

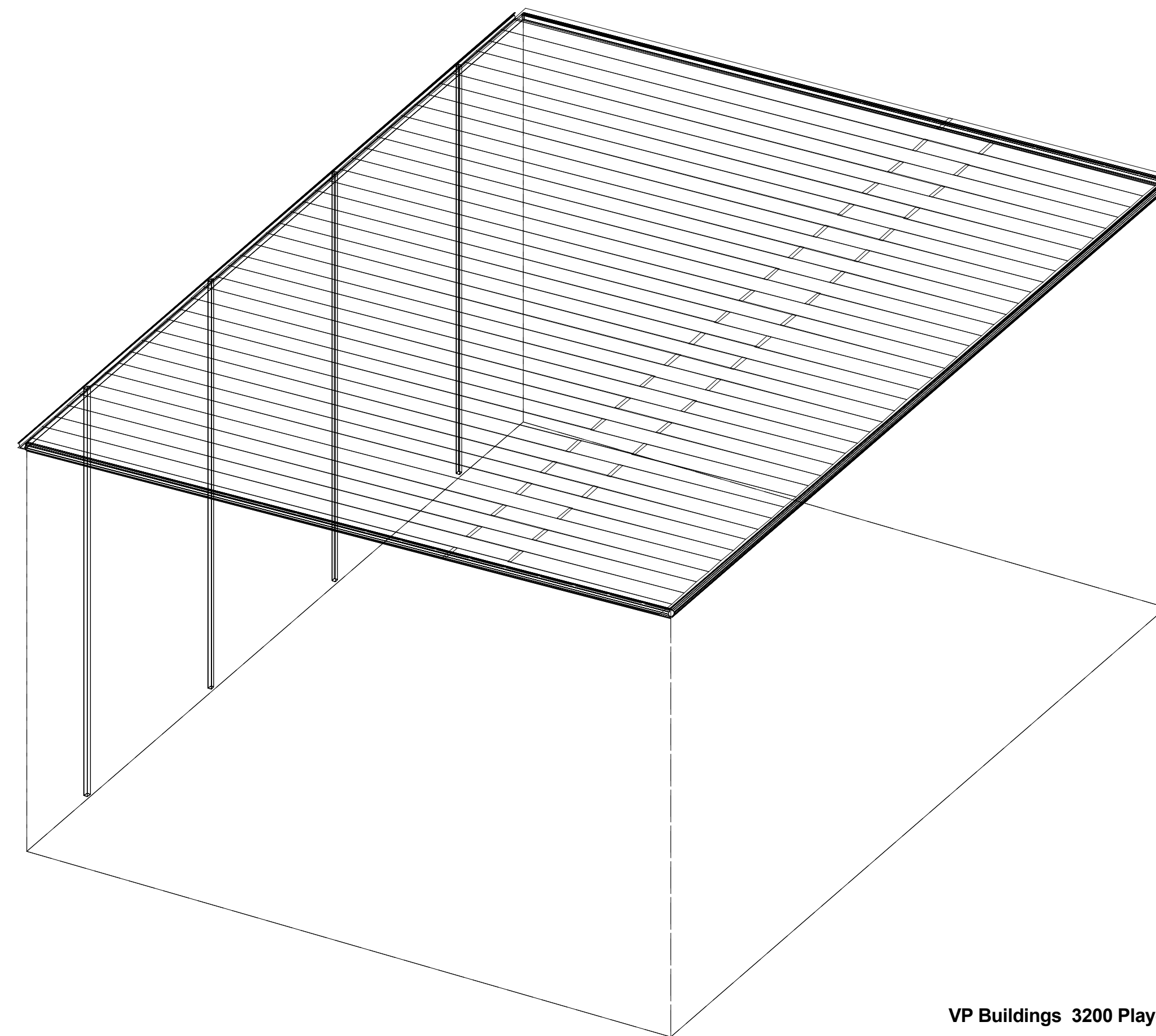


a division of BlueScope Buildings North America, Inc.

Drawing Index	
Drawing Title	Pages
Cover Sheet	
Codes and Loads	
Notes	
Anchor Rod Plan	
Primary Structural	
Secondary Structural	
Covering	
Special Drawings	
Standard Erection Details	
Planograph Details	

Drawing Release History		
Type	Date	Description

BASIC ERECTION GUIDE 4001  
 SSR ROOF PANEL ERECTION GUIDE 4005  
 BASIC PANELS AND ACCESSORIES ERECTION GUIDE 4003



VP Buildings 3200 Players Club Circle Memphis TN 38125

### General Notes

#### Materials

3 Plate Welded Sections  
 Cold Formed Light Gage Shapes  
 Brace Rods  
 Hot Rolled Mill Shapes  
 Hot Rolled Angles  
 Hollow Structural Section (HSS)  
 Cladding

#### ASTM Designation

A529, A572, A1011, A1018  
 A653, A1011  
 A572, A510  
 A36, A529, A572, A588, A992  
 A529, A572, A588, A992  
 A500  
 A653, A792

Grade 55  
 Grade 60  
 Grade 50  
 Grade 36 or 50  
 Grade 50  
 Grade B  
 Grade 50 or Grade 80

#### High Strength Bolt Tightening Requirements

It is the responsibility of the erector to ensure proper bolt tightness in accordance with applicable regulations. See RCSC specification for structural joints using high strength bolts for more information. See erection guide for bolt tightening instructions. The following criteria may be used to determine the bolt tightness (i.e.-snug tight or pre-tension) unless required otherwise by local jurisdiction or contract.

All A490 bolts shall be "pre-tensioned". A325 bolts in primary framing and bracing connections may be "snug-tight" except as follows;

Pre-tension A325 bolts if building supports a crane greater than 5 ton capacity.

Pre-tension A325 bolts if building supports machinery that creates vibration, impact, or stress reversals on connections.

Pre-tension A325 bolts if located in high seismic areas. For IBC based codes; high seismic is design category D, E or F. See codes and loads section below for details.

Pre-tension any connection with designation A325-SC. Slip critical (SC) connections must be free of paint, oil or other materials that reduce friction at contact surfaces. Galvanized or lightly rusted surfaces are acceptable.

In Canada, all A325 and A490 bolts shall be "pre-tensioned", except for secondary members and flange braces.

Secondary members and flange brace connections are always "snug tight", unless indicated otherwise in erection drawing details.

#### Inspection and Testing

Special inspections and testing required by Authority Having Jurisdiction (AHJ) during construction and/or steel fabrication is the responsibility of the owner or owners authorized agent. When required, the owner shall employ a Quality Assurance Agency (QAA) approved by the AHJ. The builder is responsible to coordinate between the QAA firm and BBNA Fabrication Facilities. The type and extent of special inspections and NDT weld testing must be specifically stipulated in contract documents or BBNA will assume special inspections and/or NDT testing are waived as permitted by the building code based on BBNA facilities IAS AC472 accreditation.

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This drawing, including the information hereon, remains the property of VP Buildings. It is provided solely for erecting the building described in the applicable purchase order and may be reproduced only for that purpose. It shall not be modified, reproduced or used for any other purpose without prior written approval of VP Buildings.

The general contractor and/or erector is solely responsible for accurate good quality workmanship in erecting this building in accordance with this drawing, details referenced in this drawing, all applicable VP Buildings erection guides, and industry standards pertaining to proper erection, including the correct use of temporary bracing.

<b>D COVER SHEET</b>			Job #	23-025220-01
Builder	Lemartec Corporation		Date	01/26/2024
Customer	Duke Energy		Drawn / Check	GLH / EFG
Location	Dunn, North Carolina		Page	1
Project	Duke Energy Dunn Ops Center - MSS Bldg - 35ton Crane		VPC Version: 25.1.1	
Builders PO#	23068 - MSS 35ton Crane	Filename Duke Energy - Mobile Substation-35ton Bldg_R3		

**Codes and Loads**

WHEN MULTIPLE BUILDINGS ARE INVOLVED, SPECIFIC LOAD FACTORS FOR DIFFERING OCCUPANCIES, BUILDING DIMENSIONS, HEIGHTS, FRAMING SYSTEMS, ROOF SLOPES, ETC., MAY RESULT IN DIFFERENT LOAD APPLICATION FACTORS THAN INDICATED BELOW. SEE CALCULATIONS FOR FURTHER DETAILS. WIND LOADS ARE APPLIED TO OVERALL BUILDING ENVELOPE. COMMON WALLS BETWEEN CONNECTED SHAPES ARE NOT SUBJECT TO EXTERNAL WIND LOADS.

City: Dunn County: Harnett State: North Carolina Country: United States

**Building Code**

Building Code: 2018 North Carolina Building Code Structural: 10AISC - ASD Rainfall: I: 12.00 inches per hour  
 Based on Building Code: 2015 International Building Code Cold Form: 12AISI - ASD f'c: 3000.00 psi Concrete  
 Building Risk/Occupancy Category: II (Standard Occupancy Structure)

**Dead and Collateral Loads**

Collateral Gravity: 5.00 psf  
 Collateral Uplift: 0.00 psf

**Material Dead Weight**

Roof Covering + Second. Dead Load: 3.31 psf  
 Frame Weight (assumed for seismic): 2.50 psf

**Roof Live Load**

Roof Live Load: 20.00 psf Reducible

**Wind Load**

Wind Speed: Vult: 119.00 (Vasd: 92.18) mph  
 The 'All Heights' Method is Used - User Modified  
 Wind Exposure: C - Kz: 1.032  
 Parts Wind Exposure Factor: 1.032  
 Wind Enclosure: Open - All Heights Method  
 Topographic Factor: Kzt: 1.0000

**Snow Load**

Ground Snow Load: pg: 10.00 psf  
 Flat Roof Snow: pf: 7.56 psf  
 Design Snow (Sloped): ps: 7.56 psf  
 Rain Surcharge: 0.00 psf  
 Specified Minimum Roof Snow: 10.00 psf (Code)  
 Exposure Factor: 1 Fully Exposed - Ce: 0.90  
 Snow Importance: Is: 1.000  
 Thermal Factor: Unheated - Ct: 1.20  
 Ground / Roof Conversion: 0.70  
 Unobstructed, Slippery

**Seismic Load**

Lateral Force Resisting Systems using Equivalent Force Procedure  
 Mapped MCE Acceleration: Ss: 17.90 %g  
 Mapped MCE Acceleration: S1: 8.40 %g  
 Site Class: Stiff soil (D)  
 Seismic Importance: Ie: 1.0000  
 Design Acceleration Parameter: Sds: 0.1909  
 Design Acceleration Parameter: Sd1: 0.1344  
 Seismic Design Category: C  
 Seismic Snow Load: 0.00 psf  
 % Snow Used in Seismic: 0.00  
 Diaphragm Condition: Rigid  
 Fundamental Period Height Used: 38/10/8

**NOT Windborne Debris Region**

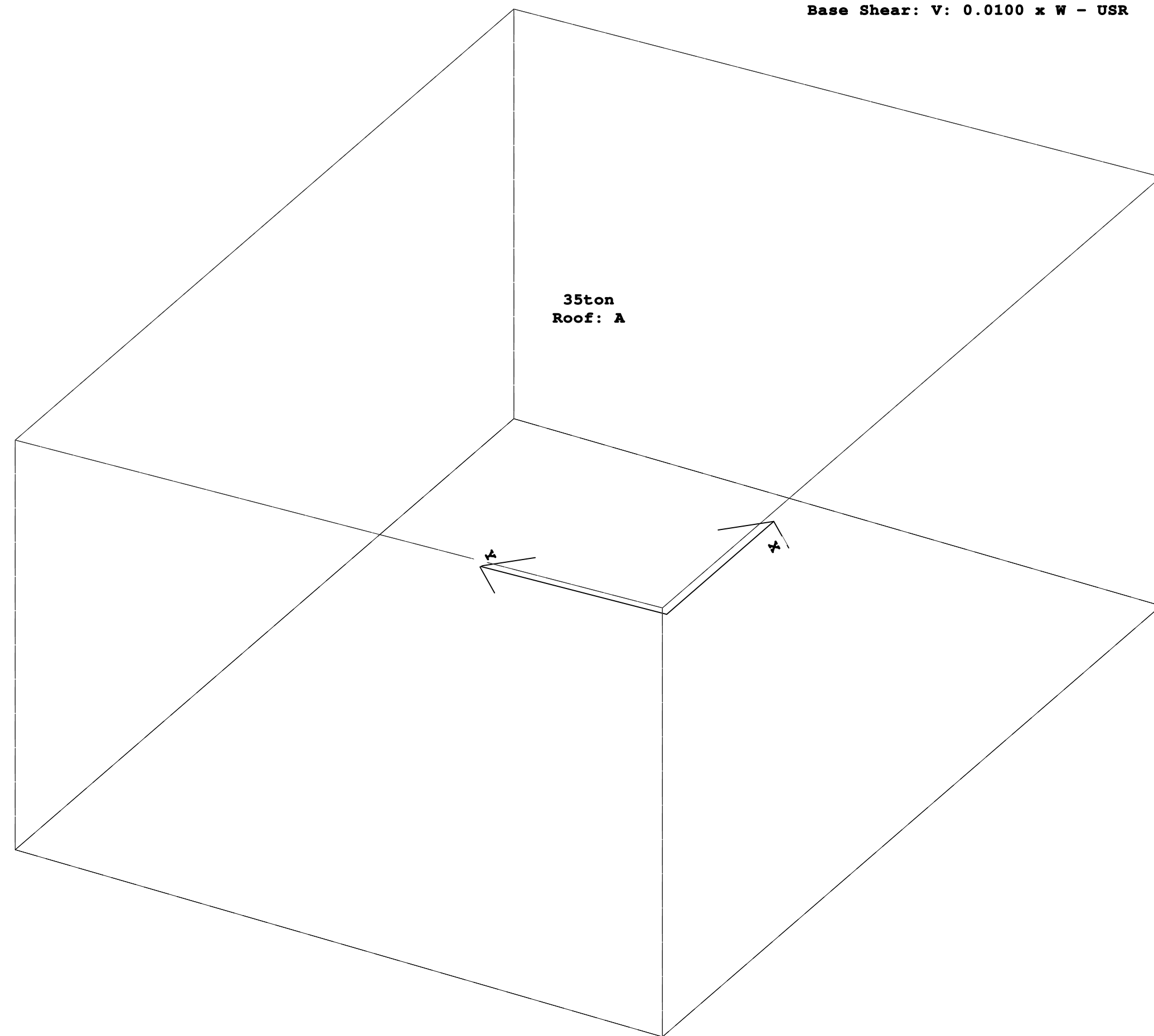
Base Elevation: 0/0/0  
 Primary Zone Strip Width: 2a: 19/0/0  
 Parts / Portions Zone Strip Width: a: 6/0/0  
 Velocity Pressure: qz: 31.81 psf

**Transverse Direction Parameters**


System NOT detailed for Seismic  
 Redundancy Factor: Rho: 1.30 - USR  
 Fundamental Period: Ta: 0.5235  
 R-Factor: 3.00  
 Overstrength Factor: Omega: 3.00  
 Deflection Amplification Factor: Cd: 3.00  
 Base Shear: V: 0.0100 x W - USR

**Longitudinal Direction Parameters**

System NOT detailed for Seismic  
 Redundancy Factor: Rho: 1.30 - USR  
 Fundamental Period: Ta: 0.5235  
 R-Factor: 3.00  
 Overstrength Factor: Omega: 3.00  
 Deflection Amplification Factor: Cd: 3.00  
 Base Shear: V: 0.0100 x W - USR



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**BUILDER/CONTRACTOR RESPONSIBILITIES**

VP Buildings follows the guidelines as outlined in the AISC and MBMA Codes of Standard Practice. VP Buildings standard product specifications, design, fabrication, quality criteria shall govern all work unless stipulated otherwise in the contract documents. In case of discrepancies between VP Buildings structural plans and plans for other trades, VP Buildings structural plans shall govern.

It is the responsibility of the Builder to obtain approvals and permits from all governing agencies and jurisdictions as required. Approval of VP Buildings drawings constitutes the builders acceptance of VP interpretation of the contract purchase order. Unless specific design criteria concerning interface design and details are furnished as part of the contract, VP Buildings design assumptions shall govern.

VP engineers are not Project Engineers or Engineer of Record for the overall project. VP engineering supply sealed engineering design data and drawings for VP supplied material as part of the overall project for use by others to obtain permits, approvals, and coordinate with other trades. All interface and/or compatibility of any materials not furnished by VP are to be considered and coordinated by the builder or A/E firm.

**CONSTRUCTION & ERECTION RESPONSIBILITY**

The Builder is responsible for construction in strict accordance with VP Buildings "FOR CONSTRUCTION" drawings and all applicable product installation guides. VP is not responsible for work done from any other VP drawings that are not marked "FOR CONSTRUCTION", nor any drawings prepared by others.

As erected field assemblies of members shall be as specified in MBMA Code of Standard Practice (in Canada - CSA S16), which require L/500 tolerance of installed members. Occasional field work including shimming, cutting, coping, and drilling for final fit-up are considered part of erection. Specified field work and field welding conditions indicated on these drawings shall also be included in the erectors scope of work. See Erection Guide for shimming procedure. For building with top riding bridge cranes see Crane Data drawing for column plumb tolerance.

The building erector shall be properly licensed and experienced in erecting metal building systems. The Builder is responsible for having knowledge of, and shall comply with, all OSHA requirements and all other governing site safety criteria. The builder is responsible for designing, supplying, locating and installing temporary supports and bracing during erection of the building. VP bracing is designed for code required loads after building completion and shall not be considered as adequate erection bracing. See Erection Guide.

Shimming of steel buildings during erection may be required to accomodate allowable tolerances during fabrication and erection. Special care should be taken by the building erector to shim connections where key dimensions must be maintained for building performance as even small tolerances can have a significant impact on critical dimensions such as height, clearances and plumbness, especially as the size of the member or building increases. Conditions where shimming should be expected can include but are not limited to large door openings, critical clear height requirements, cranes, buildings greater than 45 feet in height, clear spans greater than 125 feet and adjacent frames with different characteristics (like clear span frames adjacent to an endwall or modular frame). Shims are normally provided by the erector, but may be ordered upon request by contacting your Project Manager.

**EXISTING STRUCTURES**

VP must be advised of any structure that is within 20 ft. of VP's building. Load effects from snow drifting, wind effects, and seismic separation must be considered for both the new and existing structures. VP has designed the new VP building for these effects. The owner/builder are responsible for employing a Professional Engineer to review and verify the existing structure for all load effects from the adjacent VP building.

**BRACING**

Tension brace rods work in pairs to balance forces caused by initial tensioning. Care must be taken while tightening brace rods so as not to cause accidental or misalignment of components. All rods must be installed loose and then tightened. Rods should not exhibit excessive sag. For long or heavy rods, or angles it may be necessary to support the rods at mid-bay by suspending them from secondary members.

Bracing for seismic or wind loading of objects or equipment that are not a part of the VP structure must be designed by a qualified professional to deliver lateral loads to primary frames and rod bracing struts. Equipment bracing and suspension connections must not impose torsion or minor axis loads, or cause local distortion in any VP components. VP accepts no responsibility for design or installation of bracing systems not furnished by VP.

**FIELD WELDING**

All field welding shall be done at the direction of a design professional, and done in accordance with governing requirements (AWS in USA, CWB in Canada) by welders qualified to perform the welding as directed by the applicable welding procedure specification (WPS). A WPS shall be prepared by the contractor for each welding variation specified. The contractor is responsible for any special welding inspection as required by local jurisdiction. Filler metal shall be 70 ksi (480 MPa) tensile strength. For welds in high seismic force resisting system (Seismic Cat D, E or F), minimum Charpy V-Notch toughness shall meet AISC-341 criteria (20 ft-lbs min @ 0Deg F). Interpass temperatures shall not exceed 550Deg F (300Deg C).

**DELIVERIES**

It is the responsibility of the builder to have adequate equipment available at the job site to unload trucks in a safe and timely manner. The Builder will be responsible for all retention charges from carriers as a result of job site unloading delays.

**SIGNAGE**

The Builder is responsible for furnishing signs as required by Code and the Building Department, including but not limited to, exits, occupancy limits, floor loading limits, and bulk storage limits. Floor loading signs shall clearly indicate maximum floor live load permitted. Bulk storage facilities shall have signs clearly posted on all loaded walls indicating the type of commodity stored and the maximum storage height. Signs shall be clearly visible when building is fully loaded to design level. Overloading of floors or walls may result in failure.

Claims for damage or shorts MUST be noted on the Bill-of-Lading or delivery receipt and filed against the carrier by the consignee as per VP's Terms of Sales (F.O.B. Plant) under the Uniform Commercial Code. It is critical that damages or shorts be noted on the Bill-of-Lading or you have little recourse with the carrier. Immediately upon delivery of material, material quantities are verified by the Builder against quantities billed on the shipping document. Neither the Manufacturer nor the carrier is responsible for material shortages against quantities billed on the shipping document if such shortages are not noted on the shipping documents upon delivery of material and acknowledged by the carriers agent. For materials concealed in bundles, boxes, or crates, shortages must be reported immediately upon unpacking. Should products get wet, bundled and crated materials must be unpacked and unbundled immediately to provide drainage of trapped moisture. See Erection Guide for proper job site storage procedure.

**SEALANTS**

Sealants shall be applied in strict accordance with VP details or weather tightness will be compromised. Sealant must be applied in temperatures and weather conditions consistent with labeling.

**INDEPENDENT MEZZANINES**

Independent mezzanines must be designed by a professional engineer. The engineer must ensure that proper isolation from the VP building has been provided to avoid structural damage due to differential movements, or inadvertently apply loads to the VP structure. VP accepts no responsibility for the design of the independent mezzanine.

**FIRE CODE COMPLIANCE**

It is the responsibility of the project design professional and builder to comply with local fire code regulations including consideration of, but not limited to, building use and occupancy, all building construction materials, separation requirements, egress requirements, fire protection systems, etc. Builder shall advise VP of any special requirements to be furnished by VP.

**FIELD MODIFICATIONS**

Modifications to this building from details and instructions contained on these drawings must be approved in writing by VP Buildings engineers, or other licensed structural engineer. This includes, but is not limited to, removal of roof or wall cladding, removing or moving any flange braces or rod braces, cutting of openings for doors, windows or RTU's, correction of fabrication errors, etc. The owner shall not impose loads to this structure beyond what is specified for this building in the contract documents. VP Buildings accepts no responsibility for the consequences of any unauthorized additions, alterations, or added loads to this structure.

If the builder intends to invoice VP Buildings for modifications in excess of \$1000, The builder must notify VP Buildings immediately, and obtain a Work Authorization from VP Buildings prior to proceeding. All final claims must be submitted to VP Buildings with all supporting documentation within 30 days of the building completion. Claims submitted without work authorizations, or after 30 days will not be accepted. Correction of minor misfits, shimming and plumbing, moderate amount of reaming, drilling, chipping / cutting and minor welding are considered by Code of Standard Practice to be part of erection are not subject to claim reimbursement.

**CONCRETE/MASONRY/CONVENTIONAL STUD WALLS**

The engineer responsible for the design of the wall system is responsible for coordinating with, or specifying to VP Buildings, any wall to steel compatibility issues such as drift and deflection compatibility, special base details, and wall to VP steel connections. All fasteners, sealant and counter flashing of wall systems are to be provided by contractor. The engineer responsible for the wall shall design the anchorage to VP supporting elements consistent with Code required forces.

**PANELS**

Oil canning is an inherent characteristic of cold formed steel panels. It is the result of several factors that include induced stresses in the raw material delivered to VP, fabrication methods, installation procedures, and post installation thermal forces. Thru fastened panels will exhibit some dimpling when installed, especially when insulation is installed between panels and secondary supports. Dimpling can be minimized by careful installation, taking care not to over drive fasteners.

Roof rumble is a phenomenon that is caused by wind gusts lifting up on the roof panels and then springing back into place. All panels experience this action to some degree, especially with concealed clip Standing Seam panels. Roof rumble noise may be minimized by providing a layer of blanket insulation between the panels and any hard support surface such as steel secondary members, substrates such as plywood, steel decking, or rigid board insulation. A minimum of 3 inch thick blanket is recommended over steel secondary members, or 2 inch over substrates.

Oil canning, dimpling, and roof rumble do not affect the structural integrity or weather tightness of the panels and is not grounds for rejection of panels.

The Standing Seam joint detail is designed with an interlocking feature for ease of installation. However, it is imperative that installed Standing Seam panels be secured to the secondary structural members and properly seamed prior to departure from the job site each day.

**SKYLIGHTS**

Local building departments may require added fall restraint due to conditions that may affect the skylight structural integrity. It is the responsibility of the builder to determine and provide any added fall restraint under the skylight as may be required by your building department.

**RAIN WATER RUNOFF**

Drainage systems must be designed by the project professional to comply with code requirements. VP is not responsible for drainage designs, overflow scuppers, down piping, etc. The project professional and contractor are responsible to ensure that primary drains and overflow devices such as scuppers and auxiliary drains are provided as required for the required rain intensity at the building perimeter and at valley conditions to prevent ponding.

**STEEL SHOP COAT**

The purpose of VP's shop coat is to provide protection for the steel members during transportation, during temporary job site storage and during erection. Standard shop formulation is not designed to perform as a finish coat when exposed to environmental conditions. Members shall be kept free of the ground and properly drained during job site storage. It is the Builder's responsibility to ensure that if a finish coat is being applied over VP shop coat that the painting contractor verifies compatibility between his finish coat and VP's shop coat.

**VP BUILDINGS ACCREDITATIONS AND APPROVALS**

**Fabricator Approvals**

IAS AC472 Approvals: ([www.iasonline.org/services/metal-building-inspection](http://www.iasonline.org/services/metal-building-inspection))  
Listed under BlueScope Buildings North America, Inc.  
City of Los Angeles, CA #FB00031; City of Houston, TX 767 & 429;  
City of Phoenix, AZ C19-02008; Clark County, NV 43 & 833, San Bernardino County, CA 289  
State of Utah, City of Richmond, CA.

**Design Approvals**

IAS AC472 Approvals: ([www.iasonline.org/services/metal-building-inspection](http://www.iasonline.org/services/metal-building-inspection))  
Listed under Varco Pruden Buildings, a Division of BlueScope Buildings North America, Inc.

**Canadian CSA A660 Certifications**

([www.cwbgroup.org](http://www.cwbgroup.org))  
Listed under BlueScope Buildings North America, Inc.

**Engineering Certifications of Authorization**

USA--AL#CA-5589-E; AZ#22225-0; AR#576; FL#30427; GA#PEF007551; ID#C-2470; IL#184-002649; KS#E-29; KY#4490; LA#EF6722; MS#E-0592; MO#E-2010007736; NC#F-0998; ND#1579PE; NJ#24GA28318800; NV#20437; OH#05898; OK#CA4170PE; RI#8838; SC#6206; SD#C-1787; TX#F4828; VA#0411001520; VA#0411001518; WA#4119; WV#C03059-00  
CAN--AB#P08900; NB#F0951; NL#D0044; NS#30123; NT#P062; ON#100148796; and YT#PP134

**ICC Evaluation Reports ([www.icc-es.org](http://www.icc-es.org))**

SSR Roof System - #ESR-2527

**State of Florida Product Approvals ([www.floridabuilding.org](http://www.floridabuilding.org))**

Approved Products Listed Under VP Buildings, Inc.  
VP TextureClad - See Transamerican Structuroc, Inc.

**Dade Co. Product Approval ([www.miamidade.gov/buildingcode](http://www.miamidade.gov/buildingcode))**

Approved Products Listed Under Varco Pruden Buildings, Inc.  
VP TextureClad - See Transamerican Structuroc, Inc.

**Underwriter's Laboratory Approvals (Available only when specified in contract)**

SSR Roof-UL#TGKX-113; SSR Composite Roof Class 90-UL#TGKX-113A;  
SSR Roof w/Super Block; Class 90-UL#TGKX-328;  
Panel Rib Roof UL Class 60-UL#TGKX-60; Panel Rib Roof UL Class 90-UL#TGKX-64;  
VP SLR II Roof Class 90-UL#TGKX-90, -180, -435, -435A, -176, -238, -238A, -238B




**Factory Mutual Approved Assemblies (Available only when specified in contract)**

SSR Roof Systems are approved in various type applications and listed in FM Approval Guide.  
24 Ga SSR (0.0227" Nominal), is available in Class 1-60, 1-75, 1-90. 22Ga SSR (0.0277" Nominal), is available in Class 1-75, 1-90-, 1-120.

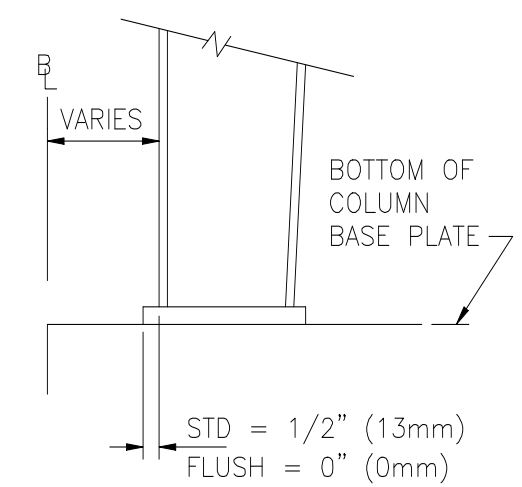
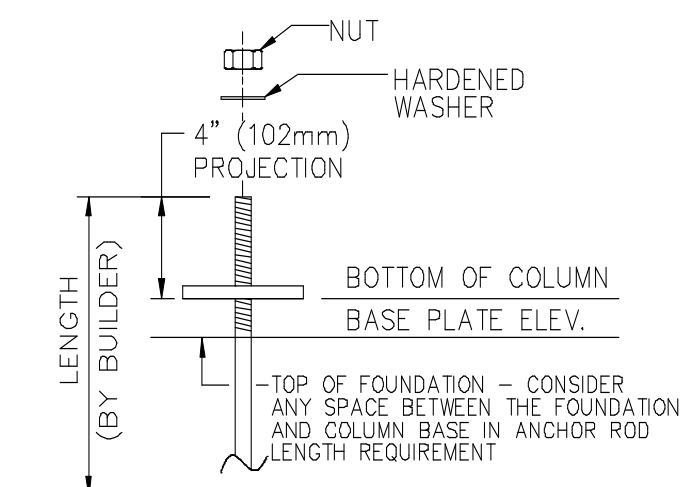
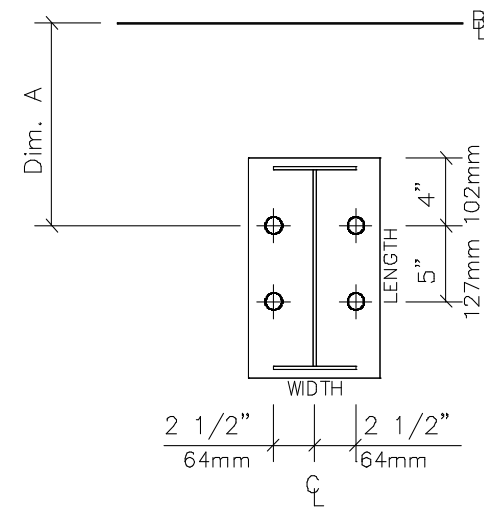
SLR II Roof Systems are approved in various type applications and listed in FM Approval Guide.

24 Ga SLR II (0.0227" Nominal), is available in Class 1-75 and 1-120.

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	VP C Version:	<b>25.1.1</b>																																						
		7/8/2025 15:42:43	Filename: <b>Duke Energy - Mobile Substation-35ton Bldg-R3</b>																																					



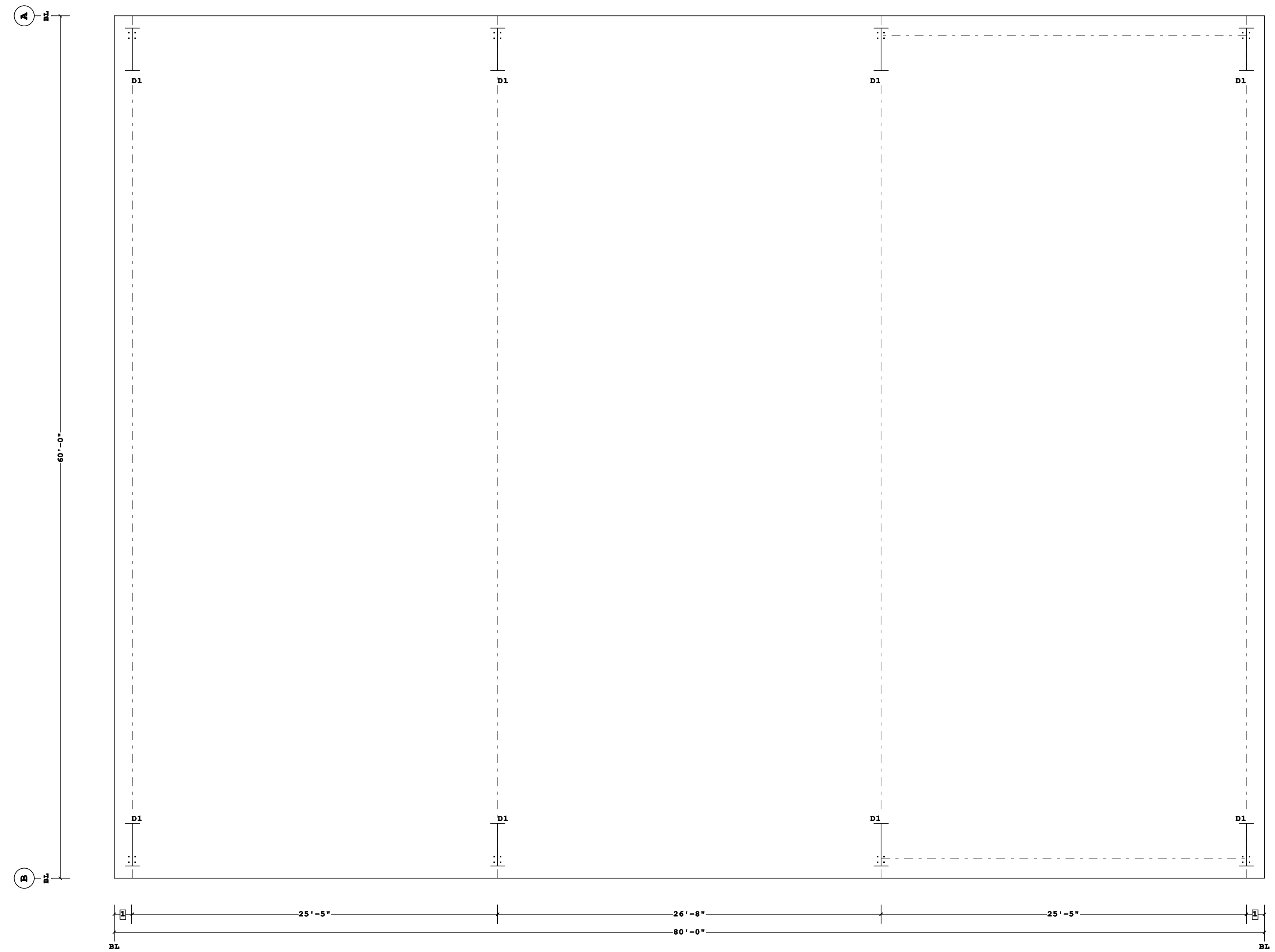


- ANCHOR RODS, NUTS, HARDENED WASHERS AND ANY OTHER EMBEDDED ITEMS ARE TO BE FURNISHED BY CONTRACTOR.
- ANCHOR ROD DIAMETERS WERE DETERMINED BY ALLOWABLE SHEAR AND TENSION PER AISI SPECIFICATIONS (F<sub>y</sub>=36KSI). (ASTM F1554 GRADE 36) ANCHOR ROD LENGTH, EFFECTS OF EMBEDDED ANCHOR ROD EDGE DIMENSIONS AND METHOD OF TRANSFERRING FORCES FROM ANCHOR RODS TO FOOTINGS ARE TO BE DETERMINED BY OTHERS.
- UNLESS OTHERWISE SPECIFIED, ANCHOR RODS ARE DESIGNED AND DETAILED AS "CAST-IN-PLACE" ANCHOR RODS WITH "SNUG TIGHT" CONNECTIONS.
- FOUNDATION MUST BE LEVEL, SQUARE AND SMOOTH. ANCHOR RODS MUST BE ACCURATELY PLACED AS SHOWN ON THIS DRAWING OR STEEL WILL NOT FIT. THE BUILDER IS RESPONSIBLE FOR ACCURATE SETTING OF ANCHOR RODS PER AISI CODE OF STANDARD PRACTICE, SEC 7.5 VARIATIONS ARE SUMMARIZED BELOW:
  - CENTERS OF ANY TWO AR'S WITHIN A COLUMN BASE GROUP:  $\pm 1/8"$
  - CENTERS OF ADJACENT AR GROUPS:  $\pm 1/4"$
  - TOPS OF AR'S:  $\pm 1/2"$
  - ACCUMULATED DIM BETWEEN CENTERS OF AR GROUPS ALONG COLUMN LINE:  $\pm 1/4"$  PER 100FT, NOT TO EXCEED 1" TOTAL.
  - DIM FROM CENTER OF ANY AR GROUP FROM COLUMN LINE:  $\pm 1/4"$
- DESIGN LOADS AND REACTIONS ARE FURNISHED IN THE REACTIONS REPORT.

THE 4" PROJECTION ABOVE THE BOTTOM OF THE BASE PLATE IS A SUGGESTED MINIMUM TO ENSURE ADEQUATE ANCHOR ROD LENGTH. A DIFFERENT PROJECTION MAY BE REQUIRED BY THE FOUNDATION DESIGNER.  
THE ANCHOR ROD PROJECTION MAY NEED TO BE CUT OFF IF THERE IS INTERFERENCE WITH OTHER PARTS.

TYPICAL COLUMN BASE PLATE DETAIL

D1 (4) 1 1/4" Dia.  
Plate W=1'-1", L=3'-1"  
Dim: A=1'-1 1/2"  
Elev.=100'-0"



Anchor Bolt Qty  
Qty Bolt Diam  
32 1 1/4"

1 1'-3"  
Dimension Key

Finished Floor Elevation = 100'-0" (Unless Noted Otherwise)

FOR REVIEW - NOT FOR CONSTRUCTION

<-> The building is designed with bracing diagonals in the designated bays. Column base reactions, base plates and anchor rods are affected by this bracing and diagonals may not be relocated without consulting the building suppliers engineer.

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D	VP Buildings 3200 Players Club Circle Memphis TN 38125			ANCHOR ROD PLAN	
	Rev	Date	By	Description	
					Builder Lemartec Corporation
					Customer Duke Energy
					Location Dunn, North Carolina
					Project Duke Energy Dunn Ops Center - MSS Bldg - 35ton Crane
					Builders PO# 23068 - MSS 35ton Crane
					NTS
					VP Version: 25.1.1
					VP Buildings VARCO PRUDEN A BlueScope Steel Company
					Job # 23-025220-01
					Date 01/26/2024
					Drawn/Check GLH / EFG
					Page
					VP Buildings North America, Inc.

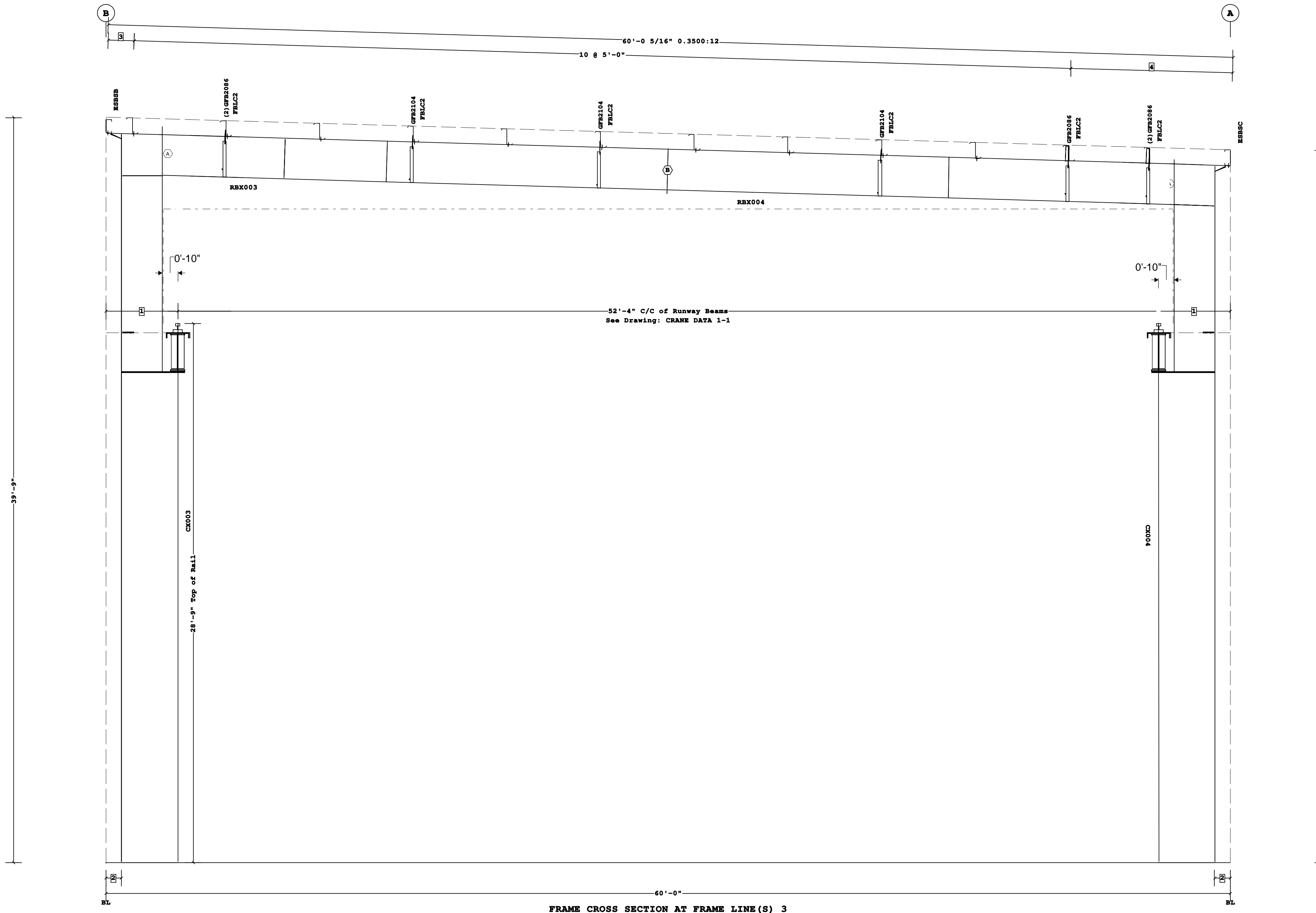
Part	Mem	Width	Thick	WebThk.	Depth1	Depth2	Approx.Lgth	Approx.Weight
CX003	1	12.0000	.6250	.1875	3'-0"	3'-0"	38'-10 11/16"	3113#
RBX003	2	6.0000	.6250	.1644	2'-2"	2'-2"	26'-2 1/8"	898#
	3	6.0000	.3125	.1644	2'-2"	2'-2"		
RBX004	4	6.0000	.3125	.1644	2'-2"	2'-2"	26'-2 15/16"	984#
	5	6.0000	.6250	.2500	2'-2"	2'-2"		
CX004	6	12.0000	.6250	.1875	3'-0"	3'-0"	37'-3 5/16"	2994#

Bolt Connection & Plate Schedule										
Id	Qty	Grade	Bolt	Bolt	Plate	Rows	Rows	PartNo		
			Dia.	Length	Thick.	Out	In			
A	16	A325	3/4"	2 1/2"	5/8"	4	4	0097284		
B	8	A325	3/4"	2 1/2"	3/8"	2	2	0097284		

**Frame Clearances**  
 Horiz. Clearance between members 1(CX003) and 6(CX004): 52'-3 15/16"  
 Vert. Clearance at member 1(CX003): 36'-5"  
 Vert. Clearance at member 6(CX004): 34'-10 11/16"

**Crane Clearances at Top of Rail**  
 Vert. Clearance at CRANE DATA 1-1(Left): 0'-0"  
 Horiz. Clearance at CRANE DATA 1-1(Left): 0'-0"  
 Vert. Clearance at CRANE DATA 1-1(Right): 6'-4 5/16"  
 Horiz. Clearance at CRANE DATA 1-1(Right): -1/16"

Finished Floor Elevation = 100'-0" (Unless Noted Otherwise)



- 4 2 @ 4'-3 3/4"
  - 3 1'-4 13/16"
  - 2 10"
  - 1 3'-10" BL to CI of Runway Beam
- Dimension Key

FRAME CROSS SECTION AT FRAME LINE(S) 3

Shape Name = 35ton Wall 4, Frame 2

FOR REVIEW - NOT FOR CONSTRUCTION

1. Use 1/2 x 1 1/2 A325T Bolt (49080) and Nut (47120) w/o washers. Snug tighten bolts for all secondary connections, secondary clip connections, and flange brace connections, unless noted otherwise.  
 2. Slot reinforcement plates need not be located on the same side of the web as the hillside washer.

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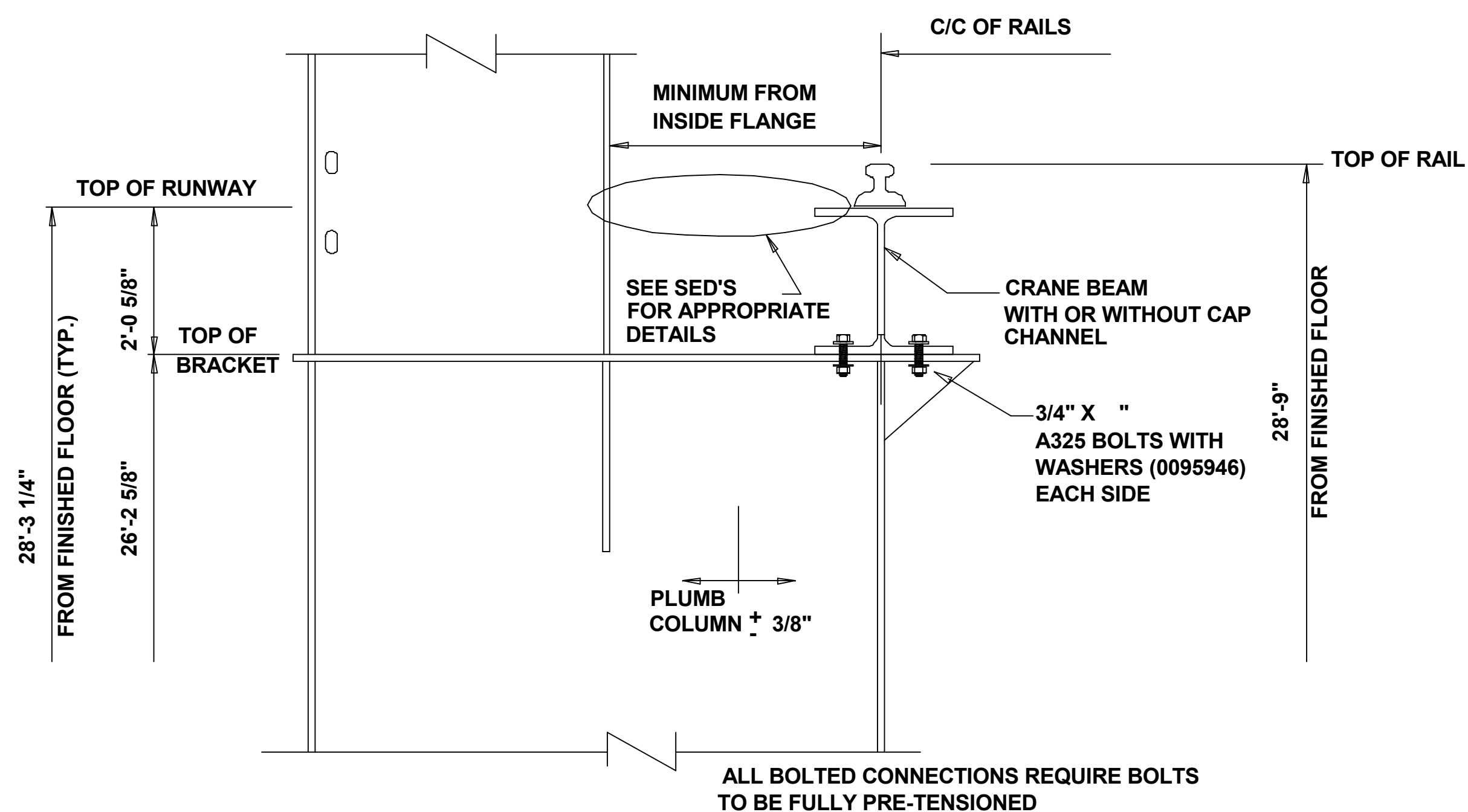
Rev	Date	By	Description	Builder	Customer	Location	Project	Builders PO#	VP Buildings	Job #
				Lemartec Corporation	Duke Energy	Dunn, North Carolina	Duke Energy Dunn Ops Center - MSS Bldg - 35ton Crane	23068 - MSS 35ton Crane	VP BUILDINGS VARCO PRUDEN A BlueScope Steel Company	23-025220-01
										Date 01/26/2024
										Drawn/Check GLH / EFG
										Page

7/8/2025

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VP Buildings North America, Inc.

NOTE: THE CRANE BRACKET SHOWN ON THIS DRAWING MAY NOT REPRESENT ACTUAL SUPPORT CONDITIONS. REFER TO OTHER DETAILS AND NOTES ELSEWHERE IN THESE DRAWINGS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.



**TOP RIDING BRIDGE CRANE AND BRACING DETAIL**

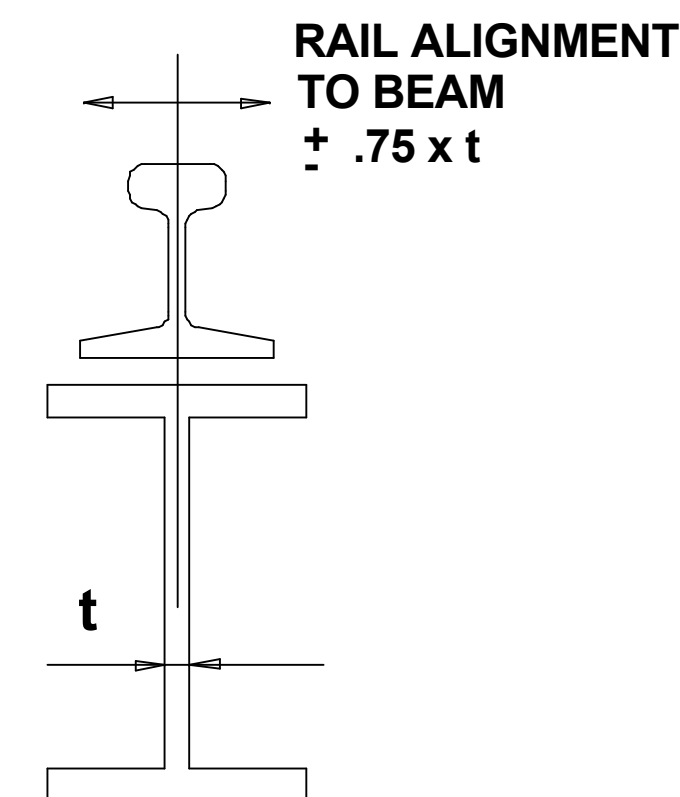
**CRANE DESIGN DATA**

CRANE CLASSIFICATION:	C (Moderate Service)	IMPACT: VERTICAL =	25.00	% OF WHEEL LOAD
CRANE CAPACITY:	35.00 Ton	LATERAL =	20.00	% OF LIFTED LOAD + TROLLEY
CRANE SPAN:	52'-4" (C/C OF RAILS)	LONGITUDINAL =	10.00	% OF MAXIMUM WHEEL LOADS, PER RAIL
WHEEL SPACING:	10'-9"	RUNWAY BEAM SIZE:	W24X84, C15X40	
TROLLEY/HOIST WT.	10.80 k	CRANE RAIL SIZE:	ASCE Std 100 lb/yd By Others	
BRIDGE WT.	43.00 k			
MAXIMUM WHEEL LOAD:	47.00 k (W/O IMPACT)			
RUN-UP DIST. (IF TWO CRANES)	3.50 ft			

**CRANE DATA**

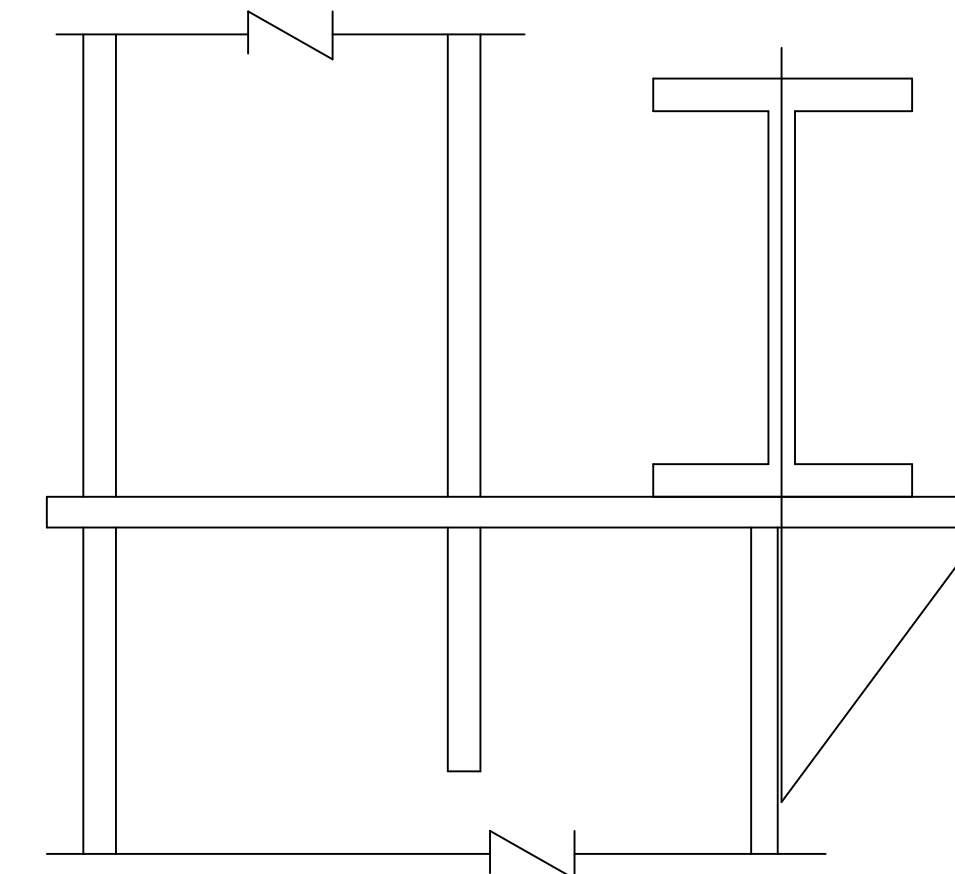
**NOTES**

- 1) CRANE OPERATIONS MAY CAUSE VIBRATIONS IN ROD BRACING AND OTHER BUILDING COMPONENTS. OTHERS TO PROVIDE AND INSTALL CLAMPS OR TIES AS REQUIRED TO MINIMIZE VIBRATION NOISE.
- 2) CRANE COLUMN ELEVATIONS MAY VARY SLIGHTLY DUE TO FABRICATION TOLERANCES. SHIMMING OF BEAMS OR LEVELING AND GROUTING OF COLUMN BASES MAY BE REQUIRED BY THE ERECTOR.
- 3) DO NOT WELD TO CRANE RUNWAY BEAMS OR SUPPORT COLUMNS OTHER THAN WELDS SPECIFIED IN THESE DRAWINGS WITHOUT THE ADVANCE WRITTEN CONSENT OF THE RUNWAY BEAM DESIGN ENGINEER.
- 4) CRANE RUNWAY SYSTEMS ARE SUBJECT TO FATIGUE RELATED PROBLEMS. THEREFORE, ANY RUNWAY COMPONENTS AND DETAILS SUPPLIED MUST BE DEVELOPED BY A PROFESSIONAL ENGINEER COMPETENT IN THE DESIGN OF SUCH SYSTEMS.
- 5) CRANE RAIL ATTACHMENTS MUST PERFORM SEVERAL IMPORTANT FUNCTIONS, INCLUDING:
  - TRANSFER OF LATERAL CRANE LOADS FROM THE TOP OF THE RAIL TO THE RUNWAY BEAM
  - ALLOW THE RAIL TO "FLOAT" LONGITUDINALLY RELATIVE TO THE CRANE RUNWAY BEAM
  - ALLOW FOR ADJUSTMENT/ALIGNMENT OF THE RAIL
  - HOLD THE RAIL IN PLACE Laterally
 SELECTION OF THE APPROPRIATE METHOD FOR CRANE RAIL ATTACHMENT MUST BE DONE BY A PROFESSIONAL ENGINEER COMPETENT IN THIS AREA OF DESIGN. THE CRANE RAILS MUST BE INSTALLED TO ALIGN WITH THE WEB OF THE RUNWAY BEAMS WITHIN THE TOLERANCE SHOWN IN THE DETAILS.
- 6) THE DESIGN AND ATTACHMENT DETAILS FOR THE CRANE END STOPS MUST BE DEVELOPED BY INDIVIDUAL(S) QUALIFIED TO DO SO. COORDINATION WITH THE CRANE MANUFACTURER IS STRONGLY RECOMMENDED.
- 7) THE CRANE RUNWAY TIE-BACKS ARE ONLY PROVIDED WHEN THE CRANE RUNWAY BEAMS ARE BY BLUESCOPE. RUNWAY TIE-BACKS ARE ALWAYS REQUIRED. IMPROPER DESIGN AND DETAILING OF TIE-BACKS CAN CAUSE FATIGUE RELATED PROBLEMS AND THEREFORE SHOULD BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER WHO IS COMPETENT IN THE AREA OF BRIDGE CRANE RUNWAY SYSTEM DESIGN. THE BEARING STIFFENER SHOWN WILL BE PROVIDED AT THE ELEVATION SHOWN ONLY WHEN THE RUNWAY BEAM IS BY BLUESCOPE.
- 8) THE CYCLIC NATURE OF BRIDGE CRANE EFFECTS WILL TEND TO CAUSE GRADUAL LOOSENING AND/OR MISALIGNMENT OF SOME BUILDING COMPONENTS. PERIODIC INSPECTION OF CONNECTIONS AND ALIGNMENT WILL BE REQUIRED.
- 9) BLUESCOPE HIGHLY RECOMMENDS THAT COLUMN BASE DETAILS HAVE DOUBLE NUTS WITH NON-COMPRESSABLE GROUT TO FACILITATE PROPER LEVELING. CONSULT PROJECT PROFESSIONAL.
- 10) WHEN BEAMS AND/OR RAILS ARE INDICATED AS "BY OTHERS", BLUESCOPE COMPANIES ACCEPT NO RESPONSIBILITY FOR DESIGN OR FABRICATION OR SUPPLY OF THESE ELEMENTS. THE CRANE BEAM SIZE SHOWN IS CONCEPTUAL ONLY FOR THE DESIGN OF SUPPORTING ELEMENTS AND SHOULD NOT BE CONSIDERED AS DESIGNED BY BLUESCOPE, NOR CHECKED BY BLUESCOPE ENGINEERS, NOR SUPPLIED BY BLUESCOPE COMPANIES. BUILDER MUST VERIFY WITH RUNWAY DESIGNER ACTUAL SIZE OF BEAM.



**RAIL ALIGNMENT**

CENTERLINE OF RUNWAY BEAM WEB SHOULD NOT FALL OUTSIDE EITHER FACE OF INTENDED SUPPORT. (i.e. BRACKET STIFFENER OR COLUMN FLANGE)



**CRANE BEAM ALIGNMENT**

Shape Name = 35ton, Wall = 4

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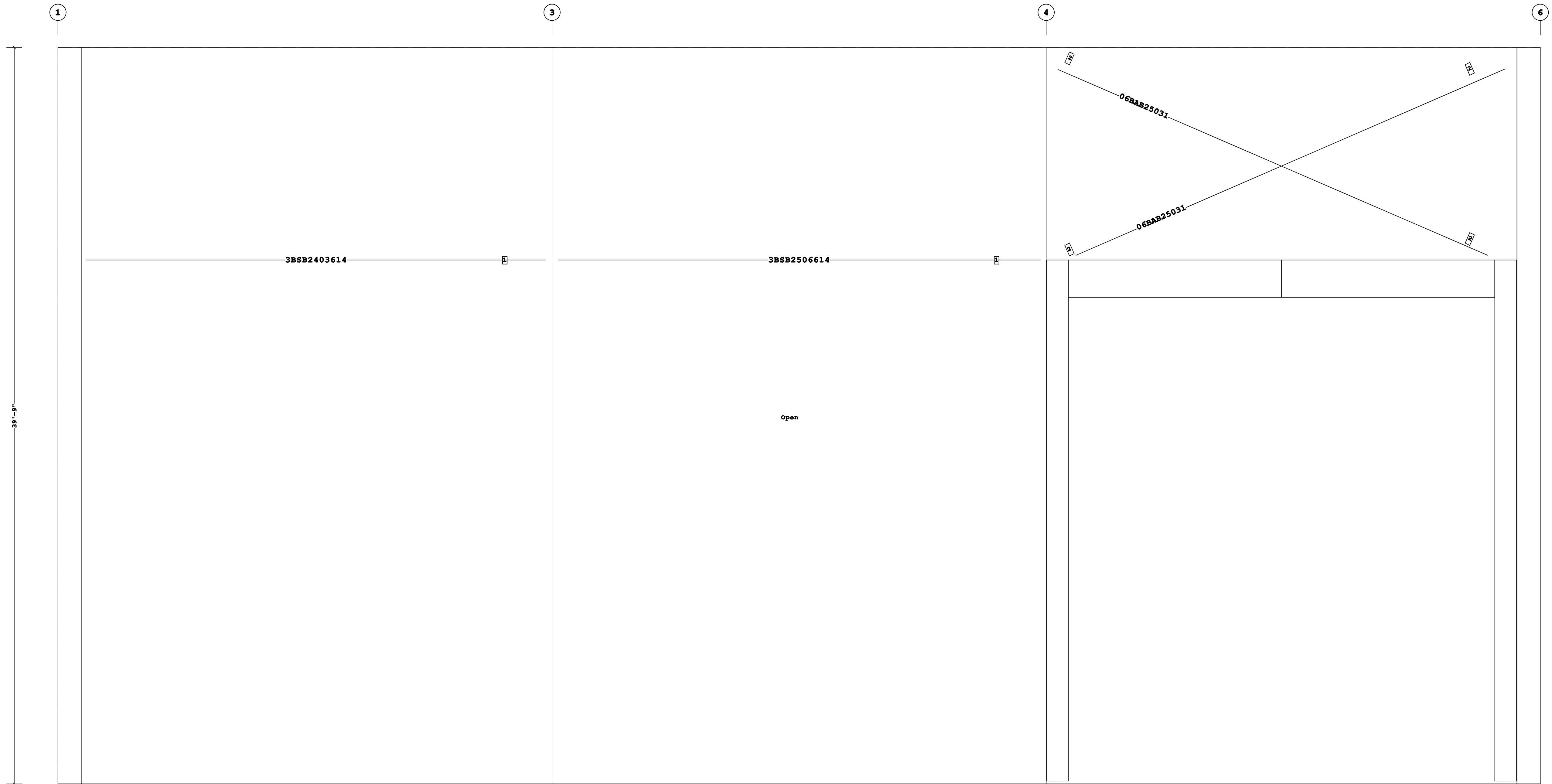
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VP Buildings			
3200 Players Club Circle Memphis TN 38125			
Rev	Date	By	Description
NTS			

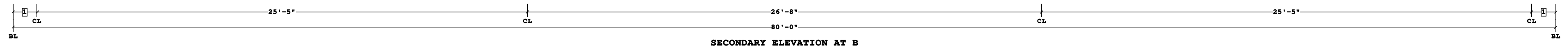
**CRANE DATA 1-1**

Builder	Lemartec Corporation	<p>VP BUILDINGS VARCO PRUDEN A BlueScope Steel Company</p>	Job #	23-025220-01
Customer	Duke Energy		Date	01/26/2024
Location	Dunn, North Carolina		Drawn/Check	GLH / EFG
Project	Duke Energy Dunn Ops Center - MSS Bldg - 35ton Crane		Page	
Builders PO#	23068 - MSS 35ton Crane	VPC Version:	25.1.1	

Rod, Strut, and Misc. Connection Bolts						
Id	Qty	Grade	Bolt Diam.	Bolt Length	PartNo	Washer
1	2	A325	3/4"	2 1/2"	0097284	
2	2	A325	1"	3 1/2"	0097288	0095948



Part	Qty	Length	Detail
3BSB2403614	1	24'-9 3/4"	BR15J1
3BSB2506614	1	26'-0 3/4"	BR15J1
06BAB25031	2	25'-3 1/8"	BR33P1



1 1'-3"  
 Dimension Key

Shape Name = 35ton, Wall = 4

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1. Unless noted, use 1/2 x 1 1/2 A325T Bolt (49080) and Nut (47120) w/o washers. Snug tighten bolts for all secondary connections.  
 2. Flange Braces are an integral part of the stability of the structural system and must be properly installed prior to erection of wall and roof sheets.  
 3. Removal or alteration of any component is prohibited.

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D			VP Buildings 3200 Players Club Circle Memphis TN 38125	Lemartec Corporation	Duke Energy	Dunn, North Carolina	Duke Energy Dunn Ops Center - MSS Bldg - 35ton Crane	23068 - MSS 35ton Crane	23-025220-01	01/26/2024	GLH / EFG	
			NTS									

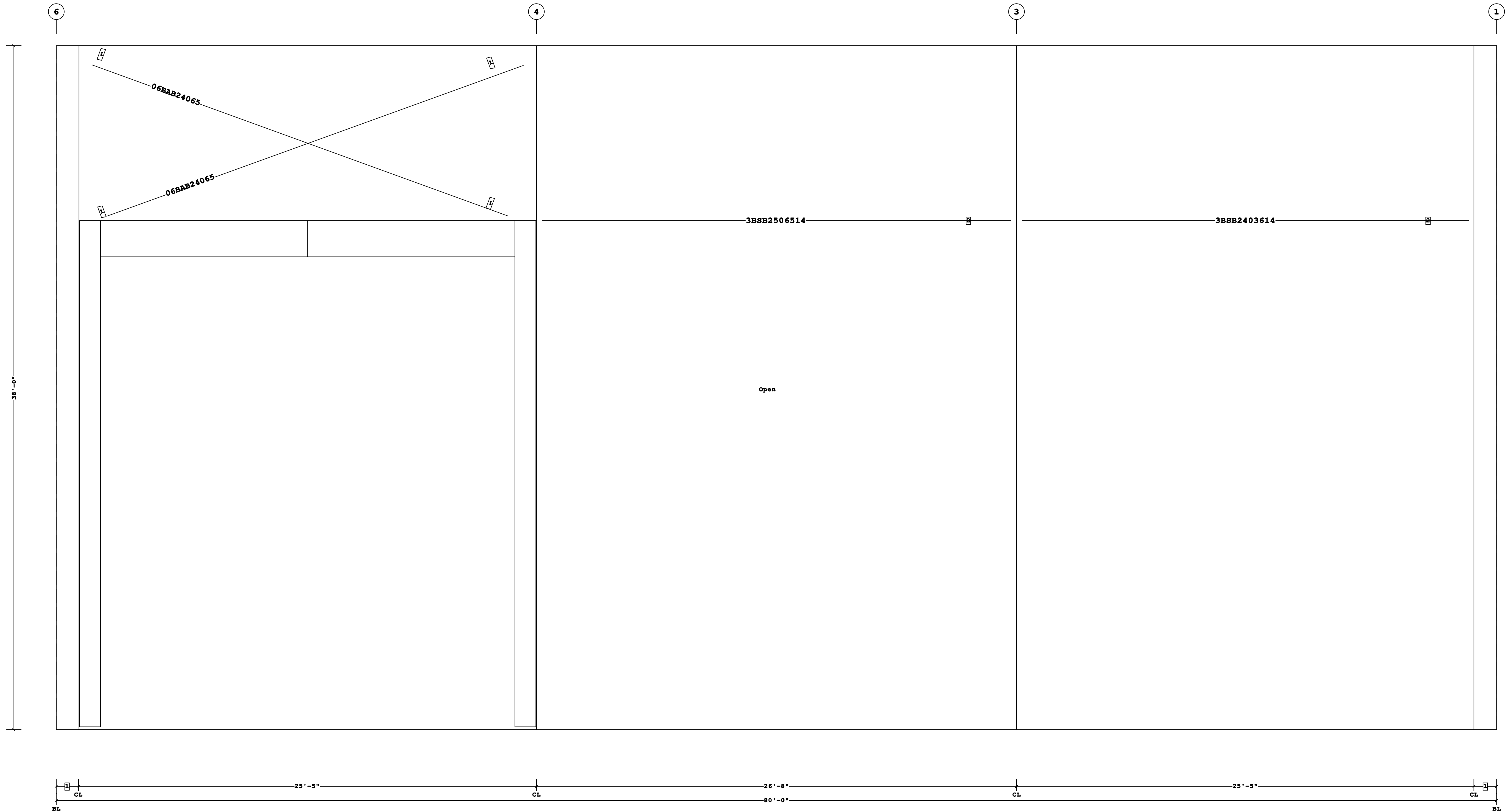
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Filename: Duke Energy - Mobile Substation-35ton Bldg-R3



Rod, Strut, and Misc. Connection Bolts						
Id	Qty	Grade	Bolt Diam.	Bolt Length	PartNo	Washer
1	2	A325	1"	3 1/2"	0097288	0095948
2	2	A325	3/4"	2 1/2"	0097284	



**Bracing Part Schedule**

Part	Qty	Length	Detail
06BAB24065	2	24'-6 5/8"	BR33P1
3BSB2506514	1	26'-0 5/8"	BR15J1
3BSB2403614	1	24'-9 3/4"	BR15J1

1 1'-3"  
Dimension Key

Shape Name = 35ton, Wall = 2

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- Unless noted, use 1/2 x 1 1/2 A325T Bolt (49080) and Nut (47120) w/o washers. Snug tighten bolts for all secondary connections.
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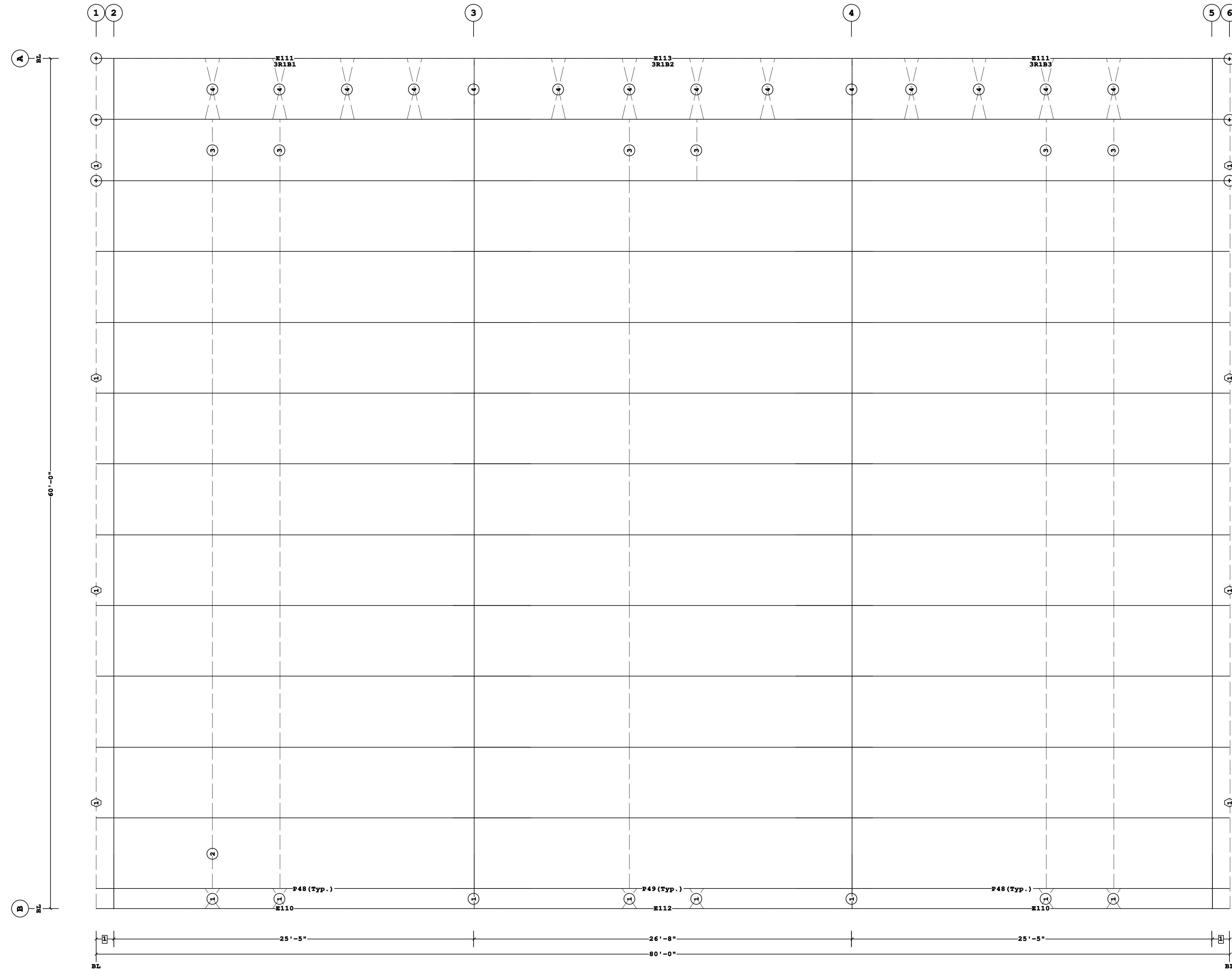
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D			VP Buildings 3200 Players Club Circle Memphis TN 38125	Lemartec Corporation	Duke Energy	Dunn, North Carolina	Duke Energy Dunn Ops Center - MSS Bldg - 35ton Crane	23068 - MSS 35ton Crane	23-025220-01
									Date 01/26/2024
									Drawn/Check GLH / EFG
									Page

Mark	Part	Thick.	Depth	Lap	Detail
E110	00108HS2607417B00	0.0600	8 1/2"		BR09W2, BR09Y2
E111	00110ES2607417B00	0.0600	10"		RS12PH, RS12PA
E112	08H2607417DDB00	0.0600	8 1/2"		BR09W2, BR09Y2
E113	10E2607417DDB00	0.0600	10"		RS12PA
P48	10Z3007415V5B0	0.0730	10"	3'-10 1/2"	RS02T1, RS03J2, RS01T1, RS01U1
P49	10Z290741722B0	0.0600	10"	1'-4 1/2"	RS01U1

Secondary Bracing Schedule				
Id	Qty	Mark No	Spacing	
1	14	PBA0108	1'-4 13/16"	
2	50	CPBB050108 (Typ.)	5'-0"	
3	6	CPBB040506	4'-3 3/4"	
4	26	PBA0407	4'-3 3/4"	

See SED:  
BR09K5, BR09JG, BR09RY, BR09RZ, BR09JR  
BR09JH, BR09K2

Part Mark Key  
1 RKCB15  
(+) SSR Fixed Clip Location



ROOF SECONDARY PLAN FOR 35ton

1 1'-3"  
Dimension Key

Shape Name = 35ton

FOR REVIEW - NOT FOR CONSTRUCTION

- Unless noted, use 1/2 x 1 1/2 A325T Bolt (49080) and Nut (47120) w/o washers. Snug tighten bolts for all secondary connections.
- Flange Braces are an integral part of the stability of the structural system and must be properly installed prior to erection of wall and roof sheets.
- Removal or alteration of any component is prohibited.

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VP Buildings				ROOF SECONDARY PLAN FOR 35ton	
3200 Players Club Circle Memphis TN 38125				Builder	Lemartec Corporation
Rev	Date	By	Description	Customer	Duke Energy
				Location	Dunn, North Carolina
				Project	Duke Energy Dunn Ops Center - MSS Bldg - 35ton Crane
				Builders PO#	23068 - MSS 35ton Crane
				VP Version:	25.1.1
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				Job #	23-025220-01
				Date	01/26/2024
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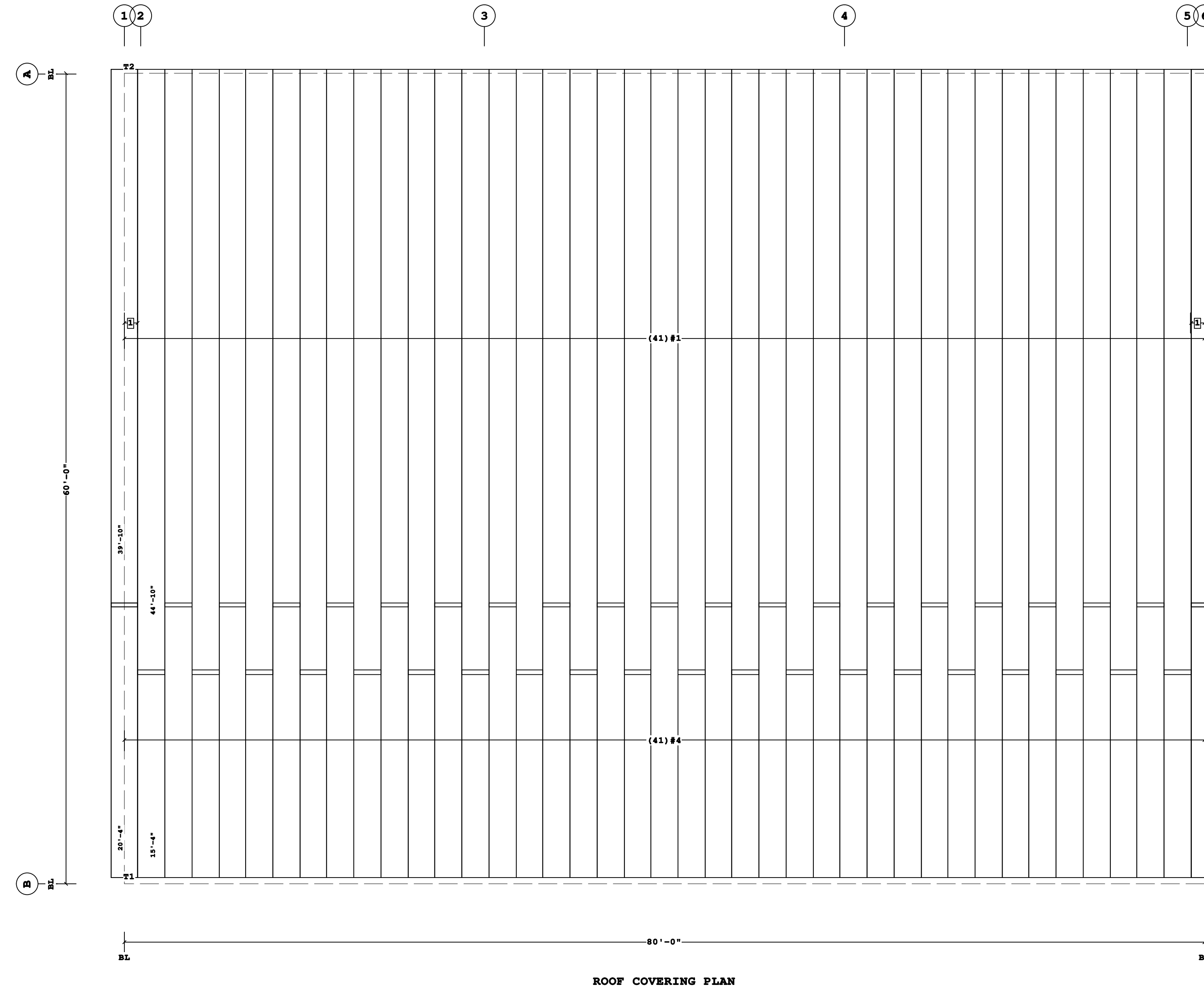
Filename: Duke Energy - Mobile Substation-35ton Bldg-R3

Covering Schedule									
Id	Qty	Start Length	Qty	Stagger Length	Type	Gage	OP	Fin.	Color
#1	21	39'-10"	20	44'-10"	SSR	24	2	G	TD
#4	21	20'-4"	20	15'-4"	SSR	24	2	G	TD

Oper. Code: 2=SQ, SQ  
 Finish: G=Galvalume  
 Color: TD=Standard Color

Trim Schedule		
Id	Parts	
T1	MCC1	
T2	BS1, FPRF1, GGC1, MCC1	

Color	Details
Cool Dark Bronze	RC38AJ
Cool Dark Bronze	RC38N1



Dimension Key  
 1 1'-0" Starter Panel (Cut Dim. = 1'-1")

1. Pre-drilling 1/8 diameter holes for structural fasteners detailed for a field fastening construction shall be required for heavy gage nested zee's and/or fasteners to structural beams.
2. Steel panels are an integral part of the structural system. removal or alteration without prior authorization is prohibited.
3. Due to manufacturing limitations short panels may require field cutting, see the covering schedule for cut lengths.
4. See job details for covering and trim fastener specification.

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Shape Name = 35ton

FOR REVIEW - NOT FOR CONSTRUCTION

Rev	Date	By	Description	Builder	Customer	Location	Project	Builders PO#	VP Buildings	Job #
				Lemartec Corporation	Duke Energy	Dunn, North Carolina	Duke Energy Dunn Ops Center - MSS Bldg - 35ton Crane	23068 - MSS 35ton Crane	VP BUILDINGS VARCO PRUDEN A BlueScope Steel Company	23-025220-01
										Date
										01/26/2024
										Drawn/Check
										GLH / EFG
										Page
										25.1.1
										VP Buildings North America, Inc.

7/8/2025

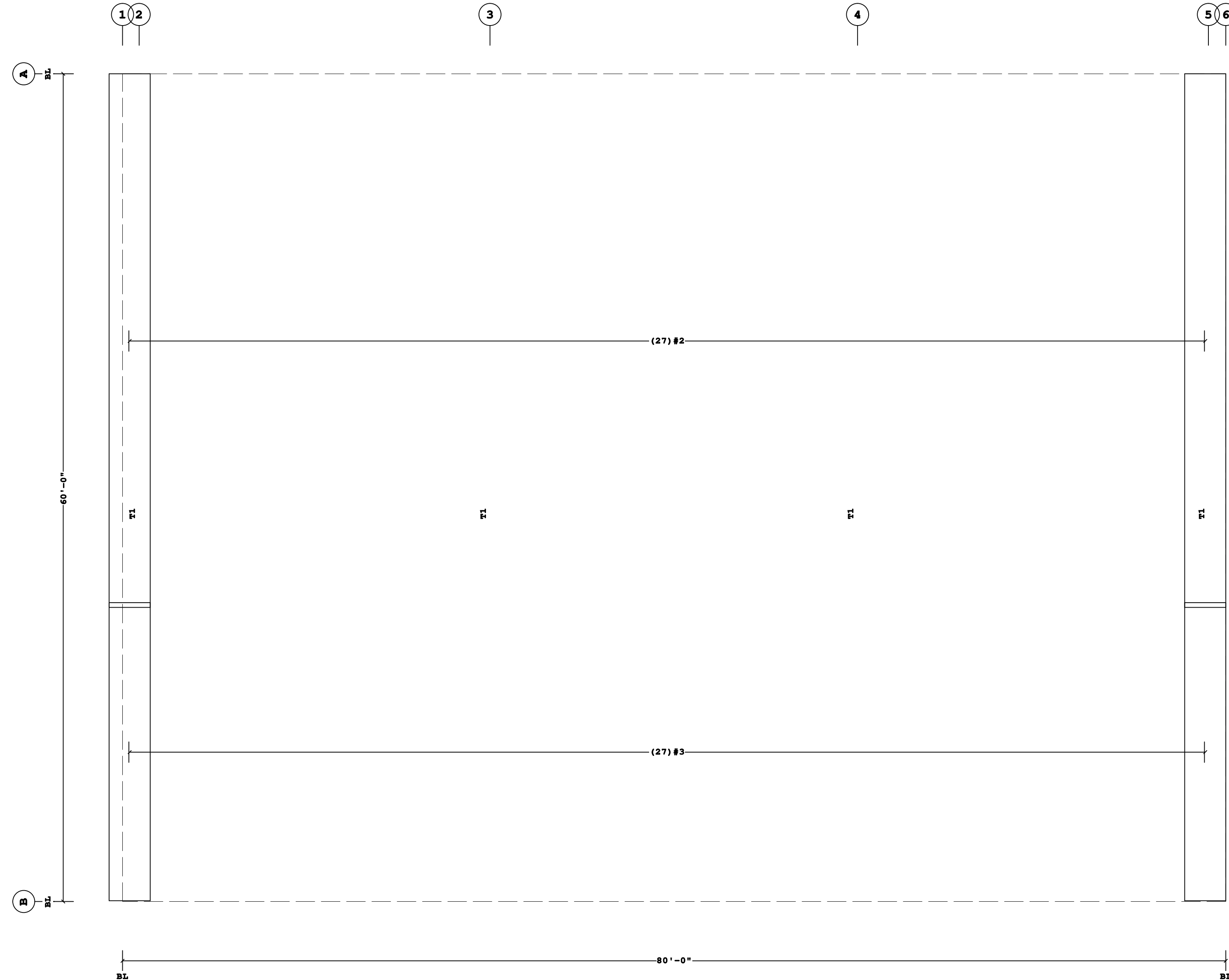
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Filename: Duke Energy - Mobile Substation-35ton Bldg-R3

Liner/Soffit Schedule							
Id	Qty	Type	Length	Gage	OP	Finish Color	Direction
#2	27	DLN	38'-8 1/4"	26	1	K	TD
#3	27	DLN	21'-7"	26	2	K	TD

Oper. Code:1=SQ,SQ  
 Oper. Code:2=SQ,SQ  
 Finish:K=KKL (Kynar)  
 Color:TD=Standard Color

Liner Trim Schedule			Color		Details
Id	Parts		Match	Roof Color	
T1	(11)LPJT				WLV015



ROOF LINER PLAN  
 (View from outside Building)

Fastener Schedule	
Part	Description
Roof Struct 1 1/4(T-2)	#12-14 x 1 1/4", 5/16" Hex Hd, SS Cap w/Washer
Roof Stitch 7/8 (T-1)	1/4-14 x 7/8", 5/16" Hex Hd, SS Cap w/Washer

Shape Name = 35ton

FOR REVIEW - NOT FOR CONSTRUCTION

<p>1. Pre-drilling 1/8 diameter holes for structural fasteners may be required for heavy gage nested zee's and/or fasteners to structural beams</p> <p>2. Steel panels are an integral part of the structural system. removal or alteration without prior authorization is prohibited.</p> <p>3. Due to manufacturing limitations short panels may require field cutting, see the covering schedule for cut lengths.</p> <p>4. See job details for covering and trim fastener specification.</p>	<p>The VP Engineer's seal applies only to the work product of VP and design and performance requirements specified by VP. The VP Engineer's seal does not apply to the performance or design of any other product or component furnished by VP except to any design or performance requirements specified by VP.</p>	<p>This drawing, including the information hereon, remains the property of VP Buildings. It is provided solely for erecting the building described in the applicable purchase order and may be reproduced only for that purpose. It shall not be modified, reproduced or used for any other purpose without prior written approval of VP Buildings.</p> <p>The general contractor and/or erector is solely responsible for accurate good quality workmanship in erecting this building in accordance with this drawing, details referenced in this drawing, all applicable VP Buildings erection guides, and industry standards pertaining to proper erection, including the correct use of temporary bracing.</p>	<p><b>D</b></p> <p>VP Buildings          3200 Players Club Circle Memphis TN 38125</p>	<p><b>ROOF LINER PLAN</b></p>		<p>Job # 23-025220-01</p>			
				<p>Rev</p>	<p>Date</p>	<p>By</p>	<p>Description</p>	<p>Builder Lemartec Corporation</p>	<p>Date 01/26/2024</p>
								<p>Customer Duke Energy</p>	<p>Drawn/Check GLH / EFG</p>
								<p>Location Dunn, North Carolina</p>	<p>Page</p>
<p>NTS</p>				<p>Project Duke Energy Dunn Ops Center - MSS Bldg - 35ton Crane</p>	<p>VP BUILDINGS          VARCO PRUDEN          A BlueScope Steel Company</p>	<p>VP Version: 25.1.1</p>			
<p>7/8/2025 15:47:04</p>				<p>Builder's PO# 23068 - MSS 35ton Crane</p>	<p>VP Buildings North America, Inc.</p>	<p>Filename: Duke Energy - Mobile Substation-35ton Bldg-R3</p>			