STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
Web Site: portal.ct.gov/csc

VIA ELECTRONIC MAIL

November 22, 2023

Kenneth C. Baldwin, Esq.
Robinson & Cole
280 Trumbull Street
Hartford, CT 06103-3597
kbaldwin@rc.com

RE: **PETITION NO. 1543 –** Cellco Partnership d/b/a Verizon Wireless Declaratory Ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, for the installation of a wireless telecommunications facility and associated equipment on the roof of an existing commercial building located at 19 Kenosia Avenue, Danbury, Connecticut. **Request for Project Change.**

Dear Attorney Baldwin:

The Connecticut Siting Council (Council) is in receipt of your correspondence dated November 20, 2023 regarding a change to the above-referenced Declaratory Ruling that was issued by the Council on December 23, 2022.

Pursuant to Condition No. 1 of the Council's December 23, 2023 Declaratory Ruling, your request to install remote radio head models RRH-RF4461d-13A and RRH-RF4439d-25A in lieu of RRH-BR04C and RRH-BR049 is hereby approved.

This approval applies only to the project change described in your November 20, 2023 correspondence.

Please be advised that deviations from the standards established by the Council in the Declaratory Ruling are enforceable under the provisions of Connecticut General Statutes §16-50u.

Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman
Executive Director

MAB/CMW

Robinson+Cole

KENNETH C. BALDWIN

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
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kbaldwin@rc.com
Direct (860) 275-8345

Also admitted in Massachusetts and New York

November 20, 2023

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

Re: **Petition No. 1543 – Petition of Cellco Partnership d/b/a Verizon Wireless for a Declaratory Ruling on the Need to Obtain a Siting Council Certificate for the Installation of a Wireless Telecommunications Facility at 19 Kenosia Avenue, Danbury, Connecticut**

Minor Equipment Changes

Dear Attorney Bachman:

On behalf of Cellco Partnership d/b/a Verizon Wireless ("Cellco"), I respectfully request Siting Council ("Council") staff approval of an equipment change at the approved 19 Kenosia Road wireless facility. Due to equipment availability, Cellco will be installing new remote radio heads (RRHs), model RRH-RF4461d-13A and RRH-RF4439d-25A in lieu of RRH-BR04C and RRH-BR049 as originally approved.

Attached is a revised set of project plans, specifications for the new RRHs, and an updated Structural Analysis Report confirming that the tower is capable of supporting the new RRHs. Please contact me if you have any questions or need any additional information.

Sincerely,

Kenneth C. Baldwin

Copy to:
Tim Parks
Michael Humphreys

28330414-v1

verizon

SITE NAME: RIDGEFIELD BOEHRINGER LIFE STORAGE

19 KENOSIA AVE
DANBURY, CT 06811

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2021 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2022 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "H" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2022 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.
3. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
4. BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE, WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK.
5. ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURES, SURFACE, AND SUBSURFACE CONDITIONS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS AND ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.
6. AS THE WORK PROGRESSES, THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONDITIONS WHICH ARE IN CONFLICT OR OTHERWISE NOT CONSISTENT WITH THE CONSTRUCTION DOCUMENTS, AND SHALL NOT PROCEED WITH SUCH WORK UNTIL THE CONFLICT IS SATISFACTORILY RESOLVED.
7. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
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12. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY.
13. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUB-CONTRACTORS FOR ANY CONDITION PER THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
14. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
15. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
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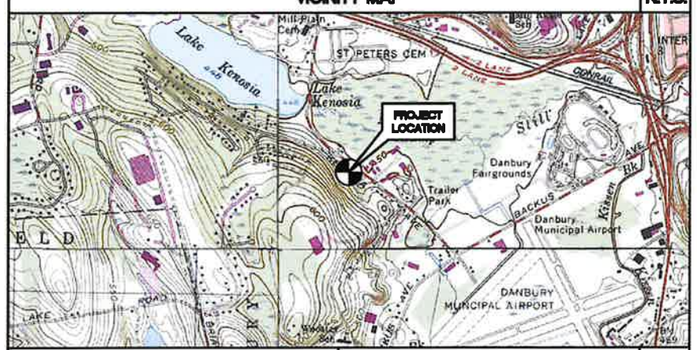
17. ANY AND ALL ERRORS, DISCREPANCIES, AND 'MISSED' ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE VERIZON WIRELESS CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
18. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
19. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
20. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
21. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUITS AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND CONFIRMED WITH THE PROJECT MANAGER AND OWNER PRIOR TO THE COMMENCEMENT OF ANY WORK
22. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
23. THE CONTRACTOR SHALL CONTACT 'CALL BEFORE YOU DIG' AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
24. CONTRACTOR SHALL COMPLY WITH THE OWNER'S ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.
25. THE COUNTY/CITY/TOWN MAY MAKE PERIODIC FIELD INSPECTIONS TO ENSURE COMPLIANCE WITH THE DESIGN PLANS, SPECIFICATIONS, AND CONTRACT DOCUMENTS.
26. THE COUNTY/CITY/TOWN MUST BE NOTIFIED (2) WORKING DAYS PRIOR TO CONCEALMENT/BURIAL OF ANY SYSTEM OR MATERIAL THAT WILL PREVENT THE DIRECT INSPECTION OF MATERIALS, METHODS OR WORKMANSHIP. EXAMPLES OF THESE PROCESSES ARE BACKFILLING A GROUND RING OR TOWER FOUNDATION, POURING TOWER FOUNDATIONS, BURYING GROUND RODS, PLATES OR GRIDS, ETC. THE CONTRACTOR MAY PROCEED WITH THE SCHEDULED PROCESS (2) WORKING DAYS AFTER PROVIDING NOTICE UNLESS NOTIFIED OTHERWISE BY THE COUNTY/CITY/TOWN.
27. PRIOR TO THE SUBMISSION OF BIDS, THE CONTRACTOR SHALL VISIT THE SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF ENGINEER ON RECORD, PRIOR TO THE COMMENCEMENT OF ANY WORK.

SITE LOCATION MAP — N.T.S.

VICINITY MAP — N.T.S.



COORDINATES AND GROUND ELEVATION REFERENCED FROM FAA 2-C CERTIFICATION PREPARED BY CENTEK ENGINEERING FOR VERIZON WIRELESS, DATE (REVISED) 09/29/2023.

SITE COORDINATES: LATITUDE 41°-22'-42.74" LONGITUDE 73°-29'-41.86" GROUND ELEVATION: 459.19'± A.M.S.L.

NORTH

PROJECT SUMMARY

THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:

1. INSTALL (2) PROPOSED JMA: MX08FIT265-01 ANTENNAS
2. INSTALL (6) PROPOSED JMA: MX10FRO640 ANTENNAS
3. INSTALL (3) 2" SIDE BY SIDE ANETNNA MOUNTING BRACKETS
4. INSTALL (3) PROPOSED SAMSUNG: B2/B66A RRH ORAN (RF4439d-25A)
5. INSTALL (3) PROPOSED SAMSUNG: RF4461d-13A
6. INSTALL (2) PROPOSED SAMSUNG: RT-8606-77A
7. INSTALL (1) PROPOSED RAYCAP OVP BOX
8. INSTALL (2) PROPOSED 6x12 HYBRIFLEX LI CABLES
9. INSTALL (2) STEEL RF ANTENNA ENCLOSURE(S). SEE SHEETS S-1 AND S-2 FOR DETAILS
10. INSTALL ROOF WALKWAY PADS. CONTRACTOR TO VERIFY QUANTITY IN FIELD.
11. INSTALL CABLE TRAY STEP-OVER LADDER(S)
12. INSTALL NEW EQUIPMENT PLATFORM AND ASSOCIATED CABINETS
13. INSTALL NEW TRANSFORMER ATOP PROPOSED EQUIPMENT PLATFORM
14. INSTALL PROPOSED ROOF MOUNTED CABLE TRAYS AND STEP-OVERS AS SHOWN HEREIN.

PROJECT SUMMARY (STRUCTURAL + INSPECTIONS)

FOR REQUIRED STRUCTURAL MODIFICATIONS, SEE SHEET(S) S-1 AND S-2 FOR ADDITIONAL DETAILS. FOR REQUIRED SPECIAL INSPECTIONS, SEE SHEET N-2 FOR CHECKLIST AND ADDITIONAL INFORMATION.

1. RF ANTENNA ENCLOSURES AND ELEVATED STEEL EQUIPMENT PLATFORM TO BE INSTALLED.

PROJECT INFORMATION

SITE NAME:	RIDGEFIELD BOEHRINGER - LIFE STORAGE
SITE ADDRESS:	19 KENOSIA AVE DANBURY, CT 06811
PROPERTY OWNER:	SOVRAN ACQUISITION LIMITED 6467 MAIN ST WILLIAMSVILLE, NY 14221-5890
LESSEE/TENANT:	VERIZON WIRELESS 20 ALEXANDER DRIVE, FLOOR 2 WALLINGFORD, CT 06492
VERIZON SITE ACQUISITION CONTACT:	CHRISTINA GLASS SAI COMMUNICATIONS LLC (603) 212-6326
LEGAL/REGULATORY COUNSEL:	KENNETH C. BALDWIN, ESQ. ROBINSON & COLE (860) 275-8345
PROPOSED TOWER COORDINATES:	LATITUDE 41°-22'-42.74" LONGITUDE 73°-29'-41.86" GROUND ELEVATION: 459.19'± A.M.S.L. COORDINATES AND GROUND ELEVATION REFERENCED FROM FAA 2-C CERTIFICATION PREPARED BY CENTEK ENGINEERING FOR VERIZON WIRELESS, DATE (REVISED) 09/29/2023.

SHEET INDEX

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
5	10/11/23	BBP	TJR	CONSTRUCTION DRAWINGS - REVISED FOR NEW RFDS
4	09/29/23	RTS	TJR	CONSTRUCTION DRAWINGS - REVISED PER REGULATORY COMMENTS
3	05/24/23	RTS	TJR	CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
2	02/28/23	LAA	TJR	CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
1	02/06/23	RTS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
0	01/05/23	RTS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION
A	12/05/22	RTS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS - ISSUED FOR CLIENT REVIEW

PROFESSIONAL ENGINEER SEAL

verizon

CENTEK engineering
"Centered on Solutions"
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

VERIZON WIRELESS

RIDGEFIELD BOEHRINGER
LIFE STORAGE
19 KENOSIA AVE
DANBURY, CT 06811

DATE: 12/06/22
SCALE: AS NOTED
JOB NO. 21058.02

TITLE SHEET

T-1

Sheet No. 1 of 19

NOTES AND SPECIFICATIONS:

DESIGN BASIS:

GOVERNING CODE: 2021 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2022 CONNECTICUT STATE BUILDING CODE.

1. DESIGN CRITERIA:

- RISK CATEGORY II (BASED ON IBC TABLE 1604.5)
- ULTIMATE DESIGN SPEED: 125 MPH (Vasd)
  (EXPOSURE B/ IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-16).

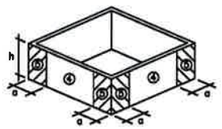
SITE NOTES

1. THE CONTRACTOR SHALL CALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.
2. ACTIVE EXISTING UTILITIES, WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY, PRIOR TO PROCEEDING, SHOULD ANY UNCOVERED EXISTING UTILITY PRECLUDE COMPLETION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
3. THE AREAS OF THE COMPOUND DISTURBED BY THE WORK SHALL BE RETURNED TO THEIR ORIGINAL CONDITION.
4. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
5. IF ANY FIELD CONDITIONS EXIST WHICH PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL PROCEED WITH AFFECTED WORK AFTER CONFLICT IS SATISFACTORILY RESOLVED.

ANTENNA ENCLOSURE

1. THE ANTENNA CONCEALMENT ENCLOSURE WITH ANCILLARY FRAMING AND ITS ATTACHMENT TO THE STEEL SUBFRAME SHALL BE ENGINEERED BY A REGISTERED STATE OF CONNECTICUT LICENSED ENGINEER EXPERIENCED IN THE DESIGN OF THESE SYSTEMS.
2. THE CONTRACTOR SHALL SUBMIT DETAILED SHOP DRAWINGS AND COMPUTATIONS BEARING THE SEAL OF THE RESPONSIBLE DESIGN PROFESSIONAL FOR REVIEW BY THE ENGINEER OF RECORD PRIOR TO FABRICATION.
3. THE DUNNAGE FRAME IS DESIGNED FOR WIND LOADS BASED ON MAIN WIND-FORCE RESISTING SYSTEMS (MWFRS) WIND PRESSURES AS SPECIFIED UNDER 'WIND LOAD' WITHIN THE DESIGN BASIS.
4. RF ENCLOSURE COMPONENTS SHALL BE DESIGNED FOR WIND LOADS BASED ON COMPONENTS AND CLADDING (CC) WIND PRESSURES.
5. WIND DESIGN DATA PER 2022 CSBC AND ASCE 7-16:

   INTERNAL PRESSURE COEFFICIENT, GCpi = ± 0.18



CC - ENCLOSURE SURFACE ELEVATION
N.T.S.

a = 10 PERCENT OF LEAST HORIZONTAL DIMENSION OR 0.4H, WHICHEVER IS SMALLER, BUT NOT LESS THAN EITHER 4 PERCENT OF LEAST HORIZONTAL DIMENSION OR 3 FT.
h = MEAN ENCLOSURE HEIGHT, IN FEET

EFFECTIVE WIND AREA LESS THAN OR EQUAL TO 10 SQUARE FEET:
ZONE 4; Pcc = +51 PSF & -36 PSF
ZONE 5; Pcc = +51 PSF & -64 PSF

EFFECTIVE WIND AREA MORE THAN OR EQUAL TO 500 SQUARE FEET
ZONE 4; Pcc = +42 PSF & -45 PSF
ZONE 5; Pcc = +42 PSF & -45 PSF

i) LINEAR INTERPOLATE FOR EFFECTIVE WIND AREAS GREATER THAN 10 SQUARE FEET AND LESS THAN 500 SQUARE FEET.
ii) PLUS AND MINUS SIGNS SIGNIFY PRESSURES ACTING TOWARD AND AWAY FROM THE INTERNAL SURFACES, RESPECTIVELY.
iii) FOR A FASTENER, THE EFFECTIVE AREA EQUALS THE AREA TRIBUTARY TO AN INDIVIDUAL FASTENER.

6. EXTENT OF ANTENNA ENCLOSURE IS DENOTED WITHIN THE CONSTRUCTION DOCUMENTS. FIELD VERIFICATION OF OVERALL DIMENSIONS SHOULD BE CONDUCTED PRIOR TO SUBMISSION OF FABRICATION DRAWINGS.
7. CONTRACTOR SHALL CONDUCT A DETAILED FIELD SURVEY FOR USE IN REPLICATING THE ARCHITECTURAL APPEARANCE OF THE EXISTING BUILDING.

GENERAL NOTES

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24. CONTRACTOR SHALL COMPLY WITH THE OWNER'S ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.
25. THE COUNTY/CITY/TOWN MAY MAKE PERIODIC FIELD INSPECTIONS TO ENSURE COMPLIANCE WITH THE DESIGN PLANS, SPECIFICATIONS, AND CONTRACT DOCUMENTS.
26. THE COUNTY/CITY/TOWN MUST BE NOTIFIED (2) WORKING DAYS PRIOR TO CONCEALMENT/BURIAL OF ANY SYSTEM OR MATERIAL THAT WILL PREVENT THE DIRECT INSPECTION OF MATERIALS, METHODS OR WORKMANSHIP. EXAMPLES OF THESE PROCESSES ARE BACKFILLING A GROUND RING OR TOWER FOUNDATION, POURING TOWER FOUNDATIONS, BURYING GROUND RODS, PLATES OR GRIDS, ETC. THE CONTRACTOR MAY PROCEED WITH THE SCHEDULED PROCESS (2) WORKING DAYS AFTER PROVIDING NOTICE UNLESS NOTIFIED OTHERWISE BY THE COUNTY/CITY/TOWN.
27. PRIOR TO THE SUBMISSION OF BIDS, THE CONTRACTOR SHALL VISIT THE SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF ENGINEER ON RECORD, PRIOR TO THE COMMENCEMENT OF ANY WORK.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD)

   A. STRUCTURAL STEEL (W SHAPES)---ASTM A992 (FY = 50 KSI)
   B. STRUCTURAL STEEL (OTHER SHAPES)---ASTM A36 (FY = 36 KSI)
   C. STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI)
   D. STRUCTURAL HSS (ROUND SHAPES)---ASTM A500 GRADE B, (FY = 42 KSI)
   E. PIPE---ASTM A53 (FY = 35 KSI)
   F. CONNECTION BOLTS---ASTM A325-N
   G. U-BOLTS---ASTM A36
   H. ANCHOR RODS---ASTM F 1554
   I. WELDING ELECTRODE---ASTM E 70XX

2. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING: SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.
3. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.
4. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.
5. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.
6. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.
7. AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON-GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.
8. ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.
9. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".
10. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.
11. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.
12. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS OTHERWISE ON THE DRAWINGS.
13. LOCK WASHER ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES.
14. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.
15. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.
16. FABRICATE BEAMS WITH MILL CAMBER UP.
17. LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN.
18. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.
19. INSPECTION AND TESTING OF ALL WELDING AND HIGH STRENGTH BOLTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY.
20. FOUR COPIES OF ALL INSPECTION TEST REPORTS SHALL BE SUBMITTED TO THE ENGINEER WITHIN TEN (10) WORKING DAYS OF THE DATE OF INSPECTION.

NOTES:

1. CONTRACTOR TO COORDINATE ALL WORK WITH OWNER & LL IN ADVANCE, AS PROPOSED WORK WILL NEED TO BE CONDUCTED IN POTENTIALLY OCCUPIED SPACES. (I.E. UNDER PROPOSED FRAMES AND CONDUIT CHASE ALONG THE STAIRWELL WALL)
2. OWNER & LL WILL BE RESPONSIBLE FOR SCHEDULING THE VACANCY OF SAID OCCUPANTS IN RELATION TO THE CONSTRUCTION SCHEDULE AGREED UPON BY ALL PARTIES.

NOTE:
ALL HYBRID/COAX LENGTHS TO BE MEASURED AND VERIFIED IN FIELD BEFORE ORDERING

ANTENNA/APPURTENANCE SCHEDULE

SECTOR	EXISTING/PROPOSED	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA @ HEIGHT	AZIMUTH	(E/P) RRU (QTY)	(E/P) OVP (QTY)	(QTY) PROPOSED HYBRID/COAX
A1	PROPOSED	JMA WIRELESS (MX10FRO640)	71.6 x 19 x 7.4	56'	25°	(P) SAMSUNG: B2/B66A RRH ORAN (RF4439d-25A) (1)		(2) 6x12 HYBRID LI CABLE
A2	PROPOSED	JMA WIRELESS (MX10FRO640)	71.6 x 19 x 7.4	56'	25°	(P) SAMSUNG: RF4461d-13A (1)		
A3	PROPOSED	JMA WIRELESS (MX08FIT265-01)	24 x 11.6 x 4.53	58'	35°	(P) RT-8808-77A (1)		
B1	PROPOSED	JMA WIRELESS (MX10FRO640)	71.6 x 19 x 7.4	56'	85°	(P) SAMSUNG: B2/B66A RRH ORAN (RF4439d-25A) (1)		
B2	PROPOSED	JMA WIRELESS (MX10FRO640)	71.6 x 19 x 7.4	56'	85°	(P) SAMSUNG: RF4461d-13A (1)		
C1	PROPOSED	JMA WIRELESS (MX08FIT265-01)	24 x 11.6 x 4.53	58'	135°	(P) RT-8808-77A (1)	(P) OVP BOX (1)	
C2	PROPOSED	JMA WIRELESS (MX10FRO640)	71.6 x 19 x 7.4	56'	145°	(P) SAMSUNG: B2/B66A RRH ORAN (RF4439d-25A) (1)		
C3	PROPOSED	JMA WIRELESS (MX10FRO640)	71.6 x 19 x 7.4	56'	145°	(P) SAMSUNG: RF4461d-13A (1)		

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
5	10/17/23	BSP	LJR	CONSTRUCTION DRAWINGS - REVISED PER RFDS
4	04/03/23	BTS	LJR	CONSTRUCTION DRAWINGS - REVISED FOR REGULATORY COMMENTS
3	02/28/23	BTS	LJR	CONSTRUCTION DRAWINGS - REVISED PER RFDS
2	02/28/23	LAK	LJR	CONSTRUCTION DRAWINGS - REVISED FOR CLIENT COMMENTS
1	02/06/23	BES	LJR	PRELIMINARY CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
0	01/05/23	BES	LJR	PRELIMINARY CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION
A	12/05/22	BES	LJR	PRELIMINARY CONSTRUCTION DRAWINGS - ISSUED FOR CLIENT REVIEW

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JOB NO. 21058.02

SPECIFICATIONS, NOTES, & ANT. SCHEDULE

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Sheet No. 2 of 19

MODIFICATION INSPECTION REPORT REQUIREMENTS

PRE-CONSTRUCTION		DURING CONSTRUCTION		POST-CONSTRUCTION	
SCHEDULED ITEM	REPORT ITEM	SCHEDULED ITEM	REPORT ITEM	SCHEDULED ITEM	REPORT ITEM
–	EOR MODIFICATION INSPECTION DRAWING	–	FOUNDATIONS	–	MODIFICATION INSPECTOR RECORD REDLINE DRAWING
X	EOR APPROVED STEEL SHOP DRAWINGS	–	EARTHWORK BACKFILL MATERIAL AND COMPACTION	–	POST-INSTALLED ANCHOR ROD PULL-OUT TEST
–	EOR APPROVED POST-INSTALLED ANCHOR MPII	–	REBAR AND FORMWORK GEOMETRY VERIFICATION	X	PHOTOGRAPHS
–	FABRICATION INSPECTION	–	CONCRETE TESTING	X	STEEL INSPECTION
–	FABRICATOR CERTIFIED WELDER INSPECTION	X	STEEL INSPECTION		
X	MATERIAL CERTIFICATIONS	–	POST INSTALLED ANCHOR ROD VERIFICATION		
		–	BASE PLATE GROUT VERIFICATION		
		–	CONTRACTOR'S CERTIFIED WELD INSPECTION		
		–	ON-SITE COLD GALVANIZED VERIFICATION		
		X	CONTRACTOR AS-BUILT REDLINE DRAWINGS		
		–	HOIST BUILDING (BEARING WALL/PARAPET ETC..)		
			INTEGRITY VERIFICATION PRIOR TO ANY INSTALLATIONS		
		X	HOIST BUILDING (ROOF OPENING)		
			FRAMING VERIFICATION PRIOR TO ANY INSTALLATIONS		

NOTES	1. REFER TO MODIFICATION INSPECTION NOTES FOR ADDITIONAL REQUIREMENTS
	2. (X) DENOTES DOCUMENT REQUIRED FOR INCLUSION IN MODIFICATION INSPECTION FINAL REPORT
	3. (–) DENOTES DOCUMENT NOT REQUIRED FOR INCLUSION IN MODIFICATION INSPECTION FINAL REPORT
	4. EOR = ENGINEER OF RECORD
	5. MPII = MANUFACTURER'S PRINTED INSTALLATION GUIDELINES

MODIFICATION INSPECTION NOTES:

GENERAL

1. THE MODIFICATION INSPECTION IS A VISUAL INSPECTION OF STRUCTURAL MODIFICATIONS, TO INCLUDE A REVIEW AND COMPILATION OF SPECIFIED SUBMITTALS AND CONSTRUCTION INSPECTIONS, AS AN ASSURANCE OF COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS PREPARED UNDER THE DIRECTION OF THE ENGINEER OF RECORD (EOR).
2. THE MODIFICATION INSPECTION IS TO CONFIRM INSTALLATION CONFIGURATION AND GENERAL WORKMANSHIP AND IS NOT A REVIEW OF THE MODIFICATION DESIGN. OWNERSHIP OF THE MODIFICATION DESIGN EFFECTIVENESS AND INTENT RESIDES WITH THE ENGINEER OF RECORD.
3. TO ENSURE COMPLIANCE WITH THE MODIFICATION INSPECTION REQUIREMENTS THE GENERAL CONTRACTOR (GC) AND THE MODIFICATION INSPECTOR (MI) COMMENCE COMMUNICATION UPON AUTHORIZATION TO PROCEED BY THE CLIENT. EACH PARTY SHALL BE PROACTIVE IN CONTACTING THE OTHER. THE EOR SHALL BE CONTACTED IF SPECIFIC GC/MI CONTACT INFORMATION IS NOT MADE AVAILABLE.
4. THE GC SHALL PROVIDE THE MI WITH A MINIMUM OF 5 BUSINESS DAYS NOTICE OF IMPENDING INSPECTIONS.
5. WHEN POSSIBLE, THE GC AND MI SHALL BE ON SITE DURING THE MODIFICATION INSPECTION TO HAVE ANY NOTED DEFICIENCIES ADDRESSED DURING THE INITIAL MODIFICATION INSPECTION.

MODIFICATION INSPECTOR (MI)

1. THE MI SHALL CONTACT THE GC UPON AUTHORIZATION BY THE CLIENT TO:
   - REVIEW THE MODIFICATION INSPECTION REPORT REQUIREMENTS.
   - WORK WITH THE GC IN DEVELOPMENT OF A SCHEDULE FOR ON-SITE INSPECTIONS.
   - DISCUSS CRITICAL INSPECTIONS AND PROJECT CONCERNS.
2. THE MI IS RESPONSIBLE FOR COLLECTION OF ALL INSPECTION AND TEST REPORTS, REVIEWING REPORTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING ON-SITE INSPECTIONS AND COMPILATION & SUBMISSION OF THE MODIFICATION INSPECTION REPORT TO THE CLIENT AND THE EOR.

GENERAL CONTRACTOR (GC)

1. THE GC IS REQUIRED TO CONTACT THE MI UPON AUTHORIZATION TO PROCEED WITH CONSTRUCTION BY THE CLIENT TO:
   - REVIEW THE MODIFICATION INSPECTION REPORT REQUIREMENTS.
   - WORK WITH THE MI IN DEVELOPMENT OF A SCHEDULE FOR ON-SITE INSPECTIONS.
   - DISCUSS CRITICAL INSPECTIONS AND PROJECT CONCERNS.
2. THE GC IS RESPONSIBLE FOR COORDINATING AND SCHEDULING IN ADVANCE ALL REQUIRED INSPECTIONS AND TESTS WITH THE MI.

CORRECTION OF FAILING MODIFICATION INSPECTION

1. SHOULD THE STRUCTURAL MODIFICATION NOT COMPLY WITH THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS, THE GC SHALL WORK WITH THE MODIFICATION INSPECTOR IN A VIABLE REMEDIATION PLAN AS FOLLOWS:
   - CORRECT ALL DEFICIENCIES TO COMPLY WITH THE CONTRACT DOCUMENTS AND COORDINATE WITH THE MI FOR A FOLLOW UP INSPECTION.
   - WITH CLIENT AUTHORIZATION, THE GC MAY WORK WITH THE EOR TO REANALYZE THE MODIFICATION USING THE AS-BUILT CONDITION.

REQUIRED PHOTOGRAPHS

1. THE GC AND MI SHALL AT MINIMUM PHOTO DOCUMENT THE FOLLOWING FOR INCLUSION IN THE MODIFICATION INSPECTION REPORT:
   - PRE-CONSTRUCTION: GENERAL CONDITION OF THE SITE.
   - DURING CONSTRUCTION: RAW MATERIALS, CRITICAL DETAILS, WELD PREPARATION, BOLT INSTALLATION & TORQUE, FINAL INSTALLED CONDITION & SURFACE COATING REPAIRS.
   - POST-CONSTRUCTION: FINAL CONDITION OF THE SITE.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
5	10/17/23	BSP	TJR	CONSTRUCTION DRAWINGS – REVISED PER NEW RFDS
4	04/20/23	RFS	TJR	CONSTRUCTION DRAWINGS – REVISED PER REGULATORY COMMENTS
3	02/24/23	RFS	TJR	CONSTRUCTION DRAWINGS – REVISED PER NEW RFDS
2	02/08/23	LMK	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
1	02/08/23	RFS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
0	01/05/23	RFS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION
A	12/05/22	RFS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW

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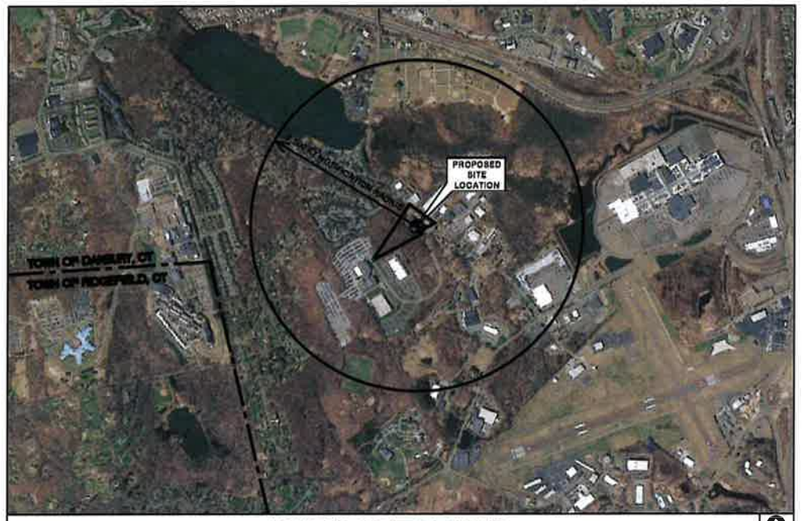
JOB NO. 21058.02

SPECIAL INSPECTIONS LIST AND NOTES

N-2



MUNICIPALITY NOTIFICATION LIMIT MAP

ABUTTERS LIST

REF.	ID	ADDRESS	OWNER	OWNER ADDRESS
A	5294	15 KENOSIA	SOVRAN ACQUISITION LIMITED	6467 MAIN ST, BUFFALO, NY 14221
B	5224	40 APPLE RIDGE	DELEWARE MMP REALTY LLC	PO BOX 561, DANBURY, CT, 06813
C	5235	APPLE RIDGE	COMMERCE PARK REALTY LLC	35 CROSBY DR, BEDFORD, MA, 01730
D	5295	APPLE RIDGE	COMMERCE PARK REALTY LLC	35 CROSBY DR, BEDFORD, MA, 01730
E	5227	APPLE RIDGE	POWERS MELVYN J	7 FINANCE DR, DANBURY, CT, 06813
F	5236	KENOSIA	SHERWF LLC	27 KENOSIA AVE, DANBURY, CT, 06813
G	5233	24 KENOSIA	PN LLC	24 KENOSIA AVE, DANBURY, CT, 06813
H	5292	KENOSIA	38 KENOSIA AVENUE REALTY LLC	440 MAMARONECK STE N-503, HARRISON, NY, 10528
I	5290	KENOSIA	36 KENOSIA AVENUE LLC	154 WHITE ST, DANBURY, CT, 06813
J	5291	KENOSIA	BELMI MANAGEMENT PARTNERSHIP	17 PILGRIM HILL RD, RIDGEFIELD, CT, 06877
K	5289	2 PRECISION	TWF ASSOCIATES LLC	29 THRONWOOD RD, STAMFORD, CT, 06903

1 C-1 ABUTTERS MAP
SCALE: 1"=300'

APPROXIMATE NORTH

GRAPHIC SCALE
300 0 150 300 600 1200
(IN FEET)
1 inch = 300 ft.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
A	12/05/22	RTS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW
0	01/05/23	RTS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION
1	02/06/23	RTS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
2	02/28/23	LVA	TJR	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
3	03/24/23	RTS	TJR	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
4	04/11/23	RTS	TJR	CONSTRUCTION DRAWINGS – REVISED FOR REGULATORY COMMENTS
5	10/11/23	BSP	TJR	CONSTRUCTION DRAWINGS – REVISED FOR RFDS

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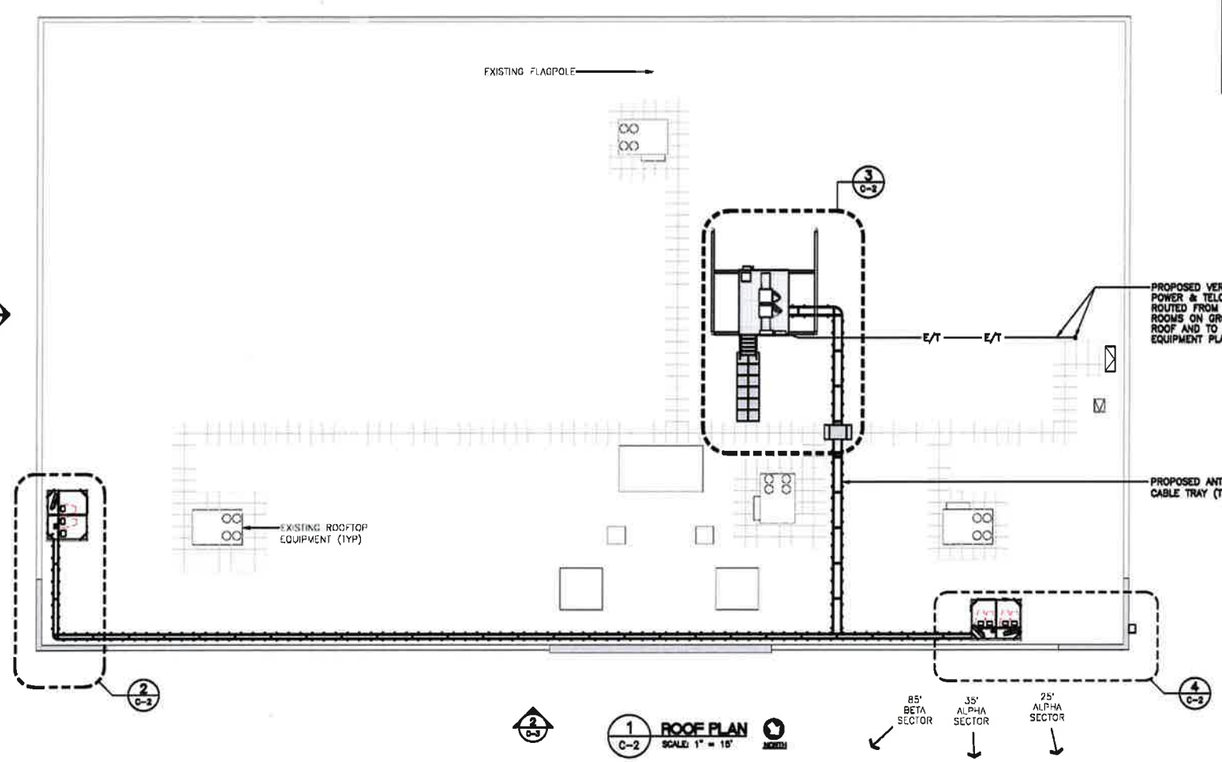
SCALE: AS NOTED
JOB NO. 21058.02

ABUTTERS MAP AND LIST

C-1

Sheet No. 4 of 10

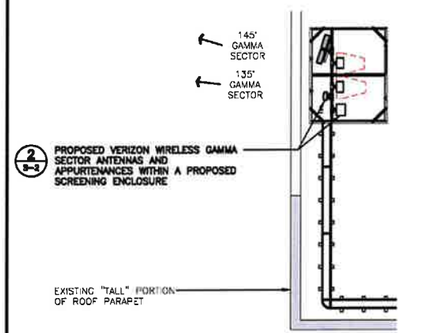
STRUCTURAL COMPLIANCE
ANTENNA MOUNTS & EQUIPMENT PLATFORM A STRUCTURAL ANALYSIS OF THE ANTENNA MOUNTS AND EQUIPMENT PLATFORM WAS PERFORMED FOR THE PROPOSED EQUIPMENT INSTALLATION AND THEY WERE FOUND TO BE STRUCTURALLY SUFFICIENT TO ACCOMMODATE THE PROPOSED LOADING. REFER TO THE STRUCTURAL ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING (PROJECT # 21058.02) DATED 10/13/23 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
NOTE: NO EQUIPMENT SHALL BE INSTALLED ON THE HOSTING STRUCTURE WITHOUT A PASSING STRUCTURAL ANALYSIS REPORT AND CONTRACTOR PRIOR CONFIRMATION THAT ANY AND ALL REQUISITE MODIFICATIONS HAVE BEEN COMPLETED.



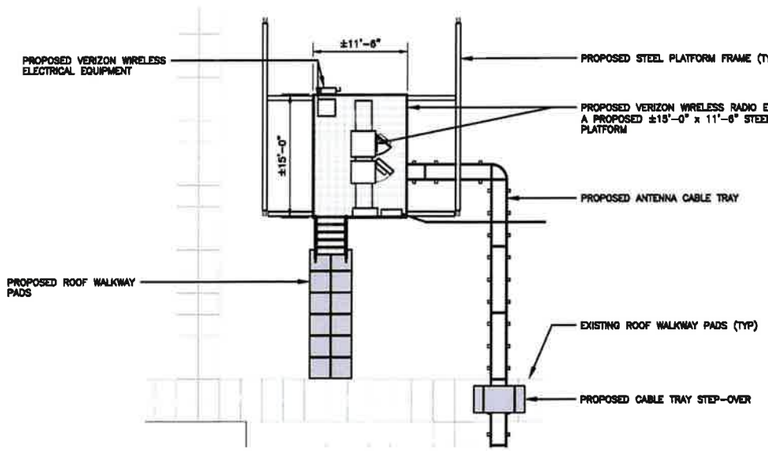
1 C-2 ROOF PLAN
SCALE: 1" = 15'

NOTES:

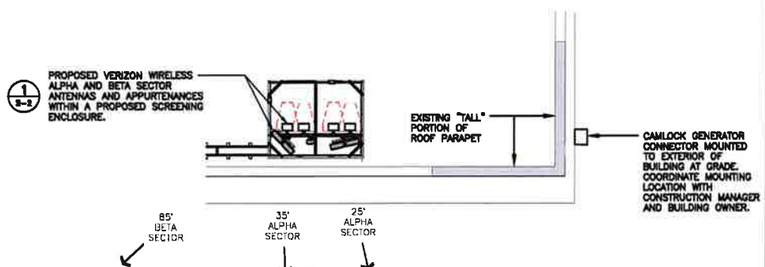
1. CONTRACTOR TO COORDINATE ALL WORK WITH OWNER & LL IN ADVANCE, AS PROPOSED WORK WILL NEED TO BE CONDUCTED IN POTENTIALLY OCCUPIED SPACES. (I.E. UNDER PROPOSED FRAMES AND CONDUIT CHASE ALONG THE STAIRWELL WALL)
2. OWNER & LL WILL BE RESPONSIBLE FOR SCHEDULING THE VACANCY OF SAID OCCUPANTS IN RELATION TO THE CONSTRUCTION SCHEDULE AGREED UPON BY ALL PARTIES.



2 C-2 PARTIAL ROOF PLAN
SCALE: 1/8" = 1'



3 C-2 PARTIAL ROOF PLAN
SCALE: 1/8" = 1'



4 C-2 PARTIAL ROOF PLAN
SCALE: 1/8" = 1'

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
5	10/31/23	BBP	LJR	CONSTRUCTION DRAWINGS – REVISED FOR NEW RFDS
4	04/05/23	BRS	LJR	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
3	03/24/23	BRS	LJR	CONSTRUCTION DRAWINGS – REVISED PER NEW RFDS
2	02/28/23	LJA	LJR	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
1	02/08/23	BRS	LJR	PRELIMINARY CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
0	01/05/23	BRS	LJR	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION
A	12/05/22	BRS	LJR	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW

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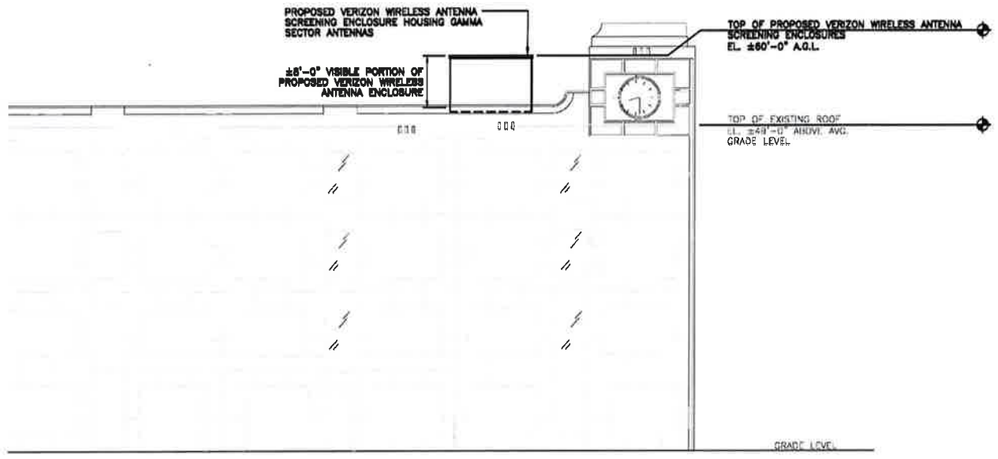
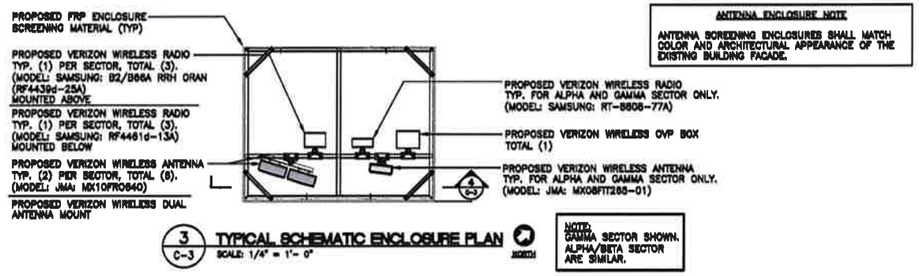
ROOF AND EQUIPMENT PLANS

C-2

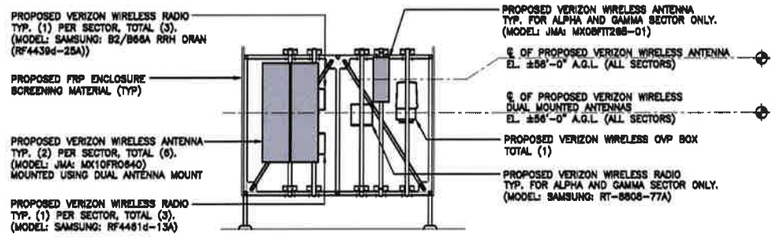
Sheet No. 6 of 10



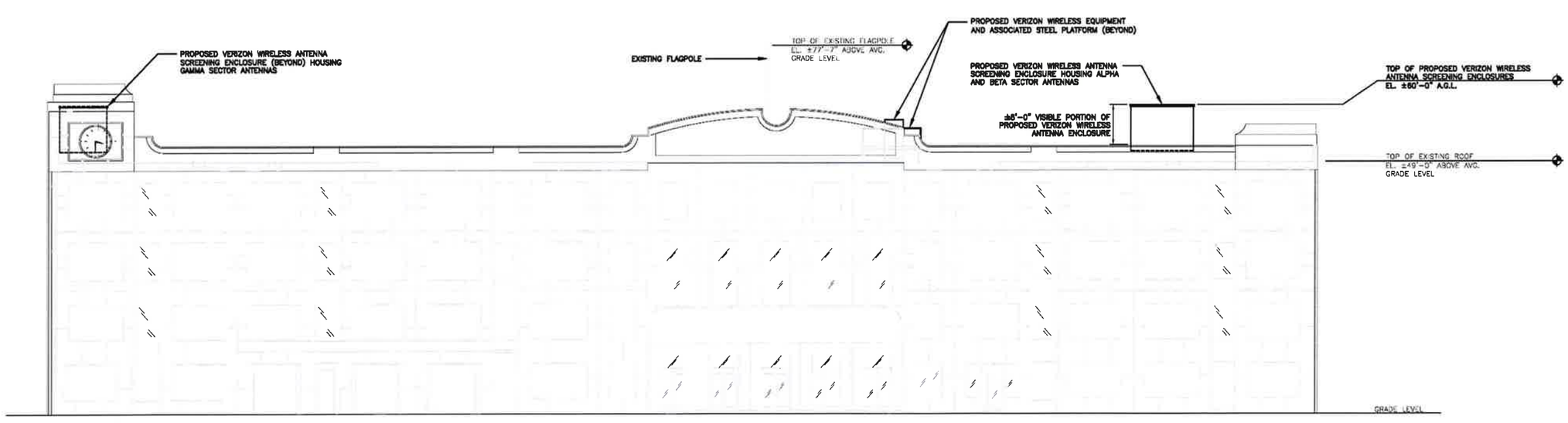
1 C-3 **PARTIAL EAST BUILDING ELEVATION**
SCALE: 1" = 10'



3 C-3 **TYPICAL SCHEMATIC ENCLOSURE PLAN**
SCALE: 1/4" = 1'- 0"



4 C-3 **TYPICAL SCHEMATIC ENCLOSURE SECTION**
SCALE: 1/4" = 1'- 0"



2 C-3 **NORTH BUILDING ELEVATION**
SCALE: 1" = 10'

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
5	10/11/23	BSP	TJR	CONSTRUCTION DRAWINGS – REVISED PER RFDS
4	04/03/23	BRS	TJR	CONSTRUCTION DRAWINGS – REVISED PER REGULATORY COMMENTS
3	01/24/23	BRS	TJR	CONSTRUCTION DRAWINGS – REVISED PER RFDS
2	02/28/23	LVA	TJR	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
1	02/06/23	BRS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
0	01/05/23	BRS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION
A	12/05/22	BRS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW

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www.CentekEng.com

VERIZON WIRELESS

RIDGEFIELD BOEHRINGER LIFE STORAGE

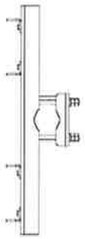
19 KENOSIA AVE
DANBURY, CT 06811

DATE: 12/06/22
SCALE: AS NOTED
JOB NO. 21058.02

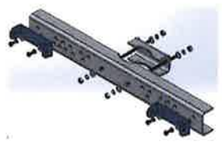
BUILDING ELEVATIONS AND ENCLOSURE PLANS

C-3

Sheet No. 3 of 10



PLAN VIEW



ANTENNA MOUNT ISOMETRIC

DUAL ANTENNA MOUNTING KIT	
EQUIPMENT	DESCRIPTION
MOUNT MAKE: JMA MODEL: 919003314	• SIDE-BY-SIDE MOUNTING KIT, ACCOMMODATES (2) COMPATABLE ANTENNAS • 2 BRACKETS REQUIRED FOR 4'-6' ANTENNAS • 3 BRACKETS REQUIRED FOR 6'-8' ANTENNAS

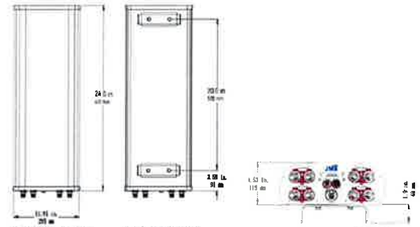
1 C-4 DUAL ANTENNA MOUNT DETAIL
NOT TO SCALE

ELEVATION - ISOMETRIC

BOTTOM

10-PORT SECTOR ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: JMA MODEL: MX10FRO640	71.6"L x 19.8"W x 7.4"D	78.3 LBS. (NET WEIGHT)
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH VERIZON WIRELESS CONSTRUCTION MANAGER PRIOR TO ORDERING.		

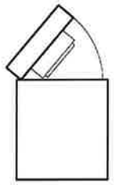
2 C-4 SECTOR ANTENNA DETAIL
NOT TO SCALE

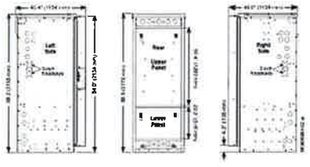


FRONT ELEVATION REAR ELEVATION BOTTOM

6 - PORT SECTOR ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: JMA MODEL: MX06FIT265-01	24.0"L x 11.6"W x 4.53"D	21.5 LBS. (W/SUPPLIED PIPE MOUNT BRACKET)
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH VERIZON WIRELESS CONSTRUCTION MANAGER PRIOR TO ORDERING.		

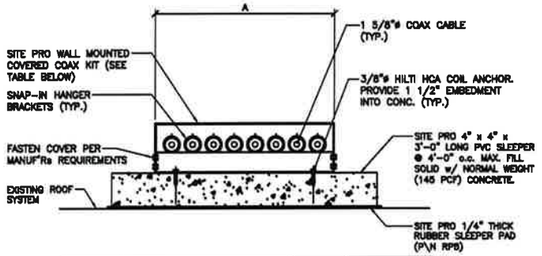
3 C-4 SECTOR ANTENNA DETAIL
NOT TO SCALE





EQUIPMENT / BATTERY CABINET			
EQUIPMENT	DIMENSIONS	WT. (NO EQUIP/BATTERIES)	WT. (WITH EQUIP/BATTERIES)
MAKE: COMMSCOPE MODEL: RBA54-32	86.5"H x 45.4"W x 44.6"D	756 LBS. (MAX.)	3900 LBS. (MAX.)
NOTES: 1. CONTRACTOR TO CONFIRM CABINET MAKE/MODEL AND QUANTITY WITH VERIZON WIRELESS CONSTRUCTION MANAGER PRIOR TO ORDERING.			

4 C-4 PROPOSED EQUIP. / BATTERY CABINET
NOT TO SCALE



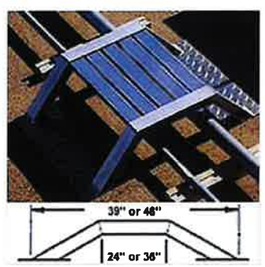
NO. CABLES	SITE PRO ROOF MOUNTED COVERED COAX KIT (P/N)	A	SITE PRO COAX 0°-45° SPLICE
4	WMC4	11 1/2"	SP1573
8	WMC8	21 1/2"	SP1574
12	WMC12	31"	SP1897

7 C-4 ROOF MOUNTED CABLE SUPPORT
SCALE: NOT TO SCALE

RF4439d-25A

REMOTE RADIO UNIT (RRU)		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: SAMSUNG MODEL: RF4439d-25A	14.96"H x 14.96"W x 10.04"D	74.7 LBS.
NOTES: 1. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE AND CONFIRM FINAL EQUIPMENT MAKE/MODEL AND QUANTITY SELECTION WITH VERIZON WIRELESS CONSTRUCTION MANAGER PRIOR TO ORDERING.		

5 C-4 PROPOSED REMOTE RADIO UNIT DETAIL
SCALE: NOT TO SCALE



CABLE TRAY STEP-OVER

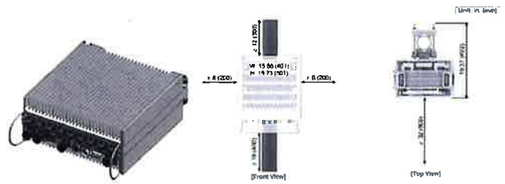
CABLE TRAY STEP-OVER		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: SITEPRO1 MODEL: UB10-36	48"L x 36"W	65 LBS.

8 C-4 CABLE TRAY STEP-OVER DETAIL
NOT TO SCALE

RF4461d-13A

REMOTE RADIO UNIT (RRU)		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: SAMSUNG MODEL: RF4461d-13A	14.96"H x 14.96"W x 10.23"D	78.1 LBS.
NOTES: 1. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE AND CONFIRM FINAL EQUIPMENT MAKE/MODEL AND QUANTITY SELECTION WITH VERIZON WIRELESS CONSTRUCTION MANAGER PRIOR TO ORDERING.		

6 C-4 PROPOSED REMOTE RADIO UNIT DETAIL
SCALE: NOT TO SCALE



RRH - ISOMETRIC RRH CLEARANCES

C BAND 8T8R 320W RRU (REMOTE RADIO UNIT)			
EQUIPMENT	BANDS	DIMENSIONS	WEIGHT
MAKE: SAMSUNG MODEL: RT-8808-77A	N77: 3700 MHz	15.0"H x 15.0"W x 6.8"D	56.5 LBS.
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH VERIZON WIRELESS CONSTRUCTION MANAGER PRIOR TO ORDERING.			

9 C-4 C-BAND 8T8R 320W RADIO UNIT DETAIL
NOT TO SCALE

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
B	10/11/23	BSP	TJK	CONSTRUCTION DRAWINGS – REVISED PER RFDS
4	04/02/23	RFS	TJK	CONSTRUCTION DRAWINGS – REVISED PER REGULATORY COMMENTS
3	02/24/23	RFS	TJK	CONSTRUCTION DRAWINGS – REVISED PER RFDS
2	02/08/23	RFS	TJK	PRELIMINARY CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
1	02/06/23	RFS	TJK	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION
0	01/06/23	RFS	TJK	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW
A	12/05/22	RFS	TJK	

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TYPICAL EQUIPMENT DETAILS

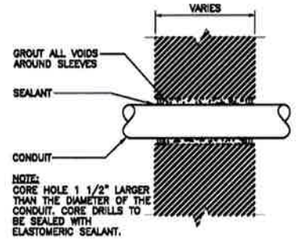
C-4

Sheet No. 7 of 19

50KVA DRY TYPE TRANSFORMER				
EQUIPMENT	DIMENSIONS	PRIMARY/SECONDARY VOLTAGE	ENCLOSURE	WT.
MAKE: SQUARE D MODEL: 5053HNV	29.3"H x 25.9"W x 25.5"D	240/480V 120/240V	NEMA 3R	450 LBS.

NOTES:
1. CONTRACTOR TO CONFIRM XFMR MAKE/MODEL WITH VERIZON WIRELESS CONSTRUCTION MANAGER PRIOR TO ORDERING.

1 / C-5 **PROPOSED 50KVA TRANSFORMER**
SCALE: NOT TO SCALE



NOTE:
CORE HOLE 1 1/2" LARGER THAN THE DIAMETER OF THE CONDUIT. CORE DRILLS TO BE SEALED WITH ELASTOMERIC SEALANT.

2 / C-5 **PIPE AND CONDUIT PENETRATION DETAIL IN NON-RATED PARTITION**
SCALE: NOT TO SCALE

FLOOR OR WALL	MIN. THICK.	MAX. PIPE DIA.	MIN. ANNULAR SPACE	MAX. ANNULAR SPACE	MIN. MAT. THICK.	MIN. ANNULAR MAT. THICK.	F RATING
F	3 3/4"	1 1/2"	3/8"	2 1/8"	1"	2 3/4"	2
F	3 3/4"	4"	3/8"	4"	1"	2 3/4"	2
F	3 3/4"	6"	3/8"	6"	1"	2 3/4"	2
F	4 1/2"	1 1/2"	3/8"	2 1/8"	1"	3 1/2"	3
F	4 1/2"	4"	3/8"	4"	1"	3 1/2"	3
F	4 1/2"	6"	3/8"	6"	1"	3 1/2"	3
W	6 1/2"	1 1/2"	3/8"	2 1/8"	1"	3 1/2"	3
W	6 1/2"	4"	3/8"	4"	1"	3 1/2"	3
W	6 1/2"	6"	3/8"	6"	1"	3 1/2"	3

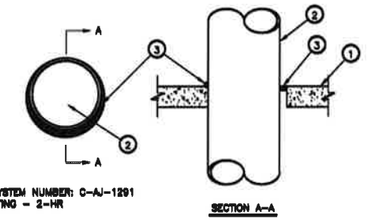
THROUGH PENETRANTS
ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL.

FORMING MATERIAL SHALL BE A MIN. OF 1 1/2" THICK OF MIN. 4.0 PCF MINERAL WOOL BATT INSULATION FIRMLY PACKED IN OPENING. USG INTERIORS–TYPE SAF

THICKNESS OF SEALANT APPLIED FLUSH W/THE TOP SURFACE OF BOTH SIDES OF FLOOR/WALL (SEE TABLE), USG INTERIORS–TYPE SS

UL SYSTEM NUMBER: CAJ1020
F RATING – 3 HR.

3 / C-5 **PIPE AND CONDUIT PENETRATION DETAIL IN CONCRETE OR MASONRY**
SCALE: NOT TO SCALE



UL SYSTEM NUMBER: C-AJ-1291
F RATING – 2-HR

SECTION A–A

4 / C-5 **METAL PIPE THROUGH CONCRETE FLOOR/ WALL OR BLOCK WALL**
SCALE: NOT TO SCALE

NOTES:

1. FLOOR OR WALL ASSEMBLY – MIN 2-1/2 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100–150 PCF) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX DIAM OF OPENING IS 30–7/8 IN. SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.

   A. STEEL FLOOR UNIT/FLOOR ASSEMBLY (NOT SHOWN) – AS AN ALTERNATE TO ITEM 1, THE FLOOR ASSEMBLY MAY CONSIST OF A FLUTED STEEL FLOOR UNIT/ CONCRETE FLOOR ASSEMBLY. THE FLOOR ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL FLOOR CEILING DESIGN IN THE FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:

   B. CONCRETE – MIN 2-1/2 IN. THICK REINFORCED LIGHTWEIGHT ON NORMAL WEIGHT (100–150 PCF) CONCRETE, AS MEASURED FROM THE TOP PLANE OF THE FLOOR UNITS.

   C. STEEL FLOOR AND FORM UNITS* – COMPOSITE OR NON–COMPOSITE 1–1/2 TO 3 IN. DEEP FLUTED GALV STEEL UNITS AS SPECIFIED IN THE INDIVIDUAL FLOOR–CEILING DESIGN. MAX DIAM OF OPENING IS 30–7/8 IN.

2. THROUGH–PENETRANT – ONE METALLIC PIPE OR CONDUIT TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND PERIPHERY OF OPENING SHALL BE MIN 0 IN. TO MAX 7/8 IN. PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR CONDUITS MAY BE USED:

   A. STEEL PIPE NOM 30 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.

   B. IRON PIPE NOM 30 IN. DIAM (OR SMALLER) CAST OR DUCTILE IRON PIPE.

   C. COPPER PIPE NOM 6 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.

   D. COPPER TUBING NOM 6 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.

   E. CONDUIT NOM 6 IN. DIAM (OR SMALLER) STEEL. CONDUIT.

   F. CONDUIT NOM 4 IN. DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING (EMT).

3. FILL, VOID OR CAVITY MATERIAL* – SEALANT – MIN 1/2 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR WITH BOTH SURFACES OF WALL. AT THE POINT CONTACT LOCATION BETWEEN PIPE AND CONCRETE, A MIN 1/4 IN. DIAM BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE CONCRETE/PIPE INTERFACE ON THE TOP SURFACE OF FLOOR AND ON BOTH SURFACES OF WALL.

RVZDC-6627-PF-48

OVER VOLTAGE PROTECTION BOX		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: RAYCAP MODEL: RVZDC–6627–PF–48	29.5"H x 16.5"W x 12.6"D	32 LBS.

NOTES:
1. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE AND CONFIRM FINAL EQUIPMENT MAKE/MODEL AND QUANTITY SELECTION WITH VERIZON WIRELESS CONSTRUCTION MANAGER PRIOR TO ORDERING.
2. PROVIDES DC SURGE PROTECTION FOR 12 REMOTE RADIO UNITS.

5 / C-5 **PROPOSED OVP BOX DETAIL**
SCALE: NOT TO SCALE

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
5	10/11/23	BSP	LJA	CONSTRUCTION DRAWINGS – REVISED FOR NEW RFDS
4	04/03/23	BES	LJA	CONSTRUCTION DRAWINGS – REVISED PER REGULATORY COMMENTS
3	02/24/23	BES	LJA	CONSTRUCTION DRAWINGS – REVISED FOR NEW RFDS
2	02/06/23	BES	LJA	PRELIMINARY CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
1	02/06/23	BES	LJA	PRELIMINARY CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
0	01/05/23	BES	LJA	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION
A	12/08/22	BES	LJA	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW

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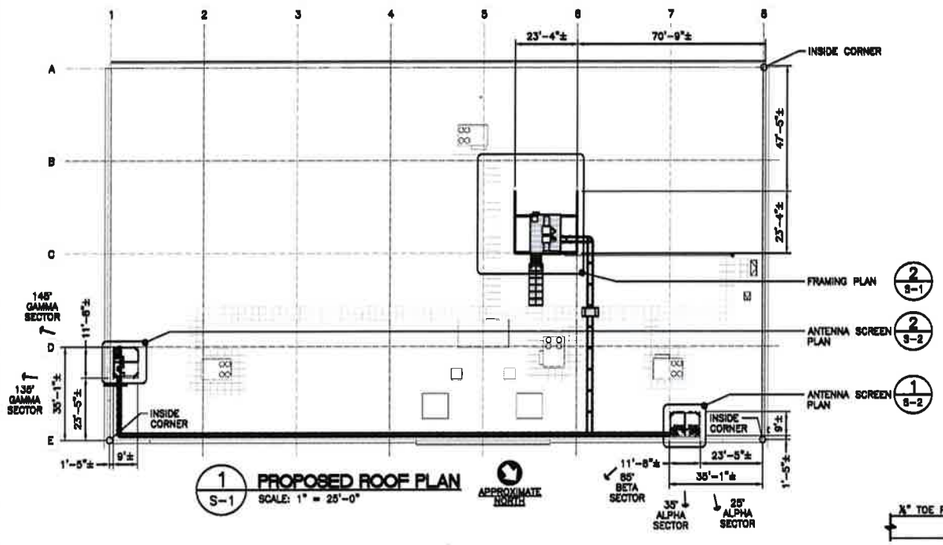
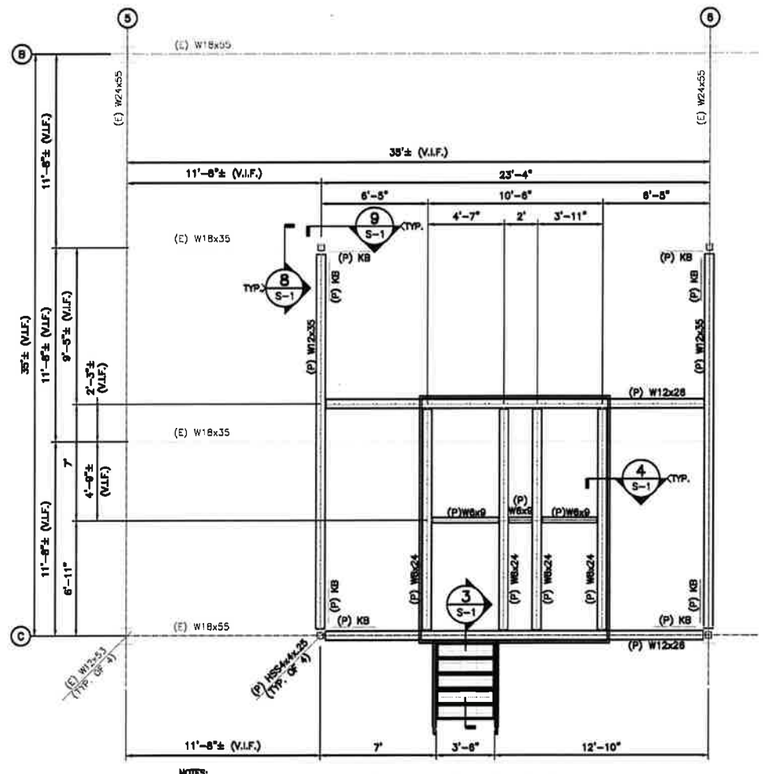
TYPICAL EQUIPMENT DETAILS

C-5

Sheet No. 8 of 18



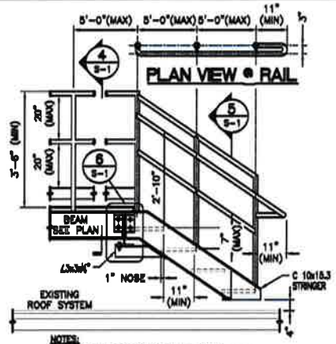
1 S-1 PROPOSED ROOF PLAN
SCALE: 1" = 25'-0"



NOTES:
1. T/STEEL REFERENCE EL. = 0'-0" U.O.N.
2. McNICHOLS GRATING 1⅛"x3/16" GW
3. McNICHOLS GRATING 1⅛"x3/16" GW ON STAIRS
4. CONTRACTOR TO VERIFY DIMENSIONS WITH EQUIPMENT CABINET MANUFACTURER PRIOR TO STEEL FABRICATION.
5. K.B. = KNEE BRACE ∠3x3x¼"
6. ⊕ = W.P. = WORKING POINT
7. ◄ ► = MOMENT CONNECTION

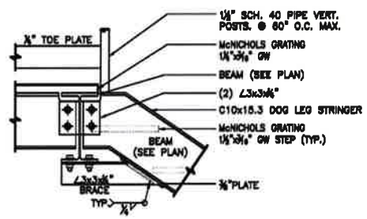
2 S-1 PROPOSED FRAMING PLAN
SCALE: ¾" = 1'-0"

APPROXIMATE NORTH

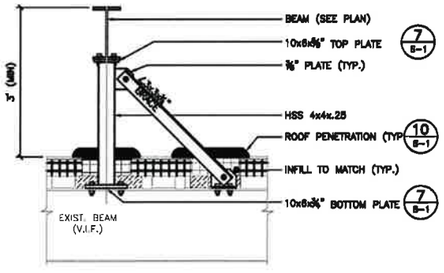


NOTES:
1. T/STEEL REFERENCE EL. = 0'-0" U.O.N.
2. McNICHOLS GRATING 1⅛"x3/16" GW
3. McNICHOLS GRATING 1⅛"x3/16" GW ON STAIRS

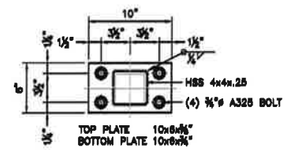
3 S-1 STAIR SECTION
SCALE: ½" = 1'-0"



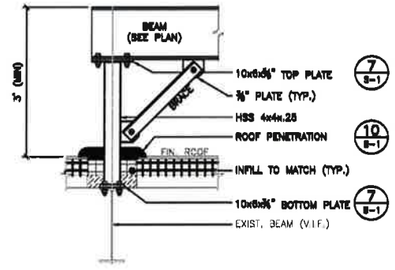
6 S-1 STAIR CONNECTION
SCALE: ¾" = 1'-0"



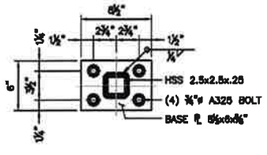
9 S-1 STUB COLUMN DETAIL
SCALE: ¾" = 1'-0"



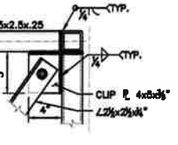
7 S-1 PLATE DETAIL
SCALE: 1½" = 1'-0"



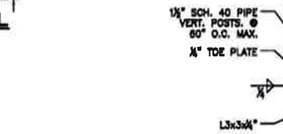
8 S-1 STUB COLUMN DETAIL
SCALE: ¾" = 1'-0"



11 S-1 PLATE DETAIL
SCALE: 1½" = 1'-0"

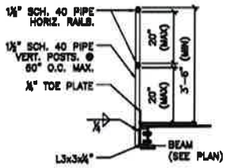


12 S-1 PLATE DETAIL
SCALE: 1½" = 1'-0"

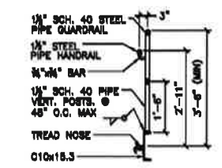


NOTES:
1. CONTRACTOR TO INSTALL PER MANUFACTURERS RECOMMENDATIONS. CHEMCURB SYSTEM+ AS MANUFACTURED BY CHEM LINK ADVANCED ARCHITECTURAL PRODUCT. 383 E. LYONS STREET, SCHOOLCRAFT, MI 49087, (800) 626-1681.
2. CONTRACTOR TO COORDINATE ALL ROOFING WORK WITH OWNER'S ROOFING CONTRACTOR SO AS NOT TO VOID ANY EXISTING WARRANTY.
3. REFER TO ANTENNA SECTORS LOCATION NOTES ON SHEET C-2 FOR ADDITIONAL INFORMATION PERTAINING TO ROOF WORK.

10 S-1 ROOF PENETRATION
SCALE: N.T.S.



4 S-1 RAIL SECTION
SCALE: ½" = 1'-0"

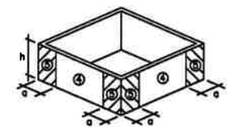


5 S-1 STAIR RAIL SECTION
SCALE: ½" = 1'-0"

ANTENNA ENCLOSURE

1. THE ANTENNA CONCEALMENT ENCLOSURE WITH ANCILLARY FRAMING AND ITS ATTACHMENT TO THE STEEL SUBFRAME SHALL BE ENGINEERED BY A REGISTERED STATE OF CONNECTICUT LICENSED ENGINEER EXPERIENCED IN THE DESIGN OF THESE SYSTEMS.
2. THE CONTRACTOR SHALL SUBMIT DETAILED SHOP DRAWINGS AND COMPUTATIONS BEARING THE SEAL OF THE RESPONSIBLE DESIGN PROFESSIONAL FOR REVIEW BY THE ENGINEER OF RECORD PRIOR TO FABRICATION.
3. THE DUNNAGE FRAME IS DESIGNED FOR WIND LOADS BASED ON MAIN WIND-FORCE RESISTING SYSTEMS (MWFRS) WIND PRESSURES AS SPECIFIED UNDER 'WIND LOAD' WITHIN THE DESIGN BASIS.
4. RF ENCLOSURE COMPONENTS SHALL BE DESIGNED FOR WIND LOADS BASED ON COMPONENTS AND CLADDING (CC) WIND PRESSURES.
5. WIND DESIGN DATA PER 2022 CSBC AND ASCE 7-16:

   INTERNAL PRESSURE COEFFICIENT, GCpi = ± 0.18



CC - ENCLOSURE SURFACE ELEVATION
N.T.S.

a = 10 PERCENT OF LEAST HORIZONTAL DIMENSION OR 0.4H, WHICHEVER IS SMALLER, BUT NOT LESS THAN EITHER 4 PERCENT OF LEAST HORIZONTAL DIMENSION OR 3 FT.
h = MEAN ENCLOSURE HEIGHT, IN FEET

EFFECTIVE WIND AREA LESS THAN OR EQUAL TO 10 SQUARE FEET:
ZONE 4; Pcc = +51 PSF & -55 PSF
ZONE 5; Pcc = +51 PSF & -64 PSF

EFFECTIVE WIND AREA MORE THAN OR EQUAL TO 500 SQUARE FEET
ZONE 4; Pcc = +42 PSF & -45 PSF
ZONE 5; Pcc = +42 PSF & -45 PSF

i) LINEAR INTERPOLATE FOR EFFECTIVE WIND AREAS GREATER THAN 10 SQUARE FEET AND LESS THAN 500 SQUARE FEET.
ii) PLUS AND MINUS SIGNS SIGNIFY PRESSURES ACTING TOWARD AND AWAY FROM THE INTERNAL SURFACES, RESPECTIVELY.
iii) FOR A FASTENER, THE EFFECTIVE AREA EQUALS THE AREA TRIBUTARY TO AN INDIVIDUAL FASTENER.

6. EXTENT OF ANTENNA ENCLOSURE IS DENOTED WITHIN THE CONSTRUCTION DOCUMENTS. FIELD VERIFICATION OF OVERALL DIMENSIONS SHOULD BE CONDUCTED PRIOR TO SUBMISSION OF FABRICATION DRAWINGS.
7. CONTRACTOR SHALL CONDUCT A DETAILED FIELD SURVEY FOR USE IN REPLICATING THE ARCHITECTURAL APPEARANCE OF THE EXISTING BUILDING.

REV.	DATE	prelim	BY	CHK'D	BY	DESCRIPTION
A	12/05/22		RYS		LJA	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW
6	01/05/23		RYS		LJA	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION
5	10/11/23		BSP		LJA	CONSTRUCTION DRAWINGS – REVISED PER NEW RFDS
4	04/05/23		RYS		LJA	CONSTRUCTION DRAWINGS – REVISED FOR REGULATORY COMMENTS
3	02/24/23		RYS		LJA	CONSTRUCTION DRAWINGS – REVISED PER NEW RFDS
2	02/08/23		MK		LJA	PRELIMINARY CONSTRUCTION DRAWINGS – REVISED FOR CLIENT COMMENTS
1	02/06/23		LJA		LJA	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW

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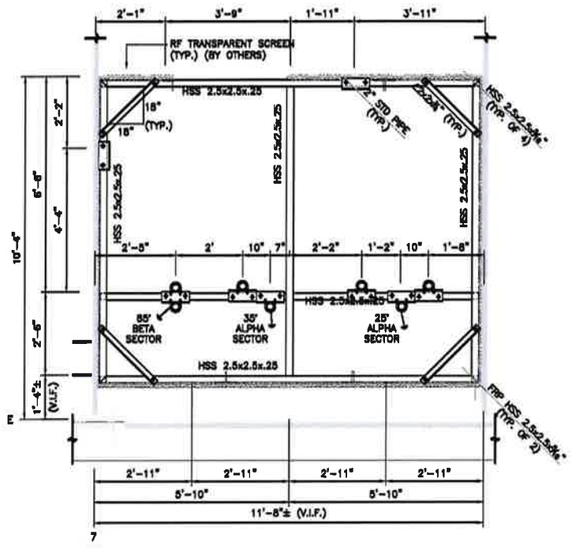
SCALE: AS NOTED
JOB NO. 21058.02

STRUCTRAL DETAILS

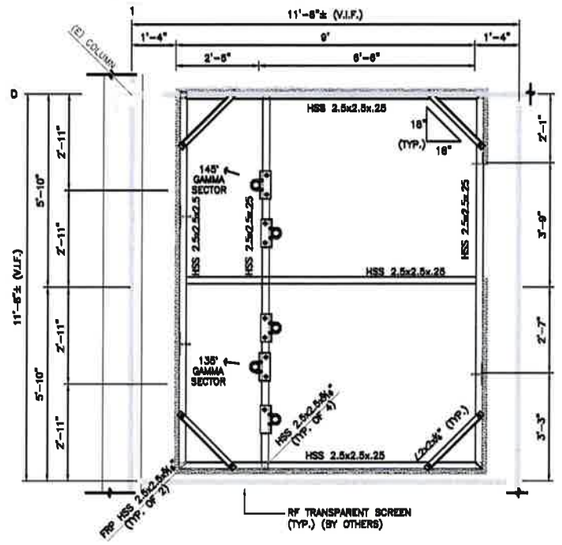
S-1

Sheet No. 3 of 10



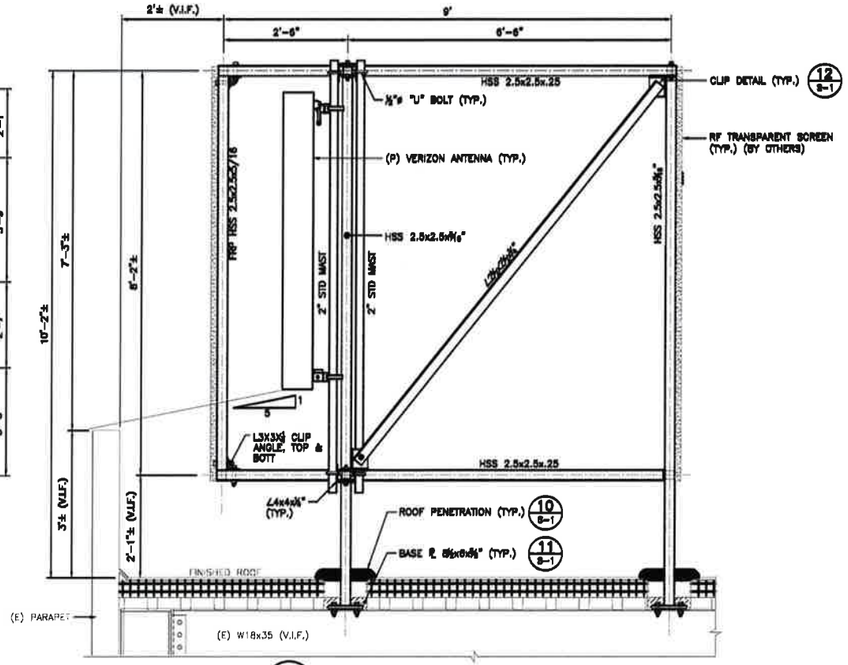
1 S-2 **ANTENNA SCREEN PLAN**
SCALE: ¾" = 1'-0" (ALPHA, BETA)

APPROXIMATE NORTH

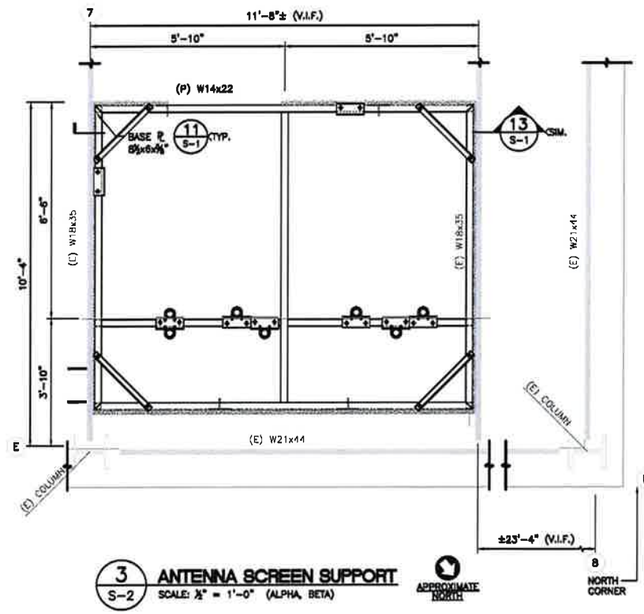


2 S-2 **ANTENNA SCREEN PLAN**
SCALE: ¾" = 1'-0" (GAMMA)

APPROXIMATE NORTH

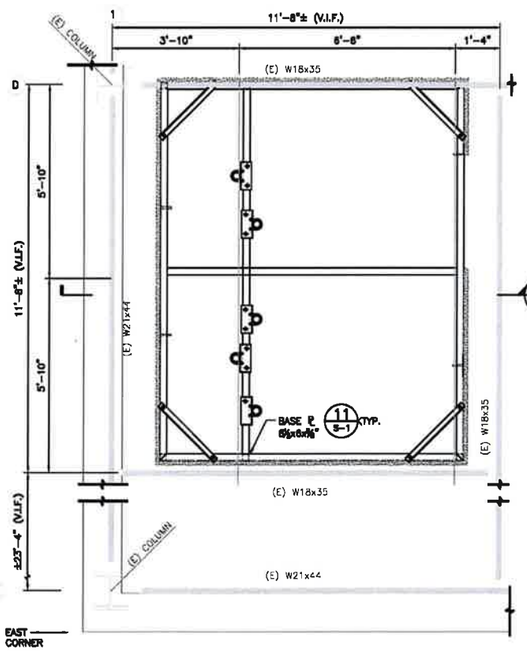


5 S-2 **ANTENNA SCREEN SECTION**
SCALE: ¾" = 1'-0"



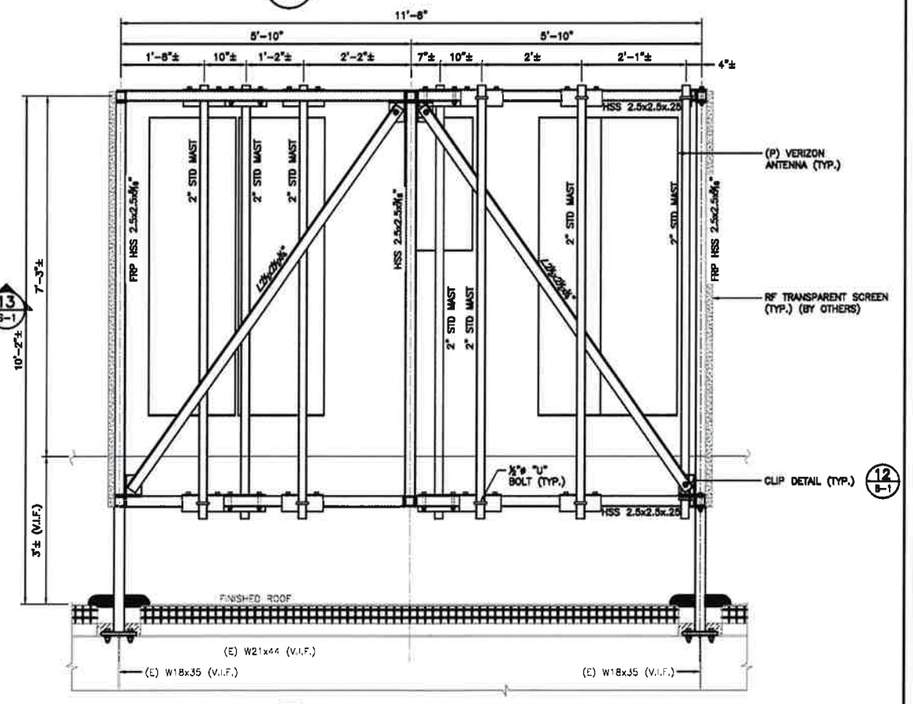
3 S-2 **ANTENNA SCREEN SUPPORT**
SCALE: ½" = 1'-0" (ALPHA, BETA)

APPROXIMATE NORTH



4 S-2 **ANTENNA SCREEN SUPPORT**
SCALE: ½" = 1'-0" (GAMMA)

APPROXIMATE NORTH



6 S-2 **ANTENNA SCREEN SECTION**
SCALE: ¾" = 1'-0"

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
5	10/11/23	BSP	TJR	CONSTRUCTION DRAWINGS – REVISED PER RFDS
4	04/10/23	RTS	TJR	CONSTRUCTION DRAWINGS – REVISED PER REGULATORY COMMENTS
3	02/27/23	RTS	TJR	CONSTRUCTION DRAWINGS – REVISED PER RFDS
2	02/24/23	LAA	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
1	02/06/23	RTS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
0	01/06/23	RTS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION
A	12/05/22	RTS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW

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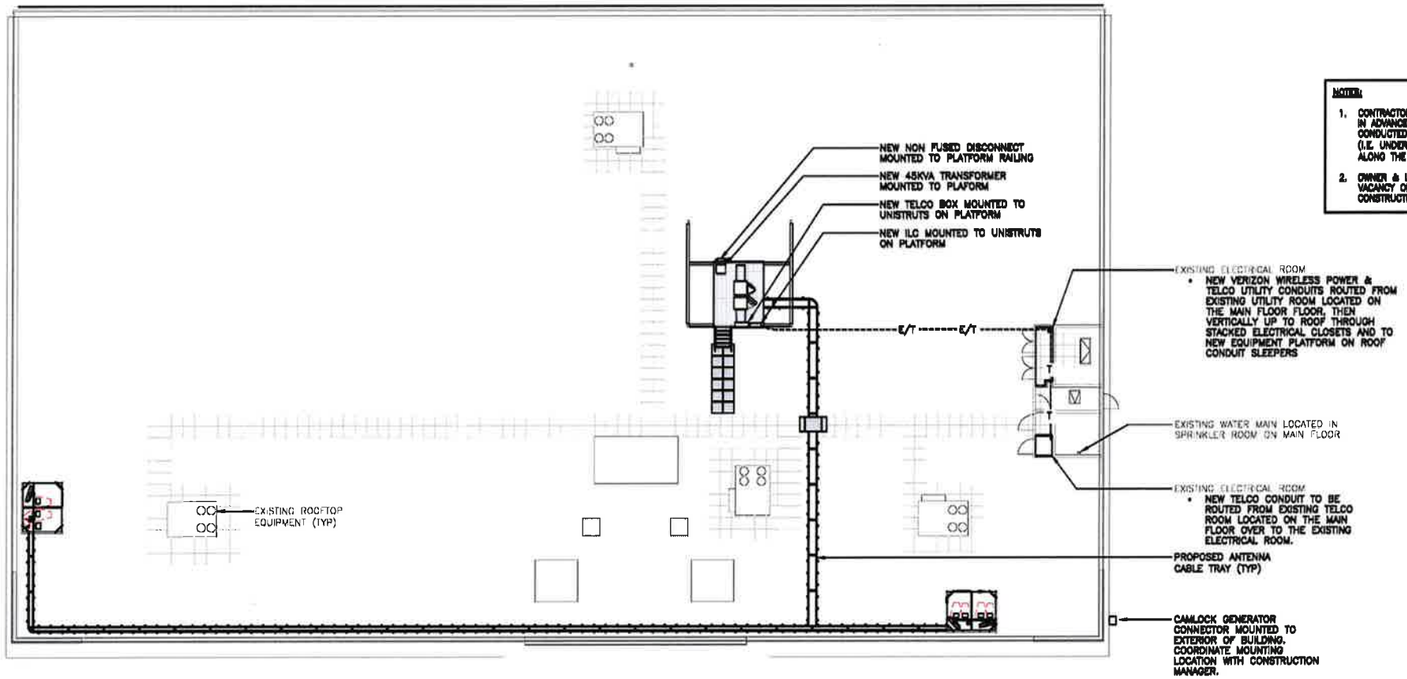
STRUCTURAL DETAILS

S-2

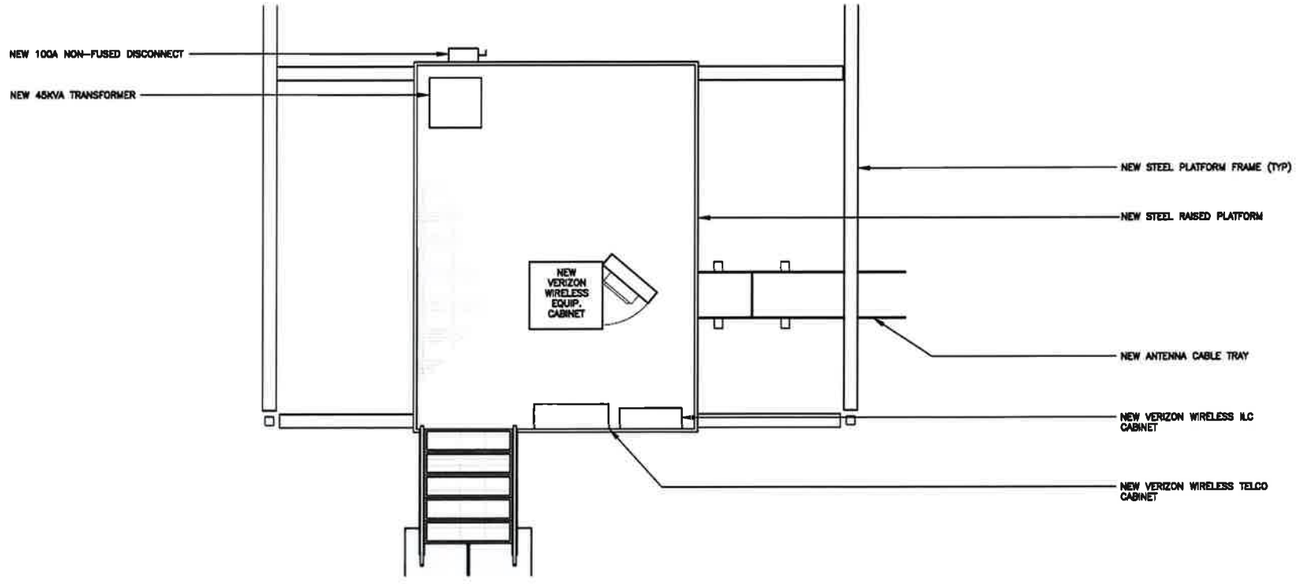
Sheet No. 10 of 19



NOTES:

1. CONTRACTOR TO COORDINATE ALL WORK WITH OWNER & LL IN ADVANCE. AS PROPOSED WORK WILL NEED TO BE CONDUCTED IN POTENTIALLY OCCUPIED SPACES. (I.E. UNDER PROPOSED FRAMES AND CONDUIT CHASE ALONG THE STAIRWELL WALL)
2. OWNER & LL WILL BE RESPONSIBLE FOR SCHEDULING THE VACANCY OF SAID OCCUPANTS IN RELATION TO THE CONSTRUCTION SCHEDULE AGREED UPON BY ALL PARTIES.

1 / E-1 **ELECTRICAL ROOF PLAN**
SCALE: 1" = 15'



2 / E-1 **ELECTRICAL EQUIPMENT PLAN**
SCALE: 3/8" = 1'

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
5	10/11/23	BSP	TJR	CONSTRUCTION DRAWINGS – REVISED PER RFDS
4	04/17/23	RES	TJR	CONSTRUCTION DRAWINGS – REVISED PER REGULATORY COMMENTS
3	03/24/23	RES	TJR	CONSTRUCTION DRAWINGS – REVISED PER RFDS
2	02/28/23	LVA	TJR	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
1	02/06/23	RES	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
0	01/06/23	RES	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION
A	12/05/22	RES	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW

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JOB NO. 21058.02

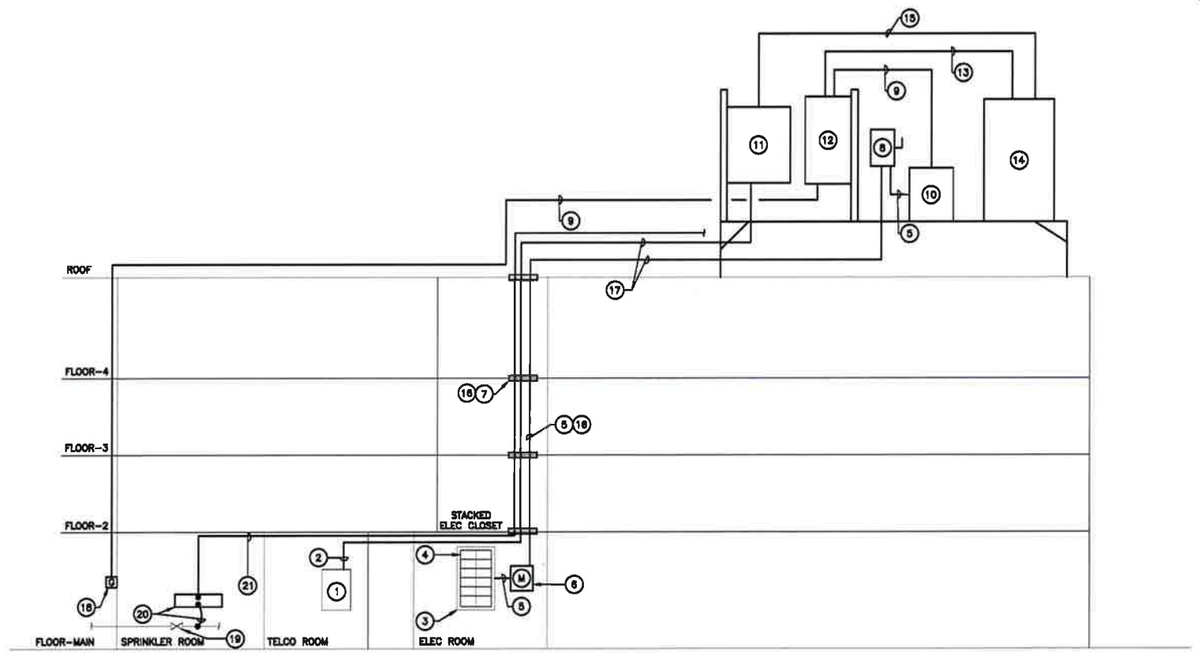
ELECTRICAL ROOF AND EQUIPMENT PLANS

E-1

Sheet No. 11 of 18

RISER DIAGRAM NOTES

1. EXISTING TELCO DEMARC LOCATED IN TELCO ROOM ON MAIN LEVEL
2. (1) 4" CONDUIT WITH PULL ROPES FOR TELEPHONE COMPANY CONDUCTORS. CONDUCTORS PROVIDED BY TELEPHONE COMPANY. PROVIDE ALL COUPLINGS, ADAPTERS, SWEEPS, AND ASSOCIATED HARDWARE. MATERIAL SHALL BE PER TELEPHONE COMPANY SPECIFICATIONS
3. EXISTING 600A, 480/277V, 3 PHASE, 4 WIRE, MDP
4. EXISTING 100A, 3P, SPARE CIRCUIT BREAKER TO BE RE-PURPOSED FOR VERIZON WIRELESS
5. (4) #1 AWG, (1) #6 AWG GROUND, 2" CONDUIT
6. NEW 100A, 480V, 3 PHASE, SMART METER.
7. FLOOR/WALL PENETRATION. COORDINATE WITH CIVIL AND STRUCTURAL DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL PENETRATIONS ARE FIREPROOF AND FIRE RATING OF WALLS AND FLOORS IS MAINTAINED.
8. HEAVY DUTY NEMA-3R, 100A, 480V, NON-FUSED DISCONNECT.
9. (4) 3/0 AWG, (1) #6 AWG GROUND, 2" CONDUIT. MAX CONDUCTOR LENGTH OF 10'.
10. NEW 480V PRIMARY, 208V SECONDARY, THREE PHASE 45KVA TRANSFORMER IN NEMA-3R ENCLOSURE.
11. 3' X 3' X 1' NEMA-3R HOFFMAN BOX AT EQUIPMENT FOR TELCO CONNECTIONS.
12. 200A, 120/240V, THREE PHASE, 30 POSITION, 2 SOURCE, POWER TRANSFER LOAD CENTER WITH DOUBLE TVSS, COPPER BUS, DOOR-IN-DOOR HINGE FRAME, BOLT-ON BREAKERS.
13. POWER CONDUITS AND CONDUCTORS FOR EQUIPMENT CABINETS AS REQUIRED BY MANUFACTURER FOR PROPER OPERATION.
14. VERIZON WIRELESS EQUIPMENT CABINET. INSTALL PER MANUFACTURER REQUIREMENTS
15. CONDUITS AND CONDUCTORS FOR TELCO CONNECTION TO EQUIPMENT CABINETS AS REQUIRED BY MANUFACTURER AND CONSTRUCTION MANAGER FOR PROPER OPERATION OF EQUIPMENT
16. COORDINATE CONDUIT ROUTING IN FIELD WITH CONSTRUCTION MANAGER
17. TELCO AND ELECTRICAL CONDUITS ROUTED ON ROOF SHALL BE ROUTED ON ROOF CONDUIT SLEEPERS. CONTRACTOR TO VERIFY FINAL ROUTING IN FIELD.
18. CAMLOCK GENERATOR CONNECTOR MOUNTED TO EXTERIOR OF BUILDING. COORDINATE MOUNTING LOCATION WITH CONSTRUCTION MANAGER AND BUILDING OWNER.
19. EXISTING WATER MAIN LOCATED IN SPRINKLER ROOM ON MAIN LEVEL.
20. 1" PVC CONDUIT WITH (1) #4/0 AWG GROUNDING ELECTRODE CONDUCTOR BONDED TO STREET SIDE OF WATER MAIN SHUT OFF VALVE AND TO MAIN EQUIPMENT GROUND BAR AT SHELTER. REFER TO WATER MAIN GROUNDING DETAIL.
21. GROUND BAR AND GROUNDING ELECTRODE CONDUCTOR AS SHOWN ON WATER MAIN GROUNDING DETAIL.



1 E-2 **ELECTRICAL RISER DIAGRAM**
SCALE: NOT TO SCALE

NOTES:

1. CONTRACTOR TO COORDINATE ALL WORK WITH OWNER & LL IN ADVANCE, AS PROPOSED WORK WILL NEED TO BE CONDUCTED IN POTENTIALLY OCCUPIED SPACES. (I.E. UNDER PROPOSED FRAMES AND CONDUIT CHASE ALONG THE STAIRWELL WALL)
2. OWNER & LL WILL BE RESPONSIBLE FOR SCHEDULING THE VACANCY OF SAID OCCUPANTS IN RELATION TO THE CONSTRUCTION SCHEDULE AGREED UPON BY ALL PARTIES.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
A	12/05/22	RFS	SJR	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW
0	01/05/23	RFS	SJR	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION
1	02/08/23	RFS	SJR	PRELIMINARY CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
2	02/28/23	LVA	SJR	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
3	03/24/23	RFS	SJR	CONSTRUCTION DRAWINGS – REVISED FOR REGULATORY COMMENTS
4	04/14/23	RFS	SJR	CONSTRUCTION DRAWINGS – REVISED PER RFDS
5	10/11/23	BSP	SJR	CONSTRUCTION DRAWINGS – REVISED PER RFDS

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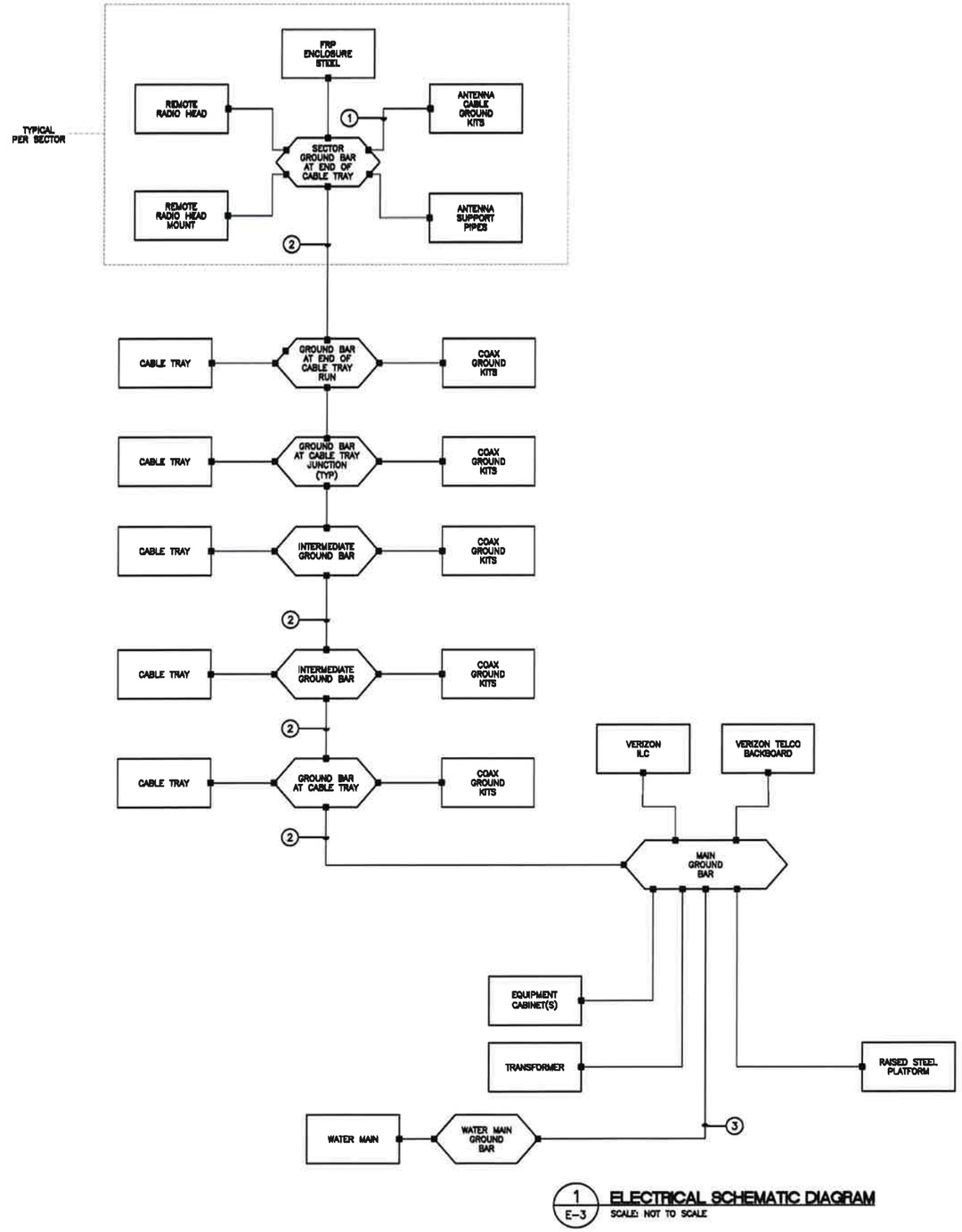
ELECTRICAL RISER DIAGRAM

E-2

Sheet No. 12 of 19



1 / E-3 **ELECTRICAL SCHEMATIC DIAGRAM**
SCALE: NOT TO SCALE

GROUNDING SCHEMATIC NOTES

1. #2/0 GREEN INSULATED
2. #6 AWG
3. REFER TO RISER DIAGRAM FOR SPECIFICATIONS

GENERAL NOTES:

1. ALL SURGE SUPPRESSION EQUIPMENT SHALL BE BONDED TO GROUND PER MANUFACTURER'S SPECIFICATIONS
2. UNLESS OTHERWISE NOTED OR REQUIRED BY CODE, GROUND CONDUCTORS SHOWN SHALL BE #2 AWG (SOLID TINNED BCW – EXTERIOR; STRANDED GREEN INSULATED – INTERIOR).
3. BOND CABLE TRAY AND ICE BRIDGE SECTIONS TOGETHER WITH #6 AWG STRANDED GREEN INSULATED JUMPERS.
4. ALL SECTOR GROUND BARS SHALL BE BONDED TOGETHER WITH #2 AWG SOLID TINNED BCW.
5. BOND ALL EQUIPMENT CABINETS AND BATTERY CABINETS TO GROUND PER MANUFACTURER'S SPECIFICATIONS.
6. REFER TO GROUNDING PLAN FOR LOCATION OF GROUNDING DEVICES.
7. REFER TO ALL ELECTRICAL AND GROUNDING DETAILS.
8. COORDINATE ALL ROOF MOUNTED EQUIPMENT WITH OWNER.
9. ALL ROOF MOUNTED AMPLIFIERS AND ASSOCIATED EQUIPMENT SHALL BE BONDED TO THE SECTOR GROUND BAR PER MANUFACTURER'S SPECIFICATIONS.
10. ALL GROUNDING SHALL BE IN ACCORDANCE WITH NEC AND OWNER'S REQUIREMENTS.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
5	10/11/23	BSP	TJR	CONSTRUCTION DRAWINGS – REVISED PER NEW RFDS
4	04/02/23	RFS	TJR	CONSTRUCTION DRAWINGS – REVISED PER REGULATORY COMMENTS
3	02/24/23	LNS	TJR	CONSTRUCTION DRAWINGS – REVISED PER NEW RFDS
2	02/08/23	RFS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
1	02/08/23	RFS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION
0	01/05/23	RFS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW
A	12/05/22	RFS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW

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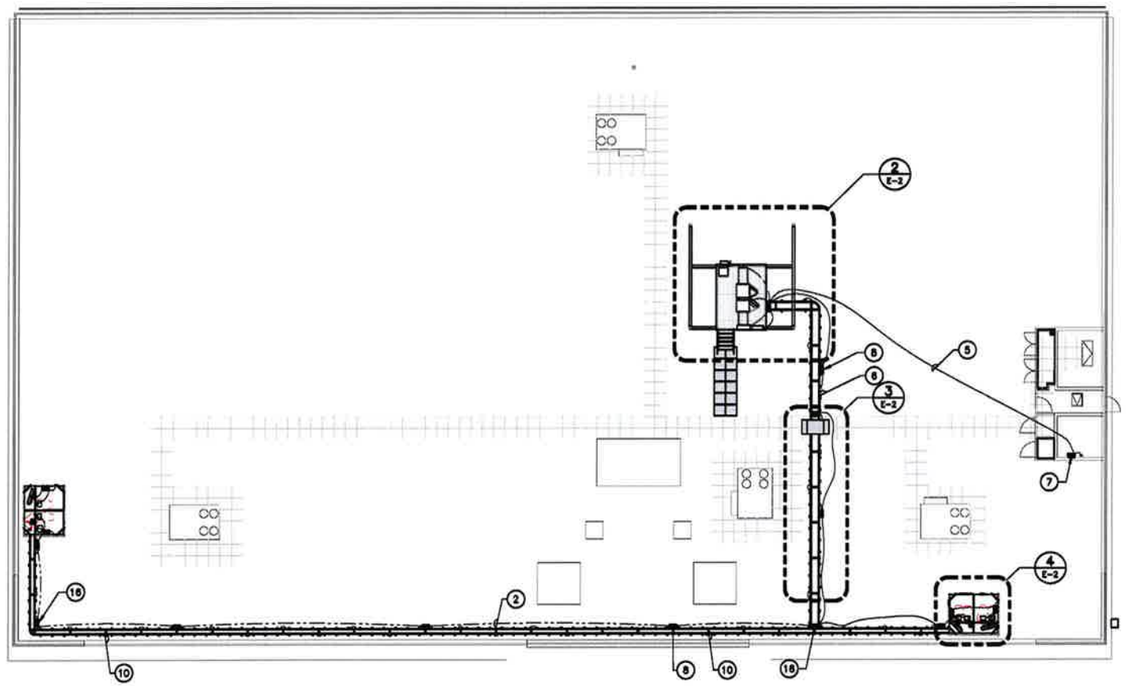
ELECTRICAL SCHEMATIC DIAGRAM

E-3

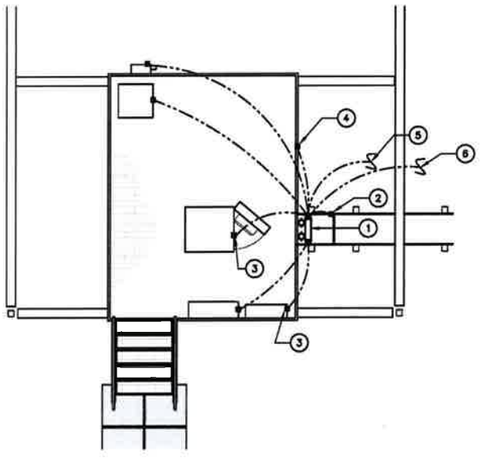
Sheet No. 13 of 19

GROUNDING PLAN NOTES

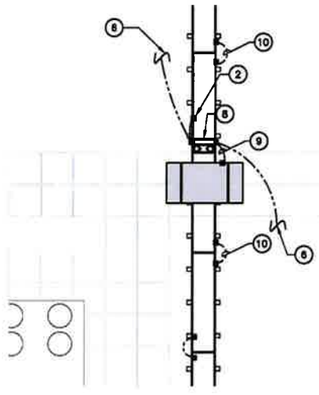
1. MAIN GROUND BAR TYP.
2. BOND GROUND BAR TO CABLE TRAY. TYPICAL FOR EACH GROUND BAR TO BE BONDED TO EACH NEARBY SECTION OF CABLE TRAY. ALL CABLE TRAY RUNS MUST BE BONDED AT EACH END TO A GROUND BAR.
3. BOND EQUIPMENT CABINETS TO MAIN GROUND BAR, TYP.
4. BOND STEEL PLATFORM TO MAIN GROUND BAR TYP.
5. BOND MAIN GROUND BAR TO WATER MAIN PER DETAILS.
6. ALL CABLE TRAY MOUNTED GROUND BARS SHALL BE BONDED TOGETHER WITH #2 AWG SOLID TINNED BCW
7. GROUND BAR BONDED TO WATER MAIN IN SPRINKLER ROOM LOCATED ON MAIN LEVEL.
8. GROUND BAR ATTACHED TO CABLE TRAY COVER, TYP.
9. BOND CABLE TRAY GROUND BAR TO STEEL CABLE TRAY STEP-OVER
10. BOND ALL CABLE TRAY SECTIONS TOGETHER, TYP.
11. GROUND BAR AT END OF CABLE TRAY RUN, TYP.
12. SECTOR GROUND BAR, TYP.
13. BOND ANTENNA MOUNTING PIPES TO SECTOR GROUND BAR. TYP.
14. BOND SECTOR GROUND BAR TO FRP STEEL FRAME
15. ALL SECTOR GROUND BARS SHALL BE BONDED TOGETHER WITH #2 AWG SOLID TINNED BCW
16. INTERMEDIATE GROUND BAR ATTACHED TO CABLE TRAY COVER TYP.



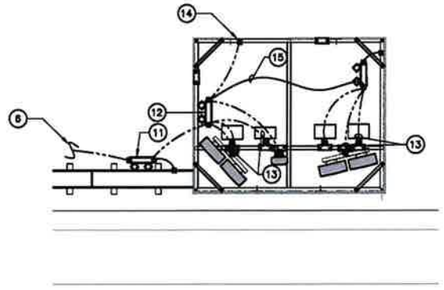
1 E-4 **ROOF GROUNDING PLAN**
SCALE: NOT TO SCALE



2 E-4 **EQUIPMENT GROUNDING PLAN**
SCALE: NOT TO SCALE



3 E-4 **CABLE TRAY GROUNDING PLAN TYP.**
SCALE: NOT TO SCALE



4 E-4 **ANTENNA SECTOR GROUNDING PLAN TYP.**
SCALE: NOT TO SCALE

REV.	DATE	prepared by	CHK'D by	DESCRIPTION
5	10/11/25	BSP	TJR	CONSTRUCTION DRAWINGS – REVISED FOR NEW RFDS
4	04/08/25	RTS	TJR	CONSTRUCTION DRAWINGS – REVISED FOR REGULATORY COMMENTS
3	02/24/25	RTS	TJR	CONSTRUCTION DRAWINGS – REVISED FOR NEW RFDS
2	07/26/23	RTS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – REVISED FOR CLIENT COMMENTS
1	02/09/23	RTS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – REVISED FOR CLIENT COMMENTS
0	01/05/23	RTS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION
A	12/05/22	RTS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW

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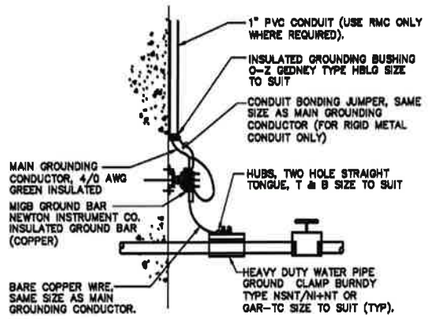
SCALE: AS NOTED
JOB NO. 21056.02

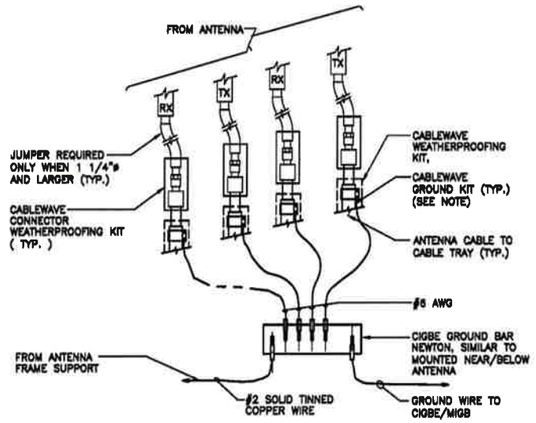
ELECTRICAL GROUNDING PLANS

E-4

Sheet No. 14 of 19

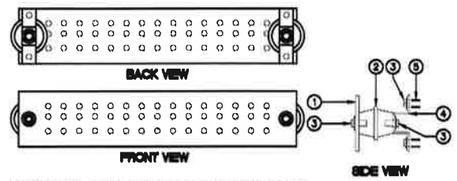


1 E-5 **WATER MAIN GROUNDING DETAIL - ETR BLDG**
SCALE: NOT TO SCALE

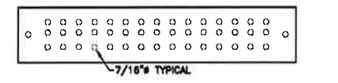


NOTE:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE

2 E-5 **CONNECTION OF GROUND WIRES TO GROUND BAR**
SCALE: NOT TO SCALE

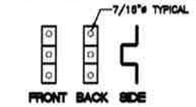


TYPICAL GROUND BAR ASSEMBLY
N.T.S.



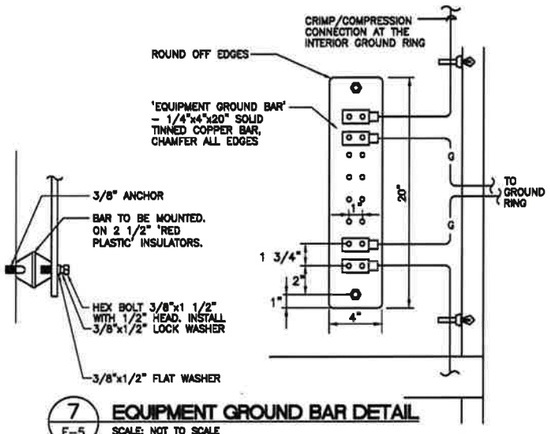
TYPICAL GROUND BAR - DIMENSIONS
N.T.S.

NOTES
1. HIGH CONDUCTIVITY TINNED COPPER BAR 1'-8"Lx4"Wx1/4"D.
2. RED COLORED STANDOFF INSULATOR PLASTIC #1872-1A.
3. STAINLESS STEEL TRUSS SPANNER MACHINE SCREWS, SPLIT LOCKWASHER AND FLAT WASHER.
4. 1"Wx1/8"T STAINLESS STEEL TYPE 304 BRACKET.
5. STAINLESS STEEL TYPE 304 HARDWARE - 3/8"ø EXPANSION BOLT FOR CONCRETE.



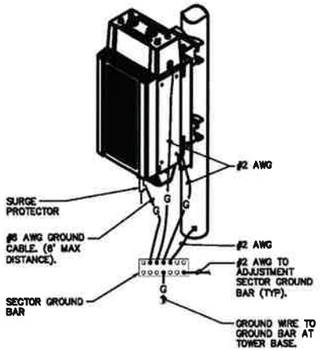
BRACKET FOR GROUND BAR-DIMENSIONS
N.T.S.

3 E-5 **MASTER/EQUIPMENT GROUND BAR DETAILS**
SCALE: NOT TO SCALE

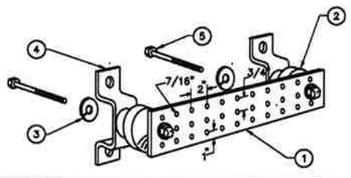


7 E-5 **EQUIPMENT GROUND BAR DETAIL**
SCALE: NOT TO SCALE

EACH RRH CABINET SHALL BE GROUNDED IN THE FOLLOWING MANNER:
1. AT TOP OF THE CABINET.
2. AT RIGHT SIDE OF THE CABINET.

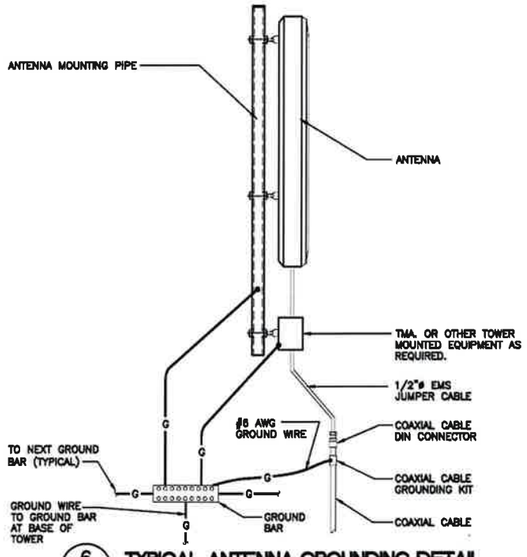


4 E-5 **RRH POLE MOUNT GROUNDING**
SCALE: NOT TO SCALE

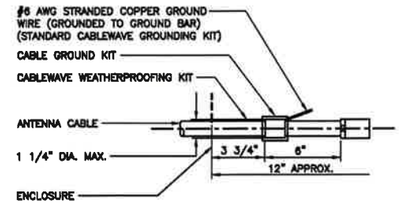


NOTES
1. TINNED COPPER GROUND BAR, 1/4" x 4" x 20", NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2. INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4.
3. 5/8" LOCK WASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-5058.
5. 5/8-11 x 1" STAINLESS STEEL TRUSS SPANNER MACHINE SCREWS.

5 E-5 **GROUND BAR DETAIL**
SCALE: NOT TO SCALE



6 E-5 **TYPICAL ANTENNA GROUNDING DETAIL**
SCALE: NOT TO SCALE



NOTES:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

8 E-5 **ANTENNA CABLE GROUNDING DETAIL**
SCALE: NOT TO SCALE

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
5	10/11/23	BSP	LJR	CONSTRUCTION DRAWINGS - REVISED PER NEW RFDS
4	04/05/23	RTS	LJR	CONSTRUCTION DRAWINGS - REVISED PER REGULATORY COMMENTS
3	03/24/23	RTS	LJR	CONSTRUCTION DRAWINGS - REVISED PER NEW RFDS
2	02/28/23	BES	LJR	PRELIMINARY CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
1	02/08/23	BES	LJR	PRELIMINARY CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
0	01/05/23	BES	LJR	PRELIMINARY CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION
A	12/05/22	RTS	LJR	PRELIMINARY CONSTRUCTION DRAWINGS - ISSUED FOR CLIENT REVIEW

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DANBURY, CT 06811

DATE: 12/05/22
SCALE: AS NOTED
JOB NO. 21058.02

TYPICAL ELECTRICAL DETAILS

E-5

Sheet No. 15 of 19

ELECTRICAL SPECIFICATIONS

SECTION 16010

1.01. SCOPE OF WORK

A. WORK SHALL INCLUDE ALL LABOR, EQUIPMENT AND SERVICES REQUIRED TO COMPLETE (MAKE READY FOR OPERATION) ALL THE ELECTRICAL WORK INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:

1. NEW SITE TELEPHONE SERVICE AS SPECIFIED BY TELEPHONE COMPANY.
2. FEEDERS AND BRANCH CIRCUIT WIRING TO PANELS, RECEPTACLES, EQUIPMENT, ETC. AS INDICATED OR NOTED ON PLANS.
3. CELLULAR GROUNDING SYSTEMS, CONSISTING OF ANTENNA GROUNDING, INTERIOR GROUNDING RING, GROUND BARS, ETC.
4. FIELD MEASURE EXISTING ELECTRICAL SERVICES TO CONFIRM AVAILABLE EXISTING POWER.
5. COORDINATE ALL WORK SHOWN, ON THESE PLANS WITH LOCAL UTILITY COMPANIES.

B. LOCAL UTILITY COMPANIES SHALL PROVIDE THE FOLLOWING:

1. TELEPHONE CABLES.

C. CONTRACTOR SHALL CONFER WITH LOCAL UTILITY COMPANIES TO ASCERTAIN THE LIMITS OF THEIR WORK AND SHALL INCLUDE IN BID ANY CHARGES OR FEES MADE BY THE UTILITY COMPANIES FOR THEIR PORTION OF THE WORK AND SHALL PROVIDE AND INSTALL ALL ITEMS REQUIRED, BUT NOT PROVIDED BY UTILITY COMPANY.

D. CONTRACTOR SHALL COORDINATE WITH TELEPHONE UTILITY COMPANY FOR LOCATION OF TELEPHONE SERVICE AND TO DETERMINE ANY REQUIRED EQUIPMENT TO BE INSTALLED BY CONTRACTOR.

1.02. GENERAL REQUIREMENTS

A. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE MADE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES AND REGULATIONS WHICH MAY APPLY AND NOTHING IN THE DRAWINGS OR SPECIFICATIONS SHALL BE INTERPRETED AS AN INFRINGEMENT OF SUCH CODES OR REGULATIONS.

B. THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE INSTALLATION AND COORDINATION OF THE ENTIRE ELECTRICAL SERVICE. ALL ACTIVITIES TO BE COORDINATED THROUGH OWNERS REPRESENTATIVE, DESIGN ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES THAT MAY BE REQUIRED FOR THE ELECTRICAL WORK AND FOR SCHEDULING OF ALL INSPECTIONS THAT MAY BE REQUIRED BY THE LOCAL AUTHORITY.

D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.

E. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH LOCAL TELEPHONE COMPANY THAT MAY BE REQUIRED FOR THE INSTALLATION OF TELEPHONE SERVICE TO THE PROPOSED CELLULAR SITE.

F. NO MATERIAL OTHER THAN THAT CONTAINED IN THE "LATEST LIST OF ELECTRICAL FITTINGS" APPROVED BY THE UNDERWRITERS' LABORATORIES, SHALL BE USED IN ANY PART OF THE WORK. ALL MATERIAL FOR WHICH LABEL SERVICE HAS BEEN ESTABLISHED SHALL BEAR THE U.L. LABEL.

G. THE CONTRACTOR SHALL GUARANTEE ALL NEW WORK FOR A PERIOD OF ONE YEAR FROM THE ACCEPTANCE DATE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING WARRANTIES FROM ALL EQUIPMENT MANUFACTURERS FOR SUBMISSION TO THE OWNER.

H. DRAWINGS INDICATE GENERAL ARRANGEMENT OF WORK INCLUDED IN CONTRACT. CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE MODIFICATIONS TO THE LAYOUT OF THE WORK TO PREVENT CONFLICT WITH WORK OF OTHER TRADES AND FOR THE PROPER INSTALLATION OF WORK. CHECK ALL DRAWINGS AND VISIT JOB SITE TO VERIFY SPACE AND TYPE OF EXISTING CONDITIONS IN WHICH WORK WILL BE DONE, PRIOR TO SUBMITTAL OF BID.

I. THE ELECTRICAL CONTRACTOR SHALL SUPPLY THREE (3) COMPLETE SETS OF APPROVED DRAWINGS, ENGINEERING DATA SHEETS, MAINTENANCE AND OPERATING INSTRUCTION MANUALS FOR ALL SYSTEMS AND THEIR RESPECTIVE EQUIPMENT. THESE MANUALS SHALL BE INSERTED IN VINYL COVERED 3-RING BINDERS AND TURNED OVER TO OWNER'S REPRESENTATIVE ONE (1) WEEK PRIOR TO FINAL PUNCH LIST.

J. ALL WORK SHALL BE INSTALLED IN A NEAT AND WORKMAN LIKE MANNER AND WILL BE SUBJECT TO THE APPROVAL OF THE OWNER'S REPRESENTATIVE.

K. ALL EQUIPMENT AND MATERIALS TO BE INSTALLED SHALL BE NEW, UNLESS OTHERWISE NOTED.

L. BEFORE FINAL PAYMENT, THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF PRINTS (AS-BUILTS), LEGIBLY MARKED IN RED PENCIL TO SHOW ALL CHANGES FROM THE ORIGINAL PLANS.

M. PROVIDE TEMPORARY POWER AND LIGHTING IN WORK AREAS AS REQUIRED.

N. SHOP DRAWINGS:

1. CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF SHOP DRAWINGS ON ALL EQUIPMENT AND MATERIALS PROPOSED FOR USE ON THIS PROJECT, GIVING ALL DETAILS, WHICH INCLUDE DIMENSIONS, CAPACITIES, ETC.
2. CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF ALL TEST REPORTS CALLED FOR IN THE SPECIFICATIONS AND DRAWINGS.

O. ENTIRE ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE WITH OWNER'S SPECIFICATIONS, AND REQUIREMENTS OF ALL LOCAL AUTHORITIES HAVING JURISDICTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH APPROPRIATE INDIVIDUALS TO OBTAIN ALL SUCH SPECIFICATIONS AND REQUIREMENTS. NOTHING CONTAINED IN, OR OMITTED FROM, THESE DOCUMENTS SHALL RELIEVE CONTRACTOR FROM THIS OBLIGATION.

SECTION 16111

1.01. CONDUIT

A. MINIMUM CONDUIT SIZE FOR BRANCH CIRCUITS, LOW VOLTAGE CONTROL AND ALARM CIRCUITS SHALL BE 3/4". CONDUITS SHALL BE PROPERLY FASTENED AS REQUIRED BY THE N.E.C.

B. THE INTERIOR OF RACEWAYS/ ENCLOSURES INSTALLED UNDERGROUND SHALL BE CONSIDERED TO BE WET LOCATION, INSULATED CONDUCTORS SHALL BE LISTED FOR USE IN WET LOCATIONS. PROVIDE WEATHERPROOF CONSTRUCTION IN WET LOCATIONS.

C. CONDUIT INSTALLED UNDERGROUND SHALL BE INSTALLED TO MEET MINIMUM COVER REQUIREMENTS OF TABLE 300.5.

D. PROVIDE RIGID GALVANIZED STEEL CONDUIT (RMC) FOR THE FIRST 10 FOOT SECTION WHEN LEAVING A BUILDING OR SECTIONS PASSING THROUGH FLOOR SLABS

E. ONLY LISTED PVC CONDUIT AND FITTINGS ARE PERMITTED FOR THE INSTALLATION OF ELECTRICAL CONDUCTORS, SUITABLE FOR UNDERGROUND APPLICATIONS.

CONDUIT SCHEDULE SECTION 16111

CONDUIT TYPE	NEC REFERENCE	APPLICATION	MIN BURIAL DEPTH OVER NEC TABLE 300.5 [2]
EMT	ARTICLE 358	INTERIOR CIRCUITING, EQUIPMENT ROOMS, SHELTERS	N/A
RMC, RIGID GALV. STEEL	ARTICLE 344, 300.5, 300.50	ALL INTERIOR/ EXTERIOR CIRCUITING, ALL UNDERGROUND INSTALLATIONS.	6 INCHES
PVC, SCHEDULE 40	ARTICLE 352, 300.5, 300.50	INTERIOR/ EXTERIOR CIRCUITING AND GROUNDING SYSTEMS, UNDERGROUND INSTALLATIONS, WHERE NOT SUBJECT TO PHYSICAL DAMAGE. [1]	18 INCHES
PVC, SCHEDULE 80	ARTICLE 352, 300.5, 300.50	INTERIOR/ EXTERIOR CIRCUITING AND GROUNDING SYSTEMS, UNDERGROUND INSTALLATIONS, WHERE SUBJECT TO PHYSICAL DAMAGE. [1]	18 INCHES
LIQUID TIGHT FLEX. METAL	ARTICLE 350	SHORT LENGTHS (MAX. 3FT.) WIRING TO VIBRATING EQUIPMENT IN WET LOCATIONS.	N/A
FLEX. METAL	ARTICLE 348	SHORT LENGTHS (MAX. 3FT.) WIRING TO VIBRATING EQUIPMENT IN WET LOCATIONS.	N/A

[1] PHYSICAL DAMAGE IS SUBJECT TO THE AUTHORITY HAVING JURISDICTION

[2] UNDERGROUND CONDUIT INSTALLED UNDER ROADS, HIGHWAYS, DRIVEWAYS, PARKING LOTS SHALL HAVE MINIMUM DEPTH OF 24".

[3] WHERE SOLID ROCK PREVENTS COMPLIANCE WITH MINIMUM COVER DEPTHS, WIRING SHALL BE INSTALLED IN PERMITTED RACEWAY FOR DIRECT BURIAL. THE RACEWAY SHALL BE COVERED BY A MINIMUM OF 2" OF CONCRETE EXTENDING DOWN TO ROCK

SECTION 16123

1.01. CONDUCTORS

A. ALL CONDUCTORS SHALL BE TYPE THWN (INT. APPLICATION) AND XHHW (EXT. APPLICATION), 75 DEGREE C, 600 VOLT INSULATION, SOFT ANNEALED STRANDED COPPER. #10 AWG AND SMALLER SHALL BE SPLICED USING ACCEPTABLE SOLDERLESS PRESSURE CONNECTORS. #8 AWG AND LARGER SHALL BE SPLICED USING COMPRESSION SPLIT-BOLT TYPE CONNECTORS. #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR FOR LINE VOLTAGE BRANCH CIRCUITS. REFER TO PANEL SCHEDULE FOR BRANCH CIRCUIT CONDUCTOR SIZE(S). CONDUCTORS SHALL BE COLOR CODED FOR CONSISTENT PHASE IDENTIFICATION:

	120/208/240V	277/480V
LINE	COLOR	COLOR
A	BLACK	BROWN
B	RED	ORANGE
C	BLUE	YELLOW
N	CONTINUOUS WHITE	GREY
G	CONTINUOUS GREEN	GREEN WITH YELLOW STRIPE

B. MINIMUM BENDING RADIUS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.

SECTION 16130

1.01. BOXES

A. FURNISH AND INSTALL OUTLET BOXES FOR ALL DEVICES, SWITCHES, RECEPTACLES, ETC.. BOXES TO BE ZINC COATED STEEL.

B. FURNISH AND INSTALL PULL BOXES IN MAIN FEEDERS RUNS WHERE REQUIRED. PULL BOXES SHALL BE GALVANIZED STEEL WITH SCREW REMOVABLE COVERS, SIZE AND QUANTITY AS REQUIRED. PROVIDE WEATHERPROOF CONSTRUCTION IN WET LOCATIONS.

SECTION 16140

1.01. WIRING DEVICES

A. THE FOLLOWING LIST IS PROVIDED TO CONVEY THE QUALITY AND RATING OF WIRING DEVICES WHICH ARE TO BE INSTALLED. A COMPLETE LIST OF ALL DEVICES MUST BE SUBMITTED BEFORE INSTALLATION FOR APPROVAL.

1. 15 MINUTE TIMER SWITCH - INTERMATIC #FF15M (INTERIOR LIGHTS)
2. DUPLEX RECEPTACLE - P&S #2095 (GFCI) SPECIFICATION GRADE
3. SINGLE POLE SWITCH - P&S #CSB20AC2 (20A-120V HARD USE) SPECIFICATION GRADE
4. DUPLEX RECEPTACLE - P&S #5362 (20A-120V HARD USE) SPECIFICATION GRADE

B. PLATES - ALL PLATES USED SHALL BE CORROSION RESISTANT TYPE 304 STAINLESS STEEL. PLATES SHALL BE FROM SAME MANUFACTURER AS SWITCHES AND RECEPTACLES. PROVIDE WEATHERPROOF HOUSING FOR DEVICES LOCATED IN WET LOCATIONS.

C. OTHER MANUFACTURERS OF THE SWITCHES, RECEPTACLES AND PLATES MAY BE SUBMITTED FOR APPROVAL BY THE ENGINEER.

SECTION 16170

1.01. DISCONNECT SWITCHES

A. FUSIBLE AND NON-FUSIBLE, 600V, HEAVY DUTY DISCONNECT SWITCHES SHALL BE AS MANUFACTURED BY SQUARE "D". PROVIDE FUSES AS CALLED FOR ON THE CONTRACT DRAWINGS. AMPERE RATING SHALL BE CONSISTENT WITH LOAD BEING SERVED. DISCONNECT SWITCH COVER SHALL BE MECHANICALLY INTERLOCKED TO PREVENT COVER FROM OPENING WHEN THE SWITCH IS IN THE "ON" POSITION. EXTERIOR APPLICATIONS SHALL BE NEMA 3R CONSTRUCTION WITH PADLOCK FEATURE.

SECTION 16190

1.01. SEISMIC RESTRAINT

A. ALL DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH ZONE 2 SEISMIC REQUIREMENTS.

SECTION 16195

1.01. LABELING AND IDENTIFICATION NOMENCLATURE FOR ELECTRICAL EQUIPMENT

A. CONTRACTOR SHALL FURNISH AND INSTALL NON-METALLIC ENGRAVED BACK-LIT NAMEPLATES ON ALL PANELS AND MAJOR ITEMS OF ELECTRICAL EQUIPMENT.

B. LETTERS TO BE WHITE ON BLACK BACKGROUND WITH LETTERS 1-1/2 INCH HIGH WITH 1/4 INCH MARGIN.

C. IDENTIFICATION NOMENCLATURE SHALL BE IN ACCORDANCE WITH OWNER'S STANDARDS.

D. PROVIDE NAMEPLATE FOR PORTABLE ENGINE/GENERATOR CONNECTION SHOWING VOLTAGE KVA/KW RATING, # PHASE, AND # OF WIRES. PLATE TO BE PLASTIC ENGRAVED, RED WITH WHITE LETTERS.

E. ALL RECEPTACLES, SWITCHES, DISCONNECT SWITCHES, ETC. SHALL BE LABELED WITH THE CORRECT BRANCH CIRCUIT NUMBER SERVED BY MEANS OF PERMANENT PRESSED TYPE BLACK 1/4" TRANSFER LETTERING. (FOR EXAMPLE: "MDP-6", ETC.).

SECTION 16450

1.01. GROUNDING

A. ALL NON-CURRENT CARRYING PARTS OF THE ELECTRICAL AND TELEPHONE CONDUIT SYSTEMS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES.

B. GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.

C. GROUNDING OF PANELBOARDS:

1. PANELBOARD SHALL BE GROUNDED BY TERMINATING THE PANELBOARD FEEDER'S EQUIPMENT GROUND CONDUCTOR TO THE EQUIPMENT GROUND BAR KIT(S) LUGGED TO THE CABINET. ENSURE THAT THE SURFACE BETWEEN THE KIT AND CABINET ARE BARE METAL TO BARE METAL. PRIME AND PAINT OVER TO PREVENT CORROSION.
2. CONDUIT(S) TERMINATING INTO THE PANELBOARD SHALL HAVE GROUNDING TYPE BUSHINGS. THE BUSHINGS SHALL BE BONDED TOGETHER WITH BARE #10 AWG COPPER CONDUCTOR WHICH IN TURN IS TERMINATED INTO THE PANELBOARD'S EQUIPMENT GROUND BAR KIT(S).

D. EQUIPMENT GROUNDING CONDUCTOR:

1. EACH EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250-122.
2. THE MINIMUM SIZE OF EQUIPMENT GROUND CONDUCTOR SHALL BE #12 AWG COPPER.
3. EACH FEEDER OR BRANCH CIRCUIT SHALL HAVE EQUIPMENT GROUND CONDUCTOR(S) INSTALLED IN THE SAME RACEWAY(S).

E. CELLULAR GROUNDING SYSTEM:

CONTRACTOR SHALL PROVIDE A CELLULAR GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 10 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3-POINT GROUNDING TEST. (REFER TO SECTION 16060).

PROVIDE THE CELLULAR GROUNDING SYSTEM AS SPECIFIED ON DRAWINGS, INCLUDING, BUT NOT LIMITED TO:

1. GROUND BARS
2. EXTERIOR GROUNDING (WHERE REQUIRED DUE TO MEASURED AC RESISTANCE GREATER THAN SPECIFIED).
3. ANTENNA GROUND CONNECTIONS AND PLATES.

F. CONTRACTOR, AFTER COMPLETION OF THE COMPLETE GROUNDING SYSTEM BUT PRIOR TO CONCEALMENT/BURIAL OF SAME, SHALL NOTIFY OWNER'S PROJECT ENGINEER WHO WILL HAVE A DESIGN ENGINEER VISIT SITE AND MAKE A VISUAL INSPECTION OF THE GROUNDING GRID AND CONNECTIONS OF THE SYSTEM.

G. ALL EQUIPMENT SHALL BE BONDED TO GROUND AS REQUIRED BY N.E.C., MFG. SPECIFICATIONS, AND OWNER'S SPECIFICATIONS.

SECTION 16470

1.01. DISTRIBUTION EQUIPMENT

A. REFER TO CONTRACT DRAWINGS FOR DETAILS AND SCHEDULES.

SECTION 16477

1.01. FUSES

A. FUSES SHALL BE NONRENEWABLE TYPE AS MANUFACTURED BY "BUSSMAN" OR APPROVED EQUAL. FUSES RATED TO 1/10 AMPERE UP TO 600 AMPERES SHALL BE EQUIVALENT TO BUSSMAN TYPE LPN-RK (250V) UL CLASS RK1, LOW PEAK, DUAL ELEMENT, TIME-DELAY FUSES. FUSES SHALL HAVE SEPARATE SHORT CIRCUIT AND OVERLOAD ELEMENTS AND HAVE AN INTERRUPTING RATING OF 200 KAIC. UPON COMPLETION OF WORK, PROVIDE ONE SPARE SET OF FUSES FOR EACH TYPE INSTALLED.

SECTION 16960

1.01. TESTS BY INDEPENDENT ELECTRICAL TESTING FIRM

A. CONTRACTOR SHALL RETAIN THE SERVICES OF A LOCAL INDEPENDENT ELECTRICAL TESTING FIRM (WITH MINIMUM 5 YEARS COMMERCIAL EXPERIENCE IN THE ELECTRICAL TESTING INDUSTRY) AS SPECIFIED BY OWNER TO PERFORM:

TEST 1: THERMAL OVERLOAD AND MAGNETIC TRIP TEST, AND CABLE INSULATION TEST FOR ALL CIRCUIT BREAKERS RATED 100 AMPS OR GREATER.

TEST 2: RESISTANCE TO GROUND TEST ON THE CELLULAR GROUNDING SYSTEM.

THE TESTING FIRM SHALL INCLUDE THE FOLLOWING INFORMATION WITH THE REPORT:

1. TESTING PROCEDURE INCLUDING THE MAKE AND MODEL OF TEST EQUIPMENT.
2. CERTIFICATION OF TESTING EQUIPMENT CALIBRATION WITHIN SIX (6) MONTHS OF DATE OF TESTING. INCLUDE CERTIFICATION LAB ADDRESS AND TELEPHONE NUMBER.
3. GRAPHICAL DESCRIPTION OF TESTING METHOD ACTUALLY IMPLEMENTED.

B. THESE TESTS SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF OWNER'S CONSTRUCTION REPRESENTATIVE. TESTING DATA SHALL BE INITIALED AND DATED BY THE CONSTRUCTION REPRESENTATIVE AND INCLUDED WITH THE WRITTEN REPORT/ANALYSIS.

C. THE CONTRACTOR SHALL FORWARD SIX (6) COPIES OF THE INDEPENDENT ELECTRICAL TESTING FIRM'S REPORT/ANALYSIS TO ENGINEER A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO THE JOB TURNOVER.

D. CONTRACTOR TO PROVIDE A MINIMUM OF ONE (1) WEEK NOTICE TO OWNER AND ENGINEER FOR ALL TESTS REQUIRING WITNESSING.

SECTION 16961

1.01. TESTS BY CONTRACTOR

A. ALL TESTS AS REQUIRED UPON COMPLETION OF WORK, SHALL BE MADE BY THIS CONTRACTOR. THESE SHALL BE CONTINUITY AND INSULATION TESTS; TEST TO DETERMINE THE QUALITY OF MATERIALS, ETC. AND SHALL BE MADE IN ACCORDANCE WITH N.E.C. RECOMMENDATIONS. ALL FEEDERS AND BRANCH CIRCUIT WIRING (EXCEPT CLASS 2 SIGNAL CIRCUITS) MUST BE TESTED FREE FROM SHORT CIRCUIT AND GROUND FAULT CONDITIONS AT 500V IN A REASONABLY DRY AMBIENT OF APPROXIMATELY 70 DEGREES F.

B. CONTRACTOR SHALL PERFORM LOAD PHASE BALANCING TESTS. CIRCUITS SHALL BE SO CONNECTED TO THE PANELBOARDS SUCH THAT THE NEW LOAD IS DISTRIBUTED AS EQUALLY AS POSSIBLE BETWEEN EACH LOAD AND NEUTRAL. 10% SHALL BE CONSIDERED AS A REASONABLE AND ACCEPTABLE ALLOWANCE. BRANCH CIRCUITS SHALL BE BALANCED ON THEIR OWN PANELBOARDS; FEEDER LOADS SHALL, IN TURN, BE BALANCED ON THE SERVICE EQUIPMENT. REASONABLE LOAD TEST SHALL BE ARRANGED TO VERIFY LOAD BALANCE IF REQUESTED BY THE ENGINEER.

C. ALL TESTS, UPON REQUEST, SHALL BE REPEATED IN THE PRESENCE OF OWNER'S REPRESENTATIVE. ALL TESTS SHALL BE DOCUMENTED AND TURNED OVER TO OWNER. OWNER SHALL HAVE THE AUTHORITY TO STOP ANY OF THE WORK NOT BEING PROPERLY INSTALLED. ALL SUCH DETECTED WORK SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL EXPENSE TO THE OWNER AND THE TESTS SHALL BE REPEATED.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
5	10/17/23	BSP	TJR	CONSTRUCTION DRAWINGS - REVISED PER RFI'S
4	04/06/23	RTS	TJR	CONSTRUCTION DRAWINGS - REVISED PER REGULATORY COMMENTS
3	02/28/23	RTS	TJR	CONSTRUCTION DRAWINGS - REVISED PER RFI'S
2	02/28/23	LAK	TJR	CONSTRUCTION DRAWINGS - REVISED PER RFI'S
1	02/06/23	RTS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
0	01/05/23	RTS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION
A	12/05/22	RTS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS - ISSUED FOR CLIENT REVIEW

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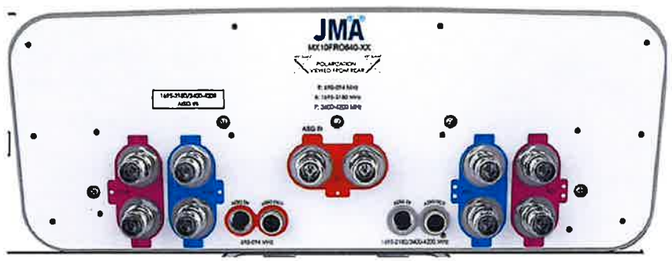
DATE: 12/06/22
SCALE: AS NOTED
JOB NO. 21058.02

ELECTRICAL SPECIFICATIONS

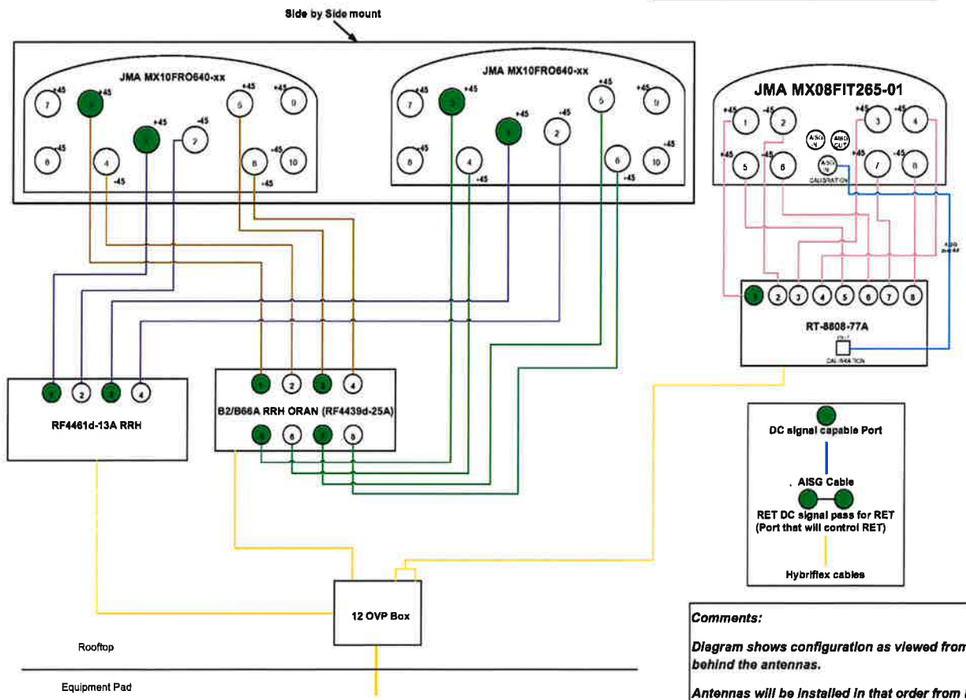
E-6

Sheet No. 15 of 19



- Port 1 & 2 are for low band (698-896 MHz).
- Port 3,4,5, & 6 are for Mid band (1695-2360 MHz).
- Port 7,8,9,10 are for CBRS (3400-4200 MHz)
- Antenna Smart Bias Tee (SBT) is through port 1 for low band and port 3 for Mid band/CBRS.
- AISG cable is only needed when drawn in the diagrams below, if it is not drawn then SBT is enough to control all RET motors.
- Not all SBT ports are needed to control RET, only green port connection to green port will control RET.

RET DC signal pass for RET
(Port that will control RET)



Comments:

Diagram shows configuration as viewed from standing behind the antennas.

Antennas will be installed in that order from left to right.

Cap and weatherproof unused antenna ports.

All plumbing diagram colors are irrelevant except for AISG & Hybriflex cable. (For the coax colors follow Coax Colors guide above)

RIDGEFIELD BOEHRINGER CT
- Alpha

ALPHA SECTOR PLUMBING DIAGRAM

REV.	DATE:	DRAWN BY	CHK'D BY	DESCRIPTION
6	10/11/23	BMP	LJR	CONSTRUCTION DRAWINGS – REVISED PER NEW RFDS
5	04/05/23	RTS	LJR	CONSTRUCTION DRAWINGS – REVISED PER REDLINE MARKUP COMMENTS
4	03/24/23	RTS	LJR	CONSTRUCTION DRAWINGS – REVISED PER NEW RFDS
3	02/28/23	LJA	LJR	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
2	02/08/23	RTS	LJR	PRELIMINARY CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
1	01/05/23	RTS	LJR	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION
A	12/05/22	RTS	LJR	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW

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verizon

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VERIZON WIRELESS

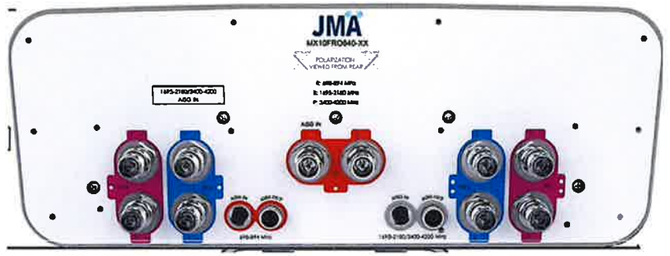
RIDGEFIELD BOEHRINGER
LIFE STORAGE
39 KENOSIA AVE
DANBURY, CT 06811

DATE: 12/05/22
SCALE: AS NOTED
JOB NO. 21058.02

PLUMBING
DIAGRAM
ALPHA SECTOR

RF-1

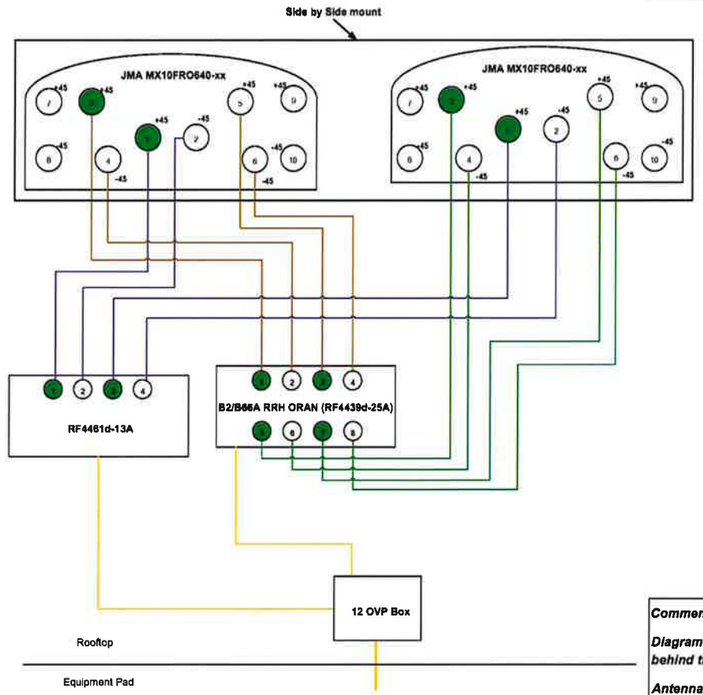
Sheet No. 17 of 18



- Port 1 & 2 are for low band (698 – 896 MHz).
- Port 3,4,5, & 6 are for Mid band (1695 – 2360 MHz).
- Port 7,8,9,10 are for CBRS (3400 – 4200 MHz)
- Antenna Smart Bias Tee (SBT) is through port 1 for low band and port 3 for Mid band/CBRS.
- AISG cable is only needed when drawn in the diagrams below, if it is not drawn then SBT is enough to control all RET motors.
- Not all SBT ports are needed to control RET, only green port connection to green port will control RET.

RET DC signal pass for RET
(Port that will control RET)

Side by Side mount



DC signal capable Port

AISG Cable

RET DC signal pass for RET
(Port that will control RET)

Hybriflex cables

Comments:

Diagram shows configuration as viewed from standing behind the antennas.

Antennas will be installed in that order from left to right.

Cap and weatherproof unused antenna ports.

All plumbing diagram colors are irrelevant except for AISG & Hybriflex cable. (For the coax colors follow Coax Colors guide above)

RIDGEFIELD BOEHRINGER CT
- Beta

BETA SECTOR PLUMBING DIAGRAM

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
5	10/11/23	BSP	TJR	CONSTRUCTION DRAWINGS – REVISED PER RFDS
4	04/20/23	RTS	TJR	CONSTRUCTION DRAWINGS – REVISED PER REGULATORY COMMENTS
3	02/24/23	RTS	TJR	CONSTRUCTION DRAWINGS – REVISED PER RFDS
2	02/28/23	LAA	TJR	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
1	02/06/23	RTS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
0	01/05/23	RTS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION
A	12/05/22	RTS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW

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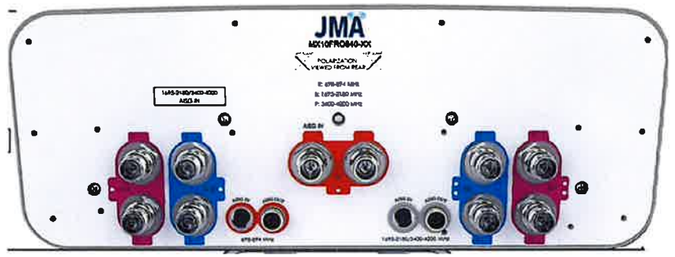
LIFE STORAGE
39 KENOSIA AVE
DANBURY, CT 06811

DATE: 12/05/22
SCALE: AS NOTED
JOB NO. 21058.02

PLUMBING
DIAGRAM
BETA SECTOR

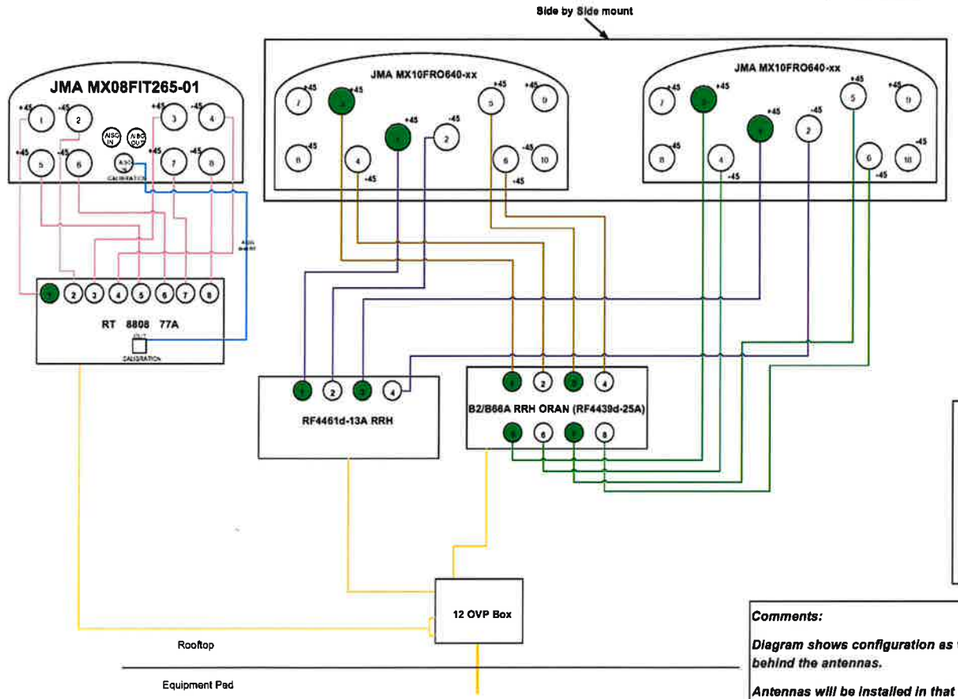
RF-2

Sheet No. 15 of 19



- Port 1 & 2 are for low band (698 – 896 MHz).
- Port 3,4,5, & 6 are for Mid band (1695 – 2360 MHz).
- Port 7,8,9,10 are for CBRS (3400 – 4200 MHz)
- Antenna Smart Bias Tee (SBT) is through port 1 for low band and port 3 for Mid band/CBRS.
- AISG cable is only needed when drawn in the diagrams below, if it is not drawn then SBT is enough to control all RET motors.
- Not all SBT ports are needed to control RET, only green port connection to green port will control RET.

RET DC signal pass for RET
(Port that will control RET)



RIDGEFIELD BOEHRINGER CT
- Gamma

Comments:

Diagram shows configuration as viewed from standing behind the antennas.

Antennas will be installed in that order from left to right.

Cap and weatherproof unused antenna ports.

All plumbing diagram colors are irrelevant except for AISG & Hybriflex cable. (For the coax colors follow Coax Colors guide above)

GAMMA SECTOR PLUMBING DIAGRAM

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
B	10/11/23	BSP	TJR	CONSTRUCTION DRAWINGS – REVISED PER NEW RFDS
4	04/06/23	RTS	TJR	CONSTRUCTION DRAWINGS – REVISED PER REGULATORY COMMENTS
3	03/31/23	RTS	TJR	CONSTRUCTION DRAWINGS – REVISED PER NEW RFDS
2	02/28/23	LAA	TJR	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
1	02/06/23	RTS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
0	01/05/23	RTS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION
A	12/05/22	RTS	TJR	PRELIMINARY CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW

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JOB NO.	21058.02

PLUMBING
DIAGRAM
GAMMA SECTOR

RF-3

Sheet No. 19 of 19

700/850 4T4R Macro 320W ORU - New Filter (RF4461d-13A)

SAMSUNG

Specifications

Item	Specification	
Air Interface	LTE, NR(HW resource ready)	
Band	Band13 (700MHz)	Band5 (850MHz)
Frequency	DL: 746~756MHz UL: 777~787MHz	DL: 869~894MHz UL: 824~849MHz
IBW	10MHz	25MHz
OBW	10MHz	25MHz
Carrier Bandwidth	LTE/NR 5*/10MHz	LTE 5/10MHz NR 5/10/15/20MHz
# of carriers	2C*	3C
Total # of carriers	4C + B13 (SDL) 1C	
RF Chain	4T4R/2T4R/2T2R/1T2R 2T2R+2T2R bi-sector	
RF Output Power	Total : 320W 4 x 40W or 2 x 60W	4 x 40W or 2 x 60W
Spectrum Analyzer	TX/RX Support	
RX Sensitivity	Typ. -104.5dBm @1Rx (25RBs 5MHz)	
Modulation	256QAM support, (1024QAM with 1~2dB power back-off)	
Input Power	-48VDC (-38VDC to -57VDC)	
Power Consumption	1,165 Watt @ 100% RF load, room temperature	
Size (WHD)	380 x 380 x 260 mm (14.96 x 14.96 x 10.23 inch)	
Volume	37.5 L	
Weight (W/o Solar Shield & finger guard)	35.9 kg (79.1 lb)	
Operating Temperature	-40°C (-40°F) ~ 55°C (131°F) (Without solar load)	
Cooling	Natural convection	
Unwanted Emission	3GPP 36.104 FCC 47 CFR 27.53 c), f) -	3GPP 36.104 FCC 47 CFR 22.917 -69 dBm/100 kHz per path @ 896 ~901MHz
CPRI Cascade	Not supported	
Optic Interface	20km, 2 ports (9.8Gbps x 2), SFP+, single mode, Duplex (Option: Bi-di)	
RET & TMA Interface	AISG 3.0	
Bias-T	4 ports (2 ports per band)	
Mounting Options	Pole, wall	
NB-IoT	2GB+2IB or 4IB	2SA+2GB or 2GB+2IB or 4GB
PIM Cancellation	Support	
# of antenna port	4	
External Alarm	4	
Fronthaul Interface	Opt. 8 CPRI / Opt. 7-2x selectable (not simultaneous support)	
CPRI compression	Not Support	

* 5MHz supporting in B13(700MHz) depends on 3GPP std. and UE capability.
External filters in interferer and victim sides for Mexican boarder to support 5MHz service need to be considered
** Finger guard is not needed.

SAMSUNG

AWS/PCS MACRO RADIO

DUAL-BAND AND HIGH POWER FOR MACRO COVERAGE

Samsung's future proof dual-band radio is designed to help effectively increase the coverage areas in wireless networks. This AWS/PCS 4T4R dual-band radio has 4Tx/4Rx to 2Tx/2Rx RF chains options and a total output power of 320W, making it ideal for macro sites.

Model Code RF4439d-25A

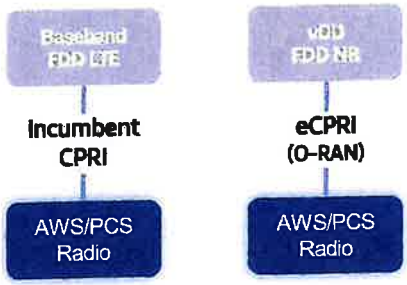
Homepage
samsungnetworks.com

Youtube
www.youtube.com/samsung5g

Points of Differentiation

Continuous Migration

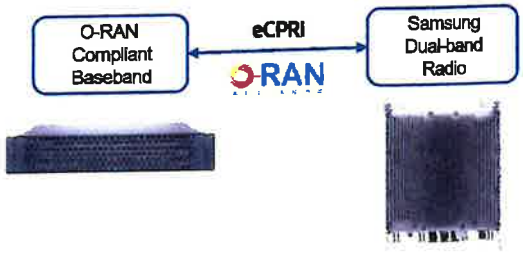
Samsung's AWS/PCS macro radio can support each incumbent CPRI interface as well as advanced eCPRI interfaces. This feature provides installable options for both legacy LTE networks and added NR networks.



O-RAN Compliant

A standardized O-RAN radio can help in implementing cost-effective networks, which are capable of sending more data without compromising additional investments.

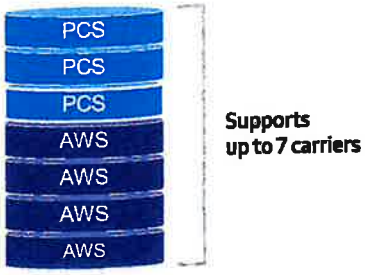
Samsung's state-of-the-art O-RAN technology will help accelerate the effort toward constructing a solid O-RAN ecosystem.



Optimum Spectrum Utilization

The number of required carriers varies according to site (region). Supporting many carriers is essential for using all frequencies that the operator has available.

The new AWS/PCS dual-band radio can support up to 3 carriers in the PCS (1.9GHz) band and 4 carriers in the AWS (2.1GHz) band, respectively.



Brand New Features in a Compact Size

Samsung's AWS/PCS macro radio offers several features, such as dual connectivity for baseband for both CDU and vDU, O-RAN capability, more carriers and an enlarged PCS spectrum, combined into an incumbent radio volume of 36.8L.

- **2 FH connectivity**
- **O-RAN capability**
- **More carriers and spectrum**

Same as an incumbent radio volume

Technical Specifications

Item	Specification
Tech	LTE / NR
Brand	B25(PCS), B66(AWS)
Frequency Band	DL: 1930 – 1995MHz, UL: 1850 – 1915MHz DL: 2110 – 2200MHz, UL: 1710 – 1780MHz
RF Power	(B25) 4 × 40W or 2 × 60W (B66) 4 × 60W or 2 × 80W
IBW/OBW	(B25) 65MHz / 30MHz (B66) DL 90MHz, UL 70MHz / 60MHz
Installation	Pole, Wall
Size/ Weight	14.96 x 14.96 x 10.04inch (36.8L) / 74.7lb

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

Antenna Screen Wall/Platform

Proposed Verizon Wireless
Rooftop Site Build

Site Ref: Ridgefield-Boehringer

19 Kenosia Ave
Danbury, CT

CENTEK Project No. 21058.02

Date: ~~October 21, 2022~~

~~Rev 2: March 24, 2023~~

~~Rev 3: August 1, 2023~~

Rev 4: October 13, 2023

Prepared for:
Verizon Wireless
20 Alexander Drive
Wallingford, CT 06492

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Table of Contents

Introduction

The purpose of this structural analysis report (SAR) is to summarize the results, of the impacted structural components, by the proposed equipment site build proposed by Verizon Wireless on the existing host building located in Danbury, CT.

The antennas are mounted within (2) proposed screen wall enclosures on roof of the host building. The Verizon equipment cabinets and other components are mounted on a proposed steel dunnage platform on roof of the host building. The screen wall enclosures and platform are anchored to the existing wide flange beams.

Primary Assumptions Used in the Analysis

- The host structure's theoretical capacity not including any assessment of the condition of the host structure.
- The proposed elevated steel antenna frames carry the horizontal and vertical loads due to the weight of equipment, and wind and transfers into host structure.
- Proposed reinforcement and support steel will be properly installed and maintained.
- Structure is in plumb condition.
- Loading for equipment and enclosure as listed in this report.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds are fabricated with ER-70S-6 electrodes.
- All members are assumed to be as observed during roof framing mapping.
- All members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
- All member protective coatings are in good condition.

Antenna and Equipment Summary

Location	Appurtenance / Equipment	Rad Center Elevation (AGL)	Mount Type
Alpha Sector	**(1) JMA MX08FIT265-01 Antenna** **(2) JMA MX10FR0640 Antenna** **(1) Samsung B5/B13 RRH–RF4461d-13A** **(1) Samsung B2/B66A RRH–RF4439d-25A** **(1) Commscope CBC78T-DS-43 Diplexer** **(1) RT-8808-77A**	58-ft	Screen Wall Enclosure on host building roof
Beta Sector	**(2) JMA MX10FR0640 Antenna** **(1) Samsung B5/B13 RRH–RF4461d-13A** **(1) Samsung B2/B66A RRH–RF4439d-25A** **(1) Commscope CBC78T-DS-43 Diplexer** **(1) RT-8808-77A** **(2) BSF0020F3V1-1 Filter**	58-ft	Screen Wall Enclosure on host building roof
Gamma Sector	**(1) JMA MX08FIT265-01 Antenna** **(2) JMA MX10FR0640 Antenna** **(1) Samsung B5/B13 RRH–RF4461d-13A** **(1) Samsung B2/B66A RRH–RF4439d-25A** **(1) Commscope CBC78T-DS-43 Diplexer** **(1) RT-8808-77A**	58-ft	Screen Wall Enclosure on host building roof

Equipment – Indicates equipment to be installed.

Analysis

The roof framing were analyzed using a comprehensive computer program titled Risa3D. The program analyzes the equipment platform and antenna mounts considering the worst case code prescribed loading condition. The structures were considered to be loaded by concentric forces, and the model assumes that the members are subjected to bending, axial, and shear forces.

Design Loading

Loading was determined per the requirements of the 2021 International Building Code amended by the 2022 CSBC and ASCE 7-16 "Minimum Design Loads for Buildings and Other Structures".

Wind Speed:	V_{ult} = 120 mph	*Appendix P of the 2022 CT State Building Code*
Risk Category:	II	*2021 IBC; Table 1604.05*
Exposure Category:	Surface Roughness B	*ASCE 7-16; Section 26.7.2*
Ground Snow Load	30 psf	*Appendix P of the 2022 CT State Building Code*
Dead Load	Equipment and framing self-weight	*Identified within SAR design calculations*
Live Load	20 psf	*ASCE 7-16; Table 4-1 "Roofs – All Other Construction"*

Reference Standards

2021 International Building Code:

1. ACI 318-14, *Building Code Requirements for Structural Concrete.*
2. ACI 530-13, *Building Code Requirements for Masonry Structures.*
3. AISC 360-10, *Specification for Structural Steel Buildings*

Results

Structure stresses were calculated utilizing the structural analysis software RISA 3D. The stresses were determined based on the AISC standard.

- Calculated stresses for the antenna screenwalls, platforms, and host building were found to **be within allowable** limits.

Sector	Component	Stress Ratio (percentage of capacity)	Result
Equipment Platform	W12X35 Platform Beam	15%	**PASS**
	W12X26 Platform Beam	32%	**PASS**
	W8X24 Platform Beam	21%	**PASS**
	HSS4x4x1/4 Platform Post	68%	**PASS**
	Connection to Existing Member(s)	39%	**PASS**
	Existing W18 Roof Member	89%	**PASS**
Alpha/Beta/Gamma	HSS2-1/2x2-1/2x5/16 Screen Wall Vertical Member	85%	**PASS**
	HSS2-1/2x2-1/2x1/4 Screen Wall Horizontal Member	65%	**PASS**
	L2x2x1/4 Screen Wall Bracing Member	92%	**PASS**
	Connection to Existing Member(s)	13%	**PASS**
	Existing W18 Roof Member	81%	**PASS**

Conclusion

This analysis shows that the subject antenna frames, platform & host roof **HAVE SUFFICIENT CAPACITY** to support the proposed antenna configuration.

The analysis is based, in part, on the information provided to this office by Verizon Wireless. If the existing conditions are different than the information in this report, Centek Engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:

Timothy J. Lynn, PE
Structural Engineer

STATE OF CONNECTICUT
TIMOTHY J. LYNN
No. 29336
LICENSED
PROFESSIONAL ENGINEER

Luke A. Amiot
Engineer

Standard Conditions for Furnishing of Professional Engineering Services on Existing Structures

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessarily limited to:

- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from the field and/or drawings in the possession of Centek Engineering, Inc. or generated by field inspections or measurements of the structure.
- It is the responsibility of the client to ensure that the information provided to Centek Engineering, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the "as new" condition.
- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of ANSI/ASCE10 & ANSI/EIA-222
- All services performed, results obtained, and recommendations made are in accordance with generally accepted engineering principles and practices. Centek Engineering, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

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Subject: Wind Load on Equipment per ASCE 7-16

Location: Danbury,CT

Rev. 0: 10/18/2022

Prepared by: L.A.A.; Checked by: T.J.L.
Job No. 21058.02

Design Wind Load on Other Structures:

(Based on IBC 2021, CSBC 2022 and ASCE 7-16)

Wind Speed =	$V := 120$	mph	(User Input)	(CSBC Appendix-P)
Risk Category =	$BC := II$		(User Input)	(IBC Table 1604.5)
Exposure Category =	$Exp := C$		(User Input)	
Height Above Grade =	$Z := 60$	ft	(User Input)	
Structure Type =	$Structuretype := Square\_Chimney$			
Structure Height =	$Height := 8.0$	ft	(User Input)	
			(User Input)	
Horizontal Dimension of Structure =	$Width := 12$	ft	(User Input)	

Terrain Exposure Constants:

Nominal Height of the Atmospheric Boundary Layer = $zg :=$ if $Exp = B$ 1200; if $Exp = C$ 900; if $Exp = D$ 700 $= 900$ (Table 26.9-1)

3-Sec Gust Speed Power Law Exponent = $\alpha :=$ if $Exp = B$ 7; if $Exp = C$ 9.5; if $Exp = D$ 11.5 $= 9.5$ (Table 26.9-1)

Integral Length Scale Factor = $l :=$ if $Exp = B$ 320; if $Exp = C$ 500; if $Exp = D$ 650 $= 500$ (Table 26.9-1)

Integral Length Scale Power Law Exponent = $E :=$ if $Exp = B$ $\frac{1}{3}$; if $Exp = C$ $\frac{1}{5}$; if $Exp = D$ $\frac{1}{8}$ $= 0.2$ (Table 26.9-1)

Turbulence Intensity Factor = $c :=$ if $Exp = B$ 0.3; if $Exp = C$ 0.2; if $Exp = D$ 0.15 $= 0.2$ (Table 26.9-1)

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Exposure Constant =	$Z_{min} := \begin{cases} \text{if } Exp = B \\ \quad 30 \\ \text{if } Exp = C \\ \quad 15 \\ \text{if } Exp = D \\ \quad 7 \end{cases} = 15$	(Table 26.9-1)
Exposure Coefficient =	$K_z := \begin{cases} \text{if } 15 \le Z \le zg \\ \quad 2.01 \cdot \left(\frac{Z}{zg}\right)^{\left(\frac{2}{\alpha}\right)} \\ \text{if } Z < 15 \\ \quad 2.01 \cdot \left(\frac{15}{zg}\right)^{\left(\frac{2}{\alpha}\right)} \end{cases} = 1.14$	(Table 29.3-1)
Topographic Factor =	$K_{zt} := 1$	(Eq. 26.8-2)
Wind Directionality Factor =	$K_d = 0.9$	(Table 26.6-1)
Velocity Pressure =	$q_z := 0.00256 \cdot K_z \cdot K_{zt} \cdot K_d \cdot V^2 = 37.71$	(Eq. 29.3-1)
Peak Factor for Background Response =	$g_Q := 3.4$	(Sec 26.9.4)
Peak Factor for Wind Response =	$g_v := 3.4$	(Sec 26.9.4)
Equivalent Height of Structure =	$z := \begin{cases} \text{if } Z_{min} > 0.6 \cdot Height \\ \quad Z_{min} \\ \text{else} \\ \quad 0.6 \cdot Height \end{cases} = 15$	(Sec 26.9.4)
Intensity of Turbulence =	$I_z := c \cdot \left(\frac{33}{z}\right)^{\left(\frac{1}{6}\right)} = 0.228$	(Eq. 26.9-7)
Integral Length Scale of Turbulence =	$L_Z := l \cdot \left(\frac{z}{33}\right)^{\varepsilon} = 427.057$	(Eq. 26.9-9)
Background Response Factor =	$Q := \sqrt{\frac{1}{1 + 0.63 \cdot \left(\frac{Width + Height}{L_Z}\right)^{0.63}}} = 0.957$	(Eq. 26.9-8)
Gust Response Factor =	$G := 0.925 \cdot \left(\frac{\left(1 + 1.7 \cdot g_Q \cdot I_z \cdot Q\right)}{1 + 1.7 \cdot g_v \cdot I_z}\right) = 0.902$	(Eq. 26.9-6)
Force Coefficient =	$C_f = 1.3$	(Fig 29.5-1 - 29.5-3)
Wind Force =	$F := q_z \cdot G \cdot C_f = 44$	psf

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Subject: Wind Load on Equipment per ASCE 7-16

Location: Danbury,CT

Rev. 0: 10/18/2022

Prepared by: L.A.A.; Checked by: T.J.L.
Job No. 21058.02

Development of Wind on Equipment Cabinets

Cabinet Data:

Cabinet Model =	Commscope RBA84-32 Cabinet (w/ Equip/Batteries)		
Cabinet Shape =	Flat		(User Input)
Cabinet Height =	$L_{Eq} := 85.5$	in	(User Input)
Cabinet Width =	$W_{Eq} := 45.4$	in	(User Input)
Cabinet Thickness =	$T_{Eq} := 44.6$	in	(User Input)
Cabinet Weight =	$WT_{Eq} := 3900$	lbs	(User Input)
Equipment Bearing Points =	$N_{Bp} := 4$		(User Input)
Number of Equipment =	$N_{Eq} := 1$		(User Input)

Wind Load (Front)

Surface Area for One Equipment =	$SA_{Eq} := \frac{L_{Eq} \cdot W_{Eq}}{144} = 27$	sf
Equipment Projected Surface Area =	$A_{Eq} := SA_{Eq} \cdot N_{Eq} = 27$	sf
Total Equipment Wind Force =	$F_{Eq} := \frac{F \cdot A_{Eq} \cdot \frac{\left(\frac{L_{Eq}}{12}\right)}{2}}{\frac{T_{Eq}}{12}} = 1143$	lbs
Total Equipment Shear Wind Force =	$F_{Eq} := \frac{F \cdot A_{Eq}}{N_{Bp}} = 298$	lbs

Wind Load (Side)

Surface Area for One Equipment =	$SA_{Eq} := \frac{L_{Eq} \cdot T_{Eq}}{144} = 26.5$	sf
Equipment Projected Surface Area =	$A_{Eq} := SA_{Eq} \cdot N_{Eq} = 26.5$	sf
Total Equipment Wind Force =	$F_{Eq} := \frac{F \cdot A_{Eq} \cdot \frac{\left(\frac{L_{Eq}}{12}\right)}{2}}{\frac{W_{Eq}}{12}} = 1103$	lbs
Total Equipment Shear Wind Force =	$F_{Eq} := \frac{F \cdot A_{Eq}}{N_{Bp}} = 293$	lbs

Gravity Load (without ice)

Weight of All Equipments =	$\frac{WT_{Eq}}{N_{Bp}} = 975$	lbs

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Branford, CT 06405 F: (203) 488-8587

Subject: Wind Load on Equipment per ASCE 7-16

Location: Danbury,CT

Rev. 0: 10/18/2022

Prepared by: L.A.A.; Checked by: T.J.L.
Job No. 21058.02

Development of Wind on Equipment Cabinets

Cabinet Data:

Cabinet Model =	Square D EXN30T3HC 45VA Transformer		
Cabinet Shape =	Flat		(User Input)
Cabinet Height =	$L_{Eq} := 28.3$	in	(User Input)
Cabinet Width =	$W_{Eq} := 25.5$	in	(User Input)
Cabinet Thickness =	$T_{Eq} := 24.1$	in	(User Input)
Cabinet Weight =	$WT_{Eq} := 356$	lbs	(User Input)
Equipment Bearing Points =	$N_{Bp} := 4$		(User Input)
Number of Equipment =	$N_{Eq} := 1$		(User Input)

Wind Load (Front)

Surface Area for One Equipment =	$SA_{Eq} := \frac{L_{Eq} \cdot W_{Eq}}{144} = 5$	sf
Equipment Projected Surface Area =	$A_{Eq} := SA_{Eq} \cdot N_{Eq} = 5$	sf
Total Equipment Wind Force =	$F_{Eq} := \frac{F \cdot A_{Eq} \cdot \frac{\left(\frac{L_{Eq}}{12}\right)}{2}}{\frac{T_{Eq}}{12}} = 130$	lbs
Total Equipment Shear Wind Force =	$F_{Eq} := \frac{F \cdot A_{Eq}}{N_{Bp}} = 55$	lbs

Wind Load (Side)

Surface Area for One Equipment =	$SA_{Eq} := \frac{L_{Eq} \cdot T_{Eq}}{144} = 4.7$	sf
Equipment Projected Surface Area =	$A_{Eq} := SA_{Eq} \cdot N_{Eq} = 4.7$	sf
Total Equipment Wind Force =	$F_{Eq} := \frac{F \cdot A_{Eq} \cdot \frac{\left(\frac{L_{Eq}}{12}\right)}{2}}{\frac{W_{Eq}}{12}} = 116$	lbs
Total Equipment Shear Wind Force =	$F_{Eq} := \frac{F \cdot A_{Eq}}{N_{Bp}} = 52$	lbs

Gravity Load (without ice)

Weight of All Equipments =	$\frac{WT_{Eq}}{N_{Bp}} = 89$	lbs

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Location: Danbury,CT

Rev. 0: 10/18/2022

Prepared by: L.A.A.; Checked by: T.J.L.
Job No. 21058.02

Development of Wind on Antennas

Antenna Data:

Antenna Model =	JMA MX10FR0640		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 71.6$	in	(User Input)
Antenna Width =	$W_{ant} := 19.8$	in	(User Input)
Antenna Thickness =	$T_{ant} := 7.4$	in	(User Input)
Antenna Weight =	$WT_{ant} := 76.3$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)

Wind Load (Front)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 9.8$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 9.8$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 436$	lbs

Wind Load (Side)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot T_{ant}}{144} = 3.7$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 3.7$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 163$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 76$	lbs

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Job No. 21058.02

Development of Wind on Antennas

Antenna Data:

Antenna Model =	JMA MX08FIT265-01		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 24$	in	(User Input)
Antenna Width =	$W_{ant} := 11.6$	in	(User Input)
Antenna Thickness =	$T_{ant} := 4.53$	in	(User Input)
Antenna Weight =	$WT_{ant} := 21.5$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)

Wind Load (Front)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 1.9$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 1.9$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 86$	lbs

Wind Load (Side)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot T_{ant}}{144} = 0.8$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 0.8$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 33$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 22$	lbs

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Location: Danbury,CT

Rev. 0: 10/18/2022

Prepared by: L.A.A.; Checked by: T.J.L.
Job No. 21058.02

Development of Wind on RRU

RRU Data:

RRU Model =	Samsung B2/B66A RRH-BR049		
RRU Shape =	Flat		(User Input)
RRU Height =	$L_{ant} := 15$	in	(User Input)
RRU Width =	$W_{ant} := 15$	in	(User Input)
RRU Thickness =	$T_{ant} := 10$	in	(User Input)
RRU Weight =	$WT_{ant} := 84.4$	lbs	(User Input)
Number of RRU =	$N_{ant} := 1$		(User Input)

Wind Load (Front)

Surface Area for One RRU =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 1.6$	sf
RRU Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 1.6$	sf
Total RRU Wind Force =	$F_{ant} := F \cdot A_{ant} = 69$	lbs

Wind Load (Side)

Surface Area for One RRU =	$SA_{ant} := \frac{L_{ant} \cdot T_{ant}}{144} = 1$	sf
RRU Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 1$	sf
Total RRU Wind Force =	$F_{ant} := F \cdot A_{ant} = 46$	lbs

Gravity Load (without ice)

Weight of All RRU=	$WT_{ant} \cdot N_{ant} = 84$	lbs

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Development of Wind on RRU

RRU Data:

RRU Model =	Samsung B5/B13 RRH-BR04C		
RRU Shape =	Flat		(User Input)
RRU Height =	$L_{ant} := 15$	in	(User Input)
RRU Width =	$W_{ant} := 15$	in	(User Input)
RRU Thickness =	$T_{ant} := 8.1$	in	(User Input)
RRU Weight =	$WT_{ant} := 70.3$	lbs	(User Input)
Number of RRU =	$N_{ant} := 1$		(User Input)

Wind Load (Front)

Surface Area for One RRU =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 1.6$	sf
RRU Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 1.6$	sf
Total RRU Wind Force =	$F_{ant} := F \cdot A_{ant} = 69$	lbs

Wind Load (Side)

Surface Area for One RRU =	$SA_{ant} := \frac{L_{ant} \cdot T_{ant}}{144} = 0.8$	sf
RRU Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 0.8$	sf
Total RRU Wind Force =	$F_{ant} := F \cdot A_{ant} = 37$	lbs

Gravity Load (without ice)

Weight of All RRU=	$WT_{ant} \cdot N_{ant} = 70$	lbs

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Development of Wind on RRU

RRU Data:

RRU Model =	Samsung RT-8808-77A		
RRU Shape =	Flat		(User Input)
RRU Height =	$L_{ant} := 15$	in	(User Input)
RRU Width =	$W_{ant} := 15$	in	(User Input)
RRU Thickness =	$T_{ant} := 6.8$	in	(User Input)
RRU Weight =	$WT_{ant} := 59.5$	lbs	(User Input)
Number of RRU =	$N_{ant} := 1$		(User Input)

Wind Load (Front)

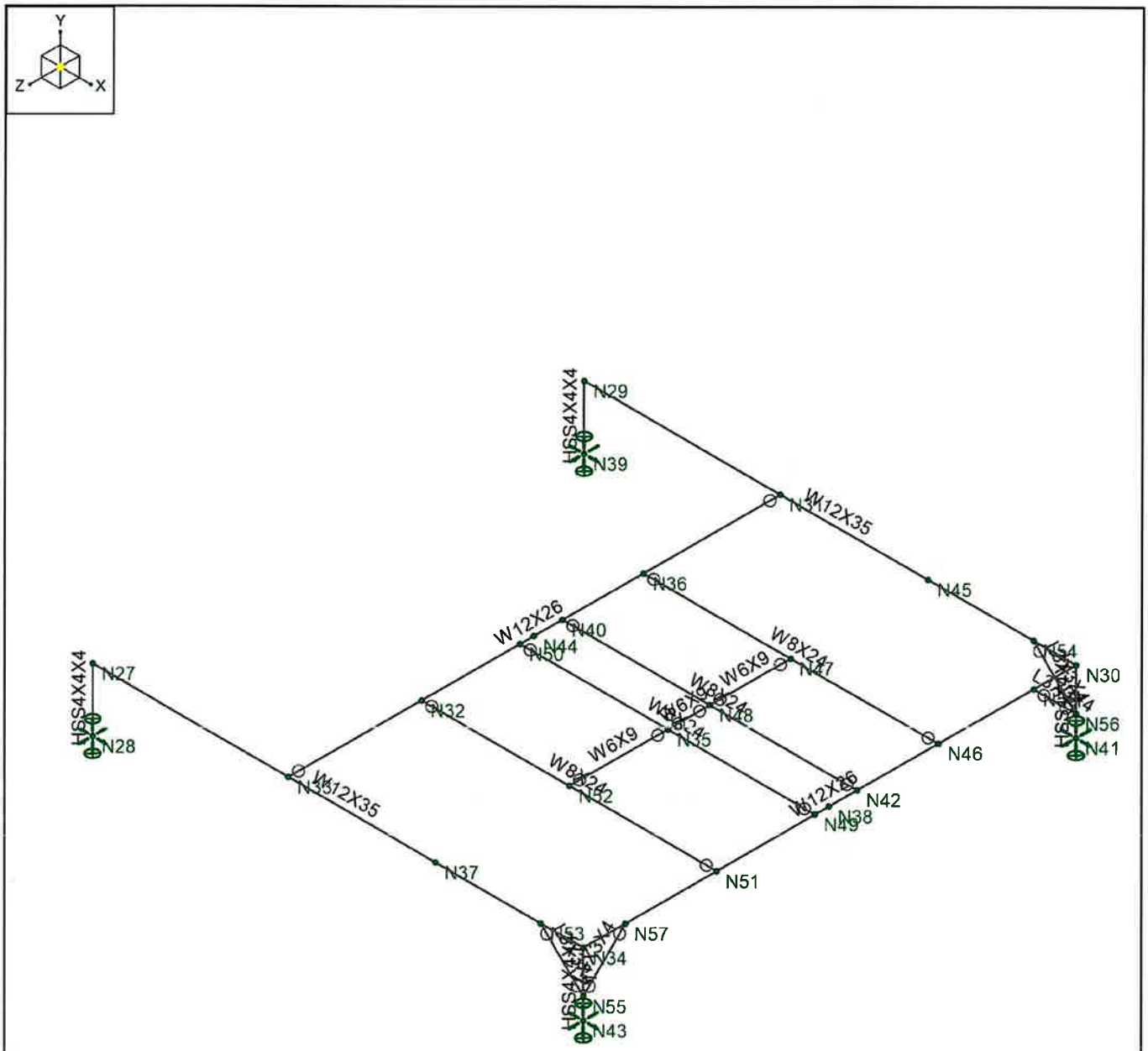
Surface Area for One RRU =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 1.6$	sf
RRU Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 1.6$	sf
Total RRU Wind Force =	$F_{ant} := F \cdot A_{ant} = 69$	lbs

Wind Load (Side)

Surface Area for One RRU =	$SA_{ant} := \frac{L_{ant} \cdot T_{ant}}{144} = 0.7$	sf
RRU Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 0.7$	sf
Total RRU Wind Force =	$F_{ant} := F \cdot A_{ant} = 31$	lbs

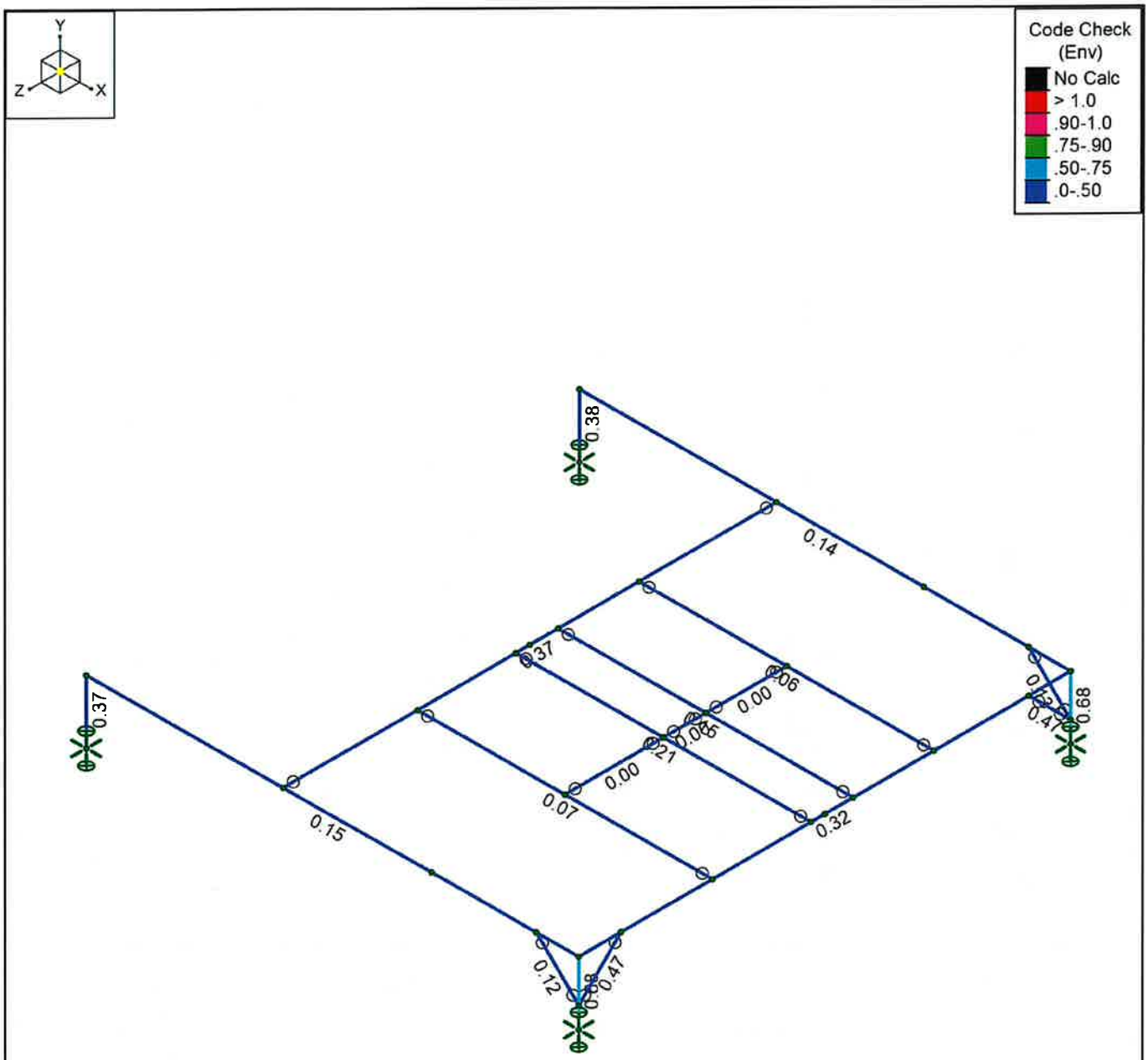
Gravity Load (without ice)

Weight of All RRU=	$WT_{ant} \cdot N_{ant} = 60$	lbs



Envelope Only Solution

Centek Engineering	Proposed Equipment Platform	SK-1
LAA		Oct 20, 2022
21058.02		21058.02 Proposed Equipment Pl...



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Centek Engineering	Proposed Equipment Platform	SK-2
LAA		Oct 20, 2022
21058.02		21058.02 Proposed Equipment Pl...

Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	N27	35	0	23.333	
2	N28	35	-3	23.333	
3	N29	35	0	0	
4	N30	58.333	0	0	
5	N31	44.333	0	0	
6	N32	44.333	0	17	
7	N33	44.333	0	23.333	
8	N34	58.333	0	23.333	
9	N35	51.333	0	12.333	
10	N36	44.333	0	6.5	
11	N37	51.333	0	23.333	
12	N38	58.333	0	11.6665	
13	N39	35	-3	0	
14	N40	44.333	0	10.333	
15	N41	58.333	-3	0	
16	N42	58.333	0	10.333	
17	N43	58.333	-3	23.333	
18	N44	44.333	0	11.6665	
19	N45	51.333	0	0	
20	N46	58.333	0	6.5	
21	N47	51.333	0	6.5	
22	N48	51.333	0	10.333	
23	N49	58.333	0	12.333	
24	N50	44.333	0	12.333	
25	N51	58.333	0	17	
26	N52	51.333	0	17	
27	N53	56.333	0	23.333	
28	N54	56.333	0	0	
29	N55	58.333	-2	23.333	
30	N56	58.333	-2	0	
31	N57	58.333	0	21.333	
32	N58	58.333	0	2	

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	Y Rot [k-ft/rad]
1	N28	Reaction	Reaction	Reaction	Reaction
2	N39	Reaction	Reaction	Reaction	Reaction
3	N41	Reaction	Reaction	Reaction	Reaction
4	N43	Reaction	Reaction	Reaction	Reaction

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	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lb y-y [ft]	Lcomp top [ft]	Function
1	M18	W12X35	23.333	Segment	Lbyy	Lateral
2	M19	W8X24	14	Segment	Lbyy	Lateral
3	M20	W6X9	3.833		Lbyy	Lateral
4	M21	W6X9	2		Lbyy	Lateral
5	M22	W6X9	4.667		Lbyy	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lb y-y [ft]	Lcomp top [ft]	Function
6	M23	HSS4X4X4	3		Lbyy	Lateral
7	M24	HSS4X4X4	3		Lbyy	Lateral
8	M25	HSS4X4X4	3		Lbyy	Lateral
9	M26	HSS4X4X4	3		Lbyy	Lateral
10	M27	W8X24	14	Segment	Lbyy	Lateral
11	M28	W12X26	23.333	Segment	Lbyy	Lateral
12	M29	W12X35	23.333	Segment	Lbyy	Lateral
13	M30	W12X26	23.333	Segment	Lbyy	Lateral
14	M31	W8X24	14	Segment	Lbyy	Lateral
15	M32	W8X24	14	Segment	Lbyy	Lateral
16	M33	L3X3X4	2.828		Lbyy	Lateral
17	M34	L3X3X4	2.828		Lbyy	Lateral
18	M35	L3X3X4	2.828		Lbyy	Lateral
19	M36	L3X3X4	2.828		Lbyy	Lateral

Member Point Loads

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]	Inactive [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	M27	Y	-0.975	11.5	Active
2	M27	Y	-0.09	2.5	Active
3	M27	Y	-0.975	8	Active
4	M27	Y	-0.09	0.5	Active
5	M31	Y	-0.09	2.5	Active
6	M31	Y	-0.09	0.5	Active
7	M31	Y	-0.975	8	Active
8	M31	Y	-0.975	11.5	Active

Member Point Loads

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]	Inactive [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	M27	X	0.293	11.5	Active
2	M27	X	0.055	2.5	Active
3	M27	X	0.293	8	Active
4	M27	Y	-1.103	11.5	Active
5	M27	X	0.055	0.5	Active
6	M27	Y	-0.116	2.5	Active
7	M27	Y	0.116	0.5	Active
8	M27	Y	1.103	8	Active
9	M31	X	0.293	8	Active
10	M31	X	0.055	0.5	Active
11	M31	Y	-0.116	2.5	Active
12	M31	X	0.293	11.5	Active
13	M31	X	0.055	2.5	Active
14	M31	Y	1.103	8	Active
15	M31	Y	0.116	0.5	Active
16	M31	Y	-1.103	11.5	Active

Member Point Loads

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]	Inactive [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	M27	Y	-1.143	8	Active
2	M27	Y	-0.116	2.5	Active
3	M27	Y	-0.116	0.5	Active
4	M27	Z	0.052	2.5	Active
5	M27	Y	-1.143	11.5	Active
6	M27	Z	0.052	0.5	Active
7	M31	Y	0.116	2.5	Active
8	M31	Y	0.116	0.5	Active
9	M31	Z	0.052	0.5	Active
10	M31	Z	0.052	2.5	Active

Member Point Loads (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]	Inactive [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
11	M31	Y	1.143	11.5	Active
12	M31	Y	1.143	8	Active

Member Distributed Loads

	Member Label	Direction	Start Magnitude [k/ft, F, ksf]	End Magnitude [k/ft, F, ksf]	Start Location [(ft, %)]	End Location [(ft, %)]	Inactive [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	M19	Y	-0.015	-0.015	0	%100	Active
2	M28	Y	-0.015	-0.015	6.5	17	Active
3	M30	Y	-0.015	-0.015	6.5	17	Active
4	M32	Y	-0.015	-0.015	0	%100	Active

Member Distributed Loads

	Member Label	Direction	Start Magnitude [k/ft, F, ksf]	End Magnitude [k/ft, F, ksf]	Start Location [(ft, %)]	End Location [(ft, %)]	Inactive [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	M27	Y	-0.023	-0.023	0	14	Active
2	M27	Y	-0.023	-0.023	0	14	Active
3	M32	Y	-0.023	-0.023	0	14	Active
4	M32	Y	-0.023	-0.023	0	14	Active
5	M27	Y	-0.01	-0.01	0	14	Active
6	M27	Y	-0.01	-0.01	0	14	Active
7	M31	Y	-0.01	-0.01	0	14	Active
8	M31	Y	-0.01	-0.01	0	14	Active
9	M19	Y	-0.019	-0.019	0	14	Active
10	M19	Y	-0.019	-0.019	0	14	Active
11	M31	Y	-0.019	-0.019	0	14	Active
12	M31	Y	-0.019	-0.019	0	14	Active

Member Distributed Loads

	Member Label	Direction	Start Magnitude [k/ft, F, ksf]	End Magnitude [k/ft, F, ksf]	Start Location [(ft, %)]	End Location [(ft, %)]	Inactive [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	M19	Y	-0.038	-0.038	0	14	Active
2	M19	Y	-0.038	-0.038	0	14	Active
3	M31	Y	-0.038	-0.038	0	14	Active
4	M31	Y	-0.038	-0.038	0	14	Active
5	M27	Y	-0.02	-0.02	0	14	Active
6	M27	Y	-0.02	-0.02	0	14	Active
7	M31	Y	-0.02	-0.02	0	14	Active
8	M31	Y	-0.02	-0.02	0	14	Active
9	M27	Y	-0.047	-0.047	0	14	Active
10	M27	Y	-0.047	-0.047	0	14	Active
11	M32	Y	-0.047	-0.047	0	14	Active
12	M32	Y	-0.047	-0.047	0	14	Active

Member Distributed Loads

	Member Label	Direction	Start Magnitude [k/ft, F, ksf]	End Magnitude [k/ft, F, ksf]	Start Location [(ft, %)]	End Location [(ft, %)]	Inactive [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	M27	Y	-0.07	-0.07	0	14	Active
2	M27	Y	-0.07	-0.07	0	14	Active
3	M32	Y	-0.07	-0.07	0	14	Active
4	M32	Y	-0.07	-0.07	0	14	Active
5	M27	Y	-0.03	-0.03	0	14	Active
6	M27	Y	-0.03	-0.03	0	14	Active
7	M31	Y	-0.03	-0.03	0	14	Active
8	M31	Y	-0.03	-0.03	0	14	Active
9	M19	Y	-0.057	-0.057	0	14	Active
10	M19	Y	-0.057	-0.057	0	14	Active
11	M31	Y	-0.057	-0.057	0	14	Active
12	M31	Y	-0.057	-0.057	0	14	Active

Member Area Loads

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]	Inactive [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	N32	N50	N49	N51	Y	A-B	-0.01	Active
2	N50	N40	N42	N49	Y	A-B	-0.01	Active
3	N40	N36	N46	N42	Y	A-B	-0.01	Active

Member Area Loads

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]	Inactive [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	N40	N36	N46	N42	Y	A-B	-0.02	Active
2	N50	N40	N42	N49	Y	A-B	-0.02	Active
3	N32	N50	N49	N51	Y	A-B	-0.02	Active

Member Area Loads

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]	Inactive [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	N32	N50	N49	N51	Y	A-B	-0.03	Active
2	N50	N40	N42	N49	Y	A-B	-0.03	Active
3	N40	N36	N46	N42	Y	A-B	-0.03	Active

Member Area Loads

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]	Inactive [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	N33	N32	N51	N34	Y	A-B	-0.02	Active
2	N32	N50	N49	N51	Y	A-B	-0.02	Active
3	N50	N40	N42	N49	Y	A-B	-0.02	Active
4	N40	N36	N46	N42	Y	A-B	-0.02	Active
5	N36	N31	N30	N46	Y	A-B	-0.02	Active

Load Combinations

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	IBC 16-8	Yes	Y	DL	1										
2	IBC 16-9	Yes	Y	DL	1	LL	1	LLS	1						
3	IBC 16-10 (b)	Yes	Y	DL	1	SL	1	SLN	1						
4	IBC 16-11 (b)	Yes	Y	DL	1	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75		
5	IBC 16-12 (a) (a)	Yes	Y	DL	1	WLX	0.6								
6	IBC 16-12 (a) (b)	Yes	Y	DL	1	WLZ	0.6								
7	IBC 16-13 (a) (a)	Yes	Y	DL	1	WLX	0.45	LL	0.75	LLS	0.75				
8	IBC 16-13 (a) (b)	Yes	Y	DL	1	WLZ	0.45	LL	0.75	LLS	0.75				
9	IBC 16-13 (b) (a)	Yes	Y	DL	1	WLX	0.45	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75
10	IBC 16-13 (b) (b)	Yes	Y	DL	1	WLZ	0.45	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75
11	IBC 16-15 (a)	Yes	Y	DL	0.6	WLX	0.6								
12	IBC 16-15 (b)	Yes	Y	DL	0.6	WLZ	0.6								

Envelope Node Reactions

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N28	max	1.265	4	2.462	10	0.041	10	0	12	0.006	4	0	12
2		min	0.325	11	0.814	11	-0.003	4	0	1	-0.581	10	0	1
3	N39	max	1.279	10	2.463	4	0.047	10	0	12	0.1	5	0	12
4		min	0.323	11	0.82	11	0.001	5	0	1	-0.598	10	0	1
5	N41	max	-0.453	12	5.939	9	5.488	9	0	12	0.01	4	0	12
6		min	-1.463	9	2.215	12	2.019	12	0	1	-0.444	5	0	1
7	N43	max	-0.533	12	5.866	9	-2.147	12	0	12	0.422	5	0	12
8		min	-1.445	9	2.41	12	-5.49	9	0	1	-0.301	10	0	1
9	Totals:	max	0	3	16.476	9	0	7						
10		min	-0.835	5	6.578	12	-0.125	12						

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	Pnc/om [k]	Pnt/om [k]	Mnyy/om [k-ft]	Mnzz/om [k-ft]	Cb	Eqn
1	M18	W12X35	0.146	9.236	10	0.055	9.236	y	10	175.362	308.383	28.693	127.745	1.928	H1-1b
2	M19	W8X24	0.058	7	9	0.026	0	y	10	153.022	211.976	21.382	57.635	1.304	H1-1b
3	M20	W6X9	0.001	1.917	6	0.001	3.833	y	10	66.458	80.24	4.29	15.54	1.136	H1-1b
4	M21	W6X9	0	1	9	0.002	2	y	6	76.227	80.24	4.29	15.54	1.136	H1-1b
5	M22	W6X9	0.002	2.333	6	0.001	4.667	y	6	60.682	80.24	4.29	15.54	1.136	H1-1b
6	M23	HSS4X4X4	0.681	1	9	0.254	1	z	9	89.395	92.826	10.765	10.765	1.453	H1-1b
7	M24	HSS4X4X4	0.377	3	10	0.116	3	y	10	89.395	92.826	10.765	10.765	1.667	H1-1b
8	M25	HSS4X4X4	0.373	3	10	0.113	3	y	10	89.395	92.826	10.765	10.765	1.667	H1-1b
9	M26	HSS4X4X4	0.679	1	9	0.251	1	z	9	89.395	92.826	10.765	10.765	1.453	H1-1b
10	M27	W8X24	0.207	8.021	10	0.088	14	y	10	153.022	211.976	21.382	57.635	1.263	H1-1b
11	M28	W12X26	0.366	12.153	9	0.06	23.333	y	10	98.585	229.042	20.384	92.814	1.001	H1-1b
12	M29	W12X35	0.142	9.236	10	0.048	9.236	y	10	175.362	308.383	28.693	127.745	1.936	H1-1b
13	M30	W12X26	0.315	12.153	9	0.081	21.389	y	9	98.585	229.042	20.384	92.814	1.001	H1-1b
14	M31	W8X24	0.153	8.021	4	0.069	14	y	9	153.022	211.976	21.382	57.635	1.265	H1-1b
15	M32	W8X24	0.067	7	10	0.029	0	y	4	153.022	211.976	21.382	57.635	1.304	H1-1b
16	M33	L3X3X4	0.471	1.385	9	0.01	2.828	y	5	26.001	31.042	1.123	2.488	1.136	H2-1
17	M34	L3X3X4	0.125	1.385	9	0.013	2.828	y	4	26.001	31.042	1.123	2.488	1.136	H2-1
18	M35	L3X3X4	0.471	1.385	9	0.01	2.828	y	5	26.001	31.042	1.123	2.488	1.136	H2-1
19	M36	L3X3X4	0.127	1.385	9	0.015	2.828	y	10	26.001	31.042	1.123	2.488	1.136	H2-1

CENTEK engineering
Centered on Solutions℠ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject: Connection to Host Structure

Location: Danbury, CT

Date: 10/20/2022

Prepared by: LAA; Checked by: TJL
Job No. 21058.02

Platform Connection to Building

Number of Thru Bolts =	$n_b := 4$	(User Input)
Bolt Diameter =	$d\phi := 0.625\ in$	(User Input)
Allowable Tensile Strength =	$r_{nt} := 13.8\ kip$	(User Input)
Allowable Shear Strength =	$r_{nv} := 8.25 \cdot kip$	(User Input)
Spacing Between Bolts =	$S := 2\ in$	(User Input - Assumed)

ASD Reactions at Connection Node :

Tension X =	$Tension_x := 2.147 \cdot kip$	(User Input)
Shear Y =	$Shear_y := 1.463\ kip$	(User Input)
Shear Z =	$Shear_z := 5.488 \cdot kip$	(User Input)
Moment X =	$M_X := 0.598 \cdot kip \cdot ft$	(User Input)
Moment Y =	$M_Y := 0 \cdot kip \cdot ft$	(User Input)
Moment Z =	$M_Z := 0 \cdot kip \cdot ft$	(User Input)

Anchor Check:

Shear Force per Bolt (ASD) =

$$V_{all} := \frac{\sqrt{Shear_z^2 + Shear_y^2}}{n_b} + \frac{M_X}{S \cdot \frac{n_b}{2}} = 3.214\ kip$$

$$\frac{V_{all}}{r_{nv}} = 39\%$$

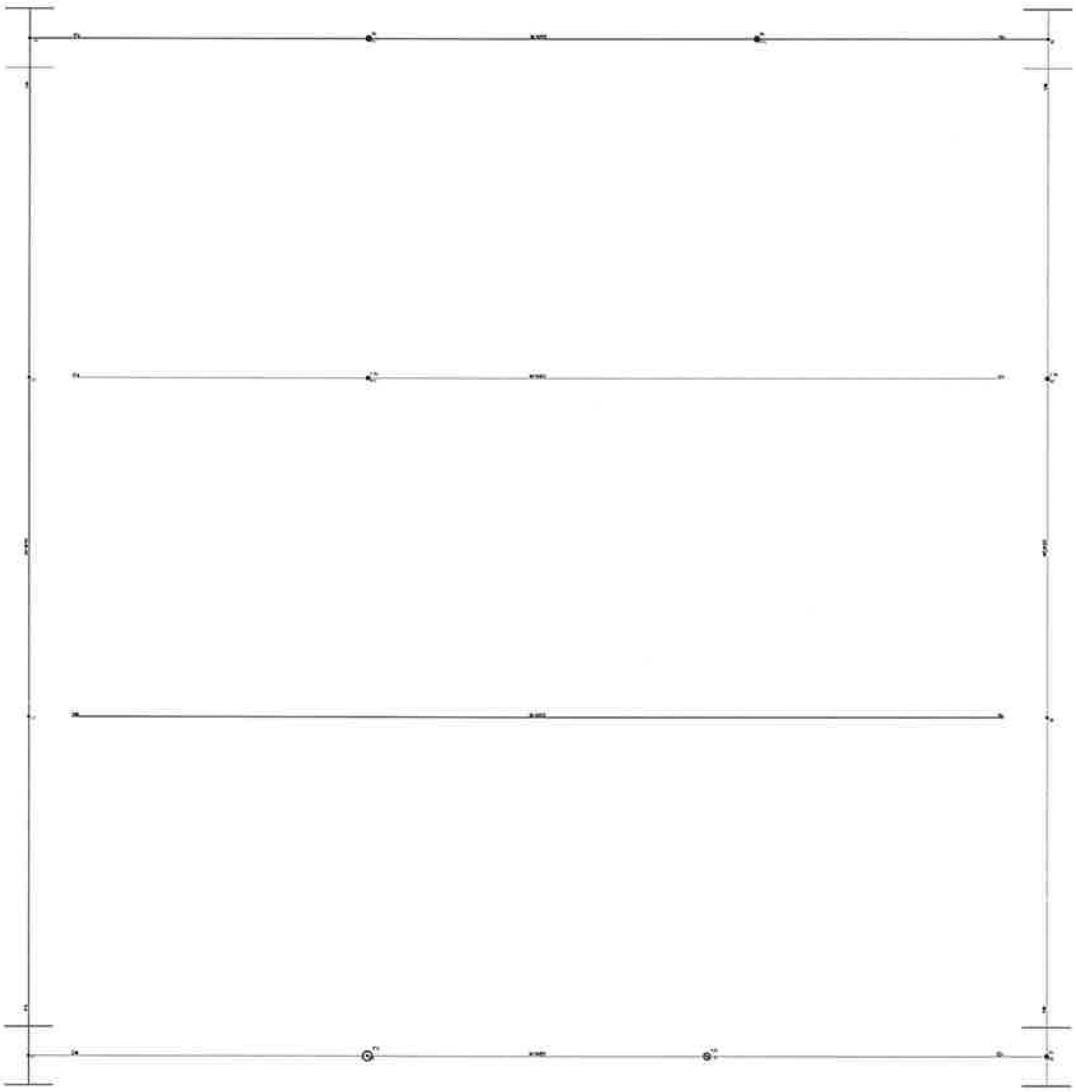
Tension Force per Bolt (ASD) =

$$T_{all} := \frac{Tension_x}{n_b} + \frac{M_Y + M_Z}{S \cdot \frac{n_b}{2}} = 0.537\ kip$$

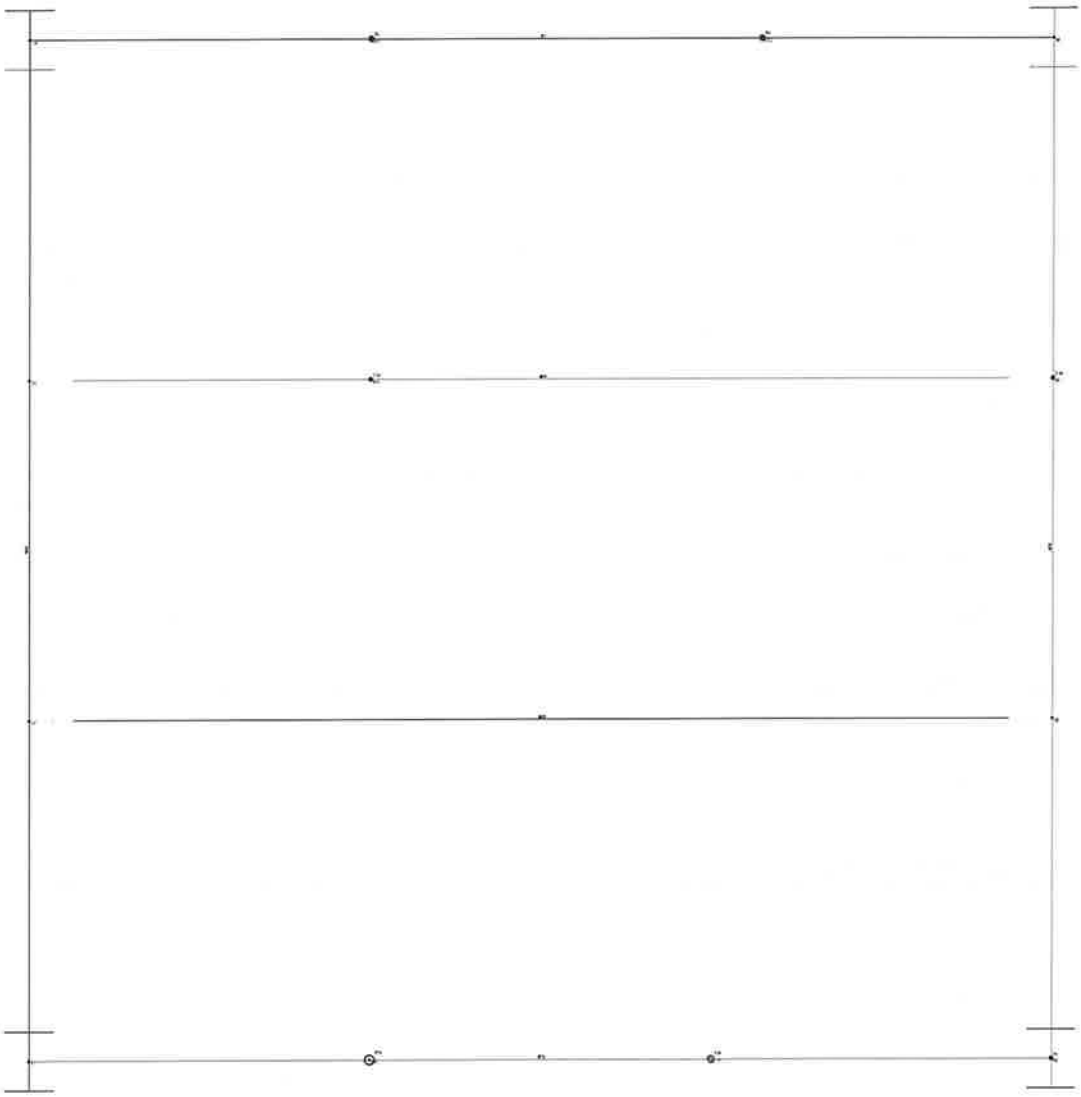
$$\frac{T_{all}}{r_{nt}} = 3.9\%$$

Combined Shear and Tension Ultimate Limit State =

$$Condition1 := \text{if}\left(\left(\frac{T_{all}}{r_{nt}}\right)^2 + \left(\frac{T_{all}}{r_{nt}}\right)^2 \le 1.0, \text{"OK"}, \text{"Overstressed"}\right) = \text{"OK"}$$



Centek Engineering	Roof Framing	SK - 1
Luke Amit		Oct 20, 2022 at 10:26 AM
	EXISTING ROOF FRAMING AT PLATFORM	Existing Framing Calculation.rfl



Centek Engineering	Roof Framing	SK - 2
Luke Amit		Oct 20, 2022 at 10:27 AM
	EXISTING ROOF UNITY CHECK AT PLATFORM	Existing Framing Calculation.rfl

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E..	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.25	65	1.15
8	A913 Gr.65	29000	11154	.3	.65	.49	65	1.1	80	1.1

Deck General Properties

	Label	Material Type	Deck	Unbraced[ft]	Max Spa...
1	Concrete Deck	Conc3000NW	1 in	3	10
2	Composite Deck	Vulcraft 3 VLI	7.5"NW 3VLI20, Conc3000NW, 3in, .75in, 65ksi	2	10
3	Metal Deck	Verco Steel Roof Deck	22ga PLB-36	2	4
4	Wood	Wood Deck	1 in	1	4

Deck Loads

	Label	Two Way	Self Wt [ksf]	Super DL [ksf]	Const DL [ksf]	Const LL [ksf]
1	Concrete Deck		.012	0	0	.02
2	Composite Deck		.075	0	0	.02
3	Metal Deck		.002	0	0	.02
4	Wood		.003	0	0	.02

Uniform Area Loads

	Label	Additive	PreDL[ksf]	PostDL[ksf]	LL[ksf]	LL Type	VL[ksf]	Dyn Load[...
1	Snow Load			.01	.03	SL	.004	.01
2	Add Piping	Yes		.02		LL-Non	.011	.02
3	Roof			.01	.02	RLL-Non	.011	.01

Point Locations : Roof Framing

	Label	Z [ft]	X [ft]	Elev Offset [ft]
1	N1	0	0	0
2	N2	35	0	0
3	N3	35	35	0
4	N4	0	35	0
5	N5	0	23.333333	0
6	N6	35	23.333333	0
7	N7	0	11.666667	0
8	N8	35	11.666667	0
9	N9	11.666667	0	0
10	N10	23.333333	0	0
11	N11	11.667	35	0
12	N12	25	35	0
13	N13	11.666667	23.333333	0

Beam Primary Data : Roof Framing

	Label	Start Point	End Point	Shape	Material	Design Rules	Function	Orientation	Start Rel...	End Rele...	Outrigger?
1	M1	N1	N2	W18X55	A992	Typical	Gravity	Strong Axis	Pinned	Pinned	
2	M2	N4	N3	W18X55	A992	Typical	Gravity	Strong Axis	Pinned	Pinned	

Beam Primary Data : Roof Framing (Continued)

	Label	Start Point	End Point	Shape	Material	Design Rules	Function	Orientation	Start Rel...	End Rele...	Outrigger?
3	M3	N1	N4	W24X55	A992	Typical	Gravity	Strong Axis	Pinned	Pinned	
4	M4	N2	N3	W24X55	A992	Typical	Gravity	Strong Axis	Pinned	Pinned	
5	M5	N5	N6	W18X35	A992	Typical	Gravity	Strong Axis	Pinned	Pinned	
6	M6	N7	N8	W18X35	A992	Typical	Gravity	Strong Axis	Pinned	Pinned	

Hot Rolled : Roof Framing

	Label	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp To...	Lcomp Bot...	L-torqu...	Cb	Composite	Camber[in]	B-eff Left[...	B-eff Righ...
1	M1	35	1		Framing				Yes			
2	M2	35	1		Framing				Yes			
3	M3	35	Segment		Framing				Yes			
4	M4	35	Segment		Framing				Yes			
5	M5	35	1		Framing				Yes			
6	M6	35	1		Framing				Yes			

Point Loads : Roof Framing

	Point Label	PreDL[k]	PostDL[k]	LL[k]	LL Type	Dyn Load[k]
1	N9		11		LL-Non	
2	N10		12		LL-Non	
3	N11		9		LL-Non	
4	N12		9		LL-Non	
5	N13		2.5		LL-Non	
6	N6		2.5		LL-Non	
7	N9		6		LL-Non	
8	N2		6		LL-Non	

Combinations

	Label	Sol...	Cat...	Fac...	Cat...	Fac...	Cat...	Fac...	Cat...	Fac...	Cat...	Fact...	Cat...	Fact...	Cat...	Fact...	Cat...	Fact...	Cat...	Fact...	Cat...	Fact...
1	Service ...	Yes	DL	1																		
2	Service ...	Yes	DL	1	LL	1	LLS	1														
3	IBC 16-8...	Yes	DLP...	1																		
4	IBC 16-9...	Yes	DLP...	1	LLC...	1																
5	IBC 16-1...	Yes	DL	1	RLL	1																
6	IBC 16-1...	Yes	DL	1	SL	1	SLN	1														
7	IBC 16-1...	Yes	DL	1	LL	.75	LLS	.75	RLL	.75												
8	IBC 16-1...	Yes	DL	1	LL	.75	LLS	.75	SL	.75	SLN	.75										
9	IBC 16-1...	Yes	DL	1	LL	.75	LLS	.75														

Floors

	Label	Elevation[ft]	Floor Type	Area Load Default	Inactive	Splice Dis...	Splice Type	No Wind/...	Parapet Hei...
1	Roof Framing	12	Floor Beam	Roof		12	Moment		0

Beam Floors

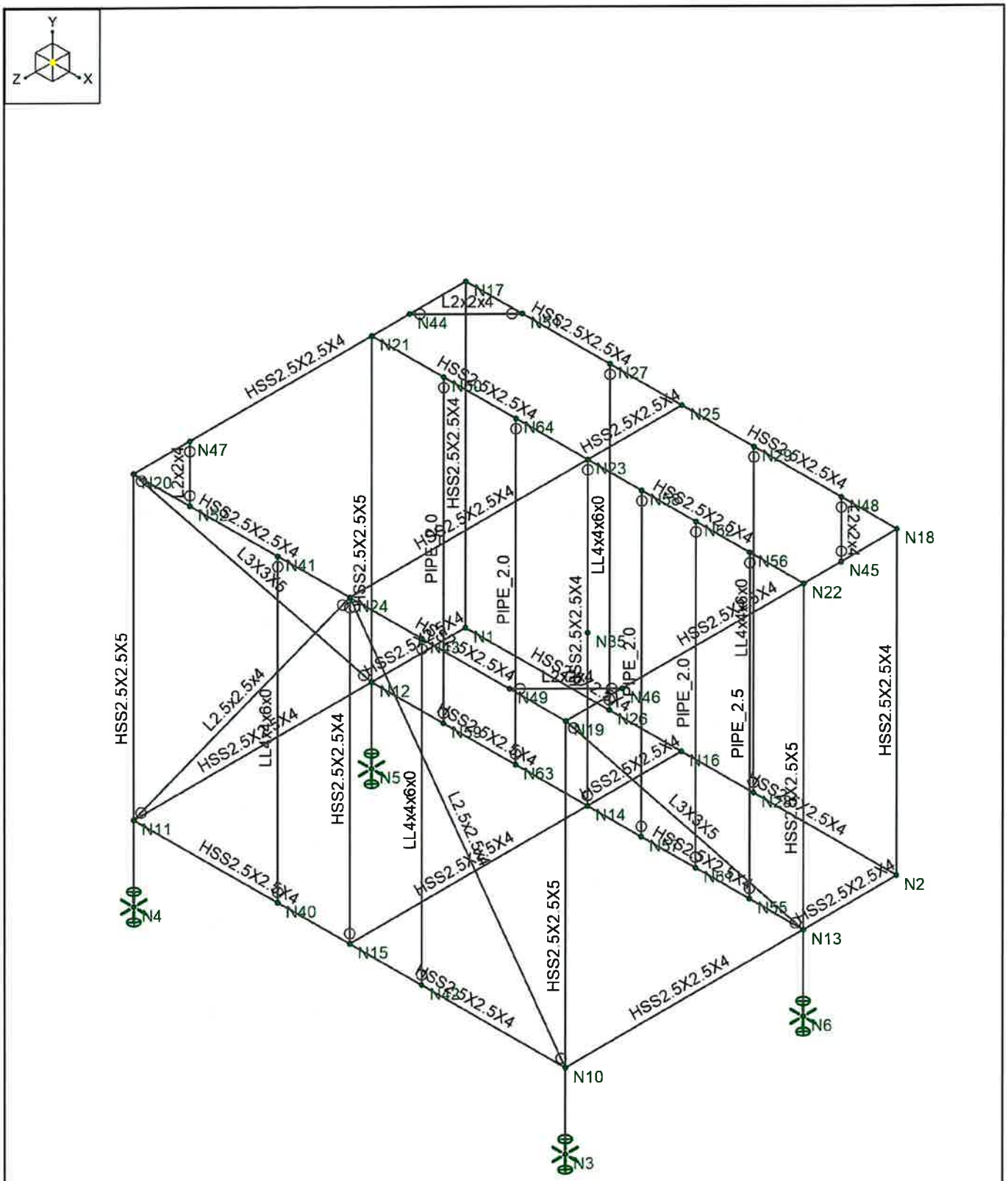
	Label	Deck Default	Deck Angle Default (deg)	Parent
1	Roof Framing	Concrete Deck	90	None

Beam Code Summary for Hot Rolled : Roof Framing

	Label	Size	Explicit	Studs	Camb...	Material	Bending...	Loc[ft]	LC	Defl Ch...	Loc[ft]	Cat	Shear C..	Loc[ft]	LC
1	M1	W18X55	Yes		0	A992	.876	13.854	6	1.218	17.5	DL+...	.168	0	6
2	M2	W18X55	Yes		0	A992	.61	16.771	6	.864	17.5	DL+...	.126	35	6
3	M3	W24X55	Yes		0	A992	.596	23.333	6	.661	17.5	DL+...	.104	35	6
4	M4	W24X55	Yes		0	A992	.635	23.333	6	.694	17.5	DL+...	.111	35	6
5	M5	W18X35	Yes		0	A992	.898	16.406	6	1.277	17.5	DL+...	.16	0	6
6	M6	W18X35	Yes		0	A992	.808	17.5	6	1.143	17.5	DL+...	.144	35	6

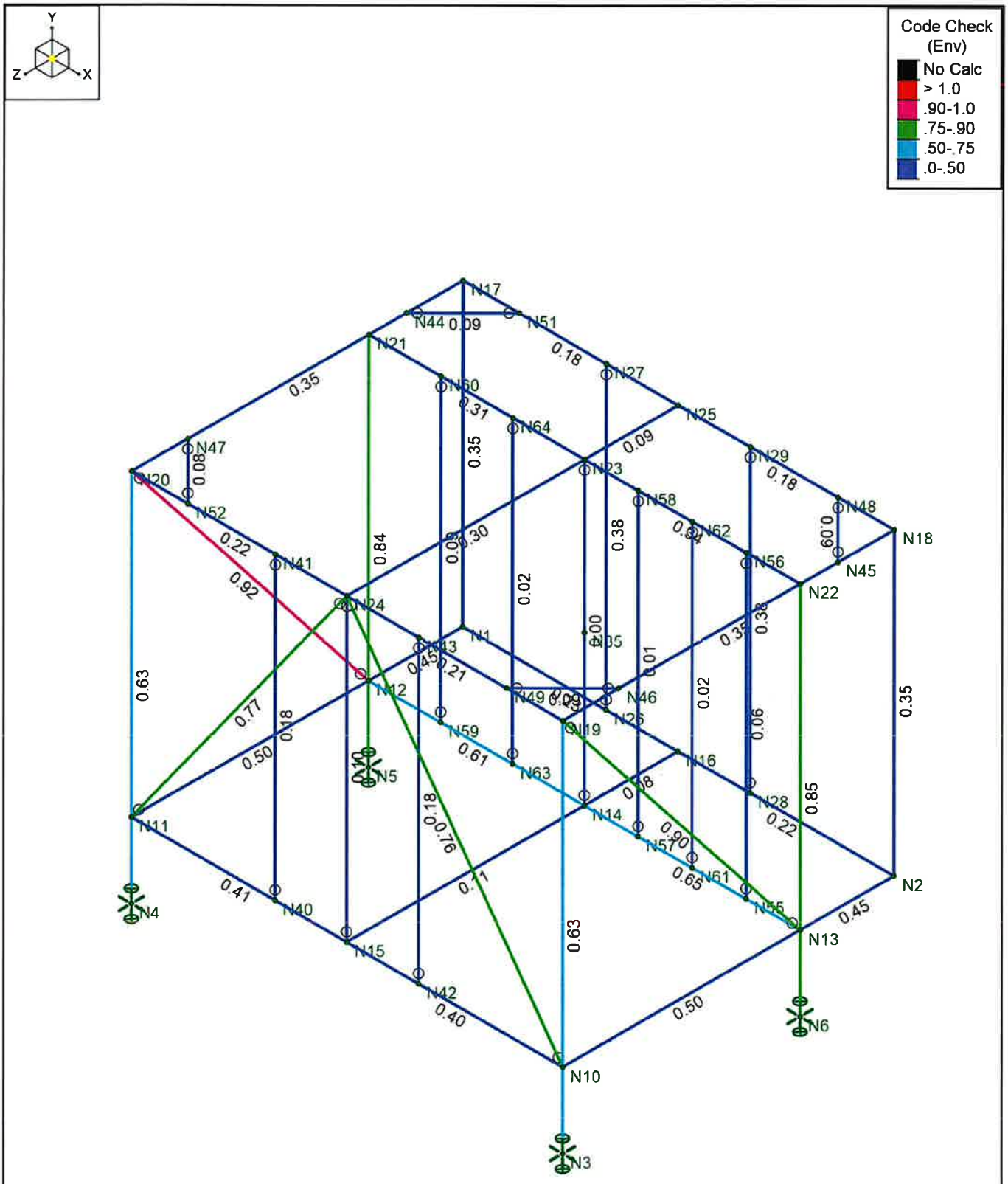
Beam End Reactions : Roof Framing

	Beam	End	PreDL[k]	DL[k]	LL[k]	LLS[k]	Roof[k]	Roof Cat	Max[k]	LC	Min[k]	LC
1	M1	Start	2.198	20.594	0	0	3.063	SL	23.657	6	2.198	3
2		End	2.198	18.927	0	0	3.063	SL	21.99	6	2.198	3
3	M2	Start	2.198	13.832	0	0	3.063	SL	16.895	6	2.198	3
4		End	2.198	14.689	0	0	3.063	SL	17.752	6	2.198	3
5	M3	Start	4.045	10.726	0	0	6.125	SL	16.851	6	4.045	3
6		End	4.045	11.281	0	0	6.125	SL	17.406	6	4.045	3
7	M4	Start	4.045	11.281	0	0	6.125	SL	17.406	6	4.045	3
8		End	4.045	12.392	0	0	6.125	SL	18.517	6	4.045	3
9	M5	Start	3.08	10.872	0	0	6.125	SL	16.997	6	3.08	3
10		End	3.08	10.039	0	0	6.125	SL	16.164	6	3.08	3
11	M6	Start	3.08	9.205	0	0	6.125	SL	15.33	6	3.08	3
12		End	3.08	9.205	0	0	6.125	SL	15.33	6	3.08	3



Envelope Only Solution

Centek Engineering Inc.	Westville CT	SK-1
LAA		Oct 21, 2022
21007.02		Antenna FRP Screenwall-Rev.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Centek Engineering Inc.	Westville CT	SK-2
LAA		Oct 21, 2022
21007.02		Antenna FRP Screenwall-Rev.r3d

Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	N1	0	0.5	0	
2	N2	11.5	0.5	0	
3	N3	11.5	-1.5	8.83	
4	N4	0	-1.5	8.83	
5	N5	0	-1.5	2.5	
6	N6	11.5	-1.5	2.5	
7	N10	11.5	0.5	8.83	
8	N11	0	0.5	8.83	
9	N12	0	0.5	2.5	
10	N13	11.5	0.5	2.5	
11	N14	5.75	0.5	2.5	
12	N15	5.75	0.5	8.83	
13	N16	5.75	0.5	0	
14	N17	0	8.5	0	
15	N18	11.5	8.5	0	
16	N19	11.5	8.5	8.83	
17	N20	0	8.5	8.83	
18	N21	0	8.5	2.5	
19	N22	11.5	8.5	2.5	
20	N23	5.75	8.5	2.5	
21	N24	5.75	8.5	8.83	
22	N25	5.75	8.5	0	
23	N26	3.833333	0.5	0	
24	N27	3.833333	8.5	0	
25	N28	7.666667	0.5	0	
26	N29	7.666667	8.5	0	
27	N35	5.75	4.5	2.5	
28	N55	10.0625	0.5	2.5	
29	N56	10.0625	8.5	2.5	
30	N57	7.1875	0.5	2.5	
31	N58	7.1875	8.5	2.5	
32	N59	1.916667	0.5	2.5	
33	N60	1.916667	8.5	2.5	
34	N61	8.625	0.5	2.5	
35	N62	8.625	8.5	2.5	
36	N63	3.833333	0.5	2.5	
37	N64	3.833333	8.5	2.5	
38	N40	3.833333	0.5	8.83	
39	N41	3.833333	8.5	8.83	
40	N42	7.666667	0.5	8.83	
41	N43	7.666667	8.5	8.83	
42	N44	0	8.5	1.5	
43	N45	11.5	8.5	1.5	
44	N46	11.5	8.5	7.33	
45	N47	0	8.5	7.33	
46	N48	10	8.5	0	
47	N49	10	8.5	8.83	
48	N51	1.5	8.5	0	
49	N52	1.5	8.5	8.83	

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	Y Rot [k-ft/rad]
1	N6	Reaction	Reaction	Reaction	Reaction
2	N3	Reaction	Reaction	Reaction	Reaction
3	N5	Reaction	Reaction	Reaction	Reaction
4	N4	Reaction	Reaction	Reaction	Reaction

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	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
3	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3
8	FRP	2800	420	0.35	0.44	0.07	16.67	1.5	50	1.2

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
1	M1	HSS2.5X2.5X5	10	Lbyy	Lateral
2	M2	HSS2.5X2.5X4	8	Lbyy	Lateral
3	M3	HSS2.5X2.5X5	10	Lbyy	Lateral
4	M4	HSS2.5X2.5X4	8	Lbyy	Lateral
5	M5	HSS2.5X2.5X5	10	Lbyy	Lateral
6	M6	HSS2.5X2.5X5	10	Lbyy	Lateral
7	M7	HSS2.5X2.5X4	5.75	Lbyy	Lateral
8	M8	HSS2.5X2.5X4	5.75	Lbyy	Lateral
9	M9	HSS2.5X2.5X4	5.75	Lbyy	Lateral
10	M10	HSS2.5X2.5X4	5.75	Lbyy	Lateral
11	M11	HSS2.5X2.5X4	6.33	Lbyy	Lateral
12	M12	HSS2.5X2.5X4	2.5	Lbyy	Lateral
13	M13	HSS2.5X2.5X4	6.33	Lbyy	Lateral
14	M14	HSS2.5X2.5X4	2.5	Lbyy	Lateral
15	M15	HSS2.5X2.5X4	6.33	Lbyy	Lateral
16	M16	HSS2.5X2.5X4	2.5	Lbyy	Lateral
17	M17	HSS2.5X2.5X4	5.75	Lbyy	Lateral
18	M18	HSS2.5X2.5X4	5.75	Lbyy	Lateral
19	M19	HSS2.5X2.5X4	8.83	Lbyy	Lateral
20	M20	HSS2.5X2.5X4	8.83	Lbyy	Lateral
21	M21	HSS2.5X2.5X4	5.75	Lbyy	Lateral
22	M22	HSS2.5X2.5X4	5.75	Lbyy	Lateral
23	M23	HSS2.5X2.5X4	5.75	Lbyy	Lateral
24	M24	HSS2.5X2.5X4	5.75	Lbyy	Lateral
25	M25	HSS2.5X2.5X4	6.33	Lbyy	Lateral
26	M26	HSS2.5X2.5X4	2.5	Lbyy	Lateral
27	M27	HSS2.5X2.5X4	5.75	Lbyy	Lateral
28	M28	HSS2.5X2.5X4	5.75	Lbyy	Lateral
29	M29	HSS2.5X2.5X4	8	Lbyy	Lateral
30	M30	LL4x4x6x0	8	Lbyy	Lateral
31	M31	HSS2.5X2.5X4	8	Lbyy	Lateral
32	M32	LL4x4x6x0	8	Lbyy	Lateral
33	M38	PIPE_2.5	8	Lbyy	Lateral
34	M39	PIPE_2.0	8	Lbyy	Lateral
35	M40	PIPE_2.0	8	Lbyy	Lateral
36	M41	PIPE_2.0	8	Lbyy	Lateral
37	M42	PIPE_2.0	8	Lbyy	Lateral
38	M43	LL4x4x6x0	8	Lbyy	Lateral
39	M44	LL4x4x6x0	8	Lbyy	Lateral
40	M45	L3X3X5	10.201	Lbyy	Lateral
41	M46	L3X3X5	10.201	Lbyy	Lateral
42	M47	L2.5x2.5x4	9.852	Lbyy	Lateral
43	M48	L2.5x2.5x4	9.852	Lbyy	Lateral
44	M49	L2x2x4	2.121	Lbyy	Lateral
45	M50	L2x2x4	2.121	Lbyy	Lateral
46	M51	L2x2x4	2.121	Lbyy	Lateral
47	M52	L2x2x4	2.121	Lbyy	Lateral

Member Point Loads

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]	Inactive [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	M5	Y	-0.2	%50	Active
2	M6	Y	-0.2	%50	Active
3	M31	Y	-0.2	%50	Active
4	M32	Y	-0.2	%50	Active
5	M30	Y	-0.2	%50	Active
6	M29	Y	-0.2	%50	Active
7	M3	Y	-0.2	%50	Active
8	M1	Y	-0.2	%50	Active
9	M2	Y	-0.2	%50	Active

Member Point Loads

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]	Inactive [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	M38	Y	-0.076	%50	Active
2	M39	Y	-0.084	%50	Active
3	M40	Y	-0.07	%50	Active
4	M41	Y	-0.076	%50	Active
5	M42	Y	-0.041	%50	Active
6	M42	Y	-0.041	%50	Active

Member Distributed Loads

	Member Label	Direction	Start Magnitude [k/ft, F, ksf]	End Magnitude [k/ft, F, ksf]	Start Location [(ft, %)]	End Location [(ft, %)]	Inactive [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	M5	X	-0.208	-0.095	2	3.6	Active
2	M5	X	-0.208	-0.095	2	3.6	Active
3	M5	X	-0.095	-0.064	3.6	5.2	Active
4	M5	X	-0.095	-0.064	3.6	5.2	Active
5	M5	X	-0.064	-0.053	5.2	6.8	Active
6	M5	X	-0.064	-0.053	5.2	6.8	Active
7	M5	X	-0.053	-0.017	6.8	8.4	Active
8	M5	X	-0.053	-0.017	6.8	8.4	Active
9	M5	X	-0.017	-0.019	8.4	10	Active
10	M5	X	-0.017	-0.019	8.4	10	Active
11	M6	X	-0.101	-0.065	2	3.6	Active
12	M6	X	-0.101	-0.065	2	3.6	Active
13	M6	X	-0.065	-0.101	3.6	5.2	Active
14	M6	X	-0.065	-0.101	3.6	5.2	Active
15	M6	X	-0.101	-0.112	5.2	6.8	Active
16	M6	X	-0.101	-0.112	5.2	6.8	Active
17	M6	X	-0.112	-0.143	6.8	8.4	Active
18	M6	X	-0.112	-0.143	6.8	8.4	Active
19	M6	X	-0.143	-0.291	8.4	10	Active
20	M6	X	-0.143	-0.291	8.4	10	Active
21	M31	X	-0.055	-0.055	0	8	Active
22	M31	X	-0.055	-0.055	0	8	Active
23	M46	X	-0.097	-0.114	0	2.04	Active
24	M46	X	-0.097	-0.114	0	2.04	Active
25	M46	X	-0.114	-0.115	2.04	4.081	Active
26	M46	X	-0.114	-0.115	2.04	4.081	Active
27	M46	X	-0.115	-0.115	4.081	6.121	Active
28	M46	X	-0.115	-0.115	4.081	6.121	Active
29	M46	X	-0.115	-0.114	6.121	8.161	Active
30	M46	X	-0.115	-0.114	6.121	8.161	Active
31	M46	X	-0.114	-0.097	8.161	10.201	Active
32	M46	X	-0.114	-0.097	8.161	10.201	Active
33	M1	X	-0.208	-0.095	2	3.6	Active
34	M1	X	-0.208	-0.095	2	3.6	Active
35	M1	X	-0.095	-0.064	3.6	5.2	Active
36	M1	X	-0.095	-0.064	3.6	5.2	Active
37	M1	X	-0.064	-0.053	5.2	6.8	Active

Member Distributed Loads (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf]	End Magnitude [k/ft, F, ksf]	Start Location [(ft, %)]	End Location [(ft, %)]	Inactive [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
37	M1	X	-0.064	-0.053	5.2	6.8	Active
38	M1	X	-0.064	-0.053	5.2	6.8	Active
39	M1	X	-0.053	-0.017	6.8	8.4	Active
40	M1	X	-0.053	-0.017	6.8	8.4	Active
41	M1	X	-0.017	-0.019	8.4	10	Active
42	M1	X	-0.017	-0.019	8.4	10	Active
43	M3	X	-0.101	-0.065	2	3.6	Active
44	M3	X	-0.101	-0.065	2	3.6	Active
45	M3	X	-0.065	-0.101	3.6	5.2	Active
46	M3	X	-0.065	-0.101	3.6	5.2	Active
47	M3	X	-0.101	-0.112	5.2	6.8	Active
48	M3	X	-0.101	-0.112	5.2	6.8	Active
49	M3	X	-0.112	-0.143	6.8	8.4	Active
50	M3	X	-0.112	-0.143	6.8	8.4	Active
51	M3	X	-0.143	-0.291	8.4	10	Active
52	M3	X	-0.143	-0.291	8.4	10	Active
53	M29	X	-0.055	-0.055	0	8	Active
54	M29	X	-0.055	-0.055	0	8	Active
55	M45	X	-0.097	-0.114	0	2.04	Active
56	M45	X	-0.097	-0.114	0	2.04	Active
57	M45	X	-0.114	-0.115	2.04	4.081	Active
58	M45	X	-0.114	-0.115	2.04	4.081	Active
59	M45	X	-0.115	-0.115	4.081	6.121	Active
60	M45	X	-0.115	-0.115	4.081	6.121	Active
61	M45	X	-0.115	-0.114	6.121	8.161	Active
62	M45	X	-0.115	-0.114	6.121	8.161	Active
63	M45	X	-0.114	-0.097	8.161	10.201	Active
64	M45	X	-0.114	-0.097	8.161	10.201	Active

Member Distributed Loads

	Member Label	Direction	Start Magnitude [k/ft, F, ksf]	End Magnitude [k/ft, F, ksf]	Start Location [(ft, %)]	End Location [(ft, %)]	Inactive [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	M1	Z	-0.023	-0.021	2	3.6	Active
2	M1	Z	-0.023	-0.021	2	3.6	Active
3	M1	Z	-0.021	-0.044	3.6	5.2	Active
4	M1	Z	-0.021	-0.044	3.6	5.2	Active
5	M1	Z	-0.044	-0.065	5.2	6.8	Active
6	M1	Z	-0.044	-0.065	5.2	6.8	Active
7	M1	Z	-0.065	-0.087	6.8	8.4	Active
8	M1	Z	-0.065	-0.087	6.8	8.4	Active
9	M1	Z	-0.087	-0.139	8.4	10	Active
10	M1	Z	-0.087	-0.139	8.4	10	Active
11	M2	Z	-0.088	-0.089	0	2	Active
12	M2	Z	-0.088	-0.089	0	2	Active
13	M2	Z	-0.089	-0.088	2	4	Active
14	M2	Z	-0.089	-0.088	2	4	Active
15	M2	Z	-0.088	-0.059	4	6	Active
16	M2	Z	-0.088	-0.059	4	6	Active
17	M2	Z	-0.059	-0.003	6	8	Active
18	M2	Z	-0.059	-0.003	6	8	Active
19	M5	Z	-0.023	-0.021	2	3.6	Active
20	M5	Z	-0.023	-0.021	2	3.6	Active
21	M5	Z	-0.021	-0.044	3.6	5.2	Active
22	M5	Z	-0.021	-0.044	3.6	5.2	Active
23	M5	Z	-0.044	-0.065	5.2	6.8	Active
24	M5	Z	-0.044	-0.065	5.2	6.8	Active
25	M5	Z	-0.065	-0.087	6.8	8.4	Active
26	M5	Z	-0.065	-0.087	6.8	8.4	Active
27	M5	Z	-0.087	-0.139	8.4	10	Active

Member Distributed Loads (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf]	End Magnitude [k/ft, F, ksf]	Start Location [(ft, %)]	End Location [(ft, %)]	Inactive [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
28	M5	Z	-0.087	-0.139	8.4	10	Active
29	M43	Z	-0.147	-0.092	0	1.6	Active
30	M43	Z	-0.147	-0.092	0	1.6	Active
31	M43	Z	-0.092	-0.067	1.6	3.2	Active
32	M43	Z	-0.092	-0.067	1.6	3.2	Active
33	M43	Z	-0.067	-0.077	3.2	4.8	Active
34	M43	Z	-0.067	-0.077	3.2	4.8	Active
35	M43	Z	-0.077	-0.091	4.8	6.4	Active
36	M43	Z	-0.077	-0.091	4.8	6.4	Active
37	M43	Z	-0.091	-0.103	6.4	8	Active
38	M43	Z	-0.091	-0.103	6.4	8	Active
39	M44	Z	-0.147	-0.092	0	1.6	Active
40	M44	Z	-0.147	-0.092	0	1.6	Active
41	M44	Z	-0.092	-0.067	1.6	3.2	Active
42	M44	Z	-0.092	-0.067	1.6	3.2	Active
43	M44	Z	-0.067	-0.077	3.2	4.8	Active
44	M44	Z	-0.067	-0.077	3.2	4.8	Active
45	M44	Z	-0.077	-0.091	4.8	6.4	Active
46	M44	Z	-0.077	-0.091	4.8	6.4	Active
47	M44	Z	-0.091	-0.103	6.4	8	Active
48	M44	Z	-0.091	-0.103	6.4	8	Active
49	M47	Z	-0.089	-0.069	0	1.97	Active
50	M47	Z	-0.089	-0.069	0	1.97	Active
51	M47	Z	-0.069	-0.063	1.97	3.941	Active
52	M47	Z	-0.069	-0.063	1.97	3.941	Active
53	M47	Z	-0.063	-0.053	3.941	5.911	Active
54	M47	Z	-0.063	-0.053	3.941	5.911	Active
55	M47	Z	-0.053	-0.034	5.911	7.882	Active
56	M47	Z	-0.053	-0.034	5.911	7.882	Active
57	M47	Z	-0.034	-0.022	7.882	9.852	Active
58	M47	Z	-0.034	-0.022	7.882	9.852	Active
59	M48	Z	-0.089	-0.069	0	1.97	Active
60	M48	Z	-0.089	-0.069	0	1.97	Active
61	M48	Z	-0.069	-0.063	1.97	3.941	Active
62	M48	Z	-0.069	-0.063	1.97	3.941	Active
63	M48	Z	-0.063	-0.053	3.941	5.911	Active
64	M48	Z	-0.063	-0.053	3.941	5.911	Active
65	M48	Z	-0.053	-0.034	5.911	7.882	Active
66	M48	Z	-0.053	-0.034	5.911	7.882	Active
67	M48	Z	-0.034	-0.023	7.882	9.852	Active
68	M48	Z	-0.034	-0.023	7.882	9.852	Active
69	M29	Z	-0.084	-0.084	8.4e-05	8	Active
70	M29	Z	-0.084	-0.084	8.4e-05	8	Active
71	M30	Z	-0.169	-0.169	4.2e-05	8	Active
72	M30	Z	-0.169	-0.169	4.2e-05	8	Active
73	M31	Z	-0.084	-0.084	0.000251	8	Active
74	M31	Z	-0.084	-0.084	0.000251	8	Active
75	M32	Z	-0.169	-0.169	0.000293	8	Active
76	M32	Z	-0.169	-0.169	0.000293	8	Active

Member Area Loads

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]	Inactive [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	N19	N18	N2	N10	X	A-B	-0.044	Active
2	N20	N17	N1	N11	X	A-B	-0.044	Active

Member Area Loads

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]	Inactive [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	N19	N20	N11	N10	Z	A-B	-0.044	Active
2	N18	N17	N1	N2	Z	A-B	-0.044	Active

Load Combinations

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	Deflection 1	Yes	Y	DL	1										
2	Deflection 2	Yes	Y	LL	1										
3	Deflection 3	Yes	Y	DL	1	LL	1								
4	IBC 16-8	Yes	Y	DL	1										
5	IBC 16-9	Yes	Y	DL	1	LL	1	LLS	1						
6	IBC 16-10 (b)	Yes	Y	DL	1	SL	1	SLN	1						
7	IBC 16-11 (b)	Yes	Y	DL	1	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75		
8	IBC 16-12 (a) (a)	Yes	Y	DL	1	WLX	0.6								
9	IBC 16-12 (a) (b)	Yes	Y	DL	1	WLZ	0.6								
10	IBC 16-12 (a) (c)	Yes	Y	DL	1	WLX	-0.6								
11	IBC 16-12 (a) (d)	Yes	Y	DL	1	WLZ	-0.6								
12	IBC 16-13 (a) (a)	Yes	Y	DL	1	WLX	0.45	LL	0.75	LLS	0.75				
13	IBC 16-13 (a) (b)	Yes	Y	DL	1	WLZ	0.45	LL	0.75	LLS	0.75				
14	IBC 16-13 (a) (c)	Yes	Y	DL	1	WLX	-0.45	LL	0.75	LLS	0.75				
15	IBC 16-13 (a) (d)	Yes	Y	DL	1	WLZ	-0.45	LL	0.75	LLS	0.75				
16	IBC 16-13 (b) (a)	Yes	Y	DL	1	WLX	0.45	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75
17	IBC 16-13 (b) (b)	Yes	Y	DL	1	WLZ	0.45	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75
18	IBC 16-13 (b) (c)	Yes	Y	DL	1	WLX	-0.45	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75
19	IBC 16-13 (b) (d)	Yes	Y	DL	1	WLZ	-0.45	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75
20	IBC 16-15 (a)	Yes	Y	DL	0.6	WLX	0.6								
21	IBC 16-15 (b)	Yes	Y	DL	0.6	WLZ	0.6								
22	IBC 16-15 (c)	Yes	Y	DL	0.6	WLX	-0.6								
23	IBC 16-15 (d)	Yes	Y	DL	0.6	WLZ	-0.6								

Envelope Node Reactions

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N6	max	0.703	20	3.898	9	1.294	21	0	23	0.07	10	0	23
2		min	-1.084	10	-1.336	23	-1.484	11	0	1	-0.071	8	0	1
3	N3	max	1.074	20	2.885	10	1.171	9	0	23	0.201	21	0	23
4		min	-1.007	10	-2.169	20	-0.968	23	0	1	-0.202	11	0	1
5	N5	max	1.04	8	3.818	9	1.293	21	0	23	0.069	10	0	23
6		min	-0.668	22	-1.391	23	-1.488	11	0	1	-0.072	8	0	1
7	N4	max	1.01	8	2.902	8	1.167	9	0	23	0.201	23	0	23
8		min	-1.069	22	-2.159	22	-0.969	23	0	1	-0.202	9	0	1
9	Totals:	max	3.73	8	4.017	10	4.858	21						
10		min	-3.73	10	0	2	-4.858	11						

Envelope AISC 15th (360-16): ASD Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	Pnc/om [k]	Pnt/om [k]	Mnyy/om [k-ft]	Mnzz/om [k-ft]	Cb	Eqn
1	M1	HSS2.5X2.5X5	0.633	1.979	20	0.124	1.979	z	9	18.997	64.731	4.315	4.315	2.672	H1-1b
2	M2	HSS2.5X2.5X4	0.104	4	11	0.014	0	z	9	25.651	54.263	3.742	3.742	1	H1-1b
3	M3	HSS2.5X2.5X5	0.843	1.979	9	0.104	1.979	z	11	18.997	64.731	4.315	4.315	2.293	H1-1a
4	M4	HSS2.5X2.5X4	0.003	0	11	0.013	8	y	8	25.651	54.263	3.742	3.742	1	H1-1b*
5	M5	HSS2.5X2.5X5	0.632	1.979	22	0.124	1.979	z	9	18.997	64.731	4.315	4.315	2.678	H1-1b
6	M6	HSS2.5X2.5X5	0.851	1.979	9	0.104	1.979	z	11	18.997	64.731	4.315	4.315	2.227	H1-1a
7	M7	HSS2.5X2.5X4	0.406	0	8	0.077	3.833	z	11	36.847	54.263	3.742	3.742	2.454	H1-1b
8	M8	HSS2.5X2.5X4	0.403	5.75	10	0.077	5.75	z	11	36.847	54.263	3.742	3.742	2.454	H1-1b
9	M9	HSS2.5X2.5X4	0.605	0	8	0.101	0	y	8	36.847	54.263	3.742	3.742	3	H1-1b
10	M10	HSS2.5X2.5X4	0.645	5.75	10	0.125	5.75	y	10	36.847	54.263	3.742	3.742	3	H1-1b
11	M11	HSS2.5X2.5X4	0.109	0	11	0.013	6.33	z	8	33.946	54.263	3.742	3.742	2.335	H1-1b
12	M12	HSS2.5X2.5X4	0.083	0	10	0.031	2.5	z	8	50.435	54.263	3.742	3.742	1.604	H1-1b
13	M13	HSS2.5X2.5X4	0.497	0	9	0.049	6.33	y	9	33.946	54.263	3.742	3.742	2.231	H1-1b

Envelope AISC 15th (360-16): ASD Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	Pnc/om [k]	Pnt/om [k]	Mnyy/om [k-ft]	Mnzz/om [k-ft]	Cb	Eqn
14	M14	HSS2.5X2.5X4	0.447	0	11	0.158	0	y	10	50.435	54.263	3.742	3.742	1.967	H1-1b
15	M15	HSS2.5X2.5X4	0.496	0	9	0.047	6.33	y	9	33.946	54.263	3.742	3.742	2.231	H1-1b
16	M16	HSS2.5X2.5X4	0.448	0	11	0.166	0	y	8	50.435	54.263	3.742	3.742	1.967	H1-1b
17	M17	HSS2.5X2.5X4	0.227	0	11	0.03	3.833	z	9	36.847	54.263	3.742	3.742	1.567	H1-1b
18	M18	HSS2.5X2.5X4	0.224	5.75	11	0.03	5.75	z	9	36.847	54.263	3.742	3.742	1.573	H1-1b
19	M19	HSS2.5X2.5X4	0.349	6.347	9	0.086	1.472	z	10	21.782	54.263	3.742	3.742	1.932	H1-1b
20	M20	HSS2.5X2.5X4	0.349	6.347	9	0.091	1.472	z	8	21.782	54.263	3.742	3.742	1.932	H1-1b
21	M21	HSS2.5X2.5X4	0.215	1.557	8	0.065	1.497	z	10	36.847	54.263	3.742	3.742	1.761	H1-1b
22	M22	HSS2.5X2.5X4	0.212	4.193	10	0.066	5.75	z	8	36.847	54.263	3.742	3.742	1.754	H1-1b
23	M23	HSS2.5X2.5X4	0.183	5.75	11	0.046	1.497	z	9	36.847	54.263	3.742	3.742	1.531	H1-1b
24	M24	HSS2.5X2.5X4	0.184	0	11	0.046	5.75	z	9	36.847	54.263	3.742	3.742	1.521	H1-1b
25	M25	HSS2.5X2.5X4	0.304	0	8	0.024	6.33	z	8	33.946	54.263	3.742	3.742	1.801	H1-1b
26	M26	HSS2.5X2.5X4	0.094	2.5	8	0.032	2.5	z	8	50.435	54.263	3.742	3.742	1.647	H1-1b
27	M27	HSS2.5X2.5X4	0.308	0	10	0.056	0	y	10	36.847	54.263	3.742	3.742	1.449	H1-1b
28	M28	HSS2.5X2.5X4	0.336	5.75	8	0.074	5.75	y	8	36.847	54.263	3.742	3.742	1.41	H1-1b
29	M29	HSS2.5X2.5X4	0.347	0	11	0.046	8	y	9	2.567	19.665	1.356	1.356	2.491	H1-1b
30	M30	LL4x4x6x0	0.378	3.917	9	0.023	0	y	11	10.637	57.097	5.324	2.168	1	H1-1b
31	M31	HSS2.5X2.5X4	0.347	0	11	0.046	8	z	9	2.567	19.665	1.356	1.356	2.273	H1-1b
32	M32	LL4x4x6x0	0.378	3.917	9	0.023	8	y	11	10.637	57.097	5.324	2.168	1	H1-1b
33	M38	PIPE_2.5	0.063	0	10	0.011	8		21	19.986	33.743	2.393	2.393	1	H1-1b*
34	M39	PIPE_2.0	0.006	0	10	0.007	8		21	9.924	21.377	1.245	1.245	1	H1-1b*
35	M40	PIPE_2.0	0.093	0	8	0.011	8		21	9.924	21.377	1.245	1.245	1	H1-1b*
36	M41	PIPE_2.0	0.017	0	8	0.01	8		21	9.924	21.377	1.245	1.245	1	H1-1b*
37	M42	PIPE_2.0	0.017	0	10	0.009	8		21	9.924	21.377	1.245	1.245	1	H1-1b*
38	M43	LL4x4x6x0	0.18	4	9	0.013	0	y	9	10.637	57.097	5.324	2.168	1	H1-1b
39	M44	LL4x4x6x0	0.18	4	9	0.013	0	y	11	10.637	57.097	5.324	2.168	1	H1-1b
40	M45	L3X3X5	0.922	5.101	10	0.033	10.201	z	10	6.068	38.371	1.34	2.37	1.138	H2-1
41	M46	L3X3X5	0.901	5.101	8	0.033	10.201	z	8	6.068	38.371	1.34	2.37	1.138	H2-1
42	M47	L2.5x2.5x4	0.767	4.618	8	0.029	0	z	11	2.973	25.653	0.741	1.228	1.136	H2-1
43	M48	L2.5x2.5x4	0.762	4.618	10	0.029	0	z	11	2.973	25.653	0.741	1.228	1.136	H2-1
44	M49	L2x2x4	0.088	1.061	11	0.01	2.121	y	10	16.205	20.35	0.46	1.049	1.136	H2-1
45	M50	L2x2x4	0.085	1.061	8	0.006	2.121	y	11	16.205	20.35	0.46	1.049	1.136	H2-1
46	M51	L2x2x4	0.084	1.061	10	0.006	2.121	y	11	16.205	20.35	0.46	1.049	1.136	H2-1
47	M52	L2x2x4	0.088	1.061	11	0.008	2.121	y	8	16.205	20.35	0.46	1.049	1.136	H2-1

CENTEK engineering
Centered on Solutions℠ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject: Connection to Host Structure

Location: Danbury, CT

Date: 10/20/2022

Prepared by: LAA; Checked by: TJL
Job No. 21058.02

Screenwall Connection to Building

Number of Thru Bolts =	$n_b := 4$	(User Input)
Bolt Diameter =	$d\phi := 0.625\ in$	(User Input)
Allowable Tensile Strength =	$r_{nt} := 13.8\ kip$	(User Input)
Allowable Shear Strength =	$r_{nv} := 8.25 \cdot kip$	(User Input)
Spacing Between Bolts =	$S := 2\ in$	(User Input - Assumed)

ASD Reactions at Connection Node :

Tension X =	$Tension_x := 2.169 \cdot kip$	(User Input)
Shear Y =	$Shear_y := 1.488\ kip$	(User Input)
Shear Z =	$Shear_z := 1.084 \cdot kip$	(User Input)
Moment X =	$M_X := .202 \cdot kip \cdot ft$	(User Input)
Moment Y =	$M_Y := 0 \cdot kip \cdot ft$	(User Input)
Moment Z =	$M_Z := 0 \cdot kip \cdot ft$	(User Input)

Anchor Check:

Shear Force per Bolt (ASD) =

$$V_{all} := \frac{\sqrt{Shear_z^{\,2} + Shear_y^{\,2}}}{n_b} + \frac{M_X}{S \cdot \frac{n_b}{2}} = 1.066\ kip$$

$$\frac{V_{all}}{r_{nv}} = 12.9\%$$

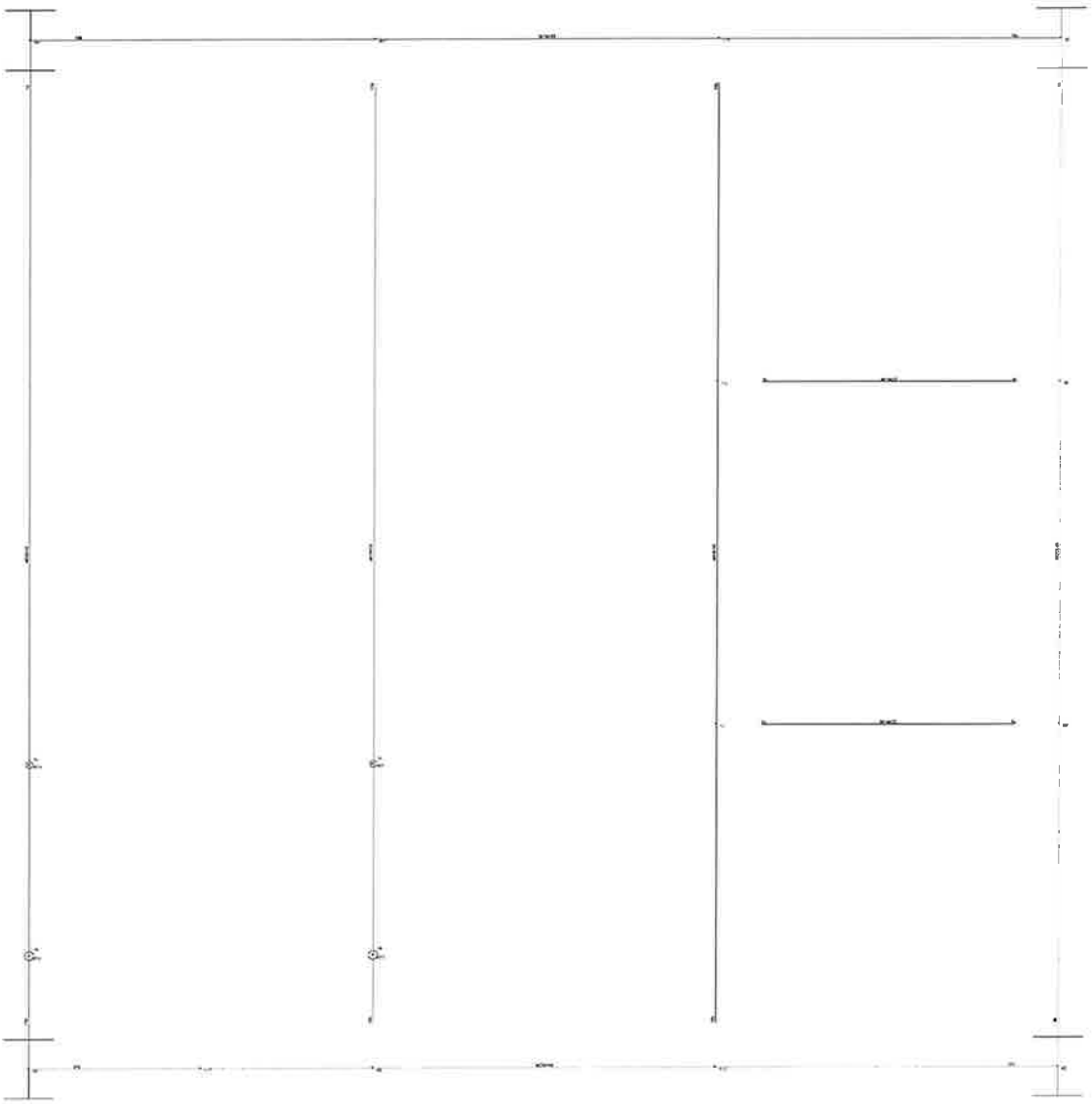
Tension Force per Bolt (ASD) =

$$T_{all} := \frac{Tension_x}{n_b} + \frac{M_Y + M_Z}{S \cdot \frac{n_b}{2}} = 0.542\ kip$$

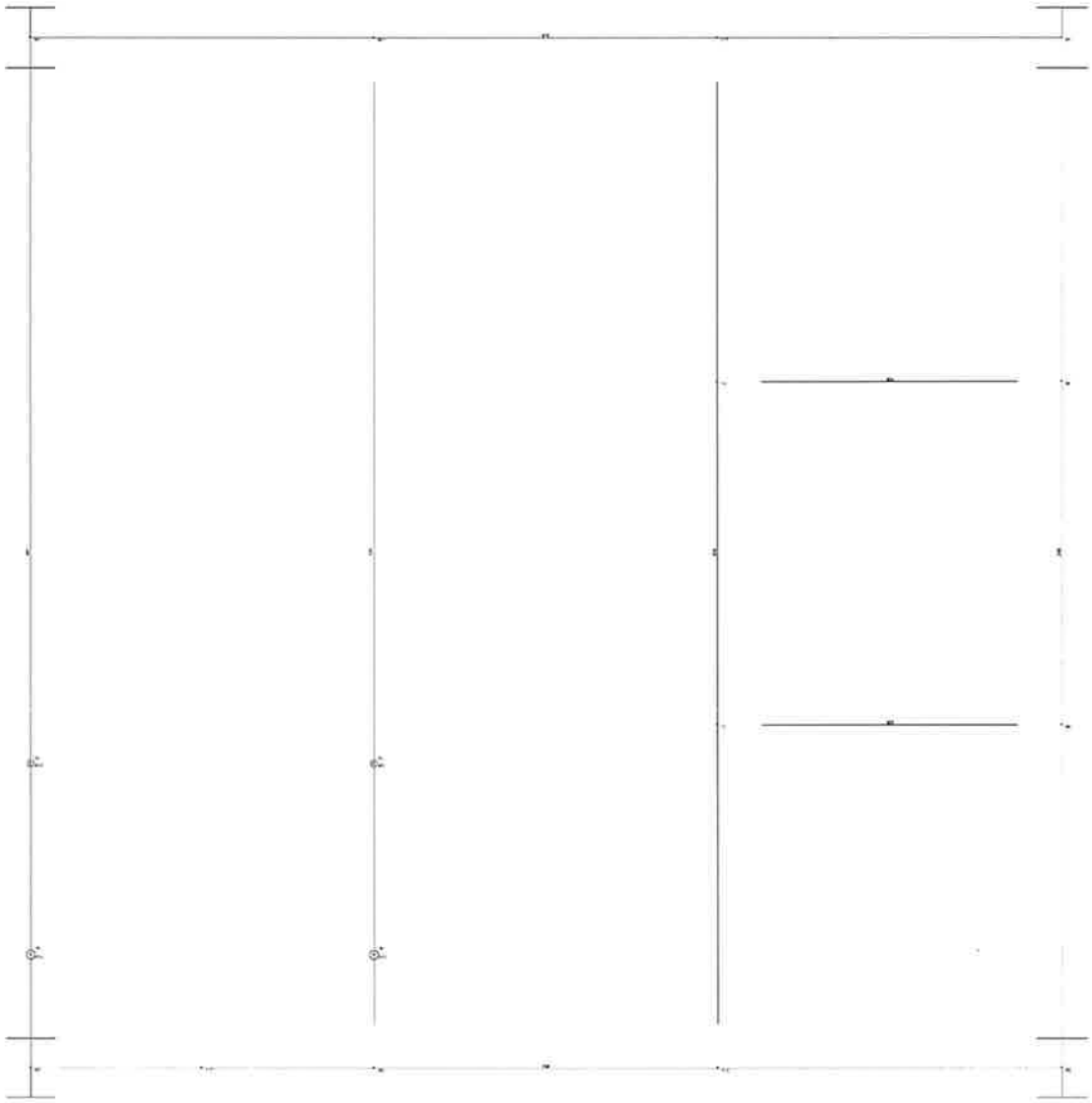
$$\frac{T_{all}}{r_{nt}} = 3.9\%$$

Combined Shear and Tension Ultimate Limit State =

$$Condition1 := \text{if}\left(\left(\frac{T_{all}}{r_{nt}}\right)^2 + \left(\frac{T_{all}}{r_{nt}}\right)^2 \le 1.0\ , \text{“OK”}\ , \text{“Overstressed”}\right) = \text{“OK”}$$



Centek Engineering	Roof Framing	SK - 1
Luke Amiot		Oct 21, 2022 at 8:49 AM
	EXISTING ROOF FRAMING AT ALPHA/BETA	Existing Framing Calculation-Screen...



Centek Engineering	Roof Framing	SK - 2
Luke Amiot		Oct 21, 2022 at 8:50 AM
	EXISTING ROOF UNIT CHECK ALPHA/BETA	Existing Framing Calculation-Screen...

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E..	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.25	65	1.15
8	A913 Gr.65	29000	11154	.3	.65	.49	65	1.1	80	1.1

Deck General Properties

	Label	Material Type	Deck	Unbraced[ft]	Max Spa...
1	Concrete Deck	Conc3000NW	1 in	3	10
2	Composite Deck	Vulcraft 3 VLI	7.5"NW 3VLI20, Conc3000NW, 3in, .75in, 65ksi	2	10
3	Metal Deck	Verco Steel Roof Deck	22ga PLB-36	2	4
4	Wood	Wood Deck	1 in	1	4

Deck Loads

	Label	Two Way	Self Wt [ksf]	Super DL [ksf]	Const DL [ksf]	Const LL [ksf]
1	Concrete Deck		.012	0	0	.02
2	Composite Deck		.075	0	0	.02
3	Metal Deck		.002	0	0	.02
4	Wood		.003	0	0	.02

Uniform Area Loads

	Label	Additive	PreDL[ksf]	PostDL[ksf]	LL[ksf]	LL Type	VL[ksf]	Dyn Load[...
1	Snow Load	Yes			.03	SL	.004	.01
2	Add Piping	Yes		.02		LL-Non	.011	.02
3	Roof			.01	.02	RLL-Non	.011	.01

Point Locations : Roof Framing

	Label	Z [ft]	X [ft]	Elev Offset [ft]
1	N1	0	0	0
2	N2	35	0	0
3	N3	35	35	0
4	N4	0	35	0
5	N5	23.333333	23.333333	0
6	N6	35	23.333333	0
7	N7	23.333333	11.666667	0
8	N8	35	11.666667	0
9	N9	11.666667	0	0
10	N10	23.333333	0	0
11	N11	11.667	35	0
12	N15	23.333333	35	0
13	N13	11.666765	10.333	0
14	N14	0	10.333	0
15	N17	5.833332	0	0
16	N18	11.666703	3.833	0
17	N19	0	3.833	0

Beam Primary Data : Roof Framing

	Label	Start Point	End Point	Shape	Material	Design Rules	Function	Orientation	Start Rel...	End Rele...	Outrigger?
1	M1	N1	N2	W21X44	A992	Typical	Gravity	Strong Axis	Pinned	Pinned	
2	M2	N4	N3	W18X55	A992	Typical	Gravity	Strong Axis	Pinned	Pinned	
3	M3	N1	N4	W18X35	A992	Typical	Gravity	Strong Axis	Pinned	Pinned	
4	M4	N2	N3	W21X44	A992	Typical	Gravity	Strong Axis	Pinned	Pinned	
5	M5	N11	N9	W18X35	A992	Typical	Gravity	Strong Axis	Pinned	Pinned	
6	M6	N15	N10	W18X35	A992	Typical	Gravity	Strong Axis	Pinned	Pinned	
7	M7	N6	N5	W14X22	A992	Typical	Gravity	Strong Axis	Pinned	Pinned	
8	M8	N7	N8	W14X22	A992	Typical	Gravity	Strong Axis	Pinned	Pinned	

Hot Rolled : Roof Framing

	Label	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp To...	Lcomp Bot...	L-torqu...	Cb	Composite	Camber[in]	B-eff Left[...	B-eff Righ...
1	M1	35	Segment		Framing				Yes			
2	M2	35	Segment		Framing				Yes			
3	M3	35	1		Framing				Yes			
4	M4	35	1		Framing				Yes			
5	M5	35	1		Framing				Yes			
6	M6	35	1		Framing				Yes			
7	M7	11.667	Segment		Framing				Yes			
8	M8	11.667	Segment		Framing				Yes			

Point Loads : Roof Framing

	Point Label	PreDL[k]	PostDL[k]	LL[k]	LL Type	Dyn Load[k]
1	N19		4		LL-Non	
2	N18		4		LL-Non	
3	N14		3		LL-Non	
4	N13		3		LL-Non	

Combinations

	Label	Sol...	Cat...	Fac...	Cat...	Fac...	Cat...	Fac...	Cat...	Fac...	Cat...	Fact...	Cat...	Fact...	Cat...	Fact...	Cat...	Fact...	Cat...	Fact...	Cat...	Fact...
1	Service ...	Yes	DL	1																		
2	Service ...	Yes	DL	1	LL	1	LLS	1														
3	IBC 16-8...	Yes	DLP...	1																		
4	IBC 16-9...	Yes	DLP...	1	LLC...	1																
5	IBC 16-1...	Yes	DL	1	RLL	1																
6	IBC 16-1...	Yes	DL	1	SL	1	SLN	1														
7	IBC 16-1...	Yes	DL	1	LL	.75	LLS	.75	RLL	.75												
8	IBC 16-1...	Yes	DL	1	LL	.75	LLS	.75	SL	.75	SLN	.75										
9	IBC 16-1...	Yes	DL	1	LL	.75	LLS	.75														

Floors

	Label	Elevation[ft]	Floor Type	Area Load Default	Inactive	Splice Dis...	Splice Type	No Wind/...	Parapet Hei...
1	Roof Framing	12	Floor Beam	Roof		12	Moment		0

Beam Floors

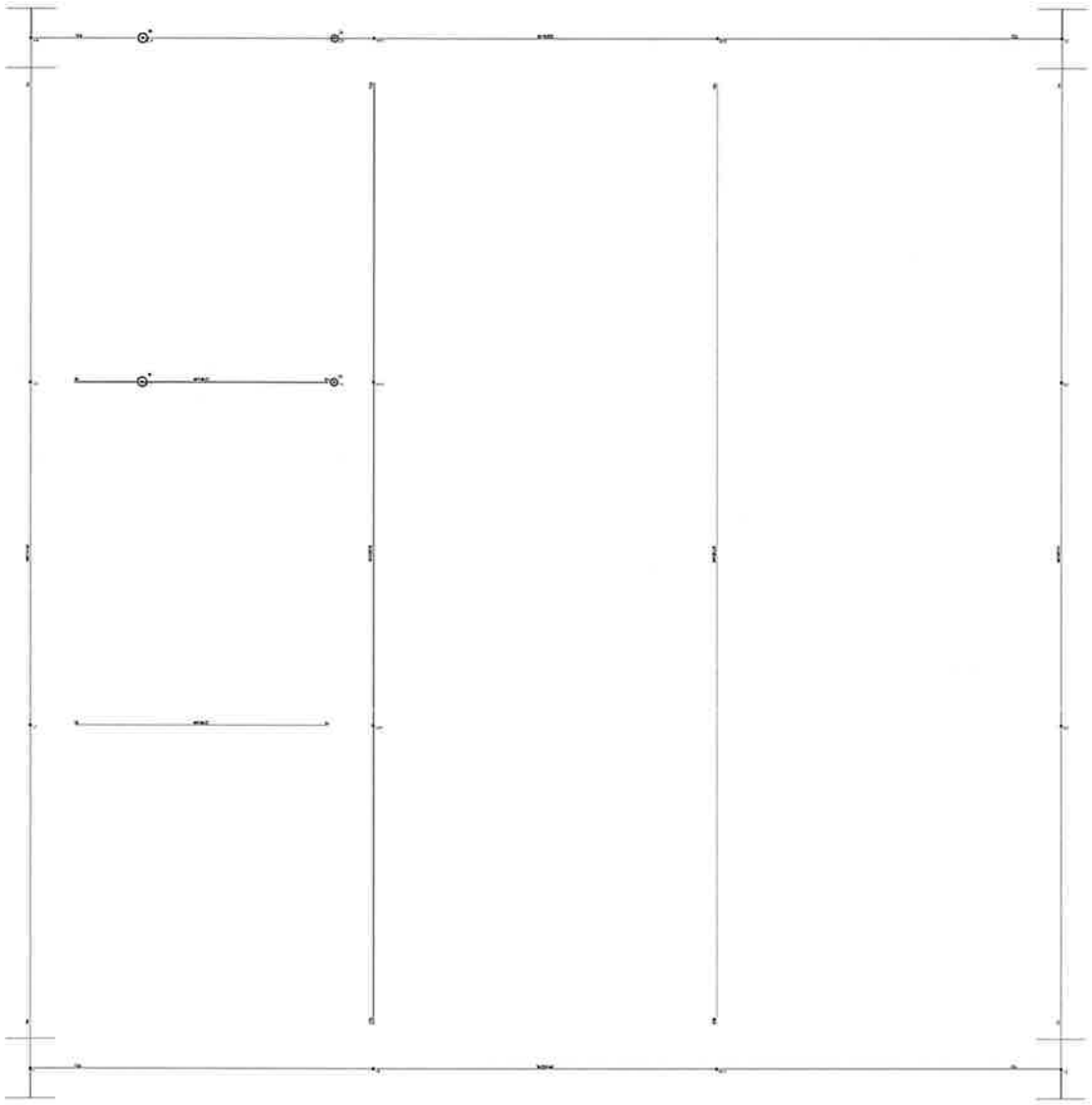
	Label	Deck Default	Deck Angle Default (deg)	Parent
1	Roof Framing	Concrete Deck	0	None

Beam Code Summary for Hot Rolled : Roof Framing

	Label	Size	Explicit	Studs	Camb...	Material	Bending...	Loc[ft]	LC	Defl Ch...	Loc[ft]	Cat	Shear C...	Loc[ft]	LC
1	M1	W21X44	Yes		0	A992	.798	13.854	6	1.015	17.5	DL+...	.114	0	5
2	M2	W18X55	Yes		0	A992	.618	23.333	6	.843	17.5	DL+...	.107	35	6
3	M3	W18X35	Yes		0	A992	.417	12.76	5	.588	16.406	DL+...	.1	0	5
4	M4	W21X44	Yes		0	A992	.305	17.5	6	.381	17.5	DL+...	.057	35	6
5	M5	W18X35	Yes		0	A992	.741	19.688	5	1.061	18.229	DL+...	.159	35	5
6	M6	W18X35	Yes		0	A992	.818	17.5	6	1.172	17.5	DL+...	.146	35	6
7	M7	W14X22	Yes		0	A992	.005	5.833	1	.036	0	LL	.002	11.6...	1
8	M8	W14X22	Yes		0	A992	.005	5.833	1	.036	0	LL	.002	11.6...	1

Beam End Reactions : Roof Framing

	Beam	End	PreDL[k]	DL[k]	LL[k]	LLS[k]	Roof[k]	Roof Cat	Max[k]	LC	Min[k]	LC
1	M1	Start	3.897	12.445	0	0	4.083	RLL	16.529	5	3.897	3
2		End	3.94	11.277	0	0	5.104	SL	16.381	6	3.94	3
3	M2	Start	4.088	9.734	0	0	4.083	RLL	13.818	5	4.088	3
4		End	4.131	10.017	0	0	5.104	SL	15.121	6	4.131	3
5	M3	Start	1.847	8.544	0	0	2.042	RLL	10.586	5	1.847	3
6		End	1.847	4.191	0	0	2.042	RLL	6.233	5	1.847	3
7	M4	Start	2.136	5.199	0	0	3.063	SL	8.261	6	2.136	3
8		End	2.136	5.199	0	0	3.062	SL	8.261	6	2.136	3
9	M5	Start	3.08	8.487	0	0	4.083	RLL	12.571	5	3.08	3
10		End	3.08	12.84	0	0	4.083	RLL	16.923	5	3.08	3
11	M6	Start	3.209	9.334	0	0	6.125	SL	15.459	6	3.209	3
12		End	3.209	9.334	0	0	6.125	SL	15.459	6	3.209	3
13	M7	Start	.129	.129	0	0	0	RLL	.129	9	.129	9
14		End	.129	.129	0	0	0	RLL	.129	9	.129	9
15	M8	Start	.129	.129	0	0	0	RLL	.129	9	.129	9
16		End	.129	.129	0	0	0	RLL	.129	9	.129	9



Centek Engineering	Roof Framing	SK - 1
Luke Amiot		Oct 21, 2022 at 8:58 AM
	EXISTING ROOF FRAMING AT GAMMA	Existing Framing Calculation-Scree...

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E..	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.25	65	1.15
8	A913 Gr.65	29000	11154	.3	.65	.49	65	1.1	80	1.1

Deck General Properties

	Label	Material Type	Deck	Unbraced[ft]	Max Spa...
1	Concrete Deck	Conc3000NW	1 in	3	10
2	Composite Deck	Vulcraft 3 VLI	7.5"NW 3VLI20, Conc3000NW, 3in, .75in, 65ksi	2	10
3	Metal Deck	Verco Steel Roof Deck	22ga PLB-36	2	4
4	Wood	Wood Deck	1 in	1	4

Deck Loads

	Label	Two Way	Self Wt [ksf]	Super DL [ksf]	Const DL [ksf]	Const LL [ksf]
1	Concrete Deck		.012	0	0	.02
2	Composite Deck		.075	0	0	.02
3	Metal Deck		.002	0	0	.02
4	Wood		.003	0	0	.02

Uniform Area Loads

	Label	Additive	PreDL[ksf]	PostDL[ksf]	LL[ksf]	LL Type	VL[ksf]	Dyn Load[...
1	Snow Load			.01	.03	SL	.004	.01
2	Add Piping	Yes		.01		LL-Non	.011	.02
3	Roof			.01	.02	RLL-Non	.011	.01

Point Locations : Roof Framing

	Label	Z [ft]	X [ft]	Elev Offset [ft]
1	N1	0	0	0
2	N2	35	0	0
3	N3	35	35	0
4	N4	0	35	0
5	N5	0	23.333333	0
6	N6	35	23.333333	0
7	N7	0	11.666667	0
8	N8	35	11.666667	0
9	N9	11.666667	0	0
10	N10	23.333333	0	0
11	N11	11.667	35	0
12	N14	11.666889	23.333333	0
13	N15	23.333333	35	0
14	N16	11.666778	11.666667	0
15	N19	10.333667	23.333333	0
16	N21	10.334	35	0
17	N22	3.833667	23.333333	0
18	N24	3.834	35	0

Beam Primary Data : Roof Framing

	Label	Start Point	End Point	Shape	Material	Design Rules	Function	Orientation	Start Rel...	End Rele...	Outrigger?
1	M1	N1	N2	W21X44	A992	Typical	Gravity	Strong Axis	Pinned	Pinned	
2	M2	N4	N3	W18X55	A992	Typical	Gravity	Strong Axis	Pinned	Pinned	
3	M3	N1	N4	W21X44	A992	Typical	Gravity	Strong Axis	Pinned	Pinned	
4	M4	N2	N3	W18X35	A992	Typical	Gravity	Strong Axis	Pinned	Pinned	
5	M5	N11	N9	W18X35	A992	Typical	Gravity	Strong Axis	Pinned	Pinned	
6	M6	N15	N10	W18X35	A992	Typical	Gravity	Strong Axis	Pinned	Pinned	
7	M7	N14	N5	W14X22	A992	Typical	Gravity	Strong Axis	Pinned	Pinned	
8	M8	N7	N16	W14X22	A992	Typical	Gravity	Strong Axis	Pinned	Pinned	

Hot Rolled : Roof Framing

	Label	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp To...	Lcomp Bot...	L-torqu...	Cb	Composite	Camber[in]	B-eff Left[...	B-eff Righ...
1	M1	35	1		1				Yes			
2	M2	35	1		1				Yes			
3	M3	35	Segment		Framing				Yes			
4	M4	35	Segment		Framing				Yes			
5	M5	35	1		1				Yes			
6	M6	35	1		1				Yes			
7	M7	11.667	Segment		Framing				Yes			
8	M8	11.667	Segment		Framing				Yes			

Point Loads : Roof Framing

	Point Label	PreDL[k]	PostDL[k]	LL[k]	LL Type	Dyn Load[k]
1	N22		4		LL-Non	
2	N19		3		LL-Non	
3	N24		4		LL-Non	
4	N21		3		LL-Non	
5	N1				LL-Non	

Combinations

	Label	Sol...	Cat...	Fac...	Cat...	Fac...	Cat...	Fac...	Cat...	Fac...	Cat...	Fact...	Cat...	Fact...	Cat...	Fact...	Cat...	Fact...	Cat...	Fact...	Cat...	Fact...
1	IBC 16-8...	Yes	DLP...	1																		
2	IBC 16-9...	Yes	DLP...	1	LLC...	1																
3	IBC 16-8...	Yes	DL	1																		
4	IBC 16-9...	Yes	DL	1	LL	1	LLS	1														
5	IBC 16-1...	Yes	DL	1	RLL	1																
6	IBC 16-1...	Yes	DL	1	SL	1	SLN	1														
7	IBC 16-1...	Yes	DL	1	LL	.75	LLS	.75	RLL	.75												
8	IBC 16-1...	Yes	DL	1	LL	.75	LLS	.75	SL	.75	SLN	.75										
9	IBC 16-1...	Yes	DL	1	LL	.75	LLS	.75														

Floors

	Label	Elevation[ft]	Floor Type	Area Load Default	Inactive	Splice Dis...	Splice Type	No Wind/...	Parapet Hei...
1	Roof Framing	12	Floor Beam	Roof		12	Moment		0

Beam Floors

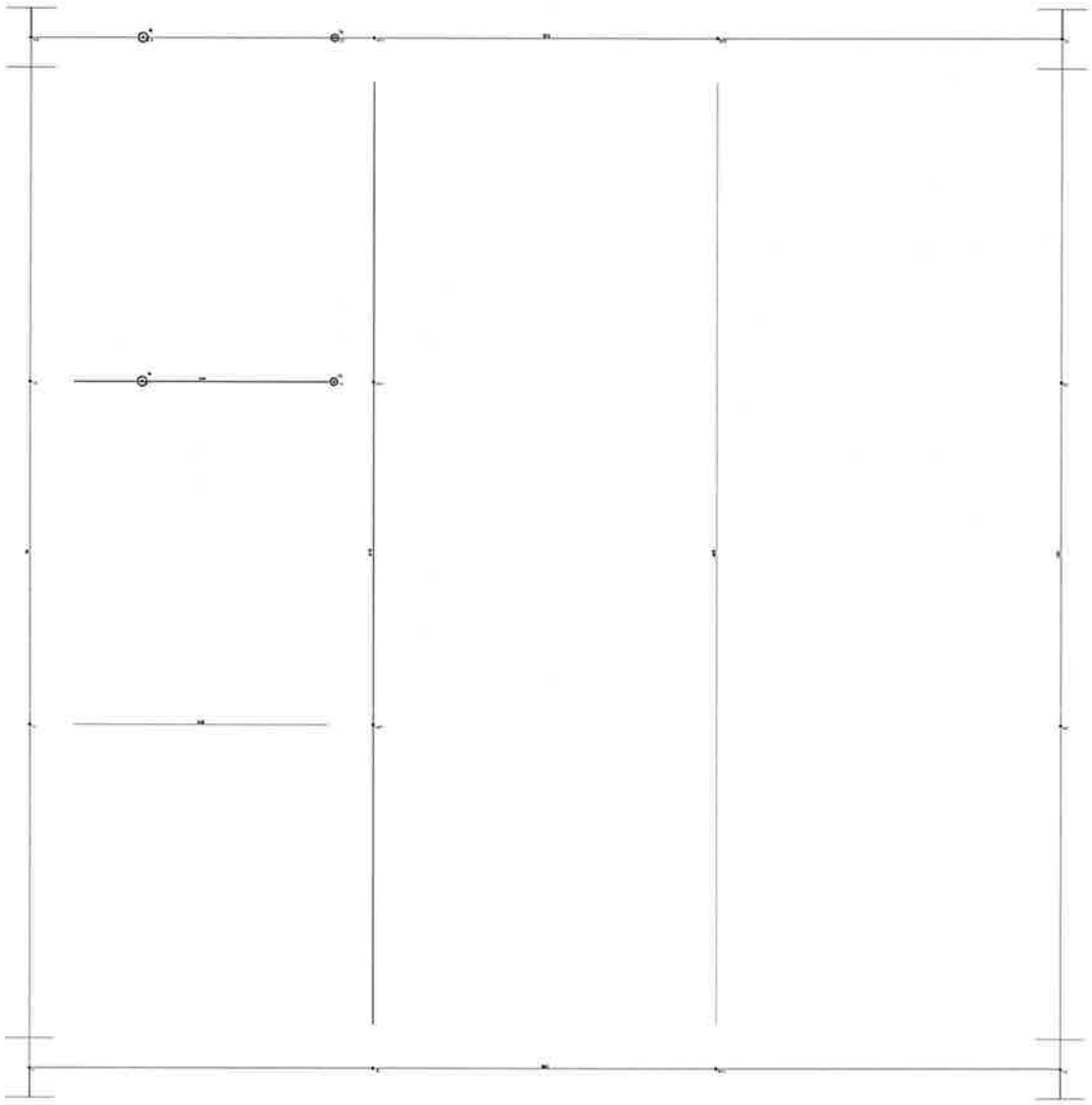
	Label	Deck Default	Deck Angle Default (deg)	Parent
1	Roof Framing	Concrete Deck	0	None

Beam Code Summary for Hot Rolled : Roof Framing

	Label	Size	Explicit	Studs	Camb...	Material	Bending...	Loc[ft]	LC	Defl Ch...	Loc[ft]	Cat	Shear C..	Loc[ft]	LC
1	M1	W21X44	Yes		0	A992	.496	11.667	5	.614	17.5	DL+...	.072	0	5
2	M2	W18X55	Yes		0	A992	.575	11.667	5	.757	16.771	DL+...	.121	0	5
3	M3	W21X44	Yes		0	A992	.28	19.688	6	.336	18.229	DL+...	.047	35	5
4	M4	W18X35	Yes		0	A992	.367	17.5	6	.518	17.5	DL+...	.065	35	6
5	M5	W18X35	Yes		0	A992	.616	14.583	5	.875	16.771	DL+...	.11	0	5
6	M6	W18X35	Yes		0	A992	.485	17.5	6	.686	17.5	DL+...	.087	35	6
7	M7	W14X22	Yes		0	A992	.144	7.778	3	.083	6.198	DL+...	.065	0	3
8	M8	W14X22	Yes		0	A992	.005	5.833	1	.036	0	LL	.002	11.6..	1

Beam End Reactions : Roof Framing

	Beam	End	PreDL[k]	DL[k]	LL[k]	LLS[k]	Roof[k]	Roof Cat	Max[k]	LC	Min[k]	LC
1	M1	Start	3.94	7.432	0	0	2.949	RLL	10.381	5	3.94	1
2		End	3.897	7.174	0	0	2.495	RLL	9.67	5	3.897	1
3	M2	Start	4.131	14.181	0	0	2.949	RLL	17.13	5	4.131	1
4		End	4.088	9.13	0	0	2.495	RLL	11.626	5	4.088	1
5	M3	Start	2.136	4.507	0	0	1.361	RLL	5.868	5	2.136	1
6		End	2.136	5.517	0	0	1.361	RLL	6.878	5	2.136	1
7	M4	Start	1.847	3.889	0	0	3.063	SL	6.951	6	1.847	1
8		End	1.847	3.889	0	0	3.063	SL	6.951	6	1.847	1
9	M5	Start	3.209	8.239	0	0	3.403	RLL	11.642	5	3.209	1
10		End	3.209	6.915	0	0	3.403	RLL	10.318	5	3.209	1
11	M6	Start	3.08	6.143	0	0	3.063	SL	9.205	6	3.08	1
12		End	3.08	6.143	0	0	3.063	SL	9.205	6	3.08	1
13	M7	Start	.129	4.1	0	0	0	RLL	4.1	9	.129	2
14		End	.129	3.157	0	0	0	RLL	3.157	9	.129	2
15	M8	Start	.129	.129	0	0	0	RLL	.129	9	.129	9
16		End	.129	.129	0	0	0	RLL	.129	9	.129	9



Centek Engineering	Roof Framing	SK - 2
Luke Amiot		Oct 21, 2022 at 8:59 AM
	EXISTING ROOF UNITY CHECK AT GAMMA	Existing Framing Calculation-Scree...