUNT ANALYSIS FOR ADDITIONAL INFORMATION.
   E. MOUNT ATTACHMENT TO THE SUPPORTING STRUCTURE, INCLUDING ANY KICKERS OR SUPPORT, OR TIEBACKS.
   F. MATERIALS USED (TYPE, STRENGTH, DIMENSIONS, ETC). PROVIDE BILL OF MATERIALS AND MATERIAL SPEC TO CONFIRM MATERIAL GRADES AND SIZES. PROVIDE DOCUMENTATION FOR GALVANIZATION OF MEMBERS WHETHER HOT-DIPPED OR COLD-GALVANIZED. IF MATERIALS DIFFER FROM THOSE SPECIFIED ON THESE DRAWINGS, PROVIDE DOCUMENTATION THAT THE "EQUIVALENT" MATERIAL HAS THE SAME SPECIFICATIONS.
   G. MOUNT ORIENTATION/AZIMUTH AND ELEVATION. PROVIDE TAPE DROP PHOTOS OF ANTENNA CENTERLINE(S) AND MOUNT ATTACHMENT POINTS TO THE SUPPORTING STRUCTURE. IF THERE ARE MULTIPLE RAD CENTERS, PROVIDE PHOTOS OF ALL ELEVATIONS.
   H. VERIFICATION THAT THE INSTALL HAS NOT CAUSED DAMAGE TO OR UNPLANNED OBSTRUCTION OF THE FOLLOWING:
      - CLIMBING FACILITIES
      - SAFETY CLIMB IF PRESENT, INCLUDING PHOTOS ABOVE AND BELOW THE MOUNT.
      - LIGHTING SYSTEM
      - OTHER INSTALLED SYSTEMS ON THE STRUCTURE
      - CONTRACTOR SHALL ENSURE THE SAFETY CLIMB IS SUPPORTED AND NOT ADVERSELY AFFECTED BY THE INSTALLATION OF NEW COMPONENTS. THIS MAY INVOLVE THE INSTALLATION OF WIRE ROPE GUIDES OF OTHER ITEMS TO PROTECT THE WIRE ROPE.
   I. OTHER ITEMS DETERMINED BY THE STRUCTURAL ENGINEER TO ENSURE THE MOUNT WILL PERFORM AS DESIGNED. PHOTOS OF RELEVANT MEASUREMENTS, WITH SUFFICIENT DETAILS TO CONFIRM CONNECTION DETAILS. PLACEMENT OF EQUIPMENT, WALL ANCHOR DETAILS, BALLAST QUANTITIES, STRUCTURAL MODIFICATIONS ETC. DIAMETERS AND THICKNESS OF BOLTS/THREADED RODS/ANGLES/TUBES ETC. SHALL HAVE PHOTOS CONFIRMING CALIPER MEASUREMENTS.
      - CONFIRMATION THAT ALL HARDWARE WAS PROPERLY INSTALLED, AND EXISTING HARDWARE WAS INSPECTED FOR ANY ISSUES.
      - FOR BALLAST SLEDS, DOCUMENTATION OF THE WEIGHT OF BALLAST IN EACH SECTOR.
      - FOR WALL ANCHORS, PHOTOS AND MEASUREMENTS OF OUTSIDE AND INSIDE OF CONNECTIONS. DOCUMENTATION OF ADHESIVE USED, SIZE AND LENGTH OF ANCHORS, EFFECTIVE EMBEDMENT DEPTH OF THE ANCHOR-BOLTS OR BACKING PLATES.
      - FOR STUD WELD CONNECTIONS, DOCUMENTATION TO CONFIRM SURFACE PREPARATION, STUD WELD SIZE, GRADE, LENGTH, AND SPACING.
      - FOR FABRICATED PARTS, SHOP DRAWINGS TO BE APPROVED BY THE ENGINEER OF RECORD PRIOR TO CONSTRUCTION.
      - FOR WELDED PARTS, CERTIFIED WELD INSPECTION.
      - FOR BOLTED PARTS, BOLT INSTALLATION AND TORQUE.
7. CONTRACTOR SHALL PROVIDE, IN ADDITION TO THE ABOVE, AS-BUILT CDS WITH REDLINES IDENTIFYING ANY CHANGES. THE AS-BUILTS SHALL HAVE THE CONTRACTOR'S NAME. PREPARER'S SIGNATURE, AND DATE.
8. IF THE MODIFICATION INSTALLATION WOULD FAIL THE PMI ("FAILED PMI"), THE CONTRACTOR SHALL WORK WITH THE ENGINEER OF RECORD TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:
   A. CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENTAL PMI.
   B. OR, WITH THE EOR'S APPROVAL, THE GC MAY WORK WITH THE EOR TO RE-ANALIZE THE MODIFICATION/REINFORCEMENT/UPGRADE USING THE AS-BUILT CONDITION.
9. NOTE: IF LOADING IS DIFFERENT THAN SHOWN IN THESE CONSTRUCTION DRAWINGS OF STRUCTURAL/MOUNT MODIFICATION DRAWINGS, CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD IMMEDIATELY FOR RESOLUTION.
10. THE ENGINEERING FIRM PERFORMING AN ANALYSIS SHALL PROVIDE A CONTRACTOR'S PHOTO LOG AND CHECKLIST TO BE COMPLETED BY THE INSTALLING CONTRACTOR. THE CONTRACTOR SHALL THEN PROVIDE POST-INSTALLATION INFORMATION TO THE STRUCTURAL ENGINEER. THE STRUCTURAL ENGINEER SHALL REVIEW THE DOCUMENTS FOR ANY DEFICIENCIES THAT BAN BE DETERMINED FORM THE DESKTOP REVIEW OF THE DATA. THE ENGINEERING FIRM SHALL THEN PROVIDE DOCUMENTATION TO VZW THATTHE SITE IS COMPLETE, AND THE PMI REPORT IS APPROVED.

7-29-2026

verizon

LATITUDE: N 40° 7' 40.1988" 40.127833
LONGITUDE: W 83° 9' 47.5992" -83.163222

TERRA CONSULTING GROUP
has joined Colliers Engineering & Design

REVISIONS

NO.	DESCRIPTION	DATE	BY
A	ISSUED FOR PERMIT	7/2/25	ML
0	ISSUED FOR FINAL	7/29/25	JAY
1	RE-ISSUED FOR FINAL	7/29/26	JAY

FUZE #16234090
DUBLIN

7697 AVERY ROAD
DUBLIN, OH 43016

DRAWN BY:	JV
CHECKED BY:	JS
DATE:	4/3/24
PROJECT #:	179-507

SHEET TITLE
PMI REQUIREMENTS

SHEET NUMBER
GN-1

MOUNT MODIFICATION DRAWINGS
PROPOSED CARRIER: VERIZON

5000089136-VZW / DUBLIN

7697 AVERY ROAD
DUBLIN, OHIO 43016
FRANKLIN COUNTY
LAT: 40° 07' 40.20"; LONG: -83° 09' 47.60"

TOWER MANAGED BY: CITY OF COLUMBUS
TOWER MANAGER SITE ID #: 7697

FUZE ID # 16234090

CONTRACTOR PMI REQUIREMENTS	
PMI ACCESSED AT	HTTPS://PMI.VZWSMART.COM
SMART TOOL VENDOR PROJECT #	10245701
VZW LOCATION CODE (PSLC)	149800
MDG #	5000089136
*** PMI AND REQUIREMENTS ALSO EMBEDDED WITHIN MOUNT ANALYSIS REPORT	

VZW APPROVED SMART KIT VENDORS
REFER TO BILL OF MATERIALS SHEET FOR VZW SMART KIT APPROVED VENDORS

SHEET INDEX		
SHEET	DESCRIPTION	REV
ST-1	TITLE SHEET	0
SBOM	BILL OF MATERIALS	0
SGN-1	GENERAL NOTES	0
SS-1	MODIFICATION DETAILS	0
SS-2	MODIFICATION DETAILS	0
SS-3	MODIFICATION DETAILS	0
SS-4	MODIFICATION DETAILS	0
SS-5	MODIFICATION DETAILS	0
SS-6	MOUNT PHOTOS	0
	SPECIFICATION SHEETS	

PJF PAUL J. FORD & COMPANY
250 E Broad St, Ste 600- Columbus, OH 43215
Phone 614.221.6679
www.pauljford.com

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5000089136-VZW / DUBLIN
DUBLIN, OHIO
MOUNT MODIFICATION DRAWINGS

PROJECT No:	24324-1064.003.8187
DRAWN BY:	BJH
DESIGNED BY:	BJH
CHECKED BY:	
DATE:	6/16/2025

TITLE SHEET

ST-1

V2.0 24324-1064.003.DWG

BILL OF MATERIALS

VZWSMART KITS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	PIECE WEIGHT (LBS)	TOTAL WEIGHT (LBS)	MATERIAL	NOTES
3	VZWSMART	VZWSMART P40-278X096	8'-0" LONG, P2.5 STD (2.875"Ø X 0.203") PIPE	46.40	139.20	ASTM A53 (Gr. B-35)	

OTHER REQUIRED PARTS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	PIECE WEIGHT (LBS)	TOTAL WEIGHT (LBS)	MATERIAL	NOTES
30	-	U-BOLT	SEE ATTACHED U-BOLT CHART	-	-	ASTM A36 (Gr. 36)	
228	-	1/2" FLAT WASHERS	-	-	-	ASTM A325	
228	-	1/2" LOCK WASHERS	-	-	-	ASTM A325	
228	-	1/2" HEX NUTS	-	-	-	ASTM A325	
6	-	L3X3X3/16 ANGLE	5'-0" LONG	18.55	111.30	ASTM A36 (Gr. 36)	NEW VERTICAL BRACING
6	-	L4X4X3/8 ANGLE		107.80	646.80	ASTM A36 (Gr. 36)	TOP AND BOTTOM FACE MEMBER REINFORCEMENT
1	CUSTOM	C8X18.75		112.50	112.50	-	NEW INTERNAL LOWER SUPPORT MEMBER
168	-	1/2" Ø HEX BOLTS	1 1/2" LONG	0.19	32.26	ASTM A325	
12	-	5/8" Ø HEX BOLTS	2" LONG	0.37	4.49	ASTM A325	
12	-	5/8" FLAT WASHERS	-	-	-	ASTM A325	
12	-	5/8" LOCK WASHERS	-	-	-	ASTM A325	
12	-	5/8" HEX NUTS	-	-	-	ASTM A325	
7	-	L4X4X3/8 ANGLE		53.90	377.30	ASTM A36 (Gr. 36)	NEW INTERNAL MEMBER, INTERNAL MEMBER REINFORCING, AND MIDDLE SUPPORT RAIL REINFORCING
3	CUSTOM	CUSTOM CORNER PLATES	SEE SS-3 FOR DETAILS	41.47	124.41	-	
24	-	PL 2" X 3/4"	2" LONG SHIM PLATE	0.07	1.70	ASTM A36 (Gr. 36)	
2	-	PL 6" X 3/8"	1'-0" LONG BENT PLATE	7.66	15.31	-	
				TOTAL WEIGHT =	1565.27		

NOTE: ALL MATERIALS REQUIRED FOR THE DESIGN MODIFICATIONS BUT NOT LISTED IN THIS SHEET ARE ASSUMMED TO BE PROVIDED BY THE CONTRACTOR.

VZWSMART KITS - APPROVED VENDORS

VENDOR	CONTACT	EMAIL	PHONE NUMBER
PERFECT VISION	WIRELESS SALES	WIRELESSSALES@PERFECT-VISION.COM	(844) 884-6723
SITE PRO 1	TERRY DENATALIE	TERRY.DENATALIE-SCHENK@VALMONT.COM	(888) 438-7761
SABRE INDUSTRIES INC.	ANGIE WELCH	AKWELCH@SABREINDUSTRIES.COM	(866) 428-6937
METROSITE FABRICATORS, LLC	KENT RAMEY	KENT@METROSITELLC.COM	(706) 335-7045
ANDREW	STEEL PRODUCTS	STEELPRODUCTS@ANDREW.COM	(888) 297-6433 OPT #3

THE MANUFACTURER'S LISTED ARE THE APPROVED VENDORS FOR THE VZW MOUNT KITS. EACH MANUFACTURER WILL BE AWARE OF WHICH KITS HAVE BEEN THROUGH THE VZW APPROVAL PROCESS AND THE ARE IN TURN APPROVED TO SELL. PLEASE NOTE THAT THE MATERIAL UTILIZED ON THE MOUNT MODIFICATIONS WILL BE REVIEWED AS A PART OF THE DESKTOP PMI COMPLETED BY THE SMART TOOL VENDOR. IT WILL BE REQUIRED THAT THE VZW KITS SPECIFIED ARE UTILIZED IN THE MODIFICATION.

ALL PARTS ARE GALVANIZED UNLESS NOTED OTHERWISE

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250 E Broad St, Ste 600- Columbus, OH 43215
Phone 614.221.6679
www.pauljford.com

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5000089136-VZW / DUBLIN
DUBLIN, OHIO
MOUNT MODIFICATION DRAWINGS

PROJECT No:	24324-1064.003.8187
DRAWN BY:	BJH
DESIGNED BY:	BJH
CHECKED BY:	
DATE:	6/16/2025

BILL OF MATERIALS

SBOM

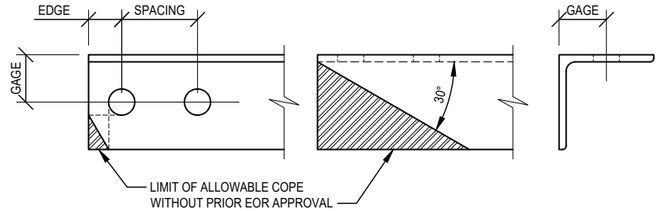
V2.0 24324-1064.003.DWG

GENERAL NOTES:

1. PAUL J. FORD AND COMPANY WAS NOT PROVIDED WITH THE EXACT LOCATION OF EVERY EXISTING ANTENNA MOUNT CONNECTION, CABLE CLIP, ETC THAT COULD POTENTIALLY INTERFERE WITH THE MODIFICATIONS AS INDICATED ON THESE DRAWINGS. THE CONTRACTOR SHALL FIELD VERIFY THAT THE MATERIAL CAN BE INSTALLED AS SHOWN ON THESE DRAWINGS BEFORE FABRICATING ANY MATERIAL. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE PROPER FIT AND CLEARANCE OF THE REINFORCING MATERIAL IN THE FIELD. IF THE CONTRACTOR DISCOVERS ANY EXISTING CONDITIONS THAT ARE NOT AS REPRESENTED ON THESE DRAWINGS, PAUL J. FORD AND COMPANY SHALL BE CONTACTED IMMEDIATELY TO EVALUATE THE STRUCTURAL SIGNIFICANCE OF THE DEVIATION.
2. WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE LOCAL BUILDING OFFICIALS FOR ANY INSPECTIONS THAT MAY BE REQUIRED.
3. THE CONTRACTOR MUST BE EXPERIENCED IN THE PERFORMANCE OF WORK SIMILAR TO THAT DESCRIBED ON THESE DRAWINGS. BY ACCEPTANCE OF THIS PROJECT, THE CONTRACTOR IS ATTESTING THAT HE DOES HAVE SUFFICIENT EXPERIENCE AND ABILITY, THAT HE IS KNOWLEDGEABLE OF THE WORK TO BE PERFORMED AND THAT HE IS PROPERLY LICENSED TO DO THIS WORK IN THE JURISDICTION IN WHICH THE WORK IS TO BE PERFORMED.
4. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION. ALL STRUCTURES ARE DESIGNED TO BE STABLE AND SELF-SUPPORTING AT THE COMPLETION OF CONSTRUCTION. THIS DRAWING DOES NOT INDICATE THE METHOD OF CONSTRUCTION. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE THE ERECTION PROCEDURES, METHODS, MEANS, TECHNIQUES, AND SEQUENCES TO ENSURE THE STABILITY AND SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS, AND THE ADEQUACY OF TEMPORARY OR INCOMPLETE CONNECTIONS DURING CONSTRUCTION. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF WHATEVER TEMPORARY BRACING THAT MAY BE NECESSARY AND ENGINEERING ASSESSMENT OF CONSTRUCTION STRESSES WITH INSTALLATION MAXIMUM WIND SPEED AND/OR TEMPORARY BRACING AND SHORING. SUCH MATERIAL IS NOT INDICATED ON THE DRAWINGS AND, IF PROVIDED, SHALL BE REMOVED, AS CONDITIONS PERMIT AND REMAIN THE PROPERTY OF THE CONTRACTOR.
5. ANY EXISTING ATTACHMENTS AND/OR PROJECTIONS ON THE STRUCTURE THAT MAY INTERFERE WITH THE INSTALLATION OF THE MODIFICATION SYSTEM WILL HAVE TO BE REMOVED AND RELOCATED, REPLACED, OR RE-INSTALLED AS REQUIRED AFTER THE MODIFICATION IS SUCCESSFULLY COMPLETED. THE CONTRACTOR SHALL IDENTIFY AND COORDINATE THESE ITEMS PRIOR TO CONSTRUCTION WITH OWNER, TESTING AGENCY, AND EOR.
6. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PROGRAMS AND PRECAUTIONS IN CONNECTION WITH THE WORK.
7. CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT DAMAGE TO EXISTING STRUCTURES, EQUIPMENT AND UTILITIES. ANY DAMAGE TO EXISTING STRUCTURES, EQUIPMENT, AND UTILITIES AS A RESULT OF THE CONTRACTOR'S WORK OR FROM DAMAGE DUE TO OTHER CAUSES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
8. WORK SHALL BE PERFORMED DURING WINDS LESS THAN 30-MPH IN ACCORDANCE WITH OPERATIONAL WIND CONDITIONS PER ANSI/TIA-322.
9. RIGGING OR FALL PROTECTION LOADS CAN BE EVALUATED VIA ANSI/TIA-322 IF A CONTRACTOR PLAN IS SUBMITTED.
10. THE STRUCTURAL ANALYSIS ASSUMES THAT ALL STRUCTURAL COMPONENTS ARE IN BRAND-NEW CONDITION, FREE FROM FAULTS AND DEFECTS AND IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. NO ALLOWANCE WAS MADE FOR ANY DAMAGED, MISSING, OR RUSTED MEMBERS. IF ANY OF THESE CONDITIONS ARE DISCOVERED, THE CONTRACTOR SHALL BRING THEM TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE. ANY AND ALL SUBSTITUTIONS MUST BE PROPERLY APPROVED AND AUTHORIZED IN WRITING BY OWNER AND EOR PRIOR TO INSTALLATION. THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF MATERIALS AND EQUIPMENT BEING SUBSTITUTED.
11. IF MATERIALS, QUANTITIES, STRENGTHS, OR SIZES INDICATED BY THE DRAWINGS OR SPECIFICATIONS ARE NOT IN AGREEMENT WITH THESE NOTES, THE BETTER QUALITY AND/OR GREATER QUANTITY, STRENGTH, OR SIZE INDICATED, SPECIFIED, OR NOTED SHALL BE PROVIDED.
12. OBSERVATION VISITS TO THE SITE BY OWNER AND/OR THE EOR SHALL NOT INCLUDE INSPECTIONS OF THE PROTECTIVE MEASURES OR THE CONSTRUCTION PROCEDURES.
13. ANY SUPPORT SERVICES PERFORMED BY THE EOR DURING CONSTRUCTION ARE SOLELY FOR THE PURPOSE OF ASSISTING IN QUALITY CONTROL AND IN ACHIEVING GENERAL PERFORMANCE WITH CONTRACT DOCUMENTS. THEY DO NOT GUARANTEE CONTRACTORS PERFORMANCE AND SHALL NOT BE CONSTRUED AS SUPERVISION OF CONSTRUCTION.
14. THE CLIMBING FACILITIES, SAFETY CLIMB, AND ALL PARTS THEREOF SHALL NOT BE IMPEDED, MODIFIED, OR ALTERED WITHOUT THE APPROVAL OF THE EOR.
15. AFTER THE CONTRACTOR HAS SUCCESSFULLY COMPLETED THE INSTALLATION OF THE MODIFICATION SYSTEM AND THE WORK HAS BEEN ACCEPTED BY THE OWNER, THE OWNER WILL BE RESPONSIBLE FOR THE LONG TERM/PERPETUAL INSPECTION AND MAINTENANCE OF THE STRUCTURE AND MODIFICATION SYSTEM.
16. DO NOT SCALE DRAWINGS.
17. IF RIGGING TO THE MOUNT IS REQUIRED, ALL CONSTRUCTION PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION), INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH THE ANSI/TIA-322 (LATEST EDITION).
18. ALL MANUFACTURER'S HARDWARE ASSEMBLY INSTRUCTIONS SHALL BE FOLLOWED, UNO. CONFLICTING NOTES SHALL BE BROUGHT TO THE ATTENTION OF THE EOR.
19. IF REMOVAL OF EXISTING MODIFICATIONS IS REQUIRED PER THE MODIFICATION SCOPE, THE GC SHALL CLEAN AND COLD GALVANIZE ANY EXISTING EMPTY BOLT HOLES, UNO. IF ADDITIONAL UNEXPECTED, OVERSIZED, OR SLOTTED HOLES ARE FOUND, THE GC SHALL CONTACT THE EOR FOR GUIDANCE PRIOR TO PROCEEDING WITH THE MODIFICATION.

STRUCTURAL STEEL:

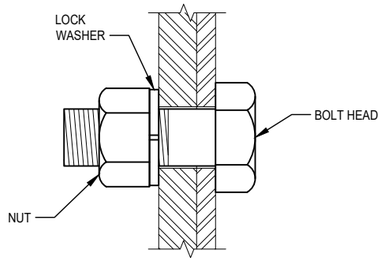
1. STRUCTURAL STEEL MATERIALS, FABRICATION, DETAILING, AND WORKMANSHIP SHALL CONFORM TO THE LATEST ADDITION OF THE FOLLOWING REFERENCE STANDARDS:
   A. BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC):
      "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS"
      "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM HIGH STRENGTH BOLTS" AS APPROVED BY THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS.
      "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"
   B. BY THE AMERICAN WELDING SOCIETY (AWS):
      "STRUCTURAL WELDING CODE- STEEL D1.1"
      "STANDARD SYMBOLS FOR WELDING, BRAZING, AND NON-DESTRUCTIVE EXAMINATION"
2. NEW STEEL (UNLESS NOTED OTHERWISE) SHALL CONFORM TO THE REQUIREMENTS OF THE ASTM STANDARD SPECIFICATION FOR STRUCTURAL STEEL NOTED BELOW:
   W - ASTM A992 (50 KSI YIELD POINT MATERIAL)
   HSS RECTANGULAR - ASTM A500 GR. B (46 KSI YIELD POINT MATERIAL)
   HSS ROUND - ASTM A500 GR. B (42 KSI YIELD POINT MATERIAL)
   PIPE - ASTM A53 GR. B (35 KSI YIELD POINT MATERIAL)
   C, MC, L, PLATES, BARS & ALL OTHER STEEL - ASTM A36 (36KSI YIELD POINT MATERIAL)
   BOLTS - ASTM A325
   U-BOLTS - ASTM A307 GRADE A, OR SAE J429 GRADE 2
   THREADED RODS - ASTM A36
   NUTS - ASTM A563 GRADE DH
   WASHERS - ASTM F436 TYPE 1
3. ALL NEW STEEL SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123, ASTM 153/A153M, OR ASTM A653 G90.
4. ALL BOLTS, U-BOLTS, AND THREADED RODS SHALL BE PROVIDED WITH LOCK-WASHERS, OR LOCK-NUTS, OR PAL-NUTS TORQUED TO THE SNUG-TIGHT CONDITION AS DEFINED BY AISC.
5. ALL HOLES, EITHER PUNCHED OR DRILLED, IN THE EXISTING STEEL MEMBERS SHALL BE 1/16 INCH LARGER THAN THE BOLT DIAMETER, UNLESS NOTED OTHERWISE. BURNING OF MEMBERS SHALL NOT BE PERMITTED. SLOTTED HOLES ARE NOT PERMITTED. THE MINIMUM BOLT SPACING SHALL BE 3 TIMES THE BOLT DIAMETER AND THE MINIMUM EDGE DISTANCE SHALL BE 1.5 TIMES THE BOLT DIAMETER UNLESS NOTED OTHERWISE. ALL BOLT HOLES SHALL BE PLACED AT AISC STANDARD GAGE DIMENSIONS, UNLESS NOTED OTHERWISE.
6. IF ANY EXISTING ASTM A325 BOLTS ARE REMOVED, THEY MUST BE REPLACED WITH NEW A325 BOLTS OR GREATER.
7. ALL EXISTING PAINTED OR GALVANIZED SURFACES DAMAGED DURING CONSTRUCTION SHALL BE WIRE BRUSHED CLEAN, REPAIRED BY FILM GALVANIZING BRUSH APPLIED PAINT (ZINC KOTE OR APPROVED EQUIVALENT), AND REPAINTED TO MATCH THE EXISTING FINISH CONFORMING TO ASTM A780.
8. ALL PARTS ARE TO MARKED WITH ITEM NUMBERS USING 3/4" HIGH STEEL STENCILS.
9. SHOP SHALL ASSEMBLE AND VERIFY FIT AND GAPS BEFORE BREAKDOWN FOR GALVANIZING.
10. NO FIELD WELDING SHALL BE DONE TO THE EXISTING STRUCTURE WITHOUT THE PRIOR APPROVAL OF THE OWNER AND SUPERVISION BY THE INSPECTION/TESTING AGENCY.
11. ALL REQUIRED CUTS SHALL BE CUT WITHIN THE DIMENSIONS SHOWN ON THE DRAWINGS. NO CUTS SHALL EXTEND BEYOND THE OUTLINE OF THE DIMENSIONS SHOWN ON THE DRAWINGS. ALL CUT EDGES SHALL BE GROUND SMOOTH AND DE-BURRED. CONTRACTOR TO AVOID 90 DEGREE CORNERS. IT MAY BE NECESSARY TO DRILL STARTER HOLES AS REQUIRED TO MAKE THE CUT.
12. ALL JOINTS ARE BEARING TYPE CONNECTIONS, UNO. IF NO BOLT LENGTH IS GIVEN IN THE BILL OF MATERIALS, THE CONNECTION MAY INCLUDE THREADS IN THE SHEAR PLANE, AND THE GC IS RESPONSIBLE FOR SIZING THE LENGTH OF THE BOLT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.



ALLOWABLE COPING

BOLT SCHEDULE (IN)				
BOLT DIAMETER	STANDARD HOLE	SHORT SLOT	MIN EDGE DISTANCE	SPACING
1/2	9/16	9/16 x 11/16	7/8	1 1/2
5/8	11/16	11/16 x 7/8	1 1/8	1 7/8
3/4	13/16	13/16 x 1	1 1/4	2 1/4
7/8	15/16	15/16 x 1 1/8	1 1/2	2 5/8
1	1 1/16	1 1/16 x 1 5/16	1 3/4	3

WORKABLE GAGES (IN)	
LEG	GAGE
4	2 1/2
3 1/2	2
3	1 3/4
2 1/2	1 3/8
2	1 1/8



TYP BOLT ASSEMBLY

NOTE:

1. ALL DIMENSIONS REPRESENTED IN THE ABOVE TABLES ARE AISC MINIMUM REQUIREMENTS. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN FIELD AND NOTIFY ENGINEER IF DISTANCES ARE LESS THAN THOSE PROVIDED.
2. THE DIMENSIONS PROVIDED ARE MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS OF PROPOSED MEMBERS WITHIN THESE DRAWINGS MAY VARY FROM THE AISC MINIMUM REQUIREMENTS.
3. SHORT SLOT HOLES SHALL ONLY BE USED WHEN DEPICTED IN THE DRAWING.
4. MATCH EXISTING GAGES WHEN APPLICABLE, UNLESS MINIMUM EDGE DISTANCES ARE COMPROMISED.

PJF PAUL J. FORD & COMPANY
250 E Broad St, Ste 600- Columbus, OH 43215
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verizon

500008913 6-VZW / DUBLIN
DUBLIN, OHIO
MOUNT MODIFICATION DRAWINGS

PROJECT No:	24324-1064.003.8187
DRAWN BY:	BJH
DESIGNED BY:	BJH
CHECKED BY:	
DATE:	6/16/2025

GENERAL NOTES

SGN-1

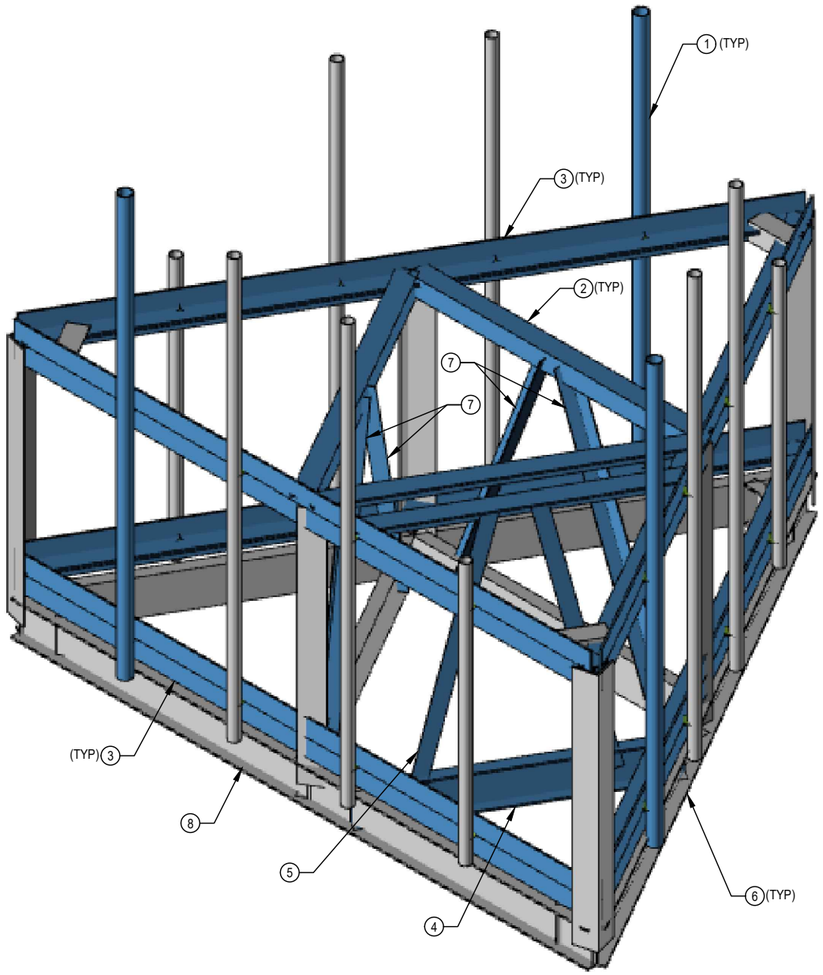
V2.0 24324-1064.003.DWG

NOTES:

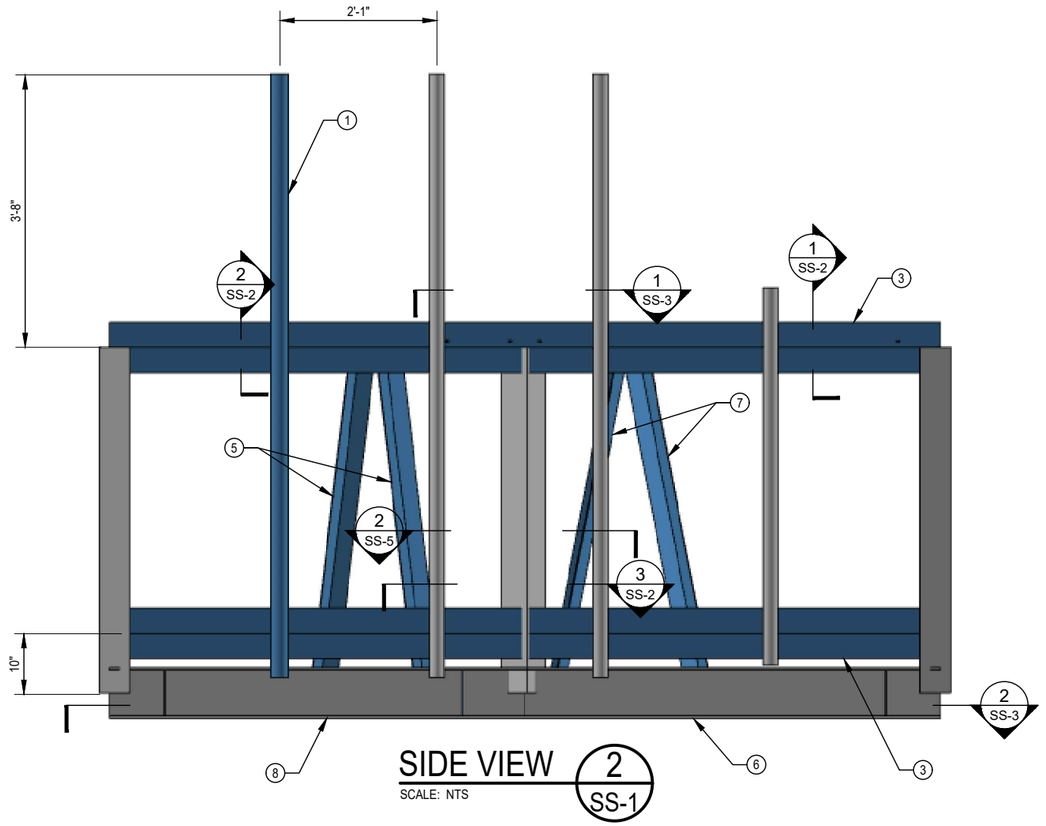
1. PRIOR TO FABRICATION AND INSTALLATION, CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND QUANTITIES GIVEN. LENGTH AND QUANTITIES PROVIDED ARE FOR QUOTING PURPOSE ONLY AND SHALL NOT BE USED FOR FABRICATION.
2. ALL MODIFICATIONS SHOWN ARE TYPICAL ALL SECTORS UNLESS NOTED OTHERWISE.
3. SOME MEMBERS NOT SHOWN FOR CLARITY.
4. RADIO AND/OR TME POSITIONS SHALL BE ADJUSTED VERTICALLY AS NEEDED IN ORDER TO ACHIEVE INSTALLATION OF MODIFICATION KITS AS SHOWN. EOR SHALL BE NOTIFIED IF EQUIPMENT NEEDS TO BE RELOCATED TO ANOTHER MOUNT PIPE.
5. MEMBERS IN BLUE COLOR ARE NEW REINFORCEMENTS AND MEMBERS IN AQUA COLOR (IF SHOWN) ARE RELOCATED MEMBERS.
6. ALL SHOWN DIMENSIONS HAVE AN INSTALLABLE TOLERANCE OF ±0'-3", UNLESS NOTED OTHERWISE.

MOUNT MODIFICATION SCHEDULE

	ELEVATION	MOUNT MODIFICATION DESCRIPTION	REFERENCE SHEETS
1	184'-0"	REPLACE EXISTING MOUNT PIPE WITH NEW MOUNT PIPE USING NEW CONNECTION HARDWARE	SS-1
2	184'-0"	REPALCE EXISTING INERNAL ANGLES WITH NEW STEEL ANGLES	SS-1
3	184'-0"	INSTALL FACE MEMBER REINFORCEMENT ON ALL ANGLE SHAPED FACE MEMBERS	SS-1
4	184'-0"	INSTALL NEW LOWER SUPPORT MEMBER BETWEEN FACE MEMBERS USING BENT PLATE MEMBERS TO BOLT TO FACE MEMBERS	SS-1
5	184'-0"	INSTALL NEW BRACING MEMBERS BETWEEN PROPOSED LOWER SUPPORT MEMBER AND PROPOSED INTERNAL ANGLE	SS-1
6	184'-0"	INSTALL NEW BOLTS THROUGH EXISTING LOWER FACE MEMBERS AND EXISTING BEAM MEMBERS. TRIM GRATING AS NEEDED	SS-1
7	184'-0"	REPLACE EXISTING BRACING ANGLES WITH NEW STEEL ANGLES	SS-1
8	184'-0"	REINFORCE BOTTOM FACE HORIZONTAL	SS-2



ISOMETRIC MODIFIED MOUNT VIEW 1 / SS-1
SCALE: NTS



SIDE VIEW 2 / SS-1
SCALE: NTS

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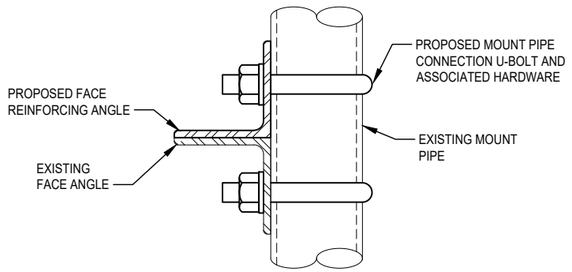
MOUNT MODIFICATION DRAWINGS

PROJECT No:	24324-1064.003.8187
DRAWN BY:	BJH
DESIGNED BY:	BJH
CHECKED BY:	
DATE:	6/16/2025

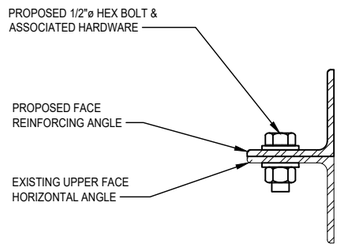
MODIFICATION DETAILS

SS-1

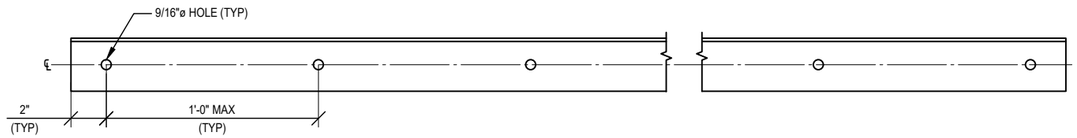
V2.0 24324-1064.003.DWG



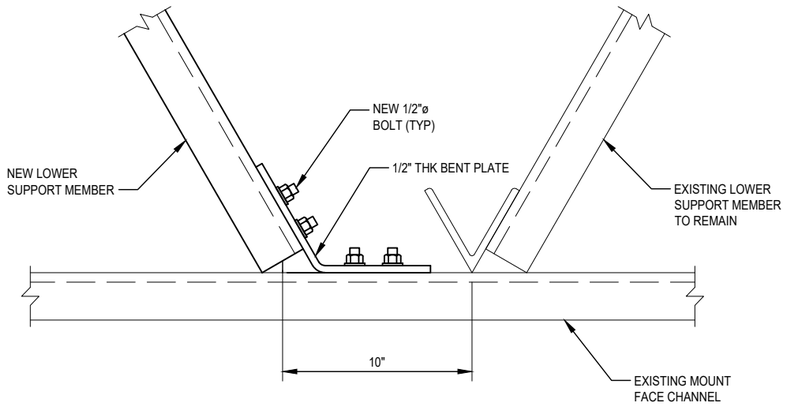
SECTION 1 / SS-2



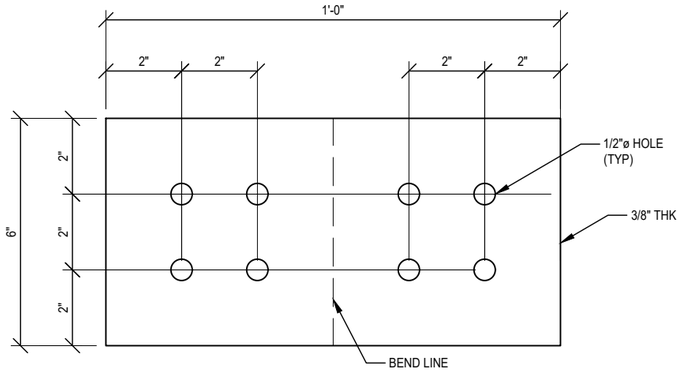
SECTION 2 / SS-2



FACE REINFORCING ANGLE DETAIL
L4 x 4 x 3/8



SECTION 3 / SS-2



BENT PLATE DETAIL

PAUL J. FORD & COMPANY
250 E Broad St, Ste 600- Columbus, OH 43215
Phone 614.221.6679
www.pauljford.com

verizon

5000089136-VZW / DUBLIN
DUBLIN, OHIO
MOUNT MODIFICATION DRAWINGS

PROJECT No:	24324-1064.003.8187
DRAWN BY:	BJH
DESIGNED BY:	BJH
CHECKED BY:	
DATE:	6/16/2025

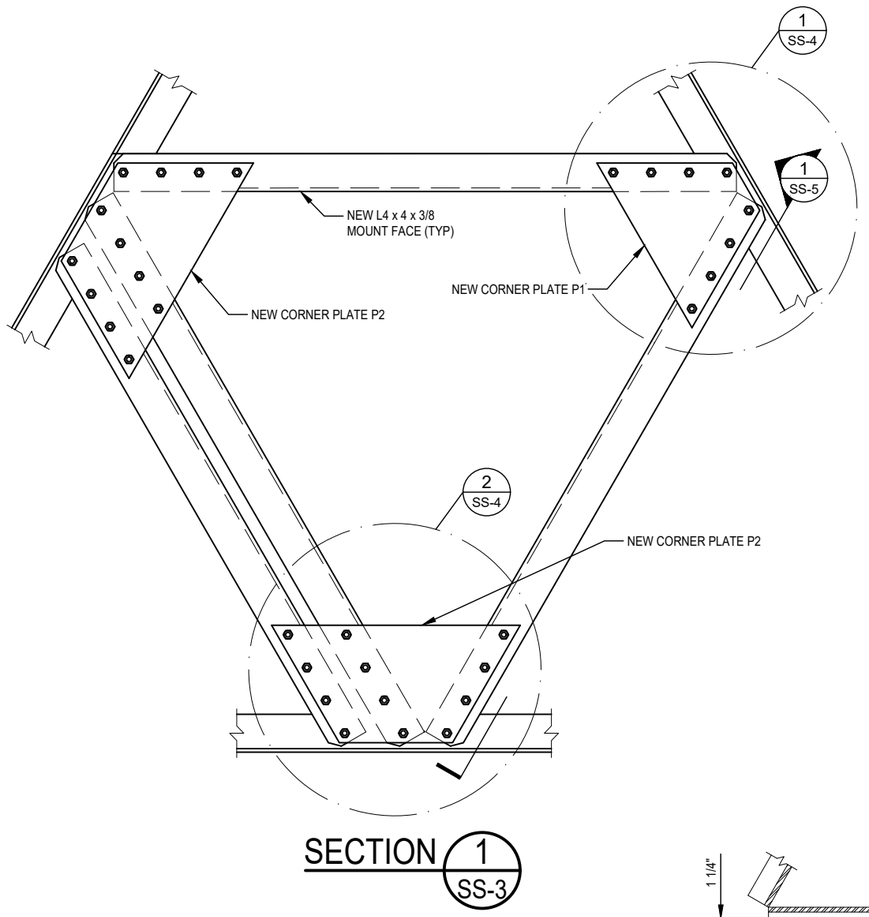
MODIFICATION DETAILS

SS-2

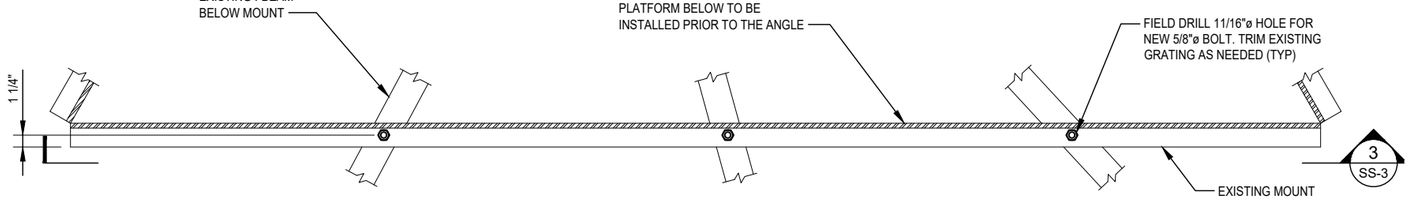
V2.0 24324-1064.003.DWG

PJF PAUL J. FORD & COMPANY
250 E Broad St, Ste 600- Columbus, OH 43215
Phone 614.221.6679 www.pauljford.com

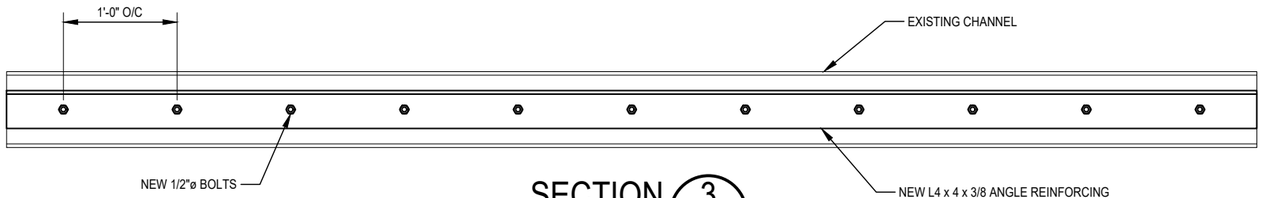
verizon



SECTION 1 / SS-3



SECTION 2 / SS-3



SECTION 3 / SS-3

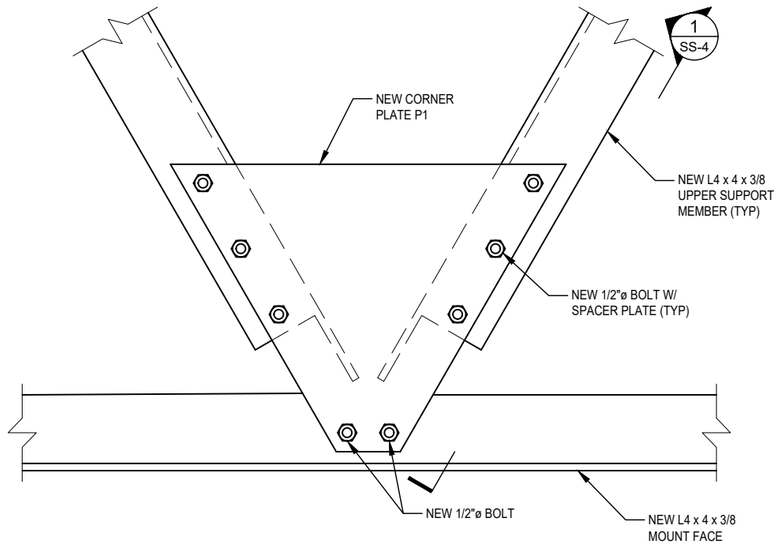
5000089136-VZW / DUBLIN
DUBLIN, OHIO
MOUNT MODIFICATION DRAWINGS

PROJECT No:	24324-1064.003.8187
DRAWN BY:	BJH
DESIGNED BY:	BJH
CHECKED BY:	
DATE:	6/16/2025

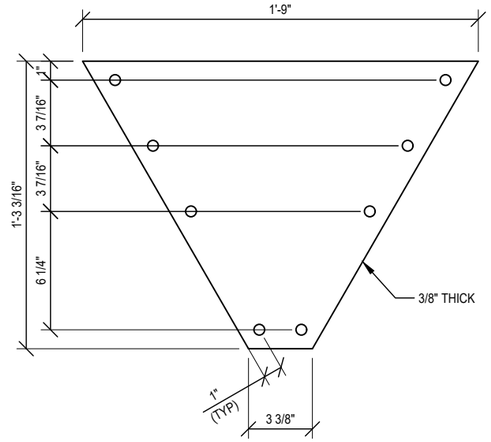
MODIFICATION DETAILS

SS-3

V2.0 24324-1064.003.DWG

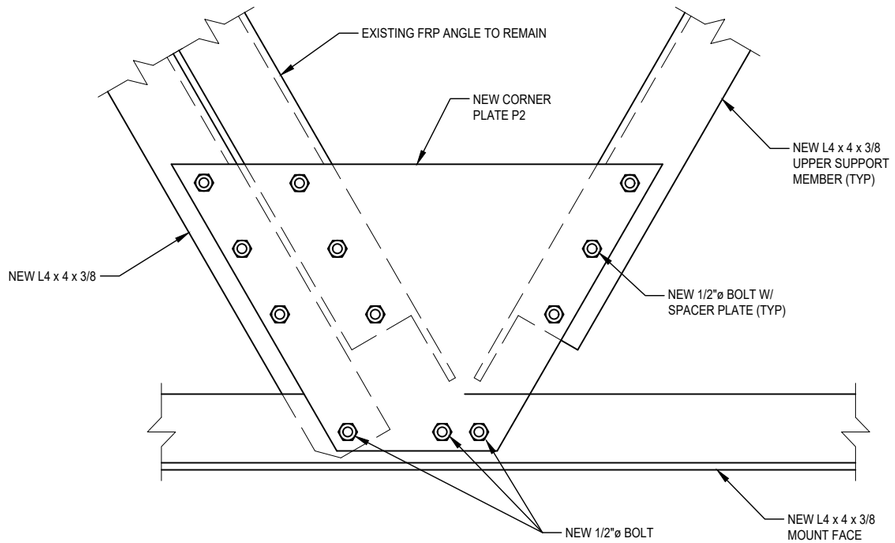


DETAIL 1 / SS-4

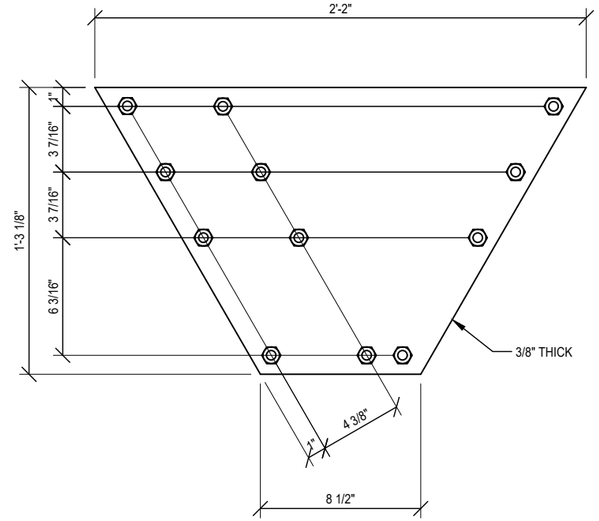


CORNER PLATE P1 DETAIL

FIELD VERIFY ALL DIMENSIONS BEFORE FABRICATION



DETAIL 1 / SS-4



CORNER PLATE P2 DETAIL

PJF PAUL J. FORD & COMPANY
250 E Broad St, Ste 600- Columbus, OH 43215
Phone 614.221.6679
www.pauljford.com

verizon

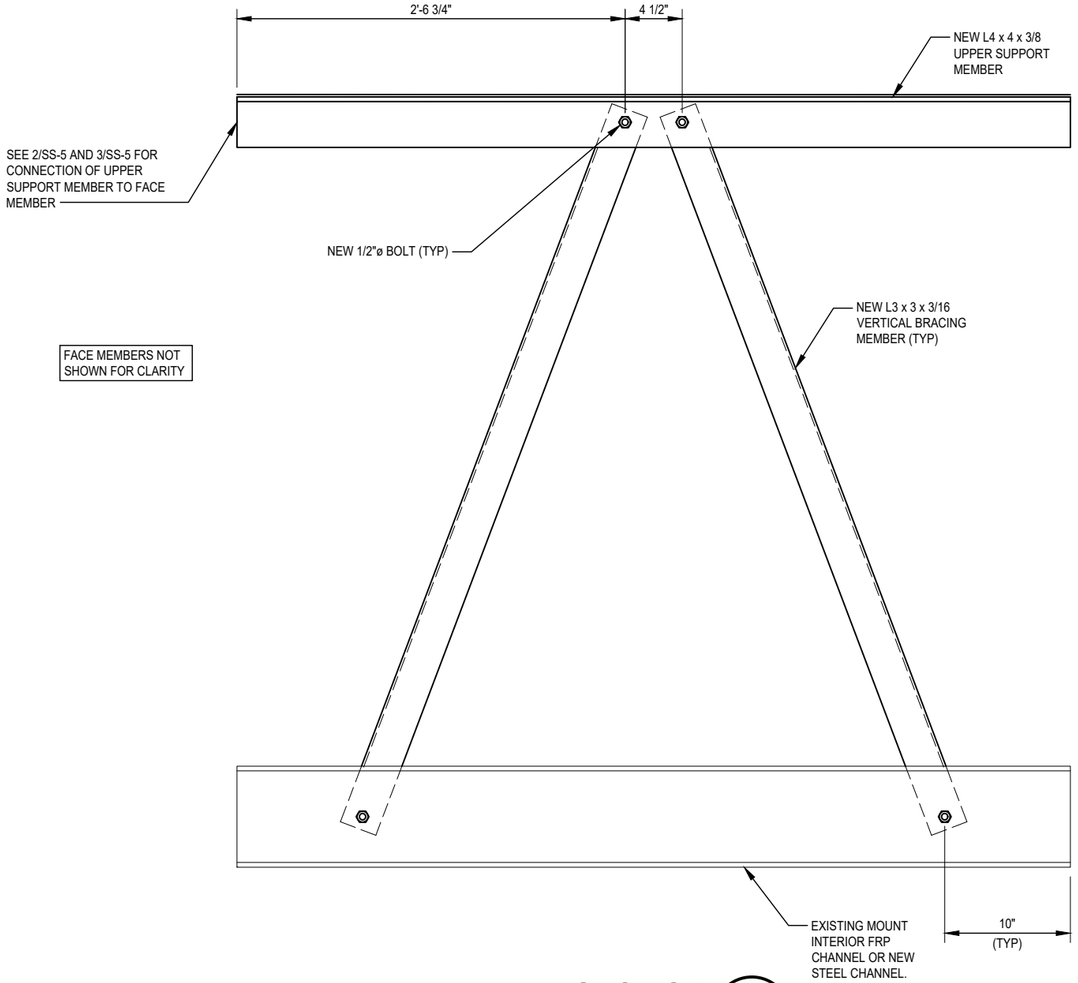
5000089136-VZW / DUBLIN
DUBLIN, OHIO
MOUNT MODIFICATION DRAWINGS

PROJECT No:	24324-1064.003.8187
DRAWN BY:	BJH
DESIGNED BY:	BJH
CHECKED BY:	
DATE:	6/16/2025

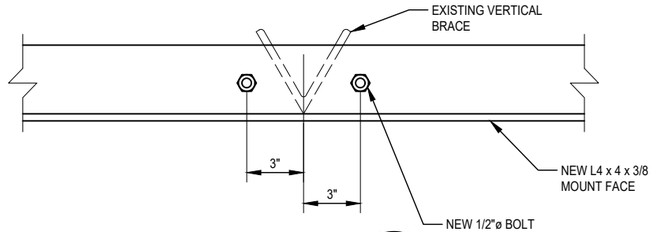
MODIFICATION DETAILS

SS-4

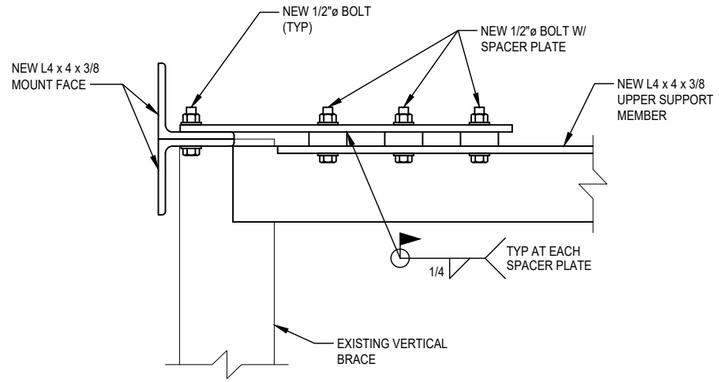
V2.0 24324-1064.003.DWG



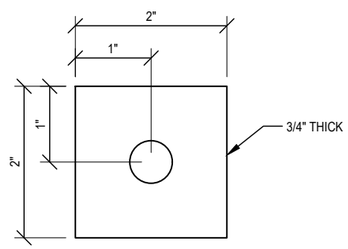
SECTION 1 / SS-5



SECTION 2 / SS-5



SECTION 3 / SS-5



SPACER PLATE

PJF PAUL J. FORD & COMPANY
250 E Broad St, Ste 600- Columbus, OH 43215
Phone 614.221.6679
www.pauljford.com

verizon

5000089136-VZW / DUBLIN
DUBLIN, OHIO
MOUNT MODIFICATION DRAWINGS

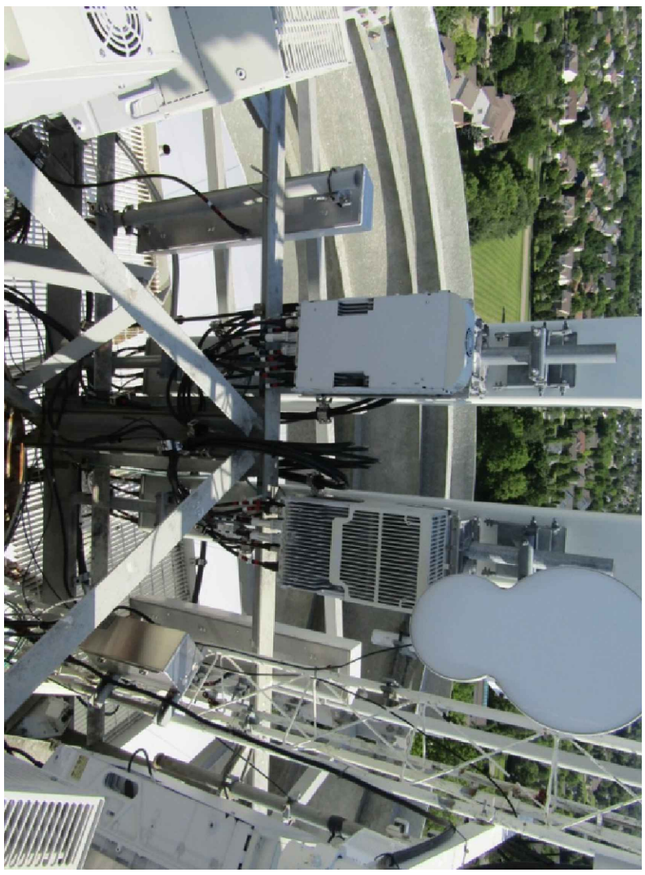
PROJECT No:	24324-1064.003.8187
DRAWN BY:	BJH
DESIGNED BY:	BJH
CHECKED BY:	
DATE:	6/16/2025

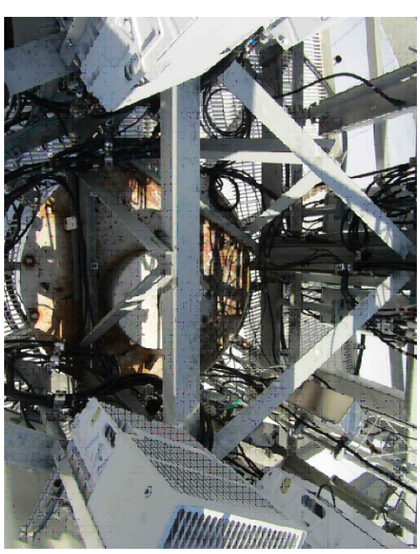
MODIFICATION DETAILS

SS-5

V2.0 24324-1064.003.DWG

V2.0 24324-1064.003.DWG





5000089136-VZW / DUBLIN

DUBLIN, OHIO

MOUNT MODIFICATION DRAWINGS

PAUL J. FORD & COMPANY
250 E Broad St, Ste 600· Columbus, OH 43215
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verizon

PROJECT No:	24324-1064.003.8187
DRAWN BY:	BJH
DESIGNED BY:	BJH
CHECKED BY:	
DATE:	6/16/2025

MOUNT PHOTOS

SS-6

Terra Consulting Group
1500 Lake Shore Drive, Suite 225
Columbus, OH 43204
(614) 754-9106
terramounts@terraltd.com

Structural Analysis Report

Structural Analysis Report – Water Tank

Terra Consulting Group Project #: 179-507 R1

July 29, 2026

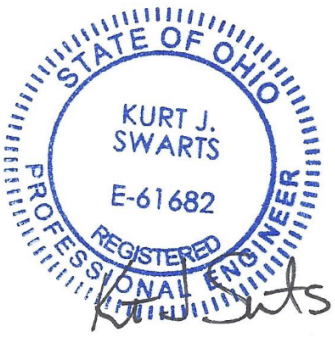
Site Information	*Site ID:*	*410600*
	MDG Location ID:	*5000089136*
	Site Name:	*Dublin*
	Carrier Name:	*Verizon Wireless*
	Address:	*7697 Avery Rd*
		Dublin, OH 43016
		Franklin County
	Latitude:	*40.127833°*
	Longitude:	*-83.163222°*
Structure Information	*Mount Type:*	*175-ft Water Tank*

FUZE ID # 16234090

Analysis Results

175-ft Water Tank: **Sufficient**

Report Prepared By: Kurt Swarts, P.E.
kurts@terraltd.com



07-29-2026

Executive Summary:

The objective of this report is to determine the capacity of the existing 175-ft tall water tank and top mounted access tube at the subject facility for the final wireless telecommunications configuration, per the applicable codes and standards. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information:

Document Type	Remarks
Radio Frequency Data Sheet (RFDS)	*Verizon RFDS, FUZE # 16234090, dated March 6, 2024*
Structural Analysis Report	*Harper Engineering, Inc., dated June 17, 2021*
Tower Mapping Report	*HighTower Solutions, dated June 22, 2026*
Mount Modification Report	*Paul J. Ford and Company, #24326-1269.02.8189, dated June 8, 2026*

Analysis Criteria:

Codes and Standards:	ANSI/TIA-222-H / 2018 IBC ANSI AWWA D100-11 Standard	
Wind Parameters:	Basic Wind Speed (Ultimate 3-sec. Ice Wind Speed (3-sec. Gust): Design Ice Thickness: ti Risk Category: Exposure Category: Topographic Category: Topographic Feature Considered: Topographic Method: Ground Elevation Factor, Ke:	119 mph 40 mph 1.0 in IV C 1 - - 0.947
Seismic Parameters:	S_s: S_1:	0.123 0.06
Maintenance Parameters:	Wind Speed (3-sec. Gust): Maintenance Live Load, Lv: Maintenance Live Load, Lm:	30 mph 250 lbs 500 lbs
Water Tank Parameters:	Basic Wind Speed Importance Factor, I Wind Exposure Category Gust Effect Factor, G	90 mph 1.15 C 1.0
Analysis Software:	Excel tnxTower Version 8.4.1.1	

Final Loading Configuration:

The following equipment has been considered for the analysis of the water tank:

Mount Elevation (ft)	Equipment Elevation (ft)	Quantity	Manufacturer	Model	Status	Feedlines (in)
204.4	206.3	1	-	2.8”OD x 3.8’ Whip**	Retained	(1) 1/4
198.4	198.4	2	-	Beacons		(1) 1
197.5	198.3	2	-	1”OD x 1.58’ Whips**		(1) 1/4
		1	Cisco	AIR-LAP1510AG-A-K9 TMA***		
196	198.5	1	-	0.68”OD x 5’ Lightning Rod		-
195.2	200.9	1	-	2.55” OD x 11.33’ Whip		(1) 1-1/4
	194	1	-	5’ Side Arm		-
195	195	1	-	20’ Lattice Tower		-
195	195	1	Ubiquiti	AF24 on 10’ Pipe**		(1) 1/4
194	194	1	Ubiquiti	AF24 on 4’ Pipe		(1) 1/4
186.75	192.5	1	Antel Whip	2.55” OD x 11.33’ Whip		(1) 1/2
		1	-	16” x 6” x 6” TMA		(1) 7/8
186	186	1	-	5’ Side Arm		-
188 [Verizon]	188±	3	Samsung	MT6413-77A	Added	(12) 1-5/8” (2) 1-5/8” Hybrid*
		6	Andrew	SBNHH-1D65C	Retained	
		3	Samsung	RF4439d-25A	Added	
		3	Samsung	RF4461d-13A		
		1	Raycap	RVZDC-6627-PF48		
		1	Raycap	RC3DC-3315-PF-48	Retained	
185.8 [T-Mobile]	191	3	Nokia	AHFIC	Retained	(3) 1.55
	191	3	Nokia	AHBCC		
	189.5	2	-	4’ x 6.5” x 8” Panel Antennas		
		4	-	4’ x 9.5” x 8” Panel Antennas	Retained	
122± [AT&T]	122±	9	-	72”x12”x6” Panel Antennas***	Retained	NA

All feedlines assumed to be installed inside of wáter tank.
* (1) Existing + (1) Proposed
** Shared mount pipe
*** Estimated dimensions

Standard Conditions:

1. The Standard of Care for all Professional Engineering Services performed by Terra Consulting Group under this project will be the skill and care used by members of the Consultant's profession practicing under similar circumstances at the same time and in the same locality.

2. All engineering services are performed on the basis that the information provided to Terra Consulting Group and used in this analysis is current and correct. The existing equipment loading has been applied at locations determined from the supplied documentation. Any deviation from the loading locations specified in this report shall be communicated to Terra Consulting Group to verify deviation will not adversely impact the analysis.

3. The tower was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications. The structural analysis was performed assuming no physical deterioration has occurred to any of the structural components. No allowance was made for members or bolts that are corroded, damaged, bent, loose or missing. The analysis assumes all bolts are torqued to a snug-tight condition defined by AISC.

4. The structural analysis of the tower was performed according to the minimum design loads recommended by the Reference Standard. The mount analysis does not imply to meet any serviceability criteria such as twist, sway and deflections. If more restrictive design criteria for wind, ice, deflections or serviceability are required, then Terra Consulting Group. should be notified.

5. 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.

6. All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Terra Consulting Group is not responsible for the conclusion, opinions, and recommendations made by others based on the information supplied.

7. Structural Steel Grades have been assumed as follows, if applicable, unless otherwise noted in this analysis:
    - Channel, Solid Round, Angle, Plate ASTM A36 (Gr. 36)
    - Pipe ASTM A36 (Gr. 36)

Discrepancies between in-field conditions and the assumptions listed above may render this analysis invalid unless explicitly approved by Terra Consulting Group.

Analysis Results and Recommendation:

Based on the ANSI AWWA D100 and Section 3403 of the 2018 IBC, an increase in wind loads of less than 10% and an increase in gravity load of less than 5% is considered acceptable. The analysis determined that the existing and proposed telecommunications equipment will increase the wind force on the water tank by 5%. The percentage increase in the base moment from these wind forces was calculated as 9.9%. The weight of the existing and proposed telecommunications equipment will not exceed the 5% limitation for gravity loads. The existing and proposed telecommunications equipment will not exceed the wind an gravity load limitations of the AWWA and IBC.

An analysis of the access tube was performed to determine if the tube has sufficient capacity to support the telecommunications equipment and mounts. The analysis determined that the access tube will be stressed to 18% of its capacity. The access tube will have sufficient capacity to support new loads.

Attachments:

1. Water Tank Analysis Calculations
2. Access Tube Analysis Calculations

Water Tank Stability Check

Wind Load Calculations (AWWA D100-11)

Pw:	Wind Pressure	=	qz * G * Cf	>=	30 * Cf	(psf)	AWWA Section 3.1.4
G:	Gust Effect Factor	=	1.0				AWWA Section 3.1.4
Cf:	Force coefficient	=	Flat	F	1.0		
		=	Cylindrical	C	0.6		AWWA Table 2
		=	Double Curve	DC	0.5		
z:	Height above Grade	ft					AWWA Section 3.1.4
Kz:	Velocity Pressure Coefficient at z	=	2.01*(z/zg)^(2/α)				ASCE7-15 or AWWA Table 3
			Kz(min) <= Kz <=2.01				
I:	Importance Factor	=	1.15				AWWA Section 3.1.4
V:	Basic Wind Speed	=	**90**	mph			Figure 1, Page 14-18
	Wind Exposure	=	**C**				
qz:	Velocity Pressure	=	$0.00256 * Kz*I*V^2$				AWWA Section 3.1.4
Top of Tank:		=	175.00	ft			

Tank Area

Member		# of Members	Length or Diameter (ft)	Width (ft)	Depth (ft)	Area (ft)	C/L Elev. (ft)	Kz	Shape/Cf		qz (psf)	Pw (psf)	Wind Load (k)	Base Moment (kip ft)
Tank	Top	1	14.7	100	100	1155	166.9	1.41	DC	0.5	33.62	16.81	19.41	3238.86
Tank	Body	1	19.7	100	100	1970	150.00	1.38	C	0.6	32.87	19.72	38.85	5827.82
Tank	Bottom	1	13	89	89	1157	133.3	1.34	C	0.6	32.06	19.24	22.26	2967.02
Riser		1	126.8	78	78	9890	63.40	1.15	C	0.6	27.42	18.00	178.03	11286.92
Corral (est)	Top Rail	1	65.00	0.25	0.25	16.3	178	1.43	F	1	34.08	34.08	0.55	98.56
Corral (est)	Mid Rail	1	65.00	0.25	0.25	16.3	176.5	1.43	F	1	34.02	34.02	0.55	97.56
Corral (est)	Toe	1	65.00	0.33	0.33	21.7	175	1.42	F	1	33.95	33.95	0.74	128.74
Corral (est)	Posts	20	3	0.25	0.25	15	176.5	1.43	F	1	34.02	34.02	0.51	90.06
2% Misc. (vent, over flow pipe, etc)							58.42						5.22	304.82
Totals:													**266.11**	**24040.37**

(adjust wind angle to maximize antenna wind load) =====>

Antennas **Wind Direction** 350 °

Manufacturer	Antennna	#	Ht (in)	W (in)	D (in)	Frontal Area (sf)	Side Area (sf)	Wt / unit (lbs)	Total Wt (lbs)	AZ °	Project Area (sf)	TL Project Area (sf)	Elev. (ft)	Shape	Cf	qz (psf)	Pw (psf)	Wind Load (k)	Moment (kip ft)
SAMSUNG	MT6413-77A	1	28.9	15.8	5.5	3.2	1.11	57.3	57.3	0	3.30	3.30	188	F	1	34.5	34.5	0.07	12.86
SAMSUNG	MT6413-77A	1	28.9	15.8	5.5	3.2	1.11	57.3	57.3	120	2.88	2.88	188	F	1	34.5	34.5	0.10	18.66
SAMSUNG	MT6413-77A	1	28.9	15.8	5.5	3.2	1.11	57.3	57.3	240	2.12	2.12	188	F	1	34.5	34.5	0.07	13.74
ANDREW	SBNHH-1D65C	2	96.4	11.9	7.1	8.0	4.75	49.6	99.2	0	8.67	17.34	188	F	1	34.5	34.5	0.60	112.37
ANDREW	SBNHH-1D65C	2	96.4	11.9	7.1	8.0	4.75	49.6	99.2	120	8.8	17.5	188	F	1	34.5	34.5	0.60	113.54
ANDREW	SBNHH-1D65C	2	96.4	11.9	7.1	8.0	4.75	49.6	99.2	240	7.19	14.38	188	F	1	34.5	34.5	0.50	93.19
SAMSUNG	RF4439D-25A	1	15.0	15.0	10.0	1.55	1.04	84.4	84.4	0	1.71	1.71	188	F	1	34.5	34.5	0.06	11.08
SAMSUNG	RF4439D-25A	1	15.0	15.0	10.0	1.55	1.04	84.4	84.4	120	1.80	1.80	188	F	1	34.5	34.5	0.06	11.66
SAMSUNG	RF4439D-25A	1	15.0	15.0	10.0	1.55	1.04	84.4	84.4	240	1.51	1.51	188	F	1	34.5	34.5	0.05	9.79
SAMSUNG	RF4461d-13A	1	15.0	15.0	10.2	1.55	1.06	79.1	79.1	0	1.72	1.72	188	F	1	34.5	34.5	0.06	11.15
SAMSUNG	RF4461d-13A	1	15.0	15.0	10.2	1.55	1.06	79.1	79.1	120	1.81	1.81	188	F	1	34.5	34.5	0.06	11.73
SAMSUNG	RF4461d-13A	1	15.0	15.0	10.2	1.55	1.06	79.1	79.1	240	1.53	1.53	188	F	1	34.5	34.5	0.05	9.91
RAYCAP	RVZDC-6627-PF-48	1	28.9	15.7	10.3	3.16	2.07	32	32	0	3.47	3.47	188	F	1	34.5	34.5	0.12	22.49
RAYCAP	RC3DC-33145-PF-48	1	24.0	15.7	10.3	2.62	1.72	32	32	0	2.88	2.88	188	F	1	34.5	34.5	0.10	18.66
GENERIC PANEL	48x6.5x8	2	48.0	6.5	8.0	2.17	2.67	100	200	240	3.25	6.50	190	F	1	34.5	34.5	0.22	42.53
GENERIC PANEL	48.5x9.5x8	2	48.5	9.5	8.0	3.20	2.69	100	200	0	3.62	7.24	190	F	1	34.5	34.5	0.25	47.37
GENERIC PANEL	48.5x9.5x8	2	48.5	9.5	8.0	3.20	2.69	100	200	120	4.12	8.24	190	F	1	34.5	34.5	0.28	53.91
NOKIA	AHFIC	1	22.8	12.8	7.3	2.01	1.15	50	50	0	2.18	2.18	191	F	1	34.6	34.6	0.08	14.40
NOKIA	AHFIC	1	22.8	12.8	7.3	2.01	1.15	50	50	120	2.17	2.17	191	F	1	34.6	34.6	0.08	14.33
NOKIA	AHFIC	1	22.8	12.8	7.3	2.01	1.15	50	50	240	1.77	1.77	191	F	1	34.6	34.6	0.06	11.69
NOKIA	AHBCC	1	22.0	12.5	7.5	1.91	1.15	50	50	0	2.08	2.08	191	F	1	34.6	34.6	0.07	13.74
NOKIA	AHBCC	1	22.0	12.5	7.5	1.91	1.15	50	50	120	2.11	2.11	191	F	1	34.6	34.6	0.07	13.94
NOKIA	AHBCC	1	22.0	12.5	7.5	1.91	1.15	50	50	240	1.73	1.73	191	F	1	34.6	34.6	0.06	11.43

GENERIC PANE	1.92"OD x 10' Mount pipe	1	120.0	1.9	1.9	1.60	1.60	28	28	120	2.25	2.25	200	C	0.6	34.9	21.0	0.05	9.43
GENERIC PANE	2.8"OD x 3.8' Whip	1	45.5	2.8	2.8	0.88	0.88	30	30	120	1.25	1.25	201	C	0.6	35.0	21.0	0.03	5.27
GENERIC PANE	Beacon	2	8.0	11.0	8.0	0.61	0.44	60	120	120	0.73	1.46	202	C	0.6	35.0	21.0	0.03	6.19
GENERIC PANE	1"OD x 1.58' Whip	2	19.0	1.0	1.0	0.13	0.13	20	40	120	0.19	0.38	198	C	0.6	34.9	20.9	0.01	1.58
GENERIC PANE	12x6.5x5 TMA	1	12.0	6.5	5.0	0.54	0.42	25	25	120	0.67	0.67	198	F	1	34.9	34.9	0.02	4.63
GENERIC PANE	0.68"OD X 5' Lightning Rod	1	60.0	0.7	0.7	0.28	0.28	15	15	0	0.33	0.33	199	C	0.6	34.9	20.9	0.01	1.37
GENERIC PANE	2.55"OD x 11.33' Whip	1	136.0	2.6	2.6	2.41	2.41	65	65	240	3.09	3.09	201	C	0.6	35.0	21.0	0.06	13.02
GENERIC PANE	5-Ft Side Arm	1	60.0	5.0	1.0	2.08	0.42	150	150	240	1.10	1.10	194	F	1	34.7	34.7	0.04	7.40
GENERIC PANE	Ubiquiti AF24	1	28.5	20.5	16.1	4.06	3.20	23	23	120	5.06	5.06	195	F	1	34.7	34.7	0.18	34.27
GENERIC PANE	Ubiquiti AF24	1	28.5	20.5	16.1	4.06	3.20	23	23	0	4.55	4.55	194	F	1	34.7	34.7	0.16	30.63
GENERIC PANE	1.92"OD x 4' Mount pipe	1	48.0	1.9	1.9	0.64	0.64	10	10	0	0.74	0.74	192	C	0.6	34.6	20.8	0.02	2.95
GENERIC PANE	2.55"OD x 11.33' Whip	1	136.0	2.6	2.6	2.41	2.41	65	65	120	3.39	3.39	193	C	0.6	34.6	20.8	0.07	13.56
GENERIC PANE	16x6x6 TMA	1	16.0	6.0	6.0	0.67	0.67	15	15	120	0.94	0.94	193	F	1	34.7	34.7	0.03	6.29
GENERIC PANE	5-Ft Side Arm	1	60.0	5.0	1.0	2.08	0.42	150	150	120	1.66	1.66	186	F	1	34.4	34.4	0.06	10.62
GENERIC PANE	72"x12"x6"	3	72.0	12.0	6.0	6.00	3.00	100	300	0	6.43	19.29	122	F	1	31.5	31.5	0.61	74.06
GENERIC PANE	72"x12"x6"	3	72.0	12.0	6.0	6.00	3.00	100	300	120	6.15	18.45	122	F	1	31.5	31.5	0.58	70.84
GENERIC PANE	72"x12"x6"	3	72.0	12.0	6.0	6.00	3.00	100	300	240	4.87	14.61	122	F	1	31.5	31.5	0.46	56.09
																Totals		6.082	1042.39

Antenna Mount Areas

Member	#	Length or Diam. (in)	W (in)	D (in)	Project Area (sf)	TL Project Area (sf)	Elev. (ft)	Shape	Cf	qz (psf)	Pw (psf)	Antenna Cover (%)	Wind Load (k)	Moment (kip ft)	Wt / ft lb	Wt lb
2.5" STD Pipe TM	9	96	2.38	2.88	1.58	14.3	190	C	0.6	34.5	20.7	0.0%	0.30	56.12	3.66	264
2" STD Pipe AT&T	6	60	2.88	2.38	1.2	7.19	188	C	0.6	34.5	20.7	0.0%	0.15	27.95	3.66	110
2" STD Pipe VZW	2	67	2.88	2.38	1.34	2.68	188	C	0.6	34.5	20.7	0.0%	0.06	10.40	3.66	41
Screen Wall	1	17.8	4.67	18.1	83.1	83.1	187	C	0.6	34.4	20.7	0	1.72	321.13		1000
Platforms						111	187	F	1	34.4	34.4	0	3.82	714.69	1	1000
Tube	1	120	59	59	49.2	49.2	180	C	0.6	34.2	20.5	0	1.01	181.37		1000
Lattice Tower						9.1	185	C	0.6	34.4	20.6	0	0.19	34.70		1000
												Totals	7.23	1346.37		

Cables

Cables	Quantity	Quantity in Wind	Width Exp. To Wind (in)	Shape /Cf		Cable Length (ft)	CL Elev (ft)	Projected Area	Wt (lb/ft)	qz (psf)	Pw (psf)	Tl Wt. (lb)	Wind Load (k)	Moment (k ft)
VZW Cables	14	0	1.98	C	0.6	188	94	0	0.72	29.8	18.0	1895.04	0.000	0.00
T-M Cables	3	0	1.55	C	0.6	191	95.5	0	0.68	29.9	18.0	389.64	0.000	0.00
0.25" Cables	4	0	0.25	C	0.6	200	100	0	0.1	30.2	18.1	80	0.000	0.00
1" Cables	1	0	1	C	0.6	200	100	0	1.1	30.2	18.1	220	0.000	0.00
1.25" Cable	1	0	1.55	C	0.6	200	100	0	0.66	30.2	18.1	132	0.000	0.00
0.5 Cable	1	0	0.5	C	0.6	200	100	0	0.25	30.2	18.1	50	0.0125	0.00
0.875" Cable	1	0	1.1	C	0.6	200	100	0	0.33	30.2	18.1	66	0.02178	0.00
												Totals	0.034	0.00

All cables assumed to be installed inside of water tank.

Total Appurtanence Loading

	Wind Load (k)	Moment (k ft)
Pipe Mounts	7.23	1346.37
Antennas	6.08	1042.39
Cables	0.03	0.00
Totals	13.35	2388.76

Tank Loads

Wind Load (k)	Moment (k ft)
266.11	24040.37

Total Moment

Wind Load (k)	Moment (k ft)
279.46	26429.13

Percentage Increase in Lateral Force on Tank	Total / Tanks Loads	105.0%	105.0%	/ 110% *	=	**95.5%**
Percentage Increase in Moment on Tank	Total / Tanks Loads	109.9%	109.9%	/ 110% *	=	**99.9%**

* Maximum increase per ANSI AWWA D100 and Section 3403 of 2015 IBC

DESIGNED APPURTENANCE LOADING

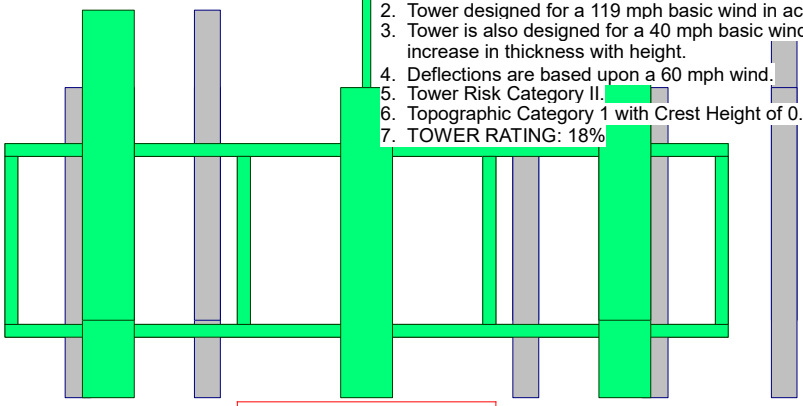
TYPE	ELEVATION	TYPE	ELEVATION
2.8"OD x 3.8' Whip Antenna	206.3	Traingular Antenna Mount	189
2.55"OD x 11.33' Whip Antenna	200.9	(2) SBNHH-1D65C w/mount pipe	188
1.92"OD x 10-Ft Mount Pipe	200	RF4439D-25A	188
0.68" OD X 5' Lightning Rod	198.4	RF4439D-25A	188
(2) Flash Beacon Lighting	198.4	RF4439D-25A	188
(2) 1"OD x 1.58' Whip Antenna	198.3	RF4461D-13A	188
12" x 6.5" x 5" TMA	198.3	RF4461D-13A	188
Ubiquiti AF24	195	RF4461D-13A	188
5-Ft Side Arm	194	RVZDC-6627-PF-48	188
Ubiquiti AF24	194	RC3DC-33145-PF-48	188
2.55"OD x 11.33' Whip Antenna	192.5	MT6413-77A w/ mount pipe	188
AHFIC	191	MT6413-77A w/ mount pipe	188
AHFIC	191	(2) SBNHH-1D65C w/mount pipe	188
AHFIC	191	Screen Wall	188
AHBCC	191	Square Platform	188
AHBCC	191	(2) SBNHH-1D65C w/mount pipe	188
AHBCC	191	MT6413-77A w/ mount pipe	188
48"x6.5"x8" Panel Antenna w/ Mopunt Pipe	189.5	5-Ft Side Arm	186
		5-Ft Side Arm	186
48.5"x9.5"x8" Panel Antenna w/ Mopunt Pipe	189.5	Lattice Tower	185
48.5"x9.5"x8" Panel Antenna w/ Mopunt Pipe	189.5		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A36	36 ksi	58 ksi			

TOWER DESIGN NOTES

1. Tower designed for Exposure C to the TIA-222-H Standard.
2. Tower designed for a 119 mph basic wind in accordance with the TIA-222-H Standard.
3. Tower is also designed for a 40 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 18%



184.9 ft

175.0 ft

Section	Size	Length (ft)	Grade	Weight (K)
1	P59" x 0.325	9.92	A36	2.0
				2.0

ALL REACTIONS ARE FACTORED

AXIAL
52 K

SHEAR
3 K

MOMENT
161 kip-ft

TORQUE 1 kip-ft
40 mph WIND - 1.00 in ICE

AXIAL
45 K

SHEAR
21 K

MOMENT
389 kip-ft

TORQUE 7 kip-ft
REACTIONS - 119 mph WIND

Colliers Engineering & Design
1500 Lake Shore Dr., Suite 250
Columbus, OH 43204
Phone: 614-754-9106
FAX:

Job:	***10-Ft Access Tube on 175-Ft Water Tank***		
Project:	***Dublin, OH (TCG # 179-507 R1)***		
Client: Verizon Wireless	Drawn by: Kurt.Swarts	App'd:	
Code: TIA-222-H	Date: 07/29/26	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: 1094.00 ft.
Basic wind speed of 119 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 1.00 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 40 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
Non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Pole Section Geometry

Section	*Elevation* *ft*	*Section Length* *ft*	*Pole Size*	*Pole Grade*	*Socket Length* *ft*
L1	184.92-175.00	9.92	P59" x 0.325	A36 (36 ksi)	

Tower Elevation ft	Gusset Area (per face) ft²	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 184.92-175.00				1	1	1			

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 ft²/ft	Weight plf
ICAT5E 2003 (1/4 FOIL)	C	No	Yes	Inside Pole	184.92 - 175.00	4	No Ice	0.00	0.10
							1/2" Ice	0.00	0.10
							1" Ice	0.00	0.10
1" Lighting Conduit	C	No	Yes	Inside Pole	184.92 - 175.00	1	No Ice	0.00	0.75
							1/2" Ice	0.00	0.75
							1" Ice	0.00	0.75
LDF6-50A (1-1/4 FOAM)	C	No	Yes	Inside Pole	184.92 - 175.00	1	No Ice	0.00	0.66
							1/2" Ice	0.00	0.66
							1" Ice	0.00	0.66
LDF4-50A (1/2 FOAM)	C	No	Yes	Inside Pole	184.92 - 175.00	1	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15
AVA5-50 (7/8 LOW DENSI.FOAM)	C	No	Yes	Inside Pole	184.92 - 175.00	1	No Ice	0.00	0.30
							1/2" Ice	0.00	0.30
							1" Ice	0.00	0.30
AVA7-50 (1-5/8 LOW DENSI. FOAM)	C	No	Yes	Inside Pole	184.92 - 175.00	14	No Ice	0.00	0.72
							1/2" Ice	0.00	0.72
							1" Ice	0.00	0.72
AVA7-50 (1-5/8 LOW DENSI. FOAM)	C	No	Yes	Inside Pole	184.92 - 175.00	3	No Ice	0.00	0.72
							1/2" Ice	0.00	0.72
							1" Ice	0.00	0.72

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight K
L1	184.92-175.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.14

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight K

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	184.92-175.00	A	1.185	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.14

Discrete Tower Loads

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
1.92"OD x 10-Ft Mount Pipe	C	From Face	1.00	0.0000	200.00	No Ice	1.92	1.92	27.20
			0.00			1/2" Ice	2.94	2.94	27.21
			0.00			1" Ice	3.99	3.99	27.24
2.8"OD x 3.8' Whip Antenna	C	From Face	1.00	0.0000	206.30	No Ice	0.89	0.89	0.02
			0.00			1/2" Ice	1.12	1.12	0.03
			0.00			1" Ice	1.37	1.37	0.04
(2) Flash Beacon Lighting	C	From Face	1.00	0.0000	198.40	No Ice	2.70	2.70	0.05
			0.00			1/2" Ice	3.10	3.10	0.07
			0.00			1" Ice	3.50	3.50	0.09
(2) 1"OD x 1.58' Whip Antenna	C	From Face	1.10	0.0000	198.30	No Ice	0.14	0.14	0.02
			0.00			1/2" Ice	0.24	0.24	0.02
			0.00			1" Ice	0.35	0.35	0.02
12" x 6.5" x 5" TMA	C	From Face	1.10	0.0000	198.30	No Ice	0.65	0.50	0.03
			0.00			1/2" Ice	0.76	0.60	0.03
			0.00			1" Ice	0.87	0.70	0.04
0.68" OD X 5' Lightning Rod	C	From Face	0.50	0.0000	198.40	No Ice	0.34	0.34	0.01
			0.00			1/2" Ice	0.85	0.85	0.01
			0.00			1" Ice	1.34	1.34	0.02
2.55"OD x 11.33' Whip Antenna	C	From Face	5.00	0.0000	200.90	No Ice	2.89	2.89	0.05
			0.00			1/2" Ice	4.05	4.05	0.07
			0.00			1" Ice	5.23	5.23	0.10
5-Ft Side Arm	C	From Face	2.50	0.0000	194.00	No Ice	2.08	2.08	0.10
			0.00			1/2" Ice	3.00	3.00	0.12
			0.00			1" Ice	3.92	3.92	0.14
Ubiquiti AF24	C	From Face	0.75	0.0000	195.00	No Ice	4.87	3.84	0.02
			0.00			1/2" Ice	5.14	4.09	0.07
			0.00			1" Ice	5.43	4.35	0.12
Ubiquiti AF24	C	From Face	0.75	0.0000	194.00	No Ice	4.87	3.84	0.02
			0.00			1/2" Ice	5.14	4.09	0.07
			0.00			1" Ice	5.43	4.35	0.12
2.55"OD x 11.33' Whip Antenna	C	From Face	5.00	0.0000	192.50	No Ice	2.89	2.89	0.05
			0.00			1/2" Ice	4.05	4.05	0.07
			0.00			1" Ice	5.23	5.23	0.10
5-Ft Side Arm	C	From Face	2.50	0.0000	186.00	No Ice	2.08	2.08	0.10
			0.00			1/2" Ice	3.00	3.00	0.12
			0.00			1" Ice	3.92	3.92	0.14
5-Ft Side Arm	C	From Face	2.50	0.0000	186.00	No Ice	2.08	2.08	0.10
			0.00			1/2" Ice	3.00	3.00	0.12
			0.00			1" Ice	3.92	3.92	0.14
****									
Screen Wall	C	None		0.0000	188.00	No Ice	83.31	83.31	1.00
						1/2" Ice	84.00	84.00	1.25
						1" Ice	84.69	84.69	1.50
Square Platform	C	None		0.0000	188.00	No Ice	65.00	65.00	2.00

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
						1/2" Ice	75.00	75.00	2.50
						1" Ice	85.00	85.00	3.00
Traingular Antenna Mount	C	None		0.0000	189.00	No Ice	48.00	48.00	1.80
						1/2" Ice	51.00	51.00	2.00
						1" Ice	54.00	54.00	2.20
****									
MT6413-77A w/ mount pipe	A	From Face	4.00	0.0000	188.00	No Ice	5.98	4.34	0.11
			0.00			1/2" Ice	7.01	5.56	0.17
			0.00			1" Ice	8.07	6.80	0.23
MT6413-77A w/ mount pipe	B	From Face	4.00	0.0000	188.00	No Ice	5.98	4.34	0.11
			0.00			1/2" Ice	7.01	5.56	0.17
			0.00			1" Ice	8.07	6.80	0.23
MT6413-77A w/ mount pipe	C	From Face	4.00	0.0000	188.00	No Ice	5.98	4.34	0.11
			0.00			1/2" Ice	7.01	5.56	0.17
			0.00			1" Ice	8.07	6.80	0.23
(2) SBNHH-1D65C w/mount pipe	A	From Face	4.00	0.0000	188.00	No Ice	12.01	10.57	0.11
			0.00			1/2" Ice	12.83	12.20	0.21
			0.00			1" Ice	13.66	13.85	0.31
(2) SBNHH-1D65C w/mount pipe	B	From Face	4.00	0.0000	188.00	No Ice	12.01	10.57	0.11
			0.00			1/2" Ice	12.83	12.20	0.21
			0.00			1" Ice	13.66	13.85	0.31
(2) SBNHH-1D65C w/mount pipe	C	From Face	4.00	0.0000	188.00	No Ice	12.01	10.57	0.11
			0.00			1/2" Ice	12.83	12.20	0.21
			0.00			1" Ice	13.66	13.85	0.31
RF4439D-25A	A	From Face	4.00	0.0000	188.00	No Ice	1.87	1.25	0.08
			0.00			1/2" Ice	2.04	1.39	0.10
			0.00			1" Ice	2.21	1.54	0.12
RF4439D-25A	B	From Face	4.00	0.0000	188.00	No Ice	1.87	1.25	0.08
			0.00			1/2" Ice	2.04	1.39	0.10
			0.00			1" Ice	2.21	1.54	0.12
RF4439D-25A	C	From Face	4.00	0.0000	188.00	No Ice	1.87	1.25	0.08
			0.00			1/2" Ice	2.04	1.39	0.10
			0.00			1" Ice	2.21	1.54	0.12
RF4461D-13A	A	From Face	4.00	0.0000	188.00	No Ice	1.87	1.28	0.08
			0.00			1/2" Ice	2.03	1.42	0.10
			0.00			1" Ice	2.21	1.57	0.12
RF4461D-13A	B	From Face	4.00	0.0000	188.00	No Ice	1.87	1.28	0.08
			0.00			1/2" Ice	2.03	1.42	0.10
			0.00			1" Ice	2.21	1.57	0.12
RF4461D-13A	C	From Face	4.00	0.0000	188.00	No Ice	1.87	1.28	0.08
			0.00			1/2" Ice	2.03	1.42	0.10
			0.00			1" Ice	2.21	1.57	0.12
RVZDC-6627-PF-48	A	From Face	4.00	0.0000	188.00	No Ice	3.78	2.51	0.03
			0.00			1/2" Ice	4.03	2.72	0.06
			0.00			1" Ice	4.29	2.94	0.10
RC3DC-33145-PF-48	C	From Face	4.00	0.0000	188.00	No Ice	3.14	2.06	0.03
			0.00			1/2" Ice	3.36	2.25	0.06
			0.00			1" Ice	3.60	2.46	0.09
****									
48"x6.5"x8" Panel Antenna w/ Mopunt Pipe	A	From Face	4.00	0.0000	189.50	No Ice	4.21	5.91	0.15
			0.00			1/2" Ice	4.93	7.05	0.20
			0.00			1" Ice	5.48	7.85	0.26
48.5"x9.5"x8" Panel Antenna w/ Mopunt Pipe	B	From Face	4.00	0.0000	189.50	No Ice	4.21	3.66	0.10
			0.00			1/2" Ice	4.53	3.97	0.13
			0.00			1" Ice	4.85	4.28	0.17
48.5"x9.5"x8" Panel Antenna w/ Mopunt Pipe	C	From Face	4.00	0.0000	189.50	No Ice	4.21	3.66	0.10
			0.00			1/2" Ice	4.53	3.97	0.13

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
			0.00			1" Ice	4.85	4.28	0.17
AHFIC	A	From Face	4.00	0.0000	191.00	No Ice	2.43	1.42	0.05
			0.00			1/2" Ice	2.63	1.58	0.07
			0.00			1" Ice	2.84	1.76	0.09
AHFIC	B	From Face	4.00	0.0000	191.00	No Ice	2.43	1.42	0.05
			0.00			1/2" Ice	2.63	1.58	0.07
			0.00			1" Ice	2.84	1.76	0.09
AHFIC	C	From Face	4.00	0.0000	191.00	No Ice	2.43	1.42	0.05
			0.00			1/2" Ice	2.63	1.58	0.07
			0.00			1" Ice	2.84	1.76	0.09
AHBCC	A	From Face	4.00	0.0000	191.00	No Ice	2.29	1.40	0.05
			0.00			1/2" Ice	2.49	1.56	0.07
			0.00			1" Ice	2.69	1.73	0.09
AHBCC	B	From Face	4.00	0.0000	191.00	No Ice	2.29	1.40	0.05
			0.00			1/2" Ice	2.49	1.56	0.07
			0.00			1" Ice	2.69	1.73	0.09
AHBCC	C	From Face	4.00	0.0000	191.00	No Ice	2.29	1.40	0.05
			0.00			1/2" Ice	2.49	1.56	0.07
			0.00			1" Ice	2.69	1.73	0.09
***									

User Defined Loads

Description	Elevation ft	Offset From Centroid ft	Azimuth Angle °		Weight K	F_x K	F_z K	Wind Force K	C_AA_C ft^2
Lattice Tower	185.00	0.53	270.0000	No Ice	0.30	0.27	0.27	0.27	**5.11**
				Ice	0.79	0.14	0.14	0.14	**23.47**
				Service	0.30	0.07	0.07	0.07	**5.83**

Tower Pressures - No Ice

$G_H = 1.100$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
L1	179.96	1.432	48	48.773	A	0.000	48.773	48.773	100.00	0.000	0.000
184.92-175.00					B	0.000	48.773		100.00	0.000	0.000
					C	0.000	48.773		100.00	0.000	0.000

Tower Pressure - With Ice

$G_H = 1.100$

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1	179.96	1.432	5	1.18	50.732	A	0.000	50.732	50.732	100.00	0.000	0.000
184.92-175.00						B	0.000	50.732		100.00	0.000	0.000
						C	0.000	50.732		100.00	0.000	0.000

Tower Pressure - Service

$G_H = 1.100$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1	179.96	1.432	11	48.773	A	0.000	48.773	48.773	100.00	0.000	0.000
184.92-175.00					B	0.000	48.773		100.00	0.000	0.000
					C	0.000	48.773		100.00	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.14	2.02	A	1	0.6	48	1	1	48.773	1.54	154.83	C
184.92-175.00			B	1	0.6		1	1	48.773			
			C	1	0.6		1	1	48.773			
Sum Weight:	0.14	2.02						OTM	7.6 kip-ft	1.54		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.14	2.02	A	1	0.6	48	1	1	48.773	1.54	154.83	C
184.92-175.00			B	1	0.6		1	1	48.773			
			C	1	0.6		1	1	48.773			
Sum Weight:	0.14	2.02						OTM	7.6 kip-ft	1.54		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.14	2.02	A	1	0.6	48	1	1	48.773	1.54	154.83	C
184.92-175.00			B	1	0.6		1	1	48.773			
			C	1	0.6		1	1	48.773			
Sum Weight:	0.14	2.02						OTM	7.6 kip-ft	1.54		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.14	2.89	A	1	1.2	5	1	1	50.732	0.36	36.39	C
184.92-175.00			B	1	1.2		1	1	50.732			
			C	1	1.2		1	1	50.732			
Sum Weight:	0.14	2.89						OTM	1.8 kip-ft	0.36		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.14	2.89	A	1	1.2	5	1	1	50.732	0.36	36.39	C
184.92-175.00			B	1	1.2		1	1	50.732			
			C	1	1.2		1	1	50.732			
Sum Weight:	0.14	2.89						OTM	1.8 kip-ft	0.36		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.14	2.89	A	1	1.2	5	1	1	50.732	0.36	36.39	C
184.92-175.00			B	1	1.2		1	1	50.732			
			C	1	1.2		1	1	50.732			
Sum Weight:	0.14	2.89						OTM	1.8 kip-ft	0.36		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.14	2.02	A	1	0.6	11	1	1	48.773	0.35	35.22	C
184.92-175.00			B	1	0.6		1	1	48.773			
			C	1	0.6		1	1	48.773			
Sum Weight:	0.14	2.02						OTM	1.7 kip-ft	0.35		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.14	2.02	A	1	0.6	11	1	1	48.773	0.35	35.22	C
184.92-175.00			B	1	0.6		1	1	48.773			
			C	1	0.6		1	1	48.773			
Sum Weight:	0.14	2.02						OTM	1.7 kip-ft	0.35		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
L1	0.14	2.02	A	1	0.6	11	1	1	48.773	0.35	35.22	C
184.92-175.00			B	1	0.6		1	1	48.773			
			C	1	0.6		1	1	48.773			
Sum Weight:	0.14	2.02						OTM	1.7 kip-ft	0.35		

Force Totals

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Leg Weight	2.02					
Bracing Weight	0.00					
Total Member Self-Weight	2.02			97.1	0.6	
Total Weight	37.29			97.1	0.6	
Wind 0 deg - No Ice		0.27	-20.14	-170.0	-2.1	-1.3

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Wind 30 deg - No Ice		10.46	-17.38	-133.4	-136.7	4.6
Wind 60 deg - No Ice		17.83	-9.87	-34.0	-233.7	5.6
Wind 90 deg - No Ice		20.48	0.27	99.8	-268.4	5.0
Wind 120 deg - No Ice		17.80	10.39	233.2	-233.2	7.0
Wind 150 deg - No Ice		10.44	17.89	332.3	-136.4	7.2
Wind 180 deg - No Ice		0.27	20.68	369.5	-2.1	1.6
Wind 210 deg - No Ice		-9.92	17.92	332.9	132.5	-4.3
Wind 240 deg - No Ice		-17.29	10.41	233.5	229.5	-5.3
Wind 270 deg - No Ice		-19.94	0.27	99.8	264.2	-4.8
Wind 300 deg - No Ice		-17.26	-9.85	-33.6	229.0	-6.8
Wind 330 deg - No Ice		-9.90	-17.35	-132.8	132.2	-6.9
Member Ice	0.86					
Total Weight Ice	44.65			100.3	1.6	
Wind 0 deg - Ice		0.14	-2.99	61.4	0.2	-0.2
Wind 30 deg - Ice		1.70	-2.56	66.9	-19.9	0.7
Wind 60 deg - Ice		2.83	-1.42	81.7	-34.4	1.1
Wind 90 deg - Ice		3.24	0.14	101.7	-39.6	1.3
Wind 120 deg - Ice		2.83	1.69	121.6	-34.3	1.4
Wind 150 deg - Ice		1.70	2.84	136.4	-19.8	1.2
Wind 180 deg - Ice		0.14	3.27	141.9	0.2	0.4
Wind 210 deg - Ice		-1.42	2.84	136.5	20.3	-0.5
Wind 240 deg - Ice		-2.55	1.70	121.7	34.8	-1.0
Wind 270 deg - Ice		-2.96	0.14	101.7	40.0	-1.2
Wind 300 deg - Ice		-2.55	-1.41	81.7	34.7	-1.3
Wind 330 deg - Ice		-1.42	-2.56	67.0	20.2	-1.0
Total Weight	37.29			97.1	0.6	
Wind 0 deg - Service		0.07	-4.58	36.3	-0.1	-0.3
Wind 30 deg - Service		2.39	-3.95	44.7	-30.8	1.1
Wind 60 deg - Service		4.07	-2.24	67.3	-52.9	1.3
Wind 90 deg - Service		4.68	0.07	97.8	-60.7	1.2
Wind 120 deg - Service		4.06	2.38	128.1	-52.7	1.6
Wind 150 deg - Service		2.39	4.08	150.7	-30.7	1.6
Wind 180 deg - Service		0.07	4.72	159.2	-0.1	0.4
Wind 210 deg - Service		-2.25	4.09	150.9	30.6	-1.0
Wind 240 deg - Service		-3.93	2.38	128.2	52.7	-1.2
Wind 270 deg - Service		-4.54	0.07	97.8	60.6	-1.1
Wind 300 deg - Service		-3.92	-2.24	67.4	52.5	-1.5
Wind 330 deg - Service		-2.25	-3.94	44.8	30.5	-1.6

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
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

Comb. No.	Description
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 Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	184.92 - 175	Pole	Max Tension	1	0.00	0.0	0.0
			Max. Compression	29	-52.11	-34.3	-101.1
			Max. Mx	9	-33.56	-268.5	-90.1
			Max. My	14	-44.74	-2.0	-389.1
			Max. Vy	8	20.48	-268.3	-119.2
			Max. Vx	14	20.68	-2.0	-389.1
			Max. Torque	12			-7.2

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	29	52.11	-2.83	1.42
	Max. H_x	21	33.56	19.94	-0.27
	Max. H_z	2	44.74	-0.27	20.14
	Max. M_x	3	179.7	-0.27	20.14
	Max. M_z	9	268.5	-20.48	-0.27
	Max. Torsion	24	6.9	9.90	17.35
	Min. Vert	23	33.56	17.26	9.85
	Min. H_x	8	44.74	-20.48	-0.27
	Min. H_z	14	44.74	-0.27	-20.68
	Min. M_x	14	-389.1	-0.27	-20.68
	Min. M_z	20	-264.4	19.94	-0.27
	Min. Torsion	12	-7.2	-10.44	-17.89

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	37.29	0.00	0.00	97.1	0.6	0.0
1.2 Dead+1.0 Wind 0 deg - No Ice	44.74	0.27	-20.14	-150.6	-2.0	-1.3
0.9 Dead+1.0 Wind 0 deg - No Ice	33.56	0.27	-20.14	-179.7	-2.2	-1.3
1.2 Dead+1.0 Wind 30 deg - No Ice	44.74	10.46	-17.38	-114.0	-136.6	4.6
0.9 Dead+1.0 Wind 30 deg - No Ice	33.56	10.46	-17.38	-143.1	-136.8	4.6
1.2 Dead+1.0 Wind 60 deg - No Ice	44.74	17.83	-9.87	-14.6	-233.7	5.6
0.9 Dead+1.0 Wind 60 deg - No Ice	33.56	17.83	-9.87	-43.7	-233.8	5.6
1.2 Dead+1.0 Wind 90 deg - No Ice	44.74	20.48	0.27	119.2	-268.3	5.1
0.9 Dead+1.0 Wind 90 deg - No Ice	33.56	20.48	0.27	90.1	-268.5	5.1
1.2 Dead+1.0 Wind 120 deg - No Ice	44.74	17.80	10.39	252.7	-233.1	7.1
0.9 Dead+1.0 Wind 120 deg - No Ice	33.56	17.80	10.39	223.5	-233.3	7.1
1.2 Dead+1.0 Wind 150 deg - No Ice	44.74	10.44	17.89	351.9	-136.3	7.2
0.9 Dead+1.0 Wind 150 deg - No Ice	33.56	10.44	17.89	322.7	-136.5	7.2
1.2 Dead+1.0 Wind 180 deg - No Ice	44.74	0.27	20.68	389.1	-2.0	1.6
0.9 Dead+1.0 Wind 180 deg - No Ice	33.56	0.27	20.68	359.9	-2.2	1.6
1.2 Dead+1.0 Wind 210 deg - No Ice	44.74	-9.92	17.92	352.4	132.7	-4.3
0.9 Dead+1.0 Wind 210 deg - No Ice	33.56	-9.92	17.92	323.3	132.5	-4.3
1.2 Dead+1.0 Wind 240 deg - No Ice	44.74	-17.29	10.41	253.0	229.7	-5.3
0.9 Dead+1.0 Wind 240 deg - No Ice	33.56	-17.29	10.41	223.8	229.5	-5.3
1.2 Dead+1.0 Wind 270 deg - No Ice	44.74	-19.94	0.27	119.2	264.4	-4.8

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
0.9 Dead+1.0 Wind 270 deg - No Ice	33.56	-19.94	0.27	90.1	264.2	-4.8
1.2 Dead+1.0 Wind 300 deg - No Ice	44.74	-17.26	-9.85	-14.2	229.2	-6.8
0.9 Dead+1.0 Wind 300 deg - No Ice	33.56	-17.26	-9.85	-43.4	229.0	-6.8
1.2 Dead+1.0 Wind 330 deg - No Ice	44.74	-9.90	-17.35	-113.4	132.3	-6.9
0.9 Dead+1.0 Wind 330 deg - No Ice	33.56	-9.90	-17.35	-142.6	132.2	-6.9
1.2 Dead+1.0 Ice+1.0 Temp	52.11	0.00	0.00	119.7	1.7	0.0
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	52.11	0.14	-2.99	80.9	0.3	-0.2
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	52.11	1.70	-2.56	86.3	-19.8	0.7
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	52.11	2.83	-1.42	101.1	-34.3	1.1
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	52.11	3.24	0.14	121.1	-39.5	1.3
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	52.11	2.83	1.69	141.1	-34.2	1.4
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	52.11	1.70	2.84	155.9	-19.7	1.2
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	52.11	0.14	3.27	161.4	0.3	0.4
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	52.11	-1.42	2.84	156.0	20.4	-0.5
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	52.11	-2.55	1.70	141.1	35.0	-1.0
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	52.11	-2.96	0.14	121.1	40.2	-1.2
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	52.11	-2.55	-1.41	101.2	34.9	-1.3
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	52.11	-1.42	-2.56	86.4	20.4	-1.0
Dead+Wind 0 deg - Service	37.29	0.07	-4.58	36.3	-0.1	-0.3
Dead+Wind 30 deg - Service	37.29	2.39	-3.95	44.7	-30.8	1.1
Dead+Wind 60 deg - Service	37.29	4.07	-2.24	67.3	-52.9	1.3
Dead+Wind 90 deg - Service	37.29	4.68	0.07	97.8	-60.8	1.2
Dead+Wind 120 deg - Service	37.29	4.06	2.38	128.2	-52.7	1.6
Dead+Wind 150 deg - Service	37.29	2.39	4.08	150.8	-30.7	1.6
Dead+Wind 180 deg - Service	37.29	0.07	4.72	159.2	-0.1	0.4
Dead+Wind 210 deg - Service	37.29	-2.25	4.09	150.9	30.6	-1.0
Dead+Wind 240 deg - Service	37.29	-3.93	2.38	128.3	52.7	-1.2
Dead+Wind 270 deg - Service	37.29	-4.54	0.07	97.8	60.6	-1.1
Dead+Wind 300 deg - Service	37.29	-3.92	-2.24	67.4	52.5	-1.5
Dead+Wind 330 deg - Service	37.29	-2.25	-3.94	44.8	30.5	-1.6

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-37.29	0.00	0.00	37.29	0.00	0.000%
2	0.27	-44.74	-20.14	-0.27	44.74	20.14	0.000%
3	0.27	-33.56	-20.14	-0.27	33.56	20.14	0.000%
4	10.46	-44.74	-17.38	-10.46	44.74	17.38	0.000%
5	10.46	-33.56	-17.38	-10.46	33.56	17.38	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
6	17.83	-44.74	-9.87	-17.83	44.74	9.87	0.000%
7	17.83	-33.56	-9.87	-17.83	33.56	9.87	0.000%
8	20.48	-44.74	0.27	-20.48	44.74	-0.27	0.000%
9	20.48	-33.56	0.27	-20.48	33.56	-0.27	0.000%
10	17.80	-44.74	10.39	-17.80	44.74	-10.39	0.000%
11	17.80	-33.56	10.39	-17.80	33.56	-10.39	0.000%
12	10.44	-44.74	17.89	-10.44	44.74	-17.89	0.000%
13	10.44	-33.56	17.89	-10.44	33.56	-17.89	0.000%
14	0.27	-44.74	20.68	-0.27	44.74	-20.68	0.000%
15	0.27	-33.56	20.68	-0.27	33.56	-20.68	0.000%
16	-9.92	-44.74	17.92	9.92	44.74	-17.92	0.000%
17	-9.92	-33.56	17.92	9.92	33.56	-17.92	0.000%
18	-17.29	-44.74	10.41	17.29	44.74	-10.41	0.000%
19	-17.29	-33.56	10.41	17.29	33.56	-10.41	0.000%
20	-19.94	-44.74	0.27	19.94	44.74	-0.27	0.000%
21	-19.94	-33.56	0.27	19.94	33.56	-0.27	0.000%
22	-17.26	-44.74	-9.85	17.26	44.74	9.85	0.000%
23	-17.26	-33.56	-9.85	17.26	33.56	9.85	0.000%
24	-9.90	-44.74	-17.35	9.90	44.74	17.35	0.000%
25	-9.90	-33.56	-17.35	9.90	33.56	17.35	0.000%
26	0.00	-52.11	0.00	0.00	52.11	0.00	0.000%
27	0.14	-52.11	-2.99	-0.14	52.11	2.99	0.000%
28	1.70	-52.11	-2.56	-1.70	52.11	2.56	0.000%
29	2.83	-52.11	-1.42	-2.83	52.11	1.42	0.000%
30	3.24	-52.11	0.14	-3.24	52.11	-0.14	0.000%
31	2.83	-52.11	1.69	-2.83	52.11	-1.69	0.000%
32	1.70	-52.11	2.84	-1.70	52.11	-2.84	0.000%
33	0.14	-52.11	3.27	-0.14	52.11	-3.27	0.000%
34	-1.42	-52.11	2.84	1.42	52.11	-2.84	0.000%
35	-2.55	-52.11	1.70	2.55	52.11	-1.70	0.000%
36	-2.96	-52.11	0.14	2.96	52.11	-0.14	0.000%
37	-2.55	-52.11	-1.41	2.55	52.11	1.41	0.000%
38	-1.42	-52.11	-2.56	1.42	52.11	2.56	0.000%
39	0.07	-37.29	-4.58	-0.07	37.29	4.58	0.000%
40	2.39	-37.29	-3.95	-2.39	37.29	3.95	0.000%
41	4.07	-37.29	-2.24	-4.07	37.29	2.24	0.000%
42	4.68	-37.29	0.07	-4.68	37.29	-0.07	0.000%
43	4.06	-37.29	2.38	-4.06	37.29	-2.38	0.000%
44	2.39	-37.29	4.08	-2.39	37.29	-4.08	0.000%
45	0.07	-37.29	4.72	-0.07	37.29	-4.72	0.000%
46	-2.25	-37.29	4.09	2.25	37.29	-4.09	0.000%
47	-3.93	-37.29	2.38	3.93	37.29	-2.38	0.000%
48	-4.54	-37.29	0.07	4.54	37.29	-0.07	0.000%
49	-3.92	-37.29	-2.24	3.92	37.29	2.24	0.000%
50	-2.25	-37.29	-3.94	2.25	37.29	3.94	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	6	0.00000001	0.00000001
3	Yes	6	0.00000001	0.00000001
4	Yes	6	0.00000001	0.00000001
5	Yes	6	0.00000001	0.00000001
6	Yes	6	0.00000001	0.00000001

7	Yes	6	0.00000001	0.00000001
8	Yes	6	0.00000001	0.00000001
9	Yes	6	0.00000001	0.00000001
10	Yes	6	0.00000001	0.00000001
11	Yes	6	0.00000001	0.00000001
12	Yes	6	0.00000001	0.00000001
13	Yes	6	0.00000001	0.00000001
14	Yes	6	0.00000001	0.00000001
15	Yes	6	0.00000001	0.00000001
16	Yes	6	0.00000001	0.00000001
17	Yes	6	0.00000001	0.00000001
18	Yes	6	0.00000001	0.00000001
19	Yes	6	0.00000001	0.00000001
20	Yes	6	0.00000001	0.00000001
21	Yes	6	0.00000001	0.00000001
22	Yes	6	0.00000001	0.00000001
23	Yes	6	0.00000001	0.00000001
24	Yes	6	0.00000001	0.00000001
25	Yes	6	0.00000001	0.00000001
26	Yes	6	0.00000001	0.00000001
27	Yes	6	0.00000001	0.00000001
28	Yes	6	0.00000001	0.00000001
29	Yes	6	0.00000001	0.00000001
30	Yes	6	0.00000001	0.00000001
31	Yes	6	0.00000001	0.00000001
32	Yes	6	0.00000001	0.00000001
33	Yes	6	0.00000001	0.00000001
34	Yes	6	0.00000001	0.00000001
35	Yes	6	0.00000001	0.00000001
36	Yes	6	0.00000001	0.00000001
37	Yes	6	0.00000001	0.00000001
38	Yes	6	0.00000001	0.00000001
39	Yes	6	0.00000001	0.00000001
40	Yes	6	0.00000001	0.00000001
41	Yes	6	0.00000001	0.00000001
42	Yes	6	0.00000001	0.00000001
43	Yes	6	0.00000001	0.00000001
44	Yes	6	0.00000001	0.00000001
45	Yes	6	0.00000001	0.00000001
46	Yes	6	0.00000001	0.00000001
47	Yes	6	0.00000001	0.00000001
48	Yes	6	0.00000001	0.00000001
49	Yes	6	0.00000001	0.00000001
50	Yes	6	0.00000001	0.00000001

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	184.92 - 175	0.016	45	0.0149	0.0002

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
206.30	2.8"OD x 3.8' Whip Antenna	45	0.016	0.0149	0.0002	Inf
200.90	2.55"OD x 11.33' Whip Antenna	45	0.016	0.0149	0.0002	Inf
200.00	1.92"OD x 10-Ft Mount Pipe	45	0.016	0.0149	0.0002	Inf
198.40	(2) Flash Beacon Lighting	45	0.016	0.0149	0.0002	Inf
198.30	(2) 1"OD x 1.58' Whip Antenna	45	0.016	0.0149	0.0002	Inf
195.00	Ubiquiti AF24	45	0.016	0.0149	0.0002	Inf
194.00	5-Ft Side Arm	45	0.016	0.0149	0.0002	Inf
192.50	2.55"OD x 11.33' Whip Antenna	45	0.016	0.0149	0.0002	Inf
191.00	AHFIC	45	0.016	0.0149	0.0002	Inf
189.50	48"x6.5"x8" Panel Antenna w/ Mopunt Pipe	45	0.016	0.0149	0.0002	Inf
189.00	Traingular Antenna Mount	45	0.016	0.0149	0.0002	Inf
188.00	Screen Wall	45	0.016	0.0149	0.0002	Inf
186.00	5-Ft Side Arm	45	0.016	0.0149	0.0002	Inf
185.00	Lattice Tower	45	0.016	0.0149	0.0002	Inf

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	184.92 - 175	0.037	14	0.0316	0.0010

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
206.30	2.8"OD x 3.8' Whip Antenna	14	0.037	0.0316	0.0010	Inf
200.90	2.55"OD x 11.33' Whip Antenna	14	0.037	0.0316	0.0010	Inf
200.00	1.92"OD x 10-Ft Mount Pipe	14	0.037	0.0316	0.0010	Inf
198.40	(2) Flash Beacon Lighting	14	0.037	0.0316	0.0010	Inf
198.30	(2) 1"OD x 1.58' Whip Antenna	14	0.037	0.0316	0.0010	Inf
195.00	Ubiquiti AF24	14	0.037	0.0316	0.0010	Inf
194.00	5-Ft Side Arm	14	0.037	0.0316	0.0010	Inf
192.50	2.55"OD x 11.33' Whip Antenna	14	0.037	0.0316	0.0010	Inf
191.00	AHFIC	14	0.037	0.0316	0.0010	Inf
189.50	48"x6.5"x8" Panel Antenna w/ Mopunt Pipe	14	0.037	0.0316	0.0010	Inf
189.00	Traingular Antenna Mount	14	0.037	0.0316	0.0010	Inf
188.00	Screen Wall	14	0.037	0.0316	0.0010	Inf
186.00	5-Ft Side Arm	14	0.037	0.0316	0.0010	Inf
185.00	Lattice Tower	14	0.037	0.0316	0.0010	Inf

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	184.92 - 175 (1)	P59" x 0.325	9.92	0.00	0.0	59.91	-44.74	1620.45	0.028

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	184.92 - 175 (1)	P59" x 0.325	389.1	2576.4	0.151	0.0	2576.4	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	184.92 - 175 (1)	P59" x 0.325	20.68	582.31	0.036	1.6	3003.9	0.001

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	184.92 - 175 (1)	0.028	0.151	0.000	0.036	0.001	0.180 ✔	1.000	✔

Section Capacity Table

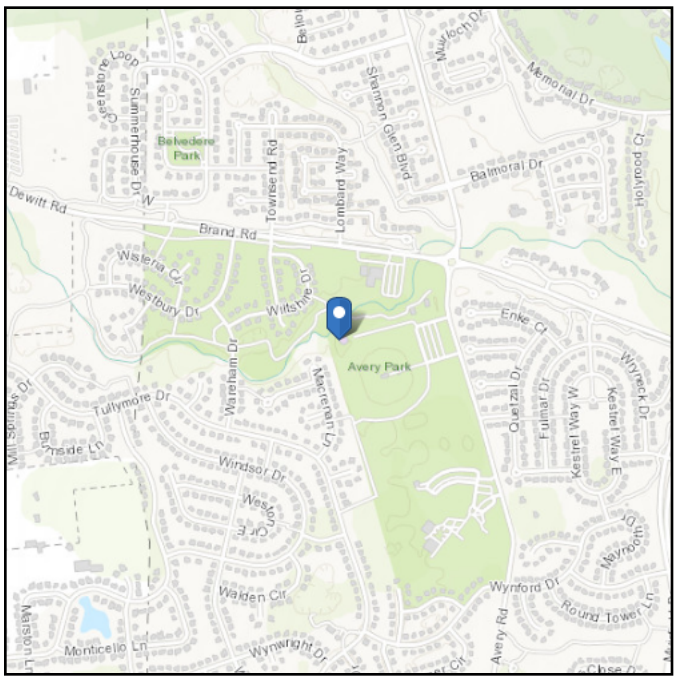
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	184.92 - 175	Pole	P59" x 0.325	1	-44.74	1620.45	18.0	Pass
							Summary	
						Pole (L1)	18.0	Pass
						RATING =	**18.0**	**Pass**

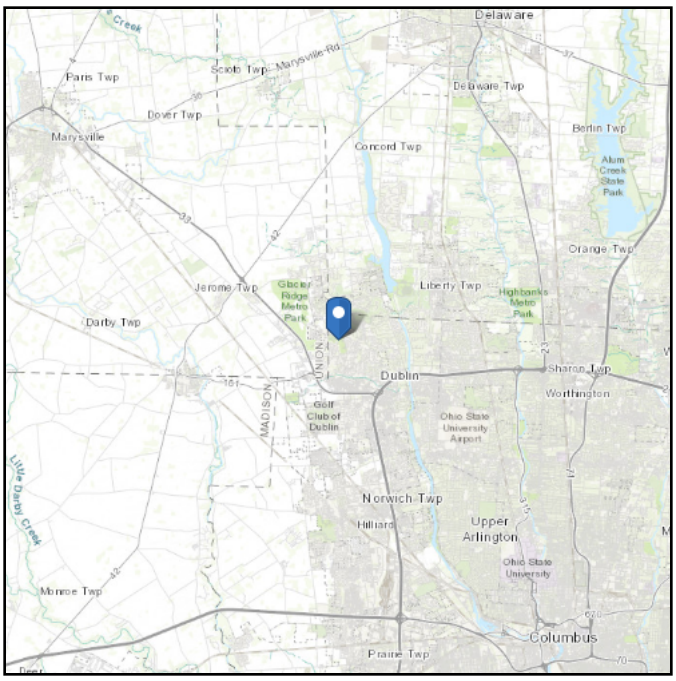
Program Version 8.4.0.2 - 6/2/2026 File:J:/VZW OPW Tech Mod AE/179-507/179-507 Structural Analysis/4_15_2026 Revision per review comments/179-507 Access Tube - Dublin Water Tank.eri

ASCE Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Latitude:**	40.127833
Risk Category:	IV	**Longitude:**	-83.163222
Soil Class:	D - Default (see Section 11.4.3)	**Elevation:**	919.4492023554443 ft (NAVD 88)





Wind

Results:

Wind Speed	119 Vmph
10-year MRI	75 Vmph
25-year MRI	81 Vmph
50-year MRI	85 Vmph
100-year MRI	93 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1D and Figs. CC.2-1–CC.2-4, and Section 26.5.2

Date Accessed: Tue Jul 21 2026

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 1.6% probability of exceedance in 50 years (annual exceedance probability = 0.00033, MRI = 3,000 years).

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

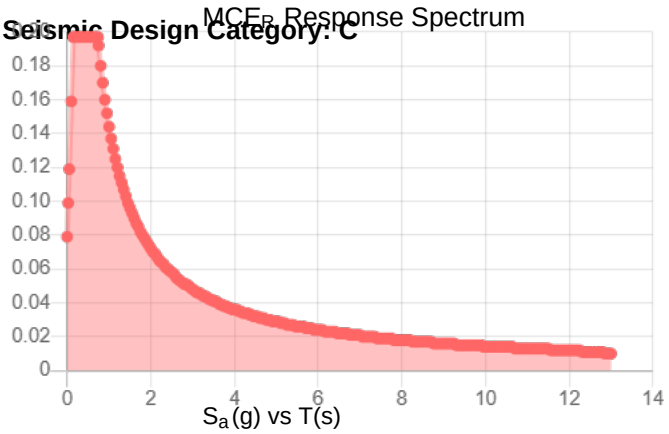
Seismic

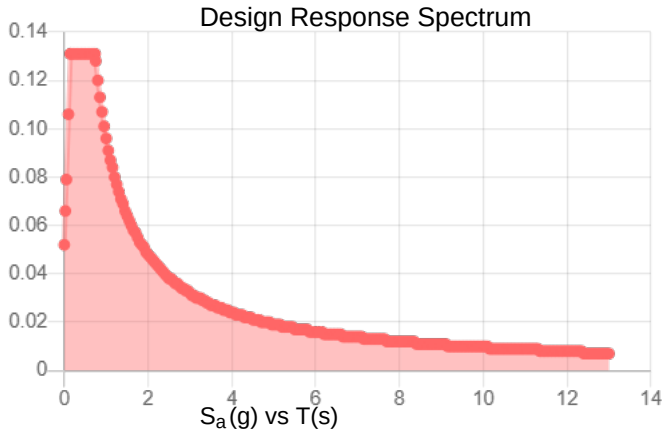
Site Soil Class: D - Default (see Section 11.4.3)

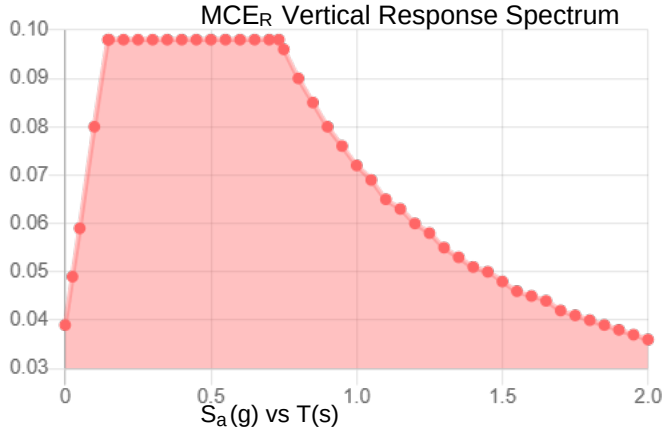
Results:

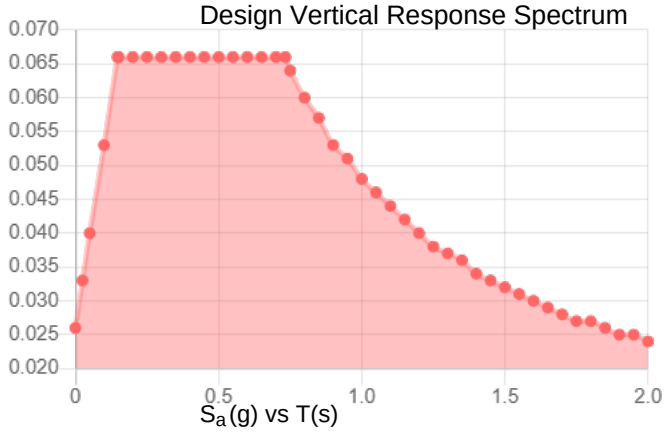
S_S :	0.123	S_{D1} :	0.096
S_1 :	0.06	T_L :	12
F_a :	1.6	PGA :	0.062
F_v :	2.4	PGA_M :	0.1
S_{MS} :	0.197	F_{PGA} :	1.6
S_{M1} :	0.144	I_e :	1.5
S_{DS} :	0.131	C_v :	N/A

Seismic Design Category: C









Data Accessed: **Tue Jul 21 2026**

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:	1.00 in.
Concurrent Temperature:	5 F
Gust Speed	40 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Tue Jul 21 2026

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.

Paul J. Ford and Company
250 East Broad Street Suite 600
Columbus, OH 43215
(614) 221-6679
PJFmount@pauljford.com

Post-Modification Antenna Mount Analysis Report and PMI Requirements

Mount Fix
SMART Tool Project #: 10353772
Paul J. Ford and Company Project #: A24326-1269.002.8189
July 8, 2026

Site Information	*Site ID:*	*5000089136-VZW / DUBLIN*
	Site Name:	*DUBLIN*
	Carrier Name:	*Verizon Wireless*
	Address:	*7697 Avery Road*
		Dublin, Ohio 43016, Franklin County
	Latitude:	*40.127833°*
	Longitude:	*-83.163222°*
Structure Information	*Tower Type:*	*Water Tank*
	Mount Type:	*11.00-Ft Platform w/ Support Rails*

FUZE ID # 16234090

Analysis Results

11.00-Ft Platform w/ Support Rails: **98.5%** **Pass w/ Modifications***

***Antennas and equipment to be installed in compliance with PMI Requirements of this mount analysis.**

******Contractor PMI Requirements*:**
Included at the end of this MA report
Available & Submitted via portal at https://pmi.vzwsmart.com
For additional questions and support, please reach out to:
pmisupport@pauljford.com

Report Prepared By: Kyle Jamison, EI

BKK

Executive Summary:

The objective of this report is to summarize the analysis results of the antenna support mount including the proposed modifications at the subject facility for the final wireless telecommunications configuration, per the applicable codes and standards.

This analysis is inclusive of the mount structure only and does not address the structural capacity of the supporting structure. This mounting frame was not analyzed as an anchor attachment point for fall protection. All climbing activities are required to have a fall protection plan completed by a competent person.

Sources of Information:

Document Type	Remarks
Radio Frequency Data Sheet (RFDS)	*Verizon RFDS, 16234090, dated March 6, 2024*
Previous Mount Analysis Report	*PJF, Project # 24324-1064.002.8188, dated July 23, 2024*
Proposed Mount Modification	*PJF, Project # 24326-1269.002.8189, dated July 8, 2026*
Mount Mapping Report	*Elite ICT, Project # 7697, dated May 30, 2024*
Mount Mapping Report	*Hightower Solutions, dated 6/22/2026*

Analysis Criteria:

Codes and Standards:	ANSI/TIA-222-H	
Wind Parameters:	Basic Wind Speed (Ultimate 3-sec. Gust), V_{ULT}:	115 mph
	Ice Wind Speed (3-sec. Gust):	40 mph
	Design Ice Thickness:	1.00 in
	Risk Category:	III
	Exposure Category:	C
	Topographic Category:	1
	Topographic Feature Considered:	N/A
	Topographic Method:	N/A
	Ground Elevation Factor, K_e:	0.967
Seismic Parameters:	S_S:	0.123
	S_1:	0.060
Maintenance Parameters:	Wind Speed (3-sec. Gust):	30 mph
	Maintenance Load, Lv:	0 lbs.
	Maintenance Load, Lm:	0 lbs.
Analysis Software:	RISA-3D (V22.0.2)	

Final Loading Configuration:

The following equipment has been considered for the analysis of the mount:

Mount Elevation (ft)	Equipment Elevation (ft)	Quantity	Manufacturer	Model	Status
184.00	188.00	3	Samsung	MT6413-77A	Added
		3	Samsung	B2/B66A RRH ORAN	
		3	Samsung	RF4461d-13A	
		1	Raycap	RVZDC-6627-PF-48	
		1	Raycap	RC3DC-3315-PF-48	Retained
		6	Andrew	SBNHH-1D65C	
		1	Generic	Antenna Shroud	

It is acceptable to install up to three (3) OVPs with dimensions not to exceed 30" x 17" x 13" and 40 lbs. at any location, other than the mount face, without affecting the structural capacity of the mount. If OVP units are installed on the mount face, a mount re-analysis may be required unless replacing an existing OVP.

Standard Conditions:

1. All engineering services are performed on the basis that the information provided to Paul J. Ford and Company and used in this analysis is current and correct. The existing equipment loading has been applied at locations determined from the supplied documentation. Any deviation from the loading locations specified in this report shall be communicated to Paul J. Ford and Company to verify deviation will not adversely impact the analysis.

2. Mounts are assumed to have been properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications.

   Obvious safety and structural issues/deficiencies noticed at the time of the mount mapping and reported in the Mount Mapping Report are assumed to be corrected and documented as part of the PMI process and are not considered in the mount analysis.

   The mount analysis and the mount mapping are not a condition assessment of the mount. Proper maintenance and condition assessments are still required post analysis.

3. For mount analyses completed from other data sources (including new replacement mounts) and not specifically mapped in accordance with the NSTD-446 Standard, the mounts are assumed to have been properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications.

4. 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.

5. The mount was checked up to, and including, the bolts that fasten it to the tank extension. Local deformation and interaction between the mount collar/attachment and the supporting tower structure are outside the scope of this analysis.

6. All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Paul J. Ford and Company is not responsible for the conclusion, opinions, and recommendations made by others based on the information supplied.

7. Structural Steel Grades have been assumed as follows, if applicable, unless otherwise noted in this analysis:
   - Channel, Solid Round, Angle, Plate — ASTM A36 (Gr. 36)
   - HSS (Rectangular) — ASTM 500 (Gr. B-46)
   - Pipe — ASTM A53 (Gr. B-35)
   - Threaded Rod — F1554 (Gr. 36)
   - Bolts — ASTM A325

8. Any mount modifications listed under Sources of Information are assumed to have been installed per the design specifications.

9. Perimeter FRP tube support rails and channel shroud support members are not loaded by the telecommunication equipment. Analysis of these members is not included in this analysis.

Discrepancies between in-field conditions and the assumptions listed above may render this analysis invalid unless explicitly approved by Paul J. Ford and Company.

Analysis Results:

Component	Utilization %	Pass/Fail
Face Horizontals	*53.1%*	*Pass*
Bracing Members	*39.3%*	*Pass*
Support Rails	*22.5%*	*Pass*
Internal Support Channels	*95.6%*	*Pass*
Mount Pipes	*38.4%*	*Pass*
Platform Supports	*66.0%*	*Pass*
Mount to Tower Connection	*92.2%*	*Pass*

Structure Rating – *(Controlling Utilization of all Components)*	**98.5%**

Controlling Envelope Reactions at Riser:

Vx (k)	Vy (k)	Mx (k-ft)	Mz (k-ft)	Torque (My) (k-ft)
20.453	8.05	63.629	60.3	11.149

Reactions provided for the supporting structure EOR to evaluate as needed. Reaction is for all beams at a single node at the riser location.

Considered Equipment Dimensions, Weight, and EPA:

Manufacturer	Model	Height (In)	Width (In)	Depth (In)	Weight (Lbs)	(EPA)n (Sq. Ft.)	(EPA)t (Sq. Ft.)
Samsung	*MT6413-77A	28.9	15.8	5.5	57.3	3.16	1.11
Samsung	*B2/B66A RRH ORAN	15.0	15.0	10.0	74.7	1.55	1.04
Samsung	RF4461d-13A	15.0	15.0	10.2	79.1	1.56	1.06
Raycap	*RVZDC-6627-PF-48	29.5	16.5	12.6	32.0	3.17	2.41
Raycap	*RC3DC-3315-PF-48	29.5	16.5	12.6	32.0	3.17	2.41
Andrew	*SBNHH-1D65C	96.6	11.9	7.1	62.9	7.71	3.34

*Appurtenance equivalent projected area has been established through data provided by the specific manufacturer, consistent with direction per ANSI/TIA-222 Section 2.6.11.2.

Requirements:

The existing mount will be **SUFFICIENT** for the final loading configuration (attachment 2) after the modifications detailed in attachment 3 are successfully completed.

ANSI/ASSP rigging plan review services compliant with the requirements of ANSI/TIA 322 are available for a Construction Class IV site or other, if required. Separate review fees will apply.

Attachments:

1. **Contractor Required PMI Report Deliverables**
2. Antenna Placement Diagrams
3. Mount Modification Drawings
4. Mount Photos
5. Analysis Calculations

Mount Desktop – Post Modification Inspection (PMI) Report Requirements

Documents & Photos Required from Contractor – Mount Modification

Electronic pdf version of this can be downloaded at https://pmi.vzwsmart.com
For additional questions and support, please reach out to pmisupport@pauljford.com

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MDG #: 5000089136 SMART Project #: 10353772 Fuze Project ID: 16234090

Purpose – to upload the proper documentation to the SMART Tool in order to allow the SMART Tool engineering vendor to complete the required Mount Desktop review of the Post Modification Inspection Report.

- Contractor is responsible for making certain the photos provided as noted below provide confirmation that the modification was completed in accordance with the modification drawings.
- Contractor shall relay any data that can impact the performance of the mount or the mount modification, this includes safety issues.

Base Requirements:

- If installation of the modification will cause damage to the structure, the climbing facility, or safety climb if present or any installed system, SMART Tool vendor to be notified prior to install. Any special photos outside of the standard requirements will be indicated on the drawings.
- Provide "as built drawings" showing contractor's name, preparer's signature, and date. Any deviations from the drawings (proposed modification) shall be shown. NOTE: If loading is different than what is conveyed in the post-modification passing mount analysis (MA) contact the SMART Tool vendor immediately.
- Each photo shall be time and date stamped.
- Photos should be high resolution.
- Contractor shall ensure that the safety climb wire rope is not adversely impacted by the install of the modification components. This may involve the install of wire rope guides, or other items to protect the wire rope. If there is conflict, contact the SMART Tool engineer for recommendations.
- The PMI can be accessed at the following portal: **https://pmi.vzwsmart.com**

Photo Requirements:

- *Photos taken at ground level*
  - Photo of Gate Signs showing the tower owner, site name, and number.
  - Overall tower structure after installation of the modifications.
  - Photos of the mount after installation of the modifications; if the mounts are at different rad elevations, pictures must be provided for all elevations that the modifications were installed

- *Photos taken at Mount Elevation*
  - Photos showing the safety climb wire rope above and below the mount prior to modification.
  - Photos showing the climbing facility and safety climb if present.

- Photos showing each individual sector after installation of modifications. Each entire sector must be in one photo to show the interconnection of members.
    - These photos shall also certify that the placement and geometry of the equipment on the mount is as depicted in the antenna placement diagram in this form.
- Photos that show the model number of each antenna and piece of equipment installed per sector.
- Photos of each installed modification per the modification drawings; pictures shall also include connection hardware (U-bolts, bolts, nuts, all-threaded rods, etc.)
- Photos showing the distances (relative distance between collars) of the installed modifications from the appropriate reference locations shown in the modification drawings.
- Photos showing the installed modifications onto the tower (i.e. ring/collar mounts, tie-backs, V-bracing kits, etc.); if the existing mount elevation needs to be changed according to the modification drawings, an elevation measurement shall be provided before the elevation change.

Material Certification:

- Materials utilized must be as per specification on the drawings or the equivalent as validated by the SMART Tool vendor.
    - If the materials are as specified on the drawings
        - The contractor shall provide the packing list, or the materials certifications for the materials utilized to perform the mount modification
        - Commscope, Metrosite, Perfect Vision, Sabre, and Site Pro have all agreed to support Verizon vendors with the necessary material certifications
    - If seeking permission to use an equivalent
        - It is required that the SMART Tool engineering vendor approval of such is included in the contractor submission package. There may be an additional charge for approval if the equivalent submission doesn't meet specifications as prescribed in the drawings.

☐ All hardware has been properly installed, and the existing hardware was inspected.

☐ The material utilized was as specified on the SMART Tool engineering vendor Mount Modification Drawings and included in the material certification folder is a packing list or invoice for these materials.

OR

☐ The material utilized was approved by a SMART Tool engineering vendor as an "equivalent" and this approval is included as part of the contractor submission.

Antenna & Equipment Placement and Geometry Confirmation:

☐ The contractor certifies that the photos support and the equipment on the mount is as depicted on the sketch and table included in this form and with the mount analysis provided.

OR

☐ The contractor notes that the equipment on the mount is not in accordance with the sketch and has noted the differences below and provided photo documentation of any alterations.

Comments:

Was the mount modification completed in conjunction with the equipment change / installation?

☐ Yes ☐ No

Special Instructions / Validation as required from the MA or Mod Drawings:

Issue:

n/a

Response:

Special Instruction Confirmation:

☐ The contractor has read and acknowledges the above special instructions.

Comments:

Contractor certifies that the climbing facility / safety climb was not damaged prior to starting work:

☐ Yes ☐ No

Contractor certifies no new damage created during the current installation:

☐ Yes ☐ No

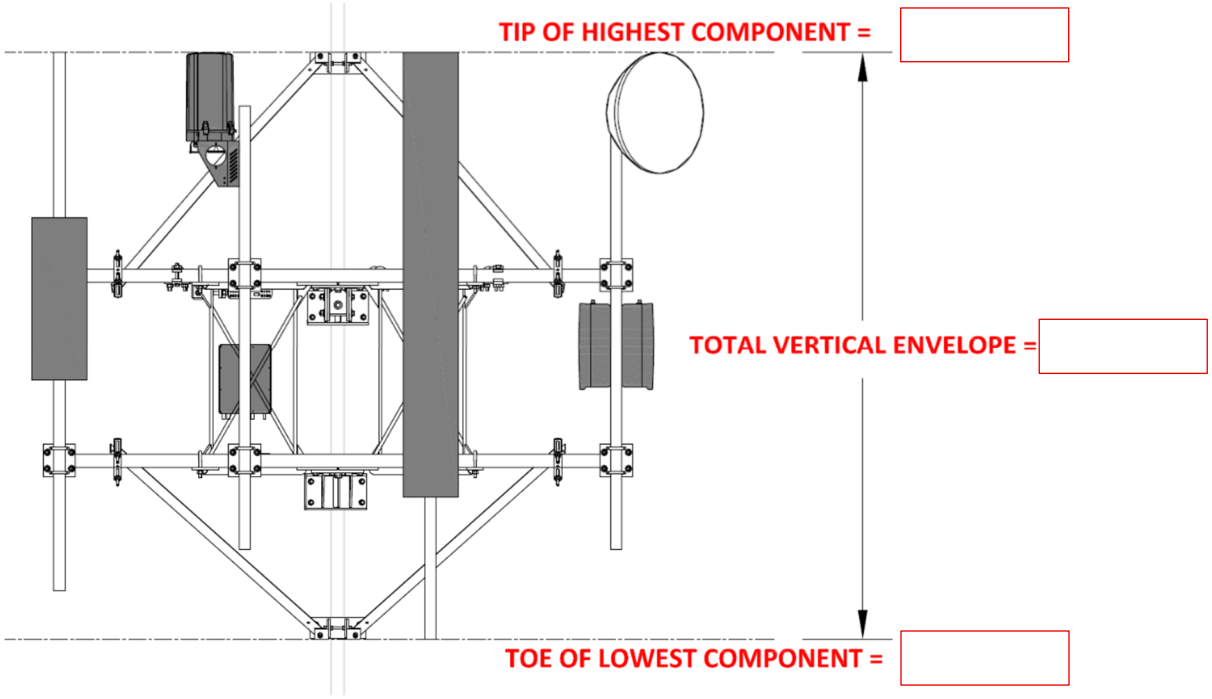
Contractor to certify the condition of the safety climb and verify no damage when leaving the site:

☐ Safety Climb in Good Condition ☐ Safety Climb Damaged

Comments:

Vertical Envelope Documentation:

- **The Contractor shall document the total vertical envelope by providing measurements from the highest components (uppermost tip of equipment or structural steel) to the lowest components (lowermost toe of equipment or structural steel) across all sectors. These measurements must be validated through supporting photographic evidence, using the provided illustration as reference.**
    - The "Tip-to-Toe" measurements must encompass the furthest vertical extents across all sectors, accounting for the following components:
        - **Appurtenance:** Including, but not limited to, antennas, RRUs, OVP units, microwave dishes, TMAs, and ODUs.
        - **Structural Steel:** Including, but not limited to, leveling pipes, equipment mounting pipes, and all mount reinforcement members extending above or below the primary mount frames.
    - Photographic documentation must clearly depict the measurement points for both the maximum elevation and the minimum elevation across the entire site configuration to certify the total vertical occupancy.



Generic Illustration
(For Reference Purposes Only)

Certifying Individual:

Company Name:	
Employee Name:	
Phone Number:	
Email:	
Date:	

Structure: 5000089136-VZW - DUBLIN

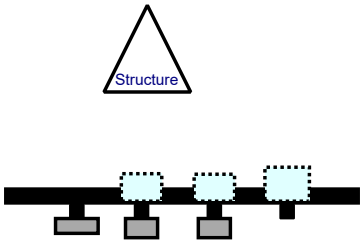
Sector: **A** Nominal Mount A imuth: **0.00°** 7/7/2026

Structure Type: Water Tan 10353772

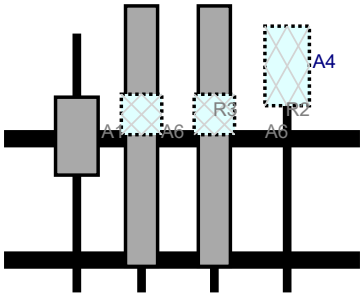
Mount Elev: 188.00 Page: 1

PAUL J. FORD & COMPANY

Plan View



Front View - Loo ing at Structure



4 3 2 1

Ref#	Model	Height (in)	Width (in)	H Dist Frm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
A4	RVZDC-6627-PF-48	29.5	16.5	105	1	a	Behind	12	0	Added	
A6	SBNHH-1D65C	96.6	11.9	78	2	a	Front	38.04	0	Retained	
R2	B2/B66A RRH ORAN	15	15	78	2	a	Behind	30	0	Added	
A6	SBNHH-1D65C	96.6	11.9	51	3	a	Front	38.04	0	Retained	
R3	RF4461d-13A	15	15	51	3	a	Behind	30	0	Added	
A1	MT6413-77A	28.9	15.8	27	4	a	Front	38.04	0	Added	

*The Nominal Mount Azimuth provided on this document is intended for guidance and planning purposes only and may deviate from the Actual Mount Azimuth due to several real-world factors, including but not limited to Magnetic vs. True North.

Structure: 5000089136-VZW - DUBLIN

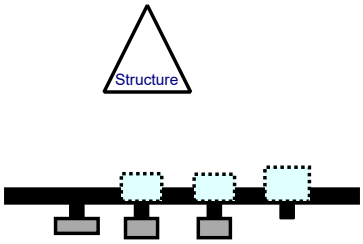
Sector: **B** Nominal Mount A imuth: **120.00°** 7/7/2026

Structure Type: Water Tan 10353772

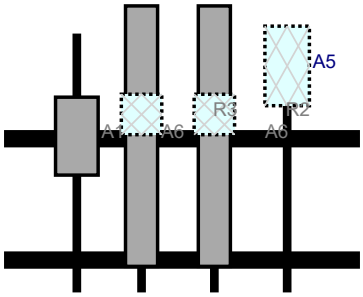
Mount Elev: 188.00 Page: 2

PAUL J. FORD & COMPANY

Plan View



Front View - Loo ing at Structure

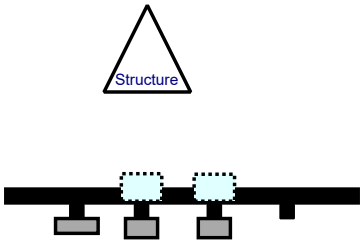


4 3 2 1

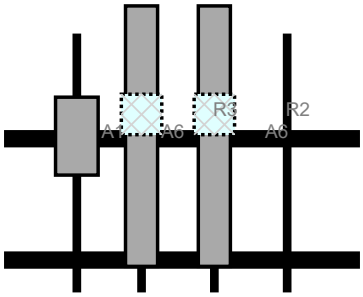
Ref#	Model	Height (in)	Width (in)	H Dist Frm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
A5	RC3DC-3315-PF-48	29.5	16.5	105	1	a	Behind	12	0	Retained	
A6	SBNHH-1D65C	96.6	11.9	78	2	a	Front	38.04	0	Retained	
R2	B2/B66A RRH ORAN	15	15	78	2	a	Behind	30	0	Added	
A6	SBNHH-1D65C	96.6	11.9	51	3	a	Front	38.04	0	Retained	
R3	RF4461d-13A	15	15	51	3	a	Behind	30	0	Added	
A1	MT6413-77A	28.9	15.8	27	4	a	Front	38.04	0	Added	

*The Nominal Mount Azimuth provided on this document is intended for guidance and planning purposes only and may deviate from the Actual Mount Azimuth due to several real-world factors, including but not limited to Magnetic vs. True North.

Plan View



Front View - Loo ing at Structure



4 3 2 1

Ref#	Model	Height (in)	Width (in)	H Dist Frm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
A6	SBNHH-1D65C	96.6	11.9	78	2	a	Front	38.04	0	Retained	
R2	B2/B66A RRH ORAN	15	15	78	2	a	Behind	30	0	Added	
A6	SBNHH-1D65C	96.6	11.9	51	3	a	Front	38.04	0	Retained	
R3	RF4461d-13A	15	15	51	3	a	Behind	30	0	Added	
A1	MT6413-77A	28.9	15.8	27	4	a	Front	38.04	0	Added	

*The Nominal Mount Azimuth provided on this document is intended for guidance and planning purposes only and may deviate from the Actual Mount Azimuth due to several real-world factors, including but not limited to Magnetic vs. True North.

MOUNT MODIFICATION DRAWINGS
PROPOSED CARRIER: VERIZON

5000089136-VZW / DUBLIN

7697 AVERY ROAD
DUBLIN, OHIO 43016
FRANKLIN COUNTY
LAT: 40° 07' 40.20"; LONG: -83° 09' 47.60"

TOWER MANAGED BY: CITY OF COLUMBUS
TOWER MANAGER SITE ID #: 7697

FUZE ID # 16234090

CONTRACTOR PMI REQUIREMENTS	
PMI ACCESSED AT	HTTPS://PMI.VZWSMART.COM
SMART TOOL VENDOR PROJECT #	10353772
VZW LOCATION CODE (PSLC)	149800
MDG #	5000089136
*** PMI AND REQUIREMENTS ALSO EMBEDDED WITHIN MOUNT ANALYSIS REPORT	

VZW APPROVED SMART KIT VENDORS
REFER TO BILL OF MATERIALS SHEET FOR VZW SMART KIT APPROVED VENDORS

SHEET INDEX		
SHEET	DESCRIPTION	REV
ST-1	TITLE SHEET	0
SBOM	BILL OF MATERIALS	0
SGN-1	GENERAL NOTES	0
SS-1	MODIFICATION DETAILS	0
SS-2	MODIFICATION DETAILS	0
SS-3	MODIFICATION DETAILS	0
SS-4	MODIFICATION DETAILS	0
SS-5	MODIFICATION DETAILS	0
SS-6	MODIFICATION DETAILS	0
SS-7	MOUNT PHOTOS	0
	SPECIFICATION SHEETS	

PJF PAUL J. FORD & COMPANY
250 E Broad St, Ste 600- Columbus, OH 43215
Phone 614.221.6679
www.pauljford.com

verizon

5000089136-VZW / DUBLIN
DUBLIN, OHIO
MOUNT MODIFICATION DRAWINGS

PROJECT No:	24326-1269.002.8189
DRAWN BY:	KMJ
DESIGNED BY:	KMJ
CHECKED BY:	BKK
DATE:	7/8/2026

TITLE SHEET

ST-1

V2.0 24326-1269.002_2.DWG

BILL OF MATERIALS

VZWSMART KITS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	PIECE WEIGHT (LBS)	TOTAL WEIGHT (LBS)	MATERIAL	NOTES
3	VZWSMART	VZWSMART P40-278X096	8'-0" LONG, P2.5 STD (2.875"Ø X 0.203") PIPE	46.40	139.20	ASTM A53 (Gr. B-35)	

OTHER REQUIRED PARTS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	PIECE WEIGHT (LBS)	TOTAL WEIGHT (LBS)	MATERIAL	NOTES
30	-	U-BOLT	SEE ATTACHED U-BOLT CHART	-	-	ASTM A36 (Gr. 36)	
228	-	1/2" FLAT WASHERS	-	-	-	ASTM A325	
228	-	1/2" LOCK WASHERS	-	-	-	ASTM A325	
228	-	1/2" HEX NUTS	-	-	-	ASTM A325	
6	-	L3X3X3/16 ANGLE	5'-0" LONG	18.55	111.30	ASTM A36 (Gr. 36)	NEW VERTICAL BRACING
6	-	L4X4X3/8 ANGLE		107.80	646.80	ASTM A36 (Gr. 36)	TOP AND BOTTOM FACE MEMBER REINFORCEMENT
1	CUSTOM	C8X18.75		112.50	112.50	-	NEW INTERNAL LOWER SUPPORT MEMBER
168	-	1/2" Ø HEX BOLTS	1 1/2" LONG	0.19	32.26	ASTM A325	
12	-	5/8" Ø HEX BOLTS	2" LONG	0.37	4.49	ASTM A325	
12	-	5/8" FLAT WASHERS	-	-	-	-	
12	-	5/8" LOCK WASHERS	-	-	-	-	
12	-	5/8" HEX NUTS	-	-	-	-	
7	-	L4X4X3/8 ANGLE		53.90	377.30	ASTM A36 (Gr. 36)	NEW INTERNAL MEMBER, INTERNAL MEMBER REINFORCING, AND MIDDLE SUPPORT RAIL REINFORCING
3	CUSTOM	CUSTOM CORNER PLATES	SEE SS-3 FOR DETAILS	41.47	124.41	-	
24	-	PL 2" X 3/4"	2" LONG SHIM PLATE	0.07	1.70	ASTM A36 (Gr. 36)	
2	-	PL 6" X 3/8"	1'-0" LONG BENT PLATE	7.66	15.31	-	
24	-	3/4" HEX BOLTS	FIELD VERIFY REQUIRED LENGTH	-	-	ASTM A325	NEW HARDWARE FOR W-SHAPE CONNECTIONS. BOLTS TO BE LONG ENOUGH TO EXCLUDE THREADS FROM SHEAR PLANE
24	-	3/4" FLAT WASHERS	-	-	-	-	
24	-	3/4" LOCK WASHERS	-	-	-	-	
24	-	3/4" HEX NUTS	-	-	-	-	
				TOTAL WEIGHT =	1565.27		

NOTE: ALL MATERIALS REQUIRED FOR THE DESIGN MODIFICATIONS BUT NOT LISTED IN THIS SHEET ARE ASSUMMED TO BE PROVIDED BY THE CONTRACTOR.

VZWSMART KITS - APPROVED VENDORS

VENDOR	CONTACT	EMAIL	PHONE NUMBER
PERFECT VISION	WIRELESS SALES	WIRELESSSALES@PERFECT-VISION.COM	(844) 884-6723
SITE PRO 1	TERRY DENATALIE	TERRY.DENATALIE-SCHENK@VALMONT.COM	(888) 438-7761
SABRE INDUSTRIES INC.	ANGIE WELCH	AKWELCH@SABREINDUSTRIES.COM	(866) 428-6937
METROSITE FABRICATORS, LLC	KENT RAMEY	KENT@METROSITELLC.COM	(706) 335-7045
ANDREW	STEEL PRODUCTS	STEELPRODUCTS@ANDREW.COM	(888) 297-6433 OPT #3

THE MANUFACTURER'S LISTED ARE THE APPROVED VENDORS FOR THE VZW MOUNT KITS. EACH MANUFACTURER WILL BE AWARE OF WHICH KITS HAVE BEEN THROUGH THE VZW APPROVAL PROCESS AND THE ARE IN TURN APPROVED TO SELL. PLEASE NOTE THAT THE MATERIAL UTILIZED ON THE MOUNT MODIFICATIONS WILL BE REVIEWED AS A PART OF THE DESKTOP PMI COMPLETED BY THE SMART TOOL VENDOR. IT WILL BE REQUIRED THAT THE VZW KITS SPECIFIED ARE UTILIZED IN THE MODIFICATION.

ALL PARTS ARE GALVANIZED UNLESS NOTED OTHERWISE

PJF PAUL J. FORD & COMPANY
250 E Broad St, Ste 600- Columbus, OH 43215
Phone 614.221.6679
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verizon

5000089136-VZW / DUBLIN
DUBLIN, OHIO
MOUNT MODIFICATION DRAWINGS

PROJECT No:	24326-1269.002.8189
DRAWN BY:	KMJ
DESIGNED BY:	KMJ
CHECKED BY:	BKK
DATE:	7/8/2026

BILL OF MATERIALS

SBOM

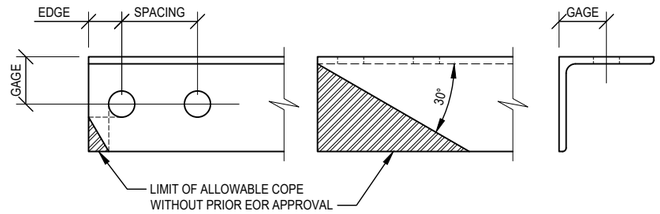
V2.0 24326-1269.002_2.DWG

GENERAL NOTES:

1. PAUL J. FORD AND COMPANY WAS NOT PROVIDED WITH THE EXACT LOCATION OF EVERY EXISTING ANTENNA MOUNT CONNECTION, CABLE CLIP, ETC THAT COULD POTENTIALLY INTERFERE WITH THE MODIFICATIONS AS INDICATED ON THESE DRAWINGS. THE CONTRACTOR SHALL FIELD VERIFY THAT THE MATERIAL CAN BE INSTALLED AS SHOWN ON THESE DRAWINGS BEFORE FABRICATING ANY MATERIAL. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE PROPER FIT AND CLEARANCE OF THE REINFORCING MATERIAL IN THE FIELD. IF THE CONTRACTOR DISCOVERS ANY EXISTING CONDITIONS THAT ARE NOT AS REPRESENTED ON THESE DRAWINGS, PAUL J. FORD AND COMPANY SHALL BE CONTACTED IMMEDIATELY TO EVALUATE THE STRUCTURAL SIGNIFICANCE OF THE DEVIATION.
2. WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE LOCAL BUILDING OFFICIALS FOR ANY INSPECTIONS THAT MAY BE REQUIRED.
3. THE CONTRACTOR MUST BE EXPERIENCED IN THE PERFORMANCE OF WORK SIMILAR TO THAT DESCRIBED ON THESE DRAWINGS. BY ACCEPTANCE OF THIS PROJECT, THE CONTRACTOR IS ATTESTING THAT HE DOES HAVE SUFFICIENT EXPERIENCE AND ABILITY, THAT HE IS KNOWLEDGEABLE OF THE WORK TO BE PERFORMED AND THAT HE IS PROPERLY LICENSED TO DO THIS WORK IN THE JURISDICTION IN WHICH THE WORK IS TO BE PERFORMED.
4. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION. ALL STRUCTURES ARE DESIGNED TO BE STABLE AND SELF-SUPPORTING AT THE COMPLETION OF CONSTRUCTION. THIS DRAWING DOES NOT INDICATE THE METHOD OF CONSTRUCTION. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE THE ERECTION PROCEDURES, METHODS, MEANS, TECHNIQUES, AND SEQUENCES TO ENSURE THE STABILITY AND SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS, AND THE ADEQUACY OF TEMPORARY OR INCOMPLETE CONNECTIONS DURING CONSTRUCTION. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF WHATEVER TEMPORARY BRACING THAT MAY BE NECESSARY AND ENGINEERING ASSESSMENT OF CONSTRUCTION STRESSES WITH INSTALLATION MAXIMUM WIND SPEED AND/OR TEMPORARY BRACING AND SHORING. SUCH MATERIAL IS NOT INDICATED ON THE DRAWINGS AND, IF PROVIDED, SHALL BE REMOVED, AS CONDITIONS PERMIT AND REMAIN THE PROPERTY OF THE CONTRACTOR.
5. ANY EXISTING ATTACHMENTS AND/OR PROJECTIONS ON THE STRUCTURE THAT MAY INTERFERE WITH THE INSTALLATION OF THE MODIFICATION SYSTEM WILL HAVE TO BE REMOVED AND RELOCATED, REPLACED, OR RE-INSTALLED AS REQUIRED AFTER THE MODIFICATION IS SUCCESSFULLY COMPLETED. THE CONTRACTOR SHALL IDENTIFY AND COORDINATE THESE ITEMS PRIOR TO CONSTRUCTION WITH OWNER, TESTING AGENCY, AND EOR.
6. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PROGRAMS AND PRECAUTIONS IN CONNECTION WITH THE WORK.
7. CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT DAMAGE TO EXISTING STRUCTURES, EQUIPMENT AND UTILITIES. ANY DAMAGE TO EXISTING STRUCTURES, EQUIPMENT, AND UTILITIES AS A RESULT OF THE CONTRACTOR'S WORK OR FROM DAMAGE DUE TO OTHER CAUSES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
8. WORK SHALL BE PERFORMED DURING WINDS LESS THAN 30-MPH IN ACCORDANCE WITH OPERATIONAL WIND CONDITIONS PER ANSI/TIA-322.
9. RIGGING OR FALL PROTECTION LOADS CAN BE EVALUATED VIA ANSI/TIA-322 IF A CONTRACTOR PLAN IS SUBMITTED.
10. THE STRUCTURAL ANALYSIS ASSUMES THAT ALL STRUCTURAL COMPONENTS ARE IN BRAND-NEW CONDITION, FREE FROM FAULTS AND DEFECTS AND IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. NO ALLOWANCE WAS MADE FOR ANY DAMAGED, MISSING, OR RUSTED MEMBERS. IF ANY OF THESE CONDITIONS ARE DISCOVERED, THE CONTRACTOR SHALL BRING THEM TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE. ANY AND ALL SUBSTITUTIONS MUST BE PROPERLY APPROVED AND AUTHORIZED IN WRITING BY OWNER AND EOR PRIOR TO INSTALLATION. THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF MATERIALS AND EQUIPMENT BEING SUBSTITUTED.
11. IF MATERIALS, QUANTITIES, STRENGTHS, OR SIZES INDICATED BY THE DRAWINGS OR SPECIFICATIONS ARE NOT IN AGREEMENT WITH THESE NOTES, THE BETTER QUALITY AND/OR GREATER QUANTITY, STRENGTH, OR SIZE INDICATED, SPECIFIED, OR NOTED SHALL BE PROVIDED.
12. OBSERVATION VISITS TO THE SITE BY OWNER AND/OR THE EOR SHALL NOT INCLUDE INSPECTIONS OF THE PROTECTIVE MEASURES OR THE CONSTRUCTION PROCEDURES.
13. ANY SUPPORT SERVICES PERFORMED BY THE EOR DURING CONSTRUCTION ARE SOLELY FOR THE PURPOSE OF ASSISTING IN QUALITY CONTROL AND IN ACHIEVING GENERAL PERFORMANCE WITH CONTRACT DOCUMENTS. THEY DO NOT GUARANTEE CONTRACTORS PERFORMANCE AND SHALL NOT BE CONSTRUED AS SUPERVISION OF CONSTRUCTION.
14. THE CLIMBING FACILITIES, SAFETY CLIMB, AND ALL PARTS THEREOF SHALL NOT BE IMPEDED, MODIFIED, OR ALTERED WITHOUT THE APPROVAL OF THE EOR.
15. AFTER THE CONTRACTOR HAS SUCCESSFULLY COMPLETED THE INSTALLATION OF THE MODIFICATION SYSTEM AND THE WORK HAS BEEN ACCEPTED BY THE OWNER, THE OWNER WILL BE RESPONSIBLE FOR THE LONG TERM/PERPETUAL INSPECTION AND MAINTENANCE OF THE STRUCTURE AND MODIFICATION SYSTEM.
16. DO NOT SCALE DRAWINGS.
17. IF RIGGING TO THE MOUNT IS REQUIRED, ALL CONSTRUCTION PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION), INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH THE ANSI/TIA-322 (LATEST EDITION).
18. ALL MANUFACTURER'S HARDWARE ASSEMBLY INSTRUCTIONS SHALL BE FOLLOWED, UNO. CONFLICTING NOTES SHALL BE BROUGHT TO THE ATTENTION OF THE EOR.
19. IF REMOVAL OF EXISTING MODIFICATIONS IS REQUIRED PER THE MODIFICATION SCOPE, THE GC SHALL CLEAN AND COLD GALVANIZE ANY EXISTING EMPTY BOLT HOLES, UNO. IF ADDITIONAL UNEXPECTED, OVERSIZED, OR SLOTTED HOLES ARE FOUND, THE GC SHALL CONTACT THE EOR FOR GUIDANCE PRIOR TO PROCEEDING WITH THE MODIFICATION.

STRUCTURAL STEEL:

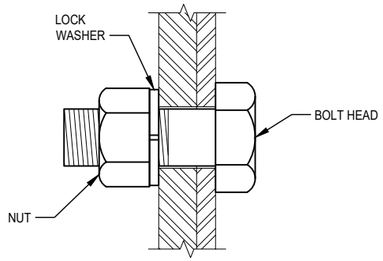
1. STRUCTURAL STEEL MATERIALS, FABRICATION, DETAILING, AND WORKMANSHIP SHALL CONFORM TO THE LATEST ADDITION OF THE FOLLOWING REFERENCE STANDARDS:
   A. BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC):
      "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS"
      "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM HIGH STRENGTH BOLTS" AS APPROVED BY THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS.
      "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"
   B. BY THE AMERICAN WELDING SOCIETY (AWS):
      "STRUCTURAL WELDING CODE- STEEL D1.1"
      "STANDARD SYMBOLS FOR WELDING, BRAZING, AND NON-DESTRUCTIVE EXAMINATION"
2. NEW STEEL (UNLESS NOTED OTHERWISE) SHALL CONFORM TO THE REQUIREMENTS OF THE ASTM STANDARD SPECIFICATION FOR STRUCTURAL STEEL NOTED BELOW:
   W - ASTM A992 (50 KSI YIELD POINT MATERIAL)
   HSS RECTANGULAR - ASTM A500 GR. B (46 KSI YIELD POINT MATERIAL)
   HSS ROUND - ASTM A500 GR. B (42 KSI YIELD POINT MATERIAL)
   PIPE - ASTM A53 GR. B (35 KSI YIELD POINT MATERIAL)
   C, MC, L, PLATES, BARS & ALL OTHER STEEL - ASTM A36 (36KSI YIELD POINT MATERIAL)
   BOLTS - ASTM A325
   U-BOLTS - ASTM A307 GRADE A, OR SAE J429 GRADE 2
   THREADED RODS - ASTM A36
   NUTS - ASTM A563 GRADE DH
   WASHERS - ASTM F436 TYPE 1
3. ALL NEW STEEL SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123, ASTM 153/A153M, OR ASTM A653 G90.
4. ALL BOLTS, U-BOLTS, AND THREADED RODS SHALL BE PROVIDED WITH LOCK-WASHERS, OR LOCK-NUTS, OR PAL-NUTS TORQUED TO THE SNUG-TIGHT CONDITION AS DEFINED BY AISC.
5. ALL HOLES, EITHER PUNCHED OR DRILLED, IN THE EXISTING STEEL MEMBERS SHALL BE 1/16 INCH LARGER THAN THE BOLT DIAMETER, UNLESS NOTED OTHERWISE. BURNING OF MEMBERS SHALL NOT BE PERMITTED. SLOTTED HOLES ARE NOT PERMITTED. THE MINIMUM BOLT SPACING SHALL BE 3 TIMES THE BOLT DIAMETER AND THE MINIMUM EDGE DISTANCE SHALL BE 1.5 TIMES THE BOLT DIAMETER UNLESS NOTED OTHERWISE. ALL BOLT HOLES SHALL BE PLACED AT AISC STANDARD GAGE DIMENSIONS, UNLESS NOTED OTHERWISE.
6. IF ANY EXISTING ASTM A325 BOLTS ARE REMOVED, THEY MUST BE REPLACED WITH NEW A325 BOLTS OR GREATER.
7. ALL EXISTING PAINTED OR GALVANIZED SURFACES DAMAGED DURING CONSTRUCTION SHALL BE WIRE BRUSHED CLEAN, REPAIRED BY FILM GALVANIZING BRUSH APPLIED PAINT (ZINC KOTE OR APPROVED EQUIVALENT), AND REPAINTED TO MATCH THE EXISTING FINISH CONFORMING TO ASTM A780.
8. ALL PARTS ARE TO MARKED WITH ITEM NUMBERS USING 3/4" HIGH STEEL STENCILS.
9. SHOP SHALL ASSEMBLE AND VERIFY FIT AND GAPS BEFORE BREAKDOWN FOR GALVANIZING.
10. NO FIELD WELDING SHALL BE DONE TO THE EXISTING STRUCTURE WITHOUT THE PRIOR APPROVAL OF THE OWNER AND SUPERVISION BY THE INSPECTION/TESTING AGENCY.
11. ALL REQUIRED CUTS SHALL BE CUT WITHIN THE DIMENSIONS SHOWN ON THE DRAWINGS. NO CUTS SHALL EXTEND BEYOND THE OUTLINE OF THE DIMENSIONS SHOWN ON THE DRAWINGS. ALL CUT EDGES SHALL BE GROUND SMOOTH AND DE-BURRED. CONTRACTOR TO AVOID 90 DEGREE CORNERS. IT MAY BE NECESSARY TO DRILL STARTER HOLES AS REQUIRED TO MAKE THE CUT.
12. ALL JOINTS ARE BEARING TYPE CONNECTIONS, UNO. IF NO BOLT LENGTH IS GIVEN IN THE BILL OF MATERIALS, THE CONNECTION MAY INCLUDE THREADS IN THE SHEAR PLANE, AND THE GC IS RESPONSIBLE FOR SIZING THE LENGTH OF THE BOLT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.



ALLOWABLE COPING

BOLT SCHEDULE (IN)				
BOLT DIAMETER	STANDARD HOLE	SHORT SLOT	MIN EDGE DISTANCE	SPACING
1/2	9/16	9/16 x 11/16	7/8	1 1/2
5/8	11/16	11/16 x 7/8	1 1/8	1 7/8
3/4	13/16	13/16 x 1	1 1/4	2 1/4
7/8	15/16	15/16 x 1 1/8	1 1/2	2 5/8
1	1 1/16	1 1/16 x 1 5/16	1 3/4	3

WORKABLE GAGES (IN)	
LEG	GAGE
4	2 1/2
3 1/2	2
3	1 3/4
2 1/2	1 3/8
2	1 1/8



TYP BOLT ASSEMBLY

NOTE:

1. ALL DIMENSIONS REPRESENTED IN THE ABOVE TABLES ARE AISC MINIMUM REQUIREMENTS. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN FIELD AND NOTIFY ENGINEER IF DISTANCES ARE LESS THAN THOSE PROVIDED.
2. THE DIMENSIONS PROVIDED ARE MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS OF PROPOSED MEMBERS WITHIN THESE DRAWINGS MAY VARY FROM THE AISC MINIMUM REQUIREMENTS.
3. SHORT SLOT HOLES SHALL ONLY BE USED WHEN DEPICTED IN THE DRAWING.
4. MATCH EXISTING GAGES WHEN APPLICABLE, UNLESS MINIMUM EDGE DISTANCES ARE COMPROMISED.

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500008913 6-VZW / DUBLIN
DUBLIN, OHIO
MOUNT MODIFICATION DRAWINGS

PROJECT No:	24326-1269.002.8189
DRAWN BY:	KMJ
DESIGNED BY:	KMJ
CHECKED BY:	BKK
DATE:	7/8/2026

GENERAL NOTES

SGN-1

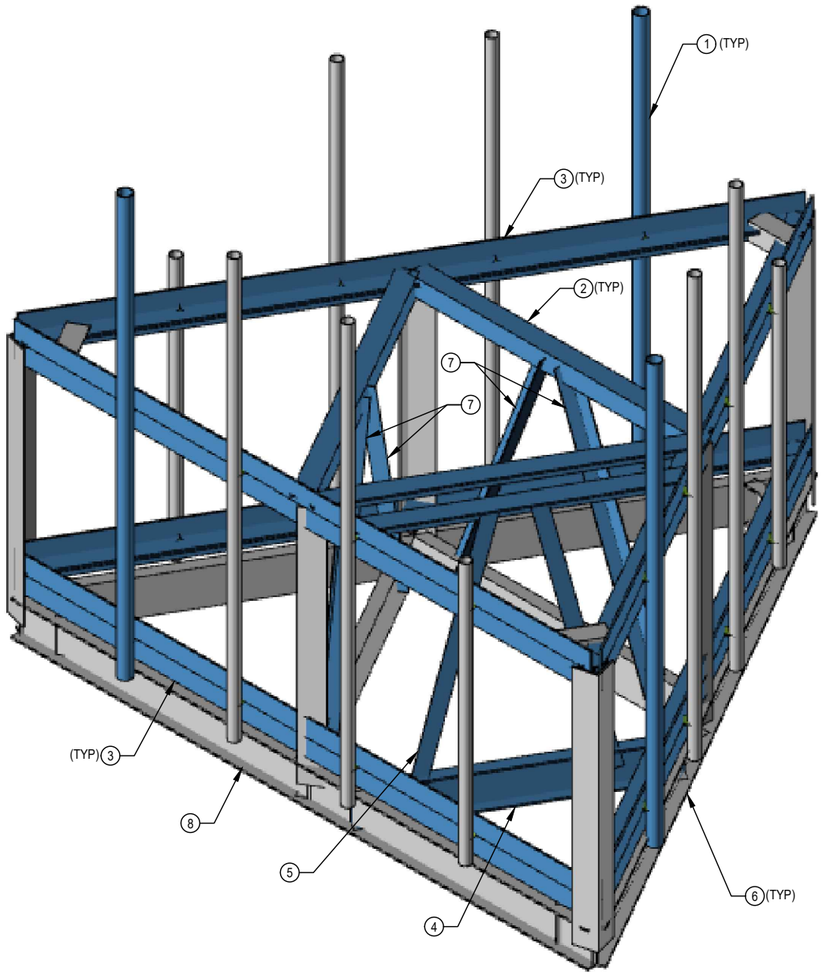
V2.0 24326-1269.002_2.DWG

NOTES:

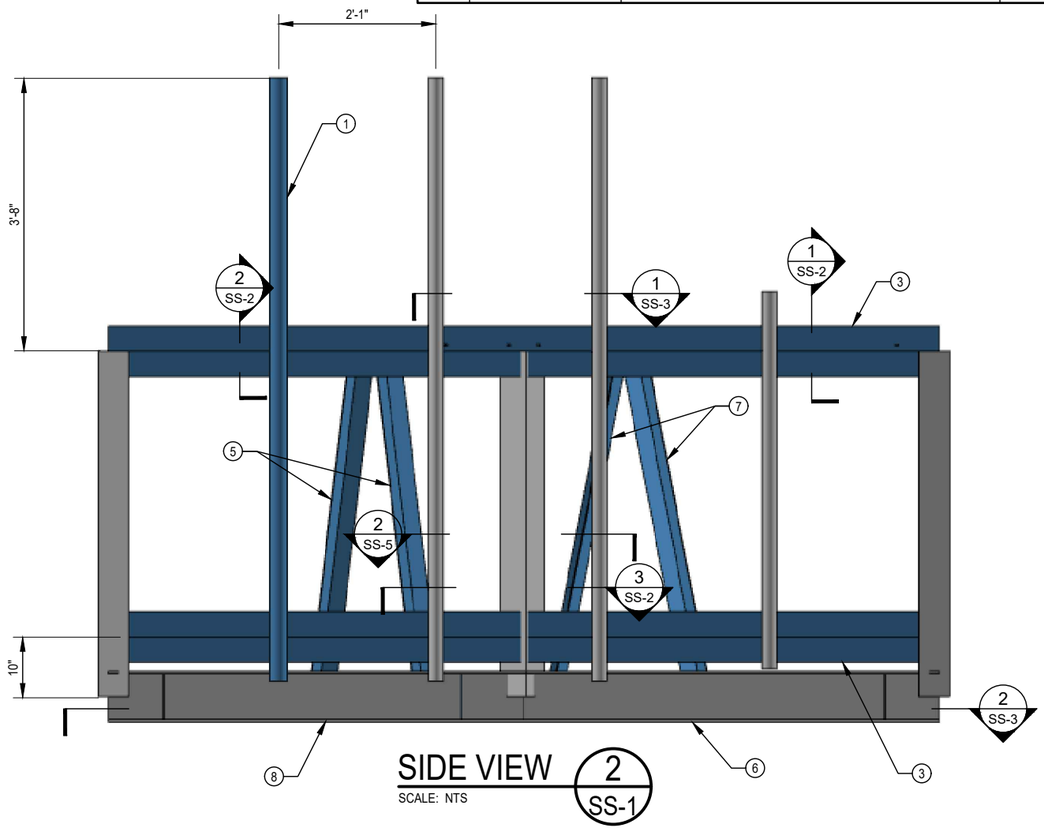
1. PRIOR TO FABRICATION AND INSTALLATION, CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND QUANTITIES GIVEN. LENGTH AND QUANTITIES PROVIDED ARE FOR QUOTING PURPOSE ONLY AND SHALL NOT BE USED FOR FABRICATION.
2. ALL MODIFICATIONS SHOWN ARE TYPICAL ALL SECTORS UNLESS NOTED OTHERWISE.
3. SOME MEMBERS NOT SHOWN FOR CLARITY.
4. RADIO AND/OR TME POSITIONS SHALL BE ADJUSTED VERTICALLY AS NEEDED IN ORDER TO ACHIEVE INSTALLATION OF MODIFICATION KITS AS SHOWN. EOR SHALL BE NOTIFIED IF EQUIPMENT NEEDS TO BE RELOCATED TO ANOTHER MOUNT PIPE.
5. MEMBERS IN BLUE COLOR ARE NEW REINFORCEMENTS AND MEMBERS IN AQUA COLOR (IF SHOWN) ARE RELOCATED MEMBERS.
6. ALL SHOWN DIMENSIONS HAVE AN INSTALLABLE TOLERANCE OF ±0'-3", UNLESS NOTED OTHERWISE.

MOUNT MODIFICATION SCHEDULE

	ELEVATION	MOUNT MODIFICATION DESCRIPTION	REFERENCE SHEETS
1	184'-0"	REPLACE EXISTING MOUNT PIPE WITH NEW MOUNT PIPE USING NEW CONNECTION HARDWARE	SS-1
2	184'-0"	REPALCE EXISTING INERNAL ANGLES WITH NEW STEEL ANGLES	SS-1
3	184'-0"	INSTALL FACE MEMBER REINFORCEMENT ON ALL ANGLE SHAPED FACE MEMBERS	SS-1
4	184'-0"	INSTALL NEW LOWER SUPPORT MEMBER BETWEEN FACE MEMBERS USING BENT PLATE MEMBERS TO BOLT TO FACE MEMBERS	SS-1
5	184'-0"	INSTALL NEW BRACING MEMBERS BETWEEN PROPOSED LOWER SUPPORT MEMBER AND PROPOSED INTERNAL ANGLE	SS-1
6	184'-0"	INSTALL NEW BOLTS THROUGH EXISTING LOWER FACE MEMBERS AND EXISTING BEAM MEMBERS. TRIM GRATING AS NEEDED	SS-1
7	184'-0"	REPLACE EXISTING BRACING ANGLES WITH NEW STEEL ANGLES	SS-1
8	184'-0"	REINFORCE BOTTOM FACE HORIZONTAL	SS-3
9	184'-0"	REPLACE EXISTING 3/4" BOLTS AT ALL BEAM TO RISER CONNECTION WITH NEW 3/4" A325X BOLTS. FIELD VERIFICATION IS REQUIRED TO ENSURE THE BOLT IS LONG ENOUGH TO EXCLUDE THE THREADS FROM THE SHEAR PLANE.	SS-6



ISOMETRIC MODIFIED MOUNT VIEW 1 / SS-1
SCALE: NTS



SIDE VIEW 2 / SS-1
SCALE: NTS

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DUBLIN, OHIO
MOUNT MODIFICATION DRAWINGS

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MODIFICATION DETAILS

SS-1

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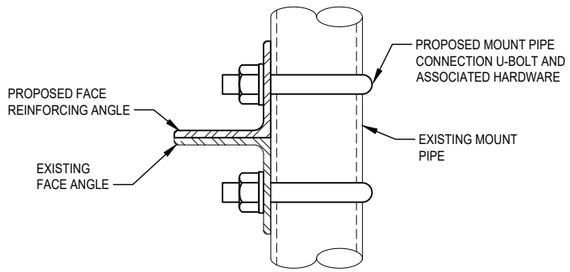
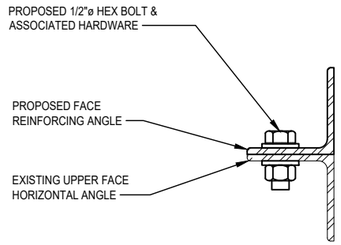
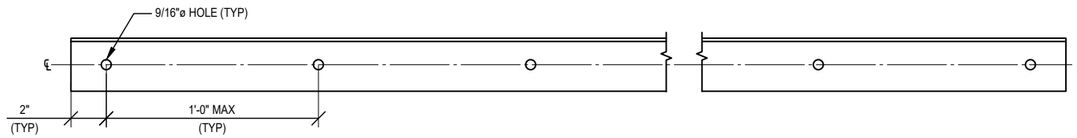


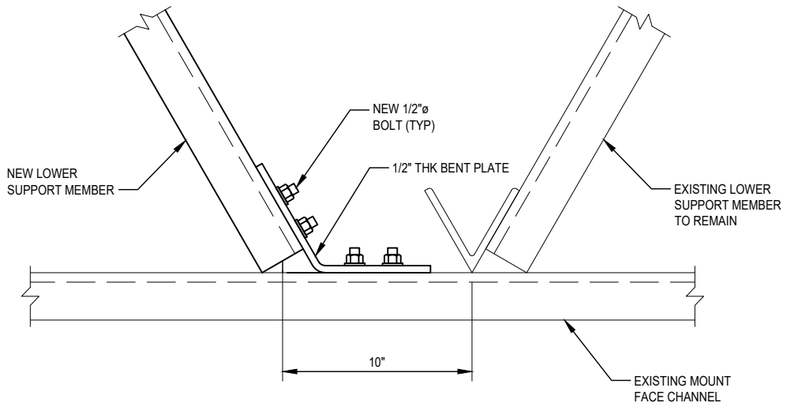
SECTION 1 / SS-2



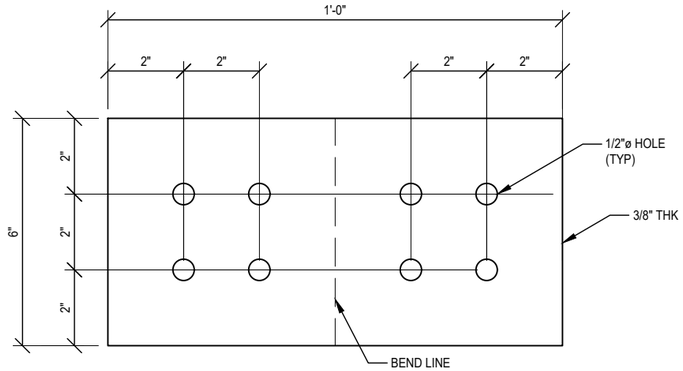
SECTION 2 / SS-2



FACE REINFORCING ANGLE DETAIL
L4 x 4 x 3/8



SECTION 3 / SS-2



BENT PLATE DETAIL

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MODIFICATION DETAILS

SS-2

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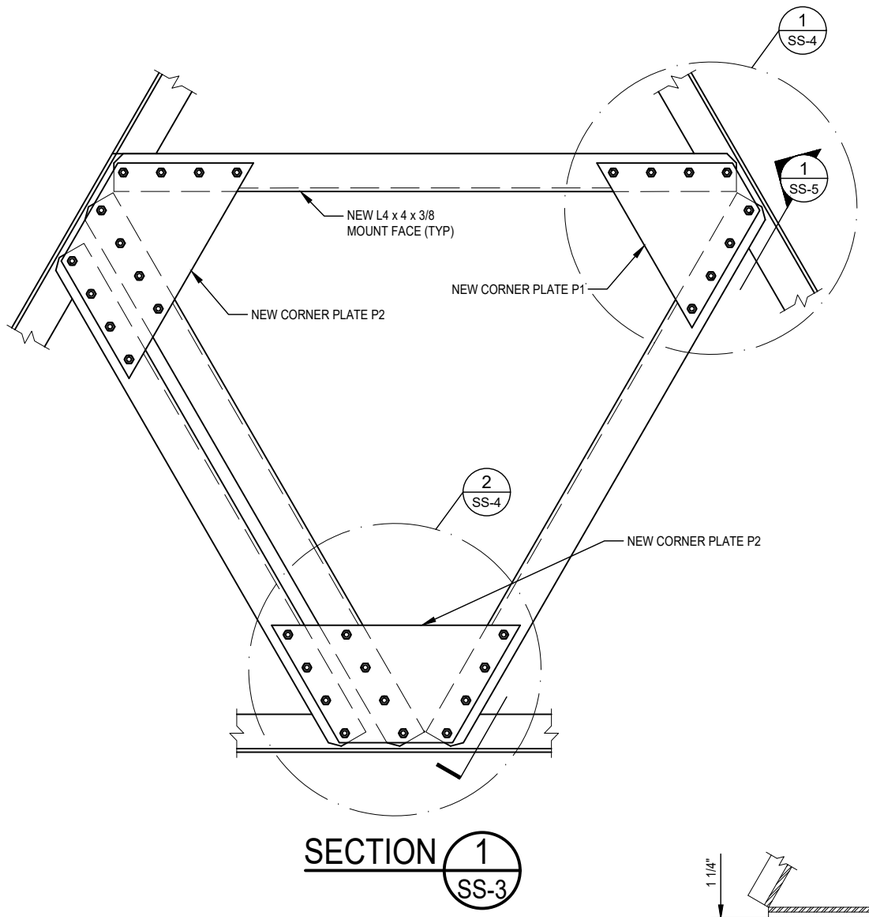

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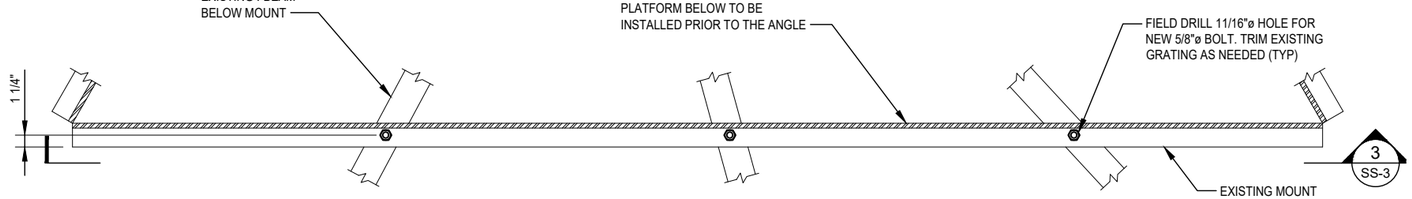
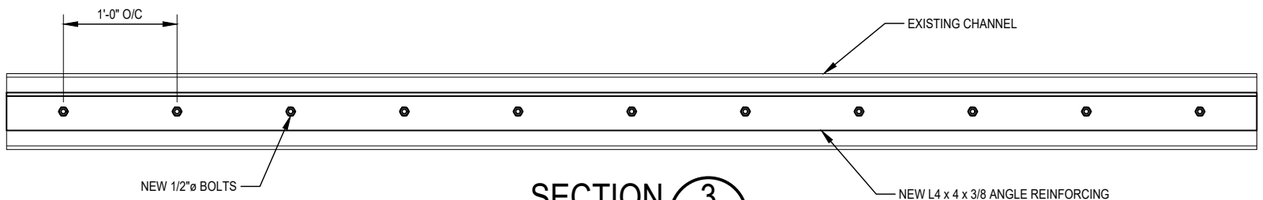


SECTION 2 SS-3



SECTION 3 SS-3

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MODIFICATION DETAILS

SS-3

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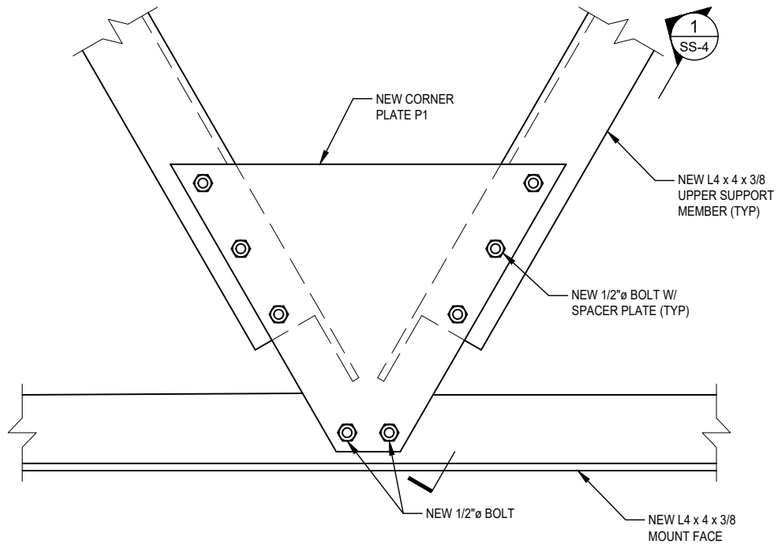
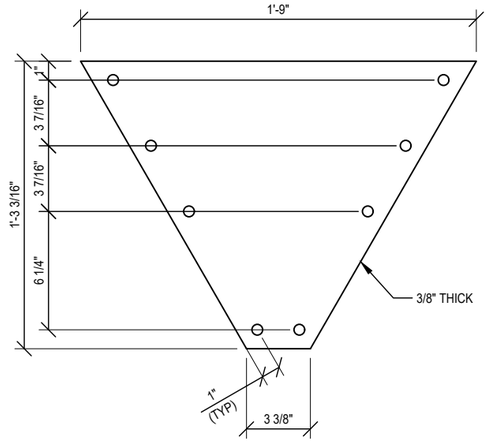
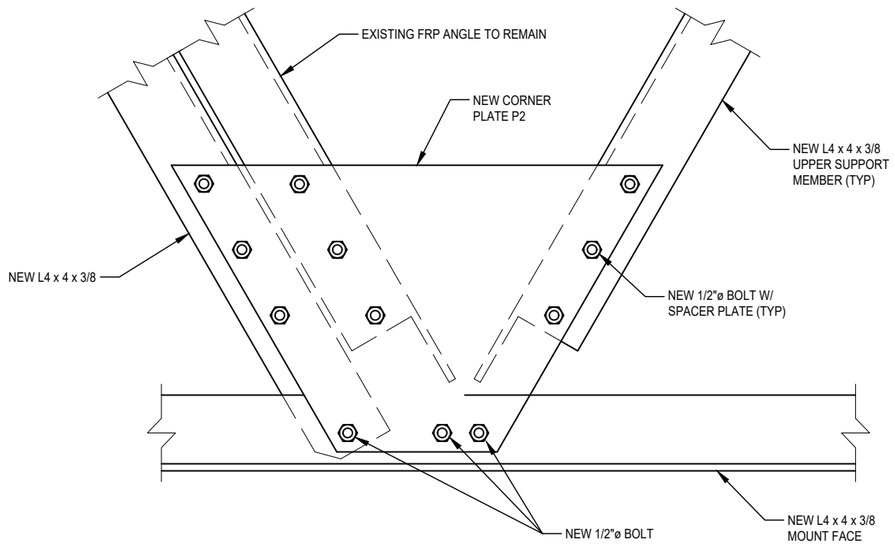


DETAIL 1 / SS-4

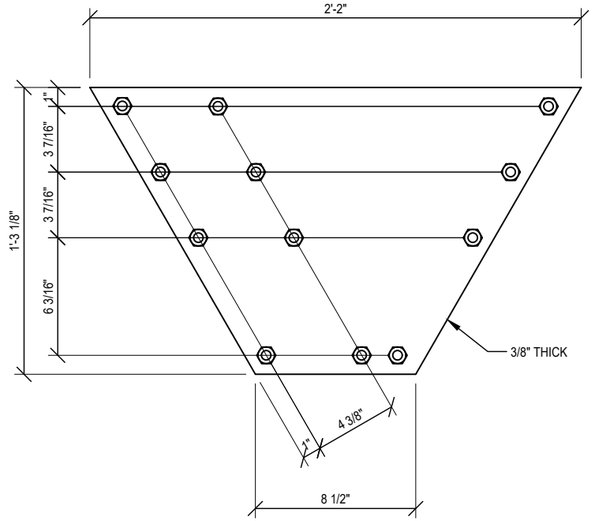


CORNER PLATE P1 DETAIL

FIELD VERIFY ALL DIMENSIONS BEFORE FABRICATION



DETAIL 1 / SS-4



CORNER PLATE P2 DETAIL

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MODIFICATION DETAILS

SS-4

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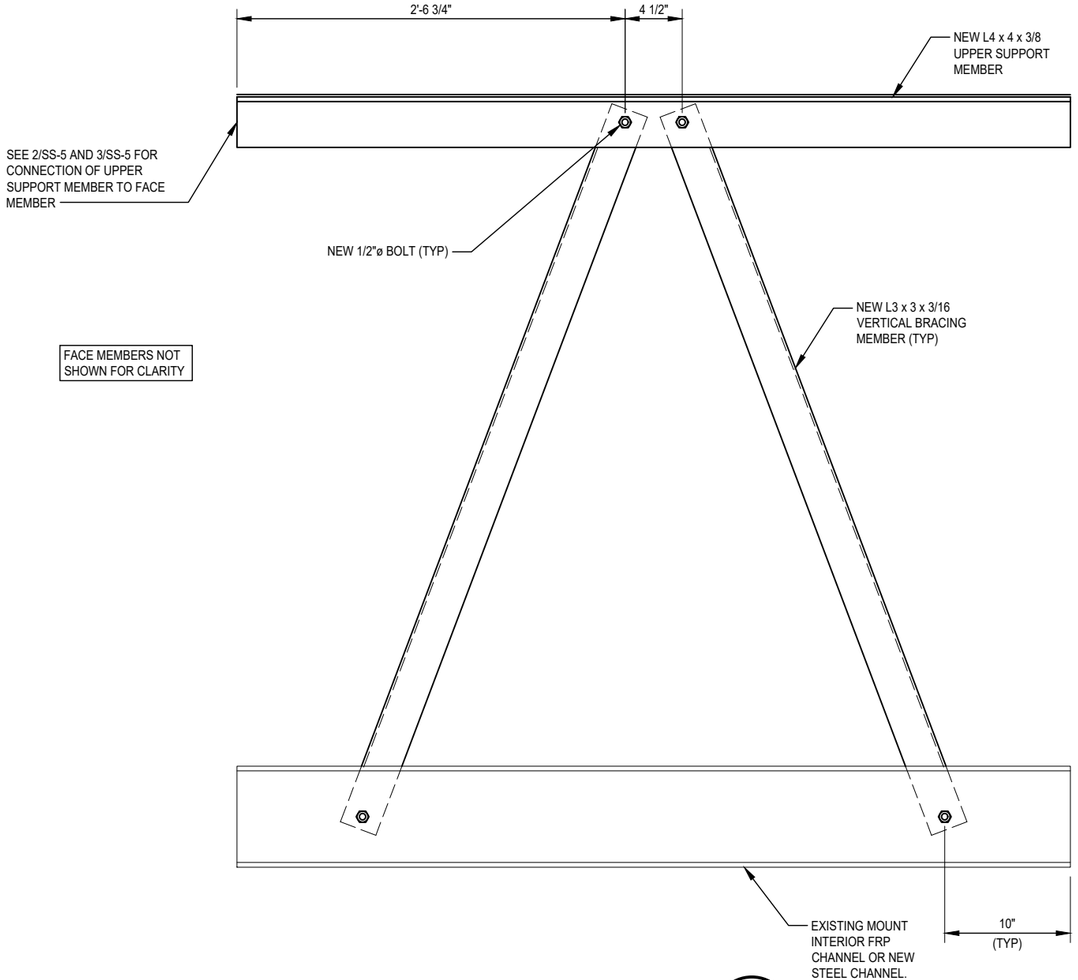
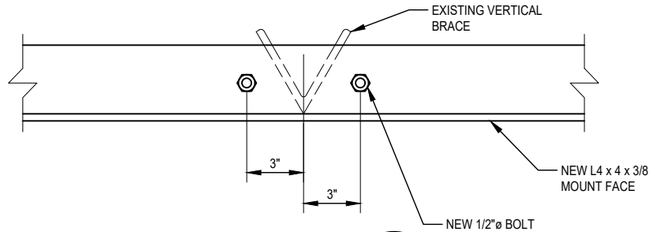
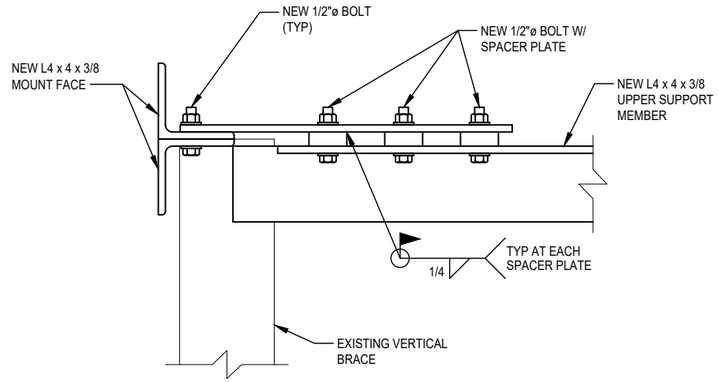


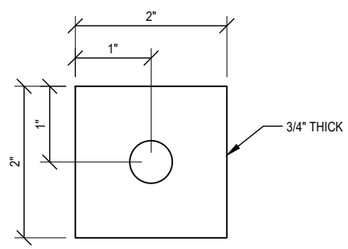
SECTION 1 / SS-5



SECTION 2 / SS-5



SECTION 3 / SS-5



SPACER PLATE

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MOUNT MODIFICATION DRAWINGS

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MODIFICATION DETAILS

SS-5

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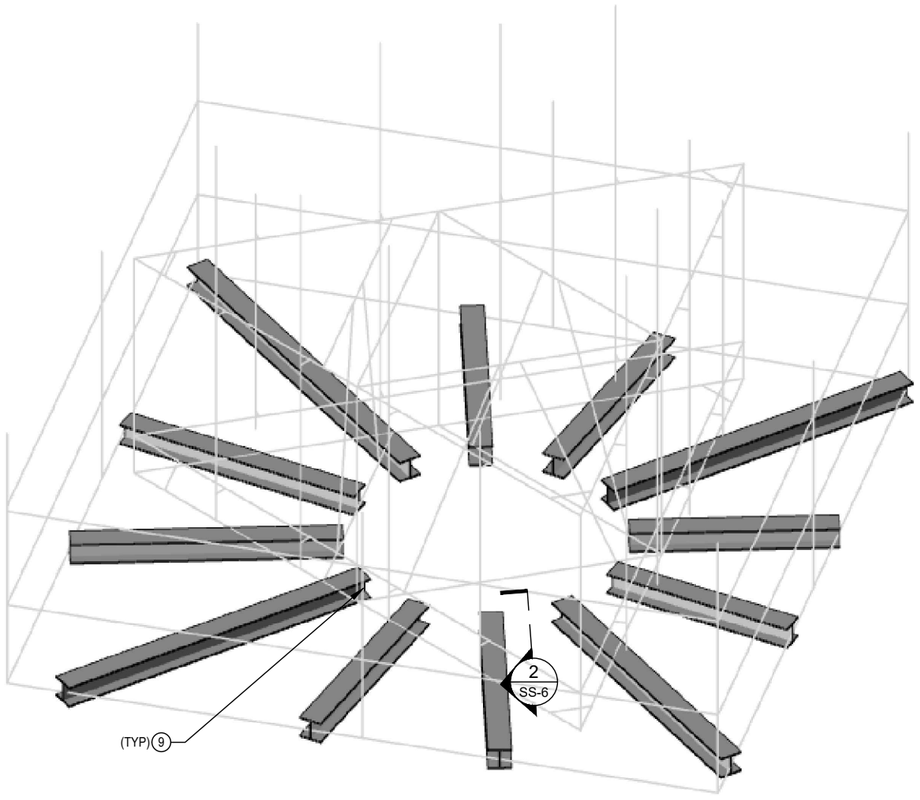
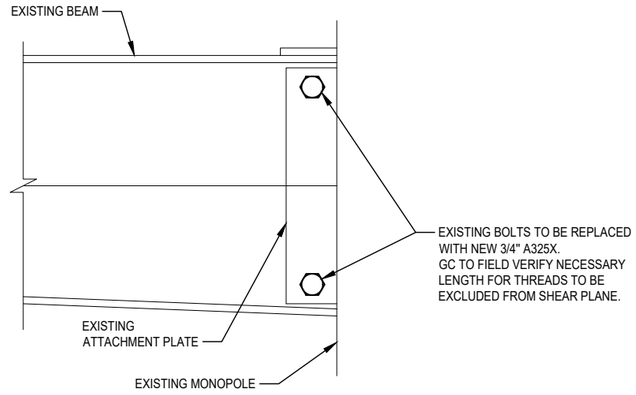
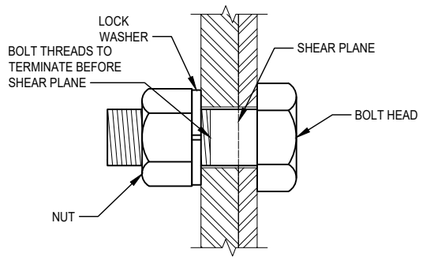


ISOMETRIC MOUNT VIEW 1 / SS-6
SCALE: NTS



SECTION 2 / SS-6



TYP BOLT ASSEMBLY

5000089136-VZW / DUBLIN
DUBLIN, OHIO
MOUNT MODIFICATION DRAWINGS

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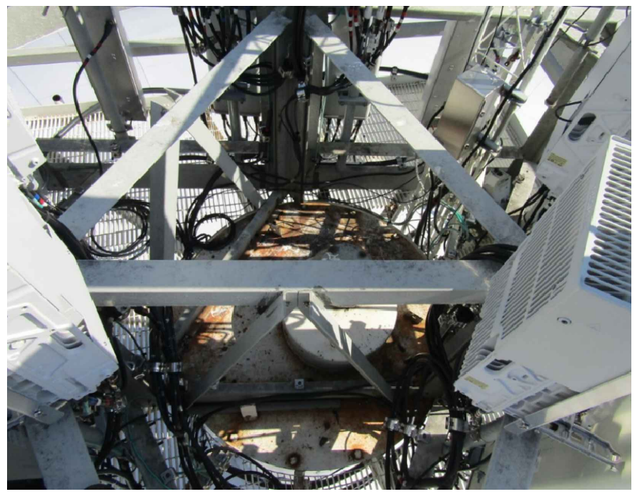
MODIFICATION DETAILS

SS-6

V2.0 24326-1269.002_2.DWG



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MOUNT PHOTOS

SS-7

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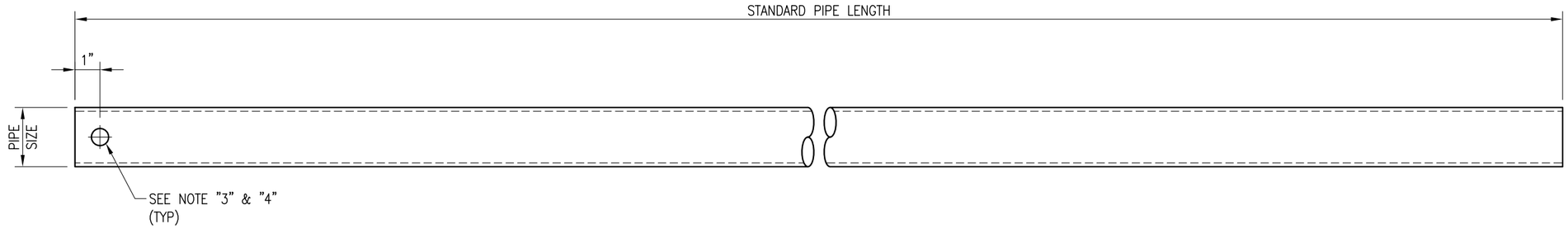


VZWSMART Standard Pipe		
VZWSMART Number	Size	Length
P40-238X048	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	48"
P40-238X072	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	72"
P40-238X096	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	96"
P40-238X120	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	120"
P40-238X126	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	126"
P40-238X150	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	150"
P40-238X174	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	174"
P40-278X048	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	48"
P40-278X072	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	72"
P40-278X096	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	96"
P40-278X120	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	120"
P40-278X126	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	126"
P40-278X150	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	150"
P40-278X174	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	174"
P40-312X048	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	48"
P40-312X060	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	72"
P40-312X126	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	126"
P40-312X150	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	150"
P40-312X174	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	174"

NOTE:
APPROVED SMART KIT VENDORS ARE ALLOWED TO SUBSTITUTE AT THEIR DISCRETION PIPES LISTED ON THIS PAGE FOR CUSTOM LENGTH COMPONENTS OF MATCHING SIZE. SUBSTITUTIONS SHALL MEET THE ORIGINAL STRUCTURAL INTENT.

NOTES:
1. ALL PIPE GRADE A53-B OR BETTER.
2. HOT-DIPPED GALVANIZED PER ASTM A123.
3. ALL HOLES ARE 11/16" DIA. U.N.O
4. HOLES MAY OR MAY NOT BE PRESENT, DEPEND UPON MANUFACTURE DISCRETION.
5. ALL FIELD CUT AND DRILLED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINGA OR ZINC COTE PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

VzW SMART Tool© Vendor

verizon

FOR REFERENCE ONLY

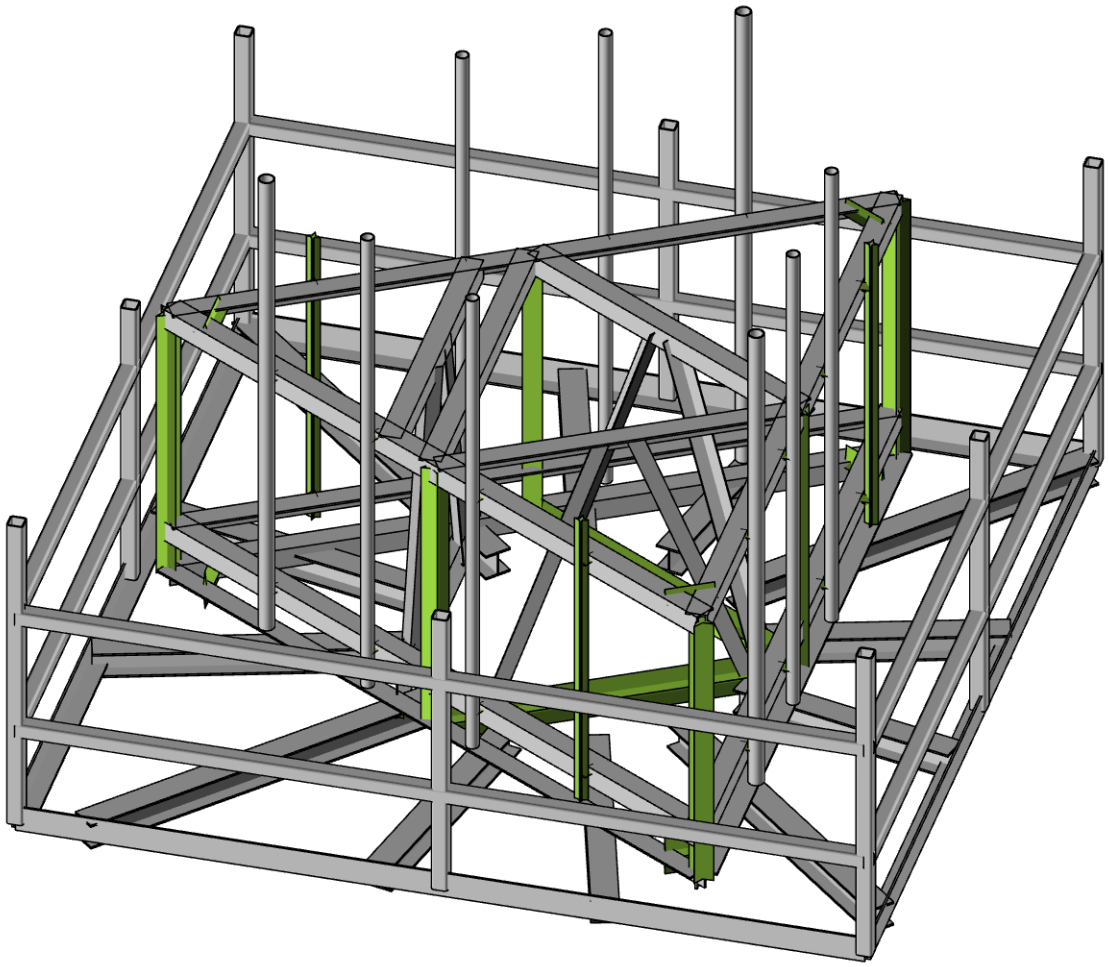
DRAWN BY: BT | CHECKED BY: HMA/KW

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	BT	08/04/21
			BRK

SHEET TITLE:
VZWSMART STANDARD PIPE

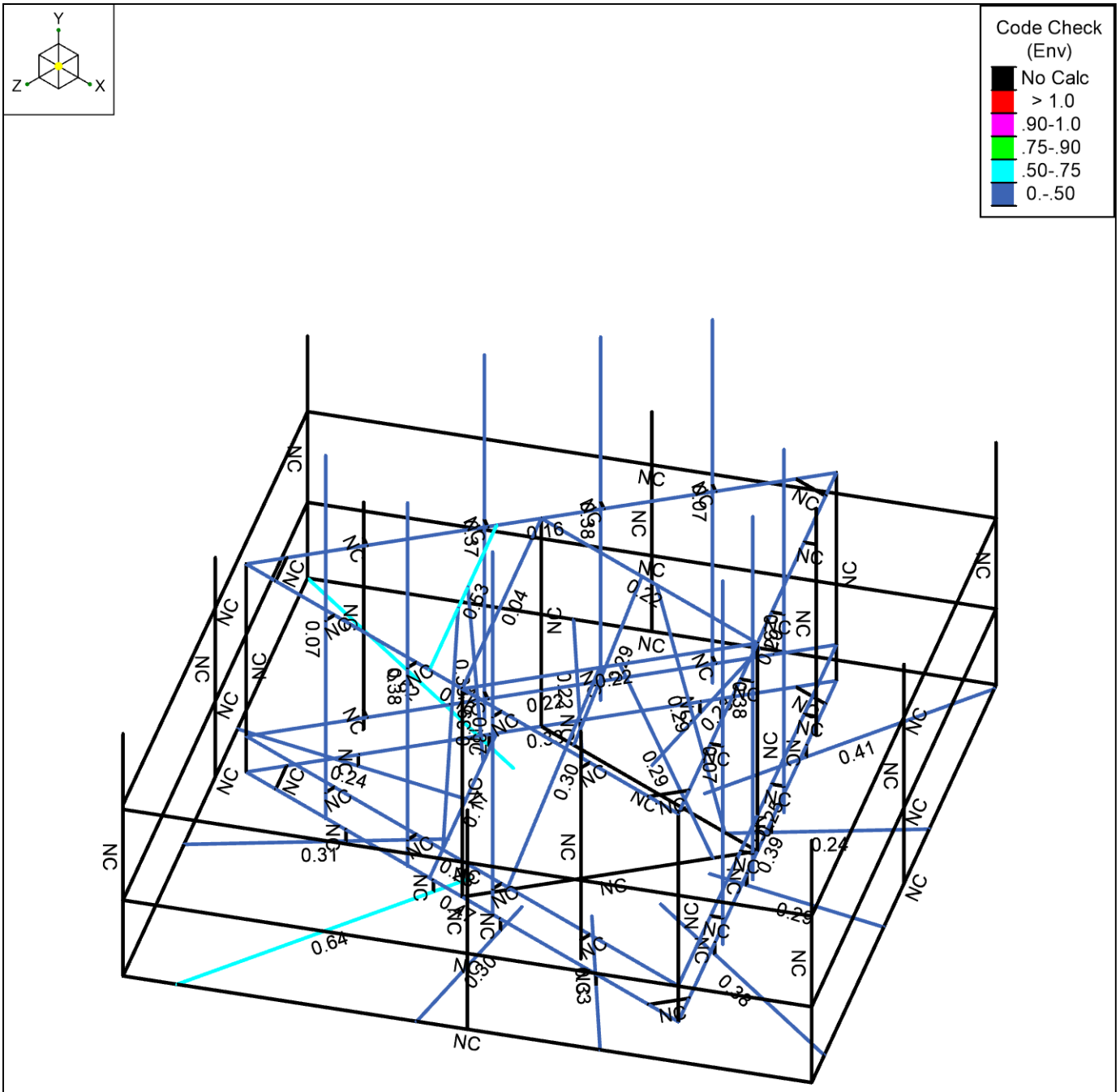
SHEET NUMBER: VZWSMART-PIPE

REV #: 0



Envelope Only Solution

RISA A NEMETSCHEK COMPANY	Paul J. Ford	5000089136-VZW_MT_LO_H	SK-1
	KMJ		Jul 08, 2026 at 11:18 AM
	Project No. 10353772		5000089136-VZW_MT_LO…



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

IRISA A NEMETSCHEK COMPANY	Paul J. Ford	5000089136-VZW_MT_LO_H	SK-2
	KMJ		Jul 08, 2026 at 11:19 AM
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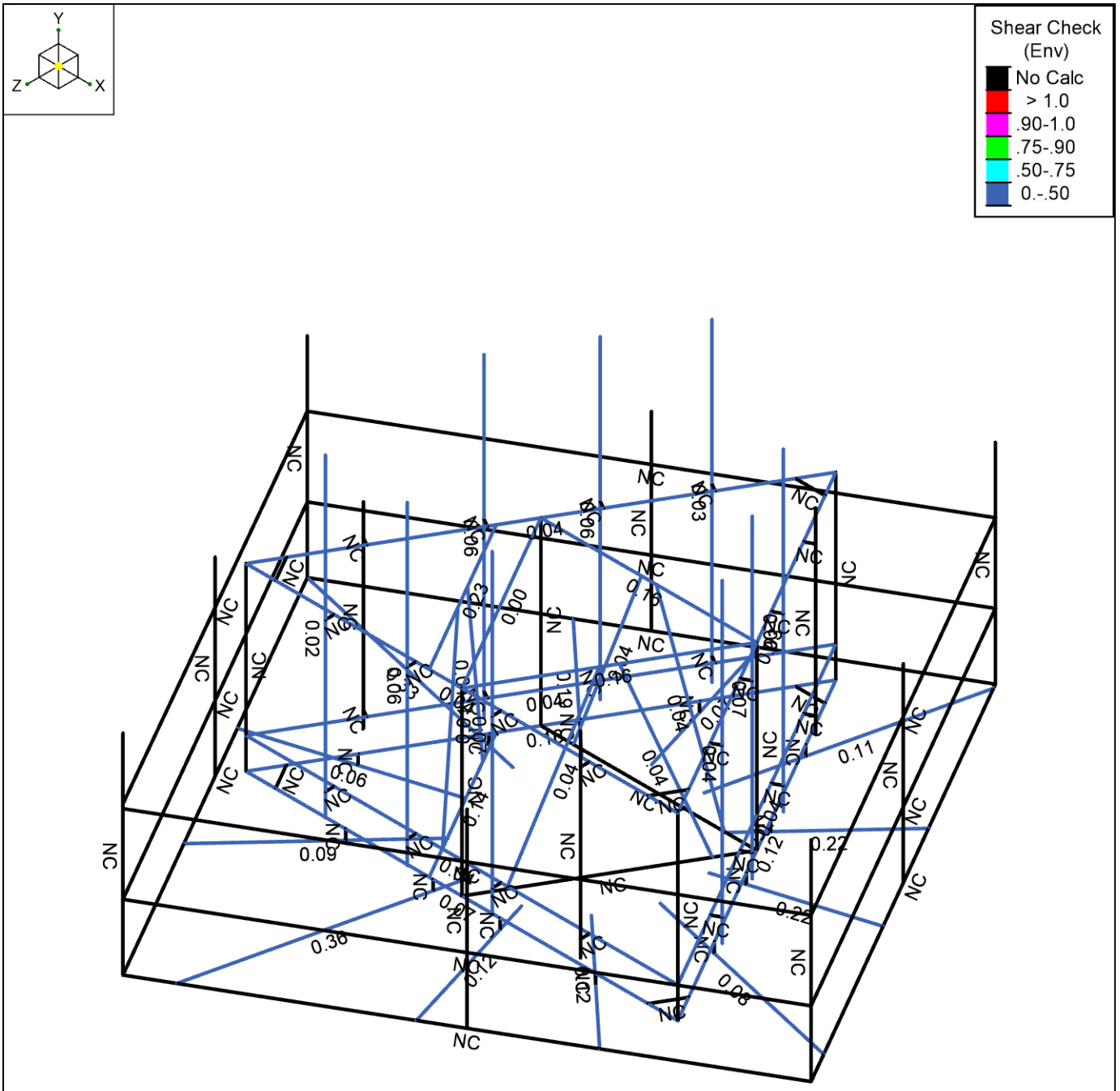


Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

RISA A NEMETSCHEK COMPANY	Paul J. Ford	5000089136-VZW_MT_LO_H	SK-3
	KMJ		Jul 08, 2026 at 11:19 AM
	Project No. 10353772		5000089136-VZW_MT_LO…

Model Settings

Number of Reported Sections	20
Number of Internal Sections	40
Member Area Load Mesh Size (in^2)	144
Consider Shear Deformation	Yes
Consider Torsional Warping	Yes
Approximate Mesh Size (in)	12
Transfer Forces Between Intersecting Wood Walls	Yes
Increase Wood Wall Nailing Capacity for Wind Loads	Yes
Include P-Delta for Walls	Yes
Optimize Masonry and Wood Walls	No
Maximum Number of Iterations	3
Single	No
Multiple (Optimum)	Yes
Maximum	No

Global Axis corresponding to vertical direction	Y
Convert Existing Data	Yes
Default Global Plane for z-axis	XZ
Plate Local Axis Orientation	Nodal

Hot Rolled Steel	AISC 15th (360-16): LRFD
Stiffness Adjustment	Yes (Iterative)
Notional Annex	None
Connections	None
Cold Formed Steel	None
Stiffness Adjustment	Yes (Iterative)
Wood	None
Temperature	< 100F
Concrete	None
Masonry	None
Aluminum	None
Structure Type	Building
Stiffness Adjustment	Yes (Iterative)
Stainless	None
Stiffness Adjustment	Yes (Iterative)

Compression Stress Block	Rectangular Stress Block
Analyze using Cracked Sections	Yes
Leave room for horizontal rebar splices (2*d bar spacing)	Yes
List forces which were ignored for design in the Detail Report	Yes

Column Min Steel	1
Column Max Steel	8
Rebar Material Spec	ASTM A615
Warn if beam-column framing arrangement is not understood	No
Number of Shear Regions	4
Region 2 & 3 Spacing Increase Increment (in)	4

Code	ASCE 7-05
Occupancy Cat	I or II
Drift Cat	Other

Model Settings (Continued)

Base Elevation (ft)	
Include the weight of the structure in base shear calcs	Yes
S_1 (g)	1
SD_1 (g)	1
SD_S (g)	1
T_L (sec)	5
T Z (sec)	
T X (sec)	
C_tZ	0.02
C_tX	0.02
C_tExp. Z	0.75
C_tExp. X	0.75
R Z	3
R X	3
Ω_0Z	1
Ω_0X	1
C_dZ	4
C_dX	4
ρ Z	1
ρ X	1

Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	B1	0.376712	0	-5.698368	
2	B2	5.123288	0	2.522942	
3	B3	4.746575	0	3.175426	
4	B4	-4.746575	0	3.175426	
5	B5	-5.123288	0	2.522942	
6	B6	-0.376712	0	-5.698368	
7	C4	-4.934932	0	2.849184	
8	C9	4.934932	0	2.849184	
9	C14	0	0	-5.698368	
10	N58	0.376712	4.583333	-5.698368	
11	N59	5.123288	4.583333	2.522942	
12	N60	4.746575	4.583333	3.175426	
13	N61	-4.746575	4.583333	3.175426	
14	N62	-5.123288	4.583333	2.522942	
15	N63	-0.376712	4.583333	-5.698368	
16	N64	5.5	4.583333	3.175426	
17	N65	0	0	-6.350853	
18	N66	0	4.583333	-6.350853	
19	N67	5.5	0	3.175426	
20	N66A	-5.5	0	3.175426	
21	N67A	-5.5	4.583333	3.175426	
22	N68	2.75	0	-1.587713	
23	N69	-2.75	0	-1.587713	
24	N70	0	0	3.175426	
25	N77	2.75	4.583333	-1.587713	
26	N78	-2.75	4.583333	-1.587713	
27	N79	0	4.583333	3.175426	
28	N76A	-0.188356	4.583333	-1.587713	
29	N77A	1.469178	4.583333	0.630735	
30	N78A	-1.280822	4.583333	0.956978	
31	N79A	0.188356	4.583333	-1.587713	
32	N80	1.280822	4.583333	0.956978	
33	N81	-1.469178	4.583333	0.630735	
34	N82	-1.921233	0	-1.587713	
35	N83	2.335616	0	-0.86998	
36	N85	1.921233	0	-1.587713	
37	N86	0.414384	0	2.457693	
38	N88	-4.934932	4.583333	2.849184	
39	N100	4.934932	4.583333	2.849184	
40	N106	0	4.583333	-5.698368	
41	N130	-1.166668	0.208333	3.401454	
42	N132	-1.166668	8.208333	3.401454	
43	N133	0.999998	0.208333	3.401454	
44	N135	0.999998	8.208333	3.401454	
45	N136	3.249772	0.375	3.401454	
46	N138	3.249772	5.375	3.401454	
47	N88A	3.529079	0.208333	-0.690363	
48	N90	3.529079	8.208333	-0.690363	
49	N91	2.445747	0.208333	-2.56675	
50	N93	2.445747	8.208333	-2.56675	
51	N94	1.32086	0.375	-4.515112	
52	N96	1.32086	5.375	-4.515112	
53	N112	-2.362412	0.208333	-2.711091	
54	N114	-2.362412	8.208333	-2.711091	
55	N115	-3.445744	0.208333	-0.834704	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
56	N117	-3.445744	8.208333	-0.834704	
57	N118	-4.570631	0.375	1.113658	
58	N120	-4.570631	5.375	1.113658	
59	N73A	5.5	0.791667	3.175426	
60	N74A	0	0.791667	-6.350853	
61	N75A	-5.5	0.791667	3.175426	
62	N77B	-1.166668	4.583333	3.401454	
63	N78B	0.999998	4.583333	3.401454	
64	N79B	3.249772	4.583333	3.401454	
65	N81A	3.249772	4.583333	3.175426	
66	N82A	-1.166668	4.583333	3.175426	
67	N83A	0.999998	4.583333	3.175426	
68	N85B	-1.166668	0.791667	3.401454	
69	N86A	0.999998	0.791667	3.401454	
70	N87B	3.249772	0.791667	3.401454	
71	N89	3.249772	0.791667	3.175426	
72	N90A	-1.166668	0.791667	3.175426	
73	N91A	0.999998	0.791667	3.175426	
74	N93A	3.529079	4.583333	-0.690363	
75	N94A	2.445747	4.583333	-2.56675	
76	N95	1.32086	4.583333	-4.515112	
77	N97	1.125114	4.583333	-4.402098	
78	N98	3.333334	4.583333	-0.577349	
79	N99	2.250001	4.583333	-2.453737	
80	N101	3.529079	0.791667	-0.690363	
81	N102	2.445747	0.791667	-2.56675	
82	N103	1.32086	0.791667	-4.515112	
83	N105	1.125114	0.791667	-4.402098	
84	N106A	3.333334	0.791667	-0.577349	
85	N107	2.250001	0.791667	-2.453737	
86	N109A	-2.362412	4.583333	-2.711091	
87	N110	-3.445744	4.583333	-0.834704	
88	N111A	-4.570631	4.583333	1.113658	
89	N113	-4.374886	4.583333	1.226672	
90	N114A	-2.166666	4.583333	-2.598077	
91	N115A	-3.249999	4.583333	-0.72169	
92	N117A	-2.362412	0.791667	-2.711091	
93	N118A	-3.445744	0.791667	-0.834704	
94	N119	-4.570631	0.791667	1.113658	
95	N121	-4.374886	0.791667	1.226672	
96	N122	-2.166666	0.791667	-2.598077	
97	N123	-3.249999	0.791667	-0.72169	
98	N118B	-3.249998	0.208333	3.401454	
99	N119A	-3.249998	8.208333	3.401454	
100	N120B	-3.249998	4.583333	3.401454	
101	N121A	-3.249998	4.583333	3.175426	
102	N122A	-3.249998	0.791667	3.401454	
103	N123A	-3.249998	0.791667	3.175426	
104	N112A	4.570744	0.208333	1.113854	
105	N113A	4.570744	8.208333	1.113854	
106	N114B	4.570744	4.583333	1.113854	
107	N115B	4.374999	4.583333	1.226868	
108	N116	4.570744	0.791667	1.113854	
109	N117B	4.374999	0.791667	1.226868	
110	N118C	-1.320747	0.208333	-4.515308	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
111	N119B	-1.320747	8.208333	-4.515308	
112	N120A	-1.320747	4.583333	-4.515308	
113	N121B	-1.125001	4.583333	-4.402294	
114	N122B	-1.320747	0.791667	-4.515308	
115	N123B	-1.125001	0.791667	-4.402294	
116	N136A	2.75	0.791667	-1.587713	
117	N137	-2.75	0.791667	-1.587713	
118	N138A	0	0.791667	3.175426	
119	N374	-1	0	3.175426	
120	N375	-3.236435	0	-0.745182	
121	N218	-0.833	0	3.175426	
122	N219	0.833	0	3.175426	
123	N221	-3.1665	0	-0.866314	
124	N222	-1.2997	0	2.367078	
125	N223	-1.7664	0	1.55873	
126	N224	-2.2331	0	0.750382	
127	N227	-2.6998	0	-0.057966	
128	N230	-0.833	4.583333	3.175426	
129	N231	-3.1665	4.583333	-0.866314	
130	N232	-3	4.583333	-1.337713	
131	N235	-2.166496	4.583333	0.865743	
132	N238	-1.831504	4.583333	1.445967	
133	CENTER	0	-0.25	0	
134	N246	8.2895	-0.25	2.569567	
135	N291	-2.824464	-0.25	8.986217	
136	N319	1.87285	-0.25	-8.544397	
137	N320	-9.241114	-0.25	-2.127747	
138	N321	8.2895	5.0833	2.569567	
139	N322	-2.824464	5.0833	8.986217	
140	N323	1.87285	5.0833	-8.544397	
141	N324	-9.241114	5.0833	-2.127747	
142	N325	8.2895	1.42	2.569567	
143	N326	-2.824464	1.42	8.986217	
144	N327	1.87285	1.42	-8.544397	
145	N328	-9.241114	1.42	-2.127747	
146	N330	-2.824464	3.42	8.986217	
147	N331	8.2895	3.42	2.569567	
148	N332	1.87285	3.42	-8.544397	
149	N333	-9.241114	3.42	-2.127747	
150	N334	-2.824464	3.527767	8.986217	
151	N335	2.732518	-0.25	5.777892	
152	N336	5.081175	-0.25	-2.987415	
153	N337	-3.684132	-0.25	-5.336072	
154	N338	-6.032789	-0.25	3.429235	
155	N339	-3.684132	4.5833	-5.336072	
156	N340	-3.684132	1.42	-5.336072	
157	N341	-3.684132	3.42	-5.336072	
158	N342	2.732518	4.583	5.777892	
159	N343	5.081175	4.583	-2.987415	
160	N344	-6.032789	4.583	3.429235	
161	N345	2.732518	1.42	5.777892	
162	N346	5.081175	1.42	-2.987415	
163	N347	-6.032789	1.473883	3.429235	
164	N348	2.732518	3.42	5.777892	
165	N349	5.081175	3.42	-2.987415	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
166	N350	-6.032789	3.473883	3.429235	
167	N351	8.2895	1.67	2.569567	
168	N352	-2.824464	1.67	8.986217	
169	N353	1.87285	1.67	-8.544397	
170	N354	-9.241114	1.67	-2.127747	
171	N355	-6.808358	-0.25	2.08591	
172	N356	-4.946501	-0.25	5.310741	
173	N357	-1.953243	-0.25	8.483217	
174	N358	1.914837	-0.25	6.24998	
175	N359	4.875188	-0.25	4.540821	
176	N360	7.849411	-0.25	1.80731	
177	N361	5.783026	-0.25	-1.771773	
178	N362	4.201563	-0.25	-4.510948	
179	N363	1.940393	-0.25	-8.427408	
180	N364	-1.942847	-0.25	-6.341404	
181	N365	-4.946501	-0.25	-4.607243	
182	N366	8.2895	0	2.569567	
183	N367	-2.824464	0	8.986217	
184	N368	1.87285	0	-8.544397	
185	N369	-9.241114	0	-2.127747	
186	N370	0	0	0	
187	N371	-6.808358	0	2.08591	
188	N372	-4.946501	0	5.310741	
189	N373	-1.953243	0	8.483217	
190	N376	1.914837	0	6.24998	
191	N377	4.875188	0	4.540821	
192	N378	7.849411	0	1.80731	
193	N381	5.783026	0	-1.771773	
194	N382	4.201563	0	-4.510948	
195	N383	1.940393	0	-8.427408	
196	N384	-1.942847	0	-6.341404	
197	N385	-4.946501	0	-4.607243	
198	N329	3.115568	0	-0.954531	
199	N386	4.228819	0	0.973677	
200	N387	2.263565	0	-2.430244	
201	N388	1.045374	0	-4.540212	
202	N390	-1.271181	0	-4.149103	
203	N391	-4.454626	0	1.364785	
204	N392	-2.384432	0	-2.220895	
205	N393	-2.957638	0	3.175426	
206	N394	-0.731135	0	3.175426	
207	N395	0.972871	0	3.175426	
208	N396	3.409252	0	3.175426	
209	N397	-3.236435	-0.25	-0.745182	
210	N398	3.115568	-0.25	-0.954531	
211	N399	4.228819	-0.25	0.973677	
212	N400	2.263565	-0.25	-2.430244	
213	N401	1.045374	-0.25	-4.540212	
214	N402	-1.271181	-0.25	-4.149103	
215	N403	-4.454626	-0.25	1.364785	
216	N404	-2.384432	-0.25	-2.220895	
217	N405	-2.957638	-0.25	3.175426	
218	N406	-0.731135	-0.25	3.175426	
219	N407	0.972871	-0.25	3.175426	
220	N408	3.409252	-0.25	3.175426	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
221	N410	-6.032789	1.42	3.429235	
222	N389	-1.829388	-0.25	-1.703919	
223	N409	0.560943	-0.25	-2.436256	
224	N411	-2.436256	-0.25	-0.560943	
225	N412	-0.732337	-0.25	-2.390331	
226	N413	1.703919	-0.25	-1.829388	
227	N414	2.390331	-0.25	-0.732337	
228	N415	2.436256	-0.25	0.560943	
229	N416	1.829388	-0.25	1.703919	
230	N417	0.732337	-0.25	2.390331	
231	N418	-0.560943	-0.25	2.436256	
232	N419	-1.703919	-0.25	1.829388	
233	N420	-2.390331	-0.25	0.732337	

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e^{5}°F^{-1}]	Density [k/ft^{3}]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A53 Gr. B (35 ksi)	29000	11154	0.3	0.65	0.49	35	1.5	60	1.2
2	A500 Gr. B (46ksi)	29000	11154	0.3	0.65	0.49	46	1.5	58	1.2
3	A36 (36ksi)	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
4	HR4	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
5	SQUARE FRP	2600	425	0.3	0.65	0.114	10	1.5	20	1.2
6	HR2	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in^{2}]	Iyy [in^{4}]	Izz [in^{4}]	J [in^{4}]
1	A-framing	PIPE_2.0	None	None	A53 Gr. B (35 ksi)	Typical	1.02	0.627	0.627	1.25
2	B-Framing	HSS4X4X4	None	None	A500 Gr. B (46ksi)	Typical	3.37	7.8	7.8	12.8
3	C-Framing	HSS5X5X4	None	None	A500 Gr. B (46ksi)	Typical	4.3	16	16	25.8
4	D-Framing	HSS5X5X4	None	None	A500 Gr. B (46ksi)	Typical	4.3	16	16	25.8

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	M204	N65	N67	180	L4X4X6	Beam	Single Angle	A36 (36ksi)	Typical
2	M205	N66A	N65	180	L4X4X6	Beam	Single Angle	A36 (36ksi)	Typical
3	M206	N67	N66A	180	L4X4X6	Beam	Single Angle	A36 (36ksi)	Typical
4	J4	B3	B2	180	C8X2.1875X0.25	Beam	None	FRP	Typical
5	J6	B6	B1		C8X2.1875X0.25	Beam	None	FRP	Typical
6	J5	B4	B5		C8X2.1875X0.25	Beam	None	FRP	Typical
7	M200	N66	N64	90	L4X4X6	HBrace	Single Angle	A36 (36ksi)	Typical
8	M202	N67A	N66	90	L4X4X6	HBrace	Single Angle	A36 (36ksi)	Typical
9	M201	N64	N67A	90	L4X4X6	HBrace	Single Angle	A36 (36ksi)	Typical
10	J1	N60	N59	90	A4X4X0.5	Column	None	FRP	Typical
11	J3	N63	N58	90	A4X4X0.5	Column	None	FRP	Typical
12	J2	N61	N62	90	A4X4X0.5	Column	None	FRP	Typical
13	E3	N65	N66	45	A5X5X0.5	Column	None	FRP	Typical
14	E5	N66A	N67A	165	A5X5X0.5	Column	None	FRP	Typical
15	E1	N67	N64	285	A5X5X0.5	Column	None	FRP	Typical
16	F3	N68	N69		C8X2.1875X0.25	Beam	None	FRP	Typical
17	F1	N70	N68		C8X2.1875X0.25	Beam	None	FRP	Typical
18	G3	N77	N78	90	L4X4X6	Column	Single Angle	A36 (36ksi)	Typical
19	G2	N78	N79	90	L4X4X6	Column	Single Angle	A36 (36ksi)	Typical
20	G1	N79	N77	90	L4X4X6	Column	Single Angle	A36 (36ksi)	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
21	H6	N85	N79A	270	L3X3X3	Column	Single Angle	A36 (36ksi)	Typical
22	H5	N76A	N82	270	L3X3X3	Column	Single Angle	A36 (36ksi)	Typical
23	H2	N86	N80	270	L3X3X3	Column	Single Angle	A36 (36ksi)	Typical
24	H1	N77A	N83	270	L3X3X3	Column	Single Angle	A36 (36ksi)	Typical
25	E2	N68	N77		A5X5X0.5	Column	None	FRP	Typical
26	E4	N69	N78	90	A5X5X0.5	Column	None	FRP	Typical
27	E6	N70	N79	235	A5X5X0.5	Column	None	FRP	Typical
28	MP3A	N132	N130	240	A-framing	None	None	A53 Gr. B (35 ksi)	Typical
29	MP2A	N135	N133	240	A-framing	None	None	A53 Gr. B (35 ksi)	Typical
30	MP1A	N138	N136	240	P2.5X0.25	HBrace	None	FRP	Typical
31	MP3C	N90	N88A	240	A-framing	None	None	A53 Gr. B (35 ksi)	Typical
32	MP2C	N93	N91	240	A-framing	None	None	A53 Gr. B (35 ksi)	Typical
33	MP1C	N96	N94	240	P2.5X0.25	HBrace	None	FRP	Typical
34	MP3B	N114	N112	240	A-framing	None	None	A53 Gr. B (35 ksi)	Typical
35	MP2B	N117	N115	240	A-framing	None	None	A53 Gr. B (35 ksi)	Typical
36	MP1B	N120	N118	240	P2.5X0.25	HBrace	None	FRP	Typical
37	M43	N74A	N73A	90	L4X4X6	HBrace	Single Angle	A36 (36ksi)	Typical
38	M44	N75A	N74A	90	L4X4X6	HBrace	Single Angle	A36 (36ksi)	Typical
39	LV	N73A	N75A	90	L4X4X6	HBrace	Single Angle	A36 (36ksi)	Typical
40	M47	N81A	N79B		RIGID	None	None	RIGID	Typical
41	M48	N82A	N77B		RIGID	None	None	RIGID	Typical
42	M49	N83A	N78B		RIGID	None	None	RIGID	Typical
43	LM1	N89	N87B		RIGID	None	None	RIGID	Typical
44	M52	N90A	N85B		RIGID	None	None	RIGID	Typical
45	LM2	N91A	N86A		RIGID	None	None	RIGID	Typical
46	M55	N97	N95		RIGID	None	None	RIGID	Typical
47	M56	N98	N93A		RIGID	None	None	RIGID	Typical
48	M57	N99	N94A		RIGID	None	None	RIGID	Typical
49	M59	N105	N103		RIGID	None	None	RIGID	Typical
50	M60	N106A	N101		RIGID	None	None	RIGID	Typical
51	M61	N107	N102		RIGID	None	None	RIGID	Typical
52	M63	N113	N111A		RIGID	None	None	RIGID	Typical
53	M64	N114A	N109A		RIGID	None	None	RIGID	Typical
54	M65	N115A	N110		RIGID	None	None	RIGID	Typical
55	M67	N121	N119		RIGID	None	None	RIGID	Typical
56	M68	N122	N117A		RIGID	None	None	RIGID	Typical
57	M69	N123	N118A		RIGID	None	None	RIGID	Typical
58	MP4A	N119A	N118B	240	PIPE_2.5	None	None	A53 Gr. B (35 ksi)	Typical
59	M68A	N121A	N120B		RIGID	None	None	RIGID	Typical
60	M69A	N123A	N122A		RIGID	None	None	RIGID	Typical
61	MP4C	N113A	N112A	240	PIPE_2.5	None	None	A53 Gr. B (35 ksi)	Typical
62	M65A	N115B	N114B		RIGID	None	None	RIGID	Typical
63	M66	N117B	N116		RIGID	None	None	RIGID	Typical
64	MP4B	N119B	N118C	240	PIPE_2.5	None	None	A53 Gr. B (35 ksi)	Typical
65	M68B	N121B	N120A		RIGID	None	None	RIGID	Typical
66	M69B	N123B	N122B		RIGID	None	None	RIGID	Typical
67	M70	N218	N221	180	C8X11.5	Beam	Channel	A36 (36ksi)	Typical
68	M71	N235	N227	45	L3X3X3	Beam	Single Angle	A36 (36ksi)	Typical
69	M72	N238	N222	135	L3X3X3	Beam	Single Angle	A36 (36ksi)	Typical
70	M73	N231	N230	90	L4X4X6	Column	Single Angle	A36 (36ksi)	Typical
71	M74	N246	N291		L5X3.5X6	Beam	Single Angle	SQUARE FRP	Typical
72	M75	N319	N246		L5X3.5X6	Beam	Single Angle	SQUARE FRP	Typical
73	M76	N320	N319		L5X3.5X6	Beam	Single Angle	SQUARE FRP	Typical
74	M77	N291	N320		L5X3.5X6	Beam	Single Angle	SQUARE FRP	Typical
75	M78	N322	N291	330	HSS3X3X4	Beam	Tube	SQUARE FRP	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
76	M79	N324	N320	330	HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
77	M80	N323	N319	330	HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
78	M81	N321	N246	330	HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
79	M82	N326	N325		HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
80	M83	N325	N327		HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
81	M84	N327	N328		HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
82	M85	N328	N326		HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
83	M86	N330	N331		HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
84	M87	N331	N332		HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
85	M88	N332	N333		HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
86	M89	N333	N334		HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
87	M90	N339	N337	330	HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
88	M91	N344	N338	330	HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
89	M92	N342	N335	330	HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
90	M93	N343	N336	330	HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
91	M94	N411	N320		W5X16	Beam	Wide Flange	A36 (36ksi)	Typical
92	M95	N420	N355		W5X16	Beam	Wide Flange	A36 (36ksi)	Typical
93	M96	N419	N356		W5X16	Beam	Wide Flange	A36 (36ksi)	Typical
94	M97	N418	N357		W5X16	Beam	Wide Flange	A36 (36ksi)	Typical
95	M98	N417	N358		W5X16	Beam	Wide Flange	A36 (36ksi)	Typical
96	M99	N416	N359		W5X16	Beam	Wide Flange	A36 (36ksi)	Typical
97	M100	N415	N360		W5X16	Beam	Wide Flange	A36 (36ksi)	Typical
98	M101	N414	N361		W5X16	Beam	Wide Flange	A36 (36ksi)	Typical
99	M102	N413	N362		W5X16	Beam	Wide Flange	A36 (36ksi)	Typical
100	M103	N409	N363		W5X16	Beam	Wide Flange	A36 (36ksi)	Typical
101	M104	N412	N364		W5X16	Beam	Wide Flange	A36 (36ksi)	Typical
102	M105	N389	N365		W5X16	Beam	Wide Flange	A36 (36ksi)	Typical
103	M106	N390	N402		RIGID	None	None	RIGID	Typical
104	M107	N392	N404		RIGID	None	None	RIGID	Typical
105	M108	N375	N397		RIGID	None	None	RIGID	Typical
106	M109	N391	N403		RIGID	None	None	RIGID	Typical
107	M110	N393	N405		RIGID	None	None	RIGID	Typical
108	M111	N394	N406		RIGID	None	None	RIGID	Typical
109	M112	N395	N407		RIGID	None	None	RIGID	Typical
110	M113	N396	N408		RIGID	None	None	RIGID	Typical
111	M114	N386	N399		RIGID	None	None	RIGID	Typical
112	M115	N329	N398		RIGID	None	None	RIGID	Typical
113	M116	N387	N400		RIGID	None	None	RIGID	Typical
114	M117	N388	N401		RIGID	None	None	RIGID	Typical

Member Advanced Data

	Label	I Release	J Release	Col-Wall Vert Release	Physical	Deflection Ratio Options	Activation	Seismic DR
1	M204				Yes	Default		None
2	M205				Yes	Default		None
3	M206				Yes	Default		None
4	J4				Yes	Default		None
5	J6				Yes	Default		None
6	J5				Yes	Default		None
7	M200				Yes	** NA **		None
8	M202				Yes	** NA **		None
9	M201				Yes	** NA **		None
10	J1				Yes	** NA **		None
11	J3				Yes	** NA **		None
12	J2				Yes	** NA **		None
13	E3	BenPIN	BenPIN		Yes	** NA **		None

Member Advanced Data (Continued)

	Label	I Release	J Release	Col-Wall Vert Release	Physical	Deflection Ratio Options	Activation	Seismic DR
14	E5	BenPIN	BenPIN		Yes	** NA **		None
15	E1	BenPIN	BenPIN		Yes	** NA **		None
16	F3	BenPIN	BenPIN		Yes	Default		None
17	F1	BenPIN	BenPIN		Yes	Default		None
18	G3	BenPIN	BenPIN		Yes	** NA **		None
19	G2	BenPIN	BenPIN		Yes	** NA **		None
20	G1	BenPIN	BenPIN		Yes	** NA **		None
21	H6	BenPIN	BenPIN		Yes	** NA **		None
22	H5	BenPIN	BenPIN		Yes	** NA **		None
23	H2	BenPIN	BenPIN		Yes	** NA **		None
24	H1	BenPIN	BenPIN		Yes	** NA **		None
25	E2	BenPIN	BenPIN		Yes	** NA **		None
26	E4	BenPIN	BenPIN		Yes	** NA **		None
27	E6	BenPIN	BenPIN		Yes	** NA **		None
28	MP3A				Yes	** NA **		None
29	MP2A				Yes	** NA **		None
30	MP1A				Yes	** NA **		None
31	MP3C				Yes	** NA **		None
32	MP2C				Yes	** NA **		None
33	MP1C				Yes	** NA **		None
34	MP3B				Yes	** NA **		None
35	MP2B				Yes	** NA **		None
36	MP1B				Yes	** NA **		None
37	M43				Yes	** NA **		None
38	M44				Yes	** NA **		None
39	LV				Yes	** NA **		None
40	M47	OOOXOX			Yes	** NA **		None
41	M48	OOOXOX			Yes	** NA **		None
42	M49	OOOXOX			Yes	** NA **		None
43	LM1	OOOXOX			Yes	** NA **		None
44	M52	OOOXOX			Yes	** NA **		None
45	LM2	OOOXOX			Yes	** NA **		None
46	M55	OOOXOX			Yes	** NA **		None
47	M56	OOOXOX			Yes	** NA **		None
48	M57	OOOXOX			Yes	** NA **		None
49	M59	OOOXOX			Yes	** NA **		None
50	M60	OOOXOX			Yes	** NA **		None
51	M61	OOOXOX			Yes	** NA **		None
52	M63	OOOXOX			Yes	** NA **		None
53	M64	OOOXOX			Yes	** NA **		None
54	M65	OOOXOX			Yes	** NA **		None
55	M67	OOOXOX			Yes	** NA **		None
56	M68	OOOXOX			Yes	** NA **		None
57	M69	OOOXOX			Yes	** NA **		None
58	MP4A				Yes	** NA **		None
59	M68A	OOOXOX			Yes	** NA **		None
60	M69A	OOOXOX			Yes	** NA **		None
61	MP4C				Yes	** NA **		None
62	M65A	OOOXOX			Yes	** NA **		None
63	M66	OOOXOX			Yes	** NA **		None
64	MP4B				Yes	** NA **		None
65	M68B	OOOXOX			Yes	** NA **		None
66	M69B	OOOXOX			Yes	** NA **		None
67	M70	BenPIN	BenPIN		Yes	Default		None
68	M71	BenPIN	BenPIN		Yes	Default		None

Member Advanced Data (Continued)

	Label	I Release	J Release	Col-Wall Vert Release	Physical	Deflection Ratio Options	Activation	Seismic DR
69	M72	BenPIN	BenPIN		Yes	Default		None
70	M73	BenPIN	BenPIN		Yes	** NA **		None
71	M74				Yes	Default	Exclude	None
72	M75				Yes	Default	Exclude	None
73	M76				Yes	Default	Exclude	None
74	M77				Yes	Default	Exclude	None
75	M78				Yes	Default	Exclude	None
76	M79				Yes	Default	Exclude	None
77	M80				Yes	Default	Exclude	None
78	M81				Yes	Default	Exclude	None
79	M82				Yes	Default	Exclude	None
80	M83				Yes	Default	Exclude	None
81	M84				Yes	Default	Exclude	None
82	M85				Yes	Default	Exclude	None
83	M86				Yes	Default	Exclude	None
84	M87				Yes	Default	Exclude	None
85	M88				Yes	Default	Exclude	None
86	M89				Yes	Default	Exclude	None
87	M90				Yes	Default	Exclude	None
88	M91				Yes	Default	Exclude	None
89	M92				Yes	Default	Exclude	None
90	M93				Yes	Default	Exclude	None
91	M94		BenPIN		Yes	Default		None
92	M95		BenPIN		Yes	Default		None
93	M96		BenPIN		Yes	Default		None
94	M97		BenPIN		Yes	Default		None
95	M98		BenPIN		Yes	Default		None
96	M99		BenPIN		Yes	Default		None
97	M100		BenPIN		Yes	Default		None
98	M101		BenPIN		Yes	Default		None
99	M102		BenPIN		Yes	Default		None
100	M103		BenPIN		Yes	Default		None
101	M104		BenPIN		Yes	Default		None
102	M105		BenPIN		Yes	Default		None
103	M106	BenPIN			Yes	** NA **		None
104	M107	BenPIN			Yes	** NA **		None
105	M108	BenPIN			Yes	** NA **		None
106	M109	BenPIN			Yes	** NA **		None
107	M110	BenPIN			Yes	** NA **		None
108	M111	BenPIN			Yes	** NA **		None
109	M112	BenPIN			Yes	** NA **		None
110	M113	BenPIN			Yes	** NA **		None
111	M114	BenPIN			Yes	** NA **		None
112	M115	BenPIN			Yes	** NA **		None
113	M116	BenPIN			Yes	** NA **		None
114	M117	BenPIN			Yes	** NA **		None

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
1	M204	L4X4X6	11	5.25	5.25	Lbyy	N/A	N/A	Lateral
2	M205	L4X4X6	11	5.25	5.25	Lbyy	N/A	N/A	Lateral
3	M206	L4X4X6	11	5.25	5.25	Lbyy	N/A	N/A	Lateral
4	M200	L4X4X6	11	5.25	5.25	Lbyy	N/A	N/A	Lateral
5	M202	L4X4X6	11	5.25	5.25	Lbyy	N/A	N/A	Lateral
6	M201	L4X4X6	11	5.25	5.25	Lbyy	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
7	G3	L4X4X6	5.5	2.833			N/A	N/A	Lateral
8	G2	L4X4X6	5.5	2.833			N/A	N/A	Lateral
9	G1	L4X4X6	5.5	2.833			N/A	N/A	Lateral
10	H6	L3X3X3	4.9				N/A	N/A	Lateral
11	H5	L3X3X3	4.9				N/A	N/A	Lateral
12	H2	L3X3X3	4.9				N/A	N/A	Lateral
13	H1	L3X3X3	4.9				N/A	N/A	Lateral
14	MP3A	A-framing	8			Lbyy	N/A	N/A	Lateral
15	MP2A	A-framing	8			Lbyy	N/A	N/A	Lateral
16	MP3C	A-framing	8			Lbyy	N/A	N/A	Lateral
17	MP2C	A-framing	8			Lbyy	N/A	N/A	Lateral
18	MP3B	A-framing	8			Lbyy	N/A	N/A	Lateral
19	MP2B	A-framing	8			Lbyy	N/A	N/A	Lateral
20	M43	L4X4X6	11	5.25	5.25	Lbyy	N/A	N/A	Lateral
21	M44	L4X4X6	11	5.25	5.25	Lbyy	N/A	N/A	Lateral
22	LV	L4X4X6	11	5.25	5.25	Lbyy	N/A	N/A	Lateral
23	MP4A	PIPE_2.5	8			Lbyy	N/A	N/A	Lateral
24	MP4C	PIPE_2.5	8			Lbyy	N/A	N/A	Lateral
25	MP4B	PIPE_2.5	8			Lbyy	N/A	N/A	Lateral
26	M70	C8X11.5	4.667			Lbyy	N/A	N/A	Lateral
27	M71	L3X3X3	4.706			Lbyy	N/A	N/A	Lateral
28	M72	L3X3X3	4.705			Lbyy	N/A	N/A	Lateral
29	M73	L4X4X6	4.667	2.833			N/A	N/A	Lateral
30	M74	L5X3.5X6	12.833			Lbyy	N/A	N/A	Lateral
31	M75	L5X3.5X6	12.833			Lbyy	N/A	N/A	Lateral
32	M76	L5X3.5X6	12.833			Lbyy	N/A	N/A	Lateral
33	M77	L5X3.5X6	12.833			Lbyy	N/A	N/A	Lateral
34	M78	HSS3X3X4	5.333			Lbyy	N/A	N/A	Lateral
35	M79	HSS3X3X4	5.333			Lbyy	N/A	N/A	Lateral
36	M80	HSS3X3X4	5.333			Lbyy	N/A	N/A	Lateral
37	M81	HSS3X3X4	5.333			Lbyy	N/A	N/A	Lateral
38	M82	HSS3X3X4	12.833			Lbyy	N/A	N/A	Lateral
39	M83	HSS3X3X4	12.833			Lbyy	N/A	N/A	Lateral
40	M84	HSS3X3X4	12.833			Lbyy	N/A	N/A	Lateral
41	M85	HSS3X3X4	12.833			Lbyy	N/A	N/A	Lateral
42	M86	HSS3X3X4	12.833			Lbyy	N/A	N/A	Lateral
43	M87	HSS3X3X4	12.833			Lbyy	N/A	N/A	Lateral
44	M88	HSS3X3X4	12.833			Lbyy	N/A	N/A	Lateral
45	M89	HSS3X3X4	12.834			Lbyy	N/A	N/A	Lateral
46	M90	HSS3X3X4	4.833			Lbyy	N/A	N/A	Lateral
47	M91	HSS3X3X4	4.833			Lbyy	N/A	N/A	Lateral
48	M92	HSS3X3X4	4.833			Lbyy	N/A	N/A	Lateral
49	M93	HSS3X3X4	4.833			Lbyy	N/A	N/A	Lateral
50	M94	W5X16	6.983			Lbyy	N/A	N/A	Lateral
51	M95	W5X16	4.621			Lbyy	N/A	N/A	Lateral
52	M96	W5X16	4.758			Lbyy	N/A	N/A	Lateral
53	M97	W5X16	6.205			Lbyy	N/A	N/A	Lateral
54	M98	W5X16	4.037			Lbyy	N/A	N/A	Lateral
55	M99	W5X16	4.162			Lbyy	N/A	N/A	Lateral
56	M100	W5X16	5.555			Lbyy	N/A	N/A	Lateral
57	M101	W5X16	3.548			Lbyy	N/A	N/A	Lateral
58	M102	W5X16	3.665			Lbyy	N/A	N/A	Lateral
59	M103	W5X16	6.148			Lbyy	N/A	N/A	Lateral
60	M104	W5X16	4.132			Lbyy	N/A	N/A	Lateral
61	M105	W5X16	4.26			Lbyy	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Nodal	Point	Distributed	Area(Member)
1	Antenna D	None					84		
2	Antenna Di	None					84		
3	Antenna Wo (0 Deg)	None					84		
4	Antenna Wo (30 Deg)	None					84		
5	Antenna Wo (60 Deg)	None					84		
6	Antenna Wo (90 Deg)	None					84		
7	Antenna Wo (120 Deg)	None					84		
8	Antenna Wo (150 Deg)	None					84		
9	Antenna Wo (180 Deg)	None					84		
10	Antenna Wo (210 Deg)	None					84		
11	Antenna Wo (240 Deg)	None					84		
12	Antenna Wo (270 Deg)	None					84		
13	Antenna Wo (300 Deg)	None					84		
14	Antenna Wo (330 Deg)	None					84		
15	Antenna Wi (0 Deg)	None					84		
16	Antenna Wi (30 Deg)	None					84		
17	Antenna Wi (60 Deg)	None					84		
18	Antenna Wi (90 Deg)	None					84		
19	Antenna Wi (120 Deg)	None					84		
20	Antenna Wi (150 Deg)	None					84		
21	Antenna Wi (180 Deg)	None					84		
22	Antenna Wi (210 Deg)	None					84		
23	Antenna Wi (240 Deg)	None					84		
24	Antenna Wi (270 Deg)	None					84		
25	Antenna Wi (300 Deg)	None					84		
26	Antenna Wi (330 Deg)	None					84		
27	Antenna Wm (0 Deg)	None					84		
28	Antenna Wm (30 Deg)	None					84		
29	Antenna Wm (60 Deg)	None					84		
30	Antenna Wm (90 Deg)	None					84		
31	Antenna Wm (120 Deg)	None					84		
32	Antenna Wm (150 Deg)	None					84		
33	Antenna Wm (180 Deg)	None					84		
34	Antenna Wm (210 Deg)	None					84		
35	Antenna Wm (240 Deg)	None					84		
36	Antenna Wm (270 Deg)	None					84		
37	Antenna Wm (300 Deg)	None					84		
38	Antenna Wm (330 Deg)	None					84		
39	Structure D	None		-1		8			1
40	Structure Di	None				8		95	1
41	Structure Wo (0 Deg)	None					1	190	
42	Structure Wo (30 Deg)	None						190	
43	Structure Wo (60 Deg)	None						190	
44	Structure Wo (90 Deg)	None						190	
45	Structure Wo (120 Deg)	None						190	
46	Structure Wo (150 Deg)	None						190	
47	Structure Wo (180 Deg)	None						190	
48	Structure Wo (210 Deg)	None						190	
49	Structure Wo (240 Deg)	None						190	
50	Structure Wo (270 Deg)	None						190	
51	Structure Wo (300 Deg)	None						190	
52	Structure Wo (330 Deg)	None						190	
53	Structure Wi (0 Deg)	None						190	
54	Structure Wi (30 Deg)	None						190	
55	Structure Wi (60 Deg)	None						190	

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Nodal	Point	Distributed	Area(Member)
56	Structure Wi (90 Deg)	None						190	
57	Structure Wi (120 Deg)	None						190	
58	Structure Wi (150 Deg)	None						190	
59	Structure Wi (180 Deg)	None						190	
60	Structure Wi (210 Deg)	None						190	
61	Structure Wi (240 Deg)	None						190	
62	Structure Wi (270 Deg)	None						190	
63	Structure Wi (300 Deg)	None						190	
64	Structure Wi (330 Deg)	None						190	
65	Structure Wm (0 Deg)	None						190	
66	Structure Wm (30 Deg)	None						190	
67	Structure Wm (60 Deg)	None						190	
68	Structure Wm (90 Deg)	None						190	
69	Structure Wm (120 Deg)	None						190	
70	Structure Wm (150 Deg)	None						190	
71	Structure Wm (180 Deg)	None						190	
72	Structure Wm (210 Deg)	None						190	
73	Structure Wm (240 Deg)	None						190	
74	Structure Wm (270 Deg)	None						190	
75	Structure Wm (300 Deg)	None						190	
76	Structure Wm (330 Deg)	None						190	
77	Lm1	None					1		
78	Lm2	None					1		
79	Lv1	None					1		
80	Lv2	None					1		
81	Antenna Ev	None					84		
82	Antenna Eh (0 Deg)	None					56		
83	Antenna Eh (90 Deg)	None					56		
84	Structure Ev	ELY		-0.026					
85	Structure Eh (0 Deg)	ELZ			-0.082				
86	Structure Eh (90 Deg)	ELX	0.082						
87	Shroud Wind 0	None				8			
88	Shroud Wind 90	None				8			
89	BLC 39 Transient Area Loads	None						82	
90	BLC 40 Transient Area Loads	None						82	

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.2D+1.0Wo (0 Deg)	Yes	Y	1	1.2	39	1.2	3	1	41	1	87	1										
2	1.2D+1.0Wo (30 Deg)	Yes	Y	1	1.2	39	1.2	4	1	42	1	87	0.866	88	0.5								
3	1.2D+1.0Wo (60 Deg)	Yes	Y	1	1.2	39	1.2	5	1	43	1	87	0.5	88	0.866								
4	1.2D+1.0Wo (90 Deg)	Yes	Y	1	1.2	39	1.2	6	1	44	1	88	1										
5	1.2D+1.0Wo (120 Deg)	Yes	Y	1	1.2	39	1.2	7	1	45	1	87	-0.5	88	0.866								
6	1.2D+1.0Wo (150 Deg)	Yes	Y	1	1.2	39	1.2	8	1	46	1	87	-0.866	88	0.5								
7	1.2D+1.0Wo (180 Deg)	Yes	Y	1	1.2	39	1.2	9	1	47	1	87	-1										
8	1.2D+1.0Wo (210 Deg)	Yes	Y	1	1.2	39	1.2	10	1	48	1	87	-0.866	88	-0.5								
9	1.2D+1.0Wo (240 Deg)	Yes	Y	1	1.2	39	1.2	11	1	49	1	87	-0.5	88	-0.866								
10	1.2D+1.0Wo (270 Deg)	Yes	Y	1	1.2	39	1.2	12	1	50	1	88	-1										
11	1.2D+1.0Wo (300 Deg)	Yes	Y	1	1.2	39	1.2	13	1	51	1	87	0.5	88	-0.866								
12	1.2D+1.0Wo (330 Deg)	Yes	Y	1	1.2	39	1.2	14	1	52	1	87	0.866	88	-0.5								
13	1.2D + 1.0Di + 1.0Wi (0 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	15	1	53	1	87	0.121						
14	1.2D + 1.0Di + 1.0Wi (30 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	16	1	54	1	87	0.104	88	0.06				
15	1.2D + 1.0Di + 1.0Wi (60 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	17	1	55	1	87	0.06	88	0.104				
16	1.2D + 1.0Di + 1.0Wi (90 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	18	1	56	1	88	0.121						
17	1.2D + 1.0Di + 1.0Wi (120 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	19	1	57	1	87	-0.06	88	0.104				

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
18	1.2D + 1.0Di + 1.0Wi (150 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	20	1	58	1	87	-0.104	88	0.06				
19	1.2D + 1.0Di + 1.0Wi (180 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	21	1	59	1	87	-0.121						
20	1.2D + 1.0Di + 1.0Wi (210 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	22	1	60	1	87	-0.104	88	-0.06				
21	1.2D + 1.0Di + 1.0Wi (240 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	23	1	61	1	87	-0.06	88	-0.104				
22	1.2D + 1.0Di + 1.0Wi (270 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	24	1	62	1	88	-0.104						
23	1.2D + 1.0Di + 1.0Wi (300 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	25	1	63	1	87	0.06	88	-0.104				
24	1.2D + 1.0Di + 1.0Wi (330 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	26	1	64	1	87	0.104	88	-0.06				
25	1.2D + 1.5Lm1 + 1.0Wm (0 Deg)		Y	1	1.2	39	1.2	77	1.5	27	1	65	1										
26	1.2D + 1.5Lm1 + 1.0Wm (30 Deg)		Y	1	1.2	39	1.2	77	1.5	28	1	66	1										
27	1.2D + 1.5Lm1 + 1.0Wm (60 Deg)		Y	1	1.2	39	1.2	77	1.5	29	1	67	1										
28	1.2D + 1.5Lm1 + 1.0Wm (90 Deg)		Y	1	1.2	39	1.2	77	1.5	30	1	68	1										
29	1.2D + 1.5Lm1 + 1.0Wm (120 Deg)		Y	1	1.2	39	1.2	77	1.5	31	1	69	1										
30	1.2D + 1.5Lm1 + 1.0Wm (150 Deg)		Y	1	1.2	39	1.2	77	1.5	32	1	70	1										
31	1.2D + 1.5Lm1 + 1.0Wm (180 Deg)		Y	1	1.2	39	1.2	77	1.5	33	1	71	1										
32	1.2D + 1.5Lm1 + 1.0Wm (210 Deg)		Y	1	1.2	39	1.2	77	1.5	34	1	72	1										
33	1.2D + 1.5Lm1 + 1.0Wm (240 Deg)		Y	1	1.2	39	1.2	77	1.5	35	1	73	1										
34	1.2D + 1.5Lm1 + 1.0Wm (270 Deg)		Y	1	1.2	39	1.2	77	1.5	36	1	74	1										
35	1.2D + 1.5Lm1 + 1.0Wm (300 Deg)		Y	1	1.2	39	1.2	77	1.5	37	1	75	1										
36	1.2D + 1.5Lm1 + 1.0Wm (330 Deg)		Y	1	1.2	39	1.2	77	1.5	38	1	76	1										
37	1.2D + 1.5Lm2 + 1.0Wm (0 Deg)		Y	1	1.2	39	1.2	78	1.5	27	1	65	1										
38	1.2D + 1.5Lm2 + 1.0Wm (30 Deg)		Y	1	1.2	39	1.2	78	1.5	28	1	66	1										
39	1.2D + 1.5Lm2 + 1.0Wm (60 Deg)		Y	1	1.2	39	1.2	78	1.5	29	1	67	1										
40	1.2D + 1.5Lm2 + 1.0Wm (90 Deg)		Y	1	1.2	39	1.2	78	1.5	30	1	68	1										
41	1.2D + 1.5Lm2 + 1.0Wm (120 Deg)		Y	1	1.2	39	1.2	78	1.5	31	1	69	1										
42	1.2D + 1.5Lm2 + 1.0Wm (150 Deg)		Y	1	1.2	39	1.2	78	1.5	32	1	70	1										
43	1.2D + 1.5Lm2 + 1.0Wm (180 Deg)		Y	1	1.2	39	1.2	78	1.5	33	1	71	1										
44	1.2D + 1.5Lm2 + 1.0Wm (210 Deg)		Y	1	1.2	39	1.2	78	1.5	34	1	72	1										
45	1.2D + 1.5Lm2 + 1.0Wm (240 Deg)		Y	1	1.2	39	1.2	78	1.5	35	1	73	1										
46	1.2D + 1.5Lm2 + 1.0Wm (270 Deg)		Y	1	1.2	39	1.2	78	1.5	36	1	74	1										
47	1.2D + 1.5Lm2 + 1.0Wm (300 Deg)		Y	1	1.2	39	1.2	78	1.5	37	1	75	1										
48	1.2D + 1.5Lm2 + 1.0Wm (330 Deg)		Y	1	1.2	39	1.2	78	1.5	38	1	76	1										
49	1.2D + 1.5Lv1		Y	1	1.2	39	1.2	79	1.5														
50	1.2D + 1.5Lv2		Y	1	1.2	39	1.2	80	1.5														
51	1.4D	Yes	Y	1	1.4	39	1.4																
52	1.2D + 1.0Ev + 1.0Eh (0 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	1	83		ELZ	1	ELX					
53	1.2D + 1.0Ev + 1.0Eh (30 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	0.866	83	0.5	ELZ	0.866	ELX	0.5				
54	1.2D + 1.0Ev + 1.0Eh (60 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	0.5	83	0.866	ELZ	0.5	ELX	0.866				
55	1.2D + 1.0Ev + 1.0Eh (90 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82		83	1	ELZ		ELX	1				
56	1.2D + 1.0Ev + 1.0Eh (120 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	-0.5	83	0.866	ELZ	-0.5	ELX	0.866				
57	1.2D + 1.0Ev + 1.0Eh (150 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	-0.866	83	0.5	ELZ	-0.866	ELX	0.5				
58	1.2D + 1.0Ev + 1.0Eh (180 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	-1	83		ELZ	-1	ELX					
59	1.2D + 1.0Ev + 1.0Eh (210 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	-0.866	83	-0.5	ELZ	-0.866	ELX	-0.5				
60	1.2D + 1.0Ev + 1.0Eh (240 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	-0.5	83	-0.866	ELZ	-0.5	ELX	-0.866				
61	1.2D + 1.0Ev + 1.0Eh (270 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82		83	-1	ELZ		ELX	-1				
62	1.2D + 1.0Ev + 1.0Eh (300 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	0.5	83	-0.866	ELZ	0.5	ELX	-0.866				
63	1.2D + 1.0Ev + 1.0Eh (330 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	0.866	83	-0.5	ELZ	0.866	ELX	-0.5				
64	0.9D - 1.0Ev + 1.0Eh (0 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	1	83		ELZ	1	ELX					
65	0.9D - 1.0Ev + 1.0Eh (30 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	0.866	83	0.5	ELZ	0.866	ELX	0.5				
66	0.9D - 1.0Ev + 1.0Eh (60 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	0.5	83	0.866	ELZ	0.5	ELX	0.866				
67	0.9D - 1.0Ev + 1.0Eh (90 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82		83	1	ELZ		ELX	1				
68	0.9D - 1.0Ev + 1.0Eh (120 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	-0.5	83	0.866	ELZ	-0.5	ELX	0.866				
69	0.9D - 1.0Ev + 1.0Eh (150 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	-0.866	83	0.5	ELZ	-0.866	ELX	0.5				
70	0.9D - 1.0Ev + 1.0Eh (180 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	-1	83		ELZ	-1	ELX					
71	0.9D - 1.0Ev + 1.0Eh (210 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	-0.866	83	-0.5	ELZ	-0.866	ELX	-0.5				
72	0.9D - 1.0Ev + 1.0Eh (240 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	-0.5	83	-0.866	ELZ	-0.5	ELX	-0.866				

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
73	0.9D - 1.0Ev + 1.0Eh (270 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82		83	-1	ELZ		ELX	-1				
74	0.9D - 1.0Ev + 1.0Eh (300 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	0.5	83	-0.866	ELZ	0.5	ELX	-0.866				
75	0.9D - 1.0Ev + 1.0Eh (330 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	0.866	83	-0.5	ELZ	0.866	ELX	-0.5				
76	D		Y	1	1	39	1																
77	D + L		Y	1	1	39	1	88	1														
78	D + Lr		Y	1	1	39	1	87	1														
79	D + 0.75 L + 0.75 Lr		Y	1	1	39	1	88	0.75	87	0.75												
80	D + 0.6 Wo @ 0		Y	1	1	39	1	3	0.6	41	0.6					87	0.6						
81	D + 0.6 Wo @ 30		Y	1	1	39	1	4	0.6	42	0.6					87	0.52	88	0.3				
82	D + 0.6 Wo @ 45		Y	1	1	39	1	3	0.424	41	0.424	6	0.424	44	0.424	87	0.424	88	0.424				
83	D + 0.6 Wo @ 60		Y	1	1	39	1	5	0.6	43	0.6					87	0.3	88	0.52				
84	D + 0.6 Wo @ 90		Y	1	1	39	1	6	0.6	44	0.6					88	0.6						
85	D + 0.6 Wo @ 120		Y	1	1	39	1	7	0.6	45	0.6					87	-0.3	88	0.52				
86	D + 0.6 Wo @ 135		Y	1	1	39	1	3	-0.424	41	0.424	6	-0.424	44	0.424	87	-0.424	88	0.424				
87	D + 0.6 Wo @ 150		Y	1	1	39	1	8	0.6	46	0.6					87	-0.52	88	0.3				
88	D + 0.6 Wo @ 180		Y	1	1	39	1	9	0.6	47	0.6					87	-0.6						
89	D + 0.6 Wo @ 210		Y	1	1	39	1	10	0.6	48	0.6					87	-0.52	88	-0.3				
90	D + 0.6 Wo @ 225		Y	1	1	39	1	3	-0.424	41	-0.424	6	-0.424	44	-0.424	87	-0.424	88	-0.424				
91	D + 0.6 Wo @ 240		Y	1	1	39	1	11	0.6	49	0.6					87	-0.3	88	-0.52				
92	D + 0.6 Wo @ 270		Y	1	1	39	1	12	0.6	50	0.6					88	-0.6						
93	D + 0.6 Wo @ 300		Y	1	1	39	1	13	0.6	51	0.6					87	0.3	88	-0.52				
94	D + 0.6 Wo @ 315		Y	1	1	39	1	3	0.424	41	-0.424	6	0.424	44	-0.424	87	0.424	88	-0.424				
95	D + 0.6 Wo @ 330		Y	1	1	39	1	14	0.6	52	0.6					87	0.52	88	-0.3				
96	0.6 D + 0.6 Wo @ 0		Y	1	0.6	39	0.6	3	0.6	41	0.6					87	0.6						
97	0.6 D + 0.6 Wo @ 30		Y	1	0.6	39	0.6	4	0.6	42	0.6					87	0.52	88	0.3				
98	0.6 D + 0.6 Wo @ 45		Y	1	0.6	39	0.6	3	0.424	41	0.424	6	0.424	44	0.424	87	0.424	88	0.424				
99	0.6 D + 0.6 Wo @ 60		Y	1	0.6	39	0.6	5	0.6	43	0.6					87	0.3	88	0.52				
100	0.6 D + 0.6 Wo @ 90		Y	1	0.6	39	0.6	6	0.6	44	0.6					88	0.6						
101	0.6 D + 0.6 Wo @ 120		Y	1	0.6	39	0.6	7	0.6	45	0.6					87	-0.3	88	0.52				
102	0.6 D + 0.6 Wo @ 135		Y	1	0.6	39	0.6	3	-0.424	41	0.424	6	-0.424	44	0.424	87	-0.424	88	0.424				
103	0.6 D + 0.6 Wo @ 150		Y	1	0.6	39	0.6	8	0.6	46	0.6					87	-0.52	88	0.3				
104	0.6 D + 0.6 Wo @ 180		Y	1	0.6	39	0.6	9	0.6	47	0.6					87	-0.6						
105	0.6 D + 0.6 Wo @ 210		Y	1	0.6	39	0.6	10	0.6	48	0.6					87	-0.52	88	-0.3				
106	0.6 D + 0.6 Wo @ 225		Y	1	0.6	39	0.6	3	-0.424	41	-0.424	6	-0.424	44	-0.424	87	-0.424	88	-0.424				
107	0.6 D + 0.6 Wo @ 240		Y	1	0.6	39	0.6	11	0.6	49	0.6					87	-0.3	88	-0.52				
108	0.6 D + 0.6 Wo @ 270		Y	1	0.6	39	0.6	12	0.6	50	0.6					88	-0.6						
109	0.6 D + 0.6 Wo @ 300		Y	1	0.6	39	0.6	13	0.6	51	0.6					87	0.3	88	-0.52				
110	0.6 D + 0.6 Wo @ 315		Y	1	0.6	39	0.6	3	0.424	41	-0.424	6	0.424	44	-0.424	87	0.424	88	-0.424				
111	0.6 D + 0.6 Wo @ 330		Y	1	0.6	39	0.6	14	0.6	52	0.6					87	0.52	88	-0.3				
112	0.6 D + 0.7 Di + 0.7 Wi @ 0		Y	1	0.6	39	0.6	2	0.7	40	0.7	15	0.7	53	0.7					87	0.085		
113	0.6 D + 0.7 Di + 0.7 Wi @ 30		Y	1	0.6	39	0.6	2	0.7	40	0.7	16	0.7	54	0.7					87	0.074	88	0.042
114	0.6 D + 0.7 Di + 0.7 Wi @ 45		Y	1	0.6	39	0.6	2	0.7	40	0.7	15	0.495	53	0.495	18	0.495	56	0.495	87	0.06	88	0.06
115	0.6 D + 0.7 Di + 0.7 Wi @ 60		Y	1	0.6	39	0.6	2	0.7	40	0.7	17	0.7	55	0.7					87	0.042	88	0.074
116	0.6 D + 0.7 Di + 0.7 Wi @ 90		Y	1	0.6	39	0.6	2	0.7	40	0.7	18	0.7	56	0.7					88	0.085		
117	0.6 D + 0.7 Di + 0.7 Wi @ 120		Y	1	0.6	39	0.6	2	0.7	40	0.7	19	0.7	57	0.7					87	-0.3	88	0.074
118	0.6 D + 0.7 Di + 0.7 Wi @ 135		Y	1	0.6	39	0.6	2	0.7	40	0.7	15	-0.495	53	0.495	18	-0.495	56	0.495	87	-0.06	88	0.06
119	0.6 D + 0.7 Di + 0.7 Wi @ 150		Y	1	0.6	39	0.6	2	0.7	40	0.7	20	0.7	58	0.7					87	-0.074	88	0.042
120	0.6 D + 0.7 Di + 0.7 Wi @ 180		Y	1	0.6	39	0.6	2	0.7	40	0.7	21	0.7	59	0.7					87	-0.085		
121	0.6 D + 0.7 Di + 0.7 Wi @ 210		Y	1	0.6	39	0.6	2	0.7	40	0.7	22	0.7	60	0.7					87	-0.074	88	-0.042
122	0.6 D + 0.7 Di + 0.7 Wi @ 225		Y	1	0.6	39	0.6	2	0.7	40	0.7	15	-0.495	53	-0.495	18	-0.495	56	-0.495	87	-0.06	88	-0.06
123	0.6 D + 0.7 Di + 0.7 Wi @ 240		Y	1	0.6	39	0.6	2	0.7	40	0.7	23	0.7	61	0.7					87	-0.042	88	-0.52
124	0.6 D + 0.7 Di + 0.7 Wi @ 270		Y	1	0.6	39	0.6	2	0.7	40	0.7	24	0.7	62	0.7					88	-0.085		
125	0.6 D + 0.7 Di + 0.7 Wi @ 300		Y	1	0.6	39	0.6	2	0.7	40	0.7	25	0.7	63	0.7					87	0.042	88	-0.074
126	0.6 D + 0.7 Di + 0.7 Wi @ 315		Y	1	0.6	39	0.6	2	0.7	40	0.7	15	0.495	53	-0.495	18	0.495	56	-0.495	87	0.042	88	-0.042
127	0.6 D + 0.7 Di + 0.7 Wi @ 330		Y	1	0.6	39	0.6	2	0.7	40	0.7	26	0.7	64	0.7					87	-0.074	88	-0.042

Load Combinations (Continued)

Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor

Node Reactions

No Data to Print...

Envelope Node Reactions

	Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N414	max	2247.37	9	4449.475	4	1042.628	1	1.306	4	1.591	5	4.407	4
2		min	-2001.127	3	-2896.408	10	-1128.143	7	-0.82	10	-1.645	11	-2.821	10
3	N417	max	1083.573	11	2461.194	8	1545.016	1	1.681	2	1.703	10	1.08	8
4		min	-1017.933	5	-1198.824	2	-1594.405	7	-3.616	8	-1.702	4	-0.504	2
5	N389	max	1454.538	11	3346.703	10	1399.592	12	3.325	10	1.303	1	1.832	4
6		min	-1490.696	5	-1762.431	4	-1538.672	6	-1.646	4	-1.32	7	-3.663	10
7	N409	max	1382.476	7	1224.763	1	5343.496	1	9.826	1	0.761	4	2.257	1
8		min	-1207.502	1	-361.406	7	-6453.033	7	-5.786	7	-0.707	10	-1.315	7
9	N411	max	6376.795	11	6208.007	12	1638.026	11	3.706	11	0.69	3	10.397	5
10		min	-8035.933	5	-4304.421	6	-2087.824	5	-2.448	5	-0.732	7	-15.914	11
11	N412	max	783.662	9	1335.634	2	752.714	12	3	2	1.375	3	0.412	8
12		min	-954.022	3	-525.985	8	-1648.851	6	-1.321	8	-1.444	9	-0.939	2
13	N413	max	1837.17	10	3939.908	2	1096.122	2	3.536	2	1.25	5	3.201	2
14		min	-1614.368	4	-2422.155	8	-1317.539	8	-2.139	8	-1.179	11	-1.904	8
15	N415	max	2644.632	9	1427.455	5	947.332	10	1.29	10	0.693	7	9.554	4
16		min	-1695.034	3	-500.32	11	-668.183	4	-2.191	4	-0.746	1	-5.59	10
17	N416	max	2255.847	11	1421.202	16	1777.584	2	1.306	11	2.888	9	2.898	5
18		min	-1401.401	5	-452.101	10	-1090.429	8	-2.758	5	-2.852	3	-1.354	11
19	N418	max	921.546	8	6860.583	7	5106.295	1	10.067	1	1.313	9	2.25	1
20		min	-1301.206	2	-4775.591	1	-3323.227	7	-15.183	7	-1.201	3	-3.437	7
21	N419	max	649.443	8	1355.32	19	1442.229	2	1.39	1	1.621	1	1.354	2
22		min	-780.201	2	-308.193	1	-1283.784	8	-3.295	7	-1.619	7	-3.094	7
23	N420	max	860.682	11	1378.312	21	708.749	1	0.353	4	1.822	1	1.118	4
24		min	-989.168	5	-211.273	4	-683.237	7	-1.184	23	-1.866	7	-3.86	23
25	Totals:	max	19939.479	10	20417.859	13	20059.317	1						
26		min	-19939.479	4	5495.153	70	-20059.318	7						

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	M94	W5X16	0.66	0	11	0.337	0	y	12	121027.411	152604	12.366	26.001	2.006	H1-1b
2	M97	W5X16	0.645	0	8	0.361	0	y	6	127075.54	152604	12.366	26.001	1.991	H1-1b
3	M73	L4X4X6	0.531	1.965	12	0.229	2.088	z	12	83823.951	92664	4.398	9.886	1.5	H2-1
4	M206	L4X4X6	0.517	2.026	10	0.071	6.079	y	8	65671.36	92664	4.398	7.624	1	H2-1
5	M100	W5X16	0.414	0	4	0.086	1.9	y	5	131781.603	152604	12.366	26.001	1.548	H1-1b
6	M103	W5X16	0.414	0	1	0.111	2.265	y	12	127503.675	152604	12.366	26.001	1.534	H1-1b
7	M72	L3X3X3	0.393	2.353	6	0.006	4.705	z	8	21663.175	35316	1.32	2.59	1.5	H2-1
8	MP3B	PIPE_2.0	0.384	3.579	11	0.062	6.316		10	14916.096	32130	1.872	1.872	1	H1-1b
9	MP3A	PIPE_2.0	0.384	3.579	7	0.058	2.316		9	14916.096	32130	1.872	1.872	1	H1-1b
10	MP3C	PIPE_2.0	0.384	3.579	3	0.069	6.316		2	14916.096	32130	1.872	1.872	1	H1-1b
11	M204	L4X4X6	0.383	5.5	3	0.12	6.079	y	3	65671.36	92664	4.398	9.817	1.5	H2-1
12	M71	L3X3X3	0.382	2.353	12	0.006	4.706	y	6	21660.119	35316	1.32	2.422	1.137	H2-1
13	MP2A	PIPE_2.0	0.375	3.579	7	0.07	6.316		8	14916.096	32130	1.872	1.872	1	H1-1b
14	MP2B	PIPE_2.0	0.375	3.579	11	0.058	2.316		3	14916.096	32130	1.872	1.872	1	H1-1b
15	MP2C	PIPE_2.0	0.375	3.579	3	0.06	6.316		4	14916.096	32130	1.872	1.872	1	H1-1b
16	M99	W5X16	0.371	0	4	0.138	0	y	4	140537.837	152604	12.366	26.001	2.056	H1-1b
17	M98	W5X16	0.334	0.85	9	0.122	0	y	8	141227.55	152604	12.366	26.001	2.35	H1-1b
18	M205	L4X4X6	0.325	5.5	10	0.163	4.632	y	12	65671.36	92664	4.398	9.798	1.48	H2-1
19	M96	W5X16	0.308	0	7	0.096	0	y	8	137034.736	152604	12.366	26.001	1.829	H1-1b
20	M101	W5X16	0.307	0	4	0.219	0	y	2	143736.905	152604	12.366	26.001	3	H1-1b
21	H2	L3X3X3	0.296	2.45	8	0.04	4.9	y	5	20786.348	35316	1.32	2.395	1.137	H2-1

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
22	H1	L3X3X3	0.295	2.45	2	0.041	4.9	y	5	20786.348	35316	1.32	2.395	1.137	H2-1
23	H6	L3X3X3	0.287	2.45	4	0.041	4.9	y	1	20786.348	35316	1.32	2.395	1.137	H2-1
24	H5	L3X3X3	0.286	2.45	10	0.04	4.9	y	1	20786.348	35316	1.32	2.395	1.137	H2-1
25	M43	L4X4X6	0.25	11	2	0.038	5.5	z	2	65671.36	92664	4.398	7.624	1	H2-1
26	M95	W5X16	0.246	0	12	0.057	0	y	8	137873.21	152604	12.366	26.001	1.779	H1-1b
27	M102	W5X16	0.237	0	1	0.222	0	y	2	143165.245	152604	12.366	26.001	2.606	H1-1b
28	LV	L4X4X6	0.234	5.5	20	0.039	5.5	z	8	65671.36	92664	4.398	9.817	1.5	H2-1
29	M104	W5X16	0.232	0	2	0.071	0	y	2	140704.04	152604	12.366	26.001	2.147	H1-1b
30	M105	W5X16	0.227	0	9	0.195	0	y	10	139990.482	152604	12.366	26.001	2.353	H1-1b
31	G1	L4X4X6	0.225	3.039	8	0.165	2.605	z	8	83823.951	92664	4.398	9.75	1.5	H2-1
32	M44	L4X4X6	0.22	5.5	13	0.036	5.5	z	10	65671.36	92664	4.398	9.817	1.5	H2-1
33	G3	L4X4X6	0.217	2.461	10	0.159	2.605	z	4	83823.951	92664	4.398	9.75	1.5	H2-1
34	M200	L4X4X6	0.201	5.5	9	0.03	5.5	y	3	65671.36	92664	4.398	7.624	1	H2-1
35	M70	C8X11.5	0.168	3.684	12	0.141	4.667	y	12	71400.562	109188	3.353	26.001	1.629	H1-1b
36	M202	L4X4X6	0.16	4.632	6	0.044	5.5	z	6	65671.36	92664	4.398	7.624	1	H2-1
37	M201	L4X4X6	0.158	5.5	1	0.045	5.5	z	12	65671.36	92664	4.398	9.817	1.5	H2-1
38	MP4C	PIPE_2.5	0.072	3.789	2	0.036	4.421		2	30038.461	50715	3.596	3.596	1	H1-1b
39	MP4A	PIPE_2.5	0.07	3.789	6	0.025	4.421		2	30038.461	50715	3.596	3.596	1	H1-1b
40	MP4B	PIPE_2.5	0.068	3.789	5	0.029	3.789		8	30038.461	50715	3.596	3.596	1	H1-1b
41	G2	L4X4X6	0.036	2.75	9	0.004	5.5	z	12	83823.951	92664	4.398	9.319	1.137	H2-1

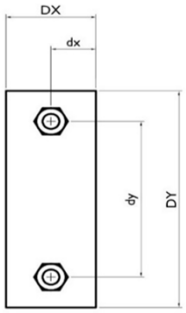
VzW SMART Tool© Vendor

Client:	Verizon Wireless	Date:	7/8/2026
Site Name:	DUBLIN		
MDG #:	5000089136		
Fuze ID #:	16234090	Page:	1

Version 2.10

I. Mount-to-Tower Connection Check

Custom Orientation Required	No
Tower Connection Bolt Checks	Yes
Bolt Orientation	Perpendicular
Bolt Quantity per Reaction:	2 (Vertical)
d_x (in) *(Delta X of typ. bolt config. sketch)* :	2
d_y (in) *(Delta Y of typ. bolt config. sketch)* :	10.5
Bolt Type:	A325X
Bolt Diameter (in):	0.75
Required Tensile Strength / bolt (kips):	0.5
Required Shear Strength / bolt (kips):	22.2
Tensile Capacity / bolt (kips):	29.8
Shear Capacity / bolt (kips):	22.5
Bolt Overall Utilization:	**98.5%**
Tower Connection Baseplate Checks	No

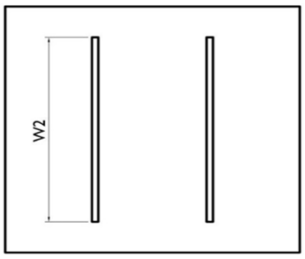


VzW SMART Tool© Vendor

Client:	Verizon Wireless	Date:	7/8/2026
Site Name:	DUBLIN		
PSLC #:	5000089136		
Fuze ID #:	16234090	Page:	2

Version 2.10

Tower Connection Weld Checks	Yes



Weld Shape:	Two Vertical Fillet Welds
Weld Stiffener Configuration:	None
Stiffener Notch Present?	
Stiffener Length, l (in):	
Stiffener Spacing/Width, s (in):	
Stiffener Notch Length, n (in):	0
Weld Size (1/16 in):	4
W1 (in):	0.5
W2 (in):	12
Weld Total Length (in):	24.00
Z_x (in^3/in):	48.00
Z_y (in^3/in):	6.00
J_p (in^4/in):	289.50
c_x (in)	0.25
c_y (in)	6
Required combined strength (kip/in):	4.35
Weld Capacity (kip/in):	5.57
Weld Utilization:	**78.1%**

Model Settings

Number of Reported Sections	3
Number of Internal Sections	40
Member Area Load Mesh Size (in^2)	144
Consider Shear Deformation	Yes
Consider Torsional Warping	Yes
Approximate Mesh Size (in)	12
Transfer Forces Between Intersecting Wood Walls	Yes
Increase Wood Wall Nailing Capacity for Wind Loads	Yes
Include P-Delta for Walls	Yes
Optimize Masonry and Wood Walls	No
Maximum Number of Iterations	3
Single	No
Multiple (Optimum)	Yes
Maximum	No

Global Axis corresponding to vertical direction	Y
Convert Existing Data	Yes
Default Global Plane for z-axis	XZ
Plate Local Axis Orientation	Nodal

Hot Rolled Steel	AISC 15th (360-16): ASD
Stiffness Adjustment	Yes (Iterative)
Notional Annex	None
Connections	None
Cold Formed Steel	None
Stiffness Adjustment	Yes (Iterative)
Wood	None
Temperature	< 100F
Concrete	None
Masonry	None
Aluminum	None
Structure Type	Building
Stiffness Adjustment	Yes (Iterative)
Stainless	None
Stiffness Adjustment	Yes (Iterative)

Compression Stress Block	Rectangular Stress Block
Analyze using Cracked Sections	Yes
Leave room for horizontal rebar splices (2*d bar spacing)	Yes
List forces which were ignored for design in the Detail Report	Yes

Column Min Steel	1
Column Max Steel	8
Rebar Material Spec	ASTM A615
Warn if beam-column framing arrangement is not understood	No
Number of Shear Regions	4
Region 2 & 3 Spacing Increase Increment (in)	4

Code	ASCE 7-05
Occupancy Cat	I or II
Drift Cat	Other

Model Settings (Continued)

Base Elevation (ft)	
Include the weight of the structure in base shear calcs	Yes
S_1 (g)	1
SD_1 (g)	1
SD_S (g)	1
T_L (sec)	5
T Z (sec)	
T X (sec)	
C_tZ	0.02
C_tX	0.02
C_tExp. Z	0.75
C_tExp. X	0.75
R Z	3
R X	3
Ω_0Z	1
Ω_0X	1
C_dZ	4
C_dX	4
ρ Z	1
ρ X	1

Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	B1	0.376712	0	-5.698368	
2	B2	5.123288	0	2.522942	
3	B3	4.746575	0	3.175426	
4	B4	-4.746575	0	3.175426	
5	B5	-5.123288	0	2.522942	
6	B6	-0.376712	0	-5.698368	
7	C4	-4.934932	0	2.849184	
8	C9	4.934932	0	2.849184	
9	C14	0	0	-5.698368	
10	N58	0.376712	4.583333	-5.698368	
11	N59	5.123288	4.583333	2.522942	
12	N60	4.746575	4.583333	3.175426	
13	N61	-4.746575	4.583333	3.175426	
14	N62	-5.123288	4.583333	2.522942	
15	N63	-0.376712	4.583333	-5.698368	
16	N64	5.5	4.583333	3.175426	
17	N65	0	0	-6.350853	
18	N66	0	4.583333	-6.350853	
19	N67	5.5	0	3.175426	
20	N66A	-5.5	0	3.175426	
21	N67A	-5.5	4.583333	3.175426	
22	N68	2.75	0	-1.587713	
23	N69	-2.75	0	-1.587713	
24	N70	0	0	3.175426	
25	N77	2.75	4.583333	-1.587713	
26	N78	-2.75	4.583333	-1.587713	
27	N79	0	4.583333	3.175426	
28	N76A	-0.188356	4.583333	-1.587713	
29	N77A	1.469178	4.583333	0.630735	
30	N78A	-1.280822	4.583333	0.956978	
31	N79A	0.188356	4.583333	-1.587713	
32	N80	1.280822	4.583333	0.956978	
33	N81	-1.469178	4.583333	0.630735	
34	N82	-1.921233	0	-1.587713	
35	N83	2.335616	0	-0.86998	
36	N85	1.921233	0	-1.587713	
37	N86	0.414384	0	2.457693	
38	N88	-4.934932	4.583333	2.849184	
39	N100	4.934932	4.583333	2.849184	
40	N106	0	4.583333	-5.698368	
41	N130	-1.166668	0.208333	3.401454	
42	N132	-1.166668	8.208333	3.401454	
43	N133	0.999998	0.208333	3.401454	
44	N135	0.999998	8.208333	3.401454	
45	N136	3.249772	0.375	3.401454	
46	N138	3.249772	5.375	3.401454	
47	N88A	3.529079	0.208333	-0.690363	
48	N90	3.529079	8.208333	-0.690363	
49	N91	2.445747	0.208333	-2.56675	
50	N93	2.445747	8.208333	-2.56675	
51	N94	1.32086	0.375	-4.515112	
52	N96	1.32086	5.375	-4.515112	
53	N112	-2.362412	0.208333	-2.711091	
54	N114	-2.362412	8.208333	-2.711091	
55	N115	-3.445744	0.208333	-0.834704	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
56	N117	-3.445744	8.208333	-0.834704	
57	N118	-4.570631	0.375	1.113658	
58	N120	-4.570631	5.375	1.113658	
59	N73A	5.5	0.791667	3.175426	
60	N74A	0	0.791667	-6.350853	
61	N75A	-5.5	0.791667	3.175426	
62	N77B	-1.166668	4.583333	3.401454	
63	N78B	0.999998	4.583333	3.401454	
64	N79B	3.249772	4.583333	3.401454	
65	N81A	3.249772	4.583333	3.175426	
66	N82A	-1.166668	4.583333	3.175426	
67	N83A	0.999998	4.583333	3.175426	
68	N85B	-1.166668	0.791667	3.401454	
69	N86A	0.999998	0.791667	3.401454	
70	N87B	3.249772	0.791667	3.401454	
71	N89	3.249772	0.791667	3.175426	
72	N90A	-1.166668	0.791667	3.175426	
73	N91A	0.999998	0.791667	3.175426	
74	N93A	3.529079	4.583333	-0.690363	
75	N94A	2.445747	4.583333	-2.56675	
76	N95	1.32086	4.583333	-4.515112	
77	N97	1.125114	4.583333	-4.402098	
78	N98	3.333334	4.583333	-0.577349	
79	N99	2.250001	4.583333	-2.453737	
80	N101	3.529079	0.791667	-0.690363	
81	N102	2.445747	0.791667	-2.56675	
82	N103	1.32086	0.791667	-4.515112	
83	N105	1.125114	0.791667	-4.402098	
84	N106A	3.333334	0.791667	-0.577349	
85	N107	2.250001	0.791667	-2.453737	
86	N109A	-2.362412	4.583333	-2.711091	
87	N110	-3.445744	4.583333	-0.834704	
88	N111A	-4.570631	4.583333	1.113658	
89	N113	-4.374886	4.583333	1.226672	
90	N114A	-2.166666	4.583333	-2.598077	
91	N115A	-3.249999	4.583333	-0.72169	
92	N117A	-2.362412	0.791667	-2.711091	
93	N118A	-3.445744	0.791667	-0.834704	
94	N119	-4.570631	0.791667	1.113658	
95	N121	-4.374886	0.791667	1.226672	
96	N122	-2.166666	0.791667	-2.598077	
97	N123	-3.249999	0.791667	-0.72169	
98	N118B	-3.249998	0.208333	3.401454	
99	N119A	-3.249998	8.208333	3.401454	
100	N120B	-3.249998	4.583333	3.401454	
101	N121A	-3.249998	4.583333	3.175426	
102	N122A	-3.249998	0.791667	3.401454	
103	N123A	-3.249998	0.791667	3.175426	
104	N112A	4.570744	0.208333	1.113854	
105	N113A	4.570744	8.208333	1.113854	
106	N114B	4.570744	4.583333	1.113854	
107	N115B	4.374999	4.583333	1.226868	
108	N116	4.570744	0.791667	1.113854	
109	N117B	4.374999	0.791667	1.226868	
110	N118C	-1.320747	0.208333	-4.515308	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
111	N119B	-1.320747	8.208333	-4.515308	
112	N120A	-1.320747	4.583333	-4.515308	
113	N121B	-1.125001	4.583333	-4.402294	
114	N122B	-1.320747	0.791667	-4.515308	
115	N123B	-1.125001	0.791667	-4.402294	
116	N136A	2.75	0.791667	-1.587713	
117	N137	-2.75	0.791667	-1.587713	
118	N138A	0	0.791667	3.175426	
119	N374	-1	0	3.175426	
120	N375	-3.236435	0	-0.745182	
121	N218	-0.833	0	3.175426	
122	N219	0.833	0	3.175426	
123	N221	-3.1665	0	-0.866314	
124	N222	-1.2997	0	2.367078	
125	N223	-1.7664	0	1.55873	
126	N224	-2.2331	0	0.750382	
127	N227	-2.6998	0	-0.057966	
128	N230	-0.833	4.583333	3.175426	
129	N231	-3.1665	4.583333	-0.866314	
130	N232	-3	4.583333	-1.337713	
131	N235	-2.166496	4.583333	0.865743	
132	N238	-1.831504	4.583333	1.445967	
133	CENTER	0	-0.25	0	
134	N246	8.2895	-0.25	2.569567	
135	N291	-2.824464	-0.25	8.986217	
136	N319	1.87285	-0.25	-8.544397	
137	N320	-9.241114	-0.25	-2.127747	
138	N321	8.2895	5.0833	2.569567	
139	N322	-2.824464	5.0833	8.986217	
140	N323	1.87285	5.0833	-8.544397	
141	N324	-9.241114	5.0833	-2.127747	
142	N325	8.2895	1.42	2.569567	
143	N326	-2.824464	1.42	8.986217	
144	N327	1.87285	1.42	-8.544397	
145	N328	-9.241114	1.42	-2.127747	
146	N330	-2.824464	3.42	8.986217	
147	N331	8.2895	3.42	2.569567	
148	N332	1.87285	3.42	-8.544397	
149	N333	-9.241114	3.42	-2.127747	
150	N334	-2.824464	3.527767	8.986217	
151	N335	2.732518	-0.25	5.777892	
152	N336	5.081175	-0.25	-2.987415	
153	N337	-3.684132	-0.25	-5.336072	
154	N338	-6.032789	-0.25	3.429235	
155	N339	-3.684132	4.5833	-5.336072	
156	N340	-3.684132	1.42	-5.336072	
157	N341	-3.684132	3.42	-5.336072	
158	N342	2.732518	4.583	5.777892	
159	N343	5.081175	4.583	-2.987415	
160	N344	-6.032789	4.583	3.429235	
161	N345	2.732518	1.42	5.777892	
162	N346	5.081175	1.42	-2.987415	
163	N347	-6.032789	1.473883	3.429235	
164	N348	2.732518	3.42	5.777892	
165	N349	5.081175	3.42	-2.987415	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
166	N350	-6.032789	3.473883	3.429235	
167	N351	8.2895	1.67	2.569567	
168	N352	-2.824464	1.67	8.986217	
169	N353	1.87285	1.67	-8.544397	
170	N354	-9.241114	1.67	-2.127747	
171	N355	-6.808358	-0.25	2.08591	
172	N356	-4.946501	-0.25	5.310741	
173	N357	-1.953243	-0.25	8.483217	
174	N358	1.914837	-0.25	6.24998	
175	N359	4.875188	-0.25	4.540821	
176	N360	7.849411	-0.25	1.80731	
177	N361	5.783026	-0.25	-1.771773	
178	N362	4.201563	-0.25	-4.510948	
179	N363	1.940393	-0.25	-8.427408	
180	N364	-1.942847	-0.25	-6.341404	
181	N365	-4.946501	-0.25	-4.607243	
182	N366	8.2895	0	2.569567	
183	N367	-2.824464	0	8.986217	
184	N368	1.87285	0	-8.544397	
185	N369	-9.241114	0	-2.127747	
186	N370	0	0	0	
187	N371	-6.808358	0	2.08591	
188	N372	-4.946501	0	5.310741	
189	N373	-1.953243	0	8.483217	
190	N376	1.914837	0	6.24998	
191	N377	4.875188	0	4.540821	
192	N378	7.849411	0	1.80731	
193	N381	5.783026	0	-1.771773	
194	N382	4.201563	0	-4.510948	
195	N383	1.940393	0	-8.427408	
196	N384	-1.942847	0	-6.341404	
197	N385	-4.946501	0	-4.607243	
198	N329	3.115568	0	-0.954531	
199	N386	4.228819	0	0.973677	
200	N387	2.263565	0	-2.430244	
201	N388	1.045374	0	-4.540212	
202	N390	-1.271181	0	-4.149103	
203	N391	-4.454626	0	1.364785	
204	N392	-2.384432	0	-2.220895	
205	N393	-2.957638	0	3.175426	
206	N394	-0.731135	0	3.175426	
207	N395	0.972871	0	3.175426	
208	N396	3.409252	0	3.175426	
209	N397	-3.236435	-0.25	-0.745182	
210	N398	3.115568	-0.25	-0.954531	
211	N399	4.228819	-0.25	0.973677	
212	N400	2.263565	-0.25	-2.430244	
213	N401	1.045374	-0.25	-4.540212	
214	N402	-1.271181	-0.25	-4.149103	
215	N403	-4.454626	-0.25	1.364785	
216	N404	-2.384432	-0.25	-2.220895	
217	N405	-2.957638	-0.25	3.175426	
218	N406	-0.731135	-0.25	3.175426	
219	N407	0.972871	-0.25	3.175426	
220	N408	3.409252	-0.25	3.175426	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
221	N410	-6.032789	1.42	3.429235	
222	N389	-1.829388	-0.25	-1.703919	
223	N409	0.560943	-0.25	-2.436256	
224	N411	-2.436256	-0.25	-0.560943	
225	N412	-0.732337	-0.25	-2.390331	
226	N413	1.703919	-0.25	-1.829388	
227	N414	2.390331	-0.25	-0.732337	
228	N415	2.436256	-0.25	0.560943	
229	N416	1.829388	-0.25	1.703919	
230	N417	0.732337	-0.25	2.390331	
231	N418	-0.560943	-0.25	2.436256	
232	N419	-1.703919	-0.25	1.829388	
233	N420	-2.390331	-0.25	0.732337	

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e^{5}°F^{-1}]	Density [k/ft^{3}]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A53 Gr. B (35 ksi)	29000	11154	0.3	0.65	0.49	35	1.5	60	1.2
2	A500 Gr. B (46ksi)	29000	11154	0.3	0.65	0.49	46	1.5	58	1.2
3	A36 (36ksi)	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
4	HR4	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
5	SQUARE FRP	2600	425	0.3	0.65	0.114	10	1.5	20	1.2
6	HR2	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in^{2}]	Iyy [in^{4}]	Izz [in^{4}]	J [in^{4}]
1	A-framing	PIPE_2.0	None	None	A53 Gr. B (35 ksi)	Typical	1.02	0.627	0.627	1.25
2	B-Framing	HSS4X4X4	None	None	A500 Gr. B (46ksi)	Typical	3.37	7.8	7.8	12.8
3	C-Framing	HSS5X5X4	None	None	A500 Gr. B (46ksi)	Typical	4.3	16	16	25.8
4	D-Framing	HSS5X5X4	None	None	A500 Gr. B (46ksi)	Typical	4.3	16	16	25.8

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	M204	N65	N67	180	L4X4X6	Beam	Single Angle	A36 (36ksi)	Typical
2	M205	N66A	N65	180	L4X4X6	Beam	Single Angle	A36 (36ksi)	Typical
3	M206	N67	N66A	180	L4X4X6	Beam	Single Angle	A36 (36ksi)	Typical
4	J4	B3	B2	180	C8X2.1875X0.25	Beam	None	FRP	Typical
5	J6	B6	B1		C8X2.1875X0.25	Beam	None	FRP	Typical
6	J5	B4	B5		C8X2.1875X0.25	Beam	None	FRP	Typical
7	M200	N66	N64	90	L4X4X6	HBrace	Single Angle	A36 (36ksi)	Typical
8	M202	N67A	N66	90	L4X4X6	HBrace	Single Angle	A36 (36ksi)	Typical
9	M201	N64	N67A	90	L4X4X6	HBrace	Single Angle	A36 (36ksi)	Typical
10	J1	N60	N59	90	A4X4X0.5	Column	None	FRP	Typical
11	J3	N63	N58	90	A4X4X0.5	Column	None	FRP	Typical
12	J2	N61	N62	90	A4X4X0.5	Column	None	FRP	Typical
13	E3	N65	N66	45	A5X5X0.5	Column	None	FRP	Typical
14	E5	N66A	N67A	165	A5X5X0.5	Column	None	FRP	Typical
15	E1	N67	N64	285	A5X5X0.5	Column	None	FRP	Typical
16	F3	N68	N69		C8X2.1875X0.25	Beam	None	FRP	Typical
17	F1	N70	N68		C8X2.1875X0.25	Beam	None	FRP	Typical
18	G3	N77	N78	90	L4X4X6	Column	Single Angle	A36 (36ksi)	Typical
19	G2	N78	N79	90	L4X4X6	Column	Single Angle	A36 (36ksi)	Typical
20	G1	N79	N77	90	L4X4X6	Column	Single Angle	A36 (36ksi)	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
21	H6	N85	N79A	270	L3X3X3	Column	Single Angle	A36 (36ksi)	Typical
22	H5	N76A	N82	270	L3X3X3	Column	Single Angle	A36 (36ksi)	Typical
23	H2	N86	N80	270	L3X3X3	Column	Single Angle	A36 (36ksi)	Typical
24	H1	N77A	N83	270	L3X3X3	Column	Single Angle	A36 (36ksi)	Typical
25	E2	N68	N77		A5X5X0.5	Column	None	FRP	Typical
26	E4	N69	N78	90	A5X5X0.5	Column	None	FRP	Typical
27	E6	N70	N79	235	A5X5X0.5	Column	None	FRP	Typical
28	MP3A	N132	N130	240	A-framing	None	None	A53 Gr. B (35 ksi)	Typical
29	MP2A	N135	N133	240	A-framing	None	None	A53 Gr. B (35 ksi)	Typical
30	MP1A	N138	N136	240	P2.5X0.25	HBrace	None	FRP	Typical
31	MP3C	N90	N88A	240	A-framing	None	None	A53 Gr. B (35 ksi)	Typical
32	MP2C	N93	N91	240	A-framing	None	None	A53 Gr. B (35 ksi)	Typical
33	MP1C	N96	N94	240	P2.5X0.25	HBrace	None	FRP	Typical
34	MP3B	N114	N112	240	A-framing	None	None	A53 Gr. B (35 ksi)	Typical
35	MP2B	N117	N115	240	A-framing	None	None	A53 Gr. B (35 ksi)	Typical
36	MP1B	N120	N118	240	P2.5X0.25	HBrace	None	FRP	Typical
37	M43	N74A	N73A	90	L4X4X6	HBrace	Single Angle	A36 (36ksi)	Typical
38	M44	N75A	N74A	90	L4X4X6	HBrace	Single Angle	A36 (36ksi)	Typical
39	LV	N73A	N75A	90	L4X4X6	HBrace	Single Angle	A36 (36ksi)	Typical
40	M47	N81A	N79B		RIGID	None	None	RIGID	Typical
41	M48	N82A	N77B		RIGID	None	None	RIGID	Typical
42	M49	N83A	N78B		RIGID	None	None	RIGID	Typical
43	LM1	N89	N87B		RIGID	None	None	RIGID	Typical
44	M52	N90A	N85B		RIGID	None	None	RIGID	Typical
45	LM2	N91A	N86A		RIGID	None	None	RIGID	Typical
46	M55	N97	N95		RIGID	None	None	RIGID	Typical
47	M56	N98	N93A		RIGID	None	None	RIGID	Typical
48	M57	N99	N94A		RIGID	None	None	RIGID	Typical
49	M59	N105	N103		RIGID	None	None	RIGID	Typical
50	M60	N106A	N101		RIGID	None	None	RIGID	Typical
51	M61	N107	N102		RIGID	None	None	RIGID	Typical
52	M63	N113	N111A		RIGID	None	None	RIGID	Typical
53	M64	N114A	N109A		RIGID	None	None	RIGID	Typical
54	M65	N115A	N110		RIGID	None	None	RIGID	Typical
55	M67	N121	N119		RIGID	None	None	RIGID	Typical
56	M68	N122	N117A		RIGID	None	None	RIGID	Typical
57	M69	N123	N118A		RIGID	None	None	RIGID	Typical
58	MP4A	N119A	N118B	240	PIPE_2.5	None	None	A53 Gr. B (35 ksi)	Typical
59	M68A	N121A	N120B		RIGID	None	None	RIGID	Typical
60	M69A	N123A	N122A		RIGID	None	None	RIGID	Typical
61	MP4C	N113A	N112A	240	PIPE_2.5	None	None	A53 Gr. B (35 ksi)	Typical
62	M65A	N115B	N114B		RIGID	None	None	RIGID	Typical
63	M66	N117B	N116		RIGID	None	None	RIGID	Typical
64	MP4B	N119B	N118C	240	PIPE_2.5	None	None	A53 Gr. B (35 ksi)	Typical
65	M68B	N121B	N120A		RIGID	None	None	RIGID	Typical
66	M69B	N123B	N122B		RIGID	None	None	RIGID	Typical
67	M70	N218	N221	180	C8X11.5	Beam	Channel	A36 (36ksi)	Typical
68	M71	N235	N227	45	L3X3X3	Beam	Single Angle	A36 (36ksi)	Typical
69	M72	N238	N222	135	L3X3X3	Beam	Single Angle	A36 (36ksi)	Typical
70	M73	N231	N230	90	L4X4X6	Column	Single Angle	A36 (36ksi)	Typical
71	M74	N246	N291		L5X3.5X6	Beam	Single Angle	SQUARE FRP	Typical
72	M75	N319	N246		L5X3.5X6	Beam	Single Angle	SQUARE FRP	Typical
73	M76	N320	N319		L5X3.5X6	Beam	Single Angle	SQUARE FRP	Typical
74	M77	N291	N320		L5X3.5X6	Beam	Single Angle	SQUARE FRP	Typical
75	M78	N322	N291	330	HSS3X3X4	Beam	Tube	SQUARE FRP	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
76	M79	N324	N320	330	HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
77	M80	N323	N319	330	HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
78	M81	N321	N246	330	HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
79	M82	N326	N325		HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
80	M83	N325	N327		HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
81	M84	N327	N328		HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
82	M85	N328	N326		HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
83	M86	N330	N331		HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
84	M87	N331	N332		HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
85	M88	N332	N333		HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
86	M89	N333	N334		HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
87	M90	N339	N337	330	HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
88	M91	N344	N338	330	HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
89	M92	N342	N335	330	HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
90	M93	N343	N336	330	HSS3X3X4	Beam	Tube	SQUARE FRP	Typical
91	M94	N411	N320		W5X16	Beam	Wide Flange	A36 (36ksi)	Typical
92	M95	N420	N355		W5X16	Beam	Wide Flange	A36 (36ksi)	Typical
93	M96	N419	N356		W5X16	Beam	Wide Flange	A36 (36ksi)	Typical
94	M97	N418	N357		W5X16	Beam	Wide Flange	A36 (36ksi)	Typical
95	M98	N417	N358		W5X16	Beam	Wide Flange	A36 (36ksi)	Typical
96	M99	N416	N359		W5X16	Beam	Wide Flange	A36 (36ksi)	Typical
97	M100	N415	N360		W5X16	Beam	Wide Flange	A36 (36ksi)	Typical
98	M101	N414	N361		W5X16	Beam	Wide Flange	A36 (36ksi)	Typical
99	M102	N413	N362		W5X16	Beam	Wide Flange	A36 (36ksi)	Typical
100	M103	N409	N363		W5X16	Beam	Wide Flange	A36 (36ksi)	Typical
101	M104	N412	N364		W5X16	Beam	Wide Flange	A36 (36ksi)	Typical
102	M105	N389	N365		W5X16	Beam	Wide Flange	A36 (36ksi)	Typical
103	M106	N390	N402		RIGID	None	None	RIGID	Typical
104	M107	N392	N404		RIGID	None	None	RIGID	Typical
105	M108	N375	N397		RIGID	None	None	RIGID	Typical
106	M109	N391	N403		RIGID	None	None	RIGID	Typical
107	M110	N393	N405		RIGID	None	None	RIGID	Typical
108	M111	N394	N406		RIGID	None	None	RIGID	Typical
109	M112	N395	N407		RIGID	None	None	RIGID	Typical
110	M113	N396	N408		RIGID	None	None	RIGID	Typical
111	M114	N386	N399		RIGID	None	None	RIGID	Typical
112	M115	N329	N398		RIGID	None	None	RIGID	Typical
113	M116	N387	N400		RIGID	None	None	RIGID	Typical
114	M117	N388	N401		RIGID	None	None	RIGID	Typical

Member Advanced Data

	Label	I Release	J Release	Col-Wall Vert Release	Physical	Deflection Ratio Options	Activation	Seismic DR
1	M204				Yes	Default		None
2	M205				Yes	Default		None
3	M206				Yes	Default		None
4	J4				Yes	Default		None
5	J6				Yes	Default		None
6	J5				Yes	Default		None
7	M200				Yes	** NA **		None
8	M202				Yes	** NA **		None
9	M201				Yes	** NA **		None
10	J1				Yes	** NA **		None
11	J3				Yes	** NA **		None
12	J2				Yes	** NA **		None
13	E3	BenPIN	BenPIN		Yes	** NA **		None

Member Advanced Data (Continued)

	Label	I Release	J Release	Col-Wall Vert Release	Physical	Deflection Ratio Options	Activation	Seismic DR
14	E5	BenPIN	BenPIN		Yes	** NA **		None
15	E1	BenPIN	BenPIN		Yes	** NA **		None
16	F3	BenPIN	BenPIN		Yes	Default		None
17	F1	BenPIN	BenPIN		Yes	Default		None
18	G3	BenPIN	BenPIN		Yes	** NA **		None
19	G2	BenPIN	BenPIN		Yes	** NA **		None
20	G1	BenPIN	BenPIN		Yes	** NA **		None
21	H6	BenPIN	BenPIN		Yes	** NA **		None
22	H5	BenPIN	BenPIN		Yes	** NA **		None
23	H2	BenPIN	BenPIN		Yes	** NA **		None
24	H1	BenPIN	BenPIN		Yes	** NA **		None
25	E2	BenPIN	BenPIN		Yes	** NA **		None
26	E4	BenPIN	BenPIN		Yes	** NA **		None
27	E6	BenPIN	BenPIN		Yes	** NA **		None
28	MP3A				Yes	** NA **		None
29	MP2A				Yes	** NA **		None
30	MP1A				Yes	** NA **		None
31	MP3C				Yes	** NA **		None
32	MP2C				Yes	** NA **		None
33	MP1C				Yes	** NA **		None
34	MP3B				Yes	** NA **		None
35	MP2B				Yes	** NA **		None
36	MP1B				Yes	** NA **		None
37	M43				Yes	** NA **		None
38	M44				Yes	** NA **		None
39	LV				Yes	** NA **		None
40	M47	OOOXOX			Yes	** NA **		None
41	M48	OOOXOX			Yes	** NA **		None
42	M49	OOOXOX			Yes	** NA **		None
43	LM1	OOOXOX			Yes	** NA **		None
44	M52	OOOXOX			Yes	** NA **		None
45	LM2	OOOXOX			Yes	** NA **		None
46	M55	OOOXOX			Yes	** NA **		None
47	M56	OOOXOX			Yes	** NA **		None
48	M57	OOOXOX			Yes	** NA **		None
49	M59	OOOXOX			Yes	** NA **		None
50	M60	OOOXOX			Yes	** NA **		None
51	M61	OOOXOX			Yes	** NA **		None
52	M63	OOOXOX			Yes	** NA **		None
53	M64	OOOXOX			Yes	** NA **		None
54	M65	OOOXOX			Yes	** NA **		None
55	M67	OOOXOX			Yes	** NA **		None
56	M68	OOOXOX			Yes	** NA **		None
57	M69	OOOXOX			Yes	** NA **		None
58	MP4A				Yes	** NA **		None
59	M68A	OOOXOX			Yes	** NA **		None
60	M69A	OOOXOX			Yes	** NA **		None
61	MP4C				Yes	** NA **		None
62	M65A	OOOXOX			Yes	** NA **		None
63	M66	OOOXOX			Yes	** NA **		None
64	MP4B				Yes	** NA **		None
65	M68B	OOOXOX			Yes	** NA **		None
66	M69B	OOOXOX			Yes	** NA **		None
67	M70	BenPIN	BenPIN		Yes	Default		None
68	M71	BenPIN	BenPIN		Yes	Default		None

Member Advanced Data (Continued)

	Label	I Release	J Release	Col-Wall Vert Release	Physical	Deflection Ratio Options	Activation	Seismic DR
69	M72	BenPIN	BenPIN		Yes	Default		None
70	M73	BenPIN	BenPIN		Yes	** NA **		None
71	M74				Yes	Default	Exclude	None
72	M75				Yes	Default	Exclude	None
73	M76				Yes	Default	Exclude	None
74	M77				Yes	Default	Exclude	None
75	M78				Yes	Default	Exclude	None
76	M79				Yes	Default	Exclude	None
77	M80				Yes	Default	Exclude	None
78	M81				Yes	Default	Exclude	None
79	M82				Yes	Default	Exclude	None
80	M83				Yes	Default	Exclude	None
81	M84				Yes	Default	Exclude	None
82	M85				Yes	Default	Exclude	None
83	M86				Yes	Default	Exclude	None
84	M87				Yes	Default	Exclude	None
85	M88				Yes	Default	Exclude	None
86	M89				Yes	Default	Exclude	None
87	M90				Yes	Default	Exclude	None
88	M91				Yes	Default	Exclude	None
89	M92				Yes	Default	Exclude	None
90	M93				Yes	Default	Exclude	None
91	M94		BenPIN		Yes	Default		None
92	M95		BenPIN		Yes	Default		None
93	M96		BenPIN		Yes	Default		None
94	M97		BenPIN		Yes	Default		None
95	M98		BenPIN		Yes	Default		None
96	M99		BenPIN		Yes	Default		None
97	M100		BenPIN		Yes	Default		None
98	M101		BenPIN		Yes	Default		None
99	M102		BenPIN		Yes	Default		None
100	M103		BenPIN		Yes	Default		None
101	M104		BenPIN		Yes	Default		None
102	M105		BenPIN		Yes	Default		None
103	M106	BenPIN			Yes	** NA **		None
104	M107	BenPIN			Yes	** NA **		None
105	M108	BenPIN			Yes	** NA **		None
106	M109	BenPIN			Yes	** NA **		None
107	M110	BenPIN			Yes	** NA **		None
108	M111	BenPIN			Yes	** NA **		None
109	M112	BenPIN			Yes	** NA **		None
110	M113	BenPIN			Yes	** NA **		None
111	M114	BenPIN			Yes	** NA **		None
112	M115	BenPIN			Yes	** NA **		None
113	M116	BenPIN			Yes	** NA **		None
114	M117	BenPIN			Yes	** NA **		None

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
1	M204	L4X4X6	11	5.25	5.25	Lbyy	N/A	N/A	Lateral
2	M205	L4X4X6	11	5.25	5.25	Lbyy	N/A	N/A	Lateral
3	M206	L4X4X6	11	5.25	5.25	Lbyy	N/A	N/A	Lateral
4	M200	L4X4X6	11	5.25	5.25	Lbyy	N/A	N/A	Lateral
5	M202	L4X4X6	11	5.25	5.25	Lbyy	N/A	N/A	Lateral
6	M201	L4X4X6	11	5.25	5.25	Lbyy	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
7	G3	L4X4X6	5.5	2.833			N/A	N/A	Lateral
8	G2	L4X4X6	5.5	2.833			N/A	N/A	Lateral
9	G1	L4X4X6	5.5	2.833			N/A	N/A	Lateral
10	H6	L3X3X3	4.9				N/A	N/A	Lateral
11	H5	L3X3X3	4.9				N/A	N/A	Lateral
12	H2	L3X3X3	4.9				N/A	N/A	Lateral
13	H1	L3X3X3	4.9				N/A	N/A	Lateral
14	MP3A	A-framing	8			Lbyy	N/A	N/A	Lateral
15	MP2A	A-framing	8			Lbyy	N/A	N/A	Lateral
16	MP3C	A-framing	8			Lbyy	N/A	N/A	Lateral
17	MP2C	A-framing	8			Lbyy	N/A	N/A	Lateral
18	MP3B	A-framing	8			Lbyy	N/A	N/A	Lateral
19	MP2B	A-framing	8			Lbyy	N/A	N/A	Lateral
20	M43	L4X4X6	11	5.25	5.25	Lbyy	N/A	N/A	Lateral
21	M44	L4X4X6	11	5.25	5.25	Lbyy	N/A	N/A	Lateral
22	LV	L4X4X6	11	5.25	5.25	Lbyy	N/A	N/A	Lateral
23	MP4A	PIPE_2.5	8			Lbyy	N/A	N/A	Lateral
24	MP4C	PIPE_2.5	8			Lbyy	N/A	N/A	Lateral
25	MP4B	PIPE_2.5	8			Lbyy	N/A	N/A	Lateral
26	M70	C8X11.5	4.667			Lbyy	N/A	N/A	Lateral
27	M71	L3X3X3	4.706			Lbyy	N/A	N/A	Lateral
28	M72	L3X3X3	4.705			Lbyy	N/A	N/A	Lateral
29	M73	L4X4X6	4.667	2.833			N/A	N/A	Lateral
30	M74	L5X3.5X6	12.833			Lbyy	N/A	N/A	Lateral
31	M75	L5X3.5X6	12.833			Lbyy	N/A	N/A	Lateral
32	M76	L5X3.5X6	12.833			Lbyy	N/A	N/A	Lateral
33	M77	L5X3.5X6	12.833			Lbyy	N/A	N/A	Lateral
34	M78	HSS3X3X4	5.333			Lbyy	N/A	N/A	Lateral
35	M79	HSS3X3X4	5.333			Lbyy	N/A	N/A	Lateral
36	M80	HSS3X3X4	5.333			Lbyy	N/A	N/A	Lateral
37	M81	HSS3X3X4	5.333			Lbyy	N/A	N/A	Lateral
38	M82	HSS3X3X4	12.833			Lbyy	N/A	N/A	Lateral
39	M83	HSS3X3X4	12.833			Lbyy	N/A	N/A	Lateral
40	M84	HSS3X3X4	12.833			Lbyy	N/A	N/A	Lateral
41	M85	HSS3X3X4	12.833			Lbyy	N/A	N/A	Lateral
42	M86	HSS3X3X4	12.833			Lbyy	N/A	N/A	Lateral
43	M87	HSS3X3X4	12.833			Lbyy	N/A	N/A	Lateral
44	M88	HSS3X3X4	12.833			Lbyy	N/A	N/A	Lateral
45	M89	HSS3X3X4	12.834			Lbyy	N/A	N/A	Lateral
46	M90	HSS3X3X4	4.833			Lbyy	N/A	N/A	Lateral
47	M91	HSS3X3X4	4.833			Lbyy	N/A	N/A	Lateral
48	M92	HSS3X3X4	4.833			Lbyy	N/A	N/A	Lateral
49	M93	HSS3X3X4	4.833			Lbyy	N/A	N/A	Lateral
50	M94	W5X16	6.983			Lbyy	N/A	N/A	Lateral
51	M95	W5X16	4.621			Lbyy	N/A	N/A	Lateral
52	M96	W5X16	4.758			Lbyy	N/A	N/A	Lateral
53	M97	W5X16	6.205			Lbyy	N/A	N/A	Lateral
54	M98	W5X16	4.037			Lbyy	N/A	N/A	Lateral
55	M99	W5X16	4.162			Lbyy	N/A	N/A	Lateral
56	M100	W5X16	5.555			Lbyy	N/A	N/A	Lateral
57	M101	W5X16	3.548			Lbyy	N/A	N/A	Lateral
58	M102	W5X16	3.665			Lbyy	N/A	N/A	Lateral
59	M103	W5X16	6.148			Lbyy	N/A	N/A	Lateral
60	M104	W5X16	4.132			Lbyy	N/A	N/A	Lateral
61	M105	W5X16	4.26			Lbyy	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Nodal	Point	Distributed	Area(Member)
1	Antenna D	None					84		
2	Antenna Di	None					84		
3	Antenna Wo (0 Deg)	None					84		
4	Antenna Wo (30 Deg)	None					84		
5	Antenna Wo (60 Deg)	None					84		
6	Antenna Wo (90 Deg)	None					84		
7	Antenna Wo (120 Deg)	None					84		
8	Antenna Wo (150 Deg)	None					84		
9	Antenna Wo (180 Deg)	None					84		
10	Antenna Wo (210 Deg)	None					84		
11	Antenna Wo (240 Deg)	None					84		
12	Antenna Wo (270 Deg)	None					84		
13	Antenna Wo (300 Deg)	None					84		
14	Antenna Wo (330 Deg)	None					84		
15	Antenna Wi (0 Deg)	None					84		
16	Antenna Wi (30 Deg)	None					84		
17	Antenna Wi (60 Deg)	None					84		
18	Antenna Wi (90 Deg)	None					84		
19	Antenna Wi (120 Deg)	None					84		
20	Antenna Wi (150 Deg)	None					84		
21	Antenna Wi (180 Deg)	None					84		
22	Antenna Wi (210 Deg)	None					84		
23	Antenna Wi (240 Deg)	None					84		
24	Antenna Wi (270 Deg)	None					84		
25	Antenna Wi (300 Deg)	None					84		
26	Antenna Wi (330 Deg)	None					84		
27	Antenna Wm (0 Deg)	None					84		
28	Antenna Wm (30 Deg)	None					84		
29	Antenna Wm (60 Deg)	None					84		
30	Antenna Wm (90 Deg)	None					84		
31	Antenna Wm (120 Deg)	None					84		
32	Antenna Wm (150 Deg)	None					84		
33	Antenna Wm (180 Deg)	None					84		
34	Antenna Wm (210 Deg)	None					84		
35	Antenna Wm (240 Deg)	None					84		
36	Antenna Wm (270 Deg)	None					84		
37	Antenna Wm (300 Deg)	None					84		
38	Antenna Wm (330 Deg)	None					84		
39	Structure D	None		-1		8			1
40	Structure Di	None				8		95	1
41	Structure Wo (0 Deg)	None					1	190	
42	Structure Wo (30 Deg)	None						190	
43	Structure Wo (60 Deg)	None						190	
44	Structure Wo (90 Deg)	None						190	
45	Structure Wo (120 Deg)	None						190	
46	Structure Wo (150 Deg)	None						190	
47	Structure Wo (180 Deg)	None						190	
48	Structure Wo (210 Deg)	None						190	
49	Structure Wo (240 Deg)	None						190	
50	Structure Wo (270 Deg)	None						190	
51	Structure Wo (300 Deg)	None						190	
52	Structure Wo (330 Deg)	None						190	
53	Structure Wi (0 Deg)	None						190	
54	Structure Wi (30 Deg)	None						190	
55	Structure Wi (60 Deg)	None						190	

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Nodal	Point	Distributed	Area(Member)
56	Structure Wi (90 Deg)	None						190	
57	Structure Wi (120 Deg)	None						190	
58	Structure Wi (150 Deg)	None						190	
59	Structure Wi (180 Deg)	None						190	
60	Structure Wi (210 Deg)	None						190	
61	Structure Wi (240 Deg)	None						190	
62	Structure Wi (270 Deg)	None						190	
63	Structure Wi (300 Deg)	None						190	
64	Structure Wi (330 Deg)	None						190	
65	Structure Wm (0 Deg)	None						190	
66	Structure Wm (30 Deg)	None						190	
67	Structure Wm (60 Deg)	None						190	
68	Structure Wm (90 Deg)	None						190	
69	Structure Wm (120 Deg)	None						190	
70	Structure Wm (150 Deg)	None						190	
71	Structure Wm (180 Deg)	None						190	
72	Structure Wm (210 Deg)	None						190	
73	Structure Wm (240 Deg)	None						190	
74	Structure Wm (270 Deg)	None						190	
75	Structure Wm (300 Deg)	None						190	
76	Structure Wm (330 Deg)	None						190	
77	Lm1	None					1		
78	Lm2	None					1		
79	Lv1	None					1		
80	Lv2	None					1		
81	Antenna Ev	None					84		
82	Antenna Eh (0 Deg)	None					56		
83	Antenna Eh (90 Deg)	None					56		
84	Structure Ev	ELY		-0.026					
85	Structure Eh (0 Deg)	ELZ			-0.082				
86	Structure Eh (90 Deg)	ELX	0.082						
87	Shroud Wind 0	None				8			
88	Shroud Wind 90	None				8			
89	BLC 39 Transient Area Loads	None						82	
90	BLC 40 Transient Area Loads	None						82	

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.2D+1.0Wo (0 Deg)		Y	1	1.2	39	1.2	3	1	41	1	87	1										
2	1.2D+1.0Wo (30 Deg)		Y	1	1.2	39	1.2	4	1	42	1	87	0.866	88	0.5								
3	1.2D+1.0Wo (60 Deg)		Y	1	1.2	39	1.2	5	1	43	1	87	0.5	88	0.866								
4	1.2D+1.0Wo (90 Deg)		Y	1	1.2	39	1.2	6	1	44	1	88	1										
5	1.2D+1.0Wo (120 Deg)		Y	1	1.2	39	1.2	7	1	45	1	87	-0.5	88	0.866								
6	1.2D+1.0Wo (150 Deg)		Y	1	1.2	39	1.2	8	1	46	1	87	-0.866	88	0.5								
7	1.2D+1.0Wo (180 Deg)		Y	1	1.2	39	1.2	9	1	47	1	87	-1										
8	1.2D+1.0Wo (210 Deg)		Y	1	1.2	39	1.2	10	1	48	1	87	-0.866	88	-0.5								
9	1.2D+1.0Wo (240 Deg)		Y	1	1.2	39	1.2	11	1	49	1	87	-0.5	88	-0.866								
10	1.2D+1.0Wo (270 Deg)		Y	1	1.2	39	1.2	12	1	50	1	88	-1										
11	1.2D+1.0Wo (300 Deg)		Y	1	1.2	39	1.2	13	1	51	1	87	0.5	88	-0.866								
12	1.2D+1.0Wo (330 Deg)		Y	1	1.2	39	1.2	14	1	52	1	87	0.866	88	-0.5								
13	1.2D + 1.0Di + 1.0Wi (0 Deg)		Y	1	1.2	39	1.2	2	1	40	1	15	1	53	1	87	1						
14	1.2D + 1.0Di + 1.0Wi (30 Deg)		Y	1	1.2	39	1.2	2	1	40	1	16	1	54	1	87	0.866	88	0.5				
15	1.2D + 1.0Di + 1.0Wi (60 Deg)		Y	1	1.2	39	1.2	2	1	40	1	17	1	55	1	87	0.5	88	0.866				
16	1.2D + 1.0Di + 1.0Wi (90 Deg)		Y	1	1.2	39	1.2	2	1	40	1	18	1	56	1	88	1						
17	1.2D + 1.0Di + 1.0Wi (120 Deg)		Y	1	1.2	39	1.2	2	1	40	1	19	1	57	1	87	-0.5	88	0.866				

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
18	1.2D + 1.0Di + 1.0Wi (150 Deg)		Y	1	1.2	39	1.2	2	1	40	1	20	1	58	1	87	-0.866	88	0.5				
19	1.2D + 1.0Di + 1.0Wi (180 Deg)		Y	1	1.2	39	1.2	2	1	40	1	21	1	59	1	87	-1						
20	1.2D + 1.0Di + 1.0Wi (210 Deg)		Y	1	1.2	39	1.2	2	1	40	1	22	1	60	1	87	-0.866	88	-0.5				
21	1.2D + 1.0Di + 1.0Wi (240 Deg)		Y	1	1.2	39	1.2	2	1	40	1	23	1	61	1	87	-0.5	88	-0.866				
22	1.2D + 1.0Di + 1.0Wi (270 Deg)		Y	1	1.2	39	1.2	2	1	40	1	24	1	62	1	88	-1						
23	1.2D + 1.0Di + 1.0Wi (300 Deg)		Y	1	1.2	39	1.2	2	1	40	1	25	1	63	1	87	0.5	88	-0.866				
24	1.2D + 1.0Di + 1.0Wi (330 Deg)		Y	1	1.2	39	1.2	2	1	40	1	26	1	64	1	87	0.866	88	-0.5				
25	1.2D + 1.5Lm1 + 1.0Wm (0 Deg)		Y	1	1.2	39	1.2	77	1.5	27	1	65	1										
26	1.2D + 1.5Lm1 + 1.0Wm (30 Deg)		Y	1	1.2	39	1.2	77	1.5	28	1	66	1										
27	1.2D + 1.5Lm1 + 1.0Wm (60 Deg)		Y	1	1.2	39	1.2	77	1.5	29	1	67	1										
28	1.2D + 1.5Lm1 + 1.0Wm (90 Deg)		Y	1	1.2	39	1.2	77	1.5	30	1	68	1										
29	1.2D + 1.5Lm1 + 1.0Wm (120 Deg)		Y	1	1.2	39	1.2	77	1.5	31	1	69	1										
30	1.2D + 1.5Lm1 + 1.0Wm (150 Deg)		Y	1	1.2	39	1.2	77	1.5	32	1	70	1										
31	1.2D + 1.5Lm1 + 1.0Wm (180 Deg)		Y	1	1.2	39	1.2	77	1.5	33	1	71	1										
32	1.2D + 1.5Lm1 + 1.0Wm (210 Deg)		Y	1	1.2	39	1.2	77	1.5	34	1	72	1										
33	1.2D + 1.5Lm1 + 1.0Wm (240 Deg)		Y	1	1.2	39	1.2	77	1.5	35	1	73	1										
34	1.2D + 1.5Lm1 + 1.0Wm (270 Deg)		Y	1	1.2	39	1.2	77	1.5	36	1	74	1										
35	1.2D + 1.5Lm1 + 1.0Wm (300 Deg)		Y	1	1.2	39	1.2	77	1.5	37	1	75	1										
36	1.2D + 1.5Lm1 + 1.0Wm (330 Deg)		Y	1	1.2	39	1.2	77	1.5	38	1	76	1										
37	1.2D + 1.5Lm2 + 1.0Wm (0 Deg)		Y	1	1.2	39	1.2	78	1.5	27	1	65	1										
38	1.2D + 1.5Lm2 + 1.0Wm (30 Deg)		Y	1	1.2	39	1.2	78	1.5	28	1	66	1										
39	1.2D + 1.5Lm2 + 1.0Wm (60 Deg)		Y	1	1.2	39	1.2	78	1.5	29	1	67	1										
40	1.2D + 1.5Lm2 + 1.0Wm (90 Deg)		Y	1	1.2	39	1.2	78	1.5	30	1	68	1										
41	1.2D + 1.5Lm2 + 1.0Wm (120 Deg)		Y	1	1.2	39	1.2	78	1.5	31	1	69	1										
42	1.2D + 1.5Lm2 + 1.0Wm (150 Deg)		Y	1	1.2	39	1.2	78	1.5	32	1	70	1										
43	1.2D + 1.5Lm2 + 1.0Wm (180 Deg)		Y	1	1.2	39	1.2	78	1.5	33	1	71	1										
44	1.2D + 1.5Lm2 + 1.0Wm (210 Deg)		Y	1	1.2	39	1.2	78	1.5	34	1	72	1										
45	1.2D + 1.5Lm2 + 1.0Wm (240 Deg)		Y	1	1.2	39	1.2	78	1.5	35	1	73	1										
46	1.2D + 1.5Lm2 + 1.0Wm (270 Deg)		Y	1	1.2	39	1.2	78	1.5	36	1	74	1										
47	1.2D + 1.5Lm2 + 1.0Wm (300 Deg)		Y	1	1.2	39	1.2	78	1.5	37	1	75	1										
48	1.2D + 1.5Lm2 + 1.0Wm (330 Deg)		Y	1	1.2	39	1.2	78	1.5	38	1	76	1										
49	1.2D + 1.5Lv1		Y	1	1.2	39	1.2	79	1.5														
50	1.2D + 1.5Lv2		Y	1	1.2	39	1.2	80	1.5														
51	1.4D		Y	1	1.4	39	1.4																
52	1.2D + 1.0Ev + 1.0Eh (0 Deg)		Y	1	1.2	39	1.2	81	1	ELY	1	82	1	83		ELZ	1	ELX					
53	1.2D + 1.0Ev + 1.0Eh (30 Deg)		Y	1	1.2	39	1.2	81	1	ELY	1	82	0.866	83	0.5	ELZ	0.866	ELX	0.5				
54	1.2D + 1.0Ev + 1.0Eh (60 Deg)		Y	1	1.2	39	1.2	81	1	ELY	1	82	0.5	83	0.866	ELZ	0.5	ELX	0.866				
55	1.2D + 1.0Ev + 1.0Eh (90 Deg)		Y	1	1.2	39	1.2	81	1	ELY	1	82		83	1	ELZ		ELX	1				
56	1.2D + 1.0Ev + 1.0Eh (120 Deg)		Y	1	1.2	39	1.2	81	1	ELY	1	82	-0.5	83	0.866	ELZ	-0.5	ELX	0.866				
57	1.2D + 1.0Ev + 1.0Eh (150 Deg)		Y	1	1.2	39	1.2	81	1	ELY	1	82	-0.866	83	0.5	ELZ	-0.866	ELX	0.5				
58	1.2D + 1.0Ev + 1.0Eh (180 Deg)		Y	1	1.2	39	1.2	81	1	ELY	1	82	-1	83		ELZ	-1	ELX					
59	1.2D + 1.0Ev + 1.0Eh (210 Deg)		Y	1	1.2	39	1.2	81	1	ELY	1	82	-0.866	83	-0.5	ELZ	-0.866	ELX	-0.5				
60	1.2D + 1.0Ev + 1.0Eh (240 Deg)		Y	1	1.2	39	1.2	81	1	ELY	1	82	-0.5	83	-0.866	ELZ	-0.5	ELX	-0.866				
61	1.2D + 1.0Ev + 1.0Eh (270 Deg)		Y	1	1.2	39	1.2	81	1	ELY	1	82		83	-1	ELZ		ELX	-1				
62	1.2D + 1.0Ev + 1.0Eh (300 Deg)		Y	1	1.2	39	1.2	81	1	ELY	1	82	0.5	83	-0.866	ELZ	0.5	ELX	-0.866				
63	1.2D + 1.0Ev + 1.0Eh (330 Deg)		Y	1	1.2	39	1.2	81	1	ELY	1	82	0.866	83	-0.5	ELZ	0.866	ELX	-0.5				
64	0.9D - 1.0Ev + 1.0Eh (0 Deg)		Y	1	0.9	39	0.9	81	-1	ELY	-1	82	1	83		ELZ	1	ELX					
65	0.9D - 1.0Ev + 1.0Eh (30 Deg)		Y	1	0.9	39	0.9	81	-1	ELY	-1	82	0.866	83	0.5	ELZ	0.866	ELX	0.5				
66	0.9D - 1.0Ev + 1.0Eh (60 Deg)		Y	1	0.9	39	0.9	81	-1	ELY	-1	82	0.5	83	0.866	ELZ	0.5	ELX	0.866				
67	0.9D - 1.0Ev + 1.0Eh (90 Deg)		Y	1	0.9	39	0.9	81	-1	ELY	-1	82		83	1	ELZ		ELX	1				
68	0.9D - 1.0Ev + 1.0Eh (120 Deg)		Y	1	0.9	39	0.9	81	-1	ELY	-1	82	-0.5	83	0.866	ELZ	-0.5	ELX	0.866				
69	0.9D - 1.0Ev + 1.0Eh (150 Deg)		Y	1	0.9	39	0.9	81	-1	ELY	-1	82	-0.866	83	0.5	ELZ	-0.866	ELX	0.5				
70	0.9D - 1.0Ev + 1.0Eh (180 Deg)		Y	1	0.9	39	0.9	81	-1	ELY	-1	82	-1	83		ELZ	-1	ELX					
71	0.9D - 1.0Ev + 1.0Eh (210 Deg)		Y	1	0.9	39	0.9	81	-1	ELY	-1	82	-0.866	83	-0.5	ELZ	-0.866	ELX	-0.5				
72	0.9D - 1.0Ev + 1.0Eh (240 Deg)		Y	1	0.9	39	0.9	81	-1	ELY	-1	82	-0.5	83	-0.866	ELZ	-0.5	ELX	-0.866				

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
73	0.9D - 1.0Ev + 1.0Eh (270 Deg)		Y	1	0.9	39	0.9	81	-1	ELY	-1	82		83	-1	ELZ		ELX	-1				
74	0.9D - 1.0Ev + 1.0Eh (300 Deg)		Y	1	0.9	39	0.9	81	-1	ELY	-1	82	0.5	83	-0.866	ELZ	0.5	ELX	-0.866				
75	0.9D - 1.0Ev + 1.0Eh (330 Deg)		Y	1	0.9	39	0.9	81	-1	ELY	-1	82	0.866	83	-0.5	ELZ	0.866	ELX	-0.5				
76	D	Yes	Y	1	1	39	1																
77	D + L		Y	1	1	39	1	88	1														
78	D + Lr		Y	1	1	39	1	87	1														
79	D + 0.75 L + 0.75 Lr	Yes	Y	1	1	39	1	88	0.75	87	0.75												
80	D + 0.6 Wo @ 0	Yes	Y	1	1	39	1	3	0.6	41	0.6					87	0.6						
81	D + 0.6 Wo @ 30	Yes	Y	1	1	39	1	4	0.6	42	0.6					87	0.52	88	0.3				
82	D + 0.6 Wo @ 45	Yes	Y	1	1	39	1	3	0.424	41	0.424	6	0.424	44	0.424	87	0.424	88	0.424				
83	D + 0.6 Wo @ 60	Yes	Y	1	1	39	1	5	0.6	43	0.6					87	0.3	88	0.52				
84	D + 0.6 Wo @ 90	Yes	Y	1	1	39	1	6	0.6	44	0.6					88	0.6						
85	D + 0.6 Wo @ 120	Yes	Y	1	1	39	1	7	0.6	45	0.6					87	-0.3	88	0.52				
86	D + 0.6 Wo @ 135	Yes	Y	1	1	39	1	3	-0.424	41	0.424	6	-0.424	44	0.424	87	-0.424	88	0.424				
87	D + 0.6 Wo @ 150	Yes	Y	1	1	39	1	8	0.6	46	0.6					87	-0.52	88	0.3				
88	D + 0.6 Wo @ 180	Yes	Y	1	1	39	1	9	0.6	47	0.6					87	-0.6						
89	D + 0.6 Wo @ 210	Yes	Y	1	1	39	1	10	0.6	48	0.6					87	-0.52	88	-0.3				
90	D + 0.6 Wo @ 225	Yes	Y	1	1	39	1	3	-0.424	41	-0.424	6	-0.424	44	-0.424	87	-0.424	88	-0.424				
91	D + 0.6 Wo @ 240	Yes	Y	1	1	39	1	11	0.6	49	0.6					87	-0.3	88	-0.52				
92	D + 0.6 Wo @ 270	Yes	Y	1	1	39	1	12	0.6	50	0.6					88	-0.6						
93	D + 0.6 Wo @ 300	Yes	Y	1	1	39	1	13	0.6	51	0.6					87	0.3	88	-0.52				
94	D + 0.6 Wo @ 315	Yes	Y	1	1	39	1	3	0.424	41	-0.424	6	0.424	44	-0.424	87	0.424	88	-0.424				
95	D + 0.6 Wo @ 330	Yes	Y	1	1	39	1	14	0.6	52	0.6					87	0.52	88	-0.3				
96	0.6 D + 0.6 Wo @ 0	Yes	Y	1	0.6	39	0.6	3	0.6	41	0.6					87	0.6						
97	0.6 D + 0.6 Wo @ 30	Yes	Y	1	0.6	39	0.6	4	0.6	42	0.6					87	0.52	88	0.3				
98	0.6 D + 0.6 Wo @ 45	Yes	Y	1	0.6	39	0.6	3	0.424	41	0.424	6	0.424	44	0.424	87	0.424	88	0.424				
99	0.6 D + 0.6 Wo @ 60	Yes	Y	1	0.6	39	0.6	5	0.6	43	0.6					87	0.3	88	0.52				
100	0.6 D + 0.6 Wo @ 90	Yes	Y	1	0.6	39	0.6	6	0.6	44	0.6					88	0.6						
101	0.6 D + 0.6 Wo @ 120	Yes	Y	1	0.6	39	0.6	7	0.6	45	0.6					87	-0.3	88	0.52				
102	0.6 D + 0.6 Wo @ 135	Yes	Y	1	0.6	39	0.6	3	-0.424	41	0.424	6	-0.424	44	0.424	87	-0.424	88	0.424				
103	0.6 D + 0.6 Wo @ 150	Yes	Y	1	0.6	39	0.6	8	0.6	46	0.6					87	-0.52	88	0.3				
104	0.6 D + 0.6 Wo @ 180	Yes	Y	1	0.6	39	0.6	9	0.6	47	0.6					87	-0.6						
105	0.6 D + 0.6 Wo @ 210	Yes	Y	1	0.6	39	0.6	10	0.6	48	0.6					87	-0.52	88	-0.3				
106	0.6 D + 0.6 Wo @ 225	Yes	Y	1	0.6	39	0.6	3	-0.424	41	-0.424	6	-0.424	44	-0.424	87	-0.424	88	-0.424				
107	0.6 D + 0.6 Wo @ 240	Yes	Y	1	0.6	39	0.6	11	0.6	49	0.6					87	-0.3	88	-0.52				
108	0.6 D + 0.6 Wo @ 270	Yes	Y	1	0.6	39	0.6	12	0.6	50	0.6					88	-0.6						
109	0.6 D + 0.6 Wo @ 300	Yes	Y	1	0.6	39	0.6	13	0.6	51	0.6					87	0.3	88	-0.52				
110	0.6 D + 0.6 Wo @ 315	Yes	Y	1	0.6	39	0.6	3	0.424	41	-0.424	6	0.424	44	-0.424	87	0.424	88	-0.424				
111	0.6 D + 0.6 Wo @ 330	Yes	Y	1	0.6	39	0.6	14	0.6	52	0.6					87	0.52	88	-0.3				
112	0.6 D + 0.7 Di + 0.7 Wi @ 0	Yes	Y	1	0.6	39	0.6	2	0.7	40	0.7	15	0.7	53	0.7					87	0.085		
113	0.6 D + 0.7 Di + 0.7 Wi @ 30	Yes	Y	1	0.6	39	0.6	2	0.7	40	0.7	16	0.7	54	0.7					87	0.074	88	0.042
114	0.6 D + 0.7 Di + 0.7 Wi @ 45	Yes	Y	1	0.6	39	0.6	2	0.7	40	0.7	15	0.495	53	0.495	18	0.495	56	0.495	87	0.06	88	0.06
115	0.6 D + 0.7 Di + 0.7 Wi @ 60	Yes	Y	1	0.6	39	0.6	2	0.7	40	0.7	17	0.7	55	0.7					87	0.042	88	0.074
116	0.6 D + 0.7 Di + 0.7 Wi @ 90	Yes	Y	1	0.6	39	0.6	2	0.7	40	0.7	18	0.7	56	0.7					88	0.085		
117	0.6 D + 0.7 Di + 0.7 Wi @ 120	Yes	Y	1	0.6	39	0.6	2	0.7	40	0.7	19	0.7	57	0.7					87	-0.3	88	0.074
118	0.6 D + 0.7 Di + 0.7 Wi @ 135	Yes	Y	1	0.6	39	0.6	2	0.7	40	0.7	15	-0.495	53	0.495	18	-0.495	56	0.495	87	-0.06	88	0.06
119	0.6 D + 0.7 Di + 0.7 Wi @ 150	Yes	Y	1	0.6	39	0.6	2	0.7	40	0.7	20	0.7	58	0.7					87	-0.074	88	0.042
120	0.6 D + 0.7 Di + 0.7 Wi @ 180	Yes	Y	1	0.6	39	0.6	2	0.7	40	0.7	21	0.7	59	0.7					87	-0.085		
121	0.6 D + 0.7 Di + 0.7 Wi @ 210	Yes	Y	1	0.6	39	0.6	2	0.7	40	0.7	22	0.7	60	0.7					87	-0.074	88	-0.042
122	0.6 D + 0.7 Di + 0.7 Wi @ 225	Yes	Y	1	0.6	39	0.6	2	0.7	40	0.7	15	-0.495	53	-0.495	18	-0.495	56	-0.495	87	-0.06	88	-0.06
123	0.6 D + 0.7 Di + 0.7 Wi @ 240	Yes	Y	1	0.6	39	0.6	2	0.7	40	0.7	23	0.7	61	0.7					87	-0.042	88	-0.52
124	0.6 D + 0.7 Di + 0.7 Wi @ 270	Yes	Y	1	0.6	39	0.6	2	0.7	40	0.7	24	0.7	62	0.7					88	-0.085		
125	0.6 D + 0.7 Di + 0.7 Wi @ 300	Yes	Y	1	0.6	39	0.6	2	0.7	40	0.7	25	0.7	63	0.7					87	0.042	88	-0.074
126	0.6 D + 0.7 Di + 0.7 Wi @ 315	Yes	Y	1	0.6	39	0.6	2	0.7	40	0.7	15	0.495	53	-0.495	18	0.495	56	-0.495	87	0.042	88	-0.042
127	0.6 D + 0.7 Di + 0.7 Wi @ 330	Yes	Y	1	0.6	39	0.6	2	0.7	40	0.7	26	0.7	64	0.7					87	-0.074	88	-0.042

Load Combinations (Continued)

Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor

Envelope Node Reactions

	Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N414	max	1375.065	91	2852.699	84	629.946	96	0.841	84	0.956	101	2.832	84
2		min	-1211.889	99	-1813.346	108	-688.218	88	-0.516	108	-0.994	93	-1.77	108
3	N417	max	656.363	93	1623.469	89	930.589	96	1.1	97	1.024	92	0.713	89
4		min	-729.875	79	-781.066	97	-965.414	88	-2.387	89	-1.337	79	-0.329	97
5	N389	max	873.998	109	2194.085	92	846.67	111	2.325	123	0.968	79	1.19	100
6		min	-896.959	85	-1135.525	100	-937.565	87	-1.072	100	-0.794	88	-2.541	123
7	N409	max	849.46	88	828.929	80	3277.645	79	7.677	79	0.463	84	1.78	79
8		min	-886.949	79	-256.39	104	-4000.687	88	-3.659	104	-0.427	108	-0.833	104
9	N411	max	3908.941	109	3944.696	95	1004.879	109	2.37	93	0.555	98	6.5	101
10		min	-5009.773	85	-2673.127	103	-1302.211	85	-1.528	101	-0.579	90	-10.192	93
11	N412	max	517.514	106	907.769	79	496.199	111	2.15	79	1.281	79	0.274	105
12		min	-856.704	79	-355.692	105	-1091.952	87	-0.877	105	-1.022	90	-0.68	79
13	N413	max	1126.103	92	2543.1	81	667.695	97	2.294	81	0.76	85	2.08	81
14		min	-978.716	100	-1527.685	105	-813.034	89	-1.355	105	-0.711	109	-1.209	105
15	N415	max	1696.876	91	964.291	85	601.326	92	0.817	108	0.418	104	6.202	84
16		min	-1147.912	79	-345.508	109	-415.036	100	-1.421	84	-0.453	80	-3.544	108
17	N416	max	1454.051	93	929.454	117	1370.594	79	0.855	109	1.744	91	1.922	85
18		min	-883.371	101	-315.666	108	-688.261	105	-1.827	85	-2.29	79	-0.888	109
19	N418	max	572.507	105	4361.831	88	3270.418	80	6.29	96	0.803	91	1.408	96
20		min	-825.403	81	-2966.355	96	-2083.041	104	-9.73	88	-0.726	99	-2.206	88
21	N419	max	395.718	105	915.064	123	942.844	79	0.926	96	0.974	80	0.899	97
22		min	-480.268	81	-234.263	98	-777.784	105	-2.202	117	-0.972	88	-2.064	89
23	N420	max	577.837	110	1027.381	123	457.632	79	0.248	100	1.112	79	0.789	100
24		min	-668.765	86	-170.535	100	-435.513	106	-0.946	123	-1.125	88	-3.087	123
25	Totals:	max	11963.687	92	12797.316	127	12035.59	96						
26		min	-11963.687	84	3737.963	104	-12035.591	88						

Envelope Member Section Stresses

	Member	Sec		Axial[ksi]	LC	y Shear[ksi]	LC	z Shear[ksi]	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
1	M204	1	max	0.228	85	0.092	106	0.27	88	0.073	111	0.13	87	0.251	87	0.168	111
2			min	-0.139	109	-0.271	79	-0.16	96	-0.13	87	-0.073	111	-0.144	111	-0.295	87
3		2	max	0.358	100	1.761	83	0.897	93	2.231	79	2.155	123	7.489	107	9.618	83
4			min	-0.549	92	-1.227	107	-1.04	90	-2.155	123	-2.231	79	-8.203	83	-8.781	107
5		3	max	0.267	79	0.141	79	0.316	101	0.207	101	0.249	93	0.483	93	0.476	101
6			min	-0.195	105	-0.127	123	-0.452	93	-0.249	93	-0.207	101	-0.406	101	-0.567	93
7	M205	1	max	0.254	82	0.168	90	0.191	101	0.119	91	0.107	99	0.214	99	0.281	91
8			min	-0.24	106	-0.092	98	-0.241	93	-0.107	99	-0.119	91	-0.239	91	-0.251	99
9		2	max	0.504	109	1.276	92	0.749	109	1.006	100	2.5	92	3.967	100	6.405	92
10			min	-0.771	85	-0.702	100	-0.859	85	-2.5	92	-1.006	100	-5.462	92	-4.651	100
11		3	max	0.167	94	0.117	104	0.234	111	0.075	111	0.131	87	0.252	87	0.171	111
12			min	-0.124	102	-0.203	80	-0.363	87	-0.131	87	-0.075	111	-0.146	111	-0.295	87
13	M206	1	max	0.231	92	0.201	85	0.39	79	0.207	101	0.249	93	0.491	93	0.483	101
14			min	-0.157	100	-0.092	109	-0.302	104	-0.249	93	-0.207	101	-0.412	101	-0.576	93
15		2	max	0.702	105	0.839	123	0.923	82	0.723	99	2.223	123	4.588	97	7.396	89
16			min	-0.963	81	-0.905	89	-0.859	106	-2.223	123	-0.723	99	-6.308	89	-5.38	97
17		3	max	0.199	87	0.048	100	0.345	90	0.119	91	0.107	99	0.208	99	0.274	91
18			min	-0.184	111	-0.103	123	-0.307	98	-0.107	99	-0.119	91	-0.234	91	-0.244	99
19	J4	1	max	0.346	101	0.002	111	0.017	79	0.004	127	0	101	0.171	105	0.293	79
20			min	-0.506	93	-0.004	117	-0.017	92	0	101	-0.004	127	-0.293	79	-0.171	105
21		2	max	0.346	101	0.002	111	0.017	79	0.007	95	0.005	103	0.165	101	0.244	93
22			min	-0.506	93	-0.002	87	-0.014	92	-0.005	103	-0.007	95	-0.244	93	-0.165	101
23		3	max	0.346	101	0.003	123	0.017	79	0.011	95	0.009	103	0.263	101	0.357	93
24			min	-0.506	93	-0.002	103	-0.013	91	-0.009	103	-0.011	95	-0.357	93	-0.263	101
25	J6	1	max	0.178	111	0.004	125	0.013	79	0.001	102	0.007	79	0.124	109	0.244	85

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[ksi]	LC	z Shear[ksi]	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
26			min	-0.352	87	-0.002	103	-0.01	106	-0.007	79	-0.001	102	-0.244	85	-0.124	109
27		2	max	0.176	111	0.003	95	0.013	79	0.003	111	0.005	87	0.102	111	0.19	88
28			min	-0.35	87	-0.002	103	-0.007	107	-0.005	87	-0.003	111	-0.19	88	-0.102	111
29		3	max	0.174	111	0.002	111	0.013	79	0.008	111	0.01	87	0.131	97	0.186	89
30			min	-0.348	87	-0.004	117	-0.007	108	-0.01	87	-0.008	111	-0.186	89	-0.131	97
31	J5	1	max	0.207	91	0.003	123	0.015	79	0.003	88	0.002	96	0.243	89	0.274	79
32			min	-0.204	99	-0.001	102	-0.013	88	-0.002	96	-0.003	88	-0.274	79	-0.243	89
33		2	max	0.207	91	0.001	94	0.015	79	0.004	124	0.001	102	0.123	91	0.117	99
34			min	-0.204	99	-0.001	86	-0.013	88	-0.001	102	-0.004	124	-0.117	99	-0.123	91
35		3	max	0.207	91	0.001	110	0.016	97	0.005	79	0.004	102	0.157	95	0.154	103
36			min	-0.204	99	-0.004	117	-0.016	89	-0.004	102	-0.005	79	-0.154	103	-0.157	95
37	M200	1	max	0.03	99	0.145	85	0.013	109	0.019	91	0.005	99	0.04	91	0.015	99
38			min	-0.047	91	-0.103	109	-0.027	117	-0.005	99	-0.019	91	-0.013	99	-0.047	91
39		2	max	0.194	80	0.409	83	0.255	86	1.185	107	2.783	83	3.926	91	3.157	99
40			min	-0.186	104	-0.364	107	-0.239	91	-2.783	83	-1.185	107	-2.692	99	-4.604	91
41		3	max	0.042	98	0.13	104	0.09	81	0.018	92	0.005	100	0.037	92	0.013	100
42			min	-0.055	90	-0.17	80	-0.041	105	-0.005	100	-0.018	92	-0.011	100	-0.044	92
43	M202	1	max	0.035	108	0.049	81	0.01	98	0.021	82	0.008	106	0.041	85	0.017	106
44			min	-0.045	84	-0.014	105	-0.023	90	-0.008	106	-0.021	82	-0.014	106	-0.048	85
45		2	max	0.172	90	0.345	96	0.635	87	-0.022	100	2.089	124	3.56	85	2.923	109
46			min	-0.159	98	-0.398	88	-0.503	111	-2.089	124	0.022	100	-2.493	109	-4.175	85
47		3	max	0.055	109	0.04	99	0.092	92	0.02	91	0.006	99	0.038	91	0.012	99
48			min	-0.065	85	-0.086	91	-0.044	100	-0.006	99	-0.02	91	-0.01	99	-0.045	91
49	M201	1	max	0.065	104	0.108	91	0.042	96	0.018	92	0.005	100	0.034	92	0.01	100
50			min	-0.077	80	-0.064	99	-0.056	88	-0.005	100	-0.018	92	-0.009	100	-0.04	92
51		2	max	0.191	91	0.425	93	0.491	103	0.082	97	2.202	121	3.61	80	2.986	104
52			min	-0.173	99	-0.36	101	-0.622	95	-2.202	121	-0.082	97	-2.547	104	-4.233	80
53		3	max	0.02	105	0.053	109	0.048	119	0.021	82	0.008	106	0.041	82	0.017	106
54			min	-0.029	81	-0.086	85	0.001	111	-0.008	106	-0.021	82	-0.014	106	-0.048	82
55	J1	1	max	0.074	80	0.01	90	0	98	0.052	99	0.093	91	0.007	92	0.005	100
56			min	-0.048	104	-0.008	98	-0.002	123	-0.093	91	-0.052	99	-0.005	100	-0.007	92
57		2	max	0.074	80	0.01	88	0	98	0.054	104	0.084	80	0.004	109	0.007	117
58			min	-0.048	104	-0.008	96	-0.001	90	-0.084	80	-0.054	104	-0.007	117	-0.004	109
59		3	max	0.075	80	0.01	88	0.002	114	0.111	104	0.131	80	0.005	111	0.008	87
60			min	-0.049	104	-0.008	96	-0.001	106	-0.131	80	-0.111	104	-0.008	87	-0.005	111
61	J3	1	max	0.069	85	0.008	85	0	85	0.058	91	0.031	99	0.004	105	0.007	81
62			min	-0.041	109	-0.007	109	-0.002	123	-0.031	99	-0.058	91	-0.007	81	-0.004	105
63		2	max	0.069	85	0.008	85	0.001	85	0.079	85	0.046	109	0.004	104	0.006	112
64			min	-0.041	109	-0.007	109	0	109	-0.046	109	-0.079	85	-0.006	112	-0.004	104
65		3	max	0.07	85	0.008	85	0.002	117	0.129	85	0.09	109	0.009	87	0.005	111
66			min	-0.041	109	-0.007	109	0	109	-0.09	109	-0.129	85	-0.005	111	-0.009	87
67	J2	1	max	0.056	82	0.006	92	0.001	95	0.072	84	0.058	108	0.007	101	0.01	93
68			min	-0.035	106	-0.005	100	-0.002	117	-0.058	108	-0.072	84	-0.01	93	-0.007	101
69		2	max	0.055	82	0.005	92	0.002	95	0.055	85	0.031	109	0.003	99	0.007	123
70			min	-0.035	106	-0.003	100	-0.001	103	-0.031	109	-0.055	85	-0.007	123	-0.003	99
71		3	max	0.055	82	0.005	86	0.003	112	0.061	81	0.029	105	0.011	80	0.007	104
72			min	-0.035	106	-0.003	110	-0.001	103	-0.029	105	-0.061	81	-0.007	104	-0.011	80
73	E3	1	max	0.041	127	0.04	102	0.022	109	0	127	0	127	0	127	0	127
74			min	-0.032	79	-0.06	94	-0.063	79	0	76	0	76	0	76	0	76
75		2	max	0.032	123	0.017	98	0.017	109	0.291	92	0.263	100	0.344	85	0.282	109
76			min	-0.006	100	-0.018	90	-0.019	85	-0.263	100	-0.291	92	-0.282	109	-0.344	85
77		3	max	0.023	92	0.011	110	0.004	108	0	127	0	127	0	127	0	127
78			min	-0.007	100	-0.012	86	-0.006	84	0	76	0	76	0	76	0	76
79	E5	1	max	0.071	91	0.053	108	0.059	106	0	127	0	127	0	127	0	127
80			min	-0.036	99	-0.073	84	-0.076	82	0	76	0	76	0	76	0	76

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[ksi]	LC	z Shear[ksi]	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
81		2	max	0.029	117	0.016	109	0.017	106	0.301	83	0.29	107	0.325	82	0.289	106
82			min	-0.001	111	-0.017	85	-0.018	82	-0.29	107	-0.301	83	-0.289	106	-0.325	82
83		3	max	0.018	117	0.007	105	0.011	102	0	127	0	127	0	127	0	127
84			min	-0.002	111	-0.007	81	-0.012	94	0	76	0	76	0	76	0	76
85	E1	1	max	0.062	123	0.041	104	0.02	101	0	127	0	127	0	127	0	127
86			min	-0.019	111	-0.066	80	-0.039	93	0	76	0	76	0	76	0	76
87		2	max	0.03	126	0.019	104	0.017	99	0.365	81	0.335	105	0.358	89	0.304	97
88			min	0.002	102	-0.02	80	-0.019	91	-0.335	105	-0.365	81	-0.304	97	-0.358	89
89		3	max	0.019	126	0.006	105	0.01	110	0	127	0	127	0	127	0	127
90			min	0.001	102	-0.007	81	-0.012	86	0	76	0	76	0	76	0	76
91	F3	1	max	0.343	99	0.707	84	0.047	104	0	127	0	127	0	127	0	127
92			min	-0.442	92	-0.68	108	-0.056	96	0	76	0	76	0	76	0	76
93		2	max	0.135	96	0.298	92	0.002	98	0.255	118	-0.009	104	2.182	104	2.465	96
94			min	-0.234	88	-0.299	84	-0.001	111	0.009	104	-0.255	118	-2.465	96	-2.182	104
95		3	max	0.374	109	0.681	100	0.057	96	0	127	0	127	0	127	0	127
96			min	-0.478	85	-0.704	92	-0.046	104	0	76	0	76	0	76	0	76
97	F1	1	max	0.41	104	0.734	89	0.047	109	0	127	0	127	0	127	0	127
98			min	-0.517	80	-0.703	97	-0.056	101	0	76	0	76	0	76	0	76
99		2	max	0.117	103	0.308	97	0.001	103	0.255	117	-0.01	109	2.197	109	2.438	101
100			min	-0.226	95	-0.311	89	-0.001	106	0.01	109	-0.255	117	-2.438	101	-2.197	109
101		3	max	0.304	99	0.709	105	0.055	101	0	127	0	127	0	127	0	127
102			min	-0.414	91	-0.728	81	-0.048	109	0	76	0	76	0	76	0	76
103	G3	1	max	0.375	109	0.052	104	0.154	100	0	127	0	127	0	127	0	127
104			min	-0.399	85	-0.052	96	-0.175	92	0	76	0	76	0	76	0	76
105		2	max	0.204	96	0.002	91	2.186	92	0.587	88	0.576	96	0.479	104	0.608	80
106			min	-0.222	88	-0.002	85	-2.194	84	-0.576	96	-0.587	88	-0.518	80	-0.562	104
107		3	max	0.396	98	0.052	96	0.172	84	0	127	0	127	0	127	0	127
108			min	-0.417	90	-0.052	104	-0.151	108	0	76	0	76	0	76	0	76
109	G2	1	max	0.194	107	0.031	83	-0.013	96	0	127	0	127	0	127	0	127
110			min	-0.225	83	-0.031	91	-0.031	123	0	76	0	76	0	76	0	76
111		2	max	0.194	107	0	92	0	92	0.295	83	0.101	107	0.201	99	0.705	91
112			min	-0.225	83	0	89	0	89	-0.101	107	-0.295	83	-0.601	91	-0.235	99
113		3	max	0.194	107	0.031	91	0.031	123	0	127	0	127	0	127	0	127
114			min	-0.225	83	-0.031	83	0.013	96	0	76	0	76	0	76	0	76
115	G1	1	max	0.405	97	0.052	109	0.158	105	0	127	0	127	0	127	0	127
116			min	-0.436	89	-0.052	101	-0.178	81	0	76	0	76	0	76	0	76
117		2	max	0.216	101	0.002	80	2.261	97	0.579	93	0.569	101	0.494	109	0.625	85
118			min	-0.24	93	-0.002	91	-2.281	89	-0.569	101	-0.579	93	-0.533	85	-0.579	109
119		3	max	0.37	104	0.052	101	0.182	89	0	127	0	127	0	127	0	127
120			min	-0.397	80	-0.052	109	-0.159	97	0	76	0	76	0	76	0	76
121	H6	1	max	2.92	84	0.058	96	0.054	92	0	127	0	127	0	127	0	127
122			min	-2.873	108	-0.058	88	-0.043	100	0	76	0	76	0	76	0	76
123		2	max	2.905	84	0	127	0	127	0.464	97	0.536	89	1.102	95	1.054	103
124			min	-2.87	108	0	76	0	76	-0.536	89	-0.464	97	-0.954	103	-1.218	95
125		3	max	2.889	84	0.058	104	0.043	100	0	127	0	127	0	127	0	127
126			min	-2.867	108	-0.058	80	-0.054	92	0	76	0	76	0	76	0	76
127	H5	1	max	2.876	92	0.058	80	0.054	84	0	127	0	127	0	127	0	127
128			min	-2.87	84	-0.058	88	-0.043	108	0	76	0	76	0	76	0	76
129		2	max	2.892	92	0	127	0	127	0.464	111	0.536	87	1.102	81	1.054	105
130			min	-2.872	100	0	76	0	76	-0.536	87	-0.464	111	-0.954	105	-1.218	81
131		3	max	2.907	92	0.058	104	0.043	108	0	127	0	127	0	127	0	127
132			min	-2.875	100	-0.058	96	-0.054	84	0	76	0	76	0	76	0	76
133	H2	1	max	3.031	89	0.058	85	0.055	86	0	127	0	127	0	127	0	127
134			min	-2.971	97	-0.058	93	-0.044	106	0	76	0	76	0	76	0	76
135		2	max	3.016	89	0	127	0	127	0.464	103	0.536	95	1.102	84	1.054	108

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[ksi]	LC	z Shear[ksi]	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
136			min	-2.968	97	0	76	0	76	-0.536	95	-0.464	103	-0.954	108	-1.218	84
137		3	max	3	89	0.058	109	0.044	110	0	127	0	127	0	127	0	127
138			min	-2.965	97	-0.058	101	-0.055	82	0	76	0	76	0	76	0	76
139	H1	1	max	2.976	81	0.058	85	0.055	94	0	127	0	127	0	127	0	127
140			min	-2.989	89	-0.058	109	-0.044	102	0	76	0	76	0	76	0	76
141		2	max	2.992	81	0	127	0	127	0.464	100	0.536	92	1.102	87	1.054	111
142			min	-2.988	89	0	76	0	76	-0.536	92	-0.464	100	-0.954	111	-1.218	87
143		3	max	3.007	81	0.058	93	0.044	98	0	127	0	127	0	127	0	127
144			min	-2.99	105	-0.058	101	-0.055	90	0	76	0	76	0	76	0	76
145	E2	1	max	0.296	122	0.054	84	0.068	81	0	127	0	127	0	127	0	127
146			min	0.058	100	-0.05	108	-0.056	105	0	76	0	76	0	76	0	76
147		2	max	0.212	91	0.008	104	0.015	109	0.388	81	0.335	105	0.374	84	0.357	108
148			min	-0.125	99	-0.01	80	-0.016	85	-0.335	105	-0.388	81	-0.357	108	-0.374	84
149		3	max	0.21	91	0.017	110	0.013	108	0	127	0	127	0	127	0	127
150			min	-0.126	99	-0.019	86	-0.013	84	0	76	0	76	0	76	0	76
151	E4	1	max	0.316	119	0.066	82	0.051	92	0	127	0	127	0	127	0	127
152			min	-0.03	111	-0.065	106	-0.044	100	0	76	0	76	0	76	0	76
153		2	max	0.276	85	0.016	98	0.01	106	0.357	92	0.333	100	0.327	95	0.295	103
154			min	-0.189	109	-0.017	90	-0.011	82	-0.333	100	-0.357	92	-0.295	103	-0.327	95
155		3	max	0.274	85	0.012	100	0.014	103	0	127	0	127	0	127	0	127
156			min	-0.19	109	-0.012	92	-0.015	95	0	76	0	76	0	76	0	76
157	E6	1	max	0.326	127	0.061	89	0.057	83	0	127	0	127	0	127	0	127
158			min	-0.031	103	-0.055	97	-0.053	107	0	76	0	76	0	76	0	76
159		2	max	0.28	80	0.011	107	0.014	99	0.32	94	0.294	102	0.429	89	0.385	97
160			min	-0.19	104	-0.012	83	-0.016	91	-0.294	102	-0.32	94	-0.385	97	-0.429	89
161		3	max	0.278	80	0.018	102	0.014	97	0	127	0	127	0	127	0	127
162			min	-0.191	104	-0.019	94	-0.016	89	0	76	0	76	0	76	0	76
163	MP3A	1	max	0	127	0.002	87	0.002	89	0	127	0	127	0	127	0	127
164			min	0	76	-0.002	95	-0.002	81	0	76	0	76	0	76	0	76
165		2	max	0.389	88	0.247	111	0.212	97	6.067	87	6.058	95	6.862	89	5.151	97
166			min	-0.224	96	-0.275	87	-0.242	89	-6.058	95	-6.067	87	-5.151	97	-6.862	89
167		3	max	0	127	0	95	0	81	0	127	0	127	0	127	0	127
168			min	0	76	0	87	0	89	0	76	0	76	0	76	0	76
169	MP2A	1	max	0	127	0.002	87	0.002	89	0	127	0	127	0	127	0	127
170			min	0	76	-0.002	95	-0.001	81	0	76	0	76	0	76	0	76
171		2	max	0.417	88	0.243	111	0.21	97	6.156	87	5.873	111	6.322	89	4.611	97
172			min	-0.314	96	-0.27	87	-0.235	89	-5.873	111	-6.156	87	-4.611	97	-6.322	89
173		3	max	0	127	0	80	0	81	0	127	0	127	0	127	0	127
174			min	0	76	0	88	0	89	0	76	0	76	0	76	0	76
175	MP1A	1	max	0	127	0	89	0	121	0	127	0	127	0	127	0	127
176			min	0	76	0	113	0	97	0	76	0	76	0	76	0	76
177		2	max	0.123	112	0.001	103	-0.001	102	0.261	109	0.342	85	1.341	116	0.088	108
178			min	-0.072	104	-0.007	126	-0.033	126	-0.342	85	-0.261	109	-0.088	108	-1.341	116
179		3	max	0	127	0	93	0	115	0	127	0	127	0	127	0	127
180			min	0	76	0	117	0	91	0	76	0	76	0	76	0	76
181	MP3C	1	max	0	127	0.002	88	0.002	91	0	127	0	127	0	127	0	127
182			min	0	76	-0.001	80	-0.002	83	0	76	0	76	0	76	0	76
183		2	max	0.463	83	0.159	96	0.316	83	5.425	88	3.945	96	5.97	107	6.814	83
184			min	-0.294	107	-0.171	88	-0.277	107	-3.945	96	-5.425	88	-6.814	83	-5.97	107
185		3	max	0	127	0	80	0	81	0	127	0	127	0	127	0	127
186			min	0	76	0	88	0	89	0	76	0	76	0	76	0	76
187	MP2C	1	max	0	127	0.001	88	0.002	91	0	127	0	127	0	127	0	127
188			min	0	76	-0.001	80	-0.002	83	0	76	0	76	0	76	0	76
189		2	max	0.416	83	0.157	96	0.31	83	5.219	88	3.866	96	5.841	107	6.809	83
190			min	-0.291	107	-0.166	88	-0.274	107	-3.866	96	-5.219	88	-6.809	83	-5.841	107

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[ksi]	LC	z Shear[ksi]	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
191		3	max	0	127	0	80	0	84	0	127	0	127	0	127	0	127
192			min	0	76	0	88	0	92	0	76	0	76	0	76	0	76
193	MP1C	1	max	0	127	0	117	0	92	0	127	0	127	0	127	0	127
194			min	0	76	0	112	0	116	0	76	0	76	0	76	0	76
195		2	max	0.064	108	0.002	95	0.002	115	0.268	111	0.268	103	0.204	102	0.281	94
196			min	-0.078	84	-0.002	87	-0.002	107	-0.268	103	-0.268	111	-0.281	94	-0.204	102
197		3	max	0	127	0	127	0	82	0	127	0	127	0	127	0	127
198			min	0	76	0	119	0	122	0	76	0	76	0	76	0	76
199	MP3B	1	max	0	127	0.002	87	0.002	90	0	127	0	127	0	127	0	127
200			min	0	76	-0.002	95	-0.002	82	0	76	0	76	0	76	0	76
201		2	max	0.459	93	0.282	95	0.22	98	5.665	103	7.109	95	5.389	106	6.272	82
202			min	-0.285	101	-0.242	103	-0.23	90	-7.109	95	-5.665	103	-6.272	82	-5.389	106
203		3	max	0	127	0	93	0	84	0	127	0	127	0	127	0	127
204			min	0	76	0	85	0	92	0	76	0	76	0	76	0	76
205	MP2B	1	max	0	127	0.002	87	0.002	90	0	127	0	127	0	127	0	127
206			min	0	76	-0.002	95	-0.002	82	0	76	0	76	0	76	0	76
207		2	max	0.339	93	0.275	95	0.216	98	5.382	103	7.054	95	5.667	106	6.272	82
208			min	-0.248	101	-0.24	103	-0.227	90	-7.054	95	-5.382	103	-6.272	82	-5.667	106
209		3	max	0	127	0	95	0	84	0	127	0	127	0	127	0	127
210			min	0	76	0	87	0	92	0	76	0	76	0	76	0	76
211	MP1B	1	max	0	127	0	103	0	109	0	127	0	127	0	127	0	127
212			min	0	76	0	125	0	117	0	76	0	76	0	76	0	76
213		2	max	0.125	117	0.032	119	0.011	118	-0.074	97	1.025	121	0.302	98	0.907	122
214			min	-0.075	111	0.003	111	-0.004	110	-1.025	121	0.074	97	-0.907	122	-0.302	98
215		3	max	0	127	0	95	0	82	0	127	0	127	0	127	0	127
216			min	0	76	0	119	0	122	0	76	0	76	0	76	0	76
217	M43	1	max	0.033	100	0.077	99	0.168	84	2.408	85	1.605	109	2.947	108	3.924	84
218			min	-0.078	79	-0.11	91	-0.136	108	-1.605	109	-2.408	85	-3.347	84	-3.455	108
219		2	max	0.056	100	0.089	86	0.442	84	0.881	108	2.852	81	4.276	81	2.278	108
220			min	-0.097	92	-0.074	102	-0.45	81	-2.852	81	-0.881	108	-1.943	108	-5.014	81
221		3	max	0.034	98	0.1	91	0.222	89	2.677	80	1.978	104	3.717	89	4.201	97
222			min	-0.072	79	-0.064	99	-0.212	97	-1.978	104	-2.677	80	-3.583	97	-4.359	89
223	M44	1	max	0.034	108	0.088	109	0.149	111	2.664	82	2.075	106	3.089	87	3.331	111
224			min	-0.045	84	-0.13	85	-0.174	87	-2.075	106	-2.664	82	-2.841	111	-3.622	87
225		2	max	0.074	108	0.071	94	0.36	95	0.685	104	2.668	112	3.811	92	1.21	103
226			min	-0.091	84	-0.053	95	-0.419	92	-2.668	112	-0.685	104	-1.032	103	-4.468	92
227		3	max	0.059	107	0.102	85	0.165	84	1.879	90	1.373	98	3.029	84	3.271	108
228			min	-0.072	83	-0.071	109	-0.142	108	-1.373	98	-1.879	90	-2.79	108	-3.551	84
229	LV	1	max	0.062	105	0.087	104	0.138	105	2.16	91	1.503	99	3.373	81	3.689	105
230			min	-0.074	81	-0.131	80	-0.162	81	-1.503	99	-2.16	91	-3.146	105	-3.955	81
231		2	max	0.083	105	0.059	110	0.44	89	-0.243	96	2.805	121	3.982	89	1.067	111
232			min	-0.105	81	-0.083	94	-0.36	86	-2.805	121	0.243	96	-0.91	111	-4.669	89
233		3	max	0.031	105	0.104	82	0.197	95	2.513	85	1.939	109	3.078	95	3.276	103
234			min	-0.045	81	-0.07	106	-0.176	103	-1.939	109	-2.513	85	-2.794	103	-3.609	95
235	M47	1	max	0	96	0	127	0	127	0	127	0	127	0	127	0	127
236			min	0	88	0	76	0	76	0	76	0	76	0	76	0	76
237		2	max	0	96	0	127	0	127	0	127	0	127	0	127	0	127
238			min	0	88	0	76	0	76	0	76	0	76	0	76	0	76
239		3	max	0	96	0	127	0	127	0	127	0	127	0	127	0	127
240			min	0	88	0	76	0	76	0	76	0	76	0	76	0	76
241	M48	1	max	0	96	0	127	0	127	0	127	0	127	0	127	0	127
242			min	0	88	0	76	0	76	0	76	0	76	0	76	0	76
243		2	max	0	96	0	127	0	127	0	127	0	127	0	127	0	127
244			min	0	88	0	76	0	76	0	76	0	76	0	76	0	76
245		3	max	0	96	0	127	0	127	0	127	0	127	0	127	0	127

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[ksi]	LC	z Shear[ksi]	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
246			min	0	88	0	76	0	76	0	76	0	76	0	76	0	76
247	M49	1	max	0	96	0	127	0	127	0	127	0	127	0	127	0	127
248			min	0	88	0	76	0	76	0	76	0	76	0	76	0	76
249		2	max	0	96	0	127	0	127	0	127	0	127	0	127	0	127
250			min	0	88	0	76	0	76	0	76	0	76	0	76	0	76
251		3	max	0	96	0	127	0	127	0	127	0	127	0	127	0	127
252			min	0	88	0	76	0	76	0	76	0	76	0	76	0	76
253	LM1	1	max	0	80	0	127	0	127	0	127	0	127	0	127	0	127
254			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
255		2	max	0	80	0	127	0	127	0	127	0	127	0	127	0	127
256			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
257		3	max	0	80	0	127	0	127	0	127	0	127	0	127	0	127
258			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
259	M52	1	max	0	88	0	127	0	127	0	127	0	127	0	127	0	127
260			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
261		2	max	0	88	0	127	0	127	0	127	0	127	0	127	0	127
262			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
263		3	max	0	88	0	127	0	127	0	127	0	127	0	127	0	127
264			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
265	LM2	1	max	0	88	0	127	0	127	0	127	0	127	0	127	0	127
266			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
267		2	max	0	88	0	127	0	127	0	127	0	127	0	127	0	127
268			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
269		3	max	0	88	0	127	0	127	0	127	0	127	0	127	0	127
270			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
271	M55	1	max	0	107	0	127	0	127	0	127	0	127	0	127	0	127
272			min	0	83	0	76	0	76	0	76	0	76	0	76	0	76
273		2	max	0	107	0	127	0	127	0	127	0	127	0	127	0	127
274			min	0	83	0	76	0	76	0	76	0	76	0	76	0	76
275		3	max	0	107	0	127	0	127	0	127	0	127	0	127	0	127
276			min	0	83	0	76	0	76	0	76	0	76	0	76	0	76
277	M56	1	max	0	107	0	127	0	127	0	127	0	127	0	127	0	127
278			min	0	83	0	76	0	76	0	76	0	76	0	76	0	76
279		2	max	0	107	0	127	0	127	0	127	0	127	0	127	0	127
280			min	0	83	0	76	0	76	0	76	0	76	0	76	0	76
281		3	max	0	107	0	127	0	127	0	127	0	127	0	127	0	127
282			min	0	83	0	76	0	76	0	76	0	76	0	76	0	76
283	M57	1	max	0	107	0	127	0	127	0	127	0	127	0	127	0	127
284			min	0	83	0	76	0	76	0	76	0	76	0	76	0	76
285		2	max	0	107	0	127	0	127	0	127	0	127	0	127	0	127
286			min	0	83	0	76	0	76	0	76	0	76	0	76	0	76
287		3	max	0	107	0	127	0	127	0	127	0	127	0	127	0	127
288			min	0	83	0	76	0	76	0	76	0	76	0	76	0	76
289	M59	1	max	0	127	0	127	0	127	0	127	0	127	0	127	0	127
290			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
291		2	max	0	127	0	127	0	127	0	127	0	127	0	127	0	127
292			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
293		3	max	0	127	0	127	0	127	0	127	0	127	0	127	0	127
294			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
295	M60	1	max	0	83	0	127	0	127	0	127	0	127	0	127	0	127
296			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
297		2	max	0	83	0	127	0	127	0	127	0	127	0	127	0	127
298			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
299		3	max	0	83	0	127	0	127	0	127	0	127	0	127	0	127
300			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[ksi]	LC	z Shear[ksi]	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
301	M61	1	max	0	83	0	127	0	127	0	127	0	127	0	127	0	127
302			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
303		2	max	0	83	0	127	0	127	0	127	0	127	0	127	0	127
304			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
305		3	max	0	83	0	127	0	127	0	127	0	127	0	127	0	127
306			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
307	M63	1	max	0	101	0	127	0	127	0	127	0	127	0	127	0	127
308			min	0	93	0	76	0	76	0	76	0	76	0	76	0	76
309		2	max	0	101	0	127	0	127	0	127	0	127	0	127	0	127
310			min	0	93	0	76	0	76	0	76	0	76	0	76	0	76
311		3	max	0	101	0	127	0	127	0	127	0	127	0	127	0	127
312			min	0	93	0	76	0	76	0	76	0	76	0	76	0	76
313	M64	1	max	0	101	0	127	0	127	0	127	0	127	0	127	0	127
314			min	0	93	0	76	0	76	0	76	0	76	0	76	0	76
315		2	max	0	101	0	127	0	127	0	127	0	127	0	127	0	127
316			min	0	93	0	76	0	76	0	76	0	76	0	76	0	76
317		3	max	0	101	0	127	0	127	0	127	0	127	0	127	0	127
318			min	0	93	0	76	0	76	0	76	0	76	0	76	0	76
319	M65	1	max	0	101	0	127	0	127	0	127	0	127	0	127	0	127
320			min	0	93	0	76	0	76	0	76	0	76	0	76	0	76
321		2	max	0	101	0	127	0	127	0	127	0	127	0	127	0	127
322			min	0	93	0	76	0	76	0	76	0	76	0	76	0	76
323		3	max	0	101	0	127	0	127	0	127	0	127	0	127	0	127
324			min	0	93	0	76	0	76	0	76	0	76	0	76	0	76
325	M67	1	max	0	85	0	127	0	127	0	127	0	127	0	127	0	127
326			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
327		2	max	0	85	0	127	0	127	0	127	0	127	0	127	0	127
328			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
329		3	max	0	85	0	127	0	127	0	127	0	127	0	127	0	127
330			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
331	M68	1	max	0	93	0	127	0	127	0	127	0	127	0	127	0	127
332			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
333		2	max	0	93	0	127	0	127	0	127	0	127	0	127	0	127
334			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
335		3	max	0	93	0	127	0	127	0	127	0	127	0	127	0	127
336			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
337	M69	1	max	0	93	0	127	0	127	0	127	0	127	0	127	0	127
338			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
339		2	max	0	93	0	127	0	127	0	127	0	127	0	127	0	127
340			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
341		3	max	0	93	0	127	0	127	0	127	0	127	0	127	0	127
342			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
343	MP4A	1	max	0	127	0	87	0	91	0	127	0	127	0	127	0	127
344			min	0	76	0	95	0	83	0	76	0	76	0	76	0	76
345		2	max	0.147	111	0.074	111	0.082	81	1.55	87	1.316	111	0.721	105	1.029	81
346			min	-0.169	87	-0.084	87	-0.058	105	-1.316	111	-1.55	87	-1.029	81	-0.721	105
347		3	max	0	127	0	95	0	83	0	127	0	127	0	127	0	127
348			min	0	76	0	87	0	91	0	76	0	76	0	76	0	76
349	M68A	1	max	0	80	0	127	0	127	0	127	0	127	0	127	0	127
350			min	0	104	0	76	0	76	0	76	0	76	0	76	0	76
351		2	max	0	80	0	127	0	127	0	127	0	127	0	127	0	127
352			min	0	104	0	76	0	76	0	76	0	76	0	76	0	76
353		3	max	0	80	0	127	0	127	0	127	0	127	0	127	0	127
354			min	0	104	0	76	0	76	0	76	0	76	0	76	0	76
355	M69A	1	max	0	127	0	127	0	127	0	127	0	127	0	127	0	127

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[ksi]	LC	z Shear[ksi]	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
356			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
357		2	max	0	127	0	127	0	127	0	127	0	127	0	127	0	127
358			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
359		3	max	0	127	0	127	0	127	0	127	0	127	0	127	0	127
360			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
361	MP4C	1	max	0	127	0	88	0	89	0	127	0	127	0	127	0	127
362			min	0	76	0	80	0	81	0	76	0	76	0	76	0	76
363		2	max	0.155	105	0.067	80	0.086	99	0.459	103	0.84	95	1.483	107	1.552	83
364			min	-0.181	81	-0.041	104	-0.089	91	-0.84	95	-0.459	103	-1.552	83	-1.483	107
365		3	max	0	127	0	80	0	81	0	127	0	127	0	127	0	127
366			min	0	76	0	88	0	89	0	76	0	76	0	76	0	76
367	M65A	1	max	0	91	0	127	0	127	0	127	0	127	0	127	0	127
368			min	0	99	0	76	0	76	0	76	0	76	0	76	0	76
369		2	max	0	91	0	127	0	127	0	127	0	127	0	127	0	127
370			min	0	99	0	76	0	76	0	76	0	76	0	76	0	76
371		3	max	0	91	0	127	0	127	0	127	0	127	0	127	0	127
372			min	0	99	0	76	0	76	0	76	0	76	0	76	0	76
373	M66	1	max	0	127	0	127	0	127	0	127	0	127	0	127	0	127
374			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
375		2	max	0	127	0	127	0	127	0	127	0	127	0	127	0	127
376			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
377		3	max	0	127	0	127	0	127	0	127	0	127	0	127	0	127
378			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
379	MP4B	1	max	0	127	0	87	0	92	0	127	0	127	0	127	0	127
380			min	0	76	0	95	0	84	0	76	0	76	0	76	0	76
381		2	max	0.123	100	0.072	111	0.06	98	1.347	85	1.191	109	1.219	92	0.865	100
382			min	-0.145	92	-0.087	87	-0.081	90	-1.191	109	-1.347	85	-0.865	100	-1.219	92
383		3	max	0	127	0	80	0	84	0	127	0	127	0	127	0	127
384			min	0	76	0	88	0	92	0	76	0	76	0	76	0	76
385	M68B	1	max	0	85	0	127	0	127	0	127	0	127	0	127	0	127
386			min	0	109	0	76	0	76	0	76	0	76	0	76	0	76
387		2	max	0	85	0	127	0	127	0	127	0	127	0	127	0	127
388			min	0	109	0	76	0	76	0	76	0	76	0	76	0	76
389		3	max	0	85	0	127	0	127	0	127	0	127	0	127	0	127
390			min	0	109	0	76	0	76	0	76	0	76	0	76	0	76
391	M69B	1	max	0	127	0	127	0	127	0	127	0	127	0	127	0	127
392			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
393		2	max	0	127	0	127	0	127	0	127	0	127	0	127	0	127
394			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
395		3	max	0	127	0	127	0	127	0	127	0	127	0	127	0	127
396			min	0	76	0	76	0	76	0	76	0	76	0	76	0	76
397	M70	1	max	0.561	106	1.535	111	0.043	99	0	127	0	127	0	127	0	127
398			min	-0.871	82	-1.586	87	-0.045	107	0	76	0	76	0	76	0	76
399		2	max	0.467	106	1.029	103	0.002	101	0.011	99	0.247	123	1.274	99	0.458	107
400			min	-0.777	82	-1.046	95	-0.002	80	-0.247	123	-0.011	99	-1.353	107	-0.432	99
401		3	max	0.47	108	1.613	95	0.045	107	0	127	0	127	0	127	0	127
402			min	-0.774	84	-1.516	103	-0.043	99	0	76	0	76	0	76	0	76
403	M71	1	max	4.36	95	0.054	89	0.05	108	0	127	0	127	0	127	0	127
404			min	-4.242	103	-0.05	97	-0.054	84	0	76	0	76	0	76	0	76
405		2	max	4.372	95	0	95	0	95	0.489	87	0.429	111	1.005	91	1.11	99
406			min	-4.243	103	0	103	0	103	-0.429	111	-0.489	87	-1.005	99	-1.11	91
407		3	max	4.385	95	0.05	97	0.054	84	0	127	0	127	0	95	0	103
408			min	-4.243	103	-0.054	89	-0.05	108	0	76	0	76	0	103	0	95
409	M72	1	max	4.281	87	0.05	100	0.05	105	0	127	0	127	0	127	0	127
410			min	-4.302	95	-0.054	92	-0.054	81	0	76	0	76	0	76	0	76

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[ksi]	LC	z Shear[ksi]	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
411		2	max	4.294	87	0	87	0	95	0.488	83	0.488	107	0.882	103	1.111	95
412			min	-4.299	95	0	95	0	87	-0.488	107	-0.488	83	-1.006	95	-0.974	103
413		3	max	4.307	87	0.054	92	0.054	81	0	87	0	95	0	127	0	127
414			min	-4.296	95	-0.05	100	-0.05	105	0	95	0	87	0	76	0	76
415	M73	1	max	0.368	87	0.045	83	0.537	95	0	127	0	127	0	127	0	127
416			min	-0.365	111	-0.046	91	-0.513	103	0	76	0	76	0	76	0	76
417		2	max	0.051	91	0.005	93	3.103	103	0.597	99	0.84	91	0.749	123	0.047	99
418			min	-0.036	99	-0.005	80	-3.154	95	-0.84	91	-0.597	99	-0.04	99	-0.878	123
419		3	max	0.367	95	0.045	91	0.521	111	0	127	0	127	0	127	0	127
420			min	-0.352	103	-0.045	83	-0.53	87	0	76	0	76	0	76	0	76
421	M94	1	max	1.099	85	3.276	95	0.083	87	9.379	101	14.698	93	2.217	98	2.313	90
422			min	-0.857	109	-2.227	103	-0.067	111	-14.698	93	-9.379	101	-2.313	90	-2.217	98
423		2	max	0.625	85	1.003	123	0.032	88	3.287	101	5.529	123	1.895	79	1.216	88
424			min	-0.598	109	-0.535	101	-0.038	79	-5.529	123	-3.287	101	-1.216	88	-1.895	79
425		3	max	0.624	85	0.894	123	0.017	87	0	127	0	127	0	127	0	127
426			min	-0.597	109	-0.575	101	-0.038	79	0	76	0	76	0	76	0	76
427	M95	1	max	0.138	86	0.854	123	0.144	88	1.162	100	4.535	123	4.44	79	4.495	88
428			min	-0.119	110	-0.142	100	-0.139	96	-4.535	123	-1.162	100	-4.495	88	-4.44	79
429		2	max	0.04	86	0.435	123	0.154	88	0.533	101	1.523	123	6.042	79	4.959	88
430			min	-0.036	110	-0.122	101	-0.182	79	-1.523	123	-0.533	101	-4.959	88	-6.042	79
431		3	max	0.038	86	0.362	123	0.145	88	0	127	0	127	0	127	0	127
432			min	-0.035	110	-0.148	101	-0.182	79	0	76	0	76	0	76	0	76
433	M96	1	max	0.208	79	0.761	123	0.125	103	1.809	97	4.236	88	3.891	80	3.882	88
434			min	-0.178	105	-0.195	98	-0.129	95	-4.236	88	-1.809	97	-3.882	88	-3.891	80
435		2	max	0.064	81	0.455	117	0.112	88	1.067	79	1.66	88	3.934	79	3.775	88
436			min	-0.056	105	-0.239	79	-0.115	79	-1.66	88	-1.067	79	-3.775	88	-3.934	79
437		3	max	0.064	81	0.393	88	0.109	88	0	127	0	127	0	127	0	127
438			min	-0.056	105	-0.286	79	-0.115	79	0	76	0	76	0	76	0	76
439	M97	1	max	0.707	80	3.624	88	0.094	101	9.054	96	14.015	88	3.207	91	2.902	99
440			min	-0.449	104	-2.471	96	-0.102	93	-14.015	88	-9.054	96	-2.902	99	-3.207	91
441		2	max	0.167	79	0.978	88	0.074	79	3.912	79	4.947	88	2.066	108	3.301	79
442			min	-0.116	104	-0.713	79	-0.053	108	-4.947	88	-3.912	79	-3.301	79	-2.066	108
443		3	max	0.167	79	0.914	88	0.074	79	0	127	0	127	0	127	0	127
444			min	-0.116	104	-0.776	79	-0.043	107	0	76	0	76	0	76	0	76
445	M98	1	max	0.193	96	1.35	89	0.221	79	1.613	97	3.5	89	4.089	92	5.34	79
446			min	-0.197	88	-0.65	97	-0.207	91	-3.5	89	-1.613	97	-5.34	79	-4.089	92
447		2	max	0.054	79	0.39	123	0.242	79	0.563	79	1.185	123	5.069	91	7.021	79
448			min	-0.047	90	-0.142	79	-0.179	91	-1.185	123	-0.563	79	-7.021	79	-5.069	91
449		3	max	0.054	79	0.316	123	0.242	79	0	127	0	127	0	127	0	127
450			min	-0.048	90	-0.184	79	-0.171	91	0	76	0	76	0	76	0	76
451	M99	1	max	0.329	95	0.774	117	0.293	79	1.732	109	3.725	85	6.966	91	9.15	79
452			min	-0.175	103	-0.263	108	-0.253	92	-3.725	85	-1.732	109	-9.15	79	-6.966	91
453		2	max	0.329	95	0.711	84	0.293	79	0.792	111	1.193	85	0.868	103	1.133	95
454			min	-0.175	103	-0.296	108	-0.251	92	-1.193	85	-0.792	111	-1.133	95	-0.868	103
455		3	max	0.114	92	0.312	85	0.404	79	0	127	0	127	0	127	0	127
456			min	-0.14	79	-0.172	109	-0.295	92	0	76	0	76	0	76	0	76
457	M100	1	max	0.377	92	0.801	85	0.075	80	5.109	108	8.937	84	1.668	104	1.808	80
458			min	-0.247	79	-0.289	109	-0.062	104	-8.937	84	-5.109	108	-1.808	80	-1.668	104
459		2	max	0.273	91	1.081	79	0.072	93	3.122	108	4.939	79	2.819	85	2.864	93
460			min	-0.302	79	-0.649	108	-0.071	85	-4.939	79	-3.122	108	-2.864	93	-2.819	85
461		3	max	0.27	91	1.027	79	0.072	93	0	127	0	127	0	127	0	127
462			min	-0.302	79	-0.681	108	-0.07	85	0	76	0	76	0	76	0	76
463	M101	1	max	0.299	91	2.372	84	0.162	109	2.59	108	4.15	84	3.821	101	3.969	93
464			min	-0.261	99	-1.509	108	-0.164	85	-4.15	84	-2.59	108	-3.969	93	-3.821	101
465		2	max	0.041	110	0.289	117	0.102	111	0.438	111	0.769	117	2.696	86	2.603	110

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[ksi]	LC	z Shear[ksi]	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
466			min	-0.044	86	-0.135	111	-0.107	85	-0.769	117	-0.438	111	-2.603	110	-2.696	86
467		3	max	0.039	110	0.238	87	0.104	110	0	127	0	127	0	127	0	127
468			min	-0.042	86	-0.156	111	-0.108	86	0	76	0	76	0	76	0	76
469	M102	1	max	0.252	91	2.115	81	0.167	93	2.55	105	4.349	81	3.035	85	2.84	109
470			min	-0.209	99	-1.271	105	-0.163	101	-4.349	81	-2.55	105	-2.84	109	-3.035	85
471		2	max	0.027	87	0.311	80	0.121	93	0.478	104	0.904	80	2.993	101	3.09	93
472			min	-0.022	111	-0.143	104	-0.117	101	-0.904	80	-0.478	104	-3.09	93	-2.993	101
473		3	max	0.026	85	0.274	80	0.115	92	0	127	0	127	0	127	0	127
474			min	-0.021	109	-0.165	104	-0.111	100	0	76	0	76	0	76	0	76
475	M103	1	max	0.868	88	0.681	80	0.037	108	5.272	104	11.069	79	1.85	84	1.704	108
476			min	-0.72	79	-0.219	104	-0.053	84	-11.069	79	-5.272	104	-1.704	108	-1.85	84
477		2	max	0.692	88	1.347	79	0.055	109	3.247	104	6.832	79	2.32	85	2.176	109
478			min	-0.747	79	-0.607	104	-0.059	85	-6.832	79	-3.247	104	-2.176	109	-2.32	85
479		3	max	0.692	88	1.29	79	0.043	109	0	127	0	127	0	127	0	127
480			min	-0.747	79	-0.641	104	-0.046	85	0	76	0	76	0	76	0	76
481	M104	1	max	0.23	85	0.756	79	0.161	90	1.291	105	3.167	79	5.117	79	4.084	90
482			min	-0.104	109	-0.296	105	-0.172	79	-3.167	79	-1.291	105	-4.084	90	-5.117	79
483		2	max	0.061	88	0.359	79	0.129	90	0.33	105	1.174	79	5.435	79	3.755	90
484			min	-0.061	79	-0.081	105	-0.183	79	-1.174	79	-0.33	105	-3.755	90	-5.435	79
485		3	max	0.06	88	0.314	79	0.125	89	0	127	0	127	0	127	0	127
486			min	-0.061	79	-0.108	105	-0.183	79	0	76	0	76	0	76	0	76
487	M105	1	max	0.243	85	1.824	92	0.157	90	2.25	100	4.838	123	3.865	79	3.172	88
488			min	-0.226	109	-0.945	100	-0.15	79	-4.838	123	-2.25	100	-3.172	88	-3.865	79
489		2	max	0.042	79	0.5	123	0.086	90	0.515	100	1.64	123	3.543	79	2.558	90
490			min	-0.027	109	-0.129	100	-0.116	79	-1.64	123	-0.515	100	-2.558	90	-3.543	79
491		3	max	0.042	79	0.41	123	0.081	90	0	127	0	127	0	127	0	127
492			min	-0.027	109	-0.158	100	-0.116	79	0	76	0	76	0	76	0	76
493	M106	1	max	0	81	0	127	0	127	0	127	0	127	0	127	0	127
494			min	0	105	0	76	0	76	0	76	0	76	0	76	0	76
495		2	max	0	81	0	127	0	127	0	127	0	127	0	127	0	127
496			min	0	105	0	76	0	76	0	76	0	76	0	76	0	76
497		3	max	0	81	0	127	0	127	0	127	0	127	0	127	0	127
498			min	0	105	0	76	0	76	0	76	0	76	0	76	0	76
499	M107	1	max	0	92	0	127	0	127	0	127	0	127	0	127	0	127
500			min	0	100	0	76	0	76	0	76	0	76	0	76	0	76
501		2	max	0	92	0	127	0	127	0	127	0	127	0	127	0	127
502			min	0	100	0	76	0	76	0	76	0	76	0	76	0	76
503		3	max	0	92	0	127	0	127	0	127	0	127	0	127	0	127
504			min	0	100	0	76	0	76	0	76	0	76	0	76	0	76
505	M108	1	max	0	95	0	127	0	127	0	127	0	127	0	127	0	127
506			min	0	103	0	76	0	76	0	76	0	76	0	76	0	76
507		2	max	0	95	0	127	0	127	0	127	0	127	0	127	0	127
508			min	0	103	0	76	0	76	0	76	0	76	0	76	0	76
509		3	max	0	95	0	127	0	127	0	127	0	127	0	127	0	127
510			min	0	103	0	76	0	76	0	76	0	76	0	76	0	76
511	M109	1	max	0	89	0	127	0	127	0	127	0	127	0	127	0	127
512			min	0	97	0	76	0	76	0	76	0	76	0	76	0	76
513		2	max	0	89	0	127	0	127	0	127	0	127	0	127	0	127
514			min	0	97	0	76	0	76	0	76	0	76	0	76	0	76
515		3	max	0	89	0	127	0	127	0	127	0	127	0	127	0	127
516			min	0	97	0	76	0	76	0	76	0	76	0	76	0	76
517	M110	1	max	0	123	0	127	0	127	0	127	0	127	0	127	0	127
518			min	0	98	0	76	0	76	0	76	0	76	0	76	0	76
519		2	max	0	123	0	127	0	127	0	127	0	127	0	127	0	127
520			min	0	98	0	76	0	76	0	76	0	76	0	76	0	76

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[ksi]	LC	z Shear[ksi]	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
521		3	max	0	123	0	127	0	127	0	127	0	127	0	127	0	127
522			min	0	98	0	76	0	76	0	76	0	76	0	76	0	76
523	M111	1	max	0	87	0	127	0	127	0	127	0	127	0	127	0	127
524			min	0	111	0	76	0	76	0	76	0	76	0	76	0	76
525		2	max	0	87	0	127	0	127	0	127	0	127	0	127	0	127
526			min	0	111	0	76	0	76	0	76	0	76	0	76	0	76
527		3	max	0	87	0	127	0	127	0	127	0	127	0	127	0	127
528			min	0	111	0	76	0	76	0	76	0	76	0	76	0	76
529	M112	1	max	0	89	0	127	0	127	0	127	0	127	0	127	0	127
530			min	0	97	0	76	0	76	0	76	0	76	0	76	0	76
531		2	max	0	89	0	127	0	127	0	127	0	127	0	127	0	127
532			min	0	97	0	76	0	76	0	76	0	76	0	76	0	76
533		3	max	0	89	0	127	0	127	0	127	0	127	0	127	0	127
534			min	0	97	0	76	0	76	0	76	0	76	0	76	0	76
535	M113	1	max	0	84	0	127	0	127	0	127	0	127	0	127	0	127
536			min	0	108	0	76	0	76	0	76	0	76	0	76	0	76
537		2	max	0	84	0	127	0	127	0	127	0	127	0	127	0	127
538			min	0	108	0	76	0	76	0	76	0	76	0	76	0	76
539		3	max	0	84	0	127	0	127	0	127	0	127	0	127	0	127
540			min	0	108	0	76	0	76	0	76	0	76	0	76	0	76
541	M114	1	max	0	107	0	127	0	127	0	127	0	127	0	127	0	127
542			min	0	79	0	76	0	76	0	76	0	76	0	76	0	76
543		2	max	0	107	0	127	0	127	0	127	0	127	0	127	0	127
544			min	0	79	0	76	0	76	0	76	0	76	0	76	0	76
545		3	max	0	107	0	127	0	127	0	127	0	127	0	127	0	127
546			min	0	79	0	76	0	76	0	76	0	76	0	76	0	76
547	M115	1	max	0	83	0	127	0	127	0	127	0	127	0	127	0	127
548			min	0	107	0	76	0	76	0	76	0	76	0	76	0	76
549		2	max	0	83	0	127	0	127	0	127	0	127	0	127	0	127
550			min	0	107	0	76	0	76	0	76	0	76	0	76	0	76
551		3	max	0	83	0	127	0	127	0	127	0	127	0	127	0	127
552			min	0	107	0	76	0	76	0	76	0	76	0	76	0	76
553	M116	1	max	0	82	0	127	0	127	0	127	0	127	0	127	0	127
554			min	0	106	0	76	0	76	0	76	0	76	0	76	0	76
555		2	max	0	82	0	127	0	127	0	127	0	127	0	127	0	127
556			min	0	106	0	76	0	76	0	76	0	76	0	76	0	76
557		3	max	0	82	0	127	0	127	0	127	0	127	0	127	0	127
558			min	0	106	0	76	0	76	0	76	0	76	0	76	0	76
559	M117	1	max	0	105	0	127	0	127	0	127	0	127	0	127	0	127
560			min	0	79	0	76	0	76	0	76	0	76	0	76	0	76
561		2	max	0	105	0	127	0	127	0	127	0	127	0	127	0	127
562			min	0	79	0	76	0	76	0	76	0	76	0	76	0	76
563		3	max	0	105	0	127	0	127	0	127	0	127	0	127	0	127
564			min	0	79	0	76	0	76	0	76	0	76	0	76	0	76

PAUL J. FORD & COMPANY

Job Number:	A24324-1064.003.8187
Engineer:	KMJ
Date:	7/8/2026
Site Name:	DUBLIN
Site Number:	5000089136
Client Project:	16234090

FRP Member Analysis

IP #137 | Version v1.2 - Effective 3/1/2024

Applicable Building Code:	2021 International Building Code
Analysis Method:	ASD

Material Properties

		Overrides	
Manufacturer and Series #:	Unknown		
Modulus of Elasticity, E:	2,600,000		psi
Shear Modulus, G:	425,000		psi
F_u:	30,000		psi
Tensile Stress, F_t:	30,000		psi
Flexural Stress, F_b:	30,000		psi
Shear Stress, F_v:	4,500		psi
Flexure Factor of Safety:	2.5		
Angle Flexure Factor of Safety:	2.5		
Shear Factor of Safety:	3.0		
Axial Factor of Safety:	3.0		
Poisson's Ratio:	0.33		

		Overrides	
Max Temperature:	<100		deg. F
Ultimate Strength Reduction Factor:	1		
Elasticity Reduction Factor	1		

Note: Calculations based off Strongwell and Bedford design calculations. Minimum result from both manufacturers is used to determine member capacities.

Member Results

Member Label	Member Shape	Member Size	Strong Axis Compression Unbraced Length (ft)	Weak Axis Compression Unbraced Length (ft)	Strong Axis Bending Unbraced Length, Lb (ft)	Weak Axis Bending Unbraced Length, Lb (ft)	Strong Axis Compression Effective Length Factor Override	Weak Axis Compression Effective Length Factor Override	Strong Axis Bending Effective Length Factor Override	Weak Axis Bending Effective Length Factor Override	Axial Angle Criteria: Is angle considered axial only?	Axial Angle Criteria: Are both ends of angle pinned in RISA model?	Axial Angle Criteria: Are any loads applied along length of angle?	Controlling LC	Max Axial Load (lb)	Min Axial Load, (lb)	Shear in Y direction, Vy (lb)	Shear in Z direction, Vz (lb)	Moment about Weak Axis, My (kip*ft)	Moment about Strong Axis, Mx (kip*ft)	Capacity Ratio
J4	Channels	8X2.1875X0.25	0.75	0.75	0.75	0.75															
J6	Channels	8X2.1875X0.25	0.75	0.75	0.75	0.75															
J5	Channels	8X2.1875X0.25	0.75	0.75	0.75	0.75															
J1	Angles	4X4X0.5	0.75	0.75	0.75	0.75					Yes	Yes	No	80	279.91	276.74	29.45	1.66	0.00	0.00	1.9%
J3	Angles	4X4X0.5	0.75	0.75	0.75	0.75					Yes	Yes	No	85	261.54	258.37	31.35	4.04	0.00	0.00	1.7%
J2	Angles	4X4X0.5	0.75	0.75	0.75	0.75					Yes	Yes	No	82	208.60	206.96	4.98	4.15	0.00	0.00	1.4%
E3	Angles	5X5X0.5	4.583	4.583	4.583	4.583					Yes	Yes	No	79	28.93	-151.74	218.13	296.30	0.00	0.00	9.8%
E5	Angles	5X5X0.5	4.583	4.583	4.583	4.583					Yes	Yes	No	83	55.58	-133.91	337.43	307.67	0.00	0.00	12.2%
E1	Angles	5X5X0.5	4.583	4.583	4.583	4.583					Yes	Yes	No	95	58.55	-55.29	289.53	161.28	0.00	0.00	8.8%
F3	Channels	8X2.1875X0.25	3.85	3.85	3.85	3.85															
F1	Channels	8X2.1875X0.25	3.85	3.85	3.85	3.85															
E2	Angles	5X5X0.5	3.792	3.792	3.792	3.792					Yes	Yes	No	122	1395.49	701.79	47.32	43.68	0.00	0.00	15.5%
E4	Angles	5X5X0.5	3.792	3.792	3.792	3.792					Yes	Yes	No	119	1490.02	757.11	27.89	31.17	0.00	0.00	16.5%
E6	Angles	5X5X0.5	3.792	3.792	3.792	3.792					Yes	Yes	No	127	1535.47	776.62	88.16	29.11	0.00	0.00	17.0%
MP1A	Round Tubes	2.5X0.25	3.792	3.792	3.792	3.792								113	237.83	-4.25	16.36	63.32	0.17	0.05	34.8%
MP1C	Round Tubes	2.5X0.25	3.792	3.792	3.792	3.792								84	1.11	-141.06	11.77	20.80	0.03	0.01	7.0%
MP1B	Round Tubes	2.5X0.25	3.792	3.792	3.792	3.792								120	226.19	-4.25	61.79	21.33	0.09	0.15	37.6%

M205 C8x2.1875x0.25 (Bottom Internal Member)

Envelope Member Section Stresses

	Member	Sec		Axial[ksi]	LC	y Shear[ksi]	LC	z Shear[ksi]	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
1	F1	1	max	0.41	104	0.734	89	0.047	109	0	127	0	127	0	127	0	127
2			min	-0.517	80	-0.703	97	-0.056	101	0	76	0	76	0	76	0	76
3		2	max	0.409	104	0.734	89	0.042	109	1.201	89	1.151	97	0.459	109	0.552	101
4			min	-0.516	80	-0.703	97	-0.052	101	-1.151	97	-1.201	89	-0.552	101	-0.459	109
5		3	max	0.408	104	0.734	89	0.038	109	2.402	89	2.302	97	0.872	109	1.058	101
6			min	-0.515	80	-0.704	97	-0.047	101	-2.302	97	-2.402	89	-1.058	101	-0.872	109
7		4	max	0.129	103	0.309	81	0.03	109	3.369	89	3.227	97	1.202	109	1.464	101
8			min	-0.237	95	-0.309	89	-0.029	101	-3.227	97	-3.369	89	-1.464	101	-1.202	109
9		5	max	0.127	103	0.309	81	0.025	109	2.863	89	2.722	97	1.484	109	1.742	101
10			min	-0.235	95	-0.309	89	-0.025	101	-2.722	97	-2.863	89	-1.742	101	-1.484	109
11		6	max	0.125	103	0.309	81	0.021	109	2.356	89	2.217	97	1.719	109	1.974	101
12			min	-0.233	95	-0.31	89	-0.02	101	-2.217	97	-2.356	89	-1.974	101	-1.719	109
13		7	max	0.123	103	0.308	81	0.016	109	1.849	89	1.713	97	1.907	109	2.159	101
14			min	-0.232	95	-0.31	89	-0.016	101	-1.713	97	-1.849	89	-2.159	101	-1.907	109
15		8	max	0.122	103	0.308	81	0.011	109	1.342	89	1.209	97	2.048	109	2.297	101
16			min	-0.23	95	-0.31	89	-0.011	101	-1.209	97	-1.342	89	-2.297	101	-2.048	109
17		9	max	0.12	103	0.308	97	0.007	109	0.835	89	0.705	97	2.142	109	2.388	101
18			min	-0.228	95	-0.31	89	-0.007	101	-0.705	97	-0.835	89	-2.388	101	-2.142	109
19		10	max	0.118	103	0.308	97	0.002	109	0.327	89	0.201	97	2.19	109	2.433	101
20			min	-0.227	95	-0.31	89	-0.002	100	-0.201	97	-0.327	89	-2.433	101	-2.19	109
21		11	max	0.117	103	0.308	97	0.003	103	0.329	81	0.207	105	2.191	109	2.431	101
22			min	-0.225	95	-0.311	89	-0.002	108	-0.207	105	-0.329	81	-2.431	101	-2.191	109
23		12	max	0.115	103	0.307	97	0.007	85	0.831	81	0.714	105	2.146	109	2.382	101
24			min	-0.223	95	-0.311	89	-0.007	93	-0.714	105	-0.831	81	-2.382	101	-2.146	109
25		13	max	0.113	103	0.307	97	0.012	85	1.334	81	1.221	105	2.054	109	2.287	101
26			min	-0.221	95	-0.311	89	-0.011	93	-1.221	105	-1.334	81	-2.287	101	-2.054	109
27		14	max	0.111	103	0.307	97	0.016	85	1.836	81	1.728	105	1.915	109	2.146	101
28			min	-0.22	95	-0.311	89	-0.016	93	-1.728	105	-1.836	81	-2.146	101	-1.915	109
29		15	max	0.11	103	0.307	97	0.021	85	2.337	81	2.235	105	1.73	109	1.957	101
30			min	-0.218	95	-0.312	89	-0.02	93	-2.235	105	-2.337	81	-1.957	101	-1.73	109
31		16	max	0.108	103	0.307	97	0.025	85	2.839	81	2.743	105	1.497	109	1.722	101
32			min	-0.216	95	-0.312	89	-0.025	93	-2.743	105	-2.839	81	-1.722	101	-1.497	109
33		17	max	0.107	101	0.307	97	0.03	85	3.34	81	3.251	105	1.219	109	1.439	101
34			min	-0.215	93	-0.312	89	-0.029	93	-3.251	105	-3.34	81	-1.439	101	-1.219	109
35		18	max	0.302	99	0.709	105	0.046	101	2.381	81	2.319	105	0.884	109	1.041	101
36			min	-0.414	89	-0.727	81	-0.039	109	-2.319	105	-2.381	81	-1.041	101	-0.884	109
37		19	max	0.303	99	0.709	105	0.051	101	1.191	81	1.16	105	0.465	109	0.544	101
38			min	-0.414	89	-0.728	81	-0.043	109	-1.16	105	-1.191	81	-0.544	101	-0.465	109
39		20	max	0.304	99	0.709	105	0.055	101	0	127	0	127	0	127	0	127
40			min	-0.414	91	-0.728	81	-0.048	109	0	76	0	76	0	76	0	76
41	F3	1	max	0.343	99	0.707	84	0.047	104	0	127	0	127	0	127	0	127
42			min	-0.442	92	-0.68	108	-0.056	96	0	76	0	76	0	76	0	76

$$f_z := 1.464 \ \frac{lb}{in^2}$$

$$f_y := 3369 \ \frac{lb}{in^2}$$

$$Fb := \frac{9396}{2.5} \ \frac{lb}{in^2} = \left(3.758 \cdot 10^3\right) \ \frac{lb}{in^2}$$

$$P_{applied} := 237 \ \frac{lb}{in^2}$$

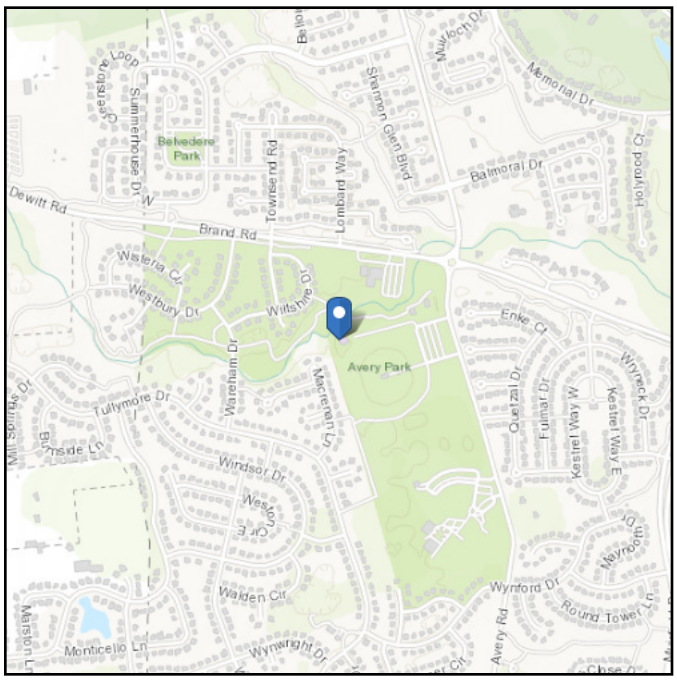
$$P_{allowable} := 4000 \ \frac{lb}{in^2}$$

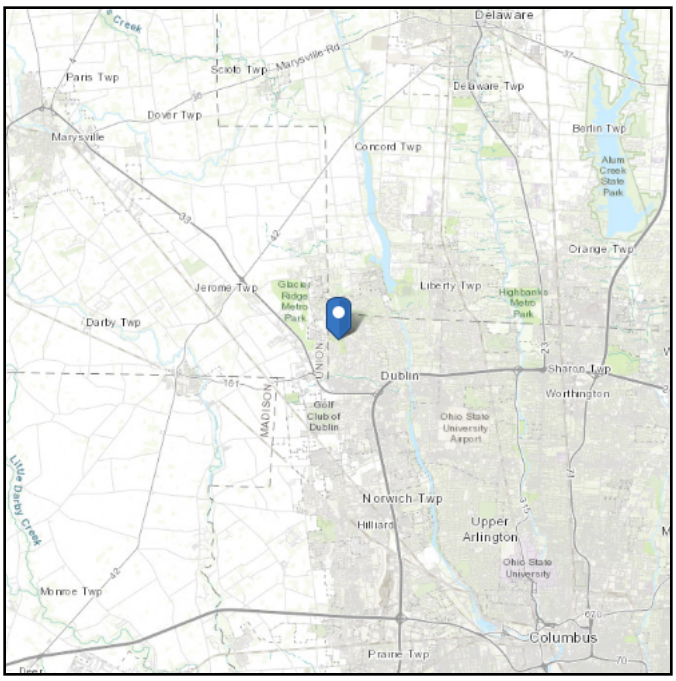
$$C := \frac{f_y}{Fb} + \frac{f_z}{Fb} + \frac{P_{applied}}{P_{allowable}} = 0.956$$

ASCE Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Latitude:**	40.127833
Risk Category:	III	**Longitude:**	-83.163222
Soil Class:	D - Default (see Section 11.4.3)	**Elevation:**	0 ft (NAVD 88)





Wind

Results:

Wind Speed	115 Vmph
10-year MRI	75 Vmph
25-year MRI	81 Vmph
50-year MRI	85 Vmph
100-year MRI	93 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1C and Figs. CC.2-1–CC.2-4, and Section 26.5.2

Date Accessed: Thu Jul 18 2024

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 3% probability of exceedance in 50 years (annual exceedance probability = 0.000588, MRI = 1,700 years).

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

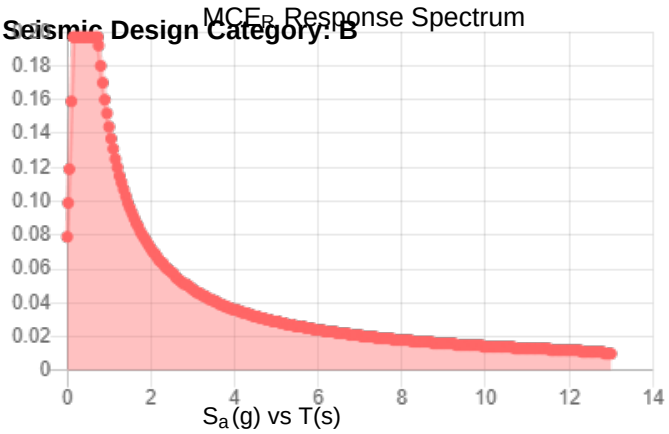
Seismic

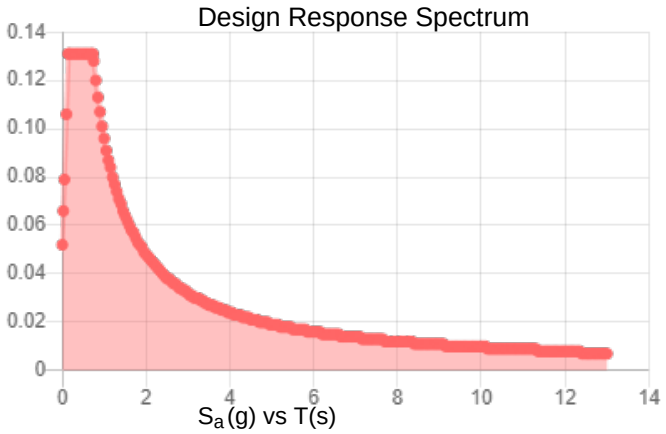
Site Soil Class: D - Default (see Section 11.4.3)

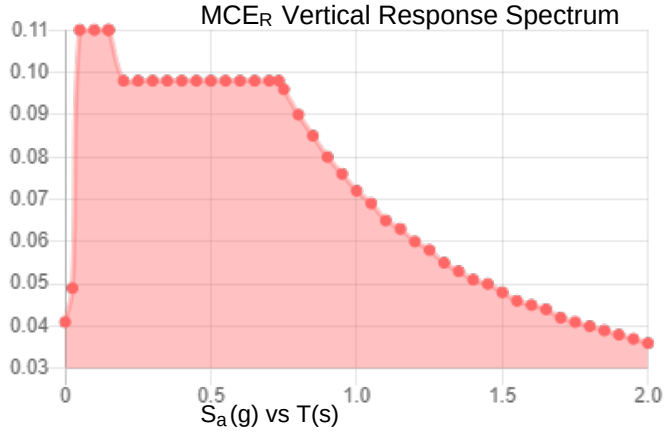
Results:

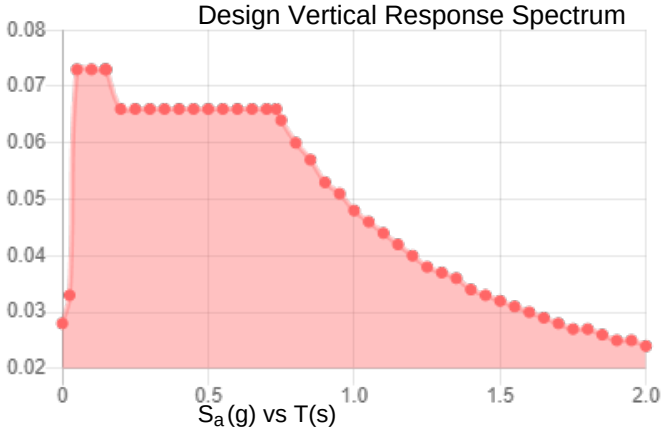
S_S :	0.123	S_{D1} :	0.096
S_1 :	0.06	T_L :	12
F_a :	1.6	PGA :	0.062
F_v :	2.4	PGA_M :	0.1
S_{MS} :	0.197	F_{PGA} :	1.6
S_{M1} :	0.144	I_e :	1.25
S_{DS} :	0.131	C_v :	0.7

Seismic Design Category: B









Data Accessed: **Thu Jul 18 2024**

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:	1.00 in.
Concurrent Temperature:	5 F
Gust Speed	40 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Thu Jul 18 2024

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.