



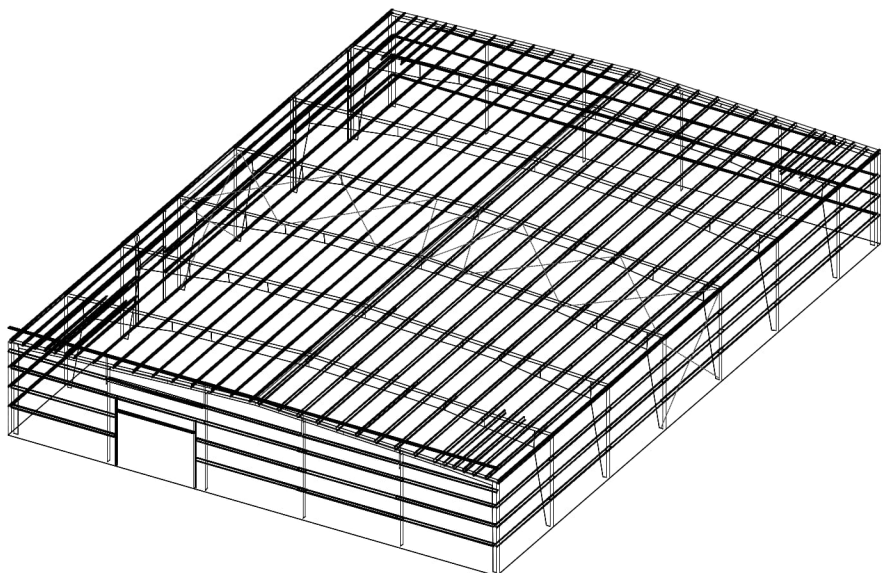
**Butler Manufacturing**  
a division of BlueScope Buildings North America, Inc.

BASIC BUILDING INSTALLATION GUIDE 3586  
MR-24 ROOF INSTALLATION GUIDE 4797  
ROOF OWNERS MAINTENANCE 5038

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| DRAWING RELEASE HISTORY      |            |                  |
|------------------------------|------------|------------------|
| TYPE                         | DATE       | DESCRIPTION      |
| Anchor Rod Drawings Rev0     | 12/13/2024 | FOR CONSTRUCTION |
| Final Erection Drawings Rev0 | 1/14/2024  | FOR CONSTRUCTION |
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|                              |            |                  |

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Construction Consultant: Ray Nagiewicz (816) 582-3185



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**D** BUTLER MANUFACTURING  
1540 GENESSEE ST. KANSAS CITY, MO 64102

**COVER SHEET**  
BUILDER: MAR BUILDING SOLUTIONS LLC  
CUSTOMER:  
LOCATION: Lees Summit, Missouri  
PROJECT: KR Wholesale  
BUILDER'S PO#: 200440709

ASR# 24-025448-01  
DATE: 1/14/2024  
DRAWN BY: LDCM / GL  
PAGE: 1

Butler Manufacturing  
VPC VERSION: 24.3.1  
a division of BlueScope Buildings North America, Inc.

**GENERAL NOTES**

**MATERIALS**

3 PLATE WELDED SECTIONS  
COLD FORMED LIGHT GAGE SHAPES  
BRACE ROOFS  
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 65  
GRADE 36 OR 50  
GRADE 50  
GRADE B  
GRADE 50 OR GRADE 60

**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 STEEL 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 BINA FABRICATION FACILITIES. THE TYPE AND EXTENT OF SPECIAL INSPECTIONS AND NDT WELD TESTING MUST BE SPECIFICALLY STIPULATED IN CONTRACT DOCUMENTS OR BINA WILL ASSUME SPECIAL INSPECTIONS AND NDT TESTING ARE WAIVED AS PERMITTED BY THE BUILDING CODE BASED ON BINA FACILITIES IAS AC472 ACCREDITATION.

Keith Erick Fox  
electronically signs and seals  
this document with his  
Professional Engineer seal  
attached. Printed copies of this  
document are not signed and  
sealed. This signature must  
be verified on an electronic  
copy.  
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Reviewed For Construction PG 1-35 on 1/9/2025 by SR

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: Lees Summit County: Jackson State: Missouri Country: United States

Building Code  
Building Code: IBC 2018 Structural: 16AISC - ASD Rainfall: I: 3.00 inches per hour  
Based on Building Code: 2018 International Building Code Cold Form: 16AISI - ASD f': 3000.00 psi Concrete  
Building Risk/Occupancy Category: II (Standard Occupancy Structure)

Dead and Collateral Loads  
Collateral Gravity: 5.00 psf Material Dead Weight  
Collateral Uplift: 0.00 psf Roof Covering + Second. Dead Load: 2.26 psf  
Frame Weight (assumed for seismic): 2.50 psf

Wind Load  
Wind Speed: Vult: 115.00 (Vasd: 89.08) mph  
The "Envelope Procedure" is Used  
Primary Wind Exposure: C - Kz: 0.936  
Parts Wind Exposure Factor: 0.936  
Wind Enclosure: Enclosed  
Topographic Factor: Kzt: 1.0000  
Ground Elevation Factor: Ke: 1.0000  
NOT Windborne Debris Region  
Base Elevation: 0.0/0  
Site Elevation: 0.0 ft  
Primary Zone Strip Width: Za: 19.1/3  
Parts / Portions Zone Strip Width:  
Walls, at 9/6/10  
Roof(s), 0.6h: 14.3/14  
Velocity Pressure: qz: 26.94, (CtC) 26.94 psf

Load Notes  
Collateral Load Description - Lights HVAC, mica

Roof Live Load  
Roof Live Load: 20.00 psf Reducible

Seismic Load  
Lateral Force Resisting Systems using Equivalent Force Procedure  
Mapped MCE Acceleration: Sa: 12.00 kg  
Mapped MCE Acceleration: Si: 6.00 kg  
Site Class: Stiff soil (D) - Default  
Seismic Importance: Ie: 1.000  
Design Acceleration Parameter: Sds: 0.1280  
Design Acceleration Parameter: Sd1: 0.0960  
Seismic Design Category: B  
Seismic Snow Load: 0.00 psf  
% Snow Used in Seismic: 0.00  
Diaphragm Condition: Flexible  
Fundamental Period Height Used: 25/2/2

Transverse Direction Parameters  
System NOT detailed for Seismic  
Redundancy Factor: Rho: 1.00  
Fundamental Period: Ta: 0.3698  
R-Factor: 3.00  
Overstrength Factor: Omega: 2.50  
Deflection Amplification Factor: Cd: 3.00  
Base Shear: V: 0.0427 x W

Longitudinal Direction Parameters  
System NOT detailed for Seismic  
Redundancy Factor: Rho: 1.00  
Fundamental Period: Ta: 0.2248  
R-Factor: 3.00  
Overstrength Factor: Omega: 2.50  
Deflection Amplification Factor: Cd: 3.00  
Base Shear: V: 0.0427 x W

Snow Buildup  
Shape Surface Description  
Building - Shape 1 Roof: A Unbalanced Snow Load 1, Shifted Left : Roof: A

Building - Shape 1 Roof: A Snow Drift (from Wall 1, Shape Building - Shape 1) (1 of 3) : Roof: A

Building - Shape 1 Roof: A Snow Drift (from Wall 1, Shape Building - Shape 1) (2 of 3) : Roof: A

Building - Shape 1 Roof: A Snow Drift (from Wall 1, Shape Building - Shape 1) (3 of 3) : Roof: A

Building - Shape 1 Roof: B Unbalanced Snow Load 1, Shifted Right : Roof: B

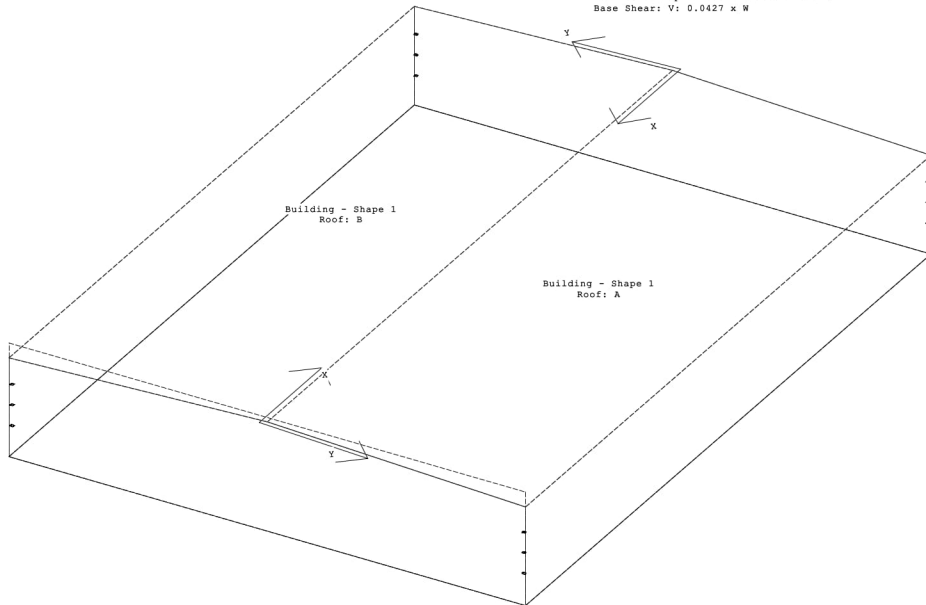
Building - Shape 1 Roof: B Snow Drift (from Wall 1, Shape Building - Shape 1) (1 of 3) : Roof: B

Building - Shape 1 Roof: B Snow Drift (from Wall 1, Shape Building - Shape 1) (2 of 3) : Roof: B

Building - Shape 1 Roof: B Snow Drift (from Wall 1, Shape Building - Shape 1) (3 of 3) : Roof: B

1. The Snow Buildup loading shown is in addition to the flat or sloped roof snow.  
2. The X and Y location dimensions are from the point of origin of each surface.

| X Location | Y Location | Magnitude |
|------------|------------|-----------|
| 0.0 ft     | 32.6 ft    | 8.4 psf   |
| 0.0 ft     | 0.0 ft     | 8.4 psf   |
| 170.0 ft   | 0.0 ft     | 8.4 psf   |
| 170.0 ft   | 32.6 ft    | 8.4 psf   |
| 0.0 ft     | 62.6 ft    | 39.0 psf  |
| 0.0 ft     | 41.7 ft    | 39.0 psf  |
| 11.4 ft    | 41.7 ft    | 0.0 psf   |
| 11.4 ft    | 62.6 ft    | 0.0 psf   |
| 0.0 ft     | 41.7 ft    | 24.6 psf  |
| 0.0 ft     | 20.9 ft    | 24.6 psf  |
| 7.4 ft     | 20.9 ft    | 0.0 psf   |
| 7.4 ft     | 41.7 ft    | 0.0 psf   |
| 0.0 ft     | 20.9 ft    | 10.2 psf  |
| 0.0 ft     | 0.0 ft     | 10.2 psf  |
| 3.4 ft     | 20.9 ft    | 0.0 psf   |
| 0.0 ft     | 32.6 ft    | 8.4 psf   |
| 0.0 ft     | 0.0 ft     | 8.4 psf   |
| 170.0 ft   | 0.0 ft     | 8.4 psf   |
| 170.0 ft   | 32.6 ft    | 8.4 psf   |
| 0.0 ft     | 10.2 ft    | 10.2 psf  |
| 170.0 ft   | 20.9 ft    | 10.2 psf  |
| 170.0 ft   | 0.0 ft     | 0.0 psf   |
| 166.6 ft   | 20.9 ft    | 0.0 psf   |
| 166.6 ft   | 0.0 ft     | 0.0 psf   |
| 170.0 ft   | 20.9 ft    | 24.6 psf  |
| 170.0 ft   | 41.7 ft    | 24.6 psf  |
| 162.6 ft   | 41.7 ft    | 0.0 psf   |
| 162.6 ft   | 20.9 ft    | 0.0 psf   |
| 170.0 ft   | 41.7 ft    | 39.0 psf  |
| 170.0 ft   | 62.6 ft    | 39.0 psf  |
| 158.6 ft   | 62.6 ft    | 0.0 psf   |
| 158.6 ft   | 41.7 ft    | 0.0 psf   |



FOR CONSTRUCTION



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|                |                      |      |   |             |
|----------------|----------------------|------|---|-------------|
| <b>D</b>       | BUTLER MANUFACTURING |      | 1540 GENESSEE ST. KANSAS CITY, MO 64102 |             |
|                | REV                  | DATE | BY                                      | DESCRIPTION |
|                |                      |      |   |             |
|                |                      |      |   |             |
| DRAWING SCALE: |                      | NTS  |   |             |

|                                 |  |                                     |  |
|---------------------------------|--|-------------------------------------|--|
| CODES AND LOADS                 |  | BUILDER: MAR BUILDING SOLUTIONS LLC |  |
| CUSTOMER:                       |  | CUSTOMER:                           |  |
| LOCATION: Lees Summit, Missouri |  | LOCATION:                           |  |
| PROJECT: KR Wholesale           |  | PROJECT:                            |  |
| BUILDER'S PDR: 200440709        |  | BUILDER'S PDR:                      |  |
|                                 |  |                                     |  |
| Butler Manufacturing            |  | JOB#: 24-025448-01                  |  |
| VPC VERSION: 24.1.1             |  | DATE: 12/13/2024                    |  |
| PAGE: 2                         |  | DRAWING CODE: SR / KEF              |  |

**BUILDER/CONTRACTOR RESPONSIBILITIES**

Butler Mfg. follows the guidelines as outlined in the AISC and MBMA Codes of Standard Practice. Butler Mfg. standard product specifications, design, fabrication, quality criteria shall govern all work unless stipulated otherwise in the contract documents. In case of discrepancies between Butler Mfg. structural plans and plans for other trades, Butler Mfg. 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 Butler Mfg drawings constitutes the builders acceptance of Butler Interpretation of the contract purchase order. Unless specific design criteria concerning interface design and details are furnished as part of the contract, Butler Mfg. design assumptions shall govern.

Butler engineers are not Project Engineers or Engineer of Record for the overall project. Butler engineering supply sealed engineering design data and drawings for Butler 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 Butler 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 Butler Mfg. "FOR CONSTRUCTION" drawings and all applicable product installation guides. Butler is not responsible for work done from any other Butler 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. Butler 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 accommodate 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**

Butler must be advised of any structure that is within 20 ft. of Butler's building. Load effects from snow drifting, wind effects, and seismic separation must be considered for both the new and existing structures. Butler has designed the new Butler 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 Butler 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 Butler 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 Butler components. Butler accepts no responsibility for design or installation of bracing systems not furnished by Butler.

**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).

**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.

**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.

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 Butler'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 Butler 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 Butler building has been provided to avoid structural damage due to differential movements, or inadvertently apply loads to the Butler structure. Butler 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 Butler of any special requirements to be furnished by Butler.

**FIELD MODIFICATIONS**

Modifications to this building from details and instructions contained on these drawings must be approved in writing by Butler Mfg. 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. Butler Mfg. accepts no responsibility for the consequences of any unauthorized additions, alterations, or added loads to this structure.

If the builder intends to invoice Butler Mfg. for modifications in excess of \$1000, the builder must notify Butler Mfg. immediately, and obtain a Work Authorization from Butler Mfg prior to proceeding. All final claims must be submitted to Butler Mfg 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 a 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 Butler Mfg, any wall to steel compatibility issues such as drift and deflection compatibility, special base details, and wall to Butler 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 Butler 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 Butler, 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 surfaces 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 sealed 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. Butler 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 Butler'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 Butler shop coat that the painting contractor verifies compatibility between his finish coat and Butler's shop coat.

**BUTLER MFG. 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;  
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 Butler Manufacturing, 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-5889-E; AZ#22225-0; AR#576; FL#30427; GA#PEF007551; ID#C-2470; IL#184-002649; KS#E-19; KY#4490; LA#EF6722; MS#E-0592; MO#E-2010007736; NC#F-0998; ND#1579PE; NJ#24GA28318800; NV#E20437; OH#05898; OK#CA4170PE; RI#8838; SC#E6206; SD#C-1787; TX#F4828; VA#0411001520; WA#0411001518; WA#4119; WV#G03059-00  
CAN-AB#P08900; NB#F0951; NL#D0044; NS#R30123; NT#P062; ON#100148796; and YT#P#134

FOR CONSTRUCTION

| <p>THE BUTLER MFG. ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF BUTLER MFG. AND DESIGN AND PERFORMANCE REQUIREMENTS SPECIFIED BY BUTLER. THE BUTLER MFG. ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY BUTLER EXCEPT TO ANY DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY BUTLER.</p> | <p>THIS DRAWING, INCLUDING THE INFORMATION HEREON, REMAINS THE PROPERTY OF BUTLER MFG. 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 BUTLER MFG.</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 BUTLER MFG. ERECTION GUIDES, AND INDUSTRY STANDARDS PERTAINING TO PROPER ERECTION, INCLUDING THE CORRECT USE OF TEMPORARY BRACING.</p> | <p><b>D</b></p> <p>BUTLER MANUFACTURING<br/>1540 GENESSEE ST. KANSAS CITY, MO 64102</p> <table border="1"> <tr> <th>REV</th> <th>DATE</th> <th>BY</th> <th>DESCRIPTION</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table> <p>DRAWING SCALE: NTS</p> | REV         | DATE | BY | DESCRIPTION |  |  |  |  |  |  |  |  |  |  |  |  | <p><b>ERECTION NOTES</b></p> <p>BUILDER: MAR BUILDING SOLUTIONS LLC</p> <p>CUSTOMER: </p> <p>LOCATION: Lees Summit, Missouri</p> <p>PROJECT: KR Wholesale</p> <p>BUILDER'S POK: 200440709</p> | <table border="1"> <tr> <td>NO#</td> <td>24-025448-01</td> </tr> <tr> <td>DATE</td> <td>12/13/2024</td> </tr> <tr> <td>DRAWN/CHECKED</td> <td>SR / KEF</td> </tr> <tr> <td>VP# VERSION#</td> <td>24.1 3</td> </tr> </table> <p>Butler Manufacturing<br/>VPC VERSION# 24.1<br/>PAGE 3</p> | NO# | 24-025448-01 | DATE | 12/13/2024 | DRAWN/CHECKED | SR / KEF | VP# VERSION# | 24.1 3 |
|---|---|---|-------------|------|----|-------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|-----|--------------|------|------------|---------------|----------|--------------|--------|
| REV   | DATE  | BY  | DESCRIPTION |      |    |             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |              |      |            |               |          |              |        |
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| NO#   | 24-025448-01  |   |             |      |    |             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |              |      |            |               |          |              |        |
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| DRAWN/CHECKED   | SR / KEF  |   |             |      |    |             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |              |      |            |               |          |              |        |
| VP# VERSION#  | 24.1 3  |   |             |      |    |             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |              |      |            |               |          |              |        |



NOTES FOR LARGE CLEAR SPAN PROJECTS (TYPICALLY 120' & GREATER):

THESE INSTRUCTIONS TYPICALLY APPLY TO FRAMES WITH CLEAR SPANS 120' OR GREATER, HOWEVER, IF A BUILDING SUPPORTS HEAVY ROOF LOADS OR LARGE BAYS, THEN SMALLER SPANS MAY BE OF CONCERN; REVIEW WITH YOUR SERVICE CENTER TO OBTAIN ANSWERS TO QUESTIONS.

LARGE CLEAR SPAN FRAMES VERTICALLY DEFLECT UNDER SELF WEIGHT AS WELL AS UNDER THE ADDITIONAL WEIGHT OF MATERIAL ATTACHING TO THE FRAMES (DEAD AND COLLATERAL LOAD).

FIVE REFERENCE ELEVATIONS ARE PROVIDED. THE FIRST ELEVATION IS THE FRAME IN ITS THEORETICAL UNLOADED POSITION (NO CAMBER OR SETTLEMENT). THE SECOND ELEVATION IS THE CAMBERED FRAME POSITION. THE THIRD ELEVATION IS THE FRAME SETTLEMENT UNDER FRAME SELF WEIGHT. THE FOURTH ELEVATION IS THE FRAME SETTLEMENT UNDER THE DEAD LOAD OF INTEGRAL MATERIAL (FRAME WEIGHT PLUS PURLINS, INSULATION, COVERING, AND LINER). THE FIFTH SCHEMATIC IS THE FRAME SETTLEMENT UNDER DEAD LOAD AND COLLATERAL LOAD.

DURING THE COURSE OF CONSTRUCTION, DIFFERENTIAL SETTLEMENTS MAY OCCUR IN RAFTER ELEVATIONS FROM FRAME LINE TO FRAME LINE, AS LONG AS ELEVATIONS EXCEED THE POSITIONS TABULATED, NO CONCERN IS NECESSARY.

IF THE ELEVATIONS DO NOT EXCEED THE TABULATED VALUES, REVIEW THE FIELD CONDITIONS WITH YOUR SERVICE CENTER TO ENSURE THE STRUCTURAL INTEGRITY OF THE BUILDING SYSTEM SUPPLIED.

MANY FIELD CONDITIONS CAN CAUSE FIELD VARIATION IN ELEVATION FROM CALCULATED VALUES. IF ALL OTHER FIELD CONDITIONS HAVE BEEN REVIEWED AND DETERMINED TO HAVE BEEN INSTALLED CORRECTLY IN ACCORDANCE WITH ERECTION DRAWINGS, THEN SHIMMING OF THE FRAME IS A VIABLE SOLUTION TO ADJUST ELEVATIONS TO A CORRECT LEVEL.

**\*SHIMS ARE TO BE PROVIDED BY THE ERECTOR.**

\*SEE BUTLER'S *WIDESPAN INSTALLATION GUIDE (3586)* - SECTION E (BOLT TIGHTENING E-4) FOR SHIMMING GUIDELINES (SKETCHES PROVIDED TO RIGHT FOR REFERENCE).

\*SHIMMING OF CONNECTIONS SHOULD BE EXPECTED TO MAINTAIN KEY DIMENSIONS SUCH AS CLEARANCE, HEIGHT, AND PLUMBNESS OF THE ERECTED BUILDING.

AS NOTED ABOVE SHIMS ARE NORMALLY PROVIDED BY THE ERECTOR, BUT MAY BE ORDERED UPON REQUEST BY CONTACTING YOUR PROJECT MANAGER.

CAMBER DL+CG IS INCLUDED ON THE FRAMES OF THIS PROJECT.

ALL DIMENSIONS ARE FROM FINISH FLOOR TO THE TOP OF THE RAFTER SPLICE PLATE AT THE RIDGE.

NEGATIVE DEFLECTIONS ARE DOWNWARD, POSITIVE DEFLECTIONS OR CAMBER ARE UPWARD.

HEIGHTS ABOVE FINISH FLOOR ARE ROUNDED TO NEAREST SIXTEENTH.

On occasion shims may be required to fill joint gaps, level beams, accommodate varying depth of members, level frame bases, adjust for differential frame deflection, etc. Some shimming must be anticipated by the erector and is considered by the Code of Standard Practice to be part of the erection contract. Shims are provided by the erector.

Shimming between gaps at flanges is accomplished with thin flat plates stacked between the joints.

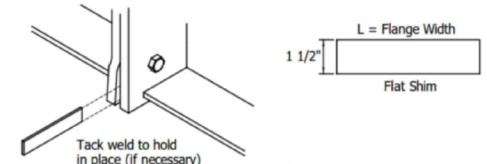


Figure E-7

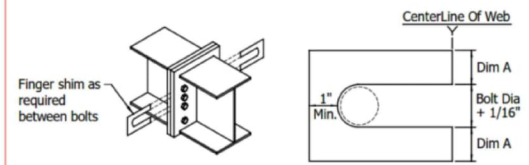
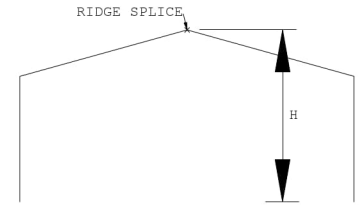


Figure E-8

- Dim A = 1". Shim dimensions may vary from those shown if required for fit up
- Multiple shims may be stacked to fill required gap.
- Gaps greater than a 1/4" require engineering review. Contact your Project Manager.

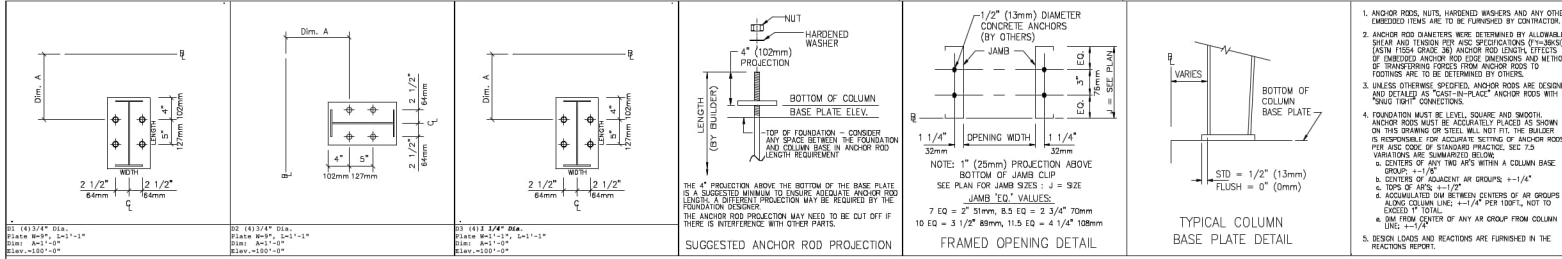
| THEORETICAL SHAPE:<br>AS MODELED |             | CAMBERED SHAPE:<br>AS FABRICATED |             | DEFLECTED SHAPE:<br>SELF WEIGHT |             | DEFLECTED SHAPE:<br>DEAD LOAD |             | DEFLECTED SHAPE:<br>DEAD + COLLATERAL LOAD |             |
|----------------------------------|-------------|----------------------------------|-------------|---------------------------------|-------------|-------------------------------|-------------|--|-------------|
| GRID                             | HO (FT) AFF | Δ (IN) FROM CAMBER               | H1 (FT) AFF | Δ (IN) FROM LOAD                | H2 (FT) AFF | Δ (IN) FROM LOAD              | H3 (FT) AFF | Δ (IN) FROM LOAD                           | H4 (FT) AFF |
| FL 2&3                           | 25'-9 3/4"  | 3.0000                           | 26'-0 3/4"  | -0.9000                         | 25'-11 7/8" | -0.9000                       | 25'-11 7/8" | -2.0000                                    | 25'-10 3/4" |
| FL 3&4                           | 25'-9 3/4"  | 3.0000                           | 26'-0 3/4"  | -0.9000                         | 25'-11 7/8" | -0.9000                       | 25'-11 7/8" | -2.0000                                    | 25'-10 3/4" |
| FL 5&6                           | 25'-9 3/4"  | 3.0000                           | 26'-0 3/4"  | -0.9000                         | 25'-11 7/8" | -0.9000                       | 25'-11 7/8" | -2.0000                                    | 25'-10 3/4" |
| FL 7                             | 25'-9 3/4"  | 3.0000                           | 26'-0 3/4"  | -0.9000                         | 25'-11 7/8" | -0.9000                       | 25'-11 7/8" | -2.0000                                    | 25'-10 3/4" |



01/09/2025

MODIFIED 11/15/2024

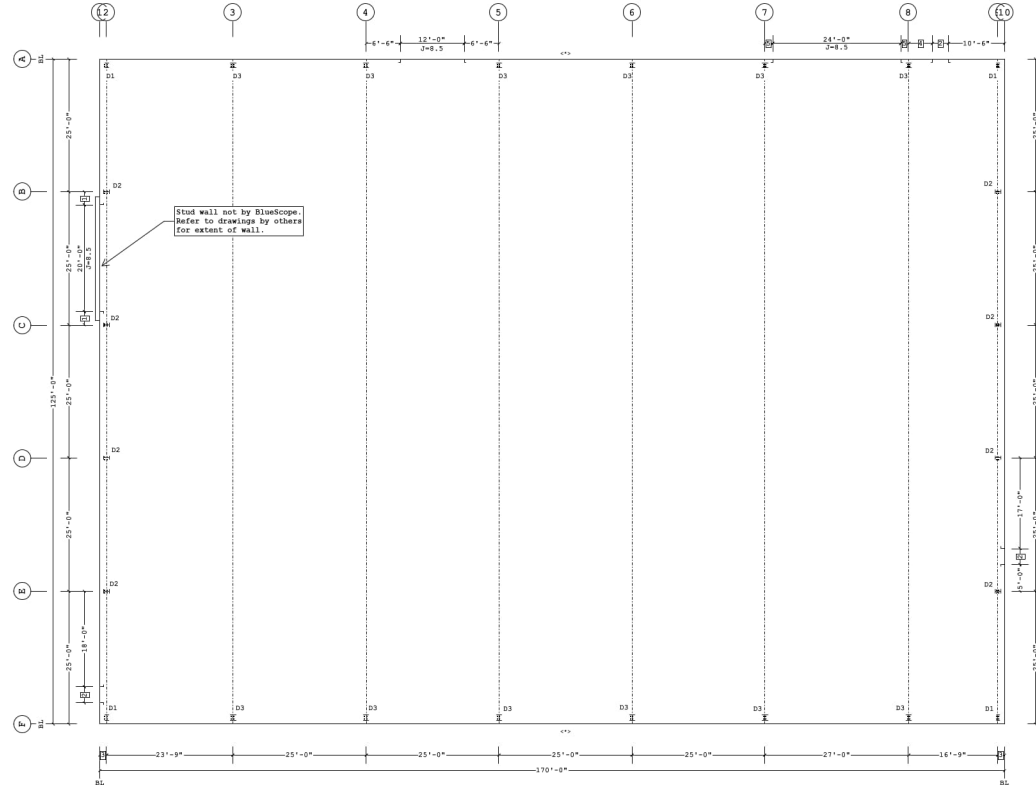
| <p>THE BUTLER MFG. ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF BUTLER MFG. AND DESIGN AND PERFORMANCE REQUIREMENTS SPECIFIED BY BUTLER. THE BUTLER MFG. ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY BUTLER EXCEPT TO ANY DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY BUTLER.</p> | <p>THIS DRAWING, INCLUDING THE INFORMATION HEREON, REMAINS THE PROPERTY OF BUTLER MFG. 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 BUTLER MFG.</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 BUTLER MFG. ERECTION GUIDES, AND INDUSTRY STANDARDS PERTAINING TO PROPER ERECTION, INCLUDING THE CORRECT USE OF TEMPORARY BRACING.</p> | <p><b>D</b></p> <table border="1"> <tr> <th>REV.</th> <th>DATE</th> <th>BY</th> <th>DESCRIPTION</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table> | REV.                  | DATE  | BY | DESCRIPTION |  |  |  |  |  |  |  |  | <p><b>BUTLER MANUFACTURING</b><br/>1540 GENESSEE ST. KANSAS CITY, MO 64102</p> | <p><b>LARGE CLEARSPAN NOTES</b></p> | <p>BUILDER: <b>MAR BUILDING SOLUTIONS LLC</b></p> <p>CUSTOMER: <b>Lee's Summit, Missouri</b></p> <p>PROJECT: <b>KR Wholesale</b></p> <p>BUILDER'S PO#: <b>200440709</b></p> | <p>JOB #: 24-020488-01</p> <p>DATE: 12-18-2024</p> <p>DRAWN/CHECKED: <b>SP / J</b></p> <p>PAGE: <b>3a</b></p> |
|---|---|---|-----------------------|---|----|-------------|--|--|--|--|--|--|--|--|--|-------------------------------------|---|---|
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| <p>FILENAME:</p>  | <p>SAVE DATE:</p>   | <p>SAVE TIME:</p>   | <p>LAST SAVED BY:</p> | <p>Butler Manufacturing</p> <p>VPIC VERSION: <b>3a</b></p> <p>© division of BlueScope Buildings North America, Inc.</p> |    |             |  |  |  |  |  |  |  |  |  |                                     |   |   |



D1 (412) 3/4" Dia.  
 Plate 8x8x7, 5x4, 1x1  
 Dist: A=1'-0"  
 Elev: +100'-0"

D2 (412) 3/4" Dia.  
 Plate 8x8x7, 5x4, 1x1  
 Dist: A=1'-0"  
 Elev: +100'-0"

D3 (412) 3/4" Dia.  
 Plate 8x11x7, 5x4, 1x1  
 Dist: A=1'-0"  
 Elev: +100'-0"



- 5 1'-6"
  - 4 4'-6"
  - 3 1'-3"
  - 2 3'-0" J=8.5
  - 1 2'-6"
- Dimension Key

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

|   |     |      |    |             |
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BUTLER MANUFACTURING  
1540 GENESSEE ST. KANSAS CITY, MO 64102

DRAWING SCALE: Scale 1:140.0

FOR CONSTRUCTION

ANCHOR ROD PLAN

|                |                            |
|----------------|----------------------------|
| BUILDER:       | MAR BUILDING SOLUTIONS LLC |
| CUSTOMER:      |                            |
| LOCATION:      | Lees Summit, Missouri      |
| PROJECT:       | KR Wholesale               |
| BUILDER'S PDR: | 200440709                  |



01/09/2025

Butler Manufacturing

VPC VERSION: 24.1

4

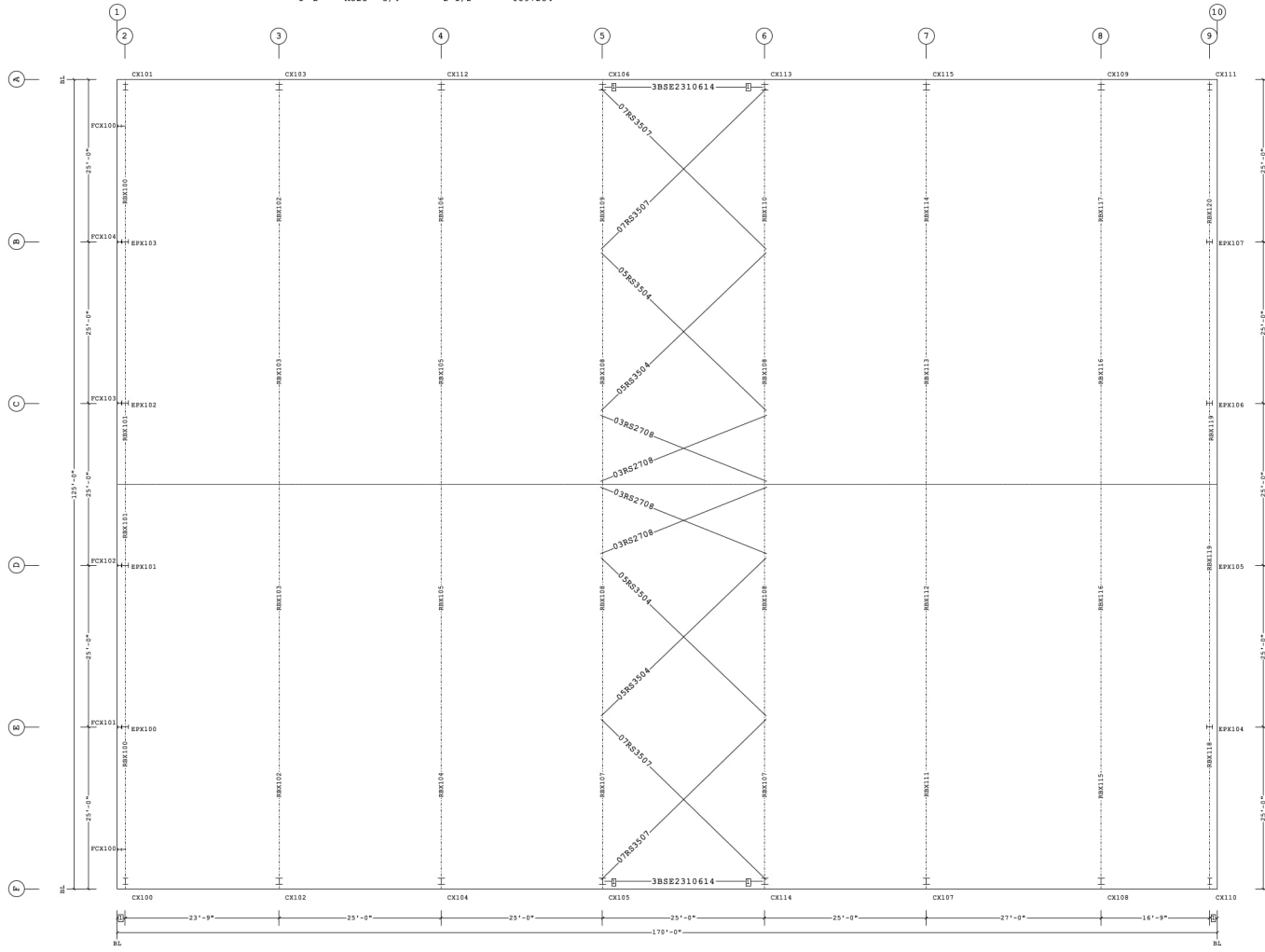
JOB #: 24-025448-01  
 DATE: 12/13/2024  
 DRAWN BY: SR / KEF  
 PAGE: 4

Bracing Part Schedule

| Part        | Qty | Length      | Detail |
|-------------|-----|-------------|--------|
| 03RS2708    | 4   | 27'-8"      | BR01G2 |
| 05RS3504    | 4   | 35'-4"      | BR01G2 |
| 07RS3507    | 4   | 35'-7"      | BR01G2 |
| 3BSB2310614 | 2   | 23'-10 3/4" | BR15L1 |

Rod, Strut, and Misc. Connection Bolts

| Id | Qty | Grade | Bolt Diam | Bolt Length | Part No |
|----|-----|-------|-----------|-------------|---------|
| 1  | 2   | A325  | 3/4"      | 2 1/2"      | 0097284 |



PRIMARY AND ROOF BRACING PLAN



1 1'-3"  
Dimension Key

- USE 1/2 X 1 1/2 A325 BOLT (4808) AND NUT (4712) W/O WASHERS. SNUG TIGHTEN BOLTS FOR ALL SECONDARY CONNECTIONS, SECONDARY CLIP CONNECTIONS, AND FLANGE BRACE CONNECTIONS, UNLESS NOTED OTHERWISE.
- SLOT REINFORCEMENT PLATES NEED NOT BE LOCATED ON THE SAME SIDE OF THE WEB AS THE HILLSIDE WASHER.

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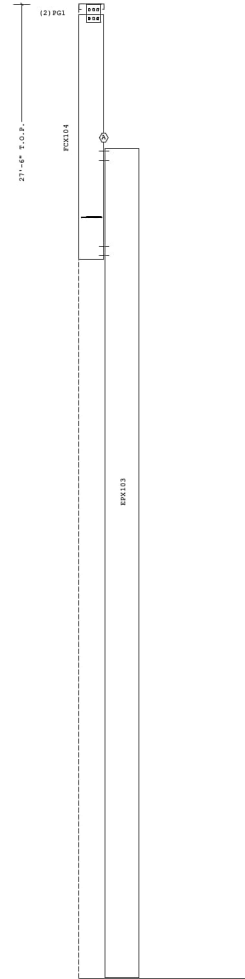
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| REV | DATE | BY | DESCRIPTION |
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|---|--|-------------------------------------|--|
| BUTLER MANUFACTURING<br>1540 GENESSEE ST. KANSAS CITY, MO 64102 |  | BUILDER: MAR BUILDING SOLUTIONS LLC |  |
| PROJECT: KR Wholesale   |  | CUSTOMER:                           |  |
| LOCATION: Lees Summit, Missouri                                 |  | DATE: 1/14/2024                     |  |
| DRAWING CHECK: LDCM / GL  |  | JOB #: 24-025448-01                 |  |
| BUILDER'S PDR: 200440709  |  | PAGE: 5                             |  |

| Frame Member Schedule |        |        |       |         |        |                |
|-----------------------|--------|--------|-------|---------|--------|----------------|
| Part                  | Mem    | Width  | Thick | WebThk. | Depth1 | Depth2         |
| FCX104                | 300015 | 0.0000 | .2500 | .1345   | 8 1/2" | 8 1/2"         |
|                       |        |        |       |         |        | Approx. Lgth   |
|                       |        |        |       |         |        | 6'-10 3/4"     |
|                       |        |        |       |         |        | Approx. Weight |
|                       |        |        |       |         |        | 90#            |

| Bolt Connection & Plate Schedule |     |       |           |             |              |          |         |        |  |
|----------------------------------|-----|-------|-----------|-------------|--------------|----------|---------|--------|--|
| id                               | Qty | Grade | Bolt Dia. | Bolt Length | Plate Thick. | Rows Out | Rows In | PartNo |  |
| A                                | 8   | A325  | 1/2"      | 1 1/2"      | -            | -        | -       | 49080  |  |



ENDPOST CROSS SECTION AT [B-1]



Shape Name = Building - Shape 1 Wall 1, Frame 1

FOR CONSTRUCTION

1. USE 1/2 X 1 1/2 A325T BOLT (49080) AND NUT (47120) W/ 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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**D** BUTLER MANUFACTURING  
1540 GENESSEE ST. KANSAS CITY, MO 64102

ENDPOST CROSS SECTION AT [B-1]

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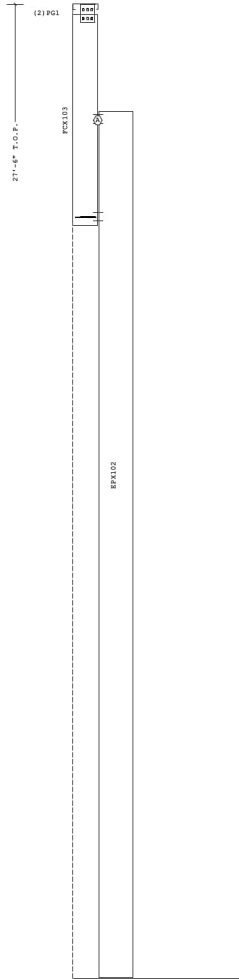
|                |                            |
|----------------|----------------------------|
| BUILDER:       | MAR BUILDING SOLUTIONS LLC |
| CUSTOMER:      |                            |
| LOCATION:      | Lees Summit, Missouri      |
| PROJECT:       | KR Wholesale               |
| BUILDER'S PDR: | 200440709                  |

|                |              |
|----------------|--------------|
| JOB #:         | 24-025448-01 |
| DATE:          | 1/14/2024    |
| DRAWING CHECK: | LDCM / GL    |
| PAGE:          | 6            |



| Frame Member Schedule |        |       |       |         |              |                |
|-----------------------|--------|-------|-------|---------|--------------|----------------|
| Part                  | Mem    | Width | Thick | WebThk. | Depth1       | Depth2         |
| FCX103                | 300015 | .0000 | .2500 | .1345   | 8 1/2"       | 8 1/2"         |
|                       |        |       |       |         | Approx. Lgth | Approx. Weight |
|                       |        |       |       |         | 5'-11 1/4"   | 79#            |

| Bolt Connection & Plate Schedule |     |       |           |             |              |          |         |        |  |
|----------------------------------|-----|-------|-----------|-------------|--------------|----------|---------|--------|--|
| id                               | Qty | Grade | Bolt Dia. | Bolt Length | Plate Thick. | Rows Out | Rows In | PartNo |  |
| A                                | 8   | A325  | 1/2"      | 1 1/2"      | -            | -        | -       | 49080  |  |



ENDPOST CROSS SECTION AT [C-1]



Shape Name = Building - Shape 1 Wall 1, Frame 2

**FOR CONSTRUCTION**

1. USE 1/2 X 1 1/2 A325T BOLT (49080) AND NUT (47120) W/0 WASHERS. SNUG TIGHTEN BOLTS FOR ALL SECONDARY CONNECTIONS, SECONDARY CLIP CONNECTIONS, AND FLANGE BRACE CONNECTIONS, UNLESS NOTED OTHERWISE  
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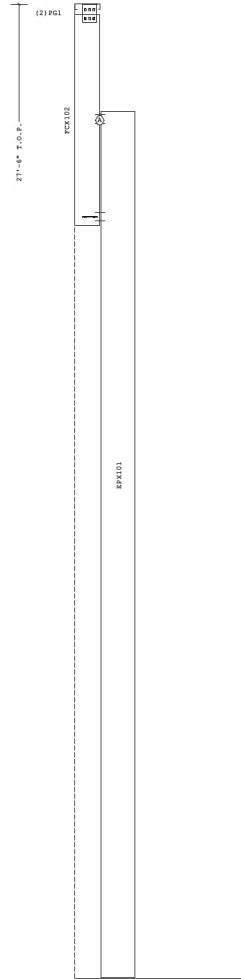
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|                                 |   |   |                                       |              |
|---------------------------------|---|---|---------------------------------------|--------------|
| <b>D</b>                        | BUTLER MANUFACTURING<br>1540 GENESSEE ST. KANSAS CITY, MO 64102 |   | <b>ENDPOST CROSS SECTION AT [C-1]</b> |              |
|                                 | REV:  | DATE:                                       | BY:                                   | DESCRIPTION: |
|                                 | BUILDER: MAR BUILDING SOLUTIONS LLC                             |   | JOB #: 24-025448-01                   |              |
|                                 | CUSTOMER:   |   | DATE: 1/14/2024                       |              |
| LOCATION: Lees Summit, Missouri |   | DRAWING CODE: LDCM / GL                     |                                       |              |
| PROJECT: KR Wholesale           |   | PAGE: 7                                     |                                       |              |
| DRAWING SCALE: NTS              |   | BUILDER'S PDR: 200440709                    |                                       |              |
|                                 |   | BUTLER MANUFACTURING<br>VPC VERSION: 24.3.1 |                                       |              |



| Frame Member Schedule |        |       |       |         |              |                |
|-----------------------|--------|-------|-------|---------|--------------|----------------|
| Part                  | Mem    | Width | Thick | WebThk. | Depth1       | Depth2         |
| FCX102                | 300015 | .0000 | .2500 | .1345   | 8 1/2"       | 8 1/2"         |
|                       |        |       |       |         | Approx. Lgth | Approx. Weight |
|                       |        |       |       |         | 5'-11 1/4"   | 744            |

| Bolt Connection & Plate Schedule |     |       |           |             |              |          |         |        |  |
|----------------------------------|-----|-------|-----------|-------------|--------------|----------|---------|--------|--|
| id                               | Qty | Grade | Bolt Dia. | Bolt Length | Plate Thick. | Rows Out | Rows In | PartNo |  |
| A                                | 8   | A325  | 1/2"      | 1 1/2"      | -            | -        | -       | 49080  |  |



ENDPOST CROSS SECTION AT [D-1]



Shape Name = Building - Shape 1 Wall 1, Frame 3

**FOR CONSTRUCTION**

1. USE 1/2 X 1 1/2 A325T BOLT (49080) AND NUT (47120) W/ 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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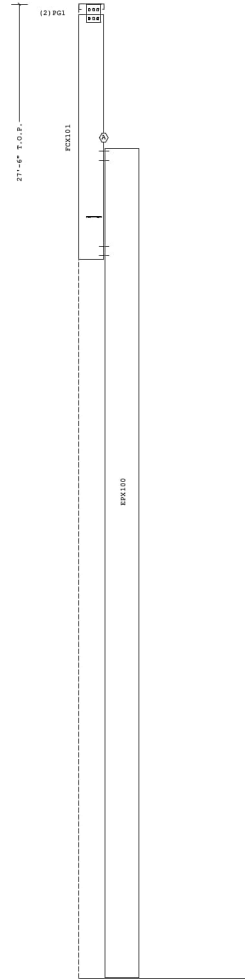
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|                                 |   |                          |                                       |              |
|---------------------------------|---|--------------------------|---------------------------------------|--------------|
| <b>D</b>                        | BUTLER MANUFACTURING<br>1540 GENESSEE ST. KANSAS CITY, MO 64102 |                          | <b>ENDPOST CROSS SECTION AT [D-1]</b> |              |
|                                 | REV:  | DATE:                    | BY:                                   | DESCRIPTION: |
|                                 | BUILDER: MAR BUILDING SOLUTIONS LLC                             |                          | JOB #: 24-025448-01                   |              |
|                                 | CUSTOMER:   |                          | DATE: 1/14/2024                       |              |
| LOCATION: Lees Summit, Missouri |   | DRAWING CODE: LDCM / GL  |                                       |              |
| PROJECT: KR Wholesale           |   | PAGE: 8                  |                                       |              |
| DRAWING SCALE: NTS              |   | BUILDER'S PDR: 200440709 |                                       |              |
|                                 |   | VPC VERSION: 24.3.1      |                                       |              |

| Frame Member Schedule |        |       |       |         |              |                |
|-----------------------|--------|-------|-------|---------|--------------|----------------|
| Part                  | Mem    | Width | Thick | WebThk. | Depth1       | Depth2         |
| FCX101                | 300015 | .0000 | .2500 | .1345   | 8 1/2"       | 8 1/2"         |
|                       |        |       |       |         | Approx. Lgth | Approx. Weight |
|                       |        |       |       |         | 6'-10 3/4"   | 86#            |

| Bolt Connection & Plate Schedule |     |       |           |             |              |          |         |        |  |
|----------------------------------|-----|-------|-----------|-------------|--------------|----------|---------|--------|--|
| id                               | Qty | Grade | Bolt Dia. | Bolt Length | Plate Thick. | Rows Out | Rows In | PartNo |  |
| A                                | 8   | A325  | 1/2"      | 1 1/2"      | -            | -        | -       | 49080  |  |



ENDPOST CROSS SECTION AT [E-1]



Shape Name = Building - Shape 1 Wall 1, Frame 4

**FOR CONSTRUCTION**

1. USE 1/2 X 1 1/2 A325T BOLT (49080) AND NUT (47120) W/ WASHERS. SNUG TIGHTEN BOLTS FOR ALL SECONDARY CONNECTIONS, SECONDARY CLIP CONNECTIONS, AND FLANGE BRACE CONNECTIONS, UNLESS NOTED OTHERWISE  
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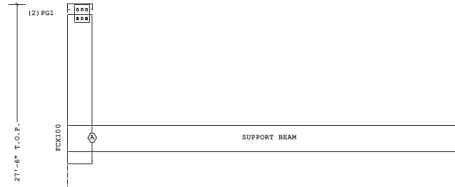
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|                                 |   |   |                                       |              |
|---------------------------------|---|---|---------------------------------------|--------------|
| <b>D</b>                        | BUTLER MANUFACTURING<br>1540 GENESSEE ST. KANSAS CITY, MO 64102 |   | <b>ENDPOST CROSS SECTION AT [E-1]</b> |              |
|                                 | REV:  | DATE:                                       | BY:                                   | DESCRIPTION: |
|                                 | BUILDER: MAR BUILDING SOLUTIONS LLC                             |   | JOB #: 24-025448-01                   |              |
|                                 | CUSTOMER:   |   | DATE: 1/14/2024                       |              |
| LOCATION: Lees Summit, Missouri |   | DRAWING CODE: LDCM / GL                     |                                       |              |
| PROJECT: KR Wholesale           |   | PAGE: 9                                     |                                       |              |
| DRAWING SCALE: NTS              |   | BUILDER'S PDR: 200440709                    |                                       |              |
|                                 |   | BUTLER MANUFACTURING<br>VPC VERSION: 24.3.1 |                                       |              |

| Frame Member Schedule |       |        |       |         |        |               |
|-----------------------|-------|--------|-------|---------|--------|---------------|
| Part                  | Mem   | Width  | Thick | WebThk. | Depth1 | Depth2        |
| FCX100                | 30001 | 6.0000 | .2500 | .1345   | 8 1/2" | 8 1/2"        |
|                       |       |        |       |         |        | Approx.Lgth   |
|                       |       |        |       |         |        | 4'-2 5/16"    |
|                       |       |        |       |         |        | Approx.Weight |
|                       |       |        |       |         |        | 90#           |

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

**ERECTION NOTE:**  
For parapet post and support beam locations refer to the Roof Secondary Plan. Support beam information is shown in the Roof Secondary Plan.



ENDPOST CROSS SECTION ON SUPPORT BEAM (SBX)  
BETWEEN A-B & E-F

Shape Name = Building - Shape 1 Wall 1, Frame 1

FOR CONSTRUCTION



1. USE 1/2 X 1 1/2 A325T BOLT (49080) AND NUT (47120) W/ WASHERS. SNUG TIGHTEN BOLTS FOR ALL SECONDARY CONNECTIONS, SECONDARY CLIP CONNECTIONS, AND FLANGE BRACE CONNECTIONS, UNLESS NOTED OTHERWISE  
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|                |                      |       |   |              |
|----------------|----------------------|-------|---|--------------|
| <b>D</b>       | BUTLER MANUFACTURING |       | 1540 GENESSEE ST. KANSAS CITY, MO 64102 |              |
|                | REV:                 | DATE: | BY:                                     | DESCRIPTION: |
|                |                      |       |   |              |
|                |                      |       |   |              |
| DRAWING SCALE: |                      | NTS   |   |              |

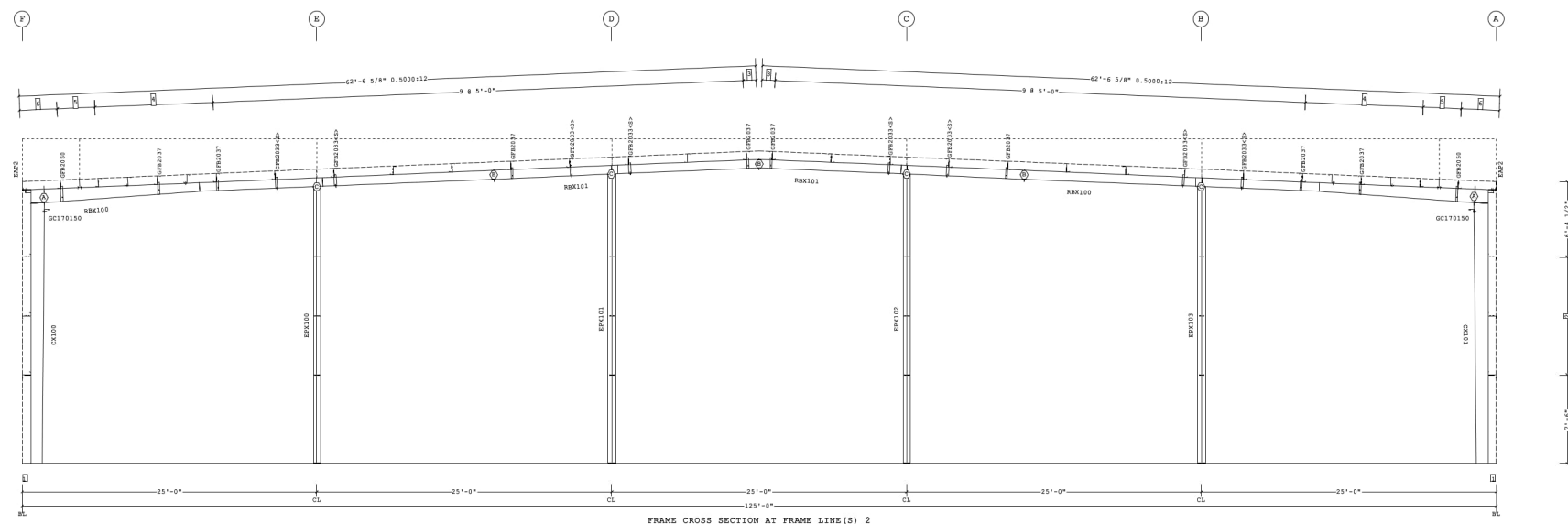
|                              |  |                                     |  |                         |
|------------------------------|--|-------------------------------------|--|-------------------------|
| ENDPOST CROSS SECTION ON SBX |  | BUILDER: MAR BUILDING SOLUTIONS LLC |  | JOB #: 24-025448-01     |
| CUSTOMER:                    |  | LOCATION: Lees Summit, Missouri     |  | DATE: 1/14/2024         |
| PROJECT: KR Wholesale        |  | BUILDER'S PDR: 200440709            |  | DRAWING CODE: LDCM / GL |
| BUTLER MANUFACTURING         |  | VPC VERSION: 24.3.1                 |  | PAGE: 10                |

| Part   | Mem | Width  | Thick | WebThk. | Depth1 | Depth2 | Approx. Lgth | Approx. Weight | Detail |
|--------|-----|--------|-------|---------|--------|--------|--------------|----------------|--------|
| CX100  | 1   | 8.0000 | .2500 | .1345   | 1'-0"  | 1'-2"  | 23'-2 7/8"   | 491#           |        |
| RBX100 | 2   | 5.0000 | .2500 | .1345   | 1'-2"  | 9"     | 38'-2 1/4"   | 518#           |        |
|        | 3   | 5.0000 | .2500 | .1345   | 9"     | 9"     |              |                |        |
|        | 4   | 5.0000 | .2500 | .1345   | 9"     | 9"     |              |                |        |
| RBX101 | 5-6 | 5.0000 | .2500 | .1345   | 9"     | 9"     | 22'-6 5/16"  | 301#           |        |
| RBX101 | 7-8 | 5.0000 | .2500 | .1345   | 9"     | 9"     | 22'-6 5/16"  | 301#           |        |
| RBX100 | 9   | 5.0000 | .2500 | .1345   | 9"     | 9"     | 38'-2 1/4"   | 518#           |        |
|        | 10  | 5.0000 | .2500 | .1345   | 9"     | 9"     |              |                |        |
|        | 11  | 5.0000 | .2500 | .1345   | 1'-2"  | 9"     |              |                |        |
| CX101  | 12  | 8.0000 | .2500 | .1345   | 1'-0"  | 1'-2"  | 23'-2 7/8"   | 491#           | BR25CA |
| EPX100 | 13  | 8.0000 | .2500 | .1345   | 1'-0"  | 1'-0"  | 23'-5 5/8"   | 470#           | BR25CA |
| EPX101 | 14  | 8.0000 | .2500 | .1345   | 1'-0"  | 1'-0"  | 24'-6 1/8"   | 489#           | BR25CA |
| EPX102 | 15  | 8.0000 | .2500 | .1345   | 1'-0"  | 1'-0"  | 24'-6 1/8"   | 489#           | BR25CA |
| EPX103 | 16  | 8.0000 | .2500 | .1345   | 1'-0"  | 1'-0"  | 23'-5 5/8"   | 470#           | BR25CA |

| Id | Qty | Grade | Bolt | Bolt   | Plate  | Rows | Rows | PartNo  |
|----|-----|-------|------|--------|--------|------|------|---------|
|    |     |       | Di.  | Length | Thick. | Out  | In   |         |
| A  | 10  | A325  | 3/4" | 2 1/2" | 3/8"   | 3    | 2    | 0097284 |
| B  | 6   | A325  | 3/4" | 2 1/2" | 3/8"   | 1    | 2    | 0097284 |
| C  | 4   | A325  | 1/2" | 1 1/2" | 3/8"   | 1    | 3    | 49080   |

<S> - (2) Washers (095872) req'd at Flange Brace to Secondary.

Frame Clearances  
 Horiz. Clearance between members 1(CX100) and 12(CX101): 121'-2 13/16"  
 Vert. Clearance at member 1(CX100): 21'-10 7/16"  
 Horiz. Clearance at member 12(CX101): 21'-10 7/16"  
 Vert. Clearance at member 13(EPX100): 23'-5 1/2"  
 Horiz. Clearance at member 13(EPX100): 23'-5 1/2"  
 Vert. Clearance at member 14(EPX101): 24'-6"  
 Horiz. Clearance at member 14(EPX101): 24'-6"  
 Vert. Clearance at member 15(EPX102): 24'-6"  
 Horiz. Clearance at member 15(EPX102): 24'-6"  
 Vert. Clearance at member 16(EPX103): 23'-5 1/2"  
 Horiz. Clearance at member 16(EPX103): 23'-5 1/2"  
 Finished Floor Elevation = 100'-0" (Unless Noted Otherwise)



- 7 26'-5 3/4" Ridge Ht.
  - 6 3'-2 5/8"
  - 5 2 @ 11'-7 5/16"
  - 4 4 @ 2'-6"
  - 3 1'-1 3/8"
  - 2 2 @ 5'-0"
  - 1 8 1/2"
- Dimension Key

1. USE 1/2 X 1 1/2 A325 BOLT (49080) AND NUT (47120) TWO 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 |
|     |      |    |             |

D BUTLER MANUFACTURING  
1540 GENESSEE ST. KANSAS CITY, MO 64102

|                  |                            |   |              |
|------------------|----------------------------|---|--------------|
| FOR CONSTRUCTION |                            | FRAME CROSS SECTION AT FRAME LINE(S) 2              |              |
| BUILDER:         | MAR BUILDING SOLUTIONS LLC | DATE:   | 24-025448-01 |
| CUSTOMER:        |                            | DATE:   | 1/14/2024    |
| LOCATION:        | Lees Summit, Missouri      | DRAWING:  | LDCM / GL    |
| PROJECT:         | KR Wholesale               | PAGE:   | 11           |
| BUILDER'S PO#:   | 200440709                  | BUTLER<br>Butler Manufacturing<br>VPC VERSION: 24.1 |              |

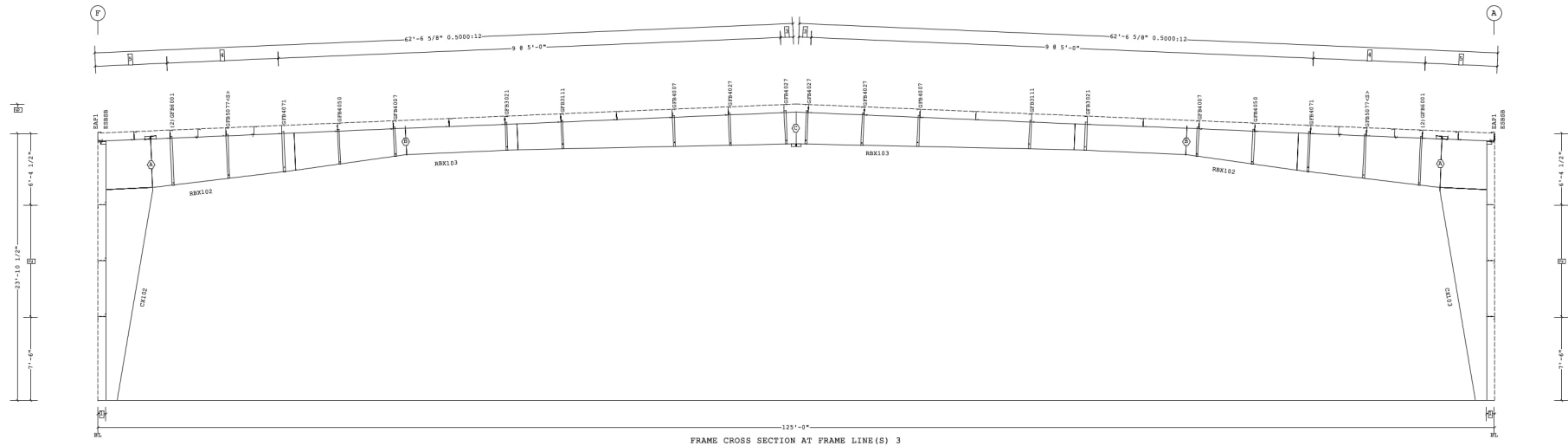


| Part   | Mem | Width   | Thick | WebThk | Depth1 | Depth2 | Approx. Lgth | Approx. Weight |
|--------|-----|---------|-------|--------|--------|--------|--------------|----------------|
| CX102  | 1   | 12.0000 | .5000 | .2500  | 1'-0"  | 4'-2"  | 23'-4 5/16"  | 1856#          |
| RBX102 | 2   | 6.0000  | .6250 | .3125  | 4'-4"  | 3'-4"  | 22'-10 3/16" | 1445#          |
|        | 3   | 6.0000  | .5000 | .1875  | 3'-4"  | 2'-4"  |              |                |
| RBX103 | 4   | 6.0000  | .3750 | .1644  | 2'-4"  | 2'-4"  | 35'-0"       | 1479#          |
|        | 5   | 6.0000  | .6250 | .1875  | 2'-4"  | 2'-10" |              |                |
| RBX103 | 6   | 6.0000  | .6250 | .1875  | 2'-4"  | 2'-10" | 35'-0"       | 1479#          |
|        | 7   | 6.0000  | .3750 | .1644  | 2'-4"  | 2'-4"  |              |                |
| RBX102 | 8   | 6.0000  | .5000 | .1875  | 3'-4"  | 2'-4"  | 22'-10 3/16" | 1445#          |
|        | 9   | 6.0000  | .6250 | .3125  | 4'-4"  | 3'-4"  |              |                |
| CX103  | 10  | 12.0000 | .5000 | .2500  | 1'-0"  | 4'-2"  | 23'-4 5/16"  | 1856#          |

| Bolt Connection & Plate Schedule |     |       |      |        |        |      |      |         |  |
|----------------------------------|-----|-------|------|--------|--------|------|------|---------|--|
| Id                               | Qty | Grade | Bolt | Bolt   | Plate  | Rows | Rows | PartNo  |  |
|                                  |     |       | Di.  | Length | Thick. | Out  | In   |         |  |
| A                                | 12  | A325  | 1"   | 3 1/2" | 5/8"   | 4    | 2    | 0097288 |  |
| B                                | 8   | A325  | 3/4" | 2 1/2" | 1/2"   | 2    | 2    | 0097284 |  |
| C                                | 12  | A325  | 3/4" | 2 1/2" | 1/2"   | 2    | 4    | 0097284 |  |

<S> - (2) Washers (095872) req'd at Flange Brace to Secondary.

Frame Clearances  
 Horiz. Clearance between members 1(CX102) and 10(CX103): 115'-2 3/4"  
 Vert. Clearance at member 1(CX102): 18'-9 1/4"  
 Vert. Clearance at member 10(CX103): 18'-9 1/4"  
 Finished Floor Elevation = 100'-0" (Unless Noted Otherwise)



- 6 26'-5 3/4" Ridge Ht.
  - 5 2 @ 3'-2 5/8"
  - 4 4 @ 2'-6"
  - 3 1'-1 3/8"
  - 2 2 @ 5'-0"
  - 1 8 1/2"
- Dimension Key

1. USE 1/2 X 1 1/2 A325 BOLT (49080) AND NUT (47120) W/ WASHERS. SNUG TIGHTEN BOLTS FOR ALL SECONDARY CONNECTIONS, SECONDARY CLIP CONNECTIONS, AND FLANGE BRACE CONNECTIONS, UNLESS NOTED OTHERWISE.  
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|   |      |    |             |
|---|------|----|-------------|
| <b>D</b>  |      |    |             |
| BUTLER MANUFACTURING<br>1540 GENESSEE ST. KANSAS CITY, MO 64102 |      |    |             |
| REV   | DATE | BY | DESCRIPTION |
|   |      |    |             |
| DRAWING SCALE: NTS  |      |    |             |

|                  |                            |  |              |
|------------------|----------------------------|--|--------------|
| FOR CONSTRUCTION |                            | FRAME CROSS SECTION AT FRAME LINE(S) 3 |              |
| BUILDER:         | MAR BUILDING SOLUTIONS LLC | JOB#:                                  | 24-025448-01 |
| CUSTOMER:        |                            | DATE:                                  | 1/14/2024    |
| LOCATION:        | Lee's Summit, Missouri     | DRAWING CHECK:                         | LDCM / GL    |
| PROJECT:         | KR Wholesale               | PAGE:                                  | 12           |
| BUILDER'S PDR:   | 200440709                  | VPC VERSION:                           | 24.3.1       |

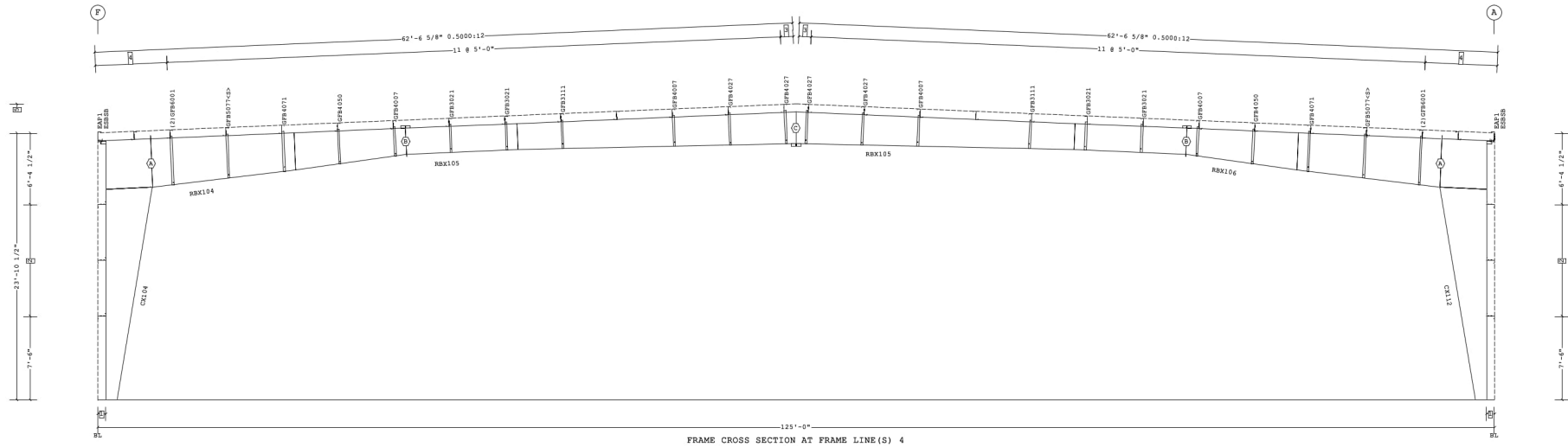


| Part   | Mem | Width   | Thick | WebThk | Depth1 | Depth2 | Approx. Lgth | Approx. Weight |
|--------|-----|---------|-------|--------|--------|--------|--------------|----------------|
| CX104  | 1   | 12.0000 | .5000 | .2500  | 1'-0"  | 4'-2"  | 23'-4 5/16"  | 1873#          |
| RBX104 | 2   | 6.0000  | .6250 | .3125  | 4'-4"  | 3'-4"  | 22'-10 1/16" | 1471#          |
|        | 3   | 6.0000  | .5000 | .1875  | 3'-4"  | 2'-4"  |              |                |
| RBX105 | 4   | 6.0000  | .3750 | .1644  | 2'-4"  | 2'-4"  | 35'-0"       | 1475#          |
|        | 5   | 6.0000  | .6250 | .1875  | 2'-4"  | 2'-10" |              |                |
| RBX105 | 6   | 6.0000  | .6250 | .1875  | 2'-4"  | 2'-10" | 35'-0"       | 1475#          |
|        | 7   | 6.0000  | .3750 | .1644  | 2'-4"  | 2'-4"  |              |                |
| RBX106 | 8   | 6.0000  | .5000 | .1875  | 3'-4"  | 2'-4"  | 22'-10 1/16" | 1471#          |
|        | 9   | 6.0000  | .6250 | .3125  | 4'-4"  | 3'-4"  |              |                |
| CX112  | 10  | 12.0000 | .5000 | .2500  | 1'-0"  | 4'-2"  | 23'-4 5/16"  | 1873#          |

| Bolt Connection & Plate Schedule |     |       |           |             |              |          |         |         |  |
|----------------------------------|-----|-------|-----------|-------------|--------------|----------|---------|---------|--|
| Id                               | Qty | Grade | Bolt Dia. | Bolt Length | Plate Thick. | Rows Out | Rows In | PartNo  |  |
| A                                | 10  | A325  | 1 1/8"    | 4"          | 3/4"         | 4        | 1       | 0097289 |  |
| B                                | 12  | A325  | 3/4"      | 2 1/2"      | 3/8"         | 4        | 2       | 0097284 |  |
| C                                | 12  | A325  | 3/4"      | 2 1/2"      | 1/2"         | 2        | 4       | 0097284 |  |

<S> - (2) Washers (095872) req'd at Flange Brace to Secondary.

Frame Clearances  
 Horiz. Clearance between members 1(CX104) and 10(CX112): 115'-2 15/16"  
 Vert. Clearance at member 1(CX104): 18'-11 7/8"  
 Vert. Clearance at member 10(CX112): 18'-11 7/8"  
 Finished Floor Elevation = 100'-0" (Unless Noted Otherwise)



- 5 26'-5 3/4" Ridge Ht.
  - 4 2 @ 3'-2 5/8"
  - 3 1'-1 3/8"
  - 2 2 @ 5'-0"
  - 1 8 1/2"
- Dimension Key

1. USE 1/2 X 1 1/2 A325 BOLT (49080) AND NUT (47120) W/ 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.


THE BUTLER MFG. ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF BUTLER MFG. AND DESIGN AND PERFORMANCE REQUIREMENTS SPECIFIED BY BUTLER. THE BUTLER MFG. ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY BUTLER EXCEPT TO ANY DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY BUTLER.

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Shape Name = Building - Shape 1 Wall 4, Frame 3

FOR CONSTRUCTION

| D BUTLER MANUFACTURING<br>1540 GENESSEE ST. KANSAS CITY, MO 64102 |      |    |             | FRAME CROSS SECTION AT FRAME LINE(S) 4  |                            |  |  |
|---|------|----|-------------|---|----------------------------|--|--|
| REV   | DATE | BY | DESCRIPTION | BUILDER:  | MAR BUILDING SOLUTIONS LLC |  |  |
|   |      |    |             | CUSTOMER:   |                            |  |  |
|   |      |    |             | LOCATION:   | Lees Summit, Missouri      |  |  |
|   |      |    |             | PROJECT:  | KR Wholesale               |  |  |
|   |      |    |             | BUILDER'S PDR:  | 200440709                  |  |  |
| DRAWING SCALE: NTS  |      |    |             | <br>BUTLER Manufacturing<br>VPC VERSION: 24.3.1 13 |                            |  |  |



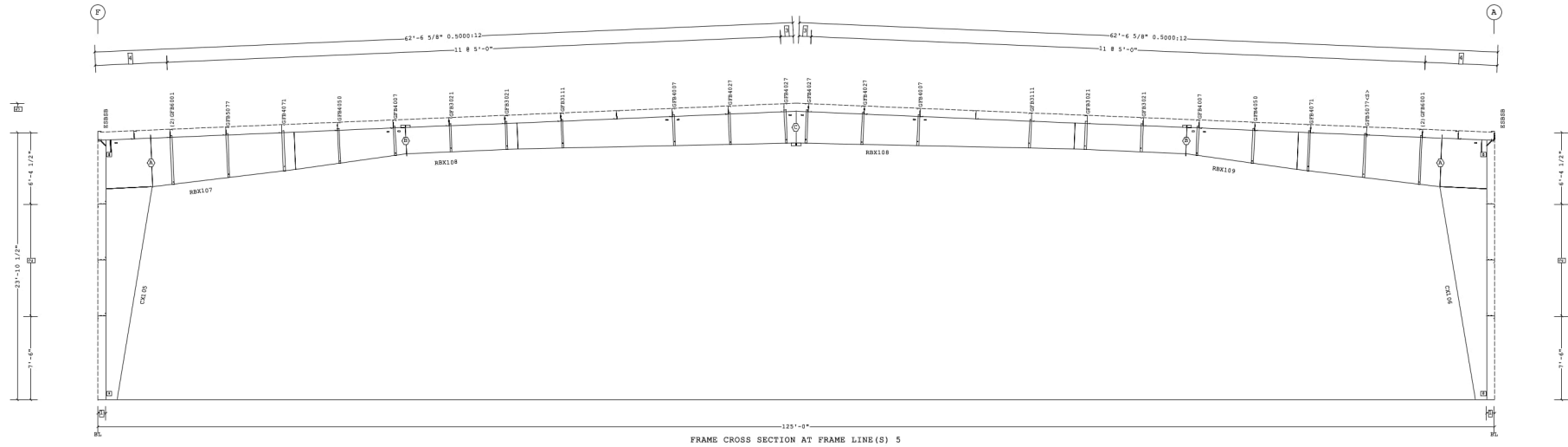
01/09/2025

| Part   | Mem | Width   | Thick | WebThk. | Depth1 | Depth2 | Approx. Lgth | Approx. Weight |
|--------|-----|---------|-------|---------|--------|--------|--------------|----------------|
| CX105  | 1   | 12.0000 | .5000 | .2500   | 1'-0"  | 4'-2"  | 23'-4 5/16"  | 1881#          |
| RBX107 | 2   | 6.0000  | .6250 | .3125   | 4'-4"  | 3'-4"  | 22'-10 1/16" | 1471#          |
|        | 3   | 6.0000  | .5000 | .1875   | 3'-4"  | 2'-4"  |              |                |
| RBX108 | 4   | 6.0000  | .3750 | .1644   | 2'-4"  | 2'-4"  | 35'-0"       | 1475#          |
|        | 5   | 6.0000  | .6250 | .1875   | 2'-4"  | 2'-10" |              |                |
| RBX108 | 6   | 6.0000  | .6250 | .1875   | 2'-4"  | 2'-10" | 35'-0"       | 1475#          |
|        | 7   | 6.0000  | .3750 | .1644   | 2'-4"  | 2'-4"  |              |                |
| RBX109 | 8   | 6.0000  | .5000 | .1875   | 3'-4"  | 2'-4"  | 22'-10 1/16" | 1470#          |
|        | 9   | 6.0000  | .6250 | .3125   | 4'-4"  | 3'-4"  |              |                |
| CX106  | 10  | 12.0000 | .5000 | .2500   | 1'-0"  | 4'-2"  | 23'-4 5/16"  | 1881#          |

| Bolt Connection & Plate Schedule |     |       |        |        |        |      |      |         |  |
|----------------------------------|-----|-------|--------|--------|--------|------|------|---------|--|
| Id                               | Qty | Grade | Bolt   | Bolt   | Plate  | Rows | Rows | PartNo  |  |
|                                  |     |       | Di.    | Length | Thick. | Out  | In   |         |  |
| A                                | 10  | A325  | 1 1/8" | 4"     | 3/4"   | 4    | 1    | 0097289 |  |
| B                                | 12  | A325  | 3/4"   | 2 1/2" | 3/8"   | 4    | 2    | 0097284 |  |
| C                                | 12  | A325  | 3/4"   | 2 1/2" | 1/2"   | 2    | 4    | 0097284 |  |

<S> - (2) Washers (095872) req'd at Flange Brace to Secondary.

Frame Clearances  
 Horiz. Clearance between members 1(CX105) and 10(CX106): 115'-2 15/16"  
 Vert. Clearance at member 1(CX105): 18'-11 7/8"  
 Vert. Clearance at member 10(CX106): 18'-11 7/8"  
 Finished Floor Elevation = 100'-0" (Unless Noted Otherwise)



- 5 26'-5 3/4" Ridge Ht.
  - 4 2 @ 3'-2 5/8"
  - 3 1'-1 3/8"
  - 2 2 @ 5'-0"
  - 1 8 1/2"
- Dimension Key

1. USE 1/2 X 1 1/2 A325 BOLT (49080) AND NUT (47120) W/ 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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Shape Name = Building - Shape 1 Wall 4, Frame 4

FOR CONSTRUCTION

| REV | DATE | BY | DESCRIPTION | BUILDER                    | CUSTOMER               | PROJECT      | BUILDER'S POK |
|-----|------|----|-------------|----------------------------|------------------------|--------------|---------------|
| D   |      |    |             | MAR BUILDING SOLUTIONS LLC | Lee's Summit, Missouri | KR Wholesale | 200440709     |

DRAWING SCALE: NTS

FRAME CROSS SECTION AT FRAME LINE(S) 5



01/09/2025

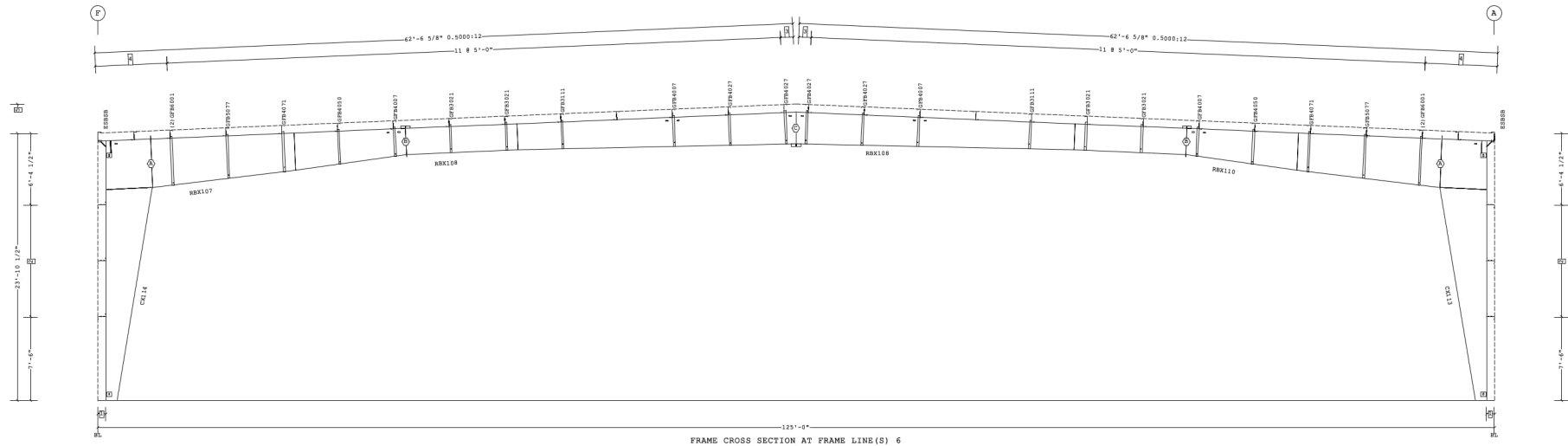


Job #: 24-025448-01  
 DATE: 1/14/2024  
 DRAWING CHECKED: LDCM / GL  
 PAGE: 14  
 VPC VERSION: 24.3.1

| Part   | Mem | Width   | Thick | WebThk. | Depth1 | Depth2 | Approx. Lgth | Approx. Weight |
|--------|-----|---------|-------|---------|--------|--------|--------------|----------------|
| CX114  | 1   | 12.0000 | .5000 | .2500   | 1'-0"  | 4'-2"  | 23'-4 5/16"  | 1881#          |
| RBX107 | 2   | 6.0000  | .6250 | .3125   | 4'-4"  | 3'-4"  | 22'-10 1/16" | 1471#          |
|        | 3   | 6.0000  | .5000 | .1875   | 3'-4"  | 2'-4"  |              |                |
| RBX108 | 4   | 6.0000  | .3750 | .1644   | 2'-4"  | 2'-4"  | 35'-0"       | 1475#          |
|        | 5   | 6.0000  | .6250 | .1875   | 2'-4"  | 2'-10" |              |                |
| RBX108 | 6   | 6.0000  | .6250 | .1875   | 2'-4"  | 2'-10" | 35'-0"       | 1475#          |
|        | 7   | 6.0000  | .3750 | .1644   | 2'-4"  | 2'-4"  |              |                |
| RBX110 | 8   | 6.0000  | .5000 | .1875   | 3'-4"  | 2'-4"  | 22'-10 1/16" | 1471#          |
|        | 9   | 6.0000  | .6250 | .3125   | 4'-4"  | 3'-4"  |              |                |
| CX113  | 10  | 12.0000 | .5000 | .2500   | 1'-0"  | 4'-2"  | 23'-4 5/16"  | 1881#          |

| Bolt Connection & Plate Schedule |     |       |        |        |        |      |      |
|----------------------------------|-----|-------|--------|--------|--------|------|------|
| Id                               | Qty | Grade | Bolt   | Bolt   | Plate  | Rows | Rows |
|                                  |     |       | Di.    | Length | Thick. | Out  | In   |
| A                                | 10  | A325  | 1 1/8" | 4"     | 3/4"   | 4    | 1    |
| B                                | 12  | A325  | 3/4"   | 2 1/2" | 3/8"   | 4    | 2    |
| C                                | 12  | A325  | 3/4"   | 2 1/2" | 1/2"   | 2    | 4    |

Frame Clearances  
 Horiz. Clearance between members 1(CX114) and 10(CX113): 115'-2 15/16"  
 Vert. Clearance at member 1(CX114): 18'-11 7/8"  
 Vert. Clearance at member 10(CX113): 18'-11 7/8"  
 Finished Floor Elevation = 100'-0" (Unless Noted Otherwise)



- 5 26'-5 3/4" Ridge Ht.
- 4 2 @ 3'-2 5/8"
- 3 1'-1 3/8"
- 2 2 @ 5'-0"
- 1 8 1/2"

Dimension Key

1. USE 1/2 X 1 1/2 A325 BOLT (49080) AND NUT (47120) W/ 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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Shape Name = Building - Shape 1 Wall 4, Frame 5

FOR CONSTRUCTION

|                    |      |    |             |                |                            |                                 |
|--------------------|------|----|-------------|----------------|----------------------------|---------------------------------|
| REV                | DATE | BY | DESCRIPTION | BUILDER:       | MAR BUILDING SOLUTIONS LLC | JOB #<br>24-025448-01           |
|                    |      |    |             | CUSTOMER:      |                            |                                 |
| DRAWING SCALE: NTS |      |    |             | PROJECT:       | KR Wholesale               | DRAWING CHECKED<br>LDCM / GL    |
|                    |      |    |             | BUILDER'S POK: | 200440709                  | VPC VERSION: 24.3.1<br>PAGE: 15 |



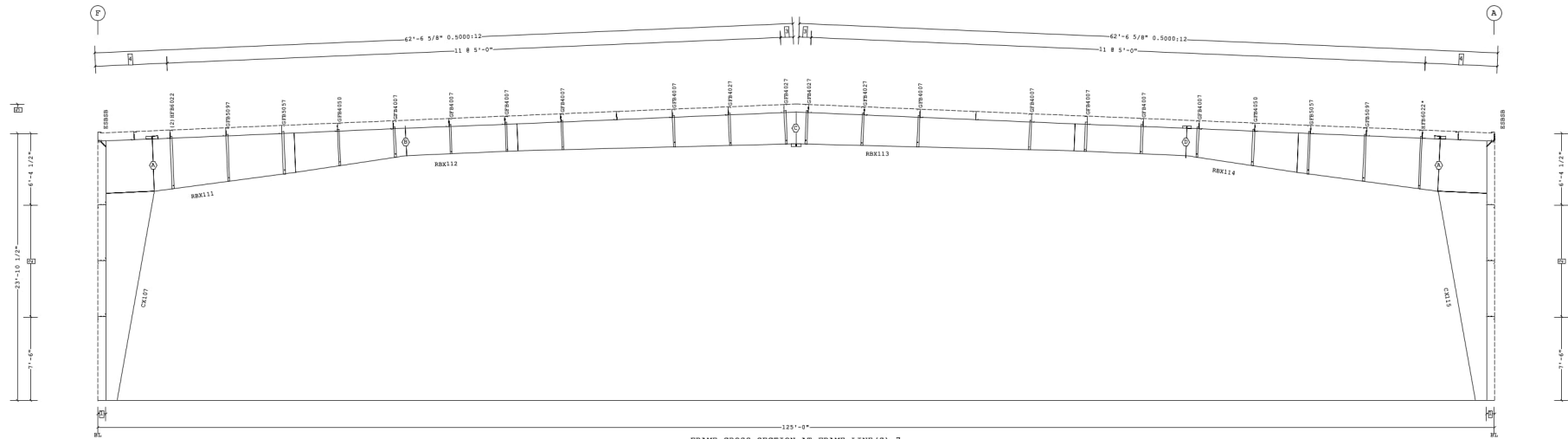
01/09/2025



| Part   | Mem | Width   | Thick | WebThk | Depth1 | Depth2 | Approx. Lgth | Approx. Weight |
|--------|-----|---------|-------|--------|--------|--------|--------------|----------------|
| CX107  | 1   | 12.0000 | .5000 | .2500  | 1'-0"  | 4'-4"  | 23'-4 3/8"   | 1888#          |
| RBX111 | 2   | 6.0000  | .6250 | .3125  | 4'-8"  | 3'-6"  | 22'-8 5/16"  | 1486#          |
|        | 3   | 6.0000  | .5000 | .1875  | 3'-6"  | 2'-5"  |              |                |
| RBX112 | 4   | 6.0000  | .3750 | .1644  | 2'-5"  | 2'-5"  | 35'-0"       | 1494#          |
|        | 5   | 6.0000  | .6250 | .1875  | 2'-5"  | 2'-10" |              |                |
| RBX113 | 6   | 6.0000  | .6250 | .1875  | 2'-5"  | 2'-10" | 35'-0"       | 1489#          |
|        | 7   | 6.0000  | .3750 | .1644  | 2'-5"  | 2'-5"  |              |                |
| RBX114 | 8   | 6.0000  | .5000 | .1875  | 3'-6"  | 2'-5"  | 22'-8 5/16"  | 1482#          |
|        | 9   | 6.0000  | .6250 | .3125  | 4'-8"  | 3'-6"  |              |                |
| CX115  | 10  | 12.0000 | .5000 | .2500  | 1'-0"  | 4'-4"  | 23'-4 3/8"   | 1888#          |

| Bolt Connection & Plate Schedule |     |       |           |             |             |          |         |         |  |
|----------------------------------|-----|-------|-----------|-------------|-------------|----------|---------|---------|--|
| Id                               | Qty | Grade | Bolt Dia. | Bolt Length | Plate Thck. | Rows Out | Rows In | PartNo  |  |
| A                                | 12  | A325  | 1"        | 3 1/2"      | 5/8"        | 4        | 2       | 0097288 |  |
| B                                | 8   | A325  | 3/4"      | 2 1/2"      | 1/2"        | 2        | 2       | 0097284 |  |
| C                                | 12  | A325  | 3/4"      | 2 1/2"      | 1/2"        | 2        | 4       | 0097284 |  |
| D                                | 12  | A325  | 3/4"      | 2 1/2"      | 3/8"        | 4        | 2       | 0097284 |  |

Frame Clearances  
 Horiz. Clearance between members 1(CX107) and 10(CX115): 114'-10 15/16"  
 Vert. Clearance at member 1(CX107): 18'-7 15/16"  
 Vert. Clearance at member 10(CX115): 18'-7 15/16"  
 Finished Floor Elevation = 100'-0" (Unless Noted Otherwise)



FRAME CROSS SECTION AT FRAME LINE(S) 7  
 GFB or HFB market with \* must be installed at the opposite side of the frame.

- 5 26'-5 3/4" Ridge Ht.
- 4 2 @ 3'-2 5/8"
- 3 1'-1 3/8"
- 2 2 @ 5'-0"
- 1 8 1/2"

Dimension Key

1. USE 1/2 X 1 1/2 A325 BOLT (49080) AND NUT (47120) W/ 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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Shape Name = Building - Shape 1 Wall 4, Frame 6

|                    |      |    |             |                |                            |                             |
|--------------------|------|----|-------------|----------------|----------------------------|-----------------------------|
| REV                | DATE | BY | DESCRIPTION | BUILDER:       | MAR BUILDING SOLUTIONS LLC | JOB#:<br>24-025448-01       |
|                    |      |    |             | CUSTOMER:      |                            |                             |
| DRAWING SCALE: NTS |      |    |             | PROJECT:       | KR Wholesale               | DRAWING CHECK:<br>LDCM / GL |
|                    |      |    |             | BUILDER'S PDR: | 200440709                  | PAGE:<br>16                 |

FOR CONSTRUCTION

FRAME CROSS SECTION AT FRAME LINE(S) 7

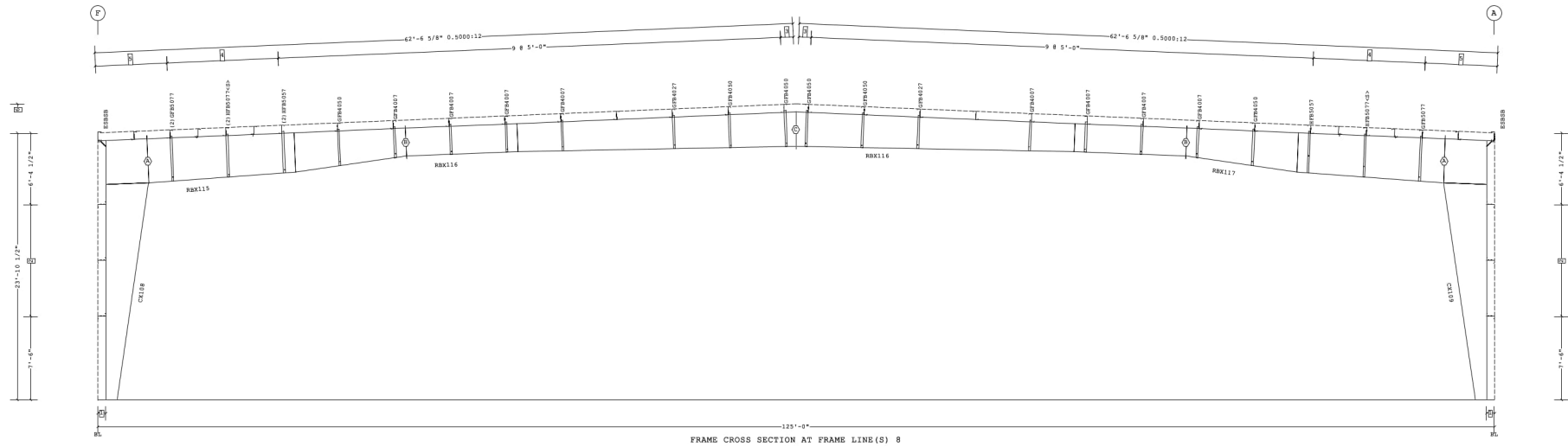


| Part   | Mem | Width   | Thick | WebThk | Depth1 | Depth2 | Approx. Lgth | Approx. Weight |
|--------|-----|---------|-------|--------|--------|--------|--------------|----------------|
| CX108  | 1   | 12.0000 | .5000 | .3125  | 1'-0"  | 3'-10" | 23'-4 1/8"   | 1955#          |
| RBX115 | 2   | 6.0000  | .6250 | .3125  | 3'-11" | 3'-6"  | 23'-1 7/8"   | 1429#          |
| RBX116 | 4   | 6.0000  | .3750 | .1875  | 3'-6"  | 2'-6"  | 35'-0"       | 1380#          |
| RBX116 | 5   | 6.0000  | .5000 | .1875  | 2'-6"  | 3'-1"  | 35'-0"       | 1380#          |
| RBX116 | 6   | 6.0000  | .5000 | .1875  | 2'-6"  | 3'-1"  | 35'-0"       | 1380#          |
| RBX117 | 7   | 6.0000  | .3125 | .1644  | 2'-6"  | 2'-6"  | 23'-1 7/8"   | 1429#          |
| RBX117 | 8   | 6.0000  | .3750 | .1875  | 3'-6"  | 2'-6"  | 23'-1 7/8"   | 1429#          |
| RBX117 | 9   | 6.0000  | .6250 | .3125  | 3'-11" | 3'-6"  | 23'-1 7/8"   | 1429#          |
| CX109  | 10  | 12.0000 | .5000 | .3125  | 1'-0"  | 3'-10" | 23'-4 1/8"   | 1955#          |

| Bolt Connection & Plate Schedule |     |       |        |        |        |      |      |         |  |
|----------------------------------|-----|-------|--------|--------|--------|------|------|---------|--|
| Id                               | Qty | Grade | Bolt   | Bolt   | Plate  | Rows | Rows | PartNo  |  |
|                                  |     |       | Di.    | Length | Thick. | Out  | In   |         |  |
| A                                | 12  | A325  | 1 1/8" | 4"     | 3/4"   | 4    | 2    | 0097289 |  |
| B                                | 10  | A325  | 3/4"   | 2 1/2" | 3/8"   | 3    | 2    | 0097284 |  |
| C                                | 12  | A325  | 3/4"   | 2 1/2" | 1/2"   | 2    | 4    | 0097284 |  |

<S> - (2) Washers (095872) req'd at Flange Brace to Secondary.

Frame Clearances  
 Horiz. Clearance between members 1(CX108) and 10(CX109): 115'-10 15/16"  
 Vert. Clearance at member 1(CX108): 19'-4 3/4"  
 Vert. Clearance at member 10(CX109): 19'-4 3/4"  
 Finished Floor Elevation = 100'-0" (Unless Noted Otherwise)



- 6 26'-5 3/4" Ridge Ht.
  - 5 2 @ 3'-2 5/8"
  - 4 4 @ 2'-6"
  - 3 1'-1 3/8"
  - 2 2 @ 5'-0"
  - 1 8 1/2"
- Dimension Key



FOR CONSTRUCTION

1. USE 1/2 X 1 1/2 A325 BOLT (49080) AND NUT (47120) W/ 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 |
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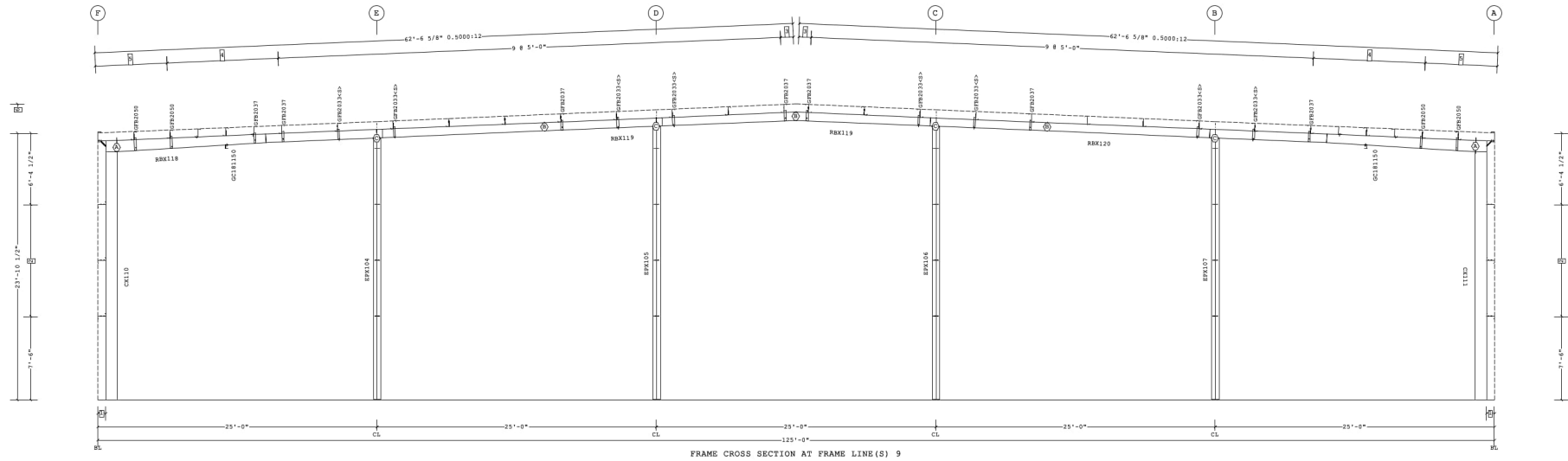
|   |                          |  |                          |
|---|--------------------------|--|--------------------------|
| BUTLER MANUFACTURING<br>1540 GENESSEE ST. KANSAS CITY, MO 64102 |                          | FRAME CROSS SECTION AT FRAME LINE(S) 8 |                          |
| BUILDER: MAR BUILDING SOLUTIONS LLC                             | CUSTOMER:                | PROJECT: KR Wholesale                  | BUILDER'S POK: 200440709 |
| LOCATION: Lees Summit, Missouri                                 | DRAWING CHECK: LDCM / GL | DATE: 1/14/2024                        | PAGE: 17                 |

| Part   | Mem | Width  | Thick | WebThk | Depth1 | Depth2 | Approx. Lgth | Approx. Weight | Detail |
|--------|-----|--------|-------|--------|--------|--------|--------------|----------------|--------|
| RBX110 | 1   | 8.0000 | .2500 | .1345  | 1'-0"  | 1'-0"  | 23'-2 13/16" | 478#           |        |
| RBX118 | 2   | 5.0000 | .1875 | .1345  | 1'-0"  | 9"     | 38'-4 1/16"  | 433#           |        |
|        | 3   | 5.0000 | .1875 | .1345  | 9"     | 9"     |              |                |        |
|        | 4   | 5.0000 | .1875 | .1345  | 9"     | 9"     |              |                |        |
| RBX119 | 5-6 | 5.0000 | .1875 | .1345  | 9"     | 9"     | 22'-6 7/16"  | 252#           |        |
| RBX119 | 7-8 | 5.0000 | .1875 | .1345  | 9"     | 9"     | 22'-6 7/16"  | 252#           |        |
| RBX120 | 9   | 5.0000 | .1875 | .1345  | 9"     | 9"     | 38'-4 1/16"  | 433#           |        |
|        | 10  | 5.0000 | .1875 | .1345  | 9"     | 9"     |              |                |        |
|        | 11  | 5.0000 | .1875 | .1345  | 1'-0"  | 1'-0"  | 23'-2 13/16" | 478#           |        |
| EPX104 | 13  | 8.0000 | .2500 | .1345  | 1'-0"  | 1'-0"  | 23'-5 5/8"   | 471#           | BR25CA |
| EPX105 | 14  | 8.0000 | .2500 | .1345  | 1'-0"  | 1'-0"  | 24'-6 1/8"   | 491#           | BR25CA |
| EPX106 | 15  | 8.0000 | .2500 | .1345  | 1'-0"  | 1'-0"  | 24'-6 1/8"   | 491#           | BR25CA |
| EPX107 | 16  | 8.0000 | .2500 | .1345  | 1'-0"  | 1'-0"  | 23'-5 5/8"   | 471#           | BR25CA |

| Bolt Connection & Plate Schedule |     |       |      |        |        |      |      |         |  |
|----------------------------------|-----|-------|------|--------|--------|------|------|---------|--|
| Id                               | Qty | Grade | Bolt | Bolt   | Plate  | Rows | Rows | PartNo  |  |
|                                  |     |       | Di.  | Length | Thick. | Out  | In   |         |  |
| A                                | 10  | A325  | 3/4" | 2 1/2" | 3/8"   | 3    | 2    | 0097284 |  |
| B                                | 4   | A325  | 3/4" | 2 1/2" | 3/8"   | 1    | 1    | 0097284 |  |
| C                                | 4   | A325  | 1/2" | 1 1/2" | 3/8"   | 1    | 1    | 49080   |  |

<S> - (2) Washers (095872) req'd at Flange Brace to Secondary.

Frame Clearances  
 Horiz. Clearance between members 1(CX110) and 12(CX111): 121'-6 13/16"  
 Vert. Clearance at member 1(CX110): 22'-0 5/16"  
 Vert. Clearance at member 12(CX111): 22'-0 5/16"  
 Vert. Clearance at member 13(EPX104): 23'-5 1/2"  
 Vert. Clearance at member 14(EPX105): 24'-6"  
 Vert. Clearance at member 15(EPX106): 24'-6"  
 Vert. Clearance at member 16(EPX107): 23'-5 1/2"  
 Finished Floor Elevation = 100'-0" (Unless Noted Otherwise)



- 6 26'-5 3/4" Ridge Ht.
  - 5 2 @ 3'-2 5/8"
  - 4 4 @ 2'-6"
  - 3 1'-1 3/8"
  - 2 2 @ 5'-0"
  - 1 8 1/2"
- Dimension Key

1. USE 1/2 X 1 1/2 A325 BOLT (49080) AND NUT (47120) W/ 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 |
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| DRAWING SCALE: NTS |      |    |             |

**FOR CONSTRUCTION**

**FRAME CROSS SECTION AT FRAME LINE(S) 9**

|                                     |                             |                          |
|-------------------------------------|-----------------------------|--------------------------|
| BUILDER: MAR BUILDING SOLUTIONS LLC | CUSTOMER:                   | DATE: 1/14/2024          |
| LOCATION: Lees Summit, Missouri     | PROJECT: KR Wholesale       | DRAWING CHECK: LDCM / GL |
| BUILDER'S PO#: 200440709            | BUTLER MFG. ENGINEER'S SEAL | PAGE: 18                 |

JOB #: 24-025448-01



| ROD DIA | NUT   | HARD STEEL ROUND WASHER A  | HARD STEEL WASHER B              | HILLSIDE WASHER |
|---------|-------|----------------------------|----------------------------------|-----------------|
| 3/8"    | 85331 | 3/8" FLAT WASHER (85458)   | 1/2" BEVEL SQUARE WASHER (46540) | 543334          |
| 1/2"    | 85230 | 1/2" FLAT WASHER (85457)   | 3/4" FLAT ROUND WASHER (85946)   | 543335          |
| 5/8"    | 85233 | 5/8" FLAT WASHER (85455)   | 1" FLAT ROUND WASHER (85948)     | 543335          |
| 3/4"    | 85237 | 3/4" FLAT WASHER (85453)   | 1 1/8" FLAT ROUND WASHER (85949) | 543336          |
| 1"      | 85238 | 1" FLAT WASHER (85454)     |                                  |                 |
| 1 1/8"  | 85239 | 1 1/8" FLAT WASHER (85455) |                                  |                 |

REV. DATE: 07/26/22 REV. NO. 01  
BRO1G2 ROD BRACE WEB SLOT ASSEMBLY

**FLANGE BRACE REQUIREMENTS:**  
 RULE#1- ALL FLANGE BRACES ON CROSS SECTIONS MUST BE INSTALLED.  
 RULE#2- SINGLE FLANGE BRACES ARE REQUIRED WHEN PART MARK ON CROSS SECTION IS NOT ACCOMPANIED BY (2).  
 RULE#3- FLANGE BRACES ARE REQUIRED BOTH SIDES OF THE FRAME WEB WHEN PART MARK IS ACCOMPANIED BY (2).  
 RULE#4- WHENEVER POSSIBLE, PLACE SINGLE BRACES TOWARD THE CENTER OF THE BUILDING.  
 RULE#5- WHENEVER POSSIBLE, PLACE ALL SINGLE BRACES ON THE SAME SIDE OF THE FRAME WEB.  
 \*\* 10" & 11 1/2" PURLINS REQUIRE 3 BOLTS AT EACH END OF PURLIN LAP.

REV. DATE: 07/26/22 REV. NO. 01  
BRO6AE TYPICAL FLANGE BRACE CONNECTIONS CONT. PURLIN LAP SHOWN, CONT. GIRT & SIMPLE PURLIN

SEE ERECTION DRAWINGS FOR LOCATIONS AND PART MARKS

STRUT CONN. BOLTS SEE DRAWINGS FOR SIZES AND QUANTITIES

CLEVIS PIN W/ COTTER PIN (SEE ERECTION DWGS)

BRACE ROD

RAFTER

BRACE STRUT (GAGE) \_BSA\_

WHERE SLOTTED HOLES ARE PRESENT, BOLTS ARE SLIP CRITICAL AND MUST BE FULLY PRE TENSIONED. FAYING SURFACES MUST BE PAINT FREE. IF PAINT IS FOUND ON FAYING SURFACES IN SLOTTED CONNECTIONS REMOVE WITH LIGHT GRINDING. STANDARD HARDENED WASHERS ARE REQUIRED OVER ALL SLOTS. SEE ERECTION DRAWINGS FOR MARK NUMBERS AND QUANTITIES.

REV. DATE: 08/25/11 REV. NO. 01  
BR15L1 STRUT BRACING GAGE STRUT IN ROOF

NOTE: ALL BOLTS TO BE 1/2" X 1 1/2" A325 (49080) BOLTS (49080) (U.N.O.)

1/2" X 1 1/2" A325 BOLTS (49080) WITH HARDENED WASHER (85872) EACH SIDE (TOP AT PURLIN END OF BRACE)

FLANGE BRACE (F9B- OR F9B-)

ENDPOST

RAKE BEAM

REV. DATE: 08/25/11 REV. NO. 01  
BR25CA ENDPOST TOP BETWEEN PURLINS NO CAP CHANNEL - BRACED TO PURLINS ONLY

F = FEEL G = GAGE  
 I = INCHES O = OPERATION  
 E = EIGHTHS C = PIN/COLOR

PANEL/COVERING  
 W 1 3 1 1 7 2 6 1 K T D  
 \* F F I I E C O O C C  
 LENGTH CODE

INSULATION  
 I B 3 0 1 0 3 6 0 3 0 W V  
 \* F F F I I I E C C C  
 LENGTH WIDTH THK CODE

SECONDARY (STANDARD)  
 O B Z 1 9 1 1 4 1 7 - - - -  
 \* \* F F I I E C \* \* \* \* \*  
 DEPTH LENGTH GAGE ADJUST.CODES  
 - SHAPE

SECONDARY (SPECIAL)  
 O 0 1 0 B Z 1 9 1 1 4 1 7 - - -  
 \* \* \* \* \* F F I I E C \* \* \* \* \*  
 COUNTER DEPTH LENGTH GAGE ADJUST.CODES  
 - SHAPE

ROD BRACING  
 O R S 2 5 1 0  
 I E \* \* F F I I  
 DIA LENGTH

RS - THREADS BOTH ENDS  
 RT - THREADS ONE END - CLEVIS ONE END  
 RP - CLEVIS BOTH ENDS  
 RP - THREAD BOTH ENDS - NO HILLSIDES

MARK NUMBER KEY  
 COMMON GENERATED MARK NUMBERS

CBX\*\* = GIBLUM (PLATE)  
 CXX\*\* = COLUMN (GAGE)  
 WXX\*\* = COLUMN (HIDROLL)  
 RBX\*\* = RAFTER (PLATE)  
 BX\*\* = RAFTER (GAGE)  
 WRX\*\* = RAFTER (HIDROLL)  
 TRX\*\* = TRUSS RAFTER  
 ICX\*\* = INTERIOR COLUMN  
 PCX\*\* = PIPE COLUMN  
 TCX\*\* = TUBE COLUMN  
 EPX\*\* = ENDPST (PLATE)  
 EGX\*\* = ENDPST (GAGE)  
 CBX\*\* = CANOPY (PLATE)  
 CBX\*\* = PIGGYBACK CANOPY  
 DCC\*\* = 8 1/2" GAGE POST  
 DCE\*\* = 10" GAGE POST

BASIC ERECTION GUIDE REQUIRED FOR THIS PROJECT:

REFER TO:

WIDESPAN STRUCTURAL SYSTEM  
 2013 INSTALLATION GUIDE

REV. DATE: 07/26/24 REV. NO. 02  
ENB002 BASIC ERECTION GUIDE - STRUCTURAL

A325 BOLTS SEE ERECTION DRAWINGS FOR EXACT SIZE FILL ALL HOLES

ROWS OUT

ROWS IN

COLUMN (CX-)

REV. DATE: 07/26/23 REV. NO. 02  
PFO1A2 HAUNCH TO COLUMN CONNECTION FACE/VERTICAL BOLTED COLUMN

RAFTER BEAM (RBX-) MAY BE STRAIGHT OR TAPERED MEMBER

BOLTING PLATES

ROWS OUT

ROWS IN

A325 BOLTS SEE ERECTION DRAWINGS FOR EXACT SIZE FILL ALL HOLES

REV. DATE: 07/26/23 REV. NO. 02  
PFO3A1 RAFTER BEAM CONNECTION RAKE BEAM OR FULL FRAME

1/2" x 1 1/2" A325 BOLTS (49080) FILL ALL HOLES

ENDPOST

OUTSET GIRTS  
 1'-3" at 10' & 11 1/2" E.W. GIRTS  
 1'-0" at 7' & 8 1/2" E.W. GIRTS  
 6" at ALL INSET GIRTS

REV. DATE: 07/26/23 REV. NO. 02  
PFOC2 RAKE BEAM CONNECTION TO ENDPST

ROOF BEAM

EXTERIOR COLUMN

INTERIOR COLUMN

COLUMN BASE PLATE

NOTE: BASE OF COLUMN MAY NOT BE AT FINISHED FLOOR

REV. DATE: 08/25/11 REV. NO. 01  
PFR007 CLEAR HEIGHT DIMENSION WORK POINTS AS SHOWN ON FRAME CROSS SECTION DRAWINGS

1. USE 1/2 X 1 1/2 A325T BOLT (49080) AND NUT (47120) TWO WASHERS. SNUG TIGHTEN BOLTS FOR ALL SECONDARY CONNECTIONS, SECONDARY CLIP CONNECTIONS, AND FLANGE BRACE CONNECTIONS, UNLESS NOTED OTHERWISE  
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| REV | DATE: | BY: | DESCRIPTION: |
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DRAWING SCALE: NTS

FOR CONSTRUCTION

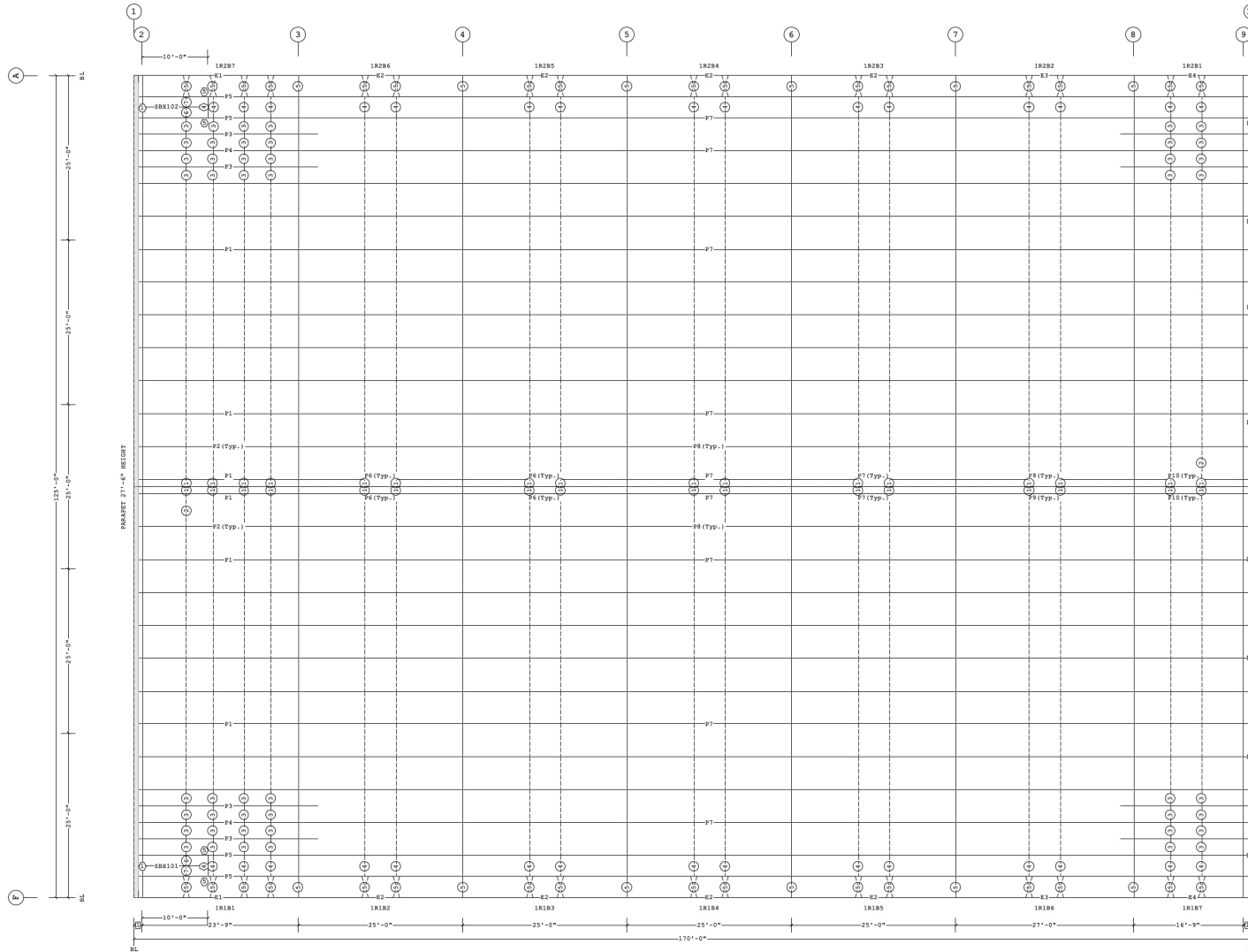
BUTLER MANUFACTURING  
 1540 GENESSEE ST. KANSAS CITY, MO 64102

PRIMARY BRACING SED'S

BUILDER: MAR BUILDING SOLUTIONS LLC  
 CUSTOMER:   
 LOCATION: Lees Summit, Missouri  
 PROJECT: KR Wholesale  
 BUILDERS PDR: 200440709

ASB# 24-025448-01  
 DATE: 1/14/2024  
 DRAWING CODE: LDCM / GL  
 BUTLER Manufacturing  
 VPC VERSION: 24.1 19





**Secondary Part Schedule**

| Mark | Part            | Thick. | Depth  | Lap        | Detail                 |
|------|-----------------|--------|--------|------------|------------------------|
| E1   | 10E2402414BDB30 | 0.0790 | 10"    |            | RS12PF, RS12PE, RS12PJ |
| E2   | 10E2411414DDB30 | 0.0790 | 10"    |            | RS12PA, RS12PE, RS12PJ |
| E3   | 10E2611414DDB30 | 0.0790 | 10"    |            | RS12PA, RS12PJ         |
| E4   | 10E1711414DDB30 | 0.0790 | 10"    |            | RS12PE, RS12PA, RS12PJ |
| P1   | 08Z2702412B4B3  | 0.0980 | 8 1/2" | 2'-10 1/2" | RS02TI, RS01TI         |
| P2   | 08Z2702415B4B3  | 0.0730 | 8 1/2" | 2'-10 1/2" | RS02TI, RS01TI         |
| P3   | 08Z2702414B4B3  | 0.0680 | 8 1/2" | 2'-10 1/2" | RS02TI, RS01TI         |
| P4   | 08Z2702414B4B3  | 0.0790 | 8 1/2" | 2'-10 1/2" | RS02TI, RS01TI         |
| P5   | 08Z2702411B4B3  | 0.1130 | 8 1/2" | 2'-10 1/2" | RS02TI, RS01TI         |
| P6   | 08Z301141444B2  | 0.0790 | 8 1/2" | 2'-10 1/2" | RS01TI                 |
| P7   | 08Z321141455B2  | 0.0790 | 8 1/2" | 3'-10 1/2" | RS01TI                 |
| P8   | 08Z321141755B2  | 0.0600 | 8 1/2" | 3'-10 1/2" | RS01TI                 |
| P9   | 08Z341141455B2  | 0.0790 | 8 1/2" | 3'-10 1/2" | RS01TI                 |
| P10  | 08Z1911414V3A3  | 0.0790 | 8 1/2" | 1'-10 1/2" | RS01TI                 |
| J5   | 00708J50207111  | 0.1130 | 8 1/2" |            | FS31B1                 |

**Secondary Bracing Schedule**

| Id | Qty | Mark No           | Spacing    |
|----|-----|-------------------|------------|
| 1  | 32  | CFBRA010602       | 1'-1 3/8"  |
| 2  | 328 | CFBB050108 (Typ.) | 5'-0"      |
| 3  | 48  | CFBB020708        | 2'-6"      |
| 4  | 30  | CFBB030404        | 3'-2 5/8"  |
| 5  | 76  | PBA0306           | 3'-2 5/8"  |
| 6  | 2   | CFBB010813        | 1'-7 5/16" |
| 7  | 2   | CFBC011011        | 1'-7 5/16" |

See SED:  
BR09PK, BR09RY, BR09R2, BR09JG, BR09PH  
BR09JH, BR09K5, BR09K2, BR09S0

**Part Mark Key**

|   |              |
|---|--------------|
| 1 | 001SGC216075 |
| 2 | 001SGC215023 |
| 3 | 001SGC216010 |
| 4 | 15           |
| 5 | PCI          |

**Frame Member Schedule**

| Part   | Width | Thick. | Webthk | Depth  | Approx. Lgth | Detail                 |
|--------|-------|--------|--------|--------|--------------|------------------------|
| SBX101 | 6"    | .2500  | .1875  | 8 1/2" | 10'-6 1/8"   | KPF5X1, FS31B1, FSX100 |
| SBX102 | 6"    | .2500  | .1875  | 8 1/2" | 10'-6 1/8"   | KPF5X1, FS31B1, FSX100 |

**Bolt Connection & Plate Schedule**

| Id | Qty | Grade | Bolt Dia. | Bolt length | Plate Thick. | Rows Out | Rows In | Part No. |
|----|-----|-------|-----------|-------------|--------------|----------|---------|----------|
| A  | 4   | A325  | 1/2"      | 1 1/2"      | -            | -        | -       | 49080    |

- 1 1'-3"  
Dimension Key
- UNLESS NOTED, USE 1/2 X 1 1/2 A325 BOLT (49080) AND NUT (47120) W/0 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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**D BUTLER MANUFACTURING**  
1540 GENESSEE ST. KANSAS CITY, MO 64102

| REV | DATE | BY | DESCRIPTION |
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DRAWING SCALE: **NTS**

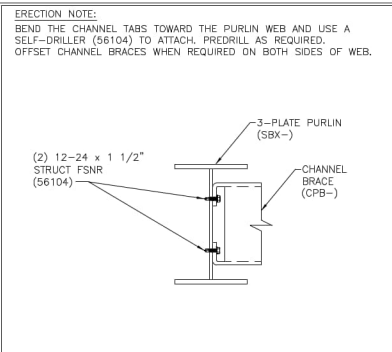
**FOR CONSTRUCTION**

**ROOF SECONDARY PLAN**

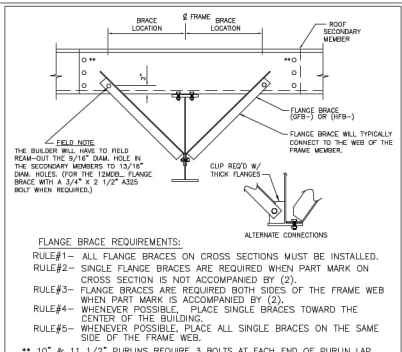
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|----------------|----------------------------|--|-----------|
| BUILDER:       | MAR BUILDING SOLUTIONS LLC | DATE:  | 1/14/2024 |
| CUSTOMER:      |                            | DRAWN BY:  | LDCM / GL |
| LOCATION:      | Lee's Summit, Missouri     | PAGE:  | 20        |
| PROJECT:       | KR Wholesale               | <br>Butler Manufacturing<br>VFC VERSION: 24.1 |           |
| BUILDER'S PDR: | 200440709                  |  |           |

JOB #: 24-025448-01  
REVISED: 03/03/2025  
DRAWN BY: LDCM / GL  
PAGE: 20  
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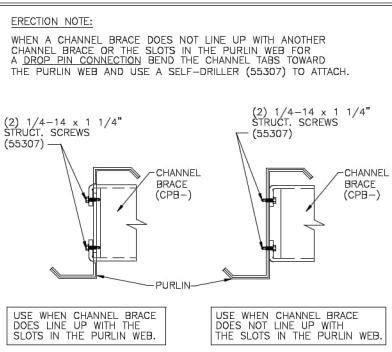




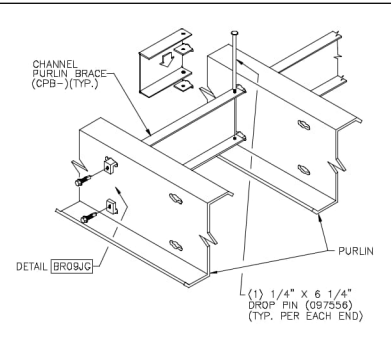
REV. DATE: 05/25/18 REV. NO. 01 CHANNEL BRACE ENDING AT 3-PLATE PURLIN SELF-DRILLER WITH BENT TABS BR0950



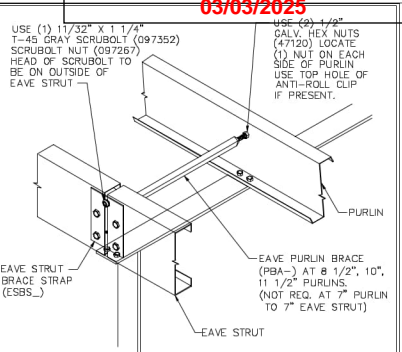
REV. DATE: 05/25/18 REV. NO. 02 TYPICAL FLANGE BRACE CONNECTIONS BR09A6



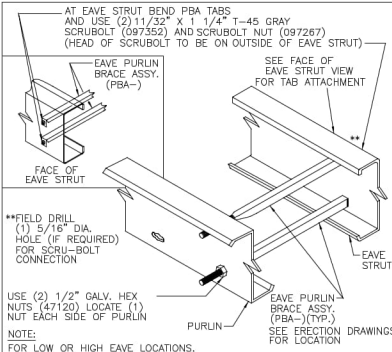
REV. DATE: 05/25/18 REV. NO. 03 CHANNEL BRACE ENDING AT PURLIN WEB SELF-DRILLER WITH BENT TABS BR09JG



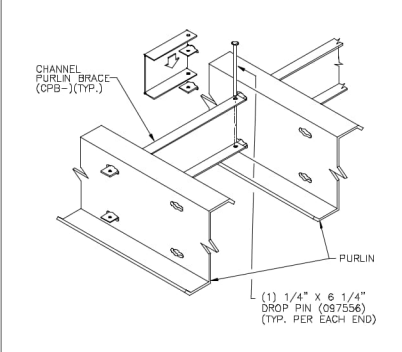
REV. DATE: 05/25/18 REV. NO. 04 SINGLE CHANNEL PURLIN BRACE ENDING AT PURLIN WEB LOCATION BR09JH



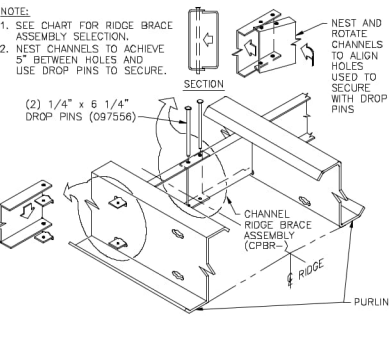
REV. DATE: 07/20/16 REV. NO. 05 EAVE BRACE STRAP AND EAVE PURLIN BRACE LOCATED AT EAVE - CENTERLINE OF FRAME BR09K2



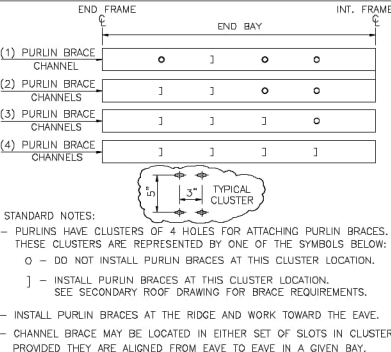
REV. DATE: 05/25/22 REV. NO. 06 EAVE STRUT BRACE BR09K5



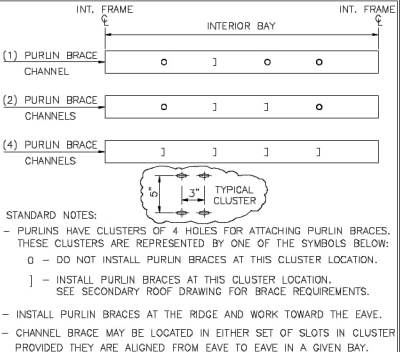
REV. DATE: 07/01/20 REV. NO. 01 SINGLE CHANNEL PURLIN BRACE INTERMEDIATE LOCATION BR09PH



REV. DATE: 07/01/20 REV. NO. 02 CHANNEL RIDGE BRACE ASSEMBLY SINGLE BRACE AT SYMMETRICAL RIDGE BR09PK



REV. DATE: 07/01/20 REV. NO. 03 PURLIN BRACE CLUSTER LOCATION END BAY CHANNEL LOCATION BR09RY



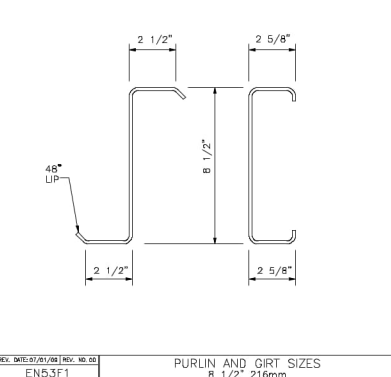
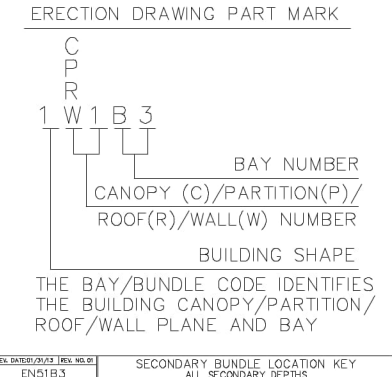
REV. DATE: 07/01/20 REV. NO. 04 PURLIN BRACE CLUSTER LOCATION INTERIOR BAY CHANNEL LOCATION BR09RZ

**ERECTION DRAWING PART MARK**

| DEPTH        | SHAPE               | GAGE       |
|--------------|---------------------|------------|
| 07 = 7"      | Z = ZEE             | 11 = 0.113 |
| 08 = 8 1/2"  | C = CEE             | 12 = 0.098 |
| 10 = 10"     | E = LOW EAVE STRUT  | 13 = 0.088 |
| 11 = 11 1/2" | H = HIGH EAVE STRUT | 14 = 0.079 |
|              |                     | 15 = 0.073 |
|              |                     | 16 = 0.068 |
|              |                     | 17 = 0.060 |

**ERECTION DRAWING PART MARK**

| DEPTH        | SHAPE                 | GAGE       |
|--------------|-----------------------|------------|
| 07 = 7"      | ZS = ZEE              | 11 = 0.113 |
| 08 = 8 1/2"  | CS = CEE              | 12 = 0.098 |
| 10 = 10"     | ES = LOW EAVE STRUT   | 13 = 0.088 |
| 11 = 11 1/2" | HS = HIGH EAVE STRUT  | 14 = 0.079 |
|              | BS = BACK TO BACK CEE | 15 = 0.073 |
|              | FS = FACE TO BACK CEE | 16 = 0.068 |
|              | FF = FACE TO FACE CEE | 17 = 0.060 |



REV. DATE: 07/01/20 REV. NO. 05 PURLIN AND GIRTS SIZES EN53F1

1. UNLESS NOTED, USE 1/2 x 1 1/2 A325 BOLT (40980) AND NUT (47120) W/ 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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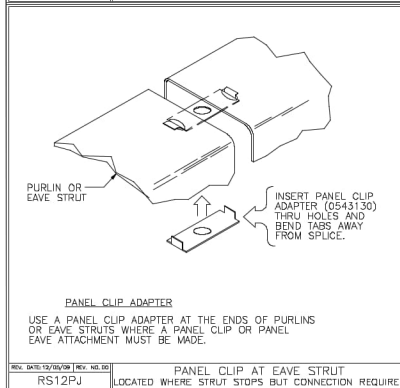
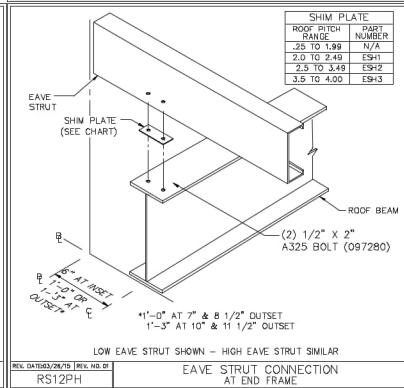
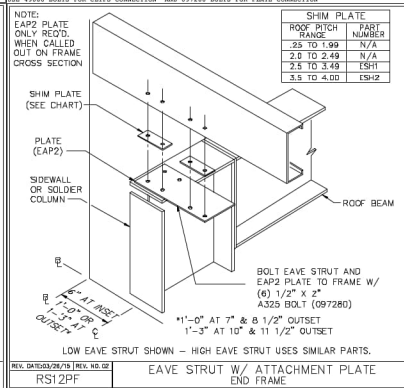
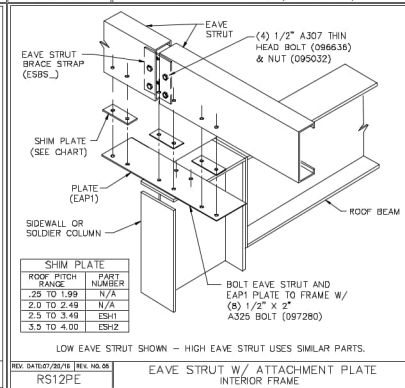
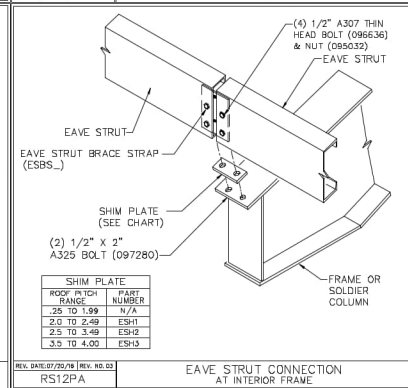
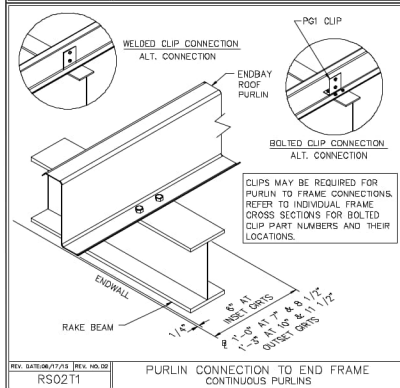
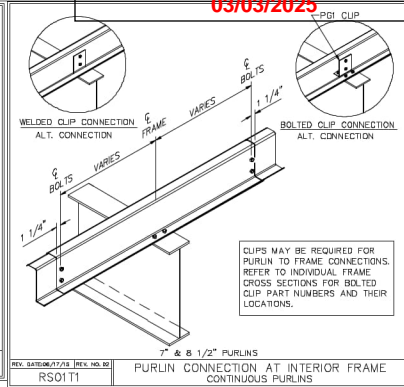
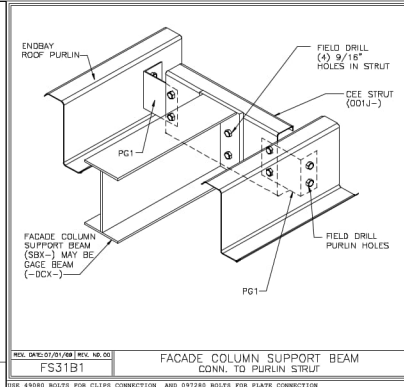
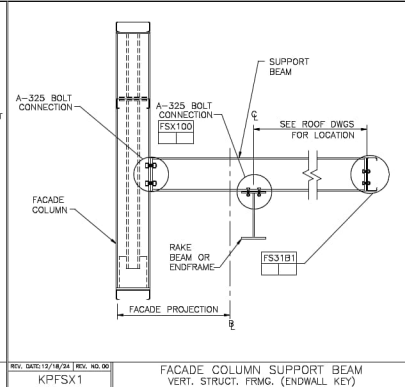
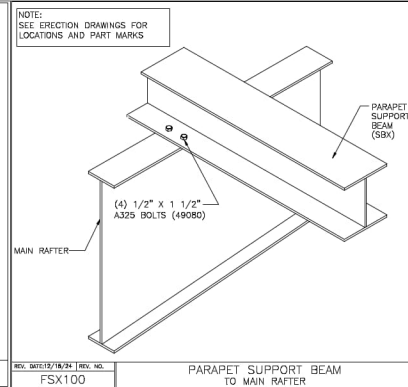
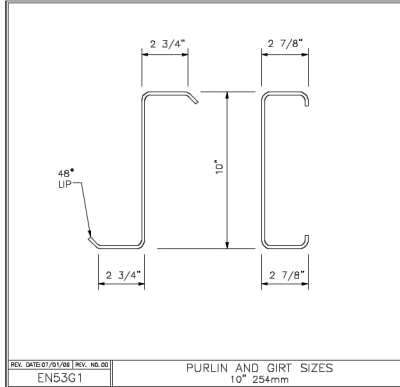
**D BUTLER MANUFACTURING**  
1540 GENESSEE ST. KANSAS CITY, MO 64102

| REV. | DATE: | BY: | DESCRIPTION: |
|------|-------|-----|--------------|
|      |       |     |              |

**FOR CONSTRUCTION**

| BUILDER:                   | CUSTOMER:            | PROJECT:     | BUILDERS' PDR: |
|----------------------------|----------------------|--------------|----------------|
| MAR BUILDING SOLUTIONS LLC | Lee Summit, Missouri | KR Wholesale | 200440709      |





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|      |       |     |              |
|------|-------|-----|--------------|
| REV. | DATE: | BY: | DESCRIPTION: |
|      |       |     |              |

DRAWING SCALE: NTS

|   |                            |                          |              |
|---|----------------------------|--------------------------|--------------|
| BUTLER MANUFACTURING<br>1540 GENESSEE ST. KANSAS CITY, MO 64102 |                            | ROOF SECONDARY SED'S (b) |              |
| BUILDER:  | MAR BUILDING SOLUTIONS LLC | DATE:                    | 24-025448-01 |
| CUSTOMER:   |                            | DATE:                    | 1/14/2024    |
| LOCATION:   | Lees Summit, Missouri      | DRAWN/CHECKED:           | LDCM / GL    |
| PROJECT:  | KR Wholesale               | PAGE:                    | 22           |
| BUILDER'S P.O. #:   | 200440709                  |                          |              |



FOR CONSTRUCTION

| Mark       | Part             | Thick. | Depth  | Lap     | Detail                         |
|------------|------------------|--------|--------|---------|--------------------------------|
| G1         | 001082S2605413B0 | 0.0880 | 8 1/2" |         | WS12A2, WS20F2, WS21D5         |
| G2         | 002082S2605415B0 | 0.0730 | 8 1/2" |         | WS12A2, WS20F2, WS21D5         |
| G3         | 0822402415DQ00   | 0.0730 | 8 1/2" |         | WS12A2, WS01G2                 |
| G4         | 0822408413DQ00   | 0.0880 | 8 1/2" |         | WS12H5, FS25G1                 |
| G5         | 0822411412DDB0   | 0.0980 | 8 1/2" |         | WS01G2                         |
| G6         | 003082S2802416B0 | 0.0680 | 8 1/2" | 10 1/2" | WS01G3, WS20F2, WS21D5         |
| G7         | 0822511416D100   | 0.0680 | 8 1/2" | 10 1/2" | WS01G3, WS01G2                 |
| G8         | 0822405414GQ00   | 0.0790 | 8 1/2" |         | FS25G1                         |
| G9         | 082261141611B0   | 0.0680 | 8 1/2" | 10 1/2" | WS01G3                         |
| G10        | 0822405413QGB0   | 0.0880 | 8 1/2" |         | FS25G1                         |
| G11        | 0822502416Q1B0   | 0.0680 | 8 1/2" | 10 1/2" | WS12A2, WS01G3                 |
| G12        | 0822408416DQ00   | 0.0000 | 8 1/2" |         | WS12A2, WS12H5                 |
| G13 (Flip) | 08C2411413DD00   | 0.0880 | 8 1/2" |         | FSX101, FS25F5                 |
| G14 (Flip) | 08C2411415DD00   | 0.0730 | 8 1/2" |         | FSX101                         |
| G15 (Flip) | 08C2411416DD00   | 0.0680 | 8 1/2" |         | FSX101                         |
| H1         | 001082S2000013   | 0.0880 | 8 1/2" |         | WS20F9                         |
| J1         | 002082S1702214   | 0.0790 | 8 1/2" |         | WS20F9, WS20F2, WS20B2, WS20B8 |

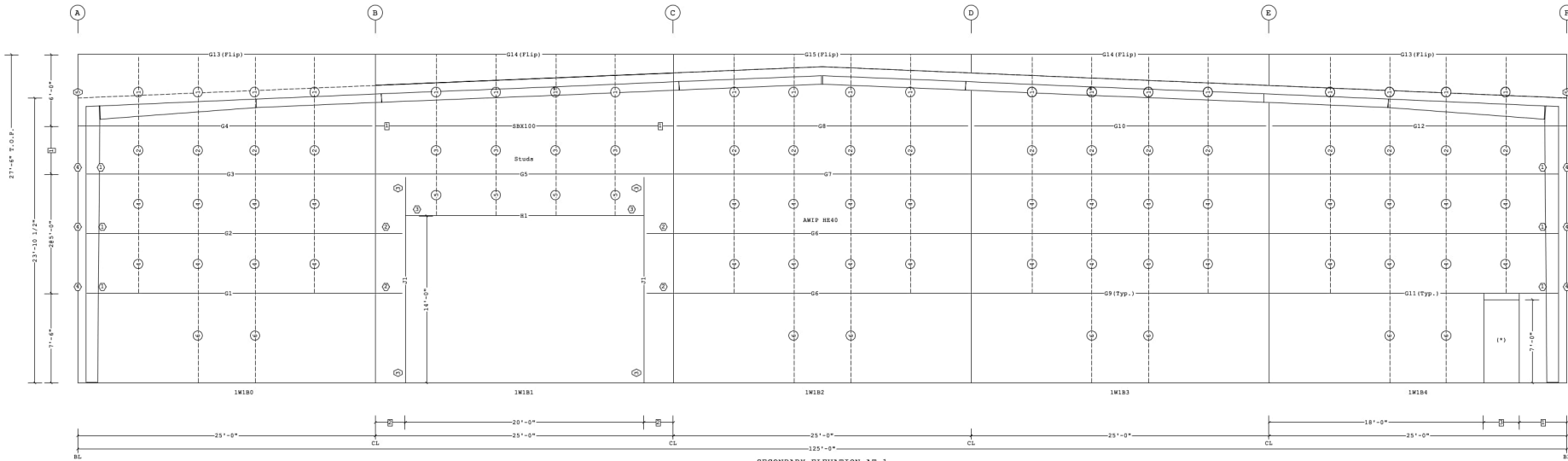
| Secondary Bracing Schedule |     |            |         |
|----------------------------|-----|------------|---------|
| Id                         | Qty | Mark No    | Spacing |
| 1                          | 20  | CPBB060108 | 6'-0"   |
| 2                          | 16  | CPBB040108 | 4'-0"   |
| 3                          | 4   | CPBC040306 | 4'-0"   |
| 4                          | 32  | CPBB050108 | 5'-0"   |
| 5                          | 4   | CPBA030510 | 3'-6"   |
| 6                          | 8   | CPBA070510 | 7'-6"   |

See SBDA:  
BRR004, BRR005, BRR006,  
BRR007, BRR008

| Frame Member Schedule |       |        |        |            |              |
|-----------------------|-------|--------|--------|------------|--------------|
| Part                  | Width | Thick. | Webthk | Depth      | Approx. Lgth |
| SBX100 8"             | .2500 | .2500  | 8 1/2" | 24'-5 7/8" | WSX100       |

| Bolt Schedule |     |       |           |             |              |             |
|---------------|-----|-------|-----------|-------------|--------------|-------------|
| Id            | Qty | Grade | Bolt Dia. | Bolt Length | Plate Thick. | Rows Out In |
| 1             | 2   | A325  | 3/4"      | 2 1/2"      | -            | - - -       |

**ERECTOR NOTES:**  
 - Jamb not designed for catenary loads.  
 - Wind beam designed to support stud wall to parapet height.  
 - FO's marked with (\*) are not by BMC.



SECONDARY ELEVATION AT 1

- 5 RKC10
  - 4 GPA106
  - 3 3'-0"
  - 2 2'-6"
  - 1 4'-0"
- Dimension Key    Part Mark Key

1. UNLESS NOTED, USE 1/2 X 1/2 A325 BOLT (40080) AND NUT (47120) W/ WASHERS. SNUG TIGHTEN BOLTS FOR ALL SECONDARY CONNECTIONS.
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Shape Name = Building - Shape 1, Wall = 1

|     |      |    |             |
|-----|------|----|-------------|
| REV | DATE | BY | DESCRIPTION |
|     |      |    |             |

|   |                            |                          |              |
|---|----------------------------|--------------------------|--------------|
| BUTLER MANUFACTURING<br>1540 GENESSEE ST. KANSAS CITY, MO 64102 |                            | SECONDARY ELEVATION AT 1 |              |
| BUILDER:  | MAR BUILDING SOLUTIONS LLC | CUSTOMER:                |              |
| LOCATION:   | Lee's Summit, Missouri     | PROJECT:                 | KR Wholesale |
| BUILDER'S PDR:  | 200440709                  | BUTLER VERSION:          | 24.3.1       |



FOR CONSTRUCTION



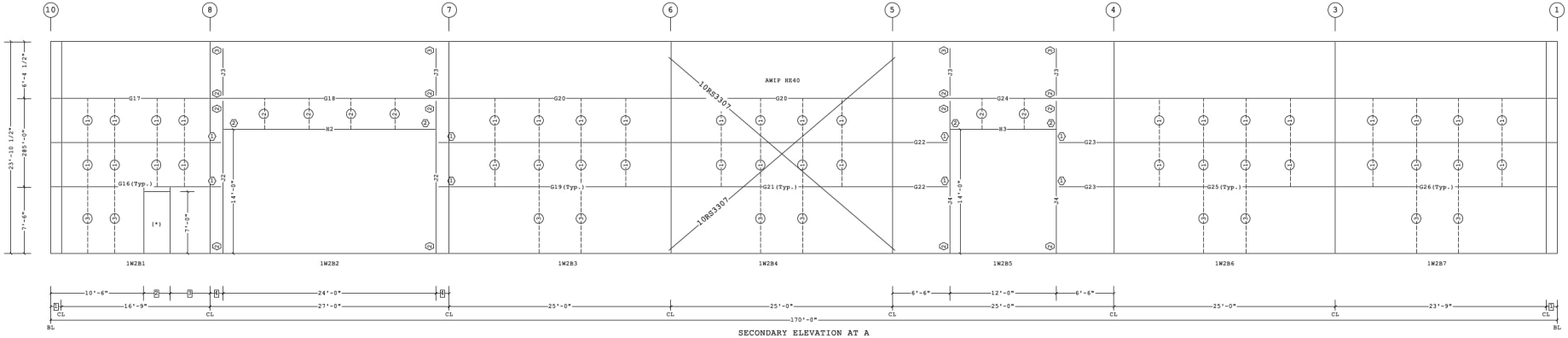
| Mark | Part             | Thick. | Depth  | Lap        | Detail                         |
|------|------------------|--------|--------|------------|--------------------------------|
| G16  | 004082S1902416B0 | 0.0680 | 8 1/2" |            | WS12A2, WS20F2, WS21D5         |
| G17  | 0821811416V100   | 0.0680 | 8 1/2" | 10 1/2"    | WS12A2, WS01G3                 |
| G18  | 082291141622B0   | 0.0680 | 8 1/2" | 1'-4 1/2"  | WS01G3                         |
| G19  | 005082S2902416B0 | 0.0680 | 8 1/2" | 2'-10 1/2" | WS01G3, WS20F2, WS21D5         |
| G20  | 08226114161100   | 0.0680 | 8 1/2" | 10 1/2"    | WS01G3                         |
| G21  | 082271141604B0   | 0.0680 | 8 1/2" | 2'-10 1/2" | WS01G2, WS01G3                 |
| G22  | 08206241600001   | 0.0680 | 8 1/2" |            | WS20F2, WS01G2                 |
| G23  | 0820702416G100   | 0.0680 | 8 1/2" | 10 1/2"    | WS01G3, WS20F2                 |
| G24  | 08230114144400   | 0.0790 | 8 1/2" | 2'-10 1/2" | WS01G3                         |
| G25  | 082271141622B0   | 0.0680 | 8 1/2" | 1'-4 1/2"  | WS01G3                         |
| G26  | 0822611416V3B0   | 0.0680 | 8 1/2" | 1'-10 1/2" | WS12A2, WS01G3                 |
| H2   | 00108D82400014   | 0.0790 | 8 1/2" |            | WS20F9                         |
| H3   | 005082S1200015   | 0.0730 | 8 1/2" |            | WS20F9                         |
| J2   | 003083S1702213   | 0.0880 | 8 1/2" |            | WS20F9, WS20F2, WS20B8, WS20H3 |
| J3   | 004082S0504015   | 0.0730 | 8 1/2" |            | WS20B6, WS20H3                 |
| J4   | 006082S1702215   | 0.0730 | 8 1/2" |            | WS20F9, WS20F2, WS20B2, WS20B8 |

| Id | Qty | Mark No    | Spacing |
|----|-----|------------|---------|
| 1  | 40  | CPBA050108 | 5'-0"   |
| 2  | 6   | CPBA030510 | 3'-6"   |
| 3  | 10  | CPBA070510 | 7'-6"   |

See SEds:  
BRR004, BRR005, BRR006, BRR007, BRR008

| Part     | Qty | Length | Detail |
|----------|-----|--------|--------|
| 10RS3307 | 2   | 33'-7" | BR01G2 |

ERECTION NOTE:  
- Jamb's not designed for catenary loads.  
- FO's marked with (\*) are not by BMC.



- 4 1'-6"
  - 3 4'-6"
  - 2 3'-0"
  - 1 1'-3"
- Dimension Key    Part Mark Key

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Shape Name = Building - Shape 1, Wall = 2

FOR CONSTRUCTION

|   |                                     |                   |                                 |                       |
|---|-------------------------------------|-------------------|---------------------------------|-----------------------|
| <b>D</b><br>BUTLER MANUFACTURING<br>1540 GENESSEE ST. KANSAS CITY, MO 64102 | REV                                 | DATE              | BY                              | DESCRIPTION           |
|   |                                     |                   |                                 |                       |
|   |                                     |                   |                                 |                       |
|   |                                     |                   |                                 |                       |
| BUILDER'S FOR: 200440709  | BUILDER: MAR BUILDING SOLUTIONS LLC | CUSTOMER: [Blank] | LOCATION: Lees Summit, Missouri | PROJECT: KR Wholesale |
| DRAWING SCALE: NTS  | BUILDER'S FOR: 200440709            | CUSTOMER: [Blank] | LOCATION: Lees Summit, Missouri | PROJECT: KR Wholesale |



**Secondary Part Schedule**

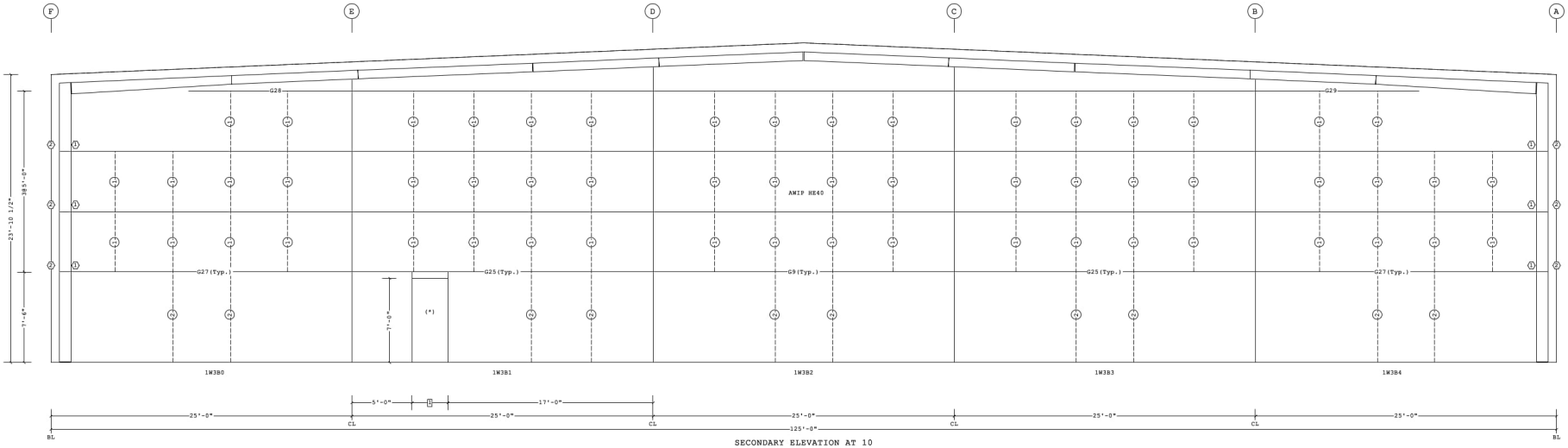
| Mark | Part             | Thick. | Depth  | Lap       | Detail         |
|------|------------------|--------|--------|-----------|----------------|
| G9   | 082261141611B0   | 0.0680 | 8 1/2" | 10 1/2"   | WS01G3         |
| G25  | 082271141622B0   | 0.0680 | 8 1/2" | 1'-4 1/2" | WS01G3         |
| G27  | 082250841602B0   | 0.0680 | 8 1/2" | 1'-4 1/2" | WS12A2, WS01G3 |
| G28  | 00608S140641600  | 0.0680 | 8 1/2" | 10 1/2"   | WS01G3, WS04C2 |
| G29  | 00708ZS140641600 | 0.0680 | 8 1/2" | 10 1/2"   | WS04C2, WS01G3 |

**Secondary Bracing Schedule**

| Id | Qty | Mark No    | Spacing |
|----|-----|------------|---------|
| 1  | 56  | CPBB050108 | 5'-0"   |
| 2  | 10  | CPBA070510 | 7'-6"   |

See SBDs:  
BRR006, BRR005, BRR006  
BRR007, BRR008

ERECTION NOTE:  
- FO's marked with (\*) are not by BMC.



SECONDARY ELEVATION AT 10

- 1 3'-0" Dimension Key
- 2 GPA106
- 1 VCC07003090 Part Mark Key

1. UNLESS NOTED, USE 1/2 X 1 1/2 A325 BOLT (40080) AND NUT (47120) W/O WASHERS. SNUG TIGHTEN BOLTS FOR ALL SECONDARY CONNECTIONS.  
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Shape Name = Building - Shape 1, Wall = 3

|   |      |    |             |
|---|------|----|-------------|
| <b>D</b>  |      |    |             |
| BUTLER MANUFACTURING<br>1540 GENESSEE ST. KANSAS CITY, MO 64102 |      |    |             |
| REV   | DATE | BY | DESCRIPTION |
|   |      |    |             |
|   |      |    |             |
|   |      |    |             |
|   |      |    |             |
| DRAWING SCALE: NTS  |      |    |             |

|                         |                            |  |              |
|-------------------------|----------------------------|--|--------------|
| <b>FOR CONSTRUCTION</b> |                            | <b>SECONDARY ELEVATION AT 10</b>   |              |
| BUILDER:                | MAR BUILDING SOLUTIONS LLC | JOB #:   | 24-025448-01 |
| CUSTOMER:               |                            | DATE:  | 1/14/2024    |
| LOCATION:               | Lees Summit, Missouri      | DRAWN BY:  | LDCM / GL    |
| PROJECT:                | KR Wholesale               | PAGE:  | 25           |
| BUILDER'S PO#:          | 200440709                  | <br>Butler Manufacturing<br>VPC VERSION: 24.3.1 |              |



Secondary Part Schedule

| Mark | Part           | Thick. | Depth  | Lap     | Detail         |
|------|----------------|--------|--------|---------|----------------|
| G9   | 082261141611B0 | 0.0680 | 8 1/2" | 10 1/2" | WS01G3         |
| G30  | 0822511416V1B0 | 0.0680 | 8 1/2" | 10 1/2" | WS12A2, WS01G3 |
| G31  | 082261141611B0 | 0.0680 | 8 1/2" | 10 1/2" | WS01G3         |
| G32  | 0821811416V1A0 | 0.0680 | 8 1/2" | 10 1/2" | WS12A2, WS01G3 |

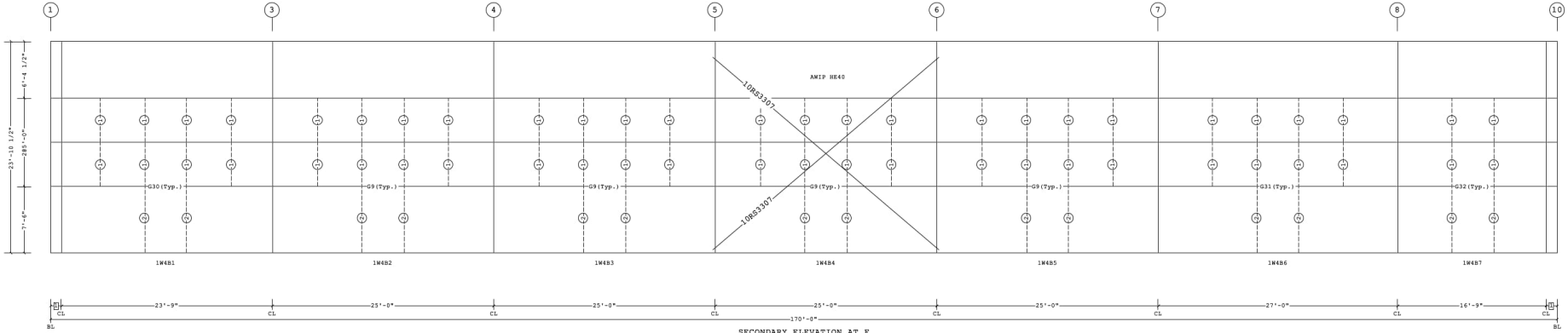
Secondary Bracing Schedule

| Id | Qty | Mark No    | Spacing |
|----|-----|------------|---------|
| 1  | 52  | CPBB050108 | 5'-0"   |
| 2  | 14  | CPBA070510 | 7'-6"   |

See SDDs:  
BRR006, BRR005, BRR006  
BRR007, BRR008

Bracing Part Schedule

| Part     | Qty | Length | Detail |
|----------|-----|--------|--------|
| 10RS3307 | 2   | 33'-7" | BR01G2 |



- 1 1'-3"  
Dimension Key
- UNLESS NOTED, USE 1/2 X 1 1/2 A325 BOLT (40000) AND NUT (47120) W/0 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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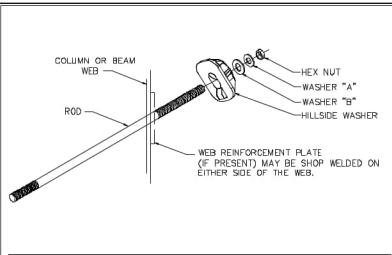
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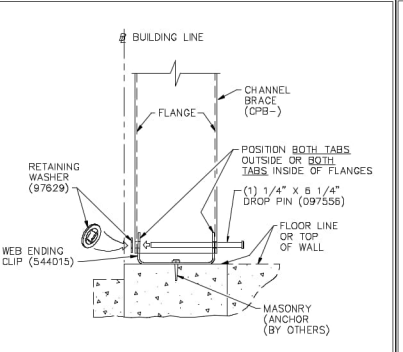
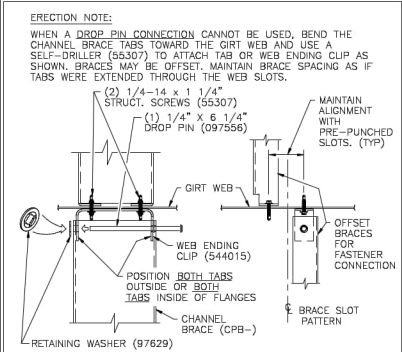
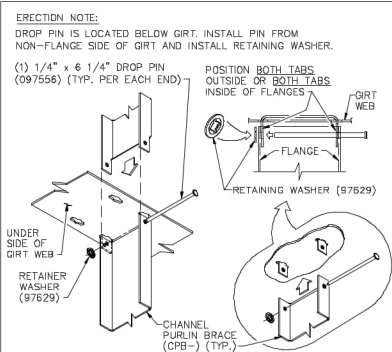
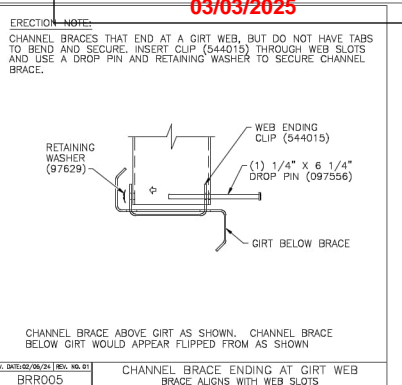
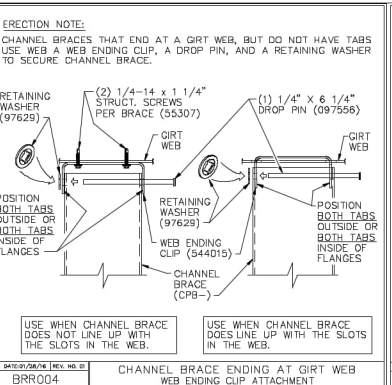
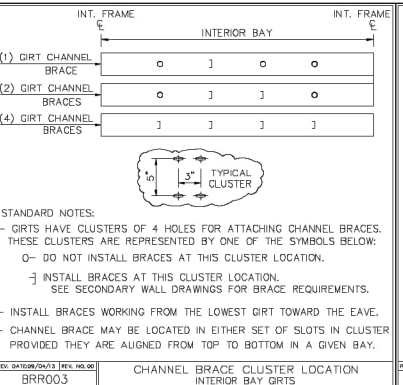
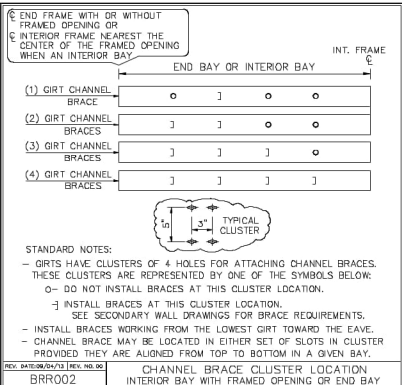
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|-----|------|----|-------------|
| REV | DATE | BY | DESCRIPTION |
|     |      |    |             |
|     |      |    |             |
|     |      |    |             |

|   |  |                                     |  |
|---|--|-------------------------------------|--|
| BUTLER MANUFACTURING<br>1540 GENESSEE ST. KANSAS CITY, MO 64102 |  | BUILDER: MAR BUILDING SOLUTIONS LLC |  |
| SECONDARY ELEVATION AT F  |  | CUSTOMER:                           |  |
| DRAWING SCALE: NTS  |  | PROJECT: Lees Summit, Missouri      |  |
| DRAWING NO: 24-025448-01  |  | BUILDER'S PDR: 200440709            |  |



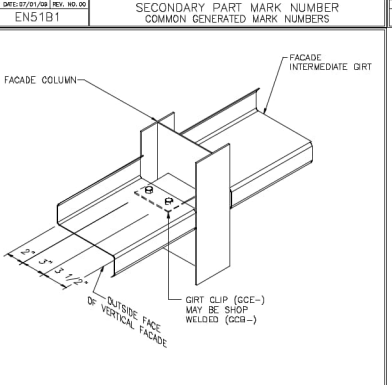
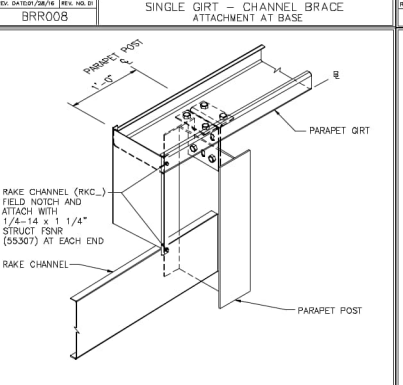
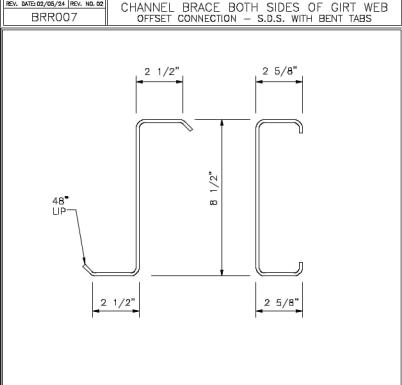
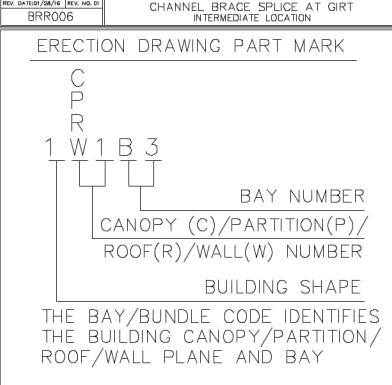


| DESCRIPTION/PART NO |       |                            |                                  |                 |
|---------------------|-------|----------------------------|----------------------------------|-----------------|
| ROD DIA             | NUT   | HARD STEEL ROUND WASHER    | HARD STEEL WASHER                | HILLSIDE WASHER |
| 3/8"                | 95321 | 3/8" FLAT WASHER (95408)   | 1/2" BEVEL SQUARE WASHER (46040) | 543334          |
| 1/2"                | 95250 | 1/2" FLAT WASHER (95427)   | 3/4" FLAT ROUND WASHER (95946)   | 543335          |
| 5/8"                | 95233 | 5/8" FLAT WASHER (95415)   | 1" FLAT ROUND WASHER (95948)     | 543335          |
| 3/4"                | 95238 | 3/4" FLAT WASHER (95944)   | 1 1/8" FLAT ROUND WASHER (95949) | 543336          |
| 7/8"                | 95237 | 7/8" FLAT WASHER (95943)   |                                  |                 |
| 1"                  | 95238 | 1" FLAT WASHER (95944)     |                                  |                 |
| 1 1/8"              | 95239 | 1 1/8" FLAT WASHER (95945) |                                  |                 |



| DEPTH        | SHAPE                 | GAGE       |
|--------------|-----------------------|------------|
| 07 = 7"      | Z = ZEE               | 11 = 0.113 |
| 08 = 8 1/2"  | C = CEE               | 12 = 0.098 |
| 10 = 10"     | E = LOW EAVE STRUT    | 13 = 0.088 |
| 11 = 11 1/2" | H = HIGH EAVE STRUT   | 14 = 0.079 |
|              | BB = BACK TO BACK CEE | 15 = 0.073 |
|              | FB = FACE TO BACK CEE | 16 = 0.068 |
|              | FF = FACE TO FACE CEE | 17 = 0.060 |

| DEPTH        | SHAPE                 | GAGE       |
|--------------|-----------------------|------------|
| 07 = 7"      | ZS = ZEE              | 11 = 0.113 |
| 08 = 8 1/2"  | CS = CEE              | 12 = 0.098 |
| 10 = 10"     | ES = LOW EAVE STRUT   | 13 = 0.088 |
| 11 = 11 1/2" | HS = HIGH EAVE STRUT  | 14 = 0.079 |
|              | BB = BACK TO BACK CEE | 15 = 0.073 |
|              | FB = FACE TO BACK CEE | 16 = 0.068 |
|              | FF = FACE TO FACE CEE | 17 = 0.060 |



SECONDARY BUNDLE LOCATION KEY ALL SECONDARY DEPTHS EN51B3

PURLIN AND GIRTS SIZES 8 1/2" 216mm EN53F1

PARAPET STEP CONNECTION STRUCTURAL FRAMING FS25F5

FACADE INTERMEDIATE GIRTS STRUCTURAL FRAMING FS25G1

FOR CONSTRUCTION 01/09/2025

- UNLESS NOTED, USE 1/2 X 1 1/2 A325T BOLT (40080) AND NUT (47120)
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**D** BUTLER MANUFACTURING  
1540 GENESSEE ST. KANSAS CITY, MO 64102

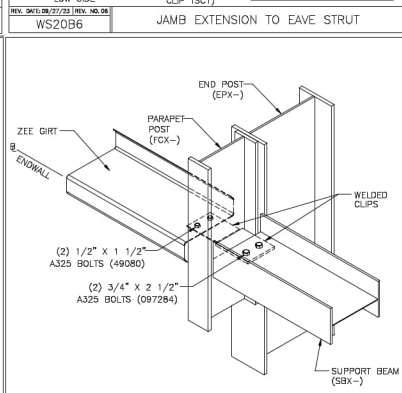
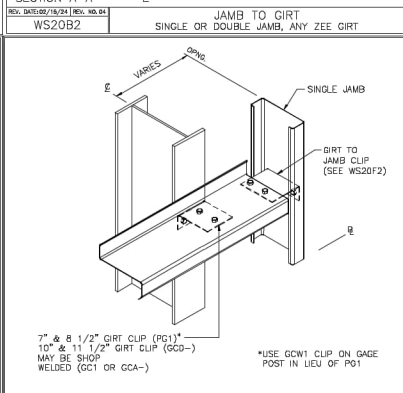
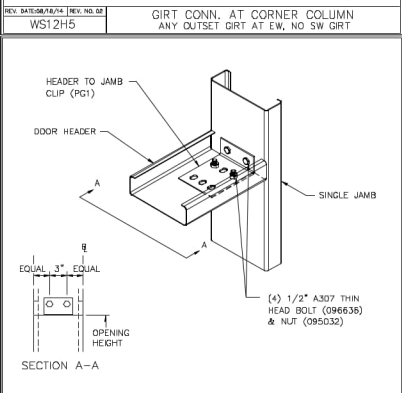
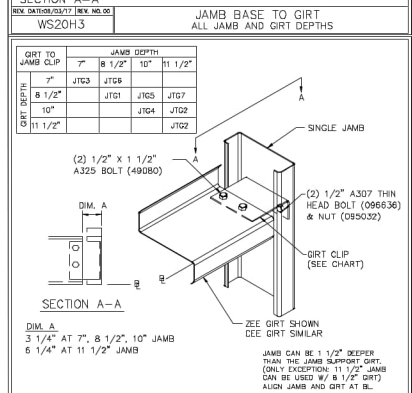
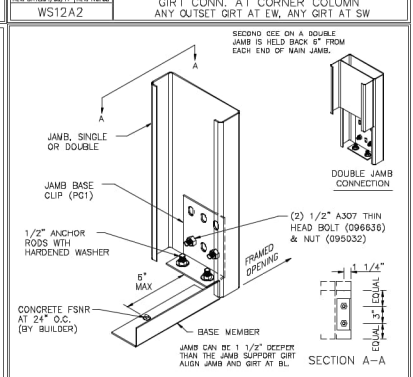
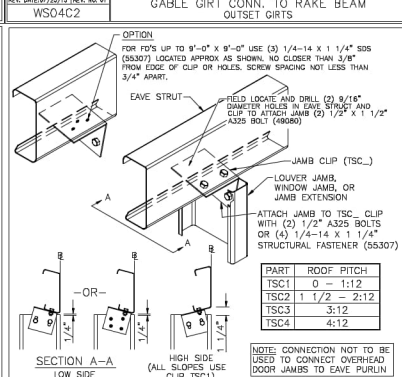
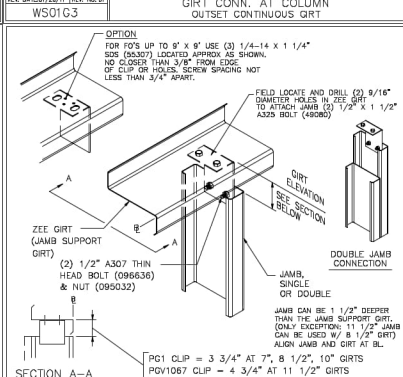
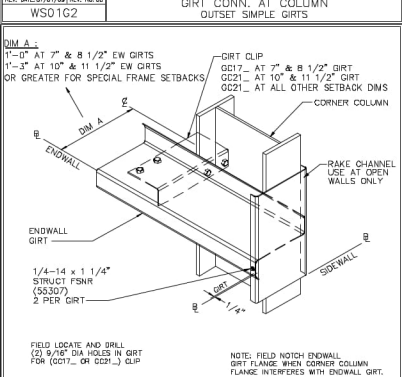
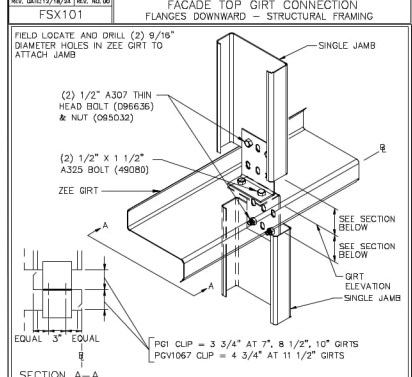
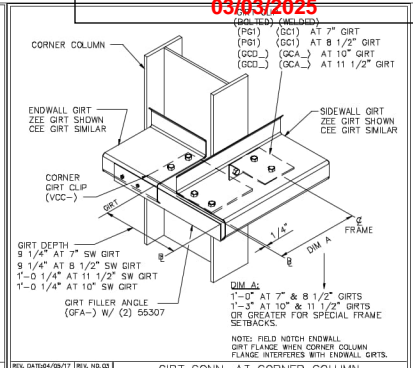
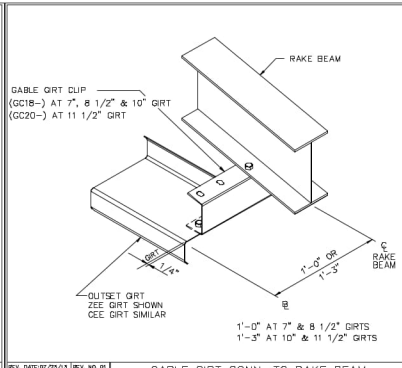
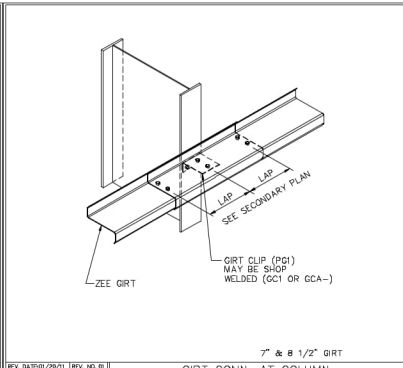
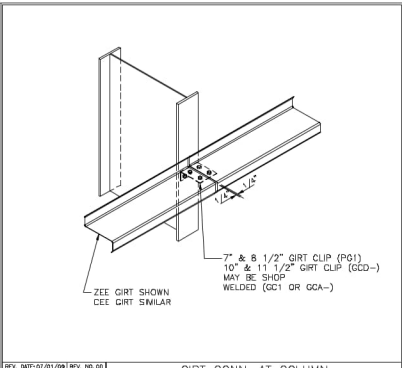
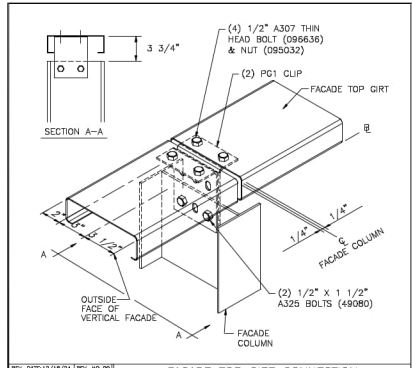
| REV | DATE | BY | DESCRIPTION | BUILDER                    | CUSTOMER             |
|-----|------|----|-------------|----------------------------|----------------------|
|     |      |    |             | MAR BUILDING SOLUTIONS LLC | Lee Summit, Missouri |
|     |      |    |             |                            | KR Wholesale         |

ASIF  
KETTLE  
BOLTS  
NUTS  
FB-2013033179

01/09/2025

24-025448-01  
DATE: 1/14/2024  
DRAWING CODE: LDCM / GL  
Butler Manufacturing  
VPC VERSION: 24.1 PAGE: 27

03/03/2025



- UNLESS NOTED, USE 1/2" x 1 1/2" A325 BOLT (49080) AND NUT (47120)
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**D** BUTLER MANUFACTURING  
1540 GENESSEE ST. KANSAS CITY, MO 64102

| REV. | DATE: | BY: | DESCRIPTION: |
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DRAWING SCALE: NTS

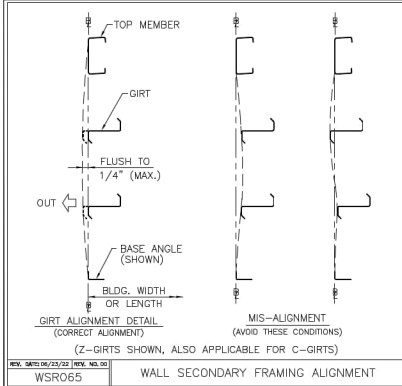
**FOR CONSTRUCTION**

01/09/2025

|                  |                            |
|------------------|----------------------------|
| BUILDER:         | MAR BUILDING SOLUTIONS LLC |
| CUSTOMER:        |                            |
| LOCATION:        | Lee's Summit, Missouri     |
| PROJECT:         | KR Wholesale               |
| BUILDERS' P.O.#: | 200440709                  |

|                      |              |
|----------------------|--------------|
| DATE:                | 24-025448-01 |
| DATE:                | 1/14/2024    |
| DRAWING CODE:        | LDCM / GL    |
| Butler Manufacturing |              |
| VPC VERSION:         | 24.1         |
| PAGE:                | 28           |





FOR CONSTRUCTION

01/09/2025

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|          |   |       |   |              |
|----------|---|-------|---|--------------|
| <b>D</b> | BUTLER MANUFACTURING                    |       | BUTLER MANUFACTURING                    |              |
|          | 1540 GENESSEE ST. KANSAS CITY, MO 64102 |       | 1540 GENESSEE ST. KANSAS CITY, MO 64102 |              |
|          | REV.                                    | DATE: | BY:                                     | DESCRIPTION: |
|          |   |       |   |              |

|                                 |                            |   |           |
|---------------------------------|----------------------------|---|-----------|
| <b>WALL SECONDARY SED'S (c)</b> |                            | JOB #: 24-025448-01                         |           |
| BUILDER:                        | MAR BUILDING SOLUTIONS LLC | DATE:                                       | 1/14/2024 |
| CUSTOMER:                       |                            | DRAWING CODE:                               | LDCM / GL |
| LOCATION:                       | Lees Summit, Missouri      | PAGE:                                       | 29        |
| PROJECT:                        | KR Wholesale               |   |           |
| BUILDER'S P.O.#:                | 200440709                  | Butler Manufacturing<br>VPC VERSION: 24.3.1 |           |

| Covering Schedule |     |            |        |            |                |              |
|-------------------|-----|------------|--------|------------|----------------|--------------|
| Id                | Qty | Start      | Length | Qty        | Stagger Length | Type         |
| #3                | 1   | 27'-5 1/4" |        |            |                | MR24 24 89 Z |
| #4                | 1   | 25'-6"     |        |            |                | MR24 24 86 Z |
| #5                | 1   | 10'-9 3/4" |        |            |                | MR24 24 87 Z |
| #6                | 42  | 20'-9 3/4" | 41     | 25'-9 3/4" |                | MR24 24 11 Z |
| #7                | 42  | 42'-5 1/4" | 41     | 37'-5 1/4" |                | MR24 24 13 Z |
| #8                | 1   | 27'-5 1/4" |        |            |                | MR24 24 35 Z |
| #9                | 1   | 25'-6"     |        |            |                | MR24 24 35 Z |
| #10               | 1   | 10'-9 3/4" |        |            |                | MR24 24 30 Z |
| #11               | 1   | 27'-5 1/4" |        |            |                | MR24 24 35 Z |
| #12               | 1   | 25'-6"     |        |            |                | MR24 24 35 Z |
| #13               | 1   | 10'-9 3/4" |        |            |                | MR24 24 30 Z |
| #14               | 42  | 20'-9 3/4" | 41     | 25'-9 3/4" |                | MR24 24 11 Z |
| #15               | 42  | 42'-5 1/4" | 41     | 37'-5 1/4" |                | MR24 24 13 Z |
| #16               | 1   | 27'-5 1/4" |        |            |                | MR24 24 89 Z |
| #17               | 1   | 25'-6"     |        |            |                | MR24 24 86 Z |
| #18               | 1   | 10'-9 3/4" |        |            |                | MR24 24 87 Z |

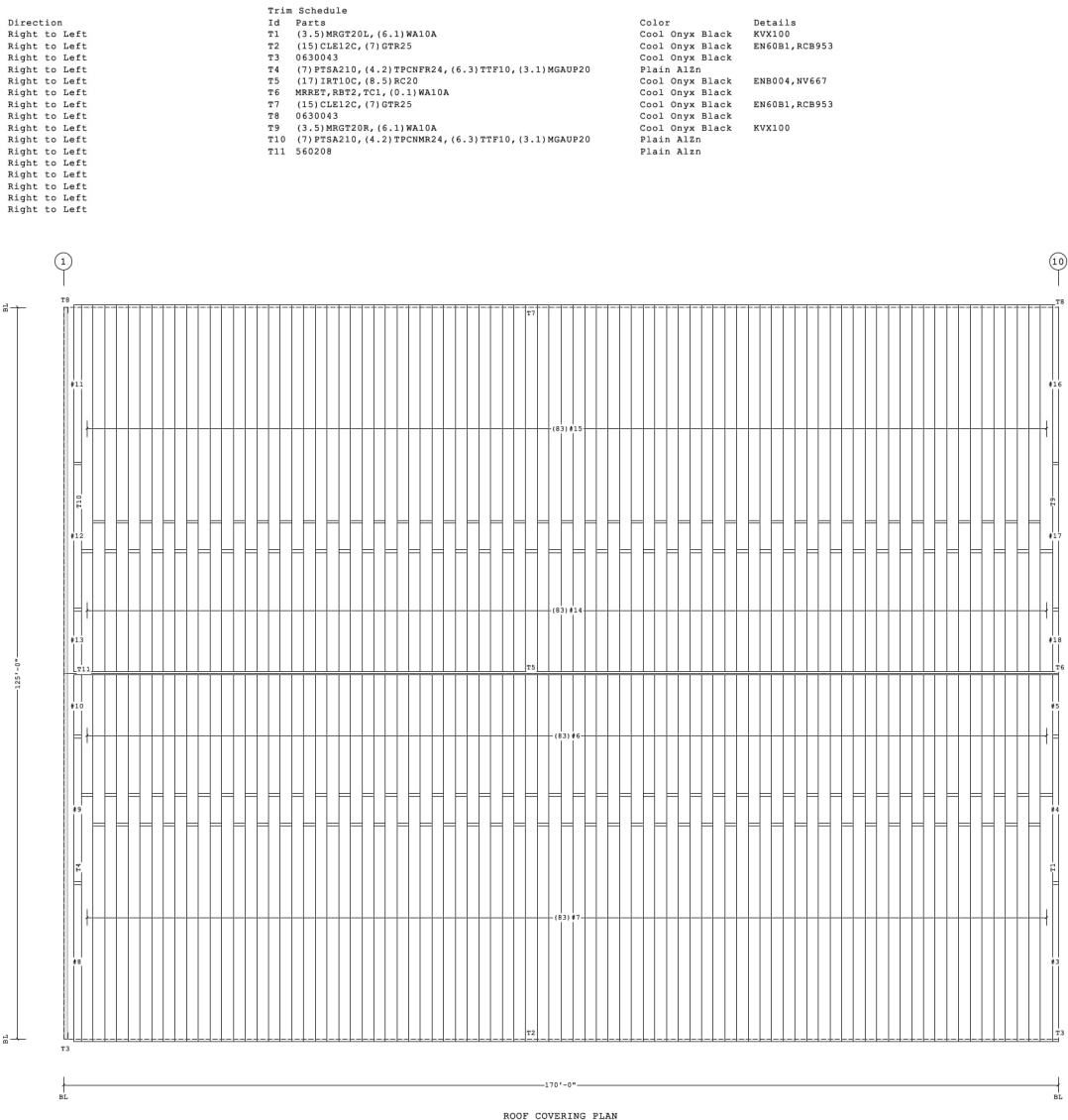
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Oper. Code:30=SQ,SQ  
Finish:Z=AlZn  
Color:AZ=Plain AlZn

| Covering Mark Schedule |     |                  |     |                    |               |
|------------------------|-----|------------------|-----|--------------------|---------------|
| Id                     | Qty | Start Panel      | Qty | Stagger/Last Panel | Direction     |
| #3                     | 1   | MR122705224892AZ |     |                    | Right to Left |
| #4                     | 1   | MR122506024862AZ |     |                    | Right to Left |
| #5                     | 1   | MR121009624872AZ |     |                    | Right to Left |
| #6                     | 42  | MR242009624112AZ | 41  | MR242509624112AZ   | Right to Left |
| #7                     | 42  | MR244205224132AZ | 41  | MR243705224132AZ   | Right to Left |
| #8                     | 1   | MR152705224352AZ |     |                    | Right to Left |
| #9                     | 1   | MR152506024352AZ |     |                    | Right to Left |
| #10                    | 1   | MR151009624302AZ |     |                    | Right to Left |
| #11                    | 1   | MR152705224352AZ |     |                    | Right to Left |
| #12                    | 1   | MR152506024352AZ |     |                    | Right to Left |
| #13                    | 1   | MR151009624302AZ |     |                    | Right to Left |
| #14                    | 42  | MR242009624112AZ | 41  | MR242509624112AZ   | Right to Left |
| #15                    | 42  | MR244205224132AZ | 41  | MR243705224132AZ   | Right to Left |
| #16                    | 1   | MR122705224892AZ |     |                    | Right to Left |
| #17                    | 1   | MR122506024862AZ |     |                    | Right to Left |
| #18                    | 1   | MR121009624872AZ |     |                    | Right to Left |

| Accessory Schedule |                                   |
|--------------------|-----------------------------------|
| Qty                | Description                       |
| 1                  | 3070 Door - Standard (Flush Only) |
| 2                  | 3070 Door - Standard (Flush Only) |

- PRE-DRILLING 1/8 DIAMETER HOLES FOR STRUCTURAL FASTENERS MAY BE REQUIRED FOR HEAVY GAGE NESTED ZEE'S AND/OR FASTENERS TO STRUCTURAL BEAMS
- STEEL PANELS ARE AN INTEGRAL PART OF THE STRUCTURAL SYSTEM. REMOVAL OR ALTERATION WITHOUT PRIOR AUTHORIZATION IS PROHIBITED.
- DUE TO MANUFACTURING LIMITATIONS SHORT PANELS MAY REQUIRE FIELD CUTTING. SEE THE COVERING SCHEDULE FOR CUT LENGTHS.
- SEE JOB DETAILS FOR COVERING AND TRIM FASTENER SPECIFICATION.

VPC FILENAME: 24025448-01



| Trim Schedule |   |                 |
|---------------|---|-----------------|
| Id            | Parts   | Color           |
| T1            | (3.5)MRG220L, (6.1)WA10A                            | Cool Onyx Black |
| T2            | (15)CLE12C, (7)GTR25                                | Cool Onyx Black |
| T3            | 0630043   | Cool Onyx Black |
| T4            | (7)PTSA210, (4.2)TPCNMR24, (6.3)TTF10, (3.1)MGAUP20 | Plain AlZn      |
| T5            | (17)IRT10C, (8.5)RC20                               | Cool Onyx Black |
| T6            | MRRRT, RBP2, TCL, (0.1)WA10A                        | Cool Onyx Black |
| T7            | (15)CLE12C, (7)GTR25                                | Cool Onyx Black |
| T8            | 0630043   | Cool Onyx Black |
| T9            | (3.5)MRG220R, (6.1)WA10A                            | Cool Onyx Black |
| T10           | (7)PTSA210, (4.2)TPCNMR24, (6.3)TTF10, (3.1)MGAUP20 | Plain AlZn      |
| T11           | 560208  | Plain AlZn      |

| Details |  |                 |
|---------|--|-----------------|
| Id      | Details  | Color           |
| T1      | P-081167, P-RC1                                  | Cool Onyx Black |
| T2      | P-103223, P-103315, P-104714                     | Cool Onyx Black |
| T3      | P-080572, P-081236, P-103223, P-104542, P-104714 | Cool Onyx Black |
| T4      | P-081535, P-081537                               | Cool Onyx Black |
| T5      | P-080573, P-080575, P-080578, P-080949, P-2RSLO  | Cool Onyx Black |
| T6      | P-081167, P-081243, P-RC1                        | Cool Onyx Black |
| T7      | P-103223, P-103315, P-104714                     | Cool Onyx Black |
| T8      | P-080572, P-081236, P-103223, P-104542, P-104714 | Cool Onyx Black |
| T9      | P-081167, P-RC1                                  | Cool Onyx Black |
| T10     | P-081535, P-081537                               | Cool Onyx Black |
| T11     | P-081548   | Cool Onyx Black |

| Planograph Schedule |  |
|---------------------|--|
| Id                  | Details  |
| T1                  | P-081167, P-RC1                                  |
| T2                  | P-103223, P-103315, P-104714                     |
| T3                  | P-080572, P-081236, P-103223, P-104542, P-104714 |
| T4                  | P-081535, P-081537                               |
| T5                  | P-080573, P-080575, P-080578, P-080949, P-2RSLO  |
| T6                  | P-081167, P-081243, P-RC1                        |
| T7                  | P-103223, P-103315, P-104714                     |
| T8                  | P-080572, P-081236, P-103223, P-104542, P-104714 |
| T9                  | P-081167, P-RC1                                  |
| T10                 | P-081535, P-081537                               |
| T11                 | P-081548   |

ROOF COVERING PLAN

Shape Name = Building - Shape 1

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| REV | DATE | BY | DESCRIPTION |
|-----|------|----|-------------|
| D   |      |    |             |

BUTLER MANUFACTURING  
1540 GENESSEE ST. KANSAS CITY, MO 64102

DRAWING SCALE: NTS

FOR CONSTRUCTION

| ROOF COVERING PLAN |                            |
|--------------------|----------------------------|
| BUILDER:           | MAR BUILDING SOLUTIONS LLC |
| CUSTOMER:          |                            |
| LOCATION:          | Lee's Summit, Missouri     |
| PROJECT:           | KR Wholesale               |
| BUILDER'S POK:     | 200440709                  |

|           |           |
|-----------|-----------|
| DATE:     | 1/14/2024 |
| DRAWN BY: | LDCM / GL |
| PAGE:     | 30        |

Butler Manufacturing  
VPC VERSION: 24.1



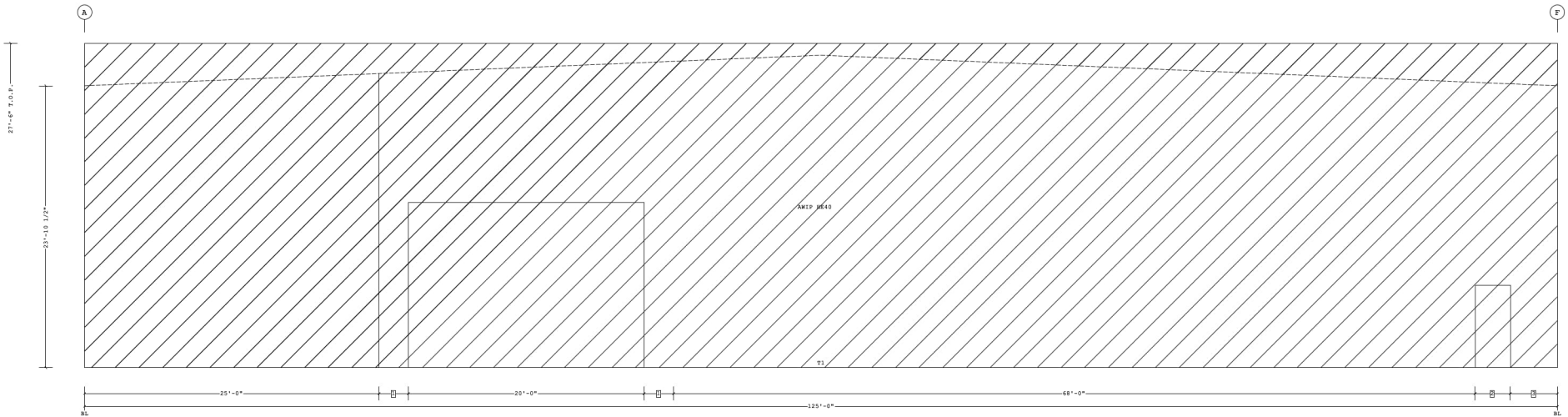
01/09/2025



a division of BlueScope Buildings North America, Inc.

| Trim Schedule | Id  | Parts | Color     | Details       |
|---------------|-----|-------|-----------|---------------|
| T1            | (5) | BA125 | Galvalume | WCX100,MSR065 |

**ERECTION NOTE:**  
Parapet cap trim (14-CTFV8E10 - Cool Onix Black) is provided as optional to be used at builder's earliest convenience.  
Base angle is provided for builder to field work at NDBMC wall as required.



COVERING ELEVATION AT 1

- 3 4'-0"
  - 2 3'-0"
  - 1 2'-6"
- Dimension Key

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
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 = Building - Shape 1, Wall = 1

**FOR CONSTRUCTION**



01/09/2025

| REV | DATE | BY | DESCRIPTION | BUILDER                    | CUSTOMER | LOCATION              | PROJECT      | BUILDER'S P.O.R. |
|-----|------|----|-------------|----------------------------|----------|-----------------------|--------------|------------------|
| D   |      |    |             | MAR BUILDING SOLUTIONS LLC |          | Lees Summit, Missouri | KR Wholesale | 200440709        |

**BUTLER MANUFACTURING**  
1540 GENESSEE ST. KANSAS CITY, MO 64102

**COVERING ELEVATION AT 1**



Butler Manufacturing  
VPC VERSION: 24.3.1

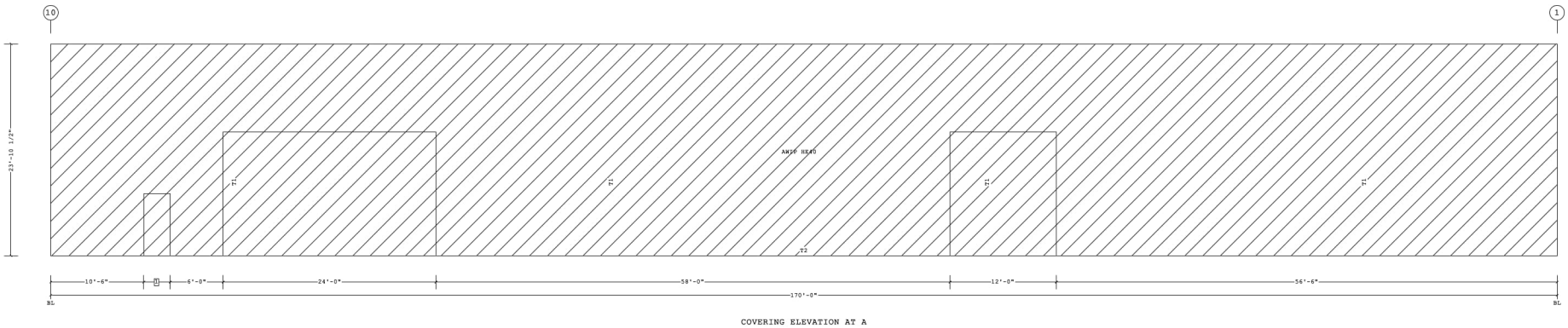
|         |              |
|---------|--------------|
| JOB #   | 24-025448-01 |
| DATE    | 1/14/2024    |
| DRAWING | LDCM / GL    |
| PAGE    | 31           |



| Trim Schedule |                          | Color           | Details       |
|---------------|--------------------------|-----------------|---------------|
| Id            | Parts                    | Cool Onyx Black | KV847         |
| T1            | 0008738,4CE75,(2.5)CP410 | Galvalume       | WCX100,WSR065 |
| T2            | (6.8)BA125               |                 |               |

| Planograph Schedule |                            |
|---------------------|----------------------------|
| Id                  | Details                    |
| T1                  | P-105224,P-105225,P-105228 |
| T2                  | ----                       |

**ERECTION NOTE:**  
Base angle is provided for builder to field work as required.



COVERING ELEVATION AT A

1 3'-0"  
Dimension Key

- PRE-DRILLING 1/8 DIAMETER HOLES FOR STRUCTURAL FASTENERS MAY BE REQUIRED FOR HEAVY GAGE NESTED ZEE'S AND/OR FASTENERS TO STRUCTURAL BEAMS
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Shape Name = Building - Shape 1, Wall = 2

| REV | DATE | BY | DESCRIPTION |
|-----|------|----|-------------|
| D   |      |    |             |

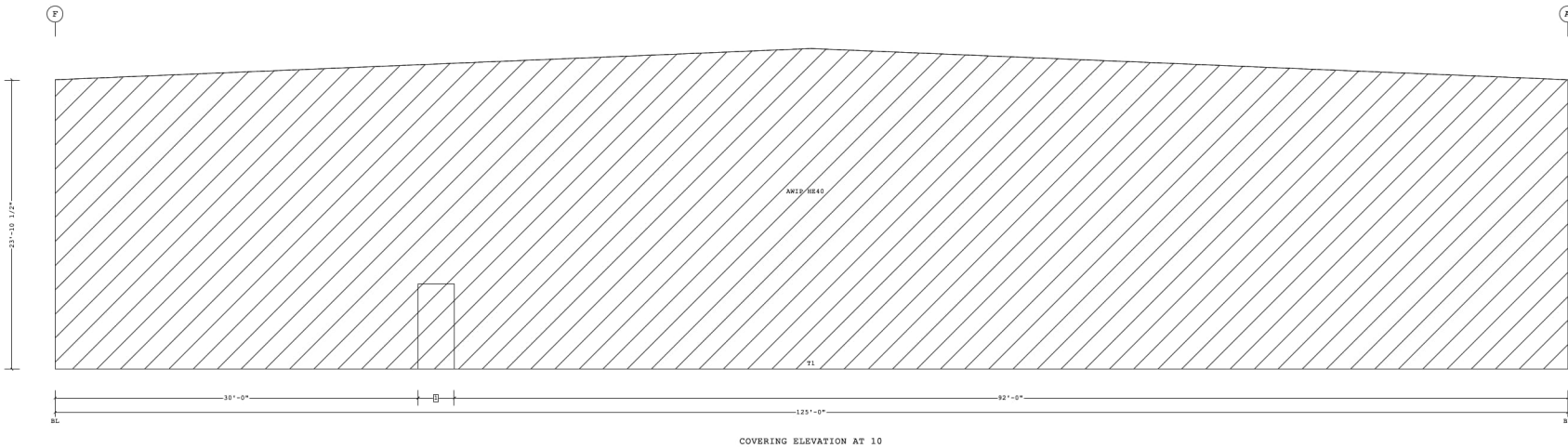
**BUTLER MANUFACTURING**  
1540 GENESSEE ST. KANSAS CITY, MO 64102

| FOR CONSTRUCTION |                            | COVERING ELEVATION AT A |              |
|------------------|----------------------------|-------------------------|--------------|
| BUILDER:         | MAR BUILDING SOLUTIONS LLC | JOB #:                  | 24-025448-01 |
| CUSTOMER:        |                            | DATE:                   | 1/14/2024    |
| LOCATION:        | Lees Summit, Missouri      | DRAWING CODE:           | LDCM / GL    |
| PROJECT:         | KR Wholesale               | PAGE:                   | 32           |
| BUILDER'S PO#:   | 200440709                  | VPC VERSION:            | 24.3.1       |



| Trim Schedule | Id  | Parts | Color     | Details       |
|---------------|-----|-------|-----------|---------------|
| T1            | (5) | BA125 | Galvalume | WCX100,MSR065 |

**ERECTION NOTE:**  
Base angle is provided for builder to field work as required.



1 3'-0"  
Dimension Key

- PRE-DRILLING 1/8 DIAMETER HOLES FOR STRUCTURAL FASTENERS MAY BE REQUIRED FOR HEAVY GAGE NESTED ZEE'S AND/OR FASTENERS TO STRUCTURAL BEAMS
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|                           |     |      |    |             |
|---------------------------|-----|------|----|-------------|
| <b>D</b>                  | REV | DATE | BY | DESCRIPTION |
|                           |     |      |    |             |
|                           |     |      |    |             |
|                           |     |      |    |             |
| DRAWING SCALE: <b>NTS</b> |     |      |    |             |

**FOR CONSTRUCTION**  
**COVERING ELEVATION AT 10**

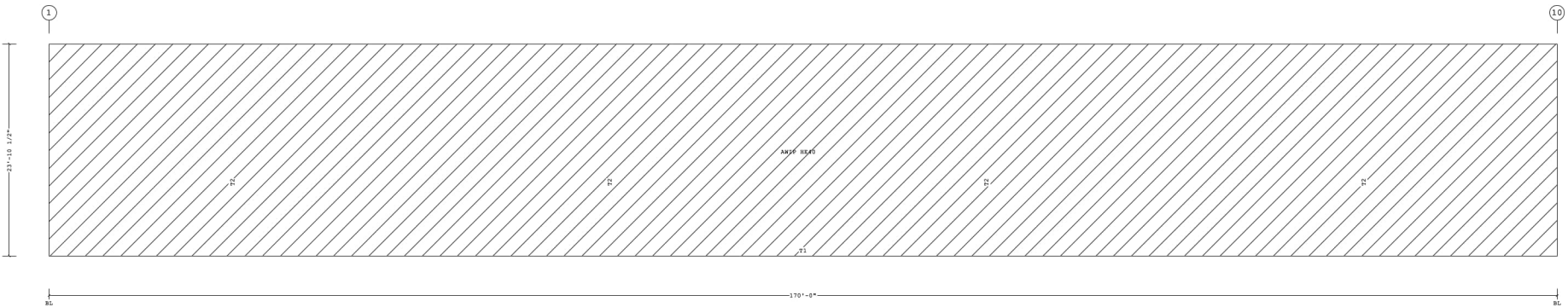
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| BUILDER: MAR BUILDING SOLUTIONS LLC | JOB #: 24-025448-01 |
| CUSTOMER:                           | DATE: 1/14/2024     |
| LOCATION: Lees Summit, Missouri     | DRAWN BY: LDCM / GL |
| PROJECT: KR Wholesale               | PAGE: 33            |
| BUILDER'S PO#: 200440709            | VPC VERSION: 24.3.1 |



| Trim Schedule |                          | Color |                 | Details       |         |
|---------------|--------------------------|-------|-----------------|---------------|---------|
| Id            | Parts                    |       |                 | Id            | Details |
| T1            | (6.8)BA125               |       | Galvalume       | MCX100,WSR065 |         |
| T2            | 0008738,4CE75,(2.5)CP410 |       | Cool Onyx Black | KV847         |         |

| Planograph Schedule |                            |
|---------------------|----------------------------|
| Id                  | Details                    |
| T1                  | ----                       |
| T2                  | P-105224,P-105225,P-105228 |

**ERECTION NOTE:**  
Base angle is provided for builder to field work as required.



COVERING ELEVATION AT F



**FOR CONSTRUCTION**

- PRE-DRILLING 1/8 DIAMETER HOLES FOR STRUCTURAL FASTENERS MAY BE REQUIRED FOR HEAVY GAGE NESTED ZEE'S AND/OR FASTENERS TO STRUCTURAL BEAMS
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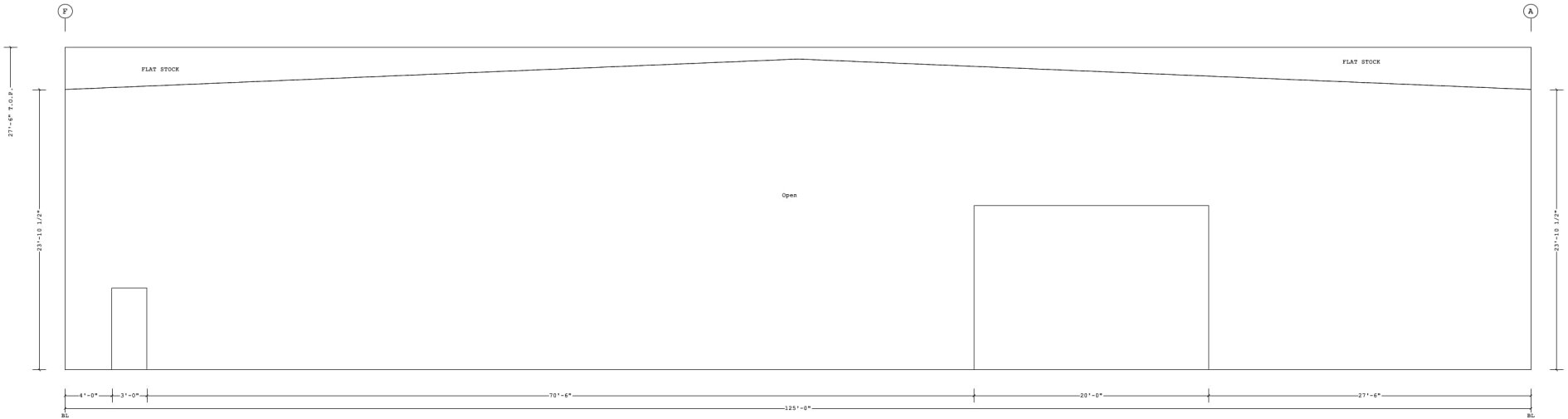
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|                           |     |      |    |             |
|---------------------------|-----|------|----|-------------|
| <b>D</b>                  | REV | DATE | BY | DESCRIPTION |
|                           |     |      |    |             |
|                           |     |      |    |             |
|                           |     |      |    |             |
| DRAWING SCALE: <b>NTS</b> |     |      |    |             |

|  |                       |                                |                       |
|--|-----------------------|--------------------------------|-----------------------|
| <b>BUTLER MANUFACTURING</b><br>1540 GENESSEE ST. KANSAS CITY, MO 64102 |                       | <b>COVERING ELEVATION AT F</b> |                       |
| BUILDER: MAR BUILDING SOLUTIONS LLC                                    | CUSTOMER:             | BUILDER'S FOR: 200440709       | DATE: 1/14/2024       |
| LOCATION: Lees Summit, Missouri  | PROJECT: KR Wholesale |                                | DRAWING NO: LDCM / GL |
|  |                       |                                | PAGE: 34              |

**ERECTION NOTE:**  
Flat stock is provided for the builder to use as backer panel, flat stock provided will cover 330 sq. ft. approx.  
Material provided:  
(11) FSTRB10 - Plain Al3n



WALL LINER ELEVATION AT 1  
(View from inside Building)



**FOR CONSTRUCTION**

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
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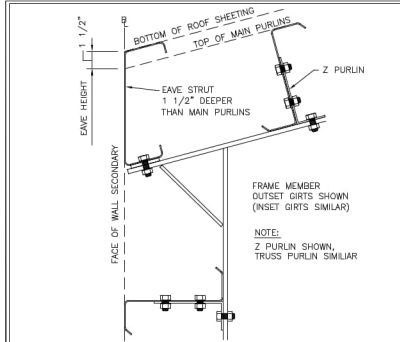
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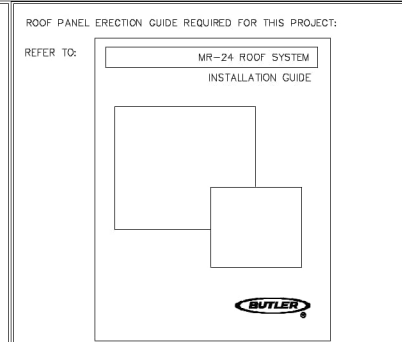
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|----------|--|-------|--|--------------|
| <b>D</b> | BUTLER MANUFACTURING                   |       | BUTLER MANUFACTURING                   |              |
|          | 1540 GENESEE ST. KANSAS CITY, MO 64102 |       | 1540 GENESEE ST. KANSAS CITY, MO 64102 |              |
|          | REV.                                   | DATE: | BY:                                    | DESCRIPTION: |
|          |  |       |  |              |

|                                  |                            |                     |            |
|----------------------------------|----------------------------|---------------------|------------|
| <b>WALL LINER ELEVATION AT 1</b> |                            | JOB #: 24-025448-01 |            |
| BUILDER:                         | MAR BUILDING SOLUTIONS LLC | DATE:               | 1/14/2024  |
| CUSTOMER:                        |                            | DRAWN BY:           | LDCM / GL  |
| LOCATION:                        | Lees Summit, Missouri      | CHECKED BY:         |            |
| PROJECT:                         | KR Wholesale               | BUILDER'S PDR:      | 200440709  |
| BUILDER'S PDR:                   | 200440709                  | DATE:               | 01/09/2025 |
| DRAWING SCALE: NTS               |                            | PAGE: 35            |            |

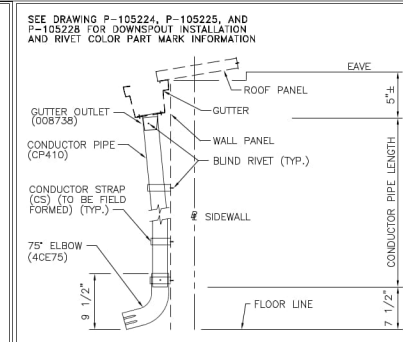




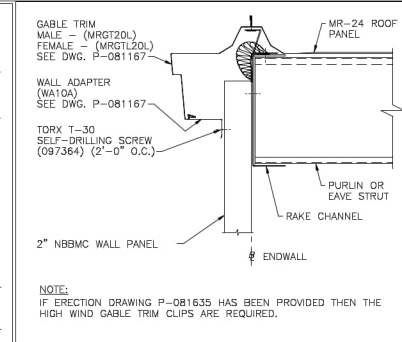
REV. DATE: 05/26/22 [REV. NO. 01] EN60B1 EAVE HT. WITH MR-24 WITH THERMAL BLOCK 8 1/2 AND 10 INCH PURLINS



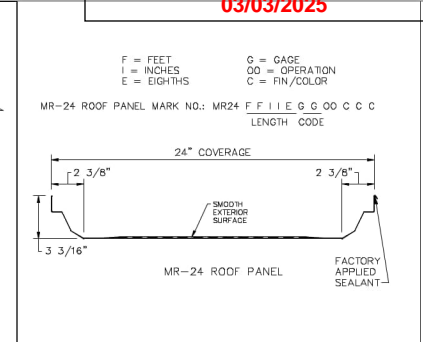
REV. DATE: 05/26/22 [REV. NO. 00] ENB004 MR-24 ROOF SYSTEM



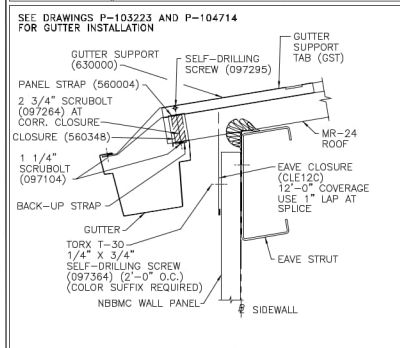
REV. DATE: 05/26/22 [REV. NO. 04] KV847 4 INCH DOWNSPOUT AT WALL, STYLWALL II AND ALL INSULATED WALL PANEL



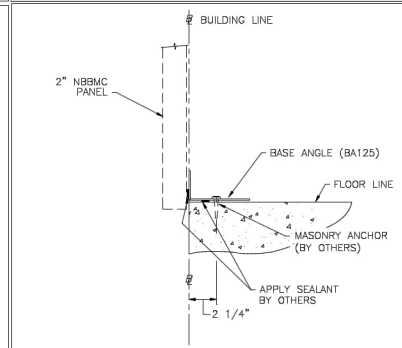
REV. DATE: 12/19/24 [REV. NO. 00] KVX100 GABLE TRIM LEFT/RIGHT WITH MR-24 ROOF 2\"/>



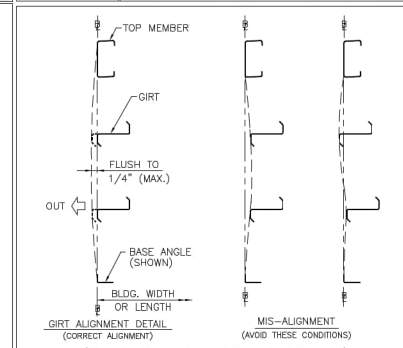
REV. DATE: 07/10/20 [REV. NO. 00] NV667 MR-24 STANDING SEAM ROOF PANEL



REV. DATE: 03/21/22 [REV. NO. 01] RCB953 GUTTER WITH WITHR. SEAL WITH MR-24 ROOF NBBMC WALL PANEL WITHOUT WALL CLR



REV. DATE: 12/19/24 [REV. NO. 00] WCX100 BASE ANGLE W/O TRIM AT WALLS FOR 2\"/>



REV. DATE: 06/23/22 [REV. NO. 00] WSR065 WALL SECONDARY FRAMING ALIGNMENT

THE BUTLER MFG. ENGINEER'S SEAL APPLIES ONLY TO THE WORK PRODUCT OF BUTLER MFG. AND DESIGN AND PERFORMANCE REQUIREMENTS SPECIFIED BY BUTLER. THE BUTLER MFG. ENGINEER'S SEAL DOES NOT APPLY TO THE PERFORMANCE OR DESIGN OF ANY OTHER PRODUCT OR COMPONENT FURNISHED BY BUTLER EXCEPT TO ANY DESIGN OR PERFORMANCE REQUIREMENTS SPECIFIED BY BUTLER.

THIS DRAWING, INCLUDING THE INFORMATION HEREON, REMAINS THE PROPERTY OF BUTLER MFG. 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 BUTLER MFG.

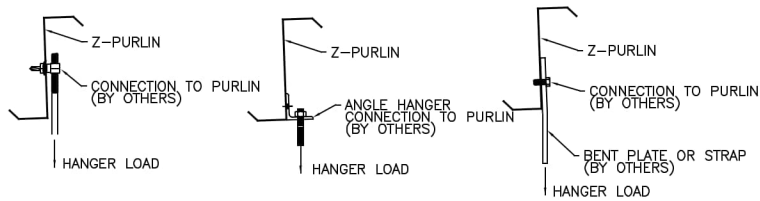
THE GENERAL CONTRACTOR AND/OR ERECTOR IS SOLELY RESPONSIBLE FOR ACCURATE GOOD QUALITY WORKMANSHIP IN ERECTING THIS BUILDING IN ACCORDANCE WITH THIS DRAWING, DETAILS REFERENCED IN THIS DRAWING, ALL APPLICABLE BUTLER MFG. ERECTION GUIDES, AND INDUSTRY STANDARDS PERTAINING TO PROPER ERECTION, INCLUDING THE CORRECT USE OF TEMPORARY BRACING.

|   |           |                       |    |             |                      |                            |           |
|---|-----------|-----------------------|----|-------------|----------------------|----------------------------|-----------|
| <b>D</b><br>BUTLER MANUFACTURING<br>1540 GENESSEE ST. KANSAS CITY, MO 64102 | REV       | DATE                  | BY | DESCRIPTION | BUILDER:             | MAR BUILDING SOLUTIONS LLC |           |
|   | CUSTOMER: |                       |    |             |                      | DATE:                      | 1/14/2024 |
|   | LOCATION: | Lees Summit, Missouri |    |             |                      | DRAWING CODE:              | LDCM / GL |
|   | PROJECT:  | KR Wholesale          |    |             |                      | BUILDER'S PDR:             | 200440709 |
| DRAWING SCALE:  | NTS       |                       |    |             | BUTLER MANUFACTURING | Butler Manufacturing       |           |
|   |           |                       |    |             | VPC VERSION:         | 24.3.1                     |           |
|   |           |                       |    |             |                      | PAGE:                      | 36        |



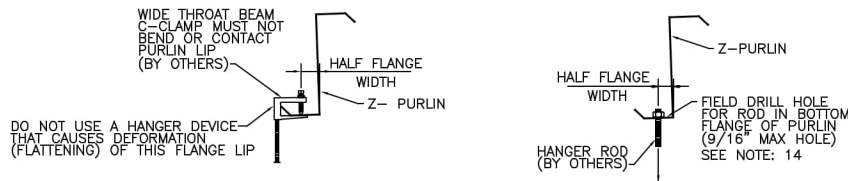
FOR CONSTRUCTION

01/09/2025



WEB HANGERS

FOR 1/2" DIAM. BOLT TO PURLIN CONNECTION-- MAX HANGER LOAD=1500lbs  
PURLIN MUST BE SPECIFICALLY DESIGNED FOR LOADS GREATER THAN 500 LB. SEE NOTE: 2.



VERIFY OVERALL PURLIN DESIGN CAN TAKE APPLIED LOADS. SEE NOTE: 2

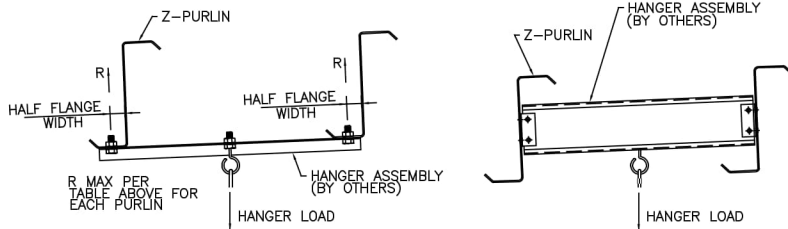
| MAXIMUM LOAD SUSPENDED FROM BOTTOM FLANGE<br>(LOCATED AT HALF-FLANGE WIDTH) |          |           |          |
|---|----------|-----------|----------|
| THICKNESS   | MAX LOAD | THICKNESS | MAX LOAD |
| 0.060"  | 110lbs   | 0.088"    | 200lbs   |
| 0.068"  | 120lbs   | 0.098"    | 250lbs   |
| 0.073"  | 140lbs   | 0.113"    | 250lbs   |
| 0.079"  | 180lbs   |           |          |

FOR LOADS LOCATED MORE THAN HALF FLANGE WIDTH FROM WEB, USE HALF OF THE LOADS SHOWN ABOVE.

BOTTOM FLANGE CLAMP HANGER  
(TOP FLANGE SIMILAR)

BOTTOM FLANGE ROD HANGER  
(TOP FLANGE SIMILAR)

DO NOT USE ANY OF THE DETAILS ABOVE IF ROOF SLOPE IS GREATER THAN 4:12

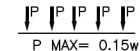
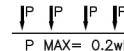
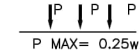
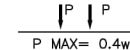


DOUBLE PURLIN HANGERS

VERIFY OVERALL PURLIN DESIGN CAN SUPPORT APPLIED LOADS.

GENERAL NOTES

- CONCENTRATED LOADS GREATER THAN 500lbs ON ANY SINGLE PURLIN MUST BE EXPLICITLY LOCATED AND DESIGNED FOR DURING DESIGN OF BUILDING SYSTEM.
- SPECIFIED COLLATERAL LOADS MAY BE CONVERTED TO SAFE CONCENTRATED LOADS AS FOLLOWS, WHERE P = MAX CONCENTRATED LOAD(lbs); W = UNIFORM COLLATERAL LOAD (PSF) x PURLIN SPACING (ft) = lbs/ft; L = PURLIN SPAN (ft). HANGERS SHOULD BE SPACED APPROX. EQUAL.



6 OR MORE HANGERS PER PURLIN  
P MAX= W x HANGER SPACING

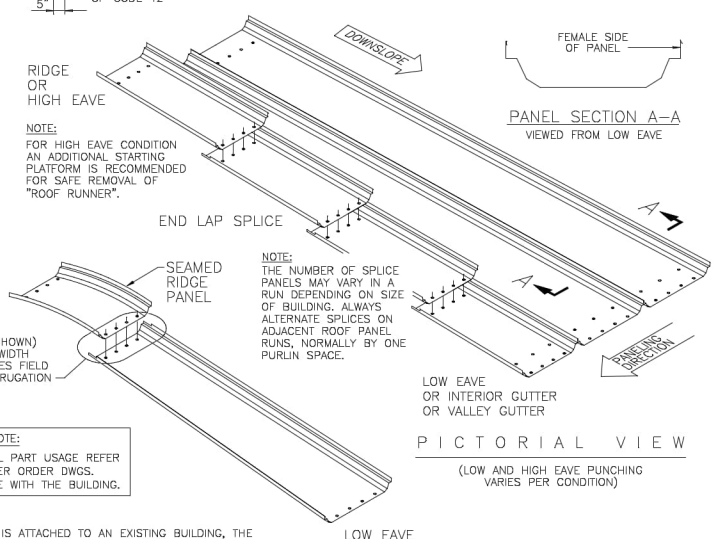
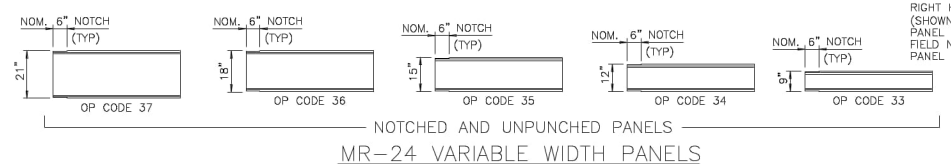
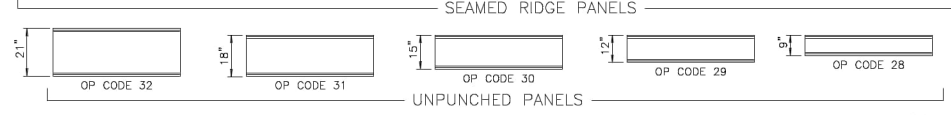
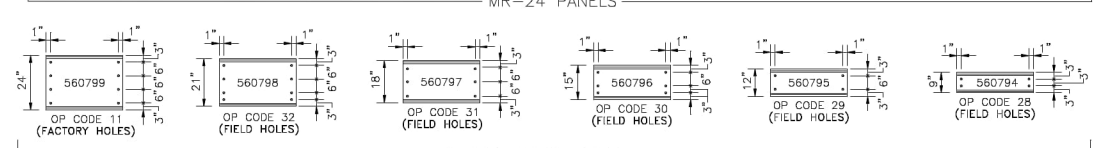
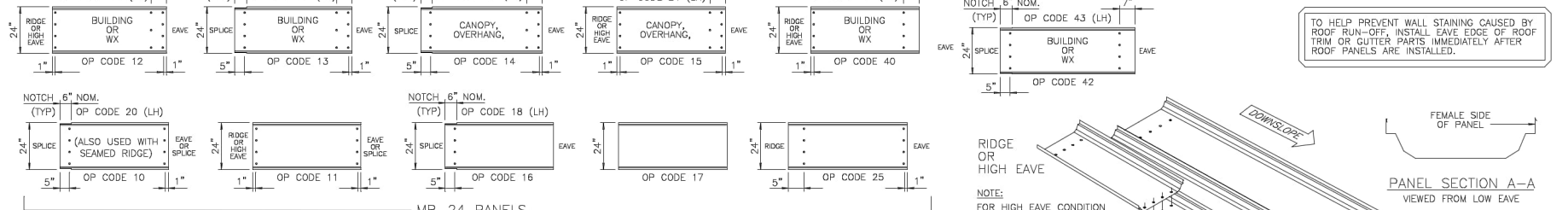
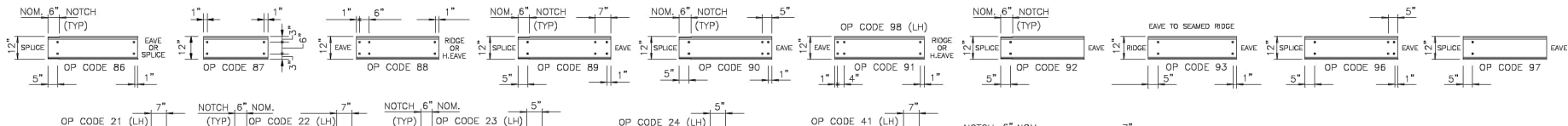
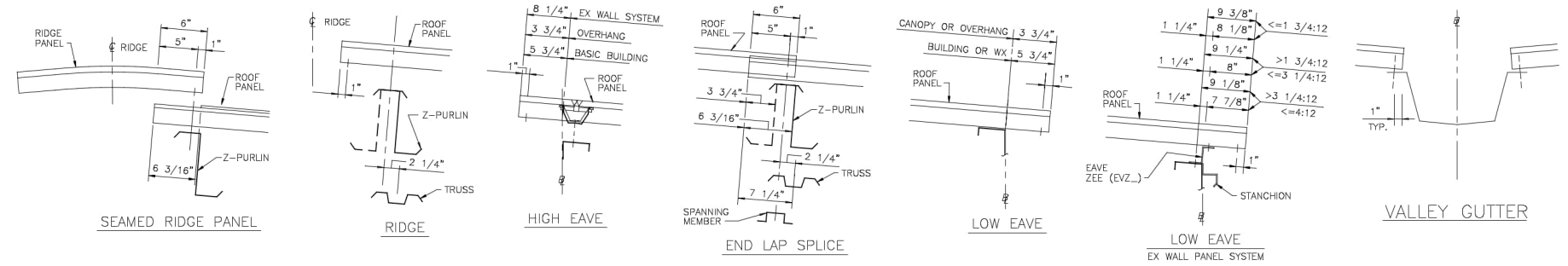
EXAMPLE: A PIPE IS SUSPENDED FROM A PURLIN AT 3 LOCATIONS EQUALLY SPACED  
BAY SPACING = 24'-0" PURLIN SPACING = 5'-0"  
SPECIFIED COLLATERAL LOAD = 5 PSF  
W = 5 PSF x 5' = 25 PLF L = 24'-0"  
P MAX = 0.25 x 25 PLF x 24'-0" = 150 LBS AT EACH LOCATION  
THE PURLIN CAN SUPPORT 3 LOADS UP TO 150 LBS EACH. PICK A HANGER CONNECTION CAPABLE OF SUPPORTING ACTUAL APPLIED LOADS.

- FOR LOADS GREATER THAN 250 lbs, PURLINS MUST BE "BLOCKED" AT LOCATION OF LOAD TO PREVENT PURLIN ROTATION.
- EQUIPMENT LOADS SHOULD BE OBTAINED FROM CERTIFIED EQUIPMENT DRAWINGS AND MANUFACTURER'S DATA.
- Z-PURLINS WILL DEFLECT UNDER SNOW AND WIND LOADS. ITEMS THAT MAY BE DAMAGED DUE TO DEFLECTIONS, (EX. GAS LINES), VERIFY THAT PIPES OR SUSPENDED EQUIPMENT ARE COMPATIBLE WITH EXPECTED DEFLECTION RANGES ( $\pm L/180$ ).
- THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) REQUIRES SPRINKLER HANGERS TO BE DESIGNED FOR A MINIMUM LOAD OF FIVE TIMES THE WEIGHT OF THE WATER-FILLED PIPE PLUS 250 POUNDS. THE HANGER ITSELF MUST BE ABLE TO SUPPORT THIS LOADING. IT IS NOT NECESSARY TO DESIGN THE SUPPORTING MEMBER FOR THIS LOAD IN COMBINATION WITH THE DESIGN LOADS.
- SUSPENDED LOADS WILL NEED TO BE BRACED (TO THE PRIMARY FORCE RESISTING SYSTEM) FOR LATERAL STABILITY DUE TO EARTHQUAKES.
- HANGER DESIGN IS NOT THE RESPONSIBILITY OF BLUESCOPE.
- TOP FLANGE HANGERS SHOULD BE AVOIDED ON BUILDINGS WITHOUT INSULATION SPACER BLOCKS ON TOP OF THE TOP FLANGE. IF TOP FLANGE HANGERS ARE REQUIRED, PLACE THE HANGERS AT THE ROOF PANEL MAJOR CORRUGATION LOCATION TO AVOID DAMAGING THE ROOF PANEL WITH THE HANGER WHEN THE ROOF PANEL IS LOADED OR WALKED ON.
- WHEN BEAM C-CLAMPS OR OTHER ROD HANGERS ARE USED ON THE TOP FLANGE, THE ROD SHOULD NOT EXTEND ABOVE THE TOP OF THE CLAMP TO AVOID DAMAGING THE ROOF PANEL WITH THE ROD WHEN THE ROOF PANEL IS LOADED OR WALKED ON.
- DO NOT HANG ANY TYPE OF CRANE, HOIST, CONVEYOR OR ANY MOVING LOADS FROM THE Z-PURLINS.
- DO NOT HANG ANY LOAD FROM BBNA SUPPLIED PURLIN BRACES OR BRIDGING.
- DO NOT WELD ANY PART OF THE Z-PURLIN.
- HOLES MUST NOT EXCEED 9/16" DIAMETER UNLESS AUTHORIZED BY BBNA ENGINEER. DRILL OR REAM HOLES WHEN REQUIRED- DO NOT FLAME CUT

CONCENTRATED LOADS ON ROOF  
Z-PURLIN HANGER DETAILS

|                                |                           |                         |
|--------------------------------|---------------------------|-------------------------|
| DESIGNED BY<br>REVERITT        | CHECKED BY<br>RBENTON     | GROUP NUMBER: 80-084-01 |
| FIRST RELEASE DATE<br>02/26/10 | REVISION DATE<br>02/26/20 | B B-081465 09           |

| <br>ANTI-ROLL CLIP<br>ARC1  | DOOR JAMB CLIP (INSET)<br>DJC2- | DOOR JAMB CLIP (INSET)<br>DJC4R- | <br>EAVE ATTACHMENT PLATE<br>EAP1 | <br>ENDFRAME EAVE ATTACHMENT PLATE<br>EAP2 | EAVE STRUT SHIM PLATE<br>ESH- | GIRT CLIP TO RAFTER<br>GC18- | GIRT / JAMB CLIP<br>GC5 | VARIABLE LEG CLIP TO 8.5 GIRTS<br>GC71- | GIRT CLIP TO GAGE ENDWALL<br>GC91 1/2 | VARIABLE INSET GIRT CLIP<br>GCE | 11.5 INSET GIRT CLIP<br>GCZZ | JAMB TO COLUMN MISC. PLATE<br>JC- | JAMB TO GIRT CLIP 11.5 - 10 / 11.5<br>JTG2 | JAMB TO GIRT CLIP 10 - 10<br>JTG4 | GUSSETED PURLIN GIRT CLIP<br>PC4/PC5 | PURLIN / GIRT CLIP<br>PG1 | VARIABLE OUTSET GIRT CORNER CLIP<br>VCC- |   |             |                    |               |  |  |          |          |  |  |
|---|---------------------------------|----------------------------------|-----------------------------------|--|-------------------------------|------------------------------|-------------------------|---|---------------------------------------|---------------------------------|------------------------------|-----------------------------------|--|-----------------------------------|--------------------------------------|---------------------------|--|---|-------------|--------------------|---------------|--|--|----------|----------|--|--|
| <table border="1"> <thead> <tr> <th colspan="4">BENT CLIPS</th> </tr> <tr> <th>DRAWN BY</th> <th>CHECKED BY</th> <th colspan="2">GROUP NUMBER: - -</th> </tr> </thead> <tbody> <tr> <td>NF</td> <td>RJR</td> <td>B</td> <td>B-081765 04</td> </tr> <tr> <td>FIRST RELEASE DATE</td> <td>REVISION DATE</td> <td></td> <td></td> </tr> <tr> <td>01/28/13</td> <td>07/21/16</td> <td></td> <td></td> </tr> </tbody> </table> |                                 |                                  |                                   |  |                               |                              |                         | BENT CLIPS                              |                                       |                                 |                              | DRAWN BY                          | CHECKED BY                                 | GROUP NUMBER: - -                 |                                      | NF                        | RJR                                      | B | B-081765 04 | FIRST RELEASE DATE | REVISION DATE |  |  | 01/28/13 | 07/21/16 |  |  |
| BENT CLIPS  |                                 |                                  |                                   |  |                               |                              |                         |   |                                       |                                 |                              |                                   |  |                                   |                                      |                           |  |   |             |                    |               |  |  |          |          |  |  |
| DRAWN BY  | CHECKED BY                      | GROUP NUMBER: - -                |                                   |  |                               |                              |                         |   |                                       |                                 |                              |                                   |  |                                   |                                      |                           |  |   |             |                    |               |  |  |          |          |  |  |
| NF  | RJR                             | B                                | B-081765 04                       |  |                               |                              |                         |   |                                       |                                 |                              |                                   |  |                                   |                                      |                           |  |   |             |                    |               |  |  |          |          |  |  |
| FIRST RELEASE DATE  | REVISION DATE                   |                                  |                                   |  |                               |                              |                         |   |                                       |                                 |                              |                                   |  |                                   |                                      |                           |  |   |             |                    |               |  |  |          |          |  |  |
| 01/28/13  | 07/21/16                        |                                  |                                   |  |                               |                              |                         |   |                                       |                                 |                              |                                   |  |                                   |                                      |                           |  |   |             |                    |               |  |  |          |          |  |  |



**BUILDER NOTE:**  
FOR ACTUAL PART USAGE REFER TO THE "PER ORDER DWGS. THAT COME WITH THE BUILDING.

**NOTE:**  
WHEN A WX IS ATTACHED TO AN EXISTING BUILDING, THE BUILDING EAVE EAVE CONDITION BECOMES A FIELD MODIFIED END LAP SPlice WITH UPPER END OF PANEL UNPUNCHED.

**NOTE:**  
MR-24 VARIABLE WIDTH PANELS (EXCLUDING 12" PANELS) ARE UNPUNCHED. SEE DWG. P-080876 FOR FIELD DRILLING REQUIREMENTS.

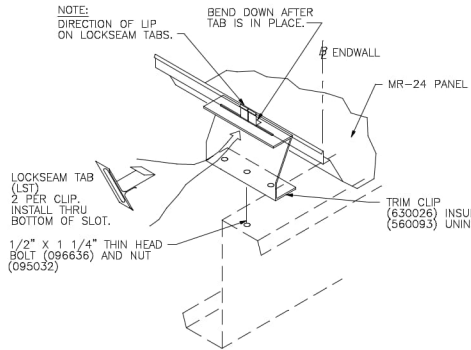
| MR-24 ROOF PANEL IDENTIFICATION |               |                         |             |
|---------------------------------|---------------|-------------------------|-------------|
| DRAWN BY                        | CHECKED BY    | GROUP NUMBER: 02-030-01 |             |
| JPV                             | BJF           |                         |             |
| FIRST RELEASE DATE              | REVISION DATE | B                       | P-080570 10 |
| 01/21/10                        | 05/02/24      |                         |             |



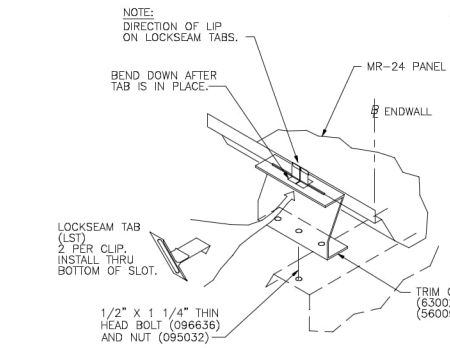
**CAUTION**  
THE TRIM CLIP MUST BE INSTALLED AT THE SAME TIME AS THE GABLE ANGLE OR RAKE CHANNEL, BEFORE INSTALLING TRIM CLIPS SEE THE PROPER SECONDARY STRUCTURAL DETAIL DRAWING.

**DETAIL 1 IMPORTANT NOTES:**

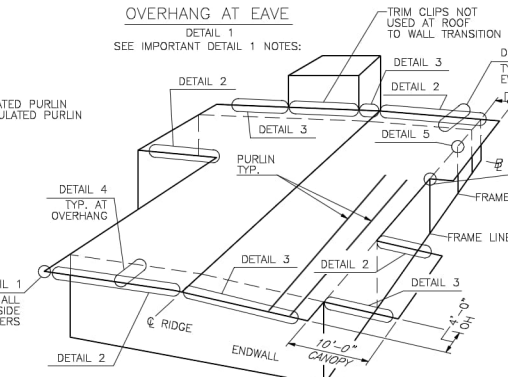
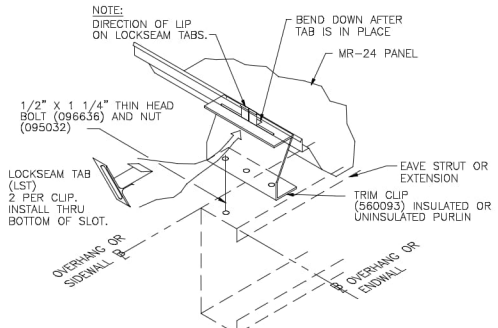
1. USE THE OUTER DOWNSLOPE HOLE OR SLOT IN THE TRIM CLIP FOR THE CONNECTION TO THE EAVE STRUT.
2. WITH MULTIPLE GUTTER AT THE EAVE, MOVE THE TRIM CLIP UPSLOPE TO CLEAR THE RUBBER CORRUGATION CLOSURE IN THE END CORRUGATION. USE THE CLIP AS A TEMPLATE TO FIELD DRILL (2) 9/16" DIA. HOLES. USE THE TWO OUTER HOLES OR SLOTS AS A TEMPLATE TO FIELD DRILL THE GABLE ANGLE AND/OR RAKE CHANNEL. ATTACH WITH (2) 1/2" x 1 1/4" THIN HEAD BOLTS AND 1/2" NUTS IN THE TWO OUTER HOLES OF THE CLIP.



**TAB ORIENTATION AT FEMALE SIDE OF PANEL**  
DETAIL 2

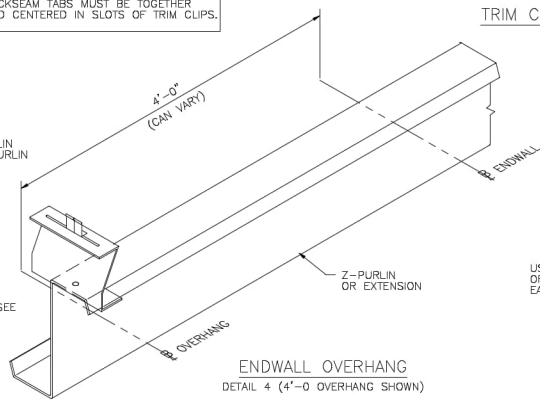


**TAB ORIENTATION AT MALE SIDE OF PANEL**  
DETAIL 3

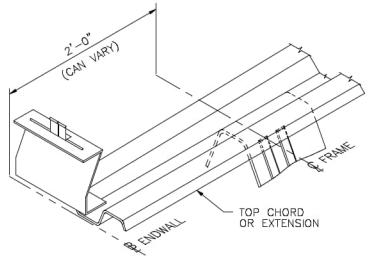


**BUILDING KEY**

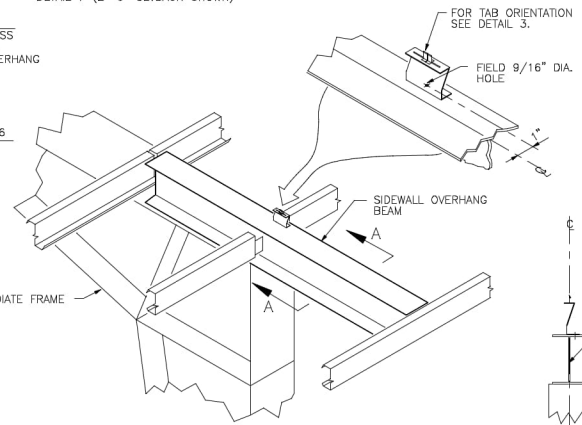
**IMPORTANT NOTE**  
LOCKSEAM TABS MUST BE TOGETHER AND CENTERED IN SLOTS OF TRIM CLIPS.



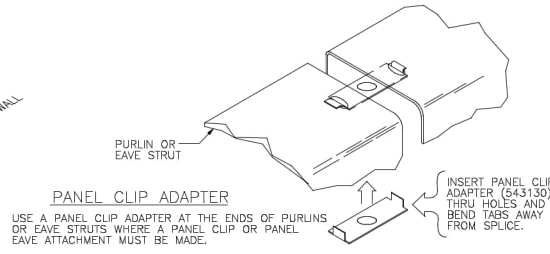
**ENDWALL OVERHANG**  
DETAIL 4 (4'-0" OVERHANG SHOWN)



**SETBACK AT TRUSS ENDWALL**  
DETAIL 7 (2'-0" SETBACK SHOWN)

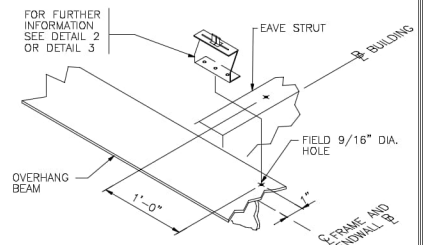


**TRIM CLIPS REQUIRED ON SIDEWALL OVERHANG BEAMS**  
DETAIL 5

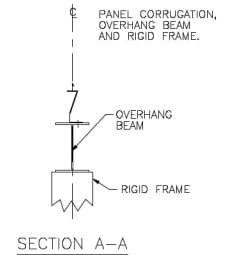


**PANEL CLIP ADAPTER**

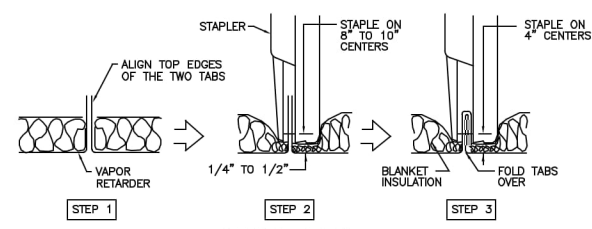
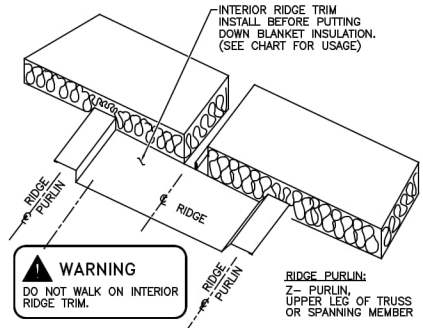
USE A PANEL CLIP ADAPTER AT THE ENDS OF PURLINS OR EAVE STRUTS WHERE A PANEL CLIP OR PANEL EAVE ATTACHMENT MUST BE MADE.



**OVERHANG TERMINATING AT FRAME LINE**  
DETAIL 6

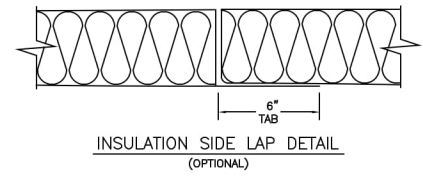


|   |               |                         |             |
|---|---------------|-------------------------|-------------|
| <b>MR-24 TRIM CLIP LOCKSEAM TAB AND PANEL CLIP ADAPTER INSTL.</b> |               |                         |             |
| DRAWN BY  | CHECKED BY    | GROUP NUMBER: 02-030-02 |             |
| JPV   | BJF           |                         |             |
| FIRST RELEASE DATE  | REVISION DATE | B                       | P-080572 05 |
| 01/21/10  | 03/07/24      |                         |             |



SEALING JOINTS  
ALL JOINTS MUST BE STAPLED AS SHOWN TO MAINTAIN VAPOR RETARDER INTEGRITY.

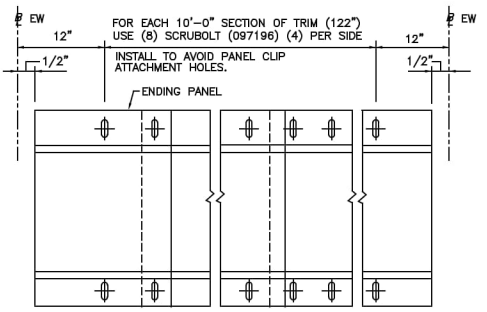
DETAIL 3



| INTERIOR RIDGE TRIM PART NUMBER       |                          |               |                     |                |                |
|---------------------------------------|--------------------------|---------------|---------------------|----------------|----------------|
| BUILDING TYPE                         | ROOF SLOPE               | 7" PURLIN     | 8 1/2" PURLIN       | 10" PURLIN     | 11 1/2" PURLIN |
| Z-PURLIN                              | 1/4:12 TO < 3/4:12       | IRT10C        | IRT10C              | IRT10C         | IRT10C         |
|                                       | 3/4:12 TO <= 2 3/4:12    | IRT10C        | IRT10C              | IRT10B         | IRT10B         |
|                                       | > 2 3/4:12 TO < 3 1/2:12 | IRT10C        | IRT10C              | IRT10D         | IRT10D         |
|                                       | >= 3 1/2:12 TO <= 4:12   | IRT10A        | IRT10A              | IRT10B         | IRT10B         |
| BUILDING TYPE                         | ROOF SLOPE               | 5" END SEAT   | * INSULATION BRIDGE |                |                |
| TRUSS                                 | 1/4:12 TO < 1:12         | IRT10C        | IRTD10C             |                |                |
|                                       | 1:12 TO 2:12             | IRT10D        | IRTD10D             |                |                |
| BUILDING TYPE                         | ROOF SLOPE               | 8 1/2" PURLIN | 10" PURLIN          | 11 1/2" PURLIN |                |
| INSULATION BRIDGE WITH 5" BASE CLIP * | 1/4:12 TO < 3/4:12       | IRTD10C       | IRTD10C             | IRTD10C        |                |
|                                       | 3/4:12 TO <= 2 3/4:12    | IRTD10C       | IRTD10B             | IRTD10B        |                |
|                                       | > 2 3/4:12 TO < 3 1/2:12 | IRTD10C       | IRTD10D             | IRTD10D        |                |
|                                       | >= 3 1/2:12 TO <= 4:12   | IRTD10A       | IRTD10B             | IRTD10B        |                |

\* INTERIOR RIDGE TRIM (IRTD10\_) HAS A 2" DEEP PAN AND 3" O.C. PUNCHING.

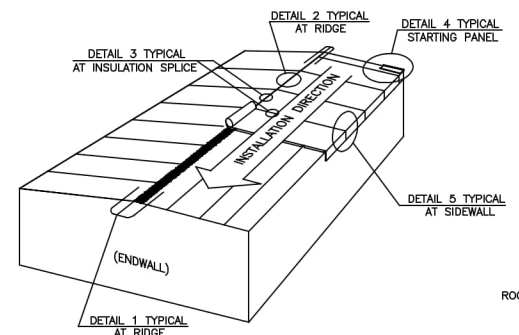
RIDGE CONDITION  
DETAIL 2



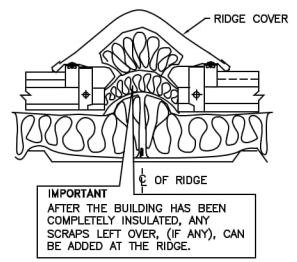
INTERIOR RIDGE TRIM INSTALLATION

NOTE: ROTATE ENDING PANEL.

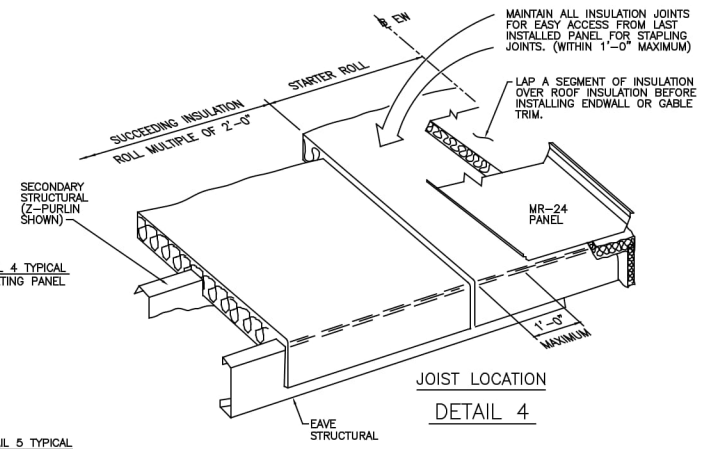
DETAIL 1



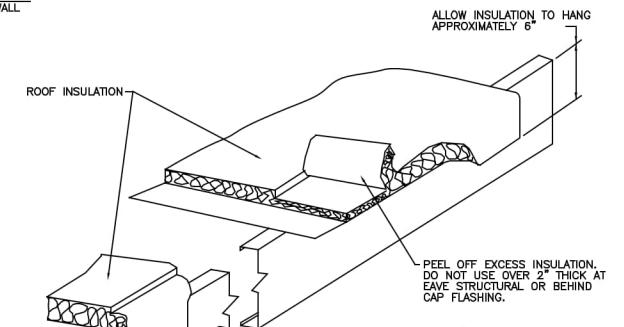
BUILDING KEY



SECTION AT (FINISHED) RIDGE  
(REFERENCE ONLY)



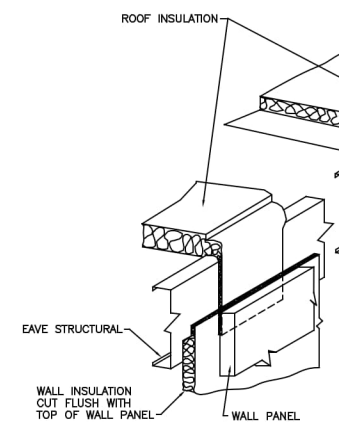
DETAIL 4



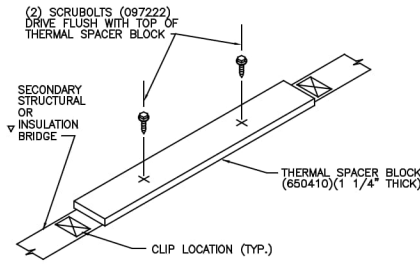
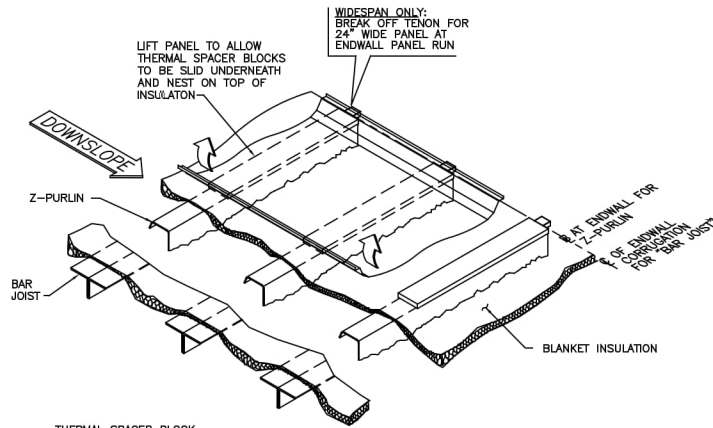
EAVE CONDITION

FOR SINGLE SLOPE BUILDINGS HIGH EAVE CONDITION IS SIMILAR

DETAIL 5



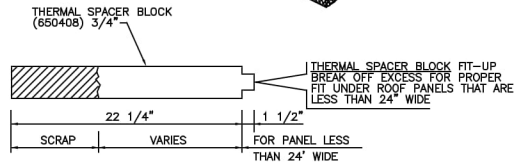
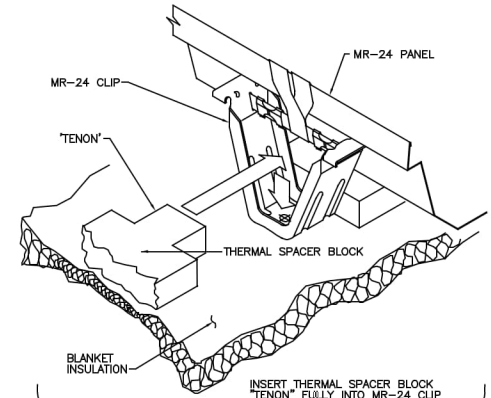
| MR-24/CMR-24 BLANKET INSULATION AND INTERIOR RIDGE TRIM INSTALLATION |               |                         |             |
|--|---------------|-------------------------|-------------|
| DRAWN BY   | CHECKED BY    | GROUP NUMBER: 02-032-01 |             |
| ACM  | RKH           | B                       | P-080573 05 |
| FIRST RELEASE DATE   | REVISION DATE |                         |             |
| 01/21/10   | 03/15/19      |                         |             |



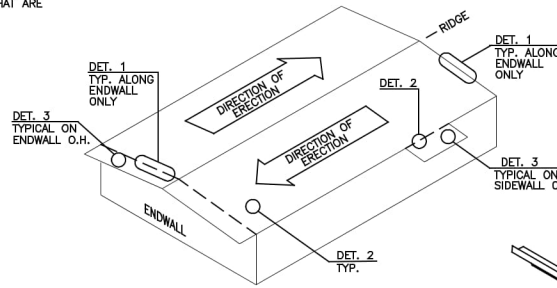
SIDEWALL OR ENDWALL OVERHANG DETAIL-3

▼ SAME PRINCIPLE APPLIES WHEN INSULATION BRIDGE IS INSTALLED

IT IS RECOMMENDED THAT OVERHANGS HAVE A MINIMUM OF 2" FACED INSULATION TO REDUCE CONDENSATION IN THESE AREAS.

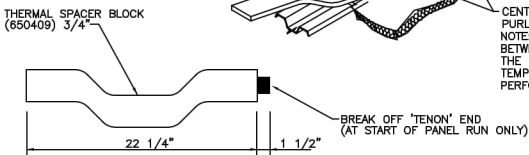
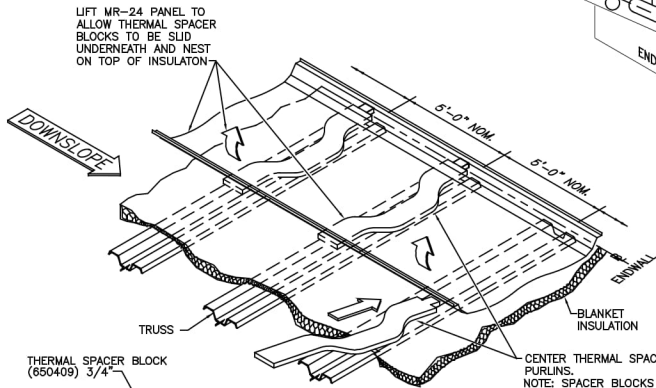


BAR JOIST OR Z-PURLIN DETAIL-1

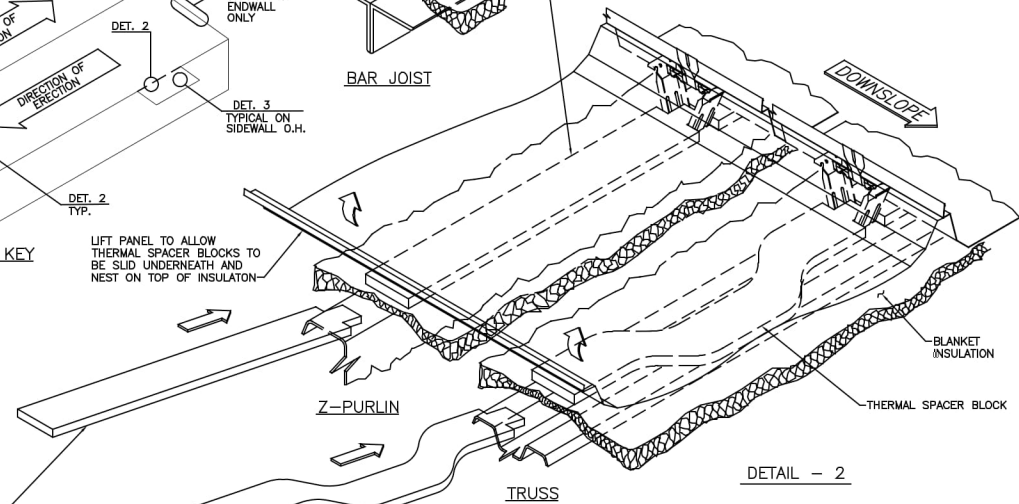


BUILDING KEY

LIFT PANEL TO ALLOW THERMAL SPACER BLOCKS TO BE SLID UNDERNEATH AND NEST ON TOP OF INSULATION



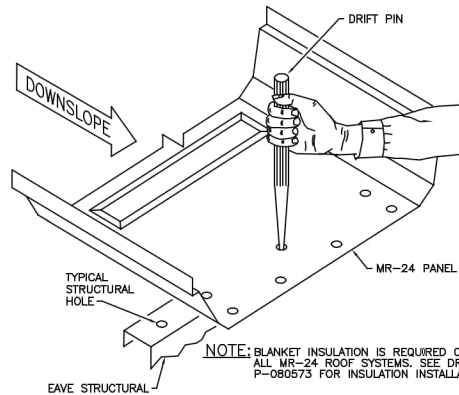
TRUSS DETAIL - 1



DETAIL - 2

IMPORTANT: NOTE ORIENTATION OF TRUSS THERMAL SPACER BLOCK

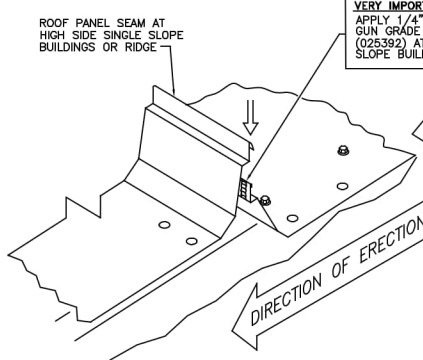
| THERMAL SPACER BLOCK INSTALLATION |               |                         |             |
|-----------------------------------|---------------|-------------------------|-------------|
| MR-24 ROOF                        |               |                         |             |
| DRAWN BY                          | CHECKED BY    | GROUP NUMBER: 02 030 01 |             |
| RKH                               | ACM           | B                       | P-080574 05 |
| FIRST RELEASE DATE                | REVISION DATE |                         |             |
| 01/21/10                          | 04/05/22      |                         |             |



**STEP 1 - LOCATE STRUCTURAL HOLE**

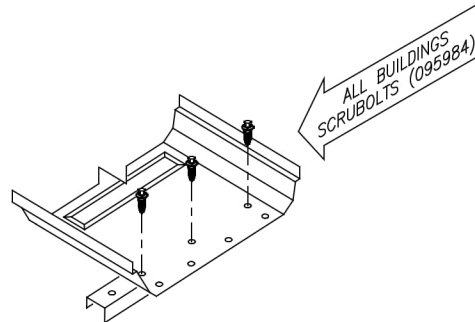
- REFER TO ROOF PANEL LAYOUT DRAWING PROVIDED WITH EACH ORDER FOR PANEL PLACEMENT.
- PANEL CLIPS ARE NOT INSTALLED AT EAVE STRUCTURAL.

**WARNING**  
ALWAYS USE FALL PROTECTION WHILE WORKING AROUND ROOF OPENINGS.



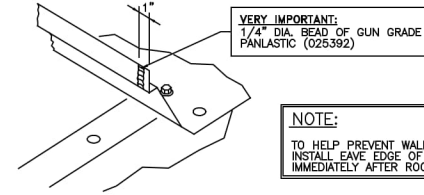
**STEP 4 - NEXT PANEL**

- DO NOT LAY PANELS TOO FAR AHEAD OF THE SEAMING OPERATION.



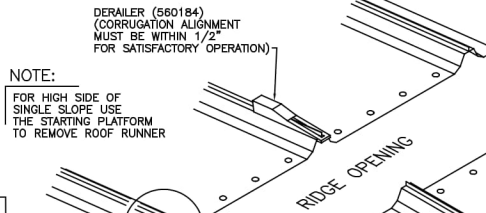
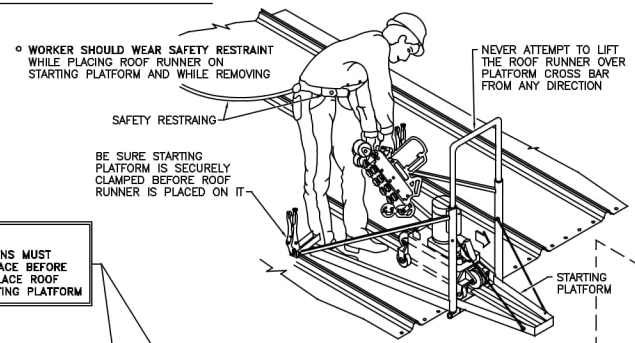
**STEP 2 - INSTALL FASTENERS**

- INSTALL APPROPRIATE FASTENERS BEFORE PANEL CORRUGATIONS ARE LOCK SEALED.



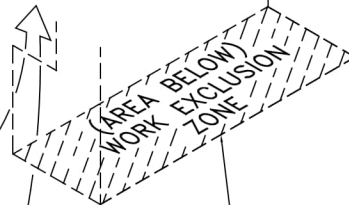
**STEP 3 - INSTALL SEALANT**

**NOTE:**  
TO HELP PREVENT WALL STAINING CAUSED BY ROOF RUN-OFF, INSTALL EAVE EDGE OF ROOF TRIM OR GUTTER PARTS IMMEDIATELY AFTER ROOF PANELS ARE INSTALLED.

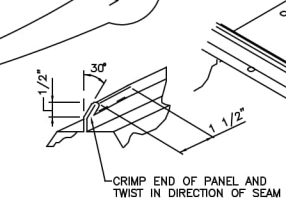


**NOTE:**  
FOR HIGH SIDE OF SINGLE SLOPE USE THE STARTING PLATFORM TO REMOVE ROOF RUNNER

**IMPORTANT:**  
QUICK RELEASE PINS MUST ALWAYS BE IN PLACE BEFORE ATTEMPTING TO PLACE ROOF RUNNER ON STARTING PLATFORM



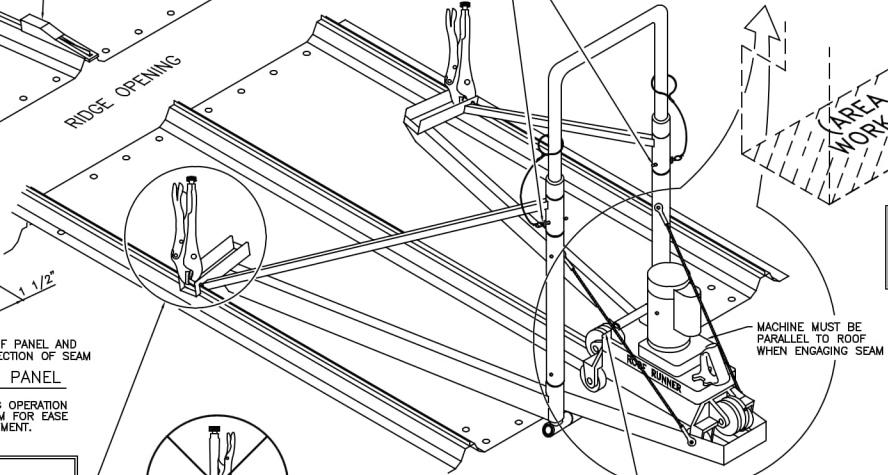
**IMPORTANT:**  
THE AREA BELOW WHERE A STARTING PLATFORM IS BEING USED MUST BE DESIGNATED A WORK EXCLUSION ZONE.



**STEP 5 - CRIMP PANEL**

- BEFORE STARTING SEAMING OPERATION CRIMP THE START OF SEAM FOR EASE OF ROOF RUNNER ENGAGEMENT.

**IMPORTANT:**  
DO NOT USE C-CLAMP STYLE LOCKING PLIERS WHEN SECURING THE STARTING PLATFORM AT MR-24 CORRUGATION SEAM LOCATIONS. ONLY CURVED JAW TYPE, (9" MIN.), MAY BE USED.



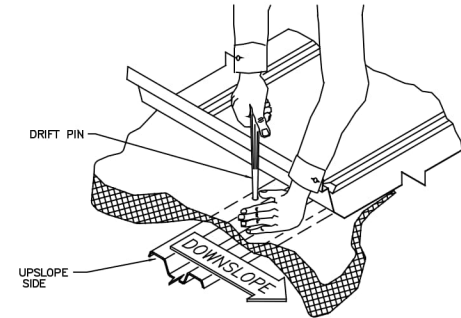
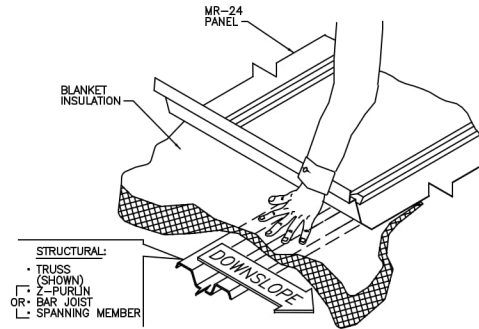
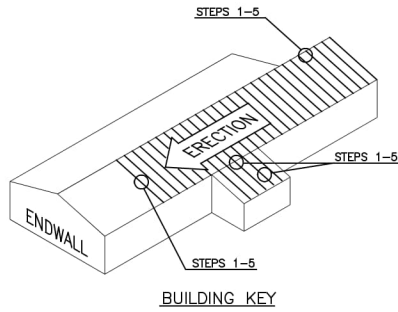
**STEP 6 - SEAMING OPERATION**

- BE SURE PANELS ARE PROPERLY NESTED TOGETHER PRIOR TO SEAMING.
- PANELS CAN BE TEMPORARILY HELD IN PLACE WITH VICE GRIPS BEFORE SEAMING.

THIS DRAWING IS INCLUDED IN A PRODUCT APPROVAL PACKAGE  
REVISIONS MUST BE APPROVED BY THE MANAGER OF PRODUCT EXCELLENCE



| MR-24 PANEL INSTALLATION       |                           |                         |             |
|--------------------------------|---------------------------|-------------------------|-------------|
| DRAWN BY<br>RKH                | CHECKED BY<br>ACM         | GROUP NUMBER: 02-030-01 |             |
| FIRST RELEASE DATE<br>01/21/10 | REVISION DATE<br>09/02/20 | B                       | P-080575 05 |



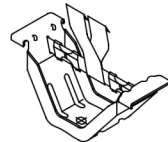
**STEP 1** LOCATE STRUCTURAL

FROM THE ADJACENT MR-24 PANEL, LOCATE THE STRUCTURAL UNDER THE BLANKET INSULATION.

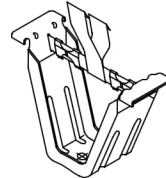
**STEP 2** LOCATE HOLE IN STRUCTURAL WITH DRIFT PIN

IMPORTANT NOTE: ALWAYS LOCATE PANEL CLIPS ON THE UPSLOPE SIDE OF TRUSS OR DELTA JOIST. (FOR DELTA JOIST SYSTEM, AT THE HIGH SIDE OF SINGLE SLOPE MOUNT CLIP ON ROOF SUPPORT ANGLE.)

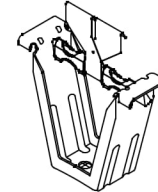
\*NOTE:  
MR-24 CLIP 560743, 560744 OR 560745  
MAY BE SUPPLIED WHEN FACTORY MUTUAL  
CLASSIFICATION IS SPECIFIED.



SHORT PANEL CLIP (560440 OR \*560743)  
(WITHOUT THERMAL SPACER BLOCK)

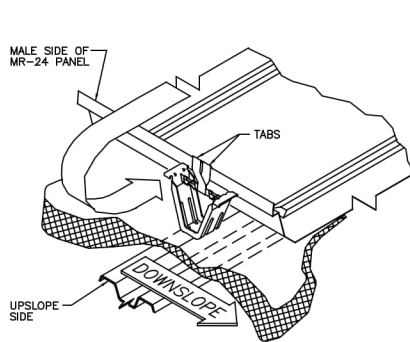


TALL PANEL CLIP (560441 OR \*560744)  
(WITH THERMAL SPACER BLOCK)

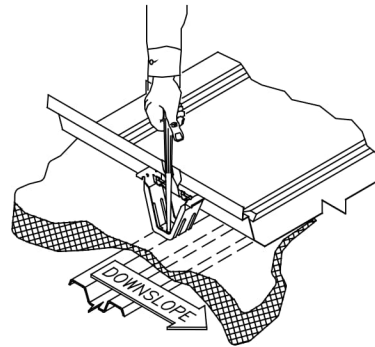


EXTRA TALL PANEL CLIP (\*560745)  
(WITH THERMAL SPACER BLOCK FOR >6" TO 9 1/4" INSULATION)

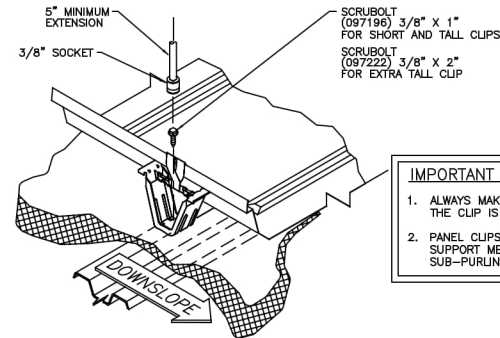
**WARNING**  
ALWAYS USE FALL PROTECTION WHILE WORKING AROUND ROOF OPENINGS.



**STEP 3** HOOK PANEL CLIP TABS OVER PANEL AND ROTATE CLIP INTO POSITION



**STEP 4** TEMPORARILY SECURE THE PANEL CLIP WITH A DRIFT PIN



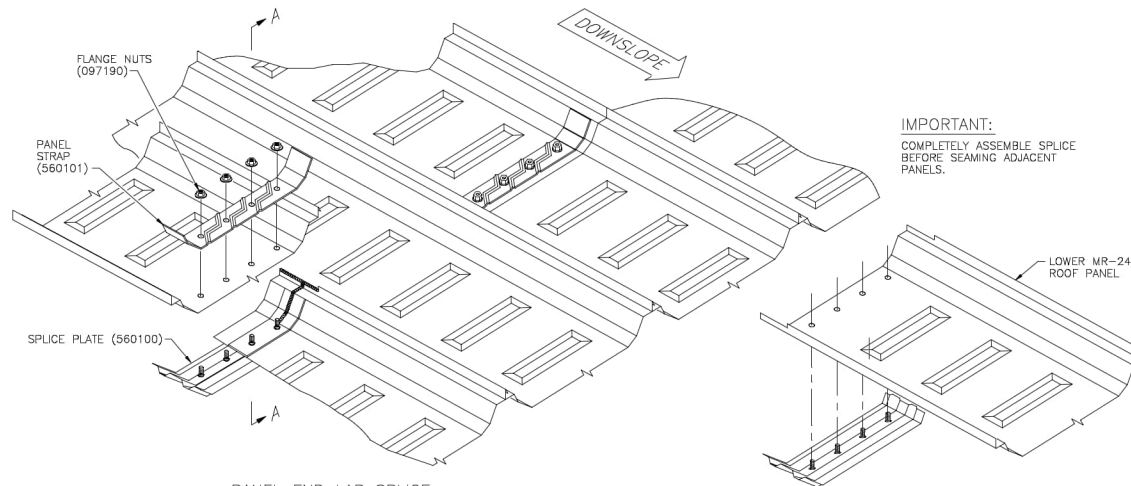
**STEP 5** INSTALL SCRUBOLT FASTENER  
INSTALLATION OF SCRUBOLT REQUIRES A 3/8" SOCKET AND A 5" (MINIMUM) EXTENSION.

**IMPORTANT NOTE**

1. ALWAYS MAKE SURE TABS ARE CENTERED IN THE MR-24 CLIP AFTER THE CLIP IS INSTALLED.
2. PANEL CLIPS MUST BE ATTACHED TO ALL ROOF SECONDARY SUPPORT MEMBERS INCLUDING ALL INTERMEDIATE MEMBERS, SUB-PURLINS, ETC.

THIS DRAWING IS INCLUDED IN A PRODUCT APPROVAL PACKAGE  
REVISIONS MUST BE APPROVED BY THE MANAGER OF PRODUCT EXCELLENCE

| MR-24 PANEL CLIP INSTALLATION |               |                         |             |
|-------------------------------|---------------|-------------------------|-------------|
| DRAWN BY                      | CHECKED BY    | GROUP NUMBER: 02-030-01 |             |
| RKH                           | RMS           | B                       | P-080576 07 |
| FIRST RELEASE DATE            | REVISION DATE |                         |             |
| 01/21/10                      | 11/09/21      |                         |             |

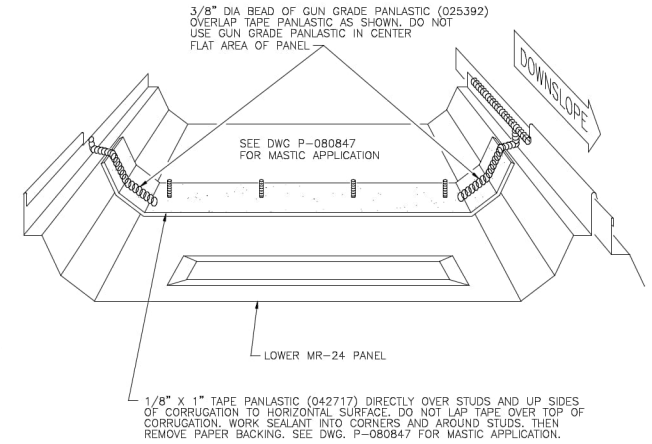


**PANEL END LAP SPLICE**

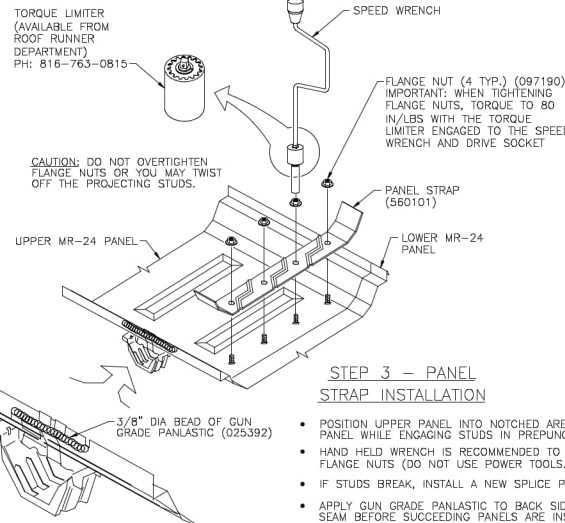
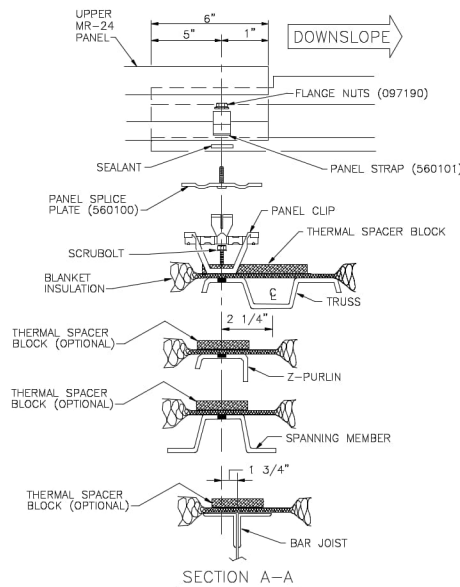
- PUNCHED AND NOTCHED PANELS ARE FURNISHED WITH LENGTHS CALCULATED FOR END LAP SPLICES TO OCCUR OVER SECONDARY STRUCTURALS.
- REFER TO ROOF PANEL LAYOUT DRAWINGS PROVIDED WITH EACH ORDER FOR PROPER PLACEMENT OF STAGGERED END LAP SPLICE LOCATIONS.

**STEP 1 - SPLICE PLATE INSTALLATION**

- ATTACH PANEL AT EAVE TO STRUCTURAL MEMBER.
- FOR EASE OF INSTALLATION, SPLICE PLATE (560100) CAN BE TEMPORARILY ATTACHED TO PANEL WITH (2) FLANGE NUTS BEFORE POSITIONING PANEL.

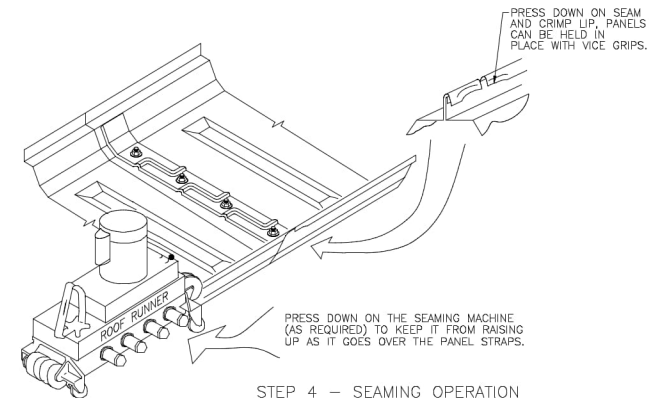


**STEP 2 - SEALANT APPLICATION**



**STEP 3 - PANEL STRAP INSTALLATION**

- POSITION UPPER PANEL INTO NOTCHED AREA ON LOWER PANEL WHILE ENGAGING STUDS IN PREPUNCHED HOLES.
- HAND HELD WRENCH IS RECOMMENDED TO TIGHTEN FLANGE NUTS (DO NOT USE POWER TOOLS.)
- IF STUDS BREAK, INSTALL A NEW SPLICE PLATE.
- APPLY GUN GRADE PANLASTIC TO BACK SIDE OF SEAM BEFORE SUCCEEDING PANELS ARE INSTALLED.



**STEP 4 - SEAMING OPERATION**

- INSPECT EACH END LAP SPLICE FOR PROPER FIT AND WEATHER TIGHTNESS.
- IF REPAIR OF A STUD IS REQUIRED AFTER PANELS HAVE BEEN SEAMED, DRILL STUD OUT WITH 5/16\"/>

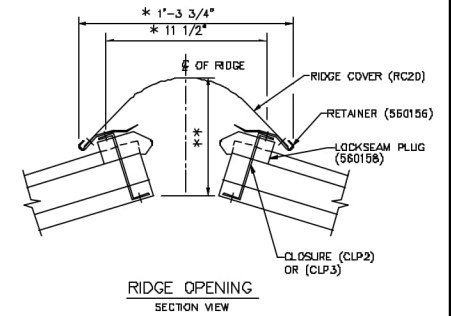
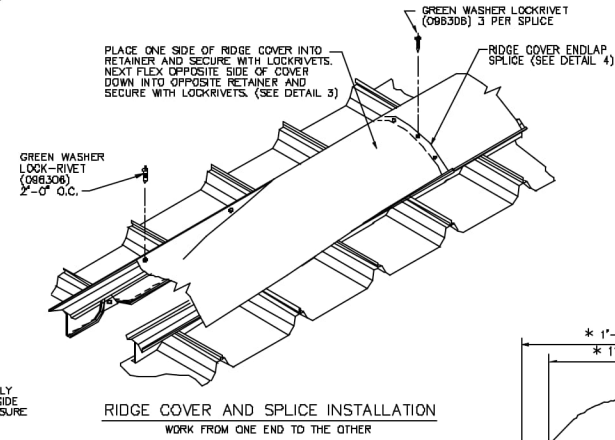
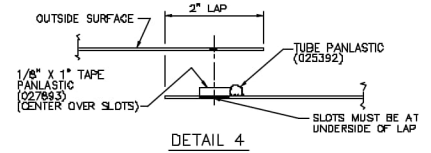
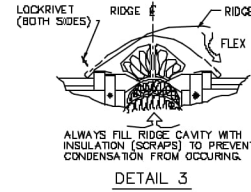
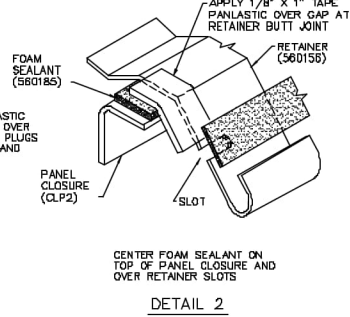
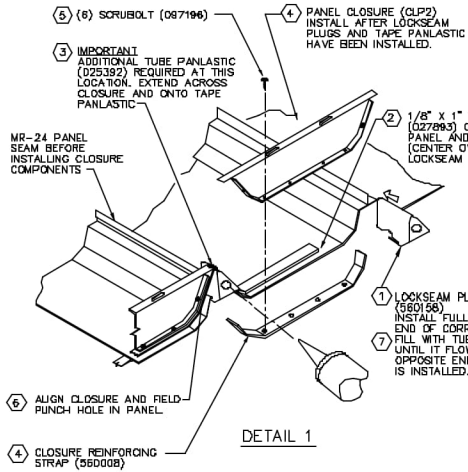
NOTE:

- 1. SEE DRAWING P-090005 FOR 12\"/>

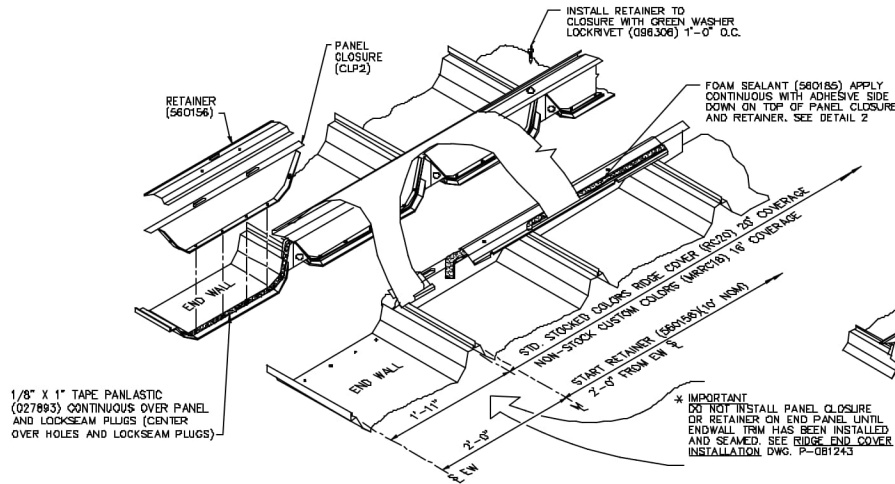
THIS DRAWING IS INCLUDED IN A PRODUCT APPROVAL PACKAGE  
REVISIONS MUST BE APPROVED BY THE MANAGER OF PRODUCT EXCELLENCE



| MR-24 END LAP SPLICE |               |                         |          |
|----------------------|---------------|-------------------------|----------|
| DRAWN BY             | CHECKED BY    | GROUP NUMBER: 02-030-01 |          |
| ACM                  | RKH           | B                       | P-080577 |
| FIRST RELEASE DATE   | REVISION DATE |                         |          |
| 01/21/10             | 06/16/23      |                         | 07       |

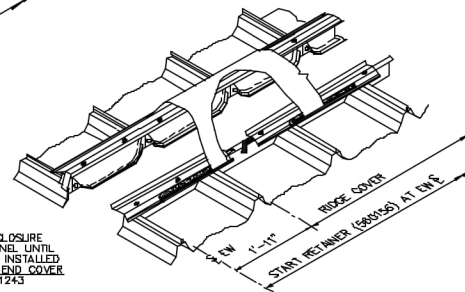


\* DIMENSIONS SHOWN ARE FOR FIELD VERIFICATION AND WILL VARY DUE TO TEMPERATURE.  
\*\* VARIES BETWEEN 5" AND 8 1/2"



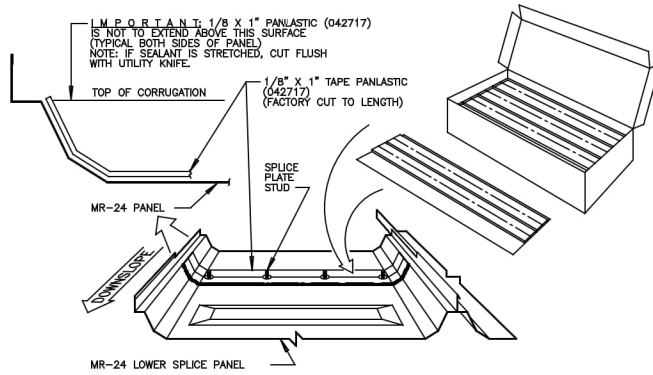
USED WHEN RIDGE IS INSTALLED BEFORE ENDWALL TRIM

PANEL CLOSURE AND RETAINER INSTALLATION



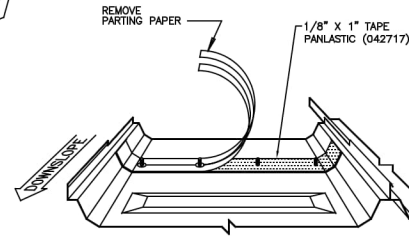
USED WHEN RIDGE IS INSTALLED AFTER ENDWALL TRIM

| MR-24 RIDGE INSTALLATION       |                           |                         |             |
|--------------------------------|---------------------------|-------------------------|-------------|
| DRAWN BY                       | CHECKED BY                | GROUP NUMBER: 01-032-01 |             |
| ACM                            | RMC                       | B                       | P-080578 04 |
| FIRST RELEASE DATE<br>01/21/10 | REVISION DATE<br>03/08/16 |                         |             |



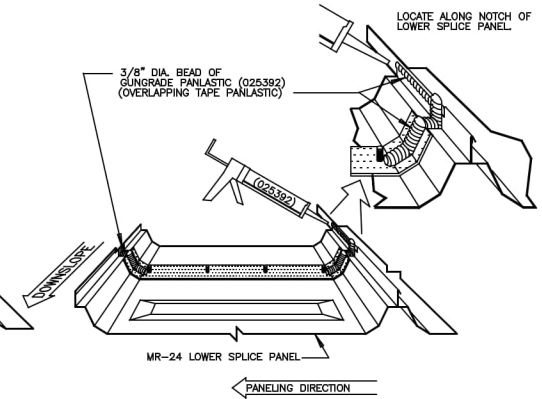
**STEP 1**

APPLY TAPE PANLASTIC OVER SPLICE PLATE STUDS, CENTERING TAPE DIRECTLY OVER THE STUDS. **D.O.N.O.T.** REMOVE PARTING PAPER UNTIL TAPE IS IN PLACE ON THE PANEL (IF PAPER IS REMOVED PRIOR TO TAPE INSTALLATION, TAPE WILL STRETCH TO IMPROPER LENGTH). IMPALE THE TAPE PANLASTIC ON TO THE STUDS AND WORK THE PANLASTIC INTO THE CORNERS AND AROUND THE STUDS. **I.M.P.O.R.T.A.N.T.:** START AND STOP TAPE PANLASTIC AT TOP OF CORRUGATION.



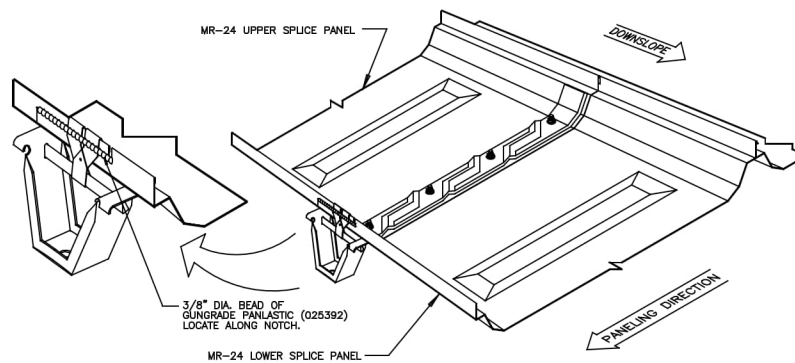
**STEP 2**

AFTER TAPE PANLASTIC IS PROPERLY IN PLACE, PEEL BACK PARTING PAPER (TAKING CARE NOT TO DISLODGE MASTIC) AND DISCARD.



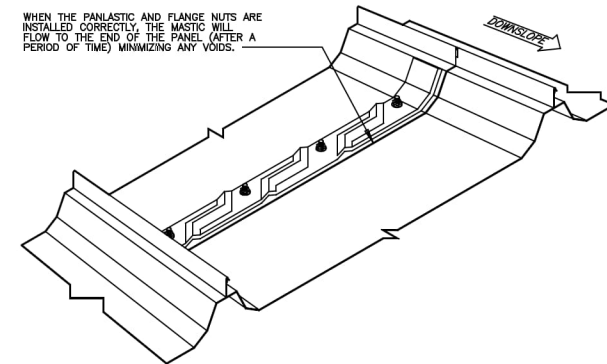
**STEP 3**

APPLY GUNGRADE PANLASTIC OVERLAPPING TAPE PANLASTIC, AS SHOWN. **D.O.N.O.T.** APPLY IN CENTER FLAT OF PANEL.



**STEP 4**

AFTER UPPER SPLICE PANEL IS INSTALLED APPLY 3/8" DIA. BEAD OF GUNGRADE PANLASTIC TO THE BACK SIDE OF NOTCH AS SHOWN, BEFORE INSTALLING THE NEXT ROOF PANEL.



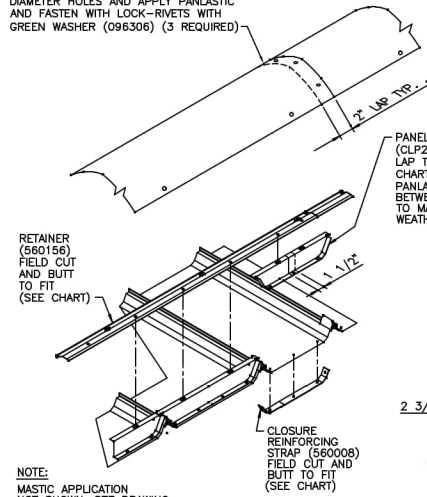
**STEP 5**

FINAL INSPECTION: MASTIC THAT IS PROPERLY INSTALLED WILL FLOW TOWARD THE PANEL END MINIMIZING ANY VOID BETWEEN THE PANELS.

| MR-24/CMR-24 MASTIC APPLICATION AT PANEL SPLICE |               |                         |             |
|---|---------------|-------------------------|-------------|
| DRAWN BY  | CHECKED BY    | GROUP NUMBER: 02-030-01 |             |
| ACM   | RMC           | B                       | P-080847 01 |
| FIRST RELEASE DATE                              | REVISION DATE |                         |             |
| 01/21/10  | 12/04/18      |                         |             |

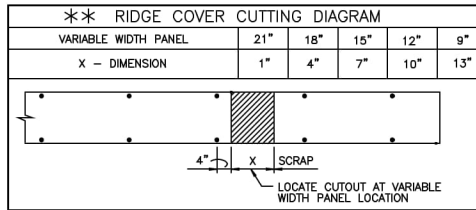


RIDGE COVER (RC20) FIELD CUT AND LAP TO FIT (SEE CHART). FIELD DRILL 5/16" DIAMETER HOLES AND APPLY PANLASTIC AND FASTEN WITH LOCK-RIVETS WITH GREEN WASHER (096306) (3 REQUIRED)

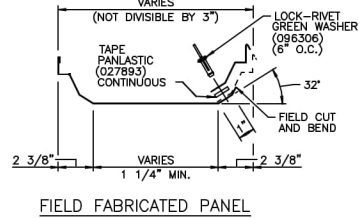


NOTE:  
MASTIC APPLICATION NOT SHOWN. SEE DRAWING P-080578

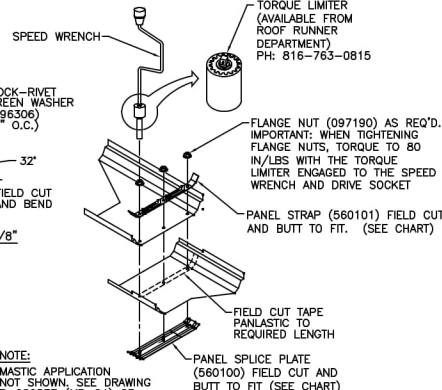
RIDGE COVER-RETAINER-PANEL CLOSURE AND REINFORCING STRAP MODIFICATION



PANEL CLOSURE (CLP2) FIELD CUT AND LAP TO FIT (SEE CHART) ADD TUBE PANLASTIC (025392) BETWEEN CLOSURE LAP TO MAKE WEATHER-TIGHT SPLICE

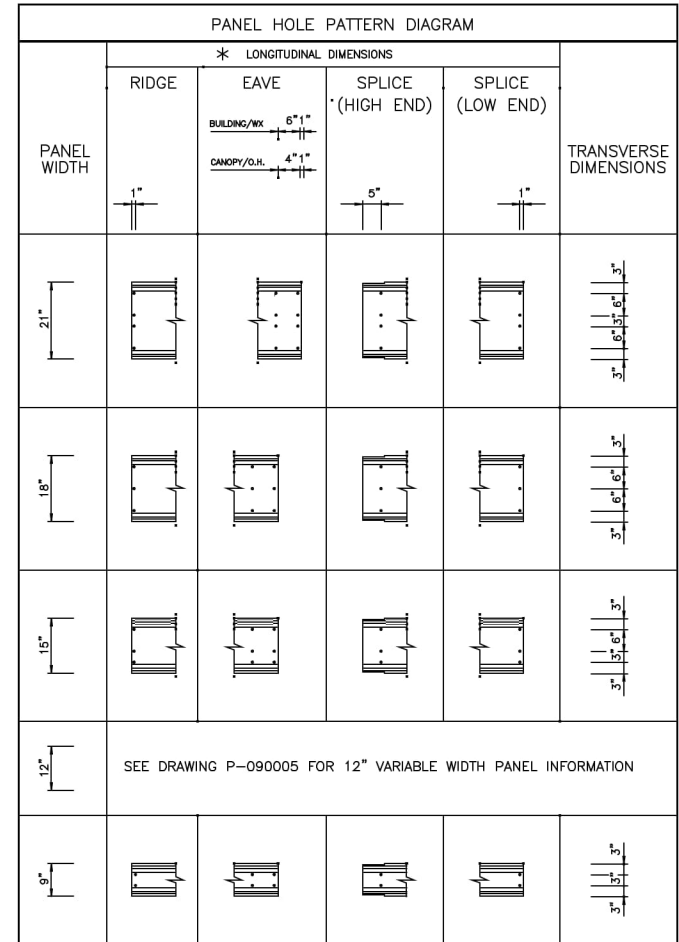


FIELD FABRICATED PANEL



NOTE:  
MASTIC APPLICATION NOT SHOWN. SEE DRAWING P-080577 (MR-24) OR P-080212 (CMR-24)

PANEL STRAP-PANEL SPLICE PLATE MODIFICATION



\* ALL FIELD DRILLED HOLES 5/16" DIAMETER LONGITUDINAL HOLE LOCATION DIMENSIONS ARE CRITICAL. ERRORS IN FIELD DRILLING LOCATION WILL ACCUMULATE AND CAUSE RIDGE FIT-UP DIFFICULTY.

\*\* THE RIDGE COVER/RETAINER CUTTING DIAGRAM IS ONLY APPLICABLE TO A SINGLE RUN OF THE 12" VARIABLE WIDTH PANEL LOCATED WITH IN THE INTERIOR OF THE BUILDING. CUTTING DETAIL IS NOT APPLICABLE TO MULTIPLE ADJACENT RUNS OR TO A SINGLE RUN OF 12" PANELS LOCATED AT THE ENDWALLS OF THE ROOF.

**PANELING COMPONENTS CUTTING DIAGRAM CHART**

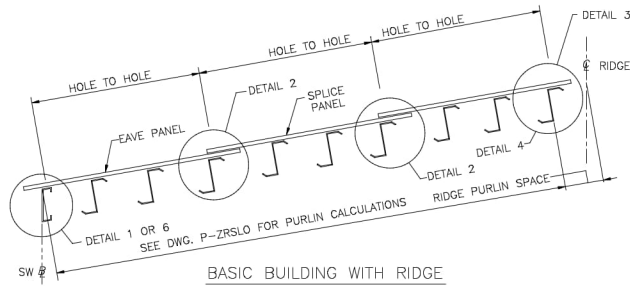
| STANDARD | WIDTH | PANEL CLOSURE (CLP2) (SEE NOTE: 1)                            | PANEL STRAP (AT EAVE) (560004) (SEE NOTE: 2) | PANEL STRAP (560101) (SEE NOTE: 2) | PANEL SPLICE PLATE (560100) (SEE NOTE: 2) | CLOSURE REINFORCING STRAP (560008) (SEE NOTE: 2) | ** RIDGE RETAINER (560156) 10'-0" LENGTHS (TYP. BOTH SIDES) (SEE NOTE: 2) |  |
|----------|-------|---|--|------------------------------------|---|--|---|--|
| S        | 24"   |   |  |                                    |   |  |   |  |
| V        | 21"   |   |  |                                    |   |  |   |  |
| R        | 18"   |   |  |                                    |   |  |   |  |
| I        | 15"   |   |  |                                    |   |  |   |  |
| A        | 12"   | SEE DRAWING P-090005 FOR 12" VARIABLE WIDTH PANEL INFORMATION |  |                                    |   |  |   |  |
| B        | 9"    |   |  |                                    |   |  |   |  |

NOTES:

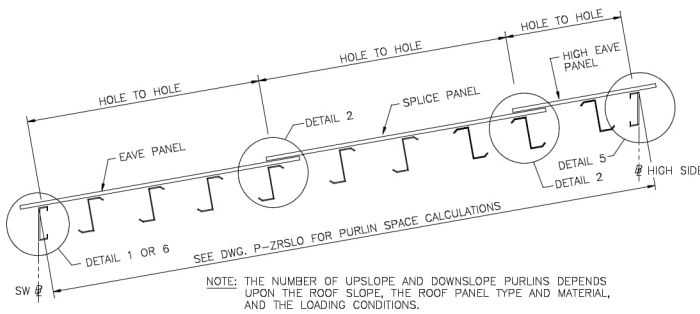
- CUT PANEL CLOSURE AS SHOWN AND LAP 1 1/2".
- CUT PARTS AS SHOWN AND BUTT TOGETHER.

MR-24/CMR-24 VARIABLE WIDTH PANELS FIELD WORK DETAILS

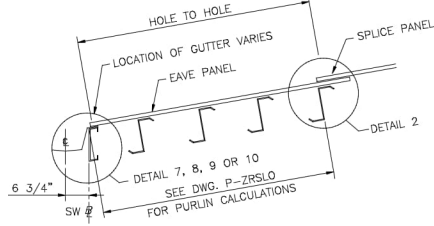
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|--------------------------------|---------------------------|-------------------------|
| DRAWN BY<br>ACM                | CHECKED BY<br>RMC         | GROUP NUMBER: 02-030-01 |
| FIRST RELEASE DATE<br>01/21/10 | REVISION DATE<br>08/06/18 | B P-080876 03           |



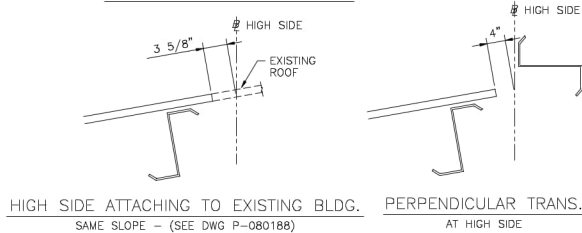
**BASIC BUILDING WITH RIDGE**



**SINGLE SLOPE BUILDING**

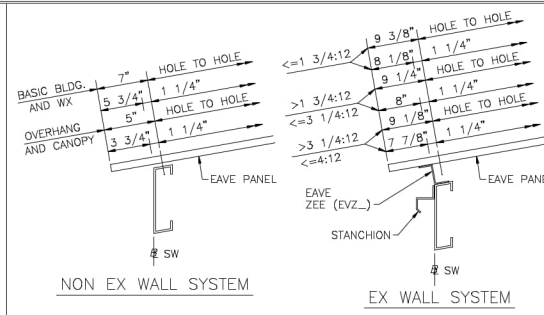


**MULTIPLE GUTTER CONDITION**



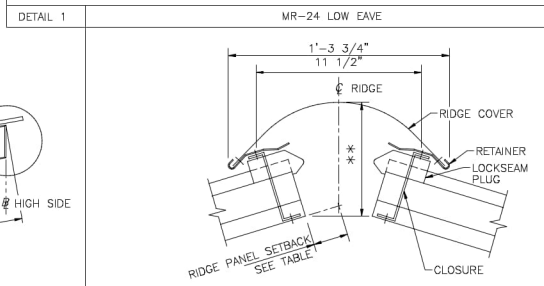
**HIGH SIDE ATTACHING TO EXISTING BLDG.**  
SAME SLOPE - (SEE DWG P-080188)

**PERPENDICULAR TRANS.**  
AT HIGH SIDE



**NON EX WALL SYSTEM**

**EX WALL SYSTEM**



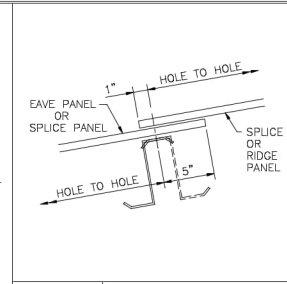
**RIDGE PANEL SETBACK DIM. TABLE**

| SLOPE                | ROOF SURFACE WIDTH * |             |          |
|----------------------|----------------------|-------------|----------|
|                      | < 100'               | 100' < 150' | > 150'   |
| ≤ 1/4:12             | 3 7/16"              | 3 1/4"      | 3 3/16"  |
| > 1/4:12 TO ≤ 1/2:12 | 3 7/16"              | 3 1/4"      | 3 1/16"  |
| > 1/2:12 TO ≤ 1:12   | 3 3/8"               | 3 3/16"     | 3"       |
| > 1:12 TO ≤ 1 1/2:12 | 3 1/4"               | 3 1/16"     | 2 7/8"   |
| > 1 1/2:12 TO ≤ 2:12 | 3 1/16"              | 2 7/8"      | 2 11/16" |
| > 2:12 TO ≤ 2 1/2:12 | 2 15/16"             | 2 3/4"      | 2 9/16"  |
| > 2 1/2:12 TO ≤ 3:12 | 2 3/4"               | 2 9/16"     | 2 3/8"   |
| > 3:12 TO ≤ 3 1/2:12 | 2 5/8"               | 2 7/16"     | 2 1/4"   |
| > 3 1/2:12 TO ≤ 4:12 | 2 3/8"               | 2 3/16"     | 2"       |
| > 4:12               | 2 1/4"               | 2 1/16"     | 1 7/8"   |

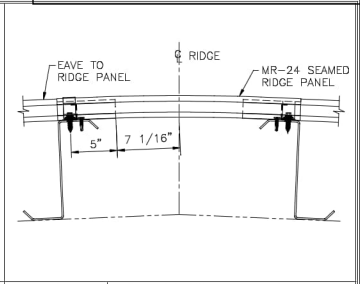
\* ROOF SURFACE WIDTH IS HORIZONTAL STRUCTURAL WIDTH UNDER ONE ROOF SLOPE (INCLUDING ANY WX). THIS DIMENSION DOES NOT INCLUDE ANY CANOPY, OVERHANG OR EAVE/RIDGE ADJUSTMENT.  
\*\* VARIES BETWEEN 5" AND 8 1/2"

**DETAIL 4** RIDGE OPENING

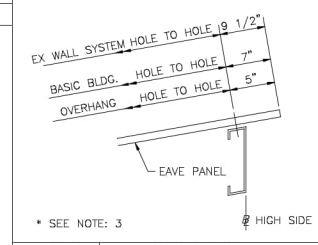
- NOTES:**
- THE HOLE TO HOLE AND B TO HOLE DIMENSION SHOULD BE DETERMINED FROM THE ROOF STRUCTURAL CALCULATOR DWG. P-ZRSLO BEFORE PROCEEDING TO THIS DRAWING. ADD PANEL MATERIAL SHOWN IN APPROPRIATE DETAILS TO DIMENSIONS DETERMINED FROM P-ZRSLO TO ARRIVE AT ROOF PANEL LENGTHS.
  - FOR MR-24 AND CMR-24 PANEL PART NUMBER SEE DWG. P-080570.
  - FOR MR-24 AND CMR-24 LITE\*PANEL SEE DWG. P-081659.
  - FOR BUILDINGS WITH ROOF SLOPES OF 3:12 AND GREATER, AND WITH SIDEWALL PANELS 4" INSULATED WALL PANEL, #SHADOWWALL AND #STYLWALL, THE EAVE PANEL MUST BE EXTENDED 1". PANEL WITH NO EAVE STRUT PUNCHING IS REQUIRED.  
EAVE TO RIDGE-OPERATION CODE = 11 EAVE TO SPLICE-OPERATION CODE = RH-10/LH-20.



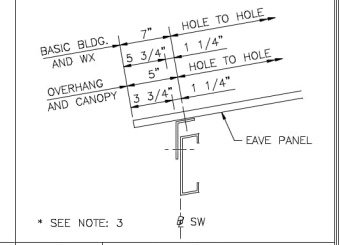
**DETAIL 2** INTERMEDIATE SPLICE



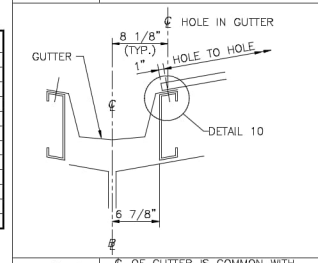
**DETAIL 3** MR-24 SEAMED RIDGE ROOF SYSTEM



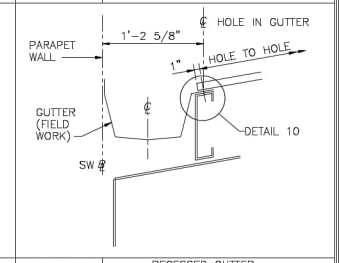
**DETAIL 5** HIGH SIDE EAVE



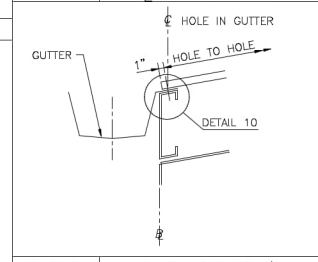
**DETAIL 6** CMR-24 LOW EAVE



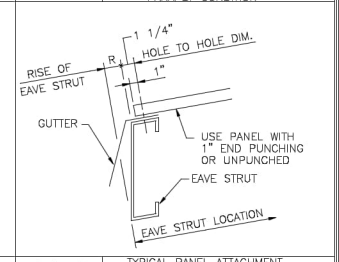
**DETAIL 7** GUTTER IS COMMON WITH B OF MULTIPLE BLDGS.



**DETAIL 8** RECESSED GUTTER PARAPET CONDITION



**DETAIL 9** FLUSH-GUTTER OUTSIDE B



**DETAIL 10** TYPICAL PANEL ATTACHMENT AT MULTIPLE GUTTER

**MR-24 AND CMR-24 ROOF PANEL CALC FOR Z PURLINS**

|                    |               |               |           |
|--------------------|---------------|---------------|-----------|
| DRAWN BY           | CHECKED BY    | GROUP NUMBER: | 02 030 02 |
| JPV                | BJF           |               |           |
| FIRST RELEASE DATE | REVISION DATE |               |           |
| 01/21/10           | 08/07/23      |               |           |

**B P-080949 07**

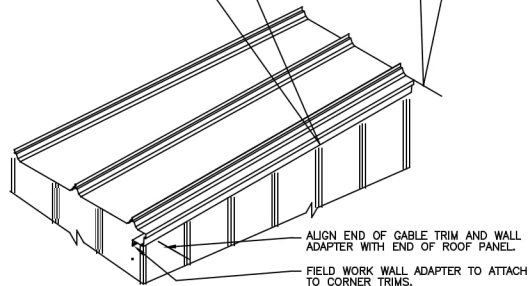
| CATEGORY                     | DRAWING TITLE  | DWG. NO.                             | CATEGORY               | DRAWING TITLE   | DWG. NO.  | CATEGORY    | DRAWING TITLE   | DWG. NO.   | CATEGORY         | DRAWING TITLE  | DWG. NO. |  |
|------------------------------|--|--------------------------------------|------------------------|---|---|-------------|---|--|------------------|--|----------|--|
| ROOF PANELING                | MR-24 ROOF SYSTEM ERECTION MANUAL  | P-004797                             | TRIM                   | WIDE GUTTER, ASSBLY. AND COMP'NTS.                                      | P-080082  | TRANSITIONS | WALL PNL. CALC. (ROOF TO WALL TRANS.)                                     | P-080818   | ROOF ACCESSORIES | THERMAL SPACER BLOCK INSTALLATION                            | P-080574 |  |
|                              | MR-24 WIDTH ADDITION TO EXISTING BLDG. MAXIMUM 50 FT. SAME SLOPE         | P-080188                             |                        | WIDE GUTTER INSTALLATION WITHOUT WEATHERSEAL                            | P-080088  |             | FLEXIBLE SEAL INSTALLATION STEPPED ROOF OR ROOF TO WALL TRANS.)           | P-081525   |                  | SKY-WEB PRODUCT DETAILS                                      | P-080940 |  |
|                              | MR-24 ROOF PANEL IDENTIFICATION  | P-080570                             |                        | WIDE GUTTER WITH WEATHERSEAL  | P-080089  |             | SUPPORT MEMBER INSTALL (STEPPED ROOF)                                     | P-081526   |                  | SKY-WEB INSTALL. ON BLDG. STRUCT.                            | P-080941 |  |
|                              | MR-24 TRM CUP LOC. LOCKSEAM TAB AND PNL. CUP ADAPTER                     | P-080572                             |                        | MR/CMR-24 WEATHERSEAL FOR LOCAL TRIM                                    | P-080377  |             | STEPPED ROOF FLASH'G INSTALLATION   | P-081528   |                  | SKY-WEB ATTACHMENT DETAILS                                   | P-080942 |  |
|                              | MR-24 PANEL INSTALLATION   | P-080575                             |                        | MR/CMR-24 HIGH EAVE PNL. CLOSURE FOR LOCAL TRIM                         | P-080378  |             | END COVER INSTALLATION PERP. ROOF TRANSITION                              | P-081530   |                  | SKY-WEB ASSEMBLY DAMAGE                                      | P-080950 |  |
|                              | MR-24 PANEL CLIP INSTALLATION  | P-080576                             |                        | MR/CMR-24 RIDGE TRANSITION AND EXTENSION                                | P-080583  |             | PARALLEL TRANS. SUPT ANGLE INSTALL (CMR-24 AND LH-INSL. PURLIN W/ MR-24)  | P-081531   |                  | IFOURB INSTALLATION PROCEDURES PANEL PREPARATION             | P-081153 |  |
|                              | MR-24 END LAP SPLICE   | P-080577                             |                        | MR/CMR-24 DRIP ANGLE INSTALL.   | P-080720  |             | SHORT PARALLEL TRANSITION PANEL INSTALLATION                              | P-081532   |                  | IFOURB INSTALLATION PROCEDURES DIVERTER PLATE AND CURB       | P-081154 |  |
|                              | MR-24 RIDGE INSTALLATION   | P-080578                             |                        | MR/CMR-24 WEATHERSEAL FOR LOCAL TRIM                                    | P-080802  |             | PARALLEL TRANS. SUPT ANGLE INSTALL (INSULATED PURLIN)                     | P-081534   |                  | IFOURB INSTALLATION PROCEDURES ELEVATED FRAME AT CARRY BEAMS | P-081155 |  |
|                              | MR/CMR-24 HAND SEAMER INSTRUCTIONS                                       | P-080600                             |                        | GABLE TRIM AND WALL ADAPTER INSTALLATION (WITH RIDGE ASSEMBLY)          | P-081167  |             | TALL PARALLEL TRANSITION PANEL INSTALLATION                               | P-081535   |                  | IFOURB INSTALLATION DOUBLE WALL - PURLIN CUTTING REQ'D       | P-081156 |  |
|                              | MR/CMR-24 VALLEY FLASH. PNL. PREP.                                       | P-080783                             |                        | INSIDE CORNER TRIM INSTALLATION-NARROW GUTTER TO GABLE TRIM             | P-081235  |             | PARA / PERP TRANS. (SHORT AND TALL) COUNTER FLASHING INSTALLATION         | P-081537   |                  | IFOURB INSTALLATION DOUBLE WALL - NO PURLIN CUTTING REQ'D    | P-081158 |  |
|                              | MR/CMR-24 VALLEY FLASH. DETAILS  | P-080785                             |                        | NARROW GUTTER CORNER CAP INSTALL. INSTALLATION BUTLERB II, MR-24/CMR-24 | P-081238  |             | PARALLEL TO PERP. TRANSITION INSIDE CORNER WITHOUT CORRUGATION            | P-081539   |                  | IFOURB INSTALLATION CARRY BEAMS - PURLIN CUTTING REQ'D       | P-081157 |  |
|                              | MR/CMR-24 HIP RIDGE PNL. PREP.   | P-080788                             |                        | EAVE TRIM INSTALLATION  | P-081239  |             | PARALLEL TO PERP. TRANSITION INSIDE CORNER WITH CORRUGATION               | P-081541   |                  | IFOURB INSTALLATION CARRY BEAMS - NO PURLIN CUTTING REQ'D    | P-081158 |  |
|                              | MR/CMR-24 HIP RIDGE PARTS INSTALL.                                       | P-080784                             |                        | WIDE GUTTER, CORNER TRIM AND COLLECTOR BOX INSTALL.                     | P-081240  |             | RIDGE TO WALL SHORT TRANS. (W/O CORR.)                                    | P-081548   |                  | LITEPANEL PLACEMENT  | P-081159 |  |
|                              | MR/CMR-24 HIP RIDGE DETAILS  | P-080788                             |                        | WIDE GUTTER SEALANT AND SUPPORT CHANNEL INSTALLATION                    | P-081241  |             | RIDGE TO WALL SHORT TRANS. (W/CORR.)                                      | P-081547   |                  | UNINSULATED LITEPANEL-UNINSULATED PURLIN                     | P-081160 |  |
|                              | MR-24 HS EAVE CLIP AND PNL. CLIP REQMT.                                  | P-080789                             |                        | RIDGE END COVER INSTALLATION (WITH RIDGE ASSEMBLY)                      | P-081243  |             | RIDGE TO WALL TALL TRANS. (W/O CORR.)                                     | P-081547   |                  | INSULATED LITEPANEL-UNINSULATED PURLIN                       | P-081161 |  |
|                              | MR/CMR-24 MASTIC APPLICATION   | P-080847                             |                        | INSIDE CORNER TRIM INSTALLATION EAVE TRIM TO GABLE TRIM                 | P-081244  |             | RIDGE TO WALL TALL TRANS. (W/CORR.)                                       | P-081549   |                  | UNINSULATED LITEPANEL-INSULATED PURLIN                       | P-081162 |  |
|                              | MR/CMR-24 VARIABLE WIDTH PANELS  | P-080876                             |                        | WIDE GUTTER INSIDE CORNERS  | P-081248  |             | PARALLEL TO PERP. TRANSITION INSIDE/OUTSIDE CORNER WITH CORR.             | P-081562   |                  | INSULATED LITEPANEL-INSULATED PURLIN                         | P-081163 |  |
|                              | MR/CMR-24 CORR. END DEFLECTOR  | P-080918                             |                        | VARIABLE WALL ADAPTER INSTALLATION                                      | P-081250  |             | PARALLEL TO PERP. TRANSITION INSIDE/OUTSIDE CORNER WITHOUT CORR.          | P-081563   |                  | UL 90 UNINSULATED LITEPANEL FOR UNINSULATED PURLINS          | P-081164 |  |
|                              | MR/CMR-24 SEAM REINFORCING CLIP ASSBLY.                                  | P-080951                             |                        | EAVE TRIM REINFORCING CLIP (HIGH WIND LOAD APPLICATION)                 | P-081635  |             | END COVER INSTALLATION STEPPED ROOF (WITH SUPPORT MBR.)                   | P-081554   |                  | UL 90 UNINSULATED LITEPANEL FOR INSULATED PURLIN             | P-081166 |  |
|                              | MR-24 SUB PURLIN WITHOUT RIDGE   | P-081257                             |                        | NARROW GUTTER ASSEMBLY  | P-103223  |             | PERPENDICULAR R TO W TRANSITION WITH SOLID WALL                           | P-081564   |                  | UL 90 UNINSULATED LITEPANEL FOR INSULATED PURLIN             | P-081167 |  |
|                              | MR-24 SEAMER PLATFORM ASSY AND USAGE                                     | P-081618                             |                        | MR/CMR-24 GUTTER EXPANSION JOINT  | P-103315  |             | PERPENDICULAR R TO W TRANSITION   | P-081568   |                  | LITEPANEL REPLACEMENT - DRAWING 1 OF 1                       | P-081181 |  |
|                              | MR-24 REPAIR CLIP INSTALLATION   | P-081680                             |                        | BIRD STOP INSTALL. - GABLE TRIM   | P-104542  |             | PERPENDICULAR TRANSITION SHORT PERP. FLASHING INSTALLATION                | P-081572   |                  | RIDGE VENTILATOR DETAILS                                     | P-107551 |  |
|                              | MR-24/CMR-24 PANEL CLOSURE INSTALL.                                      | P-103247                             |                        | SOFFIT TRIM DETAILS   | P-104544  |             | PERPENDICULAR TRANSITION WITH OPEN WALL TALL PERP. FLASHING INSTALLATION  | P-081573   |                  | RIDGE VENTILATOR PREPARATION DETAILS                         | P-107552 |  |
|                              | MR-24 ENDWALL EXT./ROOF REPLACEMENT                                      | P-105528                             |                        | CORNER CAP INSTALLATION EAVE TRIM                                       | P-104549  |             | PARALLEL TRANSITION INSTALLATION TO EXISTING BLDG - NO WIDTH ADD.         | P-081613   |                  | RIDGE VENTILATOR INSTALLATION                                | P-107553 |  |
|                              | MR-24/CMR-24 PANEL CLOSURE INSTALL.                                      | P-105634                             |                        | NARROW GUTTER INSTALL. W/D WEATHERSEAL                                  | P-104713  |             | PARALLEL TRANSITION INSTALLATION TO EXISTING BLDG - FOR WIDTH ADD.        | P-081614   |                  | CONTINUOUS RIDGE VENTILATOR INSTALL.                         | P-107559 |  |
|                              | MR-24 SINGLE PANEL REPAIR  | P-107656                             |                        | NARROW GUTTER INSTALL. W/WEATHERSEAL                                    | P-104714  |             | CORRUGATION TRANSITION INSTALLATION GENERAL INFO AND CLIP INSTALL. 1 OF 5 | P-081675   |                  |  |          |  |
|                              | MR-24/CMR-24 MULT. PANEL REPAIR AND DET.                                 | P-107743                             |                        |   |   |             | CORRUGATION TRANSITION INSTALLATION SEAMING OPERATION 2 OF 5              | P-081678   |                  |  |          |  |
|                              | MR-24 MULTIPLE PANEL REPAIR  | P-107744                             |                        |   |   |             | CORRUGATION TRANSITION INSTALLATION SILICONE MEMBRANE AND COVER 3 OF 5    | P-081677   |                  |  |          |  |
|                              | MR-24 MULTIPLE PANEL REPAIR  | P-107745                             |                        |   |   |             | CORRUGATION TRANSITION INSTALLATION SPECIFIC DETAILS 4 OF 5               | P-081678   |                  |  |          |  |
|                              | MR-24 SEAMED RIDGE ROOF SYSTEM GENERAL INSTALLATION                      | P-090008                             |                        |   |   |             | CORRUGATION TRANSITION INSTALLATION RIDGE AND PERP. TRANS. 5 OF 5         | P-081679   |                  |  |          |  |
|                              | MR-24 SEAMED RIDGE ROOF SYSTEM PANEL INSTALLATION                        | P-090007                             |                        | MR-24 SEAMED RIDGE ROOF SYSTEM INTERIOR RIDGE TRIM INSTALLATION         | P-090010  |             | MR-24 SEAMED RIDGE ROOF SYSTEM RIDGE PANEL AT PARALLEL TRANSITION         | P-090009   |                  |  |          |  |
|                              | MR-24 SEAMED RIDGE ROOF SYSTEM ROOF PANEL FIELD NOTCHING DETAILS         | P-090011                             |                        | CONDUCTOR PIPE INSTALLATION AND DETAILS                                 | P-080091  |             | PERPENDICULAR TRANSITION MEMBRANE ROOF TO METAL ROOF                      | P-081574   |                  |  |          |  |
|                              | MR-24 SEAMED RIDGE ROOF SYSTEM SPLICE DETAIL AND RIDGE PANEL FIELD HOLES | P-090012                             |                        | COLLECTOR BOX INSTALL.-NARROW GUTTER                                    | P-103225  |             | PARALLEL TRANSITION MEMBRANE ROOF TO METAL ROOF                           | P-081575   |                  |  |          |  |
|                              | BLGS. WITH TRUSSES   | MR/CMR-24 ROOF PANEL CALCULATOR      |                        | P-081113  | CONDUCTOR PIPE INSTALLATION                                     |             | P-105224  | INTERIOR GUTTER CORNER INSTALLATION ROOF TO WALL                   |                  | P-080189   |          |  |
|                              | BLGS. WITH Z-PURLIN  | ROOF STRUCTURALS FOR ROOF PNL. CALC. |                        | M-149099  | CONDUCTOR PIPE DETAILS  |             | P-105225  | INTERIOR GUTTER PAR. TO INSIDE CORNER FLASHING WITHOUT CORRUGATION |                  | P-081543   |          |  |
| MR/CMR ROOF PANEL CALCULATOR |  | P-080849                             | CONDUCTOR PIPE DETAILS | P-105228  | INTERIOR GUTTER PAR. TO INSIDE CORNER FLASHING WITH CORRUGATION | P-081545    |   |  |                  |  |          |  |
|                              | ROOF STRUCTURALS FOR ROOF PANEL CALCULATIONS                             | P-ZRSL0                              |                        |   | PARALLEL TO PARAPET GUTTER WITH AND WITHOUT CORRUGATION         | P-081560    |   |  |                  |  |          |  |
|                              |  |                                      |                        |   | PARALLEL TRANS. TO VALLEY GUTTER WITH AND WITHOUT CORRUGATION   | P-081551    |   |  |                  |  |          |  |
|                              |  |                                      |                        |   | MULT. GUTTER STOP FLASHING                                      | P-105525    |   |  |                  |  |          |  |
|                              |  |                                      |                        |   | MULT. GUTTER GABLE TRIM   | P-105528    |   |  |                  |  |          |  |
|                              |  |                                      |                        |   | MULT. GUTTER EXPANSION JOINT                                    | P-105533    |   |  |                  |  |          |  |
|                              |  |                                      |                        |   | MULT. GUTTER SPECIAL APPLICATIONS                               | P-105534    |   |  |                  |  |          |  |
|                              |  |                                      |                        |   | WELD PROCEDURES FOR SS GUTTERS                                  | P-105846    |   |  |                  |  |          |  |
|                              |  |                                      |                        |   | SUGGESTED FIELD FABRICATION COLLECTOR BOX AND SCREEN            | P-107134    |   |  |                  |  |          |  |

NOTES:

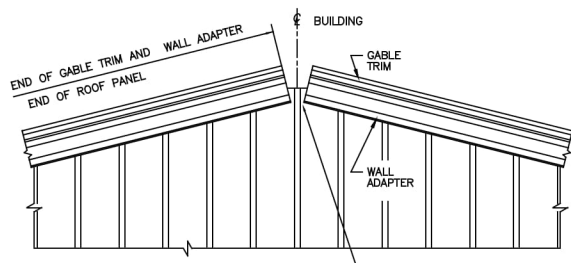
- THE ABOVE DRAWINGS PERTAIN TO WIDESPAN BUILDINGS WITH Z-PURLIN AND/OR TRUSS FOR THE ROOF SECONDARY. THESE BUILDING HAVE EAVE STRUTS (OR AN EQUIVALENT MEMBER), GABLE ANGLES OR RAKE CHANNELS AT THE BUILDING STRUCTURE LINE, AT STANDARD LOCATIONS, FOR PANEL AND TRIM SUPPORT. THIS INDEX DRAWING IDENTIFIES THE ROOF PANEL, TRIM AND ACCESSORY DRAWINGS ASSOCIATED WITH THIS BUILDING.
- ONLY THOSE DRAWINGS REQUIRED ON A SPECIFIC BUILDING

| MR-24 ERECTION DRAWING INDEX |               |               |             |
|------------------------------|---------------|---------------|-------------|
| DRAWN BY                     | CHECKED BY    | GROUP NUMBER: | 02-030-02   |
| FIRM                         | RSS           |               |             |
| FIRST RELEASE DATE           | REVISION DATE |               |             |
| 01/21/10                     | 06/05/17      | B             | P-081111 07 |

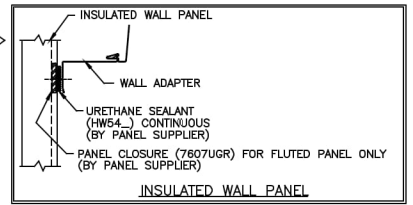
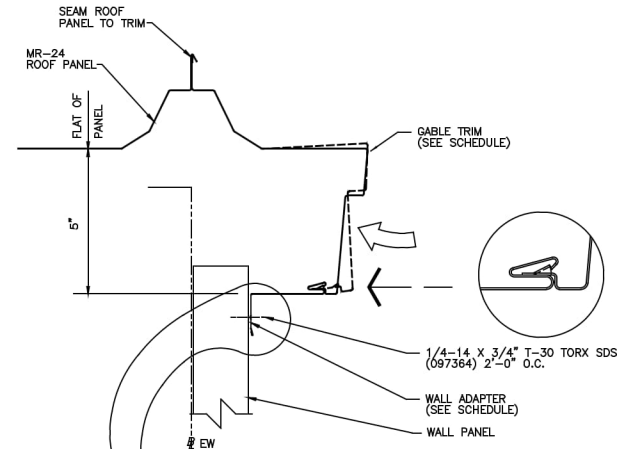
**SINGLE SLOPE BUILDINGS**  
1. ALIGN END OF GABLE TRIM AND WALL ADAPTER WITH END OF ROOF PANEL.  
2. INSTALL BUTLER NAME PLATE (630393) AT MID SLOPE WITH (2) 1/4-14 X 3/4" T-30 TORX SDS (097364).



GABLE TRIM AND WALL ADAPTER-GENERAL



GABLE TRIM AND WALL ADAPTER AT RIDGE  
DOUBLE SLOPE BUILDINGS

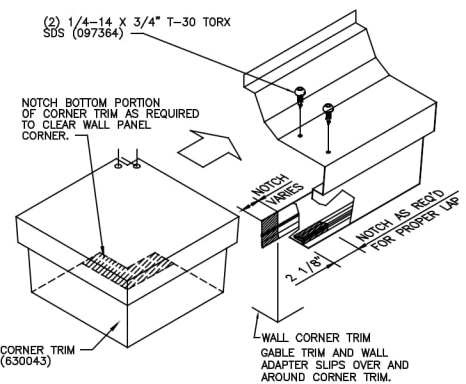


GABLE TRIM AND WALL ADAPTER ASSEMBLY

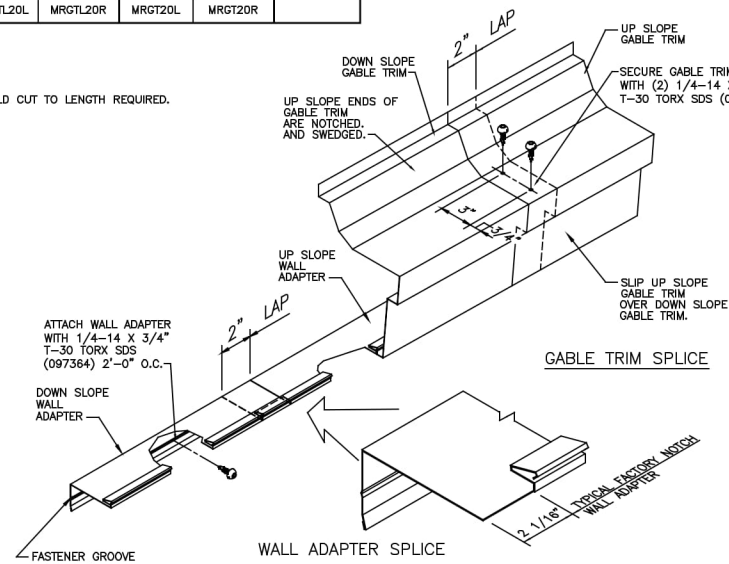
| WALL ADAPTER PART SCHEDULE   |             |            |
|--|-------------|------------|
| WALL PANEL   | PART NUMBER | LENGTH     |
| NON-BMC WALL (SEE DWG. P-081259)   | WVA10       | 10'-4 1/2" |
| BUTLERIB II, SHADOWALL, STYLWALL II FLAT AND FLUTED, ALL (2) TEXTURED AND INSULATED WALL PANEL                             | WA10A       |            |
| ALL (2 1/2") TEXTURED AND INSULATED WALL PANEL ALL (3") TEXTURED AND INSULATED WALL PANEL OPEN ENDWALL OVERHANG AND CANOPY | WA10B       |            |
| ALL (4") TEXTURED AND INSULATED WALL PANEL   | WA10C       |            |

| GABLE TRIM PART SCHEDULE |             |                     |             |            |
|--------------------------|-------------|---------------------|-------------|------------|
| LEFT HANDED PANELS       |             | RIGHT HANDED PANELS |             | LENGTH     |
| LEFT SLOPE               | RIGHT SLOPE | LEFT SLOPE          | RIGHT SLOPE | 20'-6 7/8" |
| PART NO.                 | PART NO.    | PART NO.            | PART NO.    |            |
| MRGTL20L                 | MRGTL20R    | MRGT20L             | MRGT20R     |            |

GABLE TRIM AND WALL ADAPTERS FURNISHED TO LENGTH SHOWN IN PARTS SCHEDULE. FIELD CUT TO LENGTH REQUIRED.



GABLE TRIM TO CORNER TRIM



GABLE TRIM AND WALL ADAPTER SPLICE

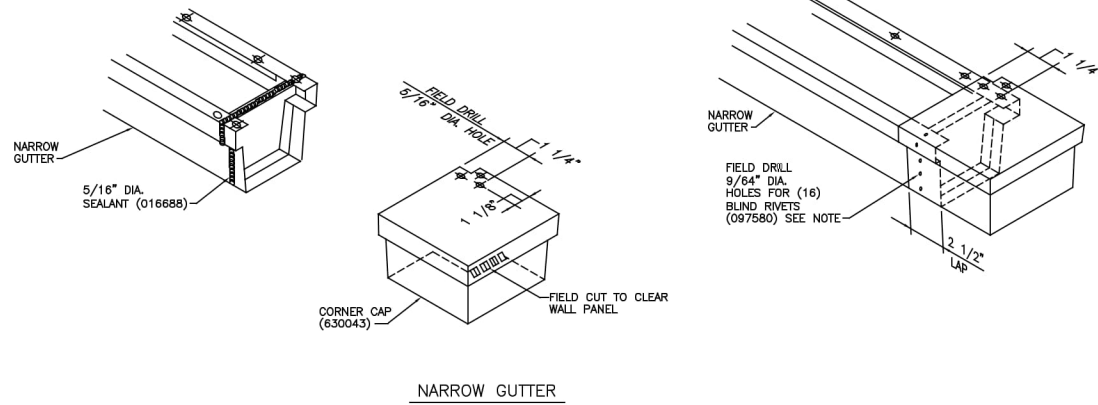
**ERECTION SEQUENCE:**

1. SNAP CHALK LINE ON FACE OF WALL PANEL AT 5" DIMENSION SHOWN ABOVE.
2. ATTACH WALL ADAPTER TO WALL PANEL, ALIGNING HORIZONTAL LEG WITH CHALK LINE. LOCATE TORX FASTENERS AT FASTENER GROOVE IN WALL ADAPTER.
3. ENGAGE GABLE TRIM CORRUGATION TO ROOF PANEL CORRUGATION. ENGAGE LOWER LEG OF GABLE TRIM INTO WALL ADAPTER. USING HAND PRESSURE, SNAP GABLE TRIM INTO WALL ADAPTER. VISUALLY CHECK TO ASSURE GABLE TRIM IS FULLY ENGAGED INTO WALL ADAPTER.
4. SEAM GABLE TRIM TO ROOF PANEL.

**NOTES:**

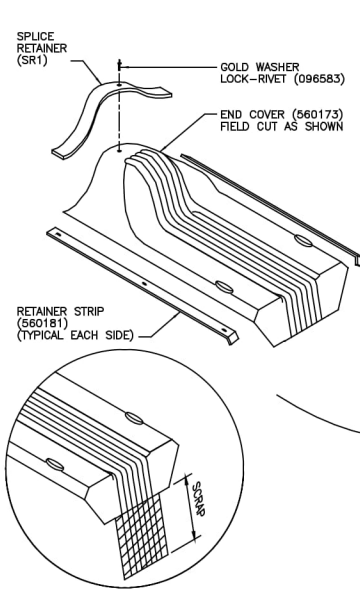
1. SEE ERECTION DRAWING P-081635 IF HIGH WIND GABLE TRIM CLIPS ARE REQUIRED.
2. BUILDINGS WITH WIDTH EXTENSION AND CANOPY TRANSITION THAT IMPOSES SLOPE CHANGE, FIELD MITER GABLE TRIM AND ADAPTER FOR SMOOTH FIT UP.
3. SEE DRAWING P-081243 FOR END RIDGE COVER INSTALLATION.

| MR-24/CMR-24 GABLE TRIM AND WALL ADAPTER INSTALL WITH RIDGE ASSEMBLY |               |                         |             |
|--|---------------|-------------------------|-------------|
| DRAWN BY   | CHECKED BY    | GROUP NUMBER: 02-001-02 |             |
| ACM  | RHE           | B                       | P-081167 06 |
| FIRST RELEASE DATE   | REVISION DATE |                         |             |
| 01/21/10   | 09/14/20      |                         |             |

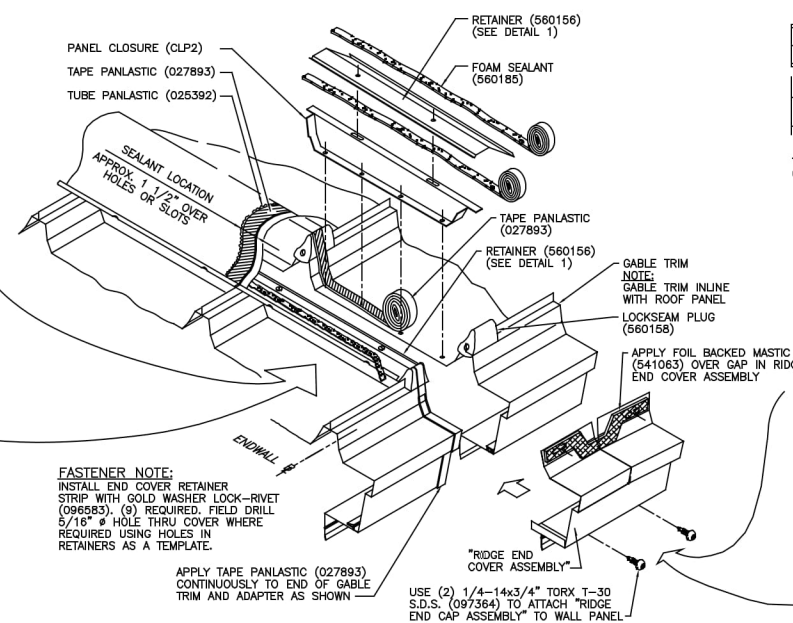


NOTE:  
 SEE DRAWING P-081764 FOR BLIND RIVET COLOR INFORMATION.

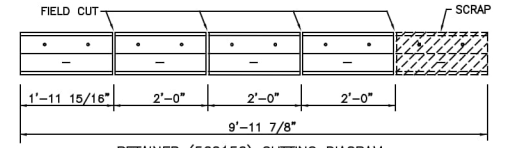
|                          |               |                         |             |
|--------------------------|---------------|-------------------------|-------------|
| NARROW GUTTER CORNER CAP |               |                         |             |
| INSTALLATION - ALL ROOFS |               |                         |             |
| DRAWN BY                 | CHECKED BY    | GROUP NUMBER: 01-004-01 |             |
| CAG                      | MEC           |                         |             |
| FIRST RELEASE DATE       | REVISION DATE | B                       | P-081236 04 |
| 01/21/10                 | 12/04/18      |                         |             |



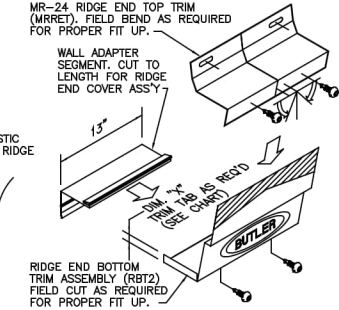
END COVER MODIFICATION



RIDGE END COVER COMPONENTS



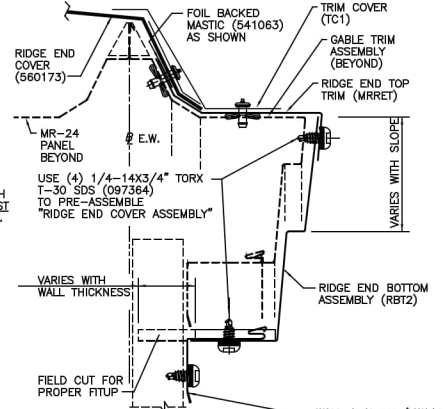
THIS CUTTING DIAGRAM IS A PROCEDURE USED WHEN RIDGE IS INSTALLED BEFORE GABLE TRIM. (SEE "RIDGE INSTALLATION" DWG. P-080578).  
DETAIL 1



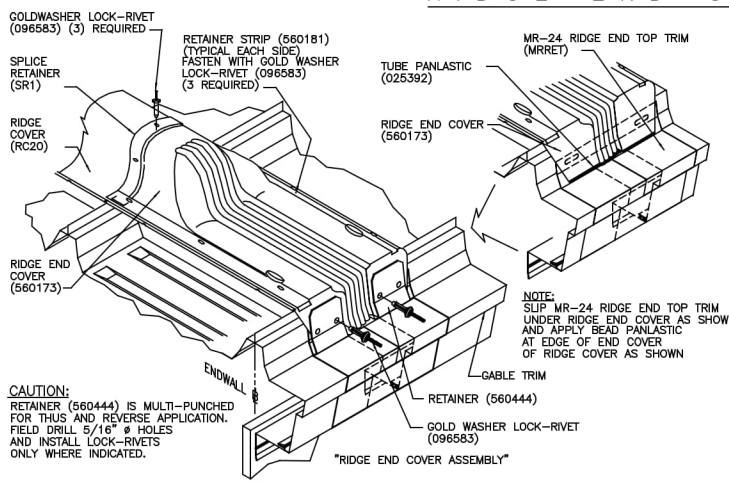
| TAB TRIMMING CHART |          |
|--------------------|----------|
| ROOF SLOPE         | DIM. "X" |
| 1:12               | 3/8"     |
| 2:12               | 11/32"   |
| 3:12               | 9/32"    |
| 4:12               | 7/32"    |
| 5:12               | 1/8"     |
| 6:12               | 0"       |

USE (4) 1/4"-14x3/4" TORX T-30 SDS (097364) TO PRE-ASSEMBLE "RIDGE END CAP ASSEMBLY".  
CAUTION: LOCATE FASTENERS SO THAT THEY DO NOT INTERFERE WITH GABLE TRIM.

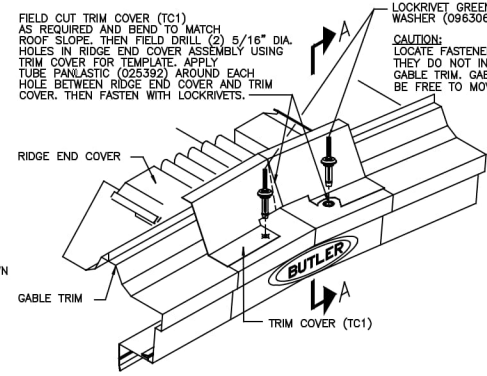
RIDGE END COVER ASSEMBLY



SECTION A-A  
RIDGE END COVER ASSEMBLY



RIDGE END COVER INSTALLATION

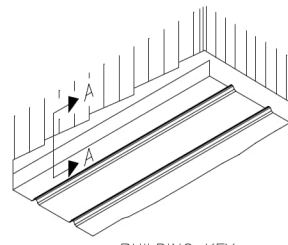


END COVER RETAINER INSTALLATION

NOTES:

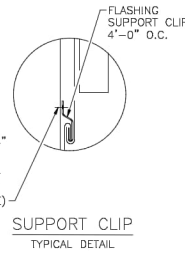
- "RIDGE END COVER ASSEMBLY" CAPS OVER GABLE TRIM AND WALL ADAPTER.

| MR-24/CMR-24 RIDGE END COVER INSTALLATION WITH RIDGE ASSEMBLY (METAL WALL) |               |                         |             |
|--|---------------|-------------------------|-------------|
| DRAWN BY   | CHECKED BY    | GROUP NUMBER: 02-001-02 |             |
| ACM  | RHE           | B                       | P-081243 03 |
| FIRST RELEASE DATE   | REVISION DATE |                         |             |
| 01/21/10   | 12/16/19      |                         |             |

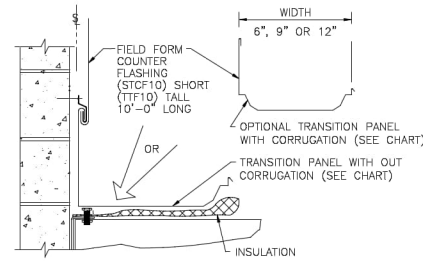


BUILDING KEY

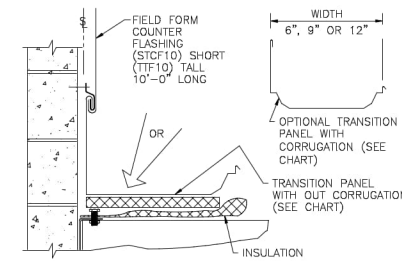
(2) 1/4" X 3/4" SDS (55307) 4'-0" O.C. FURNISHED (BUT MAY VARY WITH WALL SUBSTRATE)



SUPPORT CLIP TYPICAL DETAIL

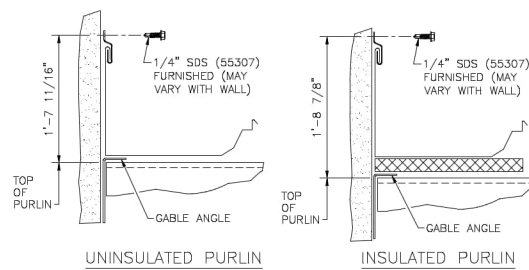


MASONRY OR IN-PLACE WALL  
SECTION-A THRU PARL TRANS - UNINSULATED PURLIN

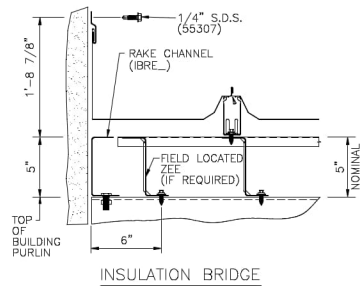


MASONRY OR IN-PLACE WALL  
SECTION-A THRU PARL TRANS - INSULATED PURLIN

| (TALL) TRANSITION PANEL CHART |                       |       |                     |                       |
|-------------------------------|-----------------------|-------|---------------------|-----------------------|
| PART                          | W/ OR W/O CORRUGATION | WIDTH | MALE OR FEMALE SEAM | LT OR RT HANDED PANEL |
| TPANML                        | WITH OUT              | 6"    | MALE                | LEFT                  |
| TPBNML                        | WITH OUT              | 9"    | MALE                | LEFT                  |
| TPCNML                        | WITH OUT              | 12"   | MALE                | LEFT                  |
| TPANMR                        | WITH OUT              | 6"    | MALE                | RIGHT                 |
| TPBNMR                        | WITH OUT              | 9"    | MALE                | RIGHT                 |
| TPCNMR                        | WITH OUT              | 12"   | MALE                | RIGHT                 |
| TPANFL                        | WITH OUT              | 6"    | FEMALE              | LEFT                  |
| TPBNFL                        | WITH OUT              | 9"    | FEMALE              | LEFT                  |
| TPCNFL                        | WITH OUT              | 12"   | FEMALE              | LEFT                  |
| TPANFR                        | WITH OUT              | 6"    | FEMALE              | RIGHT                 |
| TPBNFR                        | WITH OUT              | 9"    | FEMALE              | RIGHT                 |
| TPCNFR                        | WITH OUT              | 12"   | FEMALE              | RIGHT                 |
| TPACML                        | WITH                  | 6"    | MALE                | LEFT                  |
| TPBCML                        | WITH                  | 9"    | MALE                | LEFT                  |
| TPCCML                        | WITH                  | 12"   | MALE                | LEFT                  |
| TPACMR                        | WITH                  | 6"    | MALE                | RIGHT                 |
| TPBCMR                        | WITH                  | 9"    | MALE                | RIGHT                 |
| TPCCMR                        | WITH                  | 12"   | MALE                | RIGHT                 |
| TPACFL                        | WITH                  | 6"    | FEMALE              | LEFT                  |
| TPBCFL                        | WITH                  | 9"    | FEMALE              | LEFT                  |
| TPCCFL                        | WITH                  | 12"   | FEMALE              | LEFT                  |
| TPACFR                        | WITH                  | 6"    | FEMALE              | RIGHT                 |
| TPBCFR                        | WITH                  | 9"    | FEMALE              | RIGHT                 |
| TPCCFR                        | WITH                  | 12"   | FEMALE              | RIGHT                 |

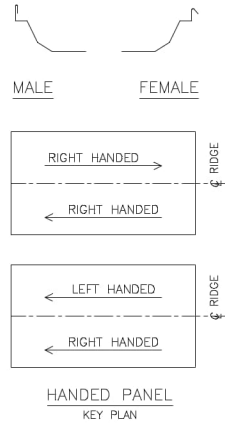


SECTION B

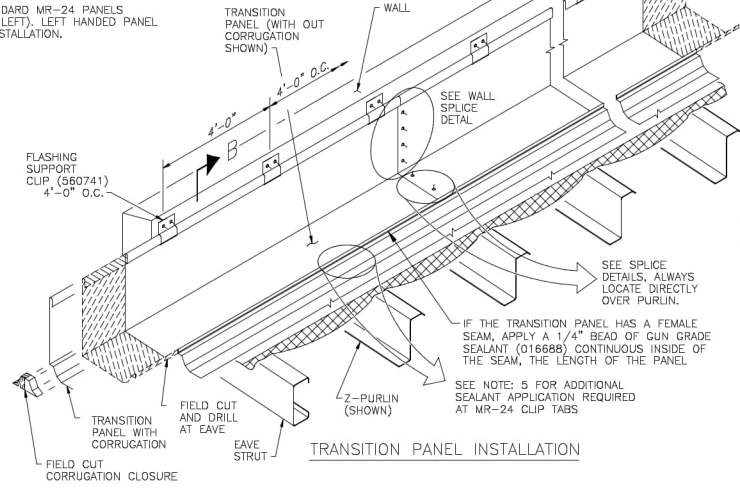


INSULATION BRIDGE

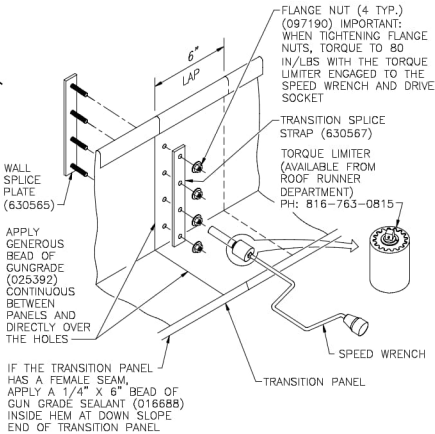
\* RIGHT HANDED REPRESENT STANDARD MR-24 PANELS (ERECTION DIRECTION RIGHT TO LEFT). LEFT HANDED PANEL PROVIDE FOR LEFT TO RIGHT INSTALLATION.



HANDED PANEL KEY PLAN



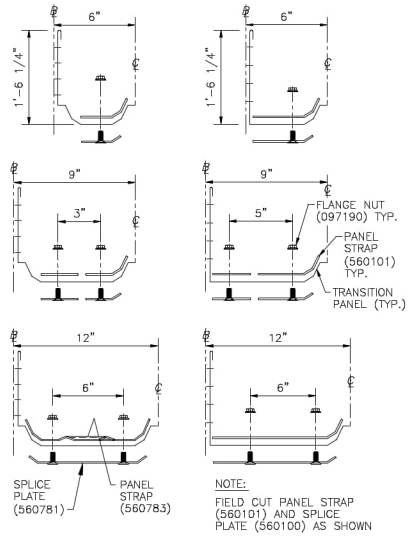
TRANSITION PANEL INSTALLATION



IF THE TRANSITION PANEL HAS A FEMALE SEAM, APPLY A 1/4" X 6" BEAD OF GUN GRADE SEALANT (016688) INSIDE HEM AT DOWN SLOPE END OF TRANSITION PANEL.

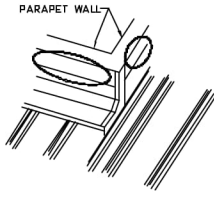
NOTES:

1. THE TRANSITION SUPPORT ANGLE (PTSA) IS NOT REQUIRED WHEN USING THE TALL PARALLEL TRANSITION PANEL SYSTEM. HOWEVER, A GABLE ANGLE IS USED TO ATTACH TO THE PURLINS WITH THE LEG TURNED DOWN.
2. BEGIN THE TRANSITION PANEL INSTALLATION BY LOCATING THE UPSLOPE END OF THE FIRST PIECE (AT THE EAVE) OVER THE PURLIN (SPUCE) AND FIELD CUT THE EAVE END TO MATCH THE ROOF PANELS. FIELD DRILL 3/16" DIA. HOLES FOR EAVE CONNECTION AND TRIM ATTACHMENT.
3. ATTACH THE TRANSITION PANELS ALONG THE WALL WITH THE FLASHING SUPPORT CLIPS (560741) 4' O.C. WITH A FASTENER SUITABLE FOR THE SUBSTRATE BEING FASTENED. LOCATE THE FASTENER AT THE DIMENSION SHOWN IN SECTION B FROM THE TOP OF THE PURLIN.
4. APPLY A GENEROUS BEAD OF GUNGRADE MASTIC (025392) BETWEEN THE PANELS AT EACH SPUCE LOCATION. LOCATE THE BEAD DIRECTLY OVER THE PUNCHED HOLES IN THE PANEL. THEN SECURE THE SPICE W/THE SPICE PLATES AS SHOWN.
5. IF TRANSITION PANEL HAS A FEMALE SEAM APPLY A 1/4" X 4" BEAD OF GUN GRADE SEALANT (016688) OVER EACH MR-24 CLIP TAB.
6. FIELD CUT THE LAST PIECE TO EQUAL THE LENGTH OF THE ADJACENT ROOF PANEL.
7. SEAM THE TRANSITION PANEL WITH THE ROOF PANEL.
8. SEE DRAWING P-081537 FOR INSTALLATION OF COUNTER FLASHING.

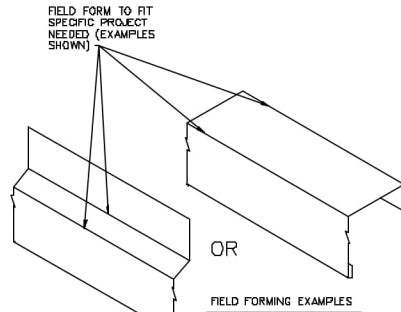


WITH CORRUGATION WITHOUT CORRUGATION  
SPICE DETAILS

|  |               |                         |  |
|--|---------------|-------------------------|--|
| MR-24 TALL PARALLEL TRANSITION MASONRY OR IN-PLACE WALL INSTALLATION |               |                         |  |
| DRAWN BY   | CHECKED BY    | GROUP NUMBER: 02-021-01 |  |
| RHE  | RMG           |                         |  |
| FIRST RELEASE DATE   | REVISION DATE |                         |  |
| 01/21/10   | 05/04/23      | B P-081535 08           |  |

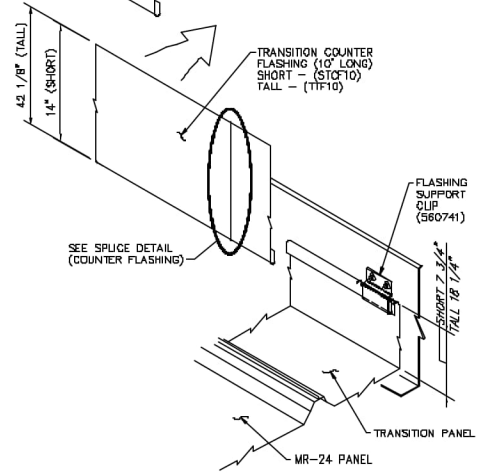


KEY PLAN

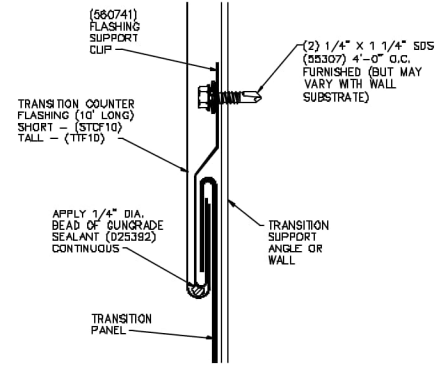


OR

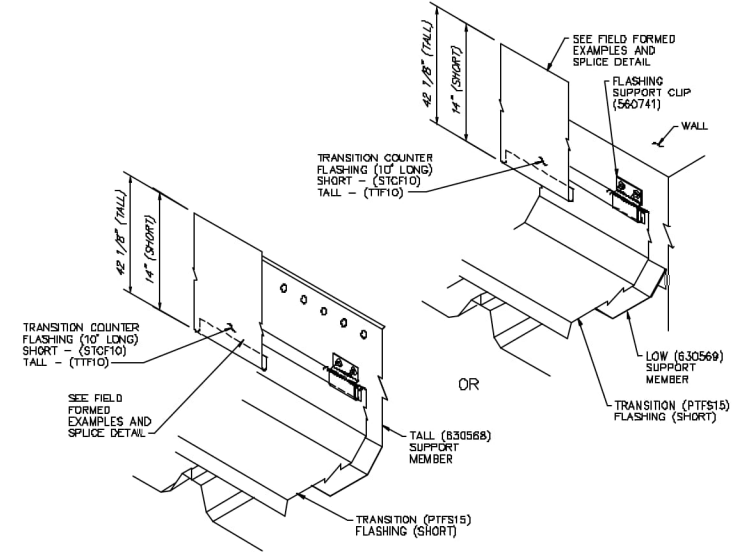
FIELD FORMING EXAMPLES



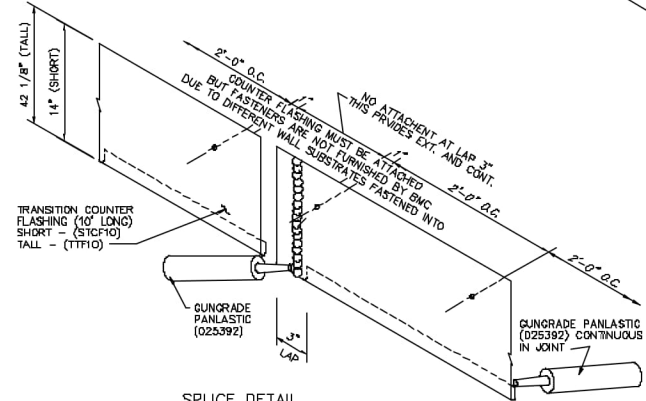
PARALLEL ROOF TO WALL TRANSITION DETAIL



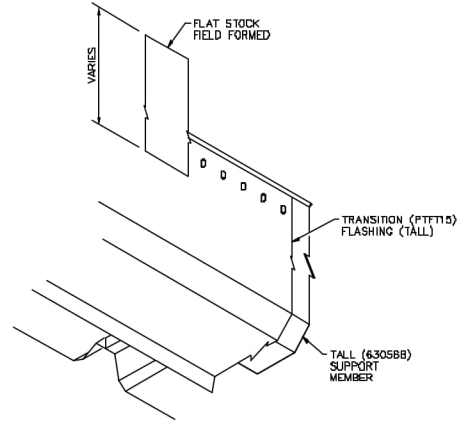
EXPANSION JOINT DETAIL



PERPENDICULAR ROOF TO WALL TRANSITION DETAILS



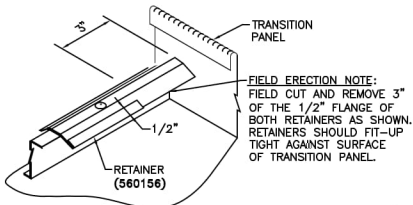
SPLICE DETAIL  
(COUNTER FLASHING)



MR-24/CMR-24 PARALLEL/PERP. TRANS.  
SHORT/TALL COUNTER FLASHING INSTALLATION

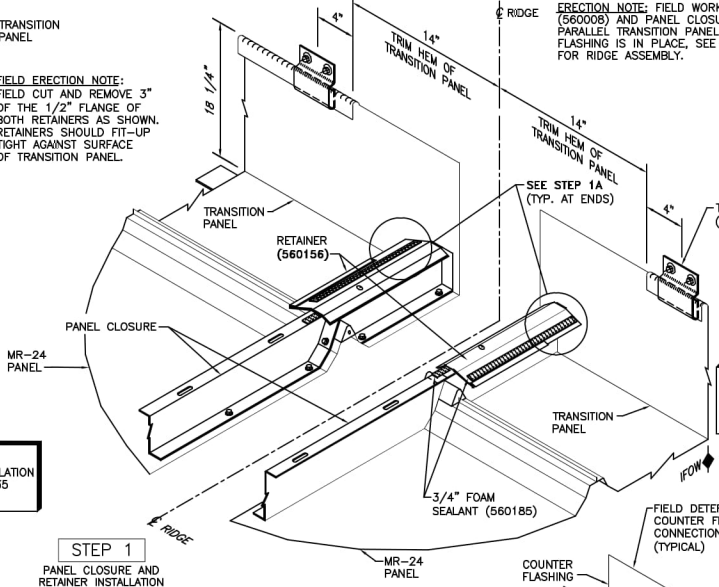
|                                |                           |                             |
|--------------------------------|---------------------------|-----------------------------|
| DRAWN BY<br>GW                 | CHECKED BY<br>RMC         | GROUP NUMBER: 02 - 021 - 01 |
| DATE PREPARED DATE<br>01/21/10 | REVISION DATE<br>03/14/18 | B P-081537 01               |





**STEP 1A**  
RETAINER MODIFICATION

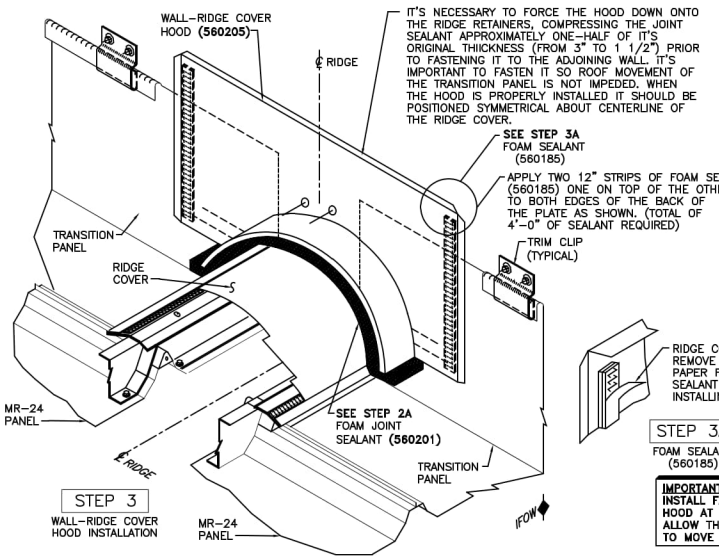
**ERECTION NOTE:**  
FOR TRANSITION PANEL INSTALLATION REFER TO DRAWINGS P-081535 AND P-081536.



**STEP 1**  
PANEL CLOSURE AND RETAINER INSTALLATION

**ERECTION NOTE:**  
FOR PANEL CLOSURE, RETAINER AND RIDGE COVER INSTALLATION PROCEDURES REFER TO DRAWING P-080578.

**STEP 2**  
RIDGE COVER INSTALLATION

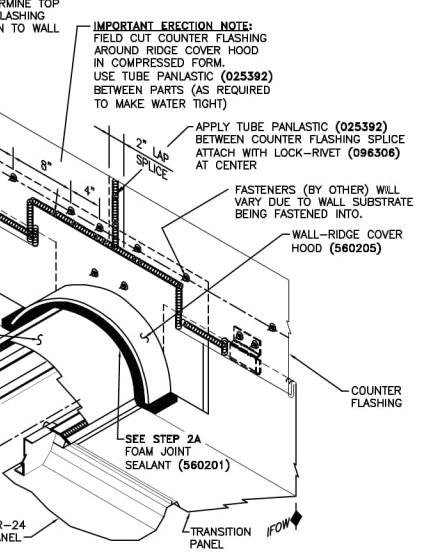


**STEP 3**  
WALL-RIDGE COVER HOOD INSTALLATION

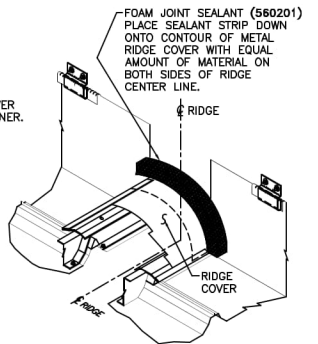
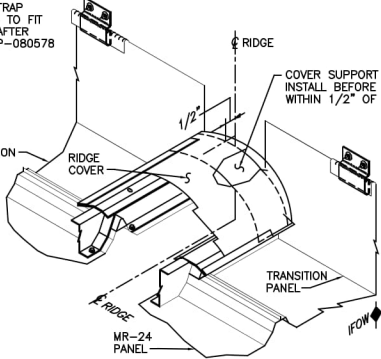


**STEP 3A**  
FOAM SEALANT (560185)

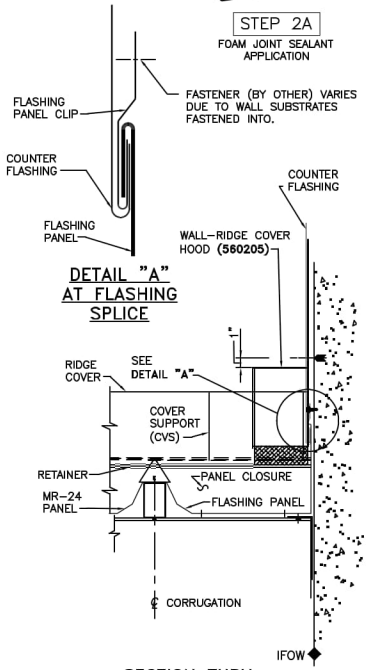
**IMPORTANT NOTE:**  
INSTALL FASTENERS THRU COVER HOOD AT LOCATIONS THAT WILL ALLOW THE TRANSITION PANEL TO MOVE FREELY.



**RIDGE HOOD COVER TO ENDWALL ROOF TRIM PANEL**



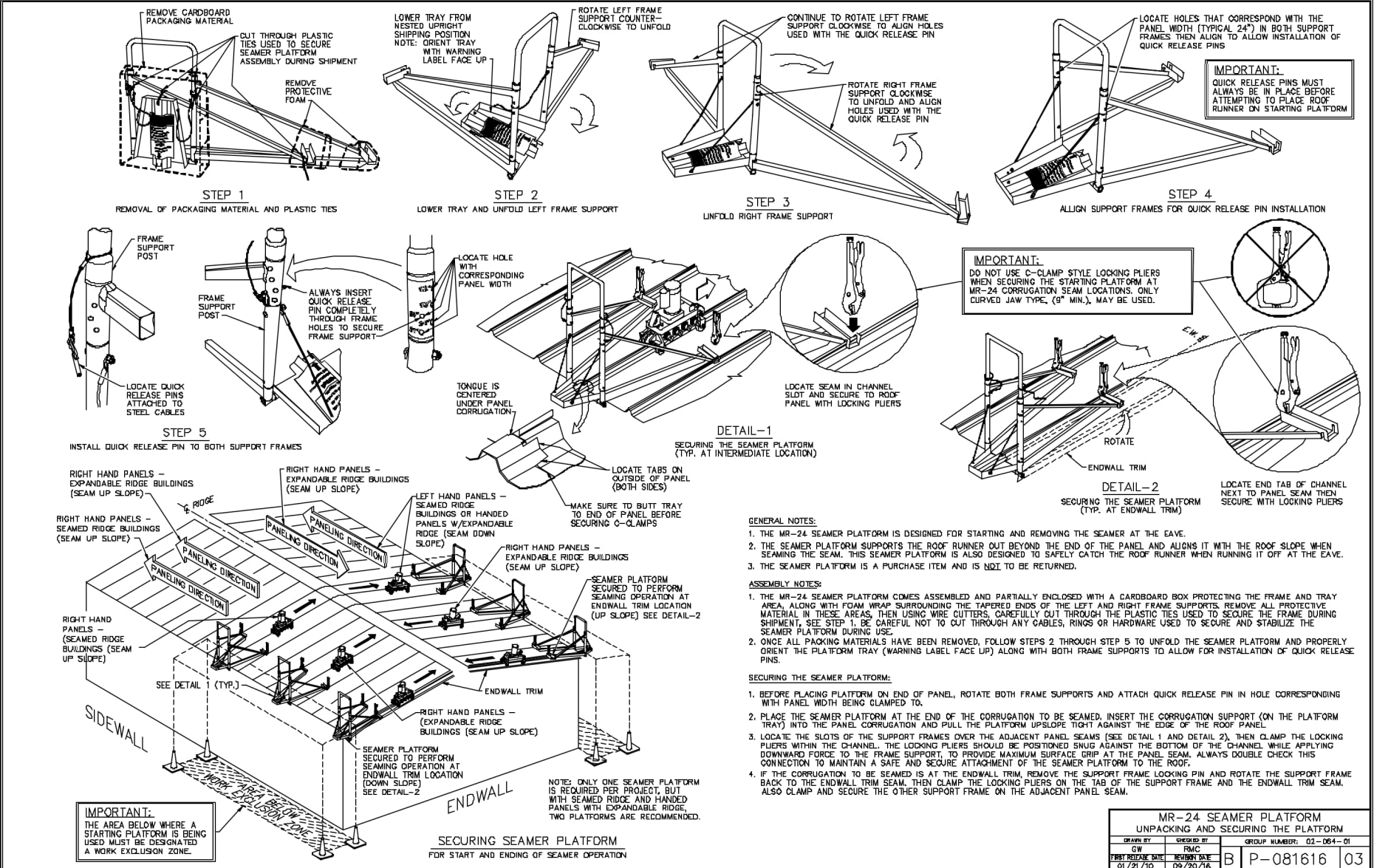
**STEP 2A**  
FOAM JOINT SEALANT APPLICATION



**SECTION THRU RIDGE HOOD COVER TO ENDWALL ROOF TRIM PANEL**

**MANIFEST NOTE:**  
ALL PARTS FURNISHED IN PACKAGE (560208)

|   |               |                         |             |
|---|---------------|-------------------------|-------------|
| MR-24/CMR-24 RIDGE TO WALL TRANS. TALL PARALLEL TRANSITION WITH OUT CORRUGATION |               |                         |             |
| DRAWN BY  | CHECKED BY    | GROUP NUMBER: 02 021 01 |             |
| RHE   | RMC           |                         |             |
| FIRST RELEASE DATE  | REVISION DATE | B                       | P-081548 04 |
| 01/21/10  | 08/09/18      |                         |             |



## SAFETY PRECAUTIONS

SAFETY MUST BE A PRIME CONCERN THROUGHOUT THE ENTIRE ERECTION PROCESS. THESE INSTRUCTIONS CONTAIN SAFETY INFORMATION THAT IS IMPORTANT FOR ALL WORKERS TO KNOW AND UNDERSTAND. IN ADDITION, LOCAL, STATE AND OSHA SAFETY REGULATIONS MUST BE FOLLOWED AT ALL TIMES. THE ERECTION CONTRACTOR HAS THE ULTIMATE RESPONSIBILITY FOR THE SAFETY OF THE WORKERS AND MUST COMPLY WITH ALL APPLICABLE SAFETY REGULATIONS.

### RECOGNIZE SAFETY INFORMATION

**!** THIS IS THE SAFETY-ALERT SYMBOL. WHEN YOU SEE THIS SYMBOL IN THESE INSTRUCTIONS, BE ALERT TO THE POTENTIAL FOR PERSONAL INJURY. FOLLOW RECOMMENDED PRECAUTIONS AND SAFE PRACTICES.

### FOLLOW SAFETY INSTRUCTIONS

CAREFULLY READ ALL SAFETY MESSAGES IN THESE INSTRUCTIONS AS WELL AS MR-24 ERECTION MANUAL, ALL APPLICABLE DRAWINGS AND THE ROOFING WORK SAFETY INSTRUCTIONS AND ROOF PANEL WARNING LABEL THAT ARE SHIPPED WITH THE ROOF MATERIALS.

THE FOLLOWING WARNING DECAL IS ATTACHED TO THE SEAMER PLATFORM PAN.

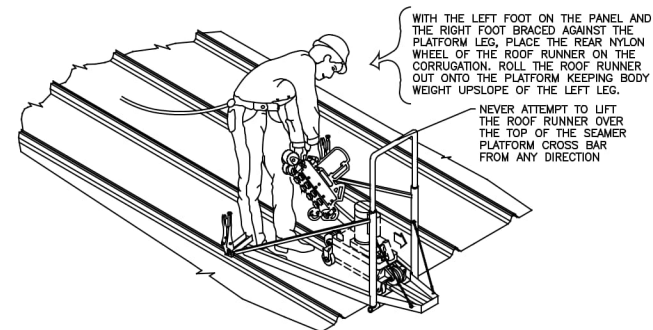
! WARNING

- DO NOT STEP ON PLATFORM PAN.
- DO NOT LEAN ON PLATFORM.
- DO NOT STRADDLE PLATFORM LEGS.
- MAKE SURE LOCKING PLIERS ARE SECURELY CLAMPED ONTO PANELS.
- ALWAYS USE FALL PROTECTION.

IMPORTANT:  
CORRUGATION SUPPORT MUST BE FULLY  
INSERTED INTO CORRUGATION.

FAILURE TO HEED THESE WARNINGS CAN RESULT IN SERIOUS INJURY OR EVEN DEATH.

IF THE WARNING DECAL BECOMES ILLEGIBLE, ORDER A FREE REPLACEMENT FROM THE ROOF RUNNER OPERATIONS DEPARTMENT.



**!** **WARNING:** NEVER STRADDLE THE PLATFORM OR COUNTERBALANCE THE ROOF RUNNER WITH YOUR WEIGHT.

IN ADDITION, FOLLOW THESE GUIDELINES DURING ALL ROOF RUNNER SEAMING OPERATIONS:

- ALWAYS USE FALL PROTECTION AND WALKBOARDS WHEN INSTALLING PANELS OR WORKING NEAR ROOF EDGES.
- MAKE SURE SEAMING FOLLOWS LAYING OF PANELS AS CLOSELY AS POSSIBLE AND USE FALL PROTECTION.
- LOCKING PLIERS (NOT BY BUTLER MANUFACTURING COMPANY) USED TO ATTACH SEAMER PLATFORM TO PANELS MUST BE IN GOOD CONDITION AND ADJUSTED TO RESIST A GOOD HARD PULL (60 POUNDS). ALWAYS DOUBLE CHECK SECURENESS OF LOCKING PLIERS EACH TIME THE SEAMER PLATFORM IS SECURED TO THE ROOF CORRUGATIONS.
- NEVER STEP ON THE SEAMER PLATFORM PAN.
- NEVER "RIDE" THE ROOF RUNNER OR BLOCK VENTS ON THE MOTOR IN ANY WAY.
- PANELS NOT FULLY SEAMED CAN COLLAPSE OR SLIDE OUT FROM UNDER YOU. ALWAYS USE FALL PROTECTION AND WALKBOARDS WHEN INSTALLING PANELS OR WORKING NEAR ROOF EDGES. MAKE SURE SEAMING FOLLOWS THE LAYING OF PANELS AS CLOSELY AS POSSIBLE.

**!** **WARNING:** NEVER TIE POWER CORDS TOGETHER OR TO THE ROOF RUNNER.

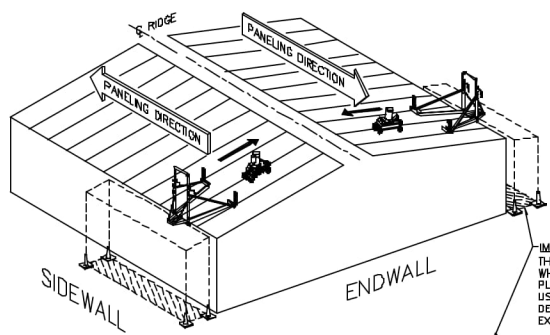
**!** **CAUTION:** KEEP THE PATH OF THE ROOF RUNNER CLEAR AT ALL TIMES AND POWER CORDS FREE OF ENTANGLEMENTS. A NON-LOCKING PLUG IS SUPPLIED SO THAT IT WILL UNPLUG ITSELF SHOULD THE POWER CORD BECOME ENTANGLED. DO NOT DEFEAT THIS SAFETY FEATURE BY TYING THE POWER CORD TO THE MOTOR LEAD OR TO THE ROOF RUNNER. ADDITIONALLY, TOWING OF THE POWER CORD(S) CAN CAUSE IMPROPER SEAMS TO BE FORMED.

**!** **WARNING:** DON'T RIDE THE ROOF RUNNER OR BLOCK VENTS ON THE MOTOR IN ANY WAY.

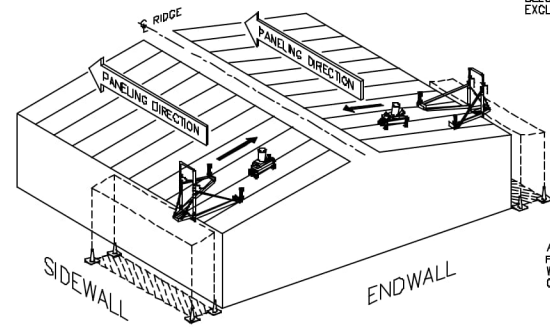
**!** **WARNING:** PANELS NOT FULLY SEAMED CAN COLLAPSE OR SLIDE OUT FROM UNDER YOU. ALWAYS USE FALL PROTECTION AND WALKBOARDS WHEN INSTALLING PANELS OR WORKING NEAR ROOF EDGES. MAKE SURE SEAMING FOLLOWS THE LAYING OF PANELS AS CLOSELY AS POSSIBLE.

**!** **CAUTION:** ALL ELECTRICAL SERVICE MUST BE PROPERLY GROUNDED, AND MUST INCLUDE A GROUND FAULT INTERRUPTER!

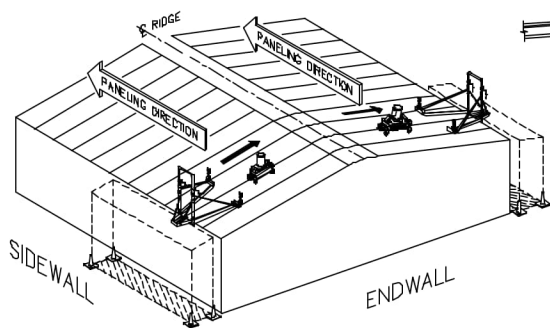
| MR-24 ROOF RUNNER OPERATIONS<br>SAFETY PRECAUTIONS |               |                         |          |    |
|--|---------------|-------------------------|----------|----|
| DRAWN BY   | CHECKED BY    | GROUP NUMBER: 02-084-01 |          |    |
| RHE  | RMC           |                         |          |    |
| FIRST RELEASE DATE                                 | REVISION DATE | B                       | P-081672 | 01 |
| 01/21/10   | 12/04/18      |                         |          |    |



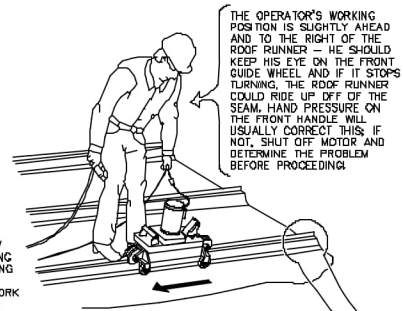
INSTALLATION OF MR-24  
ON OPPOSITE SLOPES IN THE OPPOSITE DIRECTION  
(PREFERRED METHOD OF INSTALLATION)



INSTALLATION OF (HANDED) MR-24  
ON OPPOSITE SLOPES IN THE OPPOSITE DIRECTION

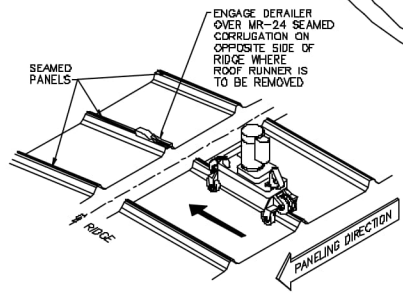


INSTALLATION OF (SEAMED RIDGE) MR-24  
ON OPPOSITE SLOPES IN THE SAME DIRECTION

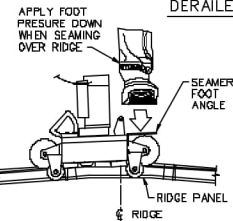


IMPORTANT:  
THE AREA BELOW WHERE A STARTING PLATFORM IS BEING USED MUST BE DESIGNATED A WORK EXCLUSION ZONE

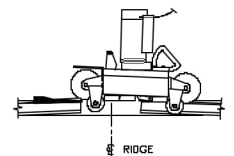
DENOTES AREA BELOW WORK EXCLUSION ZONE



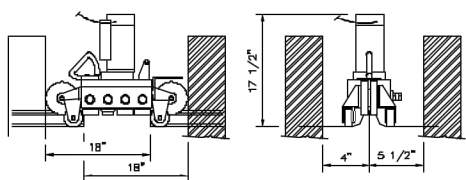
DERAILER AND ROOF RUNNER  
AT RIDGE



CROSS SECTION  
AT SEAMED RIDGE



CROSS SECTION  
DERAILER AND ROOF RUNNER AT RIDGE



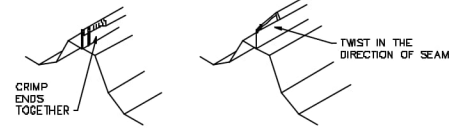
ROOF RUNNER CLEARANCES

**ROOF RUNNER DESCRIPTION**  
THE ROOF RUNNER IS A FOUR STAND, PORTABLE, ROLL FORMING MACHINE THAT JOINS THE MR-24 ROOF PANELS TOGETHER BY MAKING A DOUBLE LOCK SEAM OF THE VERTICAL LEGS OF THE PANEL HALF CORRUGATIONS. IT IS POWERED BY AN ELECTRIC MOTOR AND WEIGHS APPROXIMATELY 70 POUNDS (72 POUNDS IN ITS SHIPPING BOX). ITS AVERAGE FORMING SPEED IS 13 FEET PER MINUTE AT 120V.  
IT IS LEASED FROM AND REMAINS THE PROPERTY OF BUTLER MANUFACTURING CO. FOR LOSS VALUE SEE LEASE AGREEMENT.

**PAINTED PANELS**  
PRIOR TO USE ON "PAINTED" MR-24 PANELS, PLEASE CONTACT ROOF RUNNER OPERATIONS 816-763-0815. PAINTED MATERIAL PRESENTS SPECIAL CONDITIONS THAT REQUIRE NEW OR NEARLY NEW FEED WHEELS. IF YOU ALREADY HAVE A MACHINE, FEED WHEELS WILL BE SUPPLIED FOR FIELD INSTALLATION OR A REPLACEMENT MACHINE WILL BE FURNISHED IN ANY CASE, THERE IS NO ADDITIONAL CHARGE FOR THIS UPGRADE AND IT WORKS FINE WITH UNPAINTED MR-24, 22 GA. ROOF RUNNERS DO NOT REQUIRE UPGRADING FOR PAINTED PANELS.

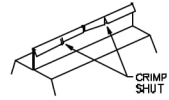
**THE SEAMING OPERATION**  
SEAMING WITH THE ROOF RUNNER CAN BEGIN AS SOON AS SUFFICIENT ROWS OF PANELS ARE LAYED IN PLACE TO PERMIT OPERATION OF THE ROOF RUNNER WITHOUT INTERFERENCE WITH THE CREW LAYING THE PANELS.  
IMPORTANT: REFER TO THE MR-24 INSTALLATION MANUAL AND THE ERECTION DRAWINGS FOR MORE SPECIFIC INFORMATION ON PANEL INSTALLATION, CLIP ATTACHMENT, MASTIC PLACEMENT, ETC.

1. PANELS AND CLIP TABS MUST BE PROPERLY ENGAGED AND REMAIN IN POSITION DURING THE SEAMING OPERATION. IF NECESSARY, USE LOCKING PLIERS TO HOLD THE PANELS IN POSITION.
2. BEFORE BEGINNING THE SEAMING OPERATION, THE ENDS OF THE PANELS MUST BE CRIMPED TOGETHER, TWISTING THE END SLIGHTLY IN THE DIRECTION OF SEAMING. CHECK FOR THE FIGURAL OF PANLASTIC IN THE SEAM LAP.



3. ALWAYS KEEP THE TWO PANEL EDGES ENGAGED. IF THEY BECOME DISENGAGED, STOP THE ROOF RUNNER OPERATION AND CORRECT THE PROBLEM IMMEDIATELY.

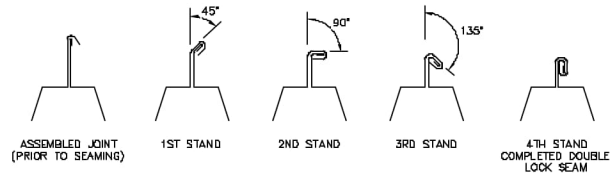
PANEL AND SPLICES REQUIRE SPECIAL ATTENTION - IMPROPERLY PLACED OR EXCESS MASTIC WILL BE PICKED UP BY THE ROOF RUNNER MACHINE MAKING THE SEAMING PROCESS MORE DIFFICULT. THE UPPER PANELS MUST FIT INTO THE LOWER PANELS NOTCHES TO MINIMIZE THE MATERIAL THICKNESS TO BE SEAMED. BE SURE TO CRIMP THE PANEL LIPS SHUT AT THE JOINT TO PREVENT THE POSSIBILITY OF THE UPSLOPE END JAMMING IN THE MACHINE.



AVOID ROOF TRAFFIC DISTORTION TO THE PANELS BEING SEAMED. KEEP ROOF TRAFFIC AWAY FROM THE ROOF RUNNER. IMPORTANT: THE OPERATOR SHOULD STAY IN A POSITION THAT MINIMIZES TRAFFIC DISTORTION. THE BEST POSITION IS 4' TO 5' AHEAD, TO THE RIGHT OF THE ROOF RUNNER ON A FULLY SEAMED PANEL FROM THIS POSITION, THE OPERATOR CAN:

- KEEP PANELS ENGAGED
- WATCH SEAM AND ROOF RUNNER
- STOP MACHINE AS NECESSARY
- HOLD DOWN FRONT OF MACHINE ACROSS LAPS
- WORK FROM SAFEST POSITION ON A STABLE PANEL

**LOCK-SEAM SEQUENCE**  
THE FOLLOWING SERIES OF ILLUSTRATIONS SHOW THE LOCK-SEAM SEQUENCE PERFORMED BY THE ROOF RUNNER AS IT PROGRESSES ALONG THE LENGTH OF THE PANEL CORRUGATION.



**ROOF RUNNER CLEARANCES**

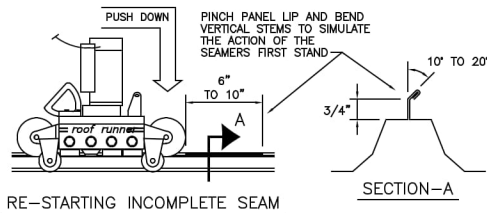
IN ORDER TO START OR REMOVE THE ROOF RUNNER IN CONDITIONS SUCH AS PARAPET WALLS OR OTHER OBSTRUCTION, A MINIMUM CLEAR DISTANCE OF 18 INCHES IS REQUIRED. THE MULTIPLE GUTTER CONDITION WILL REDUCE THIS DISTANCE DEPENDING ON THE ROOF SLOPES USED.

A DISTANCE OF 4" OR 5 1/2" AT THE SIDE OF THE SEAM IS REQUIRED FOR MACHINE CLEARANCE. 17 1/2" IS NEEDED FOR THE MACHINE TO PASS BENEATH OBSTRUCTION.

| MR-24 ROOF RUNNER OPERATIONS<br>GENERAL SEAMING OPERATIONS |                                  |               |             |
|--|----------------------------------|---------------|-------------|
| DRAWN BY   | CHECKED BY                       | GROUP NUMBER: | 01-064-01   |
| RHE<br>FIRST RELEASE DATE<br>01/21/10                      | RMC<br>REVISION DATE<br>10/11/18 | B             | P-081673 01 |

### TIPS FOR TROUBLE FREE OPERATION

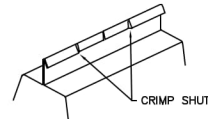
- SAFE AND CORRECT SEAMING REQUIRES ALL MACHINE OPERATORS TO BE FAMILIAR WITH THE MACHINE FEATURES. BE SURE THEY ARE AWARE OF THE PROPER MATERIAL FLOW THROUGH THE FEED WHEELS SO THAT THEY CAN SPOT A MALFUNCTION QUICKLY AND CAN CORRECT ITS CAUSE IMMEDIATELY. IMPROPER SEAMS LONGER THAN 5 FEET ARE DIFFICULT TO REPAIR AS THEY INVOLVE THE PANEL CLIPS AND TABS.
- ALWAYS USE A SEAMER PLATFORM.
- MAKE SURE THE FEED WHEELS ARE KEPT CLEAN, ESPECIALLY ON PAINTED MATERIAL! (SEE MAINTENANCE)
- MANY SEAMING PROBLEMS ARE THE RESULT OF MIS-ALIGNED PURLINS AND/OR FRAMES. A SUDDEN CHANGE IN DIRECTION (1/4" IN 5'-0") CAN CAUSE AN INCORRECT SEAM. A GOOD RULE TO FOLLOW IS TO "STRING LINE" THE PURLIN HOLES IN EACH BAY BEFORE PANELING.
- BE SURE THE PANELS ARE PROPERLY ENGAGED PRIOR TO SEAMING. USE LOCKING PLIERS TO HOLD THEM IN POSITION AS REQUIRED. SHOULD AN INCOMPLETE SEAM OCCUR, STOP THE ROOF RUNNER IMMEDIATELY! AN INCOMPLETE SEAM CAN USUALLY BE RESTARTED BY BENDING THE PANEL STEMS SEVERAL INCHES AHEAD OF THE SEAMER, IN THE DIRECTION OF SEAMING.



- WATCH TO SEE THAT THE LARGE FRONT AND REAR GUIDE WHEELS ARE BEARING ON THE CORRUGATION. THE WHEELS SHOULD TURN THROUGHOUT THE SEAMING OPERATION (AT CLIPS AND END SPLICES THEY MAY STOP MOMENTARILY, BUT SHOULD RESUME TURNING AGAIN IMMEDIATELY).
- CAM RELEASES ARE PROVIDED FOR THE PURPOSE OF DISENGAGING THE MACHINE FROM THE PANEL. THEY SHOULD BE USED ONLY WHEN ABSOLUTELY NECESSARY. A LARGE ADJUSTABLE WRENCH OR 30 MM SOCKET IS REQUIRED AND THE PROCESS SHOULD BE DONE SLOWLY AND WITH GREAT CARE AS THERE ARE SEVERAL CAST PIECES INVOLVED THAT ARE UNDER HEAVY SPRING PRESSURE. THESE PIECES WILL BREAK IF EXTREME CARE IS NOT USED TO RELEASE AND ENGAGE THE CAM.



- PANEL AND SPLICES REQUIRE SPECIAL ATTENTION - IMPROPERLY PLACED OR EXCESS MASTIC WILL BE PICKED UP BY THE ROOF RUNNER MACHINE MAKING THE SEAMING PROCESS MORE DIFFICULT. THE UPPER PANELS MUST FIT INTO THE LOWER PANELS NOTCHES TO MINIMIZE THE MATERIAL THICKNESS TO BE SEAMED. BE SURE TO CRIMP THE PANEL LIPS SHUT AT THE JOINT TO PREVENT THE POSSIBILITY OF THE UPSLOPE END JAMMING THE ROOF RUNNER MACHINE.



- AVOID ROOF TRAFFIC DISTORTION TO THE PANELS BEING SEAMED. KEEP ROOF TRAFFIC AWAY FROM THE ROOF RUNNER. IMPORTANT: THE OPERATOR SHOULD STAY IN A POSITION THAT MINIMIZES TRAFFIC DISTORTION. THE BEST POSITION IS 4' TO 5' AHEAD, TO THE RIGHT OF THE ROOF RUNNER. THE OPERATOR CAN:
  - KEEP PANELS ENGAGED
  - WATCH SEAM AND ROOF RUNNER
  - STOP MACHINE AS NECESSARY
  - HOLD DOWN FRONT OF MACHINE ACROSS LAPS
  - WORK FROM SAFEST POSITION ON A STABLE PANEL

### MAINTENANCE FOR THE SEAMER PLATFORM

ALL MAINTENANCE AND REPAIRS ARE THE RESPONSIBILITY OF THE BUILDER.

THE SEAMER PLATFORM MUST BE MAINTAINED IN GOOD WORKING CONDITION IN ORDER TO FUNCTION PROPERLY AND SAFELY. DO NOT ALLOW THE SEAMER PLATFORM TO BE DROPPED, BENT, OR IN ANY WAY BE DAMAGED.

REGULAR INSPECTION OF THE SEAMER PLATFORM IS ADVISABLE IN ORDER TO DISCOVER HIDDEN DAMAGE AND TO INSURE IT IS IN GOOD WORKING ORDER.

IF ANY DAMAGE TO THE SEAMER PLATFORM AFFECTS ITS SAFE USAGE, DO NOT CONTINUE TO USE IT.

TO PURCHASE A REPLACEMENT, CALL THE ROOF RUNNER OPERATIONS DEPARTMENT.

THE WARNING DECAL ON THE SEAMER PLATFORM MUST ALSO BE KEPT IN GOOD CONDITION. REPLACEMENTS MAY BE ORDERED, FREE OF CHARGE, FROM THE ROOF RUNNER OPERATIONS DEPARTMENT (816-763-0815).

### MAINTENANCE FOR THE ROOF RUNNER

ALL MAJOR MAINTENANCE AND REPAIRS WILL BE DONE BY BUTLER MANUFACTURING COMPANY - ROOF RUNNER OPERATIONS. EACH MACHINE WILL BE CLEANED, WORN PARTS REPLACED, LUBRICATED, PAINTED, AND TESTED BEFORE BEING SHIPPED TO INSURE RELIABLE PERFORMANCE ON THE JOB SITE.

MINOR MAINTENANCE SUCH AS MASTIC REMOVAL, PROTECTION FROM MOISTURE, DAMAGE, SHIPPING BOX CARE, ETC., ARE SOLELY THE RESPONSIBILITY OF THE LESSEE.

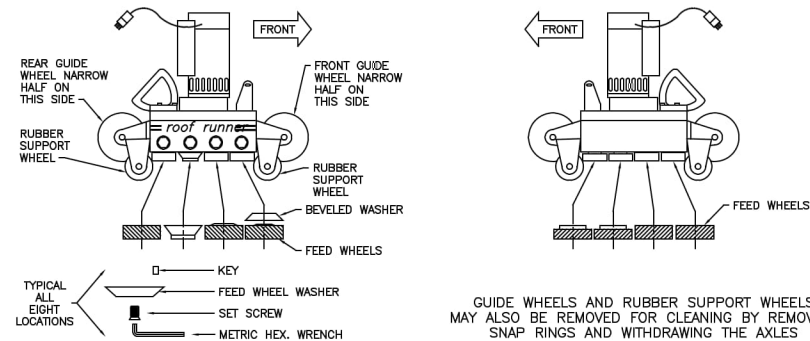
ALL QUESTIONS PERTAINING TO THE ROOF RUNNER SHOULD BE DIRECTED TO: (PLEASE REFER TO SPECIFIC ROOF RUNNERS BY SERIAL NUMBER ON ALL CORRESPONDENCE)

BUTLER MANUFACTURING COMPANY  
13500 BOTTIS ROAD  
GRANDVIEW, MISSOURI 64030  
TEL: 816-763-0815  
FAX: 816-763-1717  
ATTN: ROOF RUNNER OPS.

MASTIC REMOVAL - THE EIGHT FORMING WHEELS ON THE UNDERSIDE OF THE ROOF RUNNER MAY BE REMOVED FOR CLEANING (AN 1/2" SHAPED METRIC HEX WRENCH IS FURNISHED WITH THE ROOF RUNNER TO REMOVE THE FEED WHEEL SET SCREWS). THE FEED WHEELS, WASHERS, AND SET SCREWS CAN BE SOAKED IN A SOLVENT BATH TO REMOVE MASTICS. NAPTHA OR MINERAL SPIRITS WILL EFFECTIVELY CUT BUTLER MASTICS. CAUTION - READ SOLVENT LABELS THOROUGHLY BEFORE USING. DO NOT SOAK ANY OTHER PART OF THE ROOF RUNNER - SOLVENTS WILL ATTACK THE RUBBER SUPPORT WHEELS AND REMOVE THE LUBRICATING ABILITY OF THE BRONZE BEARINGS IF SOAKED. THESE PARTS MAY BE CLEANED BY BRUSHING OR WIPING WITH SOLVENTS AND SHOULD BE DRIED IMMEDIATELY. THE FOLLOWING SKETCHES SHOW THE PROPER ORIENTATION OF THE FEED WHEELS, KNURLING DIRECTION, AND OTHER PARTS THAT CAN BE REMOVED FOR CLEANING. FEED WHEELS MUST BE RE-INSTALLED EXACTLY AS SHOWN BEFORE THE MACHINE CAN FUNCTION PROPERLY.

PAINTED PANELS - FEED WHEELS MUST PENETRATE THE PAINTED SURFACE IN ORDER TO GRIP THE PANEL AND MAKE THE SEAM. THIS WILL LEAVE NON-OBJECTIONABLE TRACKS ON THE SEAM. A BUILD-UP OF PAINT CHIPS IN THE GROOVES OF THE FEED WHEELS WILL OCCUR REQUIRING CONTINUOUS WIRE BRUSHING TO INSURE AN ADEQUATE GRIP DURING THE SEAMING PROCESS.

THE FREQUENCY OF CLEANING SHOULD BE DETERMINED BY THE MACHINE OPERATOR. MASTIC MUST NOT BE ALLOWED TO ACCUMULATE ON THE FEED WHEELS EVEN THOUGH THE MACHINE IS FUNCTIONING PROPERLY. AS MASTICS BUILD UP, A CERTAIN AMOUNT WILL MIGRATE TO THE INTERNAL PARTS CAUSING BINDING OF PARTS AND RESULTING IN IMPROPER FUNCTIONING. INTERNAL CLEANING IS CONSIDERED MAJOR MAINTENANCE AND MUST BE DONE BY ROOF RUNNER OPERATIONS.



NOTICE THE ANGLED GROOVES IN THE FEED WHEELS, THEY MUST BE RE-INSTALLED EXACTLY AS SHOWN!

| MR-24 ROOF RUNNER OPERATIONS<br>TIPS FOR TROUBLE FREE OPERATION-MAINT. |               |                         |             |
|--|---------------|-------------------------|-------------|
| DRAWN BY   | CHECKED BY    | GROUP NUMBER: 02-084-01 |             |
| RHE  | RMC           | B                       | P-081674 01 |
| FIRST RELEASE DATE   | REVISION DATE |                         |             |
| 01/21/10   | 12/04/18      |                         |             |

| SCRUBOLTS |       |  |
|-----------|-------|--|
| PART MARK | COLOR | DESCRIPTION                                    |
| 095984    | ---   | 11/32 X 7/8", HEX HD, SS W/WASHER              |
| 096932    | ---   | 3/8 X 1 1/4", HEX HD, SS W/WASHER              |
| 097104    | ---   | 11/32 X 1 1/4", HEX HD, SS W/WASHER            |
| 097196    | ---   | 3/8 X 1", HEX HD W/WASHER                      |
| 097222    | ---   | 3/8 X 2", HEX HD W/WASHER                      |
| 097264    | ---   | 3/8 X 2 3/4", HEX HD W/WASHER                  |
| 097270    | ---   | 3/8 X 2 1/4", HEX HD W/WASHER                  |
| 097271    | ---   | 3/8 X 3 1/2", HEX HD W/WASHER                  |
| 097292    | ---   | 3/8 X 5", HEX HD W/WASHER                      |
| 097298    | ---   | 3/8 X 6", HEX HD W/WASHER                      |
| 097351    | ---   | 11/32 X 7/8", T-45 TORX HD W/O WASHER (GRAY)   |
| 097352    | ---   | 11/32 X 1 1/4", T-45 TORX HD W/O WASHER (GRAY) |
| 097361    | ---   | 11/32 X 7/8", T-45 TORX HD W/WASHER            |
| 097362    | ---   | 11/32 X 1 1/2", T-45 TORX HD W/WASHER          |
| 097363    | ---   | 11/32 X 2", T-45 TORX HD W/WASHER              |
| 097604    | ---   | 11/32 X 3 1/2", T-45 TORX HD W/WASHER          |
| 097267    | ---   | SCRUBOLT NUT, 11/32", 1/2" HEX                 |
| 097466    | ---   | SCRUBOLT NUT, 23/64", 1/2" HEX                 |

| SELF-DRILLING SCREWS |       |   |
|----------------------|-------|---|
| PART MARK            | COLOR | DESCRIPTION   |
| 097216               | ---   | (T-3) #10-16 X 3/4", 5/16" HEX HD                         |
| 097295               | ---   | (T-3) #12-14 X 3/4", 5/16" HEX HD W/WASHER                |
| 097296               | ---   | (T-3) #12-14 X 1 1/4", 5/16" HEX HD W/WASHER              |
| 097354               | ---   | (T-4) 1/4-14 X 1 1/2", 3/8" HEX HD W/WASHER               |
| 097356               | ---   | (T-3) 1/4-14 X 1" PHILLIPS WAFER HD                       |
| 097373               | ---   | (T-3) #12-14 X 1 1/4", 3/8" HEX HD, SS W/WASHER           |
| 097374               | ---   | (T-3) #12-14 X 1 1/4", 3/8" HEX HD, SS W/WASHER           |
| 097405               | ---   | (T-3) 5/16-12 X 1", 3/8" HEX HD W/WASHER                  |
| 097406               | ---   | (T-3) 5/16-12 X 1 1/2", 3/8" HEX HD W/WASHER              |
| 097409               | ---   | (T-3) 1/4-14 X 7/8", 3/8" HEX HD, SS W/WASHER             |
| 097460               | ---   | (T-3) 5/16-18 X 1 1/4", 3/8" HEX HD W/WASHER              |
| 097554               | ---   | (T-5) #12-24 X 1 1/4", 5/16" HEX HD W/O WASHER            |
| 097555               | ---   | (T-3) 1/4-14 X 1 1/4", 3/8" HEX HD W/O WASHER             |
| 097230               | ---   | (T-3) 1/4-14 X 1 1/4", 3/8" HEX HD W/WASHER               |
| 097357               | ---   | (T-1) 1/4-14 X 7/8", 3/8" HEX HD W/WASHER                 |
| 097364               | ---   | (T-1) 1/4-14 X 3/4", T-30 TORX HD W/WASHER                |
| 097365               | ---   | (T-3) #12-14 X 1 1/4", T-30 TORX HD W/WASHER              |
| 097529               | ---   | (T-5) #12-24 X 1 1/2", T-30 TORX HD W/WASHER              |
| 097584               | ---   | (T-2) #12-14 X 1 1/4", 5/16" HEX HD, SS CAP W/WASHER      |
| 097605               | ---   | (T-3) 1/4-14 X 3 7/8", T-30 TORX HD STANDOFF SDS W/WASHER |
| 55307                | ---   | (T-3) 1/4-14 X 1 1/4", 5/16" HEX HD                       |
| 55310                | ---   | (T-3) 1/4-14 X 3", 5/16" HEX HD                           |
| 55312                | ---   | (T-3) #12-14 X 1" PANCAKE PHILLIPS SQUARE DRIVE           |
| 55320                | ---   | (T-3) 1/4-14 X 1 1/2", 5/16" HEX HD                       |
| 56104                | ---   | (T-5) #12-24 X 1 1/2", 5/16" HEX HD                       |
| 56450                | ---   | (T-2) #12-14 X 1 1/4", 5/16" HEX HD W/O WASHER            |
| 097581               | ---   | (T-1) 1/4-14 X 7/8", 5/16" HEX HD, SS CAP W/WASHER        |

| MISCELLANEOUS FASTENERS |       |  |
|-------------------------|-------|--|
| PART MARK               | COLOR | DESCRIPTION                                  |
| 095051                  | ---   | MACHINE SCREW 1/4" X 1", HEX HD              |
| 095056                  | ---   | MACHINE SCREW 1/4" X 3", HEX HD              |
| 095082                  | ---   | NUT, MACHINE SCREW 1/4", HEX HD              |
| 095241                  | ---   | NUT, 1/4" FLAT SPEED NUT                     |
| 095895                  | ---   | (T-A) #10 X 3/4", PAN HD (SHEET METAL SCREW) |
| 097190                  | ---   | NUT, 1/4-20 SS FLANGE NUT                    |

| BLIND RIVETS |       |                       |
|--------------|-------|-----------------------|
| PART MARK    | COLOR | DESCRIPTION           |
| 097580       | ---   | POP RIVET, 1/8 X 3/8" |

FASTENER COLOR SUFFIX CHART

| SUFFIX | COLOR                | SUFFIX | COLOR                  |
|--------|----------------------|--------|------------------------|
| 100    | = COOL IC/GO WHITE   | 112    | = COOL SHELL GRAY      |
| 101    | = COOL IVORY WHITE   | 113    | = COOL DESERT BEIGE    |
| 102    | = COOL SOLAR WHITE   | 115    | = COOL OCEAN BLUE      |
| 103    | = COOL BRICK RED     | 116    | = COOL GRAY STONE      |
| 104    | = COOL COUNTRY WHEAT | 117    | = COOL COPPER PENNY    |
| 105    | = COOL HARVEST       | 118    | = COOL METALLIC SILVER |
| 106    | = COOL SAFARI BROWN  | 119    | = COOL JADE GREEN      |
| 107    | = COOL PALM GREEN    | 120    | = COOL BRIGHT RED      |
| 108    | = COOL MARSH GREEN   | 121    | = COOL PARCHMENT       |
| 109    | = COOL EMERALD GREEN | 122    | = COOL OLD TOWN GRAY   |
| 110    | = COOL ONYX BLACK    | 141    | = COOL BIRCH WHITE     |
| 111    | = COOL MAJESTIC BLUE | UNPNTD | = UNPAINTED            |

| LOCK-RIVETS |  |
|-------------|--|
| PART MARK   | DESCRIPTION                            |
| 096295      | 9/32" X 1 3/32", "A" HD W/BLACK WASHER |
| 096306      | 9/32" X 1 3/32", "B" HD W/GREEN WASHER |
| 096582      | 9/32" X 1 11/32", "A" HD W/BLUE WASHER |
| 096583      | 9/32" X 1 11/32", "B" HD W/GOLD WASHER |

| FOAM TYPE SEALANT |                         |
|-------------------|-------------------------|
| PART MARK         | DESCRIPTION             |
| 560185            | 3/16" X 3/4" X 50' ROLL |
| 560201            | 3" X 3" X 1'-10" STRIP  |

| SEALANT   |                                      |
|-----------|--------------------------------------|
| PART MARK | DESCRIPTION                          |
| 016688    | GRAY SKINNING SEALANT                |
| 025392    | WHITE NON-SKINNING PANLASTIC SEALANT |
| 80531     | IMMERBOND FLEXIBLE SEAL ADHESIVE     |
| 560460    | FLEXIBLE FLASHING ADHESIVE           |

| TAPE MASTIC |  |
|-------------|--|
| PART MARK   | DESCRIPTION  |
| 025390      | 3/16" X 1/4" X 40' ROLL (10 ROLLS PER BOX)               |
| 027893      | 1/8" X 1" X 25' (5 ROLLS PER BOX)                        |
| 042715      | 1/8" X 1 1/2" X 40' ROLL                                 |
| 042717      | 1/8" X 1" X 2'-0 1/4" STRIP (64 STRIPS PER BOX)          |
| 541063      | 1/8" X 3 7/8" X 10" ROLL FOIL STRIP (5 ROLLS PER CARTON) |
| 560562      | 1/16" X 1" X 40' ROLL (5 ROLLS PER BOX)                  |
| 560564      | 3/16" DIA. X 40' ROLL (10 ROLLS PER BOX)                 |

| PANEL CLOSURES |  |
|----------------|--|
| PART MARK      | DESCRIPTION  |
| 026648         | OPT. BUTLERIB RUBBER BASE CLOSURE 3'                                   |
| 026649         | OPT. BUTLERIB FOAM BASE CLOSURE 3'                                     |
| 026654         | BUTLERIB RUBBER ROOF CLOSURE 10 23/32"                                 |
| 560000         | MR-24 RUBBER CORRUGATION CLOSURE                                       |
| 560158         | MR-24 LOCK SEAM PLUG   |
| 560348         | MR-24 PLASTIC CORRUGATION CLOSURE                                      |
| 570452         | OPT. STYLWALL FLUTED FOAM WALL CLOSURE 2'-8"                           |
| 570555         | BUTLERIB OUTSIDE FOAM WALL CLOSURE 3'                                  |
| 570597         | STYLWALL FLAT FOAM BASE CLOSURE 1'-4"                                  |
| 570674         | STYLWALL FLUTED FOAM BASE CLOSURE 1'-4"                                |
| 570730         | OPT. SHADOWWALL RUBBER BASE CLOSURE 10 11/16"                          |
| 570731         | OPT. SHADOWWALL FOAM BASE CLOSURE 3'                                   |
| 570776         | SHADOWWALL OUTSIDE FOAM WALL CLOSURE 3'                                |
| ARRPCG         | VSR II CORRUGATION CLOSURE   |
| ARRHCP         | VSR II HIP CORRUGATION PLUG 3'   |
| BRCL12         | BUTLERIB GANDPY CLOSURE 12'  |
| BRCL10A        | OPT. BUTLERIB WALL CLOSURE 10' 75:12-3:12                              |
| BRCL10B        | OPT. BUTLERIB WALL CLOSURE 10' 3:11:2-4:12                             |
| BRCL12         | OPT. BUTLERIB WALL CLOSURE 12' 25:12-1:12                              |
| BRCL12         | VSR II EAVE CLOSURE 12' W/BUTLERIB WALL                                |
| CLE12A         | BUTLERIB EAVE CLOSURE 12', 6 3/4"                                      |
| CLE12B         | BUTLERIB EAVE CLOSURE 12' W/BUTLERIB OVER 4:12, SHADOWWALL OVER 1/2:12 |
| CLE12C         | MR-24 EAVE CLOSURE 12' W/STYLWALL OR SHADOWWALL                        |
| CLE12D         | MR-24 EAVE CLOSURE 12'-0" WITH INSULATED WALL PANEL                    |
| CLE1A          | MR-24 EAVE CLOSURE 12' W/BUTLERIB                                      |
| CLP2           | MR-24 PANEL CLOSURE 2'-1 1/2"  |
| MRCLE12A       | CMR-24 EAVE CLOSURE 12'-0" WITH INSULATED WALL PANEL 10 3/4"           |
| MRCLE12B       | CMR-24 EAVE CLOSURE 12'-0" WITH INSULATED WALL PANEL 1'-1 3/4"         |
| SHCL12         | OPT. SHADOWWALL WALL CLOSURE 12' 25:12-4:12                            |
| SHCLE11A       | VSR II EAVE CLOSURE 11' W/SHADOWWALL                                   |
| SHCL12A        | VSR II EAVE CLOSURE 12'-0" WITH INSULATED WALL PANEL OR FLAT STYLWALL  |
| SHCL12B        | VSR II EAVE CLOSURE 12' W/FLUTED STYLWALL                              |
| SHCLB1A        | STYLWALL FLUTED METAL TRANSITION BASE CLOSURE 1'-4"                    |
| SHCLB1B        | STYLWALL FLAT METAL TRANSITION BASE CLOSURE 1'-4"                      |
| TLCLB          | BUTLERIB WITH TLS PARTIAL WALL HEIGHT EAVE CLOSURE                     |
| TLCLM          | MR-24 WITH TLS PARTIAL WALL HEIGHT EAVE CLOSURE                        |
| TLCLV          | VSR II WITH TLS PARTIAL WALL HEIGHT EAVE CLOSURE                       |

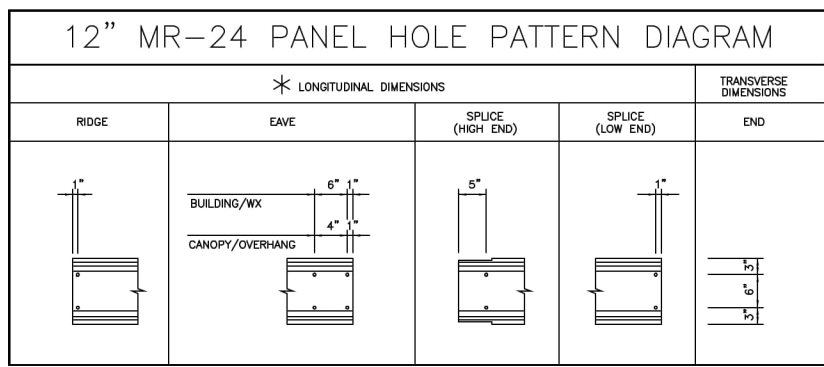
BMC COMMON WAREHOUSE PARTS

| DRAWN BY           | CHECKED BY    | GROUP NUMBER: |
|--------------------|---------------|---------------|
| BJF                |               | B P-081764 15 |
| FIRST RELEASE DATE | REVISION DATE |               |
| 01/10/13           | 06/05/23      |               |

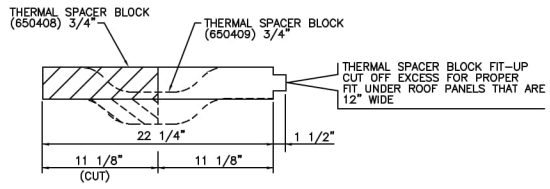
|   |   |   |  |  |   |  |   |
|---|---|---|--|--|---|--|---|
|   |   |   |  |  |   |  |   |
| WALL CLOSURE BRTI<br><b>BRCL10A</b>               | WALL CLOSURE BRTI<br><b>BRCL12</b>                | EAVE CLOSURE BRTI WALL<br><b>BRCL12</b>               | BUTLER/B CORNER TRIM<br><b>BRCT12</b>          | WALL CLOSURE BRTI<br><b>BRGT20</b>                     | BRII RIDGE END TOP TRIM<br><b>BRRET</b>                 | BASE TRIM<br><b>BT12A</b>                              | EAVE CLOSURE BRTI TO MR 24<br><b>CLE1A</b>              |
|   |   |   |  |  |   |  |   |
| EAVE CLOSURE<br><b>CLE12A</b>                     | PANEL CLOSURE<br><b>CLP1</b>                      | CORNER BASE TRIM LEFT (L) OR RIGHT (R)<br><b>CTB2</b> | DRIP GUTTER<br><b>DG12</b>                     | DOOR POST FLASHING<br><b>DSF12</b>                     | DRIP TRIM ATTACHMENT<br><b>DTA</b>                      | EAVE TRIM A* THRU E*<br><b>ET12</b>                    | GUTTER END CAP LEFT (L) OR RIGHT (R)<br><b>GEC1</b>     |
|   |   |   |  |  |   |  |   |
| GUTTER SUPPORT TAB<br><b>GST</b>                  | GUTTER<br><b>GTR25</b>                            | INSIDE CORNER TRIM<br><b>ICT12</b>                    | INTERIOR RIDGE TRIM A* THRU D*<br><b>IRT10</b> | PICTORIAL<br>LOCK SEAM<br><b>LST</b>                   | GABLE TRIM MR 24 "L" OR "R"<br><b>MRGT20</b>            | RIDGE END TOP TRIM MR 24<br><b>MRRET</b>               | RIDGE END BOTTOM TRIM ASSY.<br><b>RBT1</b>              |
|   |   |   |  |  |   |  |   |
| SOFFIT TRIM<br><b>ST2</b>                         | SOFFIT TRIM "A" OR "B"<br><b>ST10</b>             | WALL ADAPTER "A" THRU "C"<br><b>WA10</b>              | WALL SOFFIT SUPPORT<br><b>WSS10</b>            | SPLICE PLATE ASSEMBLY MR 24<br><b>560100</b>           | GUTTER SUPPORT<br><b>630000</b>                         | CORNER TRIM ASSEMBLY<br><b>630043</b>                  | GUTTER HANGER<br><b>630077</b>                          |
|   |   |   |  |  |   |  |   |
| EXTERIOR CORNER TRIM STYLWALL II<br><b>ECT13A</b> | EXTERIOR CORNER TRIM STYLWALL II<br><b>ECT13B</b> | DRIP GUTTER STYLWALL II<br><b>SIIDG12</b>             | REINFORCEMENT CLIP<br><b>570675</b>            | O.H. DOOR SIDE TRIM LEFT STYLWALL II<br><b>SIID12A</b> | O.H. DOOR SIDE TRIM RIGHT STYLWALL II<br><b>SIID12B</b> | O.H. DOOR SIDE TRIM LEFT STYLWALL II<br><b>SIID12C</b> | O.H. DOOR SIDE TRIM RIGHT STYLWALL II<br><b>SIID12D</b> |

\*TRIM COLOR NOTE\*  
△ DESIGNATES COLOR SIDE

| STANDARD TRIMS     |               |               |             |
|--------------------|---------------|---------------|-------------|
| DRAWN BY           | CHECKED BY    | GROUP NUMBER: |             |
| CSF                | RJR           | B             | P-081768 02 |
| FIRST RELEASE DATE | REVISION DATE |               |             |
| 02/28/13           | 12/04/18      |               |             |



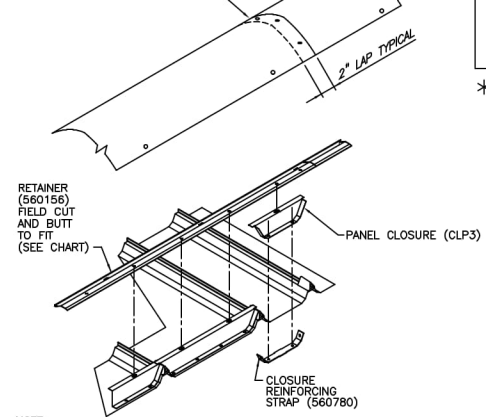
\* ALL FIELD DRILLED HOLES 5/16" DIAMETER LONGITUDINAL HOLE LOCATION DIMENSIONS ARE CRITICAL. ERRORS IN FIELD DRILLING LOCATION WILL ACCUMULATE AND CAUSE RIDGE FIT-UP DIFFICULTY. RIGHT HAND PANELS WILL BE FACTORY PUNCHED. ONLY LEFT HANDED PANELS REQUIRE FIELD DRILLING FOR HOLES.



**THERMAL SPACER BLOCK FIELD CUT DETAIL**

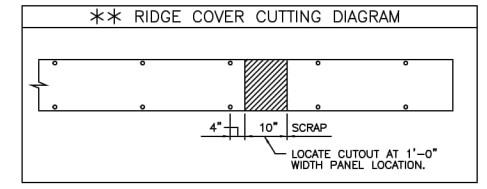
\*\* FIELD CUT BLOCK AS SHOWN AND KEEP CUT PART FOR REMAINING 12" PANELS. (1) 24" BLOCK IS PROVIDED FOR (2) 12" PANELS.

RIDGE COVER (RC20)  
FIELD CUT AND LAP TO FIT (SEE CHART)  
FIELD DRILL 5/16" DIAMETER HOLES AND APPLY PANLASTIC AND FASTEN WITH LOCK-RIVETS WITH GREEN WASHER (096306) (3 REQUIRED)

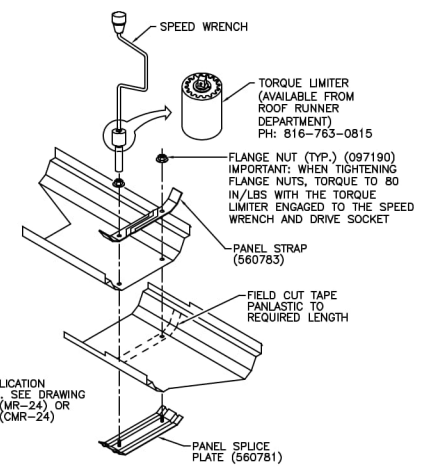


NOTE:  
MASTIC APPLICATION NOT SHOWN. SEE DRAWING P-080578

**RIDGE COVER RETAINER MODIFICATION**



\*\* THE RIDGE COVER/RETAINER CUTTING DIAGRAM IS ONLY APPLICABLE TO A SINGLE RUN OF THE 12" VARIABLE WIDTH PANEL LOCATED WITH IN THE INTERIOR OF THE BUILDING. CUTTING DETAIL IS NOT APPLICABLE TO MULTIPLE ADJACENT RUNS OR TO A SINGLE RUN OF 12" PANELS LOCATED AT THE ENDWALLS OF THE ROOF.



NOTE:  
MASTIC APPLICATION NOT SHOWN. SEE DRAWING P-080577 (MR-24) OR P-080212 (CMR-24)

**PANEL STRAP AND PANEL SPLICE PLATE**

WHEN SPECIFIC DETAIL ON ERECTION DRAWINGS IS INDICATING THE USE OF A 2'-0" WIDE MR-24 PANEL THE PARTS SHOWN IN THE 24" PANEL WIDTH ROW SHOULD BE USED AS SHOWN WITHIN THE DETAIL

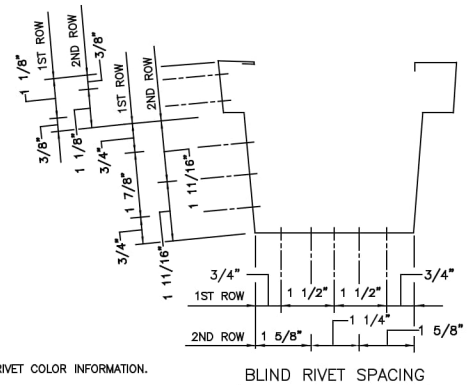
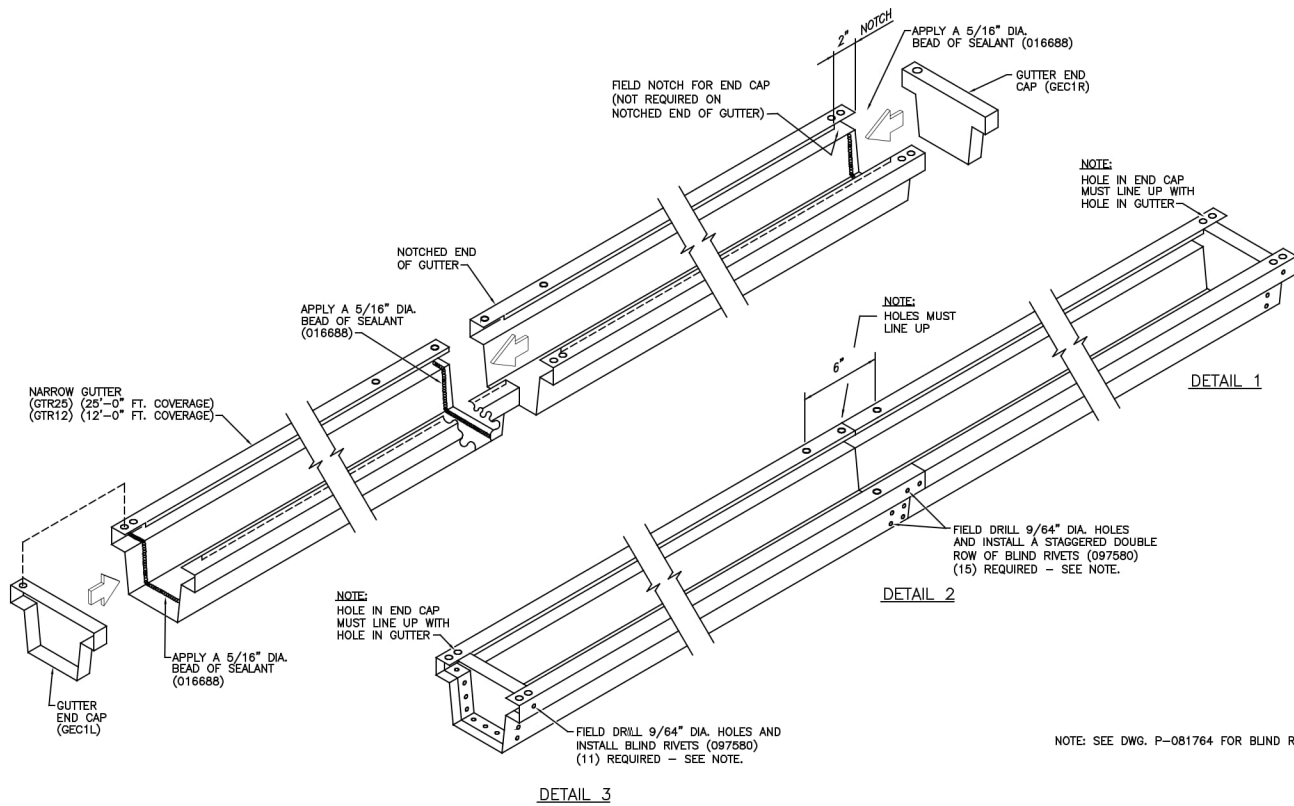
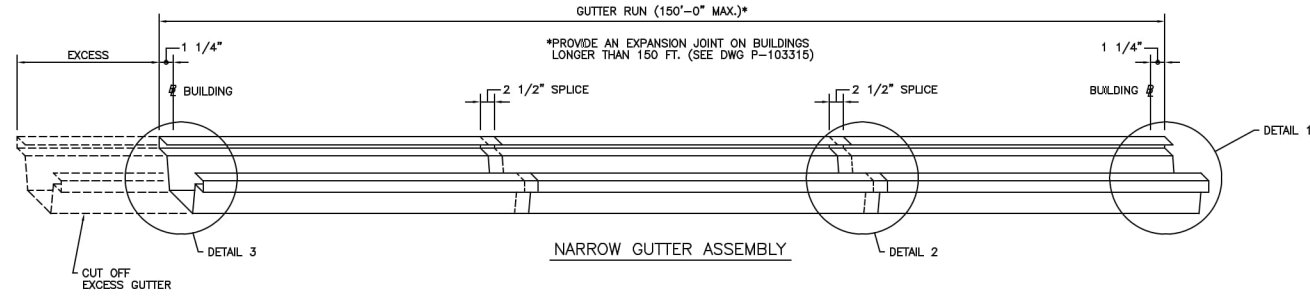
WHEN A 1'-0" WIDE PANEL IS BEING USED IN LIEU OF THE 2'-0" WIDE PANEL THE PARTS SHOWN IN THE 12" PANEL WIDTH ROW SHOULD REPLACE THE PARTS SHOWN IN THE SPECIFIC DETAIL ON THE ERECTION DRAWINGS

### PANELING COMPONENTS REPLACEMENT CHART

| PANEL WIDTH | PANEL CLOSURE (CLP2) | PANEL STRAP AT EAVE (560004) | PANEL STRAP AT SPLICE (560101) | PANEL SPLICE PLATE (560100) | CLOSURE REINFORCING STRAP (560008) | RIDGE RETAINER (560156) 10'-0" LENGTHS (TYPICAL BOTH SIDES) |
|-------------|----------------------|------------------------------|--------------------------------|-----------------------------|------------------------------------|---|
| 24"         |                      |                              |                                |                             |                                    |   |
| 12"         |                      |                              |                                |                             |                                    |   |

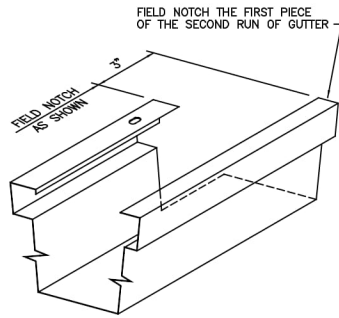
| 1'-0" MR-24 PANEL INSTALLATION REPLACEMENT PART INFORMATION |               |                         |             |
|---|---------------|-------------------------|-------------|
| DRAWN BY  | CHECKED BY    | GROUP NUMBER: 00-000-00 |             |
| BSN   | RLB           | B                       | P-090005 02 |
| FIRST RELEASE DATE  | REVISION DATE |                         |             |
| 06/04/15  | 08/06/18      |                         |             |



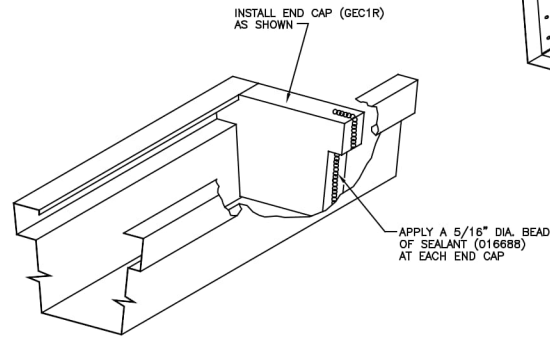


NOTE: SEE DWG. P-081764 FOR BLIND RIVET COLOR INFORMATION.

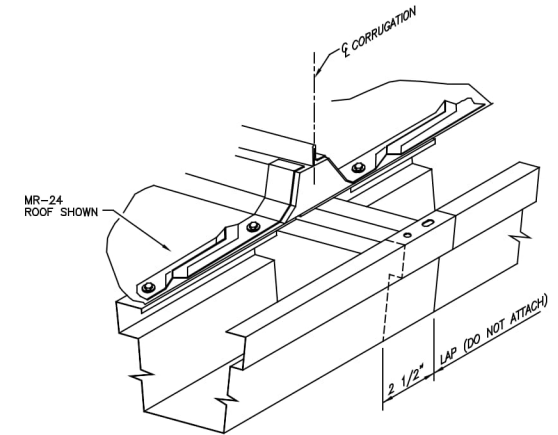
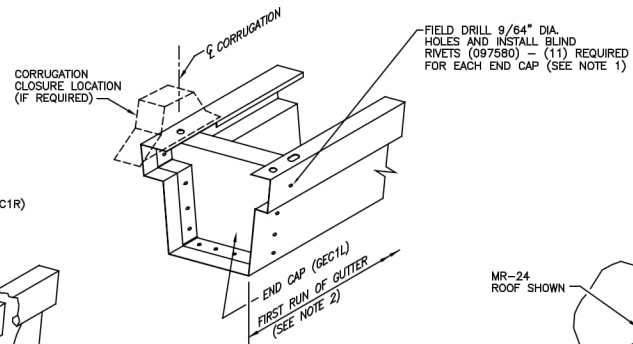
| NARROW GUTTER ASSEMBLY<br>(ALL ROOFS) |               |                         |             |
|---------------------------------------|---------------|-------------------------|-------------|
| DRAWN BY                              | CHECKED BY    | GROUP NUMBER: 01-004-01 |             |
| FIRST RELEASE DATE                    | REVISION DATE | B                       | P-103223 05 |
| 01/21/10                              | 07/18/22      |                         |             |



STEP 1



STEP 2

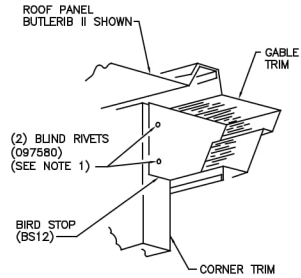


STEP 3

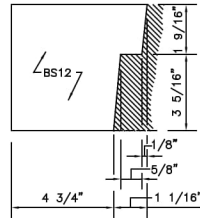
NOTES:

1. SEE DRAWING P--081764 FOR BLIND RIVET COLOR INFORMATION.
2. REFER TO DWG. P--103223 FOR "GUTTER ASSEMBLY"

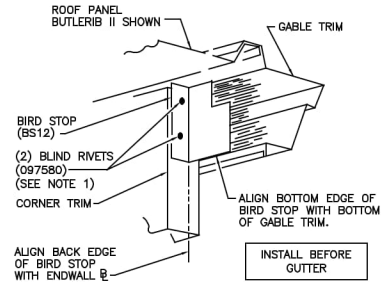
|                               |               |                         |             |
|-------------------------------|---------------|-------------------------|-------------|
| NARROW GUTTER EXPANSION JOINT |               |                         |             |
| GUTTER - ALL ROOFS            |               |                         |             |
| DRAWN BY                      | CHECKED BY    | GROUP NUMBER: 01-004-01 |             |
| M.B.                          | J.S.          |                         |             |
| FIRST RELEASE DATE            | REVISION DATE | B                       | P-103315 04 |
| 01/21/10                      | 12/04/18      |                         |             |



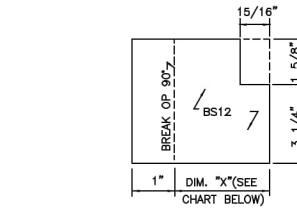
UNTRIMMED EAVE



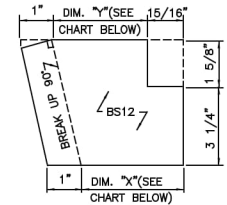
UNTRIMMED EAVE  
BIRD STOP CUTTING DIAGRAM  
FOR INSTALLATION SHOWN,  
(REVERSE FOR OPPOSITE CORNER)



EAVE WITH GUTTER



1/4:12, 1/2:12, AND 1:12 ROOF SLOPES  
(SEE NOTE 2)



4:12 ROOF SLOPE  
(SEE NOTE 2)

EAVE WITH GUTTER  
BIRD STOP CUTTING DIAGRAM  
FOR INSTALLATION SHOWN,  
(REVERSE FOR OPPOSITE CORNER)

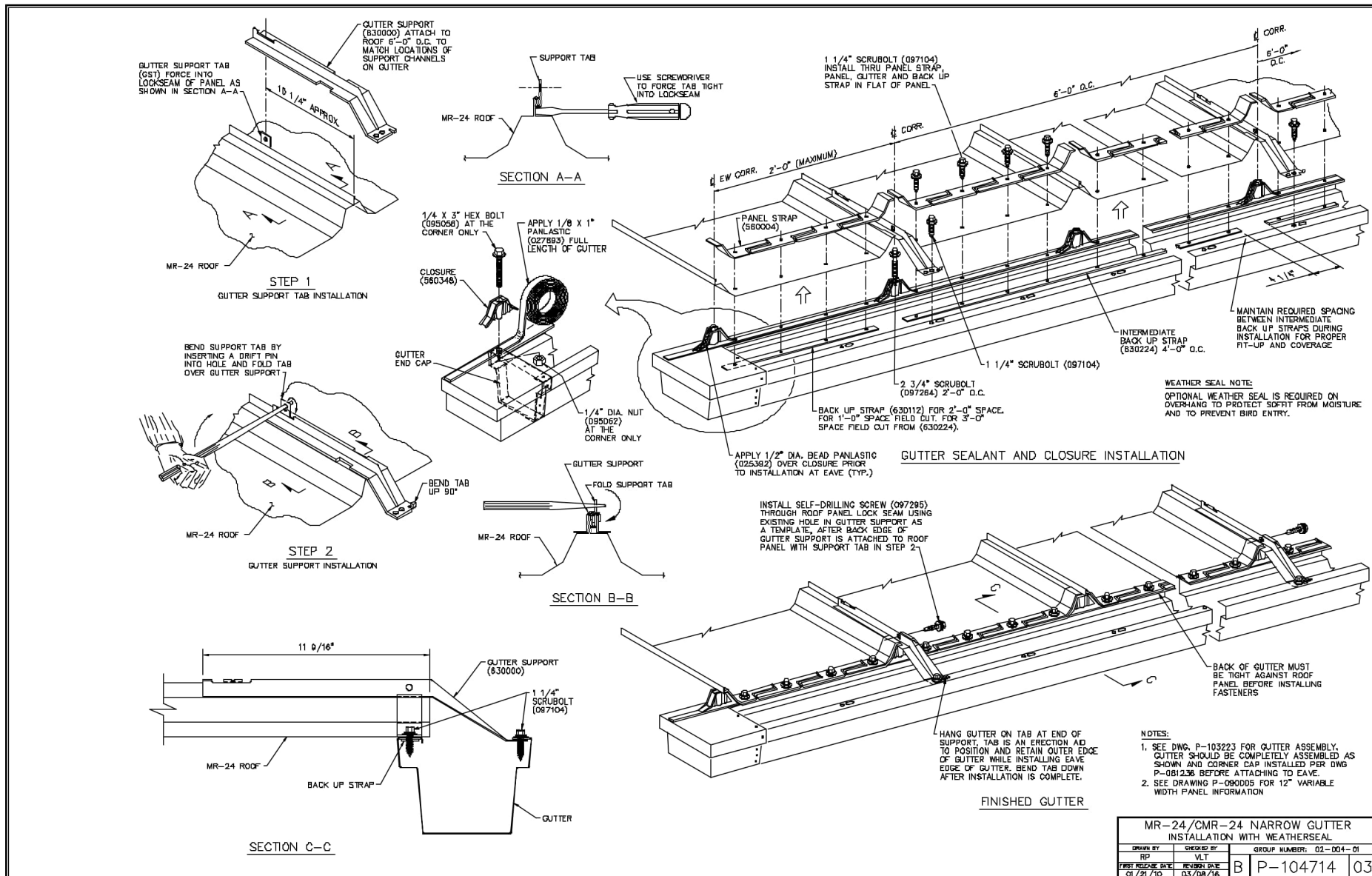
| CUTTING DIMENSIONS            |            |                                |               |                 |          |
|-------------------------------|------------|--------------------------------|---------------|-----------------|----------|
| WALL                          |            | 1/4, 1/2, AND 1:12 ROOF SLOPES |               | 4:12 ROOF SLOPE |          |
|                               |            | DIM. "X"                       | DIM. "Y"      | DIM. "X"        | DIM. "Y" |
| BUTLERIB II OR SHADOWWALL     |            | 3 1/8"                         | 1 3/4"        | 2 3/8"          |          |
| SHADOWWALL                    |            | 3 1/8"                         | 1 3/4"        | 2 3/8"          |          |
| INSULATED WALL PANEL          | 2"         | 2 5/8"                         | 1 1/4"        | 1 7/8"          |          |
|                               | 2 1/2"     | 2 1/8"                         | NOT AVAILABLE |                 |          |
|                               | 3"         | 1 5/8"                         | 1 1/4"        | 1 7/8"          |          |
|                               | 4"         | 5/8"                           | NOT AVAILABLE |                 |          |
| TEXTURED INSULATED WALL PANEL | 2"         | 2 1/8"                         | 1/4"          | 7/8"            |          |
|                               | 2 1/2"     | 1 5/8"                         | NOT AVAILABLE |                 |          |
|                               | 3"         | 5/8"                           | NOT AVAILABLE |                 |          |
|                               | 4"         | NOT AVAILABLE                  |               |                 |          |
| STYLWALL II                   | HIGH CORR. | 2 5/8"                         | NOT AVAILABLE |                 |          |
|                               | LOW CORR.  | 3 1/8"                         | NOT AVAILABLE |                 |          |

NOTE:

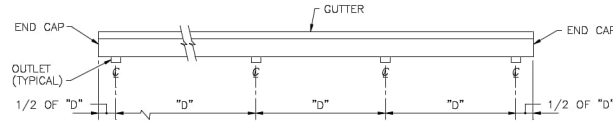
- SEE DRAWING P-081764 FOR BLIND RIVET COLOR INFORMATION.
- FIELD CUT BIRD STOP AS SHOWN IN CUTTING DIAGRAM FOR STANDARD SLOPES. FOR NON-STANDARD SLOPES, USE NEAREST STD. SLOPE INFO. AND ADJUST AS REQUIRED.

BIRD STOP INSTALLATION - ALL ROOFS

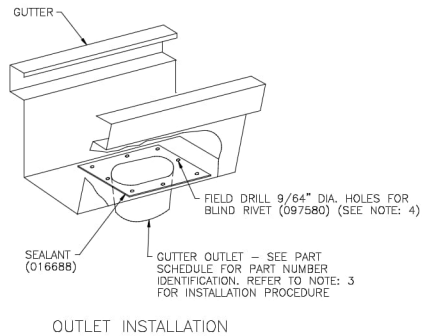
|                    |               |                         |
|--------------------|---------------|-------------------------|
| DRAWN BY           | CHECKED BY    | GROUP NUMBER: 01-001-01 |
| FIRST RELEASE DATE | REVISION DATE | B P-104542 06           |
| 02/25/10           | 08/17/20      |                         |



| MR-24/CMR-24 NARROW GUTTER<br>INSTALLATION WITH WEATHERSEAL |                           |                         |             |
|---|---------------------------|-------------------------|-------------|
| DRAWN BY  | CHECKED BY                | GROUP NUMBER: 02-004-01 |             |
| RP  | VL                        |                         |             |
| FIRST RELEASE DATE<br>01/21/10                              | REVISION DATE<br>03/08/16 | B                       | P-104714 03 |



NOTE: MAXIMUM CONDUCTOR SPACING "D" MUST BE DETERMINED  
BASED ON RAINFALL INTENSITY.



OUTLET INSTALLATION

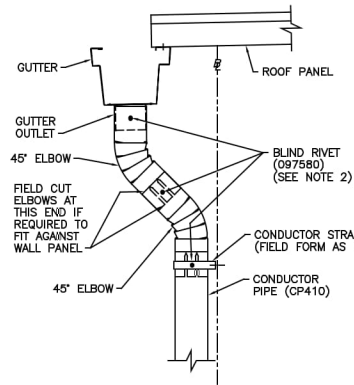
| 10'-0" CONDUCTOR PIPE AND STRAPS |  |        |   |        |                     |        |                                 |        |
|----------------------------------|--|--------|---|--------|---------------------|--------|---------------------------------|--------|
| EAVE HEIGHT                      | BUTLERIB II<br>BUTLERIB II EX<br>SHADOWWALL<br>SHADOWWALL EX<br>eSHADOWWALL<br>STYLWALL II FLAT<br>STYLWALL II FLUTED<br>eSTYLWALL II FLAT<br>eSTYLWALL II FLUTED<br>INSULATED WALL 2"<br>TEXTURED INSULATED WALL 2" |        | ALL WALLS                                     |        | 4'-0"<br>OVERHANG   |        | 5'-0"<br>OR<br>10'-0"<br>CANOPY |        |
|                                  | AT WALL<br>1/4:12 THRU 1/2:12<br>ROOF SLOPE  |        | AT WALL<br>>1/2:12<br>THRU 4:12<br>ROOF SLOPE |        | QUANTITY PER OUTLET |        |                                 |        |
| HEIGHT                           | PIPE   | STRAPS | PIPE  | STRAPS | PIPE                | STRAPS | PIPE                            | STRAPS |
| 10'                              | 1  | 2      | 1   | 2      | 1 1/2               | 2      | 2 1/2                           | 2      |
| 11'                              | 1 1/2  | 3      | 1 1/2   | 3      | 2                   | 3      | 3                               | 3      |
| 12'                              | 1 1/2  | 3      | 1 1/2   | 3      | 2                   | 3      | 3                               | 3      |
| 13'                              | 1 1/2  | 3      | 1 1/2   | 3      | 2                   | 3      | 3                               | 3      |
| 14'                              | 1 1/2  | 3      | 1 1/2   | 3      | 2                   | 3      | 3                               | 3      |
| 15'                              | 1 1/2  | 3      | 1 1/2   | 3      | 2                   | 3      | 3                               | 3      |
| 16'                              | 2  | 3      | 2   | 3      | 2 1/2               | 3      | 3 1/2                           | 3      |
| 17'                              | 2  | 3      | 2   | 3      | 2 1/2               | 3      | 3 1/2                           | 3      |
| 18'                              | 2  | 3      | 2   | 3      | 2 1/2               | 3      | 3 1/2                           | 3      |
| 19'                              | 2  | 3      | 2   | 3      | 2 1/2               | 3      | 3 1/2                           | 3      |
| 20'                              | 2  | 3      | 2   | 3      | 2 1/2               | 3      | 3 1/2                           | 3      |
| 21'                              | 2 1/2  | 4      | 2 1/2   | 4      | 3                   | 4      | 4                               | 4      |
| 22'                              | 2 1/2  | 4      | 2 1/2   | 4      | 3                   | 4      | 4                               | 4      |
| 23'                              | 2 1/2  | 4      | 2 1/2   | 4      | 3                   | 4      | 4                               | 4      |
| 24'                              | 2 1/2  | 4      | 2 1/2   | 4      | 3                   | 4      | 4                               | 4      |
| 25'                              | 2 1/2  | 4      | 2 1/2   | 4      | 3                   | 4      | 4                               | 4      |
| 26'                              | 3  | 4      | 3   | 4      | 3 1/2               | 4      | 4 1/2                           | 4      |
| 27'                              | 3  | 4      | 3   | 4      | 3 1/2               | 4      | 4 1/2                           | 4      |
| 28'                              | 3  | 4      | 3   | 4      | 3 1/2               | 4      | 4 1/2                           | 4      |
| 29'                              | 3  | 4      | 3   | 4      | 3 1/2               | 4      | 4 1/2                           | 4      |
| 30'                              | 3  | 4      | 3   | 4      | 3 1/2               | 4      | 4 1/2                           | 4      |
| 31'                              | 3 1/2  | 5      | 3 1/2   | 5      | 4                   | 5      | 5                               | 5      |
| 32'                              | 3 1/2  | 5      | 3 1/2   | 5      | 4                   | 5      | 5                               | 5      |
| 33'                              | 3 1/2  | 5      | 3 1/2   | 5      | 4                   | 5      | 5                               | 5      |
| 34'                              | 3 1/2  | 5      | 3 1/2   | 5      | 4                   | 5      | 5                               | 5      |
| 35'                              | 3 1/2  | 5      | 3 1/2   | 5      | 4                   | 5      | 5                               | 5      |
| 36'                              | 4  | 5      | 4   | 5      | 4 1/2               | 5      | 5 1/2                           | 5      |
| 37'                              | 4  | 5      | 4   | 5      | 4 1/2               | 5      | 5 1/2                           | 5      |
| 38'                              | 4  | 5      | 4   | 5      | 4 1/2               | 5      | 5 1/2                           | 5      |
| 39'                              | 4  | 5      | 4   | 5      | 4 1/2               | 5      | 5 1/2                           | 5      |
| 40'                              | 4  | 5      | 4   | 5      | 4 1/2               | 5      | 5 1/2                           | 5      |

| PART SCHEDULE |                                   |
|---------------|-----------------------------------|
| PART NUMBER   | DESCRIPTION                       |
| CP410         | CONDUCTOR PIPE                    |
| 4CE45         | 45° ELBOW                         |
| 008738        | GUTTER OUTLET 1/4:12 THRU 1/2:12  |
| 4CE75         | 75° ELBOW                         |
| 016688        | GRAY SEALANT                      |
| CS            | CONDUCTOR STRAP (FIELD FORMED)    |
| 640432        | GUTTER OUTLET - >3:12 THRU 4:12   |
| 640492        | GUTTER OUTLET - >1/2:12 THRU 3:12 |

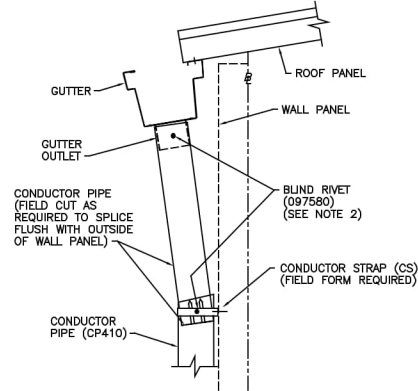
NOTES:

- CONDUCTOR PIPE (CP410) FURNISHED IN 10'-0" LENGTHS ONLY. FIELD CUT TO LENGTHS REQUIRED.
- USE (2) BLIND RIVETS AT EACH PIPE JOINT.
- USING GUTTER OUTLET AS A PATTERN, FIELD CUT GUTTER FOR PROPER FIT. APPLY 016688 SEALANT TO UNDERSIDE OF OUTLET LIP AND ATTACH WITH (8) BLIND RIVETS. IMPORTANT: BE SURE TO ORIENT GUTTER AND GUTTER OUTLET PROPERLY PRIOR TO ATTACHMENT.
- SEE DRAWING P-081764 FOR BLIND RIVET COLOR INFORMATION.
- FOR CONDUCTOR PIPE DETAILS SEE DRAWINGS P-105225 AND P-105228.

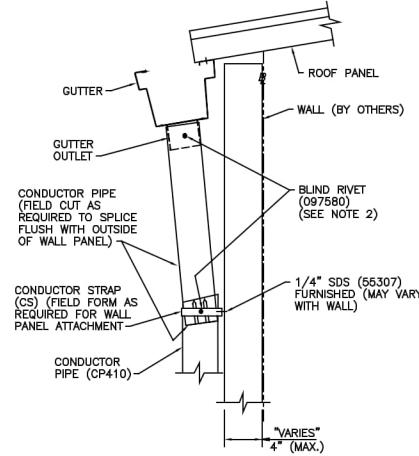
| 4" CONDUCTOR PIPE INSTALLATION<br>ALL WALLS |               |                         |             |
|---|---------------|-------------------------|-------------|
| DRAWN BY                                    | CHECKED BY    | GROUP NUMBER: 26-008-01 |             |
| RHE   | BJF           | B                       | P-105224 08 |
| FIRST RELEASE DATE                          | REVISION DATE |                         |             |
| 01/21/10                                    | 05/20/24      |                         |             |



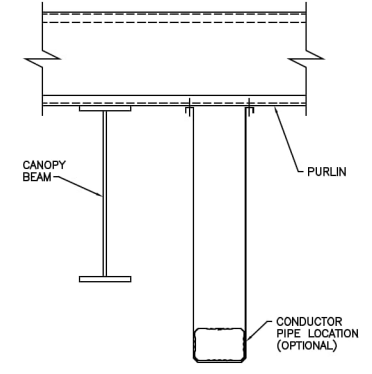
BUTLERIB II AND SHADOWWALL  
1/4:12 THRU 1/2:12 ROOF SLOPE



BUTLERIB II AND SHADOWWALL  
>1/2:12 THRU 4:12 ROOF SLOPE

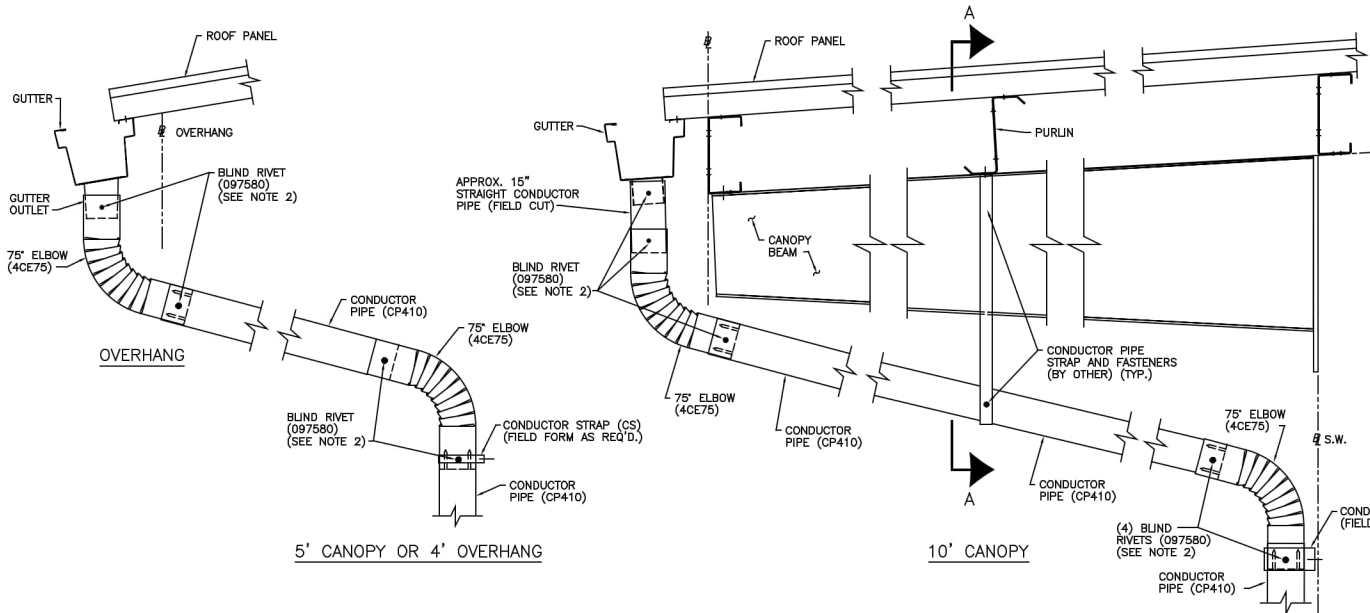


WALL (BY OTHERS)  
>1/2:12 THRU 4:12 ROOF SLOPE



SECTION A-A

STYLWALL II, eSTYLWALL II, eSHADOWWALL,  
BUTLERIB II EX, SHADOWWALL EX,  
AND ALL INSULATED WALL PANELS/TEXTURED INSULATED WALL PANELS  
1/4:12 THRU 4:12 ROOF SLOPE

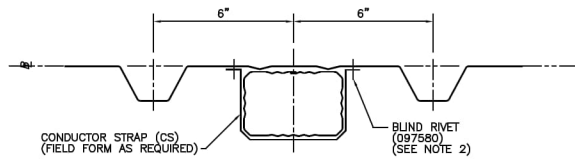


5' CANOPY OR 4' OVERHANG

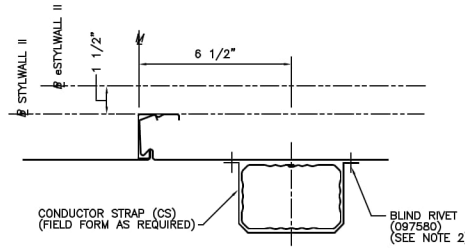
10' CANOPY

- NOTES:**
1. FIELD DRILL 9/64" DIA. FOR BLIND RIVETS (097580).
  2. SEE DRAWING P-081764 FOR BLIND RIVET COLOR INFORMATION.
  3. SEE DWG. P-105224 FOR PART SCHEDULE.
  4. SEE DWG. P-105226 FOR CONDUCTOR PIPE DETAILS.

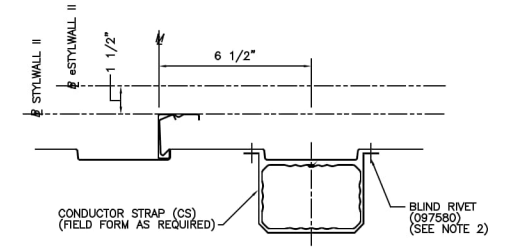
| 4" CONDUCTOR PIPE DETAILS<br>ALL WALLS |               |                         |             |
|--|---------------|-------------------------|-------------|
| DRAWN BY                               | CHECKED BY    | GROUP NUMBER: 26-008-01 |             |
| FIRST RELEASE DATE                     | REVISION DATE | B                       | P-105225 08 |
| 01/21/10                               | 08/18/20      |                         |             |



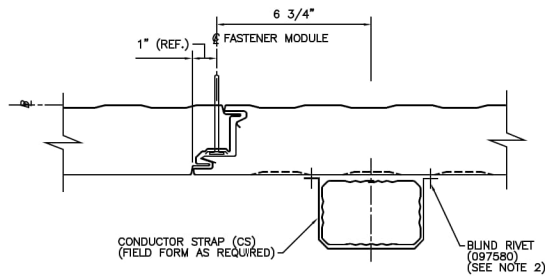
BUTLER II AND BUTLER EX



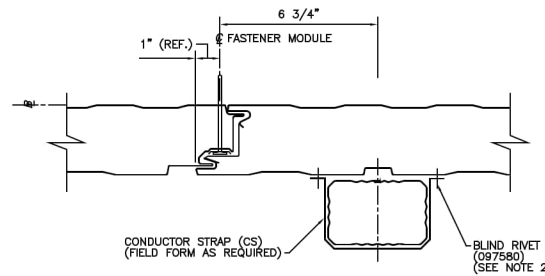
FLAT STYLWALL II AND FLAT eSTYLWALL II



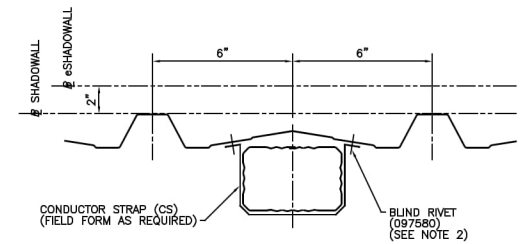
FLUTED STYLWALL II AND FLUTED eSTYLWALL II



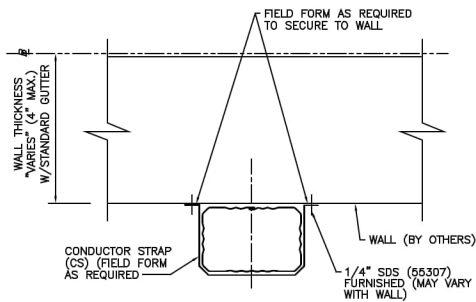
INSULATED WALL PANEL WITHOUT FLUTES  
TEXTURED INSULATED WALL PANEL



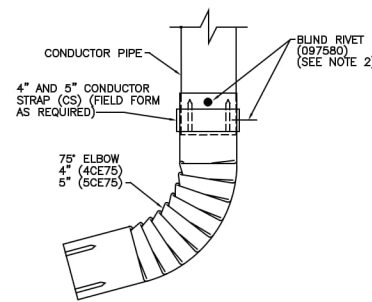
INSULATED WALL PANEL WITH FLUTES



SHADOWWALL, SHADOWWALL EX AND eSHADOWWALL



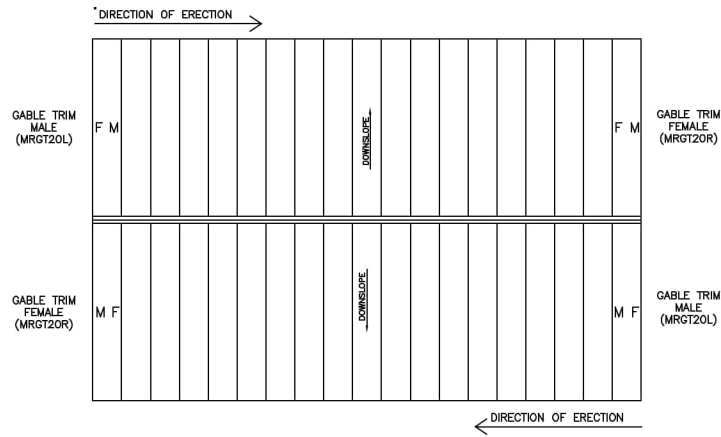
WALL (BY OTHERS)



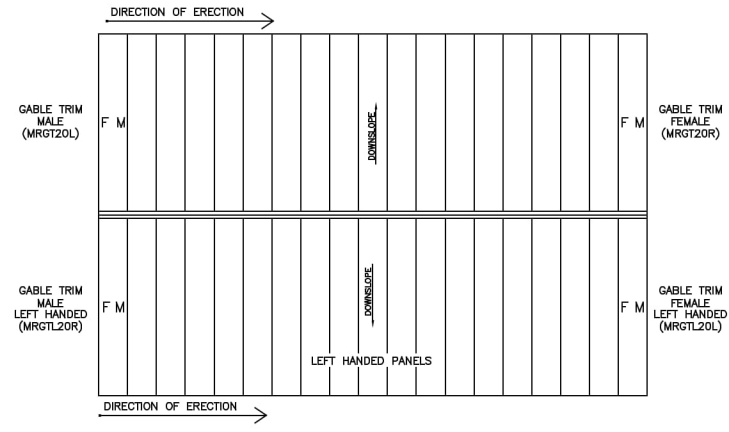
SHOE INSTALLATION  
 (TYPICAL SECTIONS - ABOVE)

- NOTES:
1. LOCATE CONDUCTOR STRAPS AT TOP, BOTTOM AND JOINTS OF VERTICAL 4" CONDUCTOR PIPES. 5" CONDUCTOR PIPES MAX. 6'-0" O.C. SPACING.
  2. SEE DRAWING P-081764 FOR BLIND RIVET COLOR INFORMATION.
  3. FOR PART SCHEDULES, SEE DWG. P-105224 (NARROW GUTTER), AND P-080091 (WIDE GUTTER).

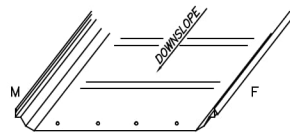
| 4" AND 5" CONDUCTOR PIPE AND CONDUCTOR STRAP DETAILS (ALL WALLS) |               |                         |             |
|--|---------------|-------------------------|-------------|
| DRAWN BY   | CHECKED BY    | GROUP NUMBER: 28-008-01 |             |
| FIRST RELEASE DATE   | REVISION DATE | B                       | P-105228 08 |
| 01/21/10   | 03/17/21      |                         |             |



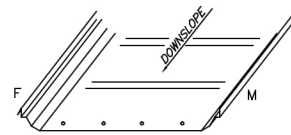
NORMAL ERECTION PROCEDURE



ERECTION PROCEDURE FROM LEFT TO RIGHT  
(USING LEFT HANDED PANELS)

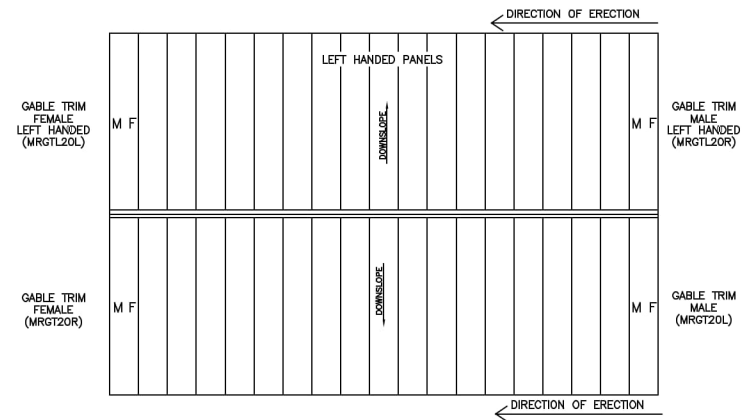


MR24 PANEL



LEFT HANDED  
MR24 PANEL

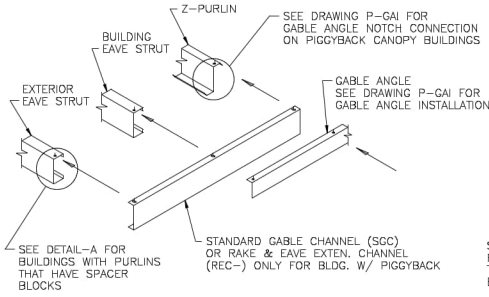
KEY  
F = FEMALE  
M = MALE



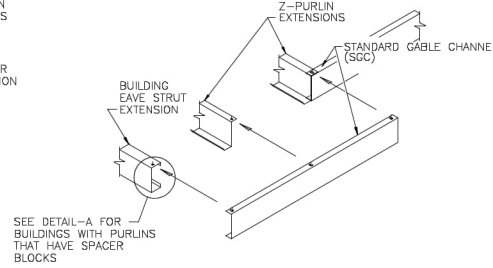
ERECTION PROCEDURE FROM RIGHT TO LEFT  
(USING LEFT HANDED PANELS)

| GABLE TRIM - ERECTION PROCEDURE |               |                   |             |
|---------------------------------|---------------|-------------------|-------------|
| MR-24 ROOF                      |               |                   |             |
| DRAWN BY                        | CHECKED BY    | GROUP NUMBER: - - |             |
| RHE                             | JWH           | B                 | P-149060 00 |
| FIRST RELEASE DATE              | REVISION DATE |                   |             |
| 04/12/21                        | 04/12/21      |                   |             |

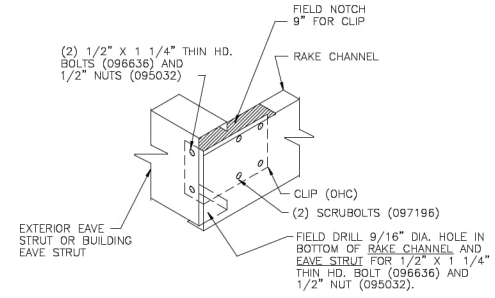




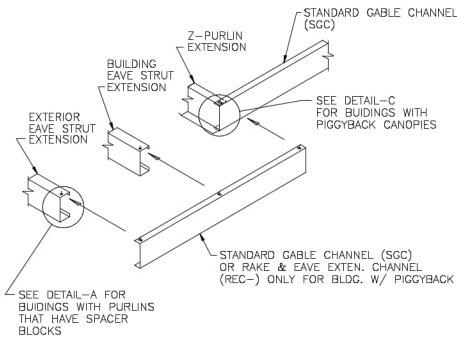
**RAKE CHANNEL INSTALLATION  
SIDEWALL OVERHANG ONLY**



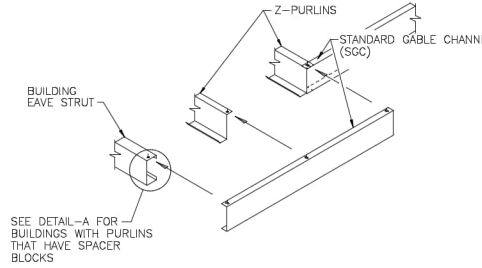
**RAKE CHANNEL INSTALLATION  
ENDWALL OVERHANG ONLY**



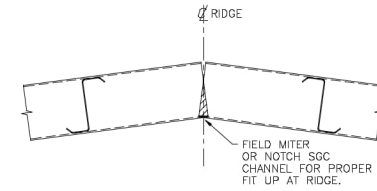
**DETAIL-A**  
(SEE DETAIL RSB011 FOR ALTERNATE CONNECTION)



**RAKE CHANNEL INSTALLATION  
ENDWALL AND SIDEWALL OVERHANG**

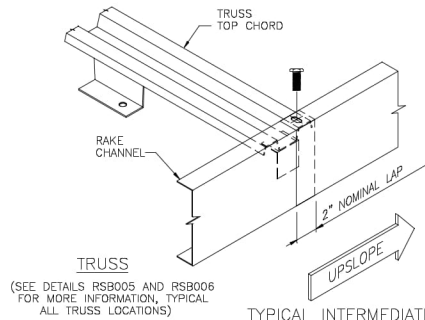


**RAKE CHANNEL INSTALLATION  
AT ENDWALL ONLY  
FOR INSULATED WALL PANEL**

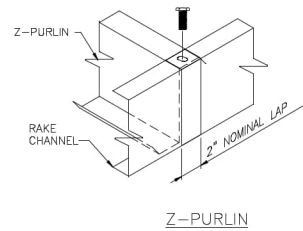


**DETAIL-B**

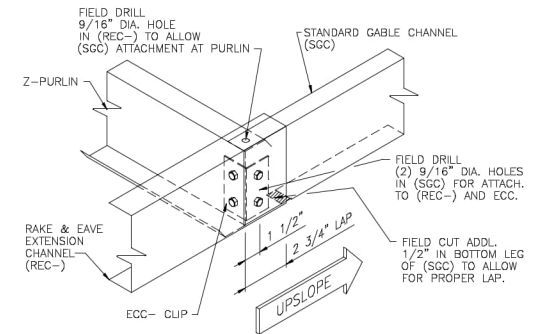
**NOTES:**  
1. INSTALLATION FOR TRUSS IS SIMILAR.  
SEE DRAWING P-GAI FOR REFERENCE.



**TRUSS**  
(SEE DETAILS RSB005 AND RSB006  
FOR MORE INFORMATION, TYPICAL  
ALL TRUSS LOCATIONS)



**TYPICAL INTERMEDIATE RAKE CHANNEL SPLICE**



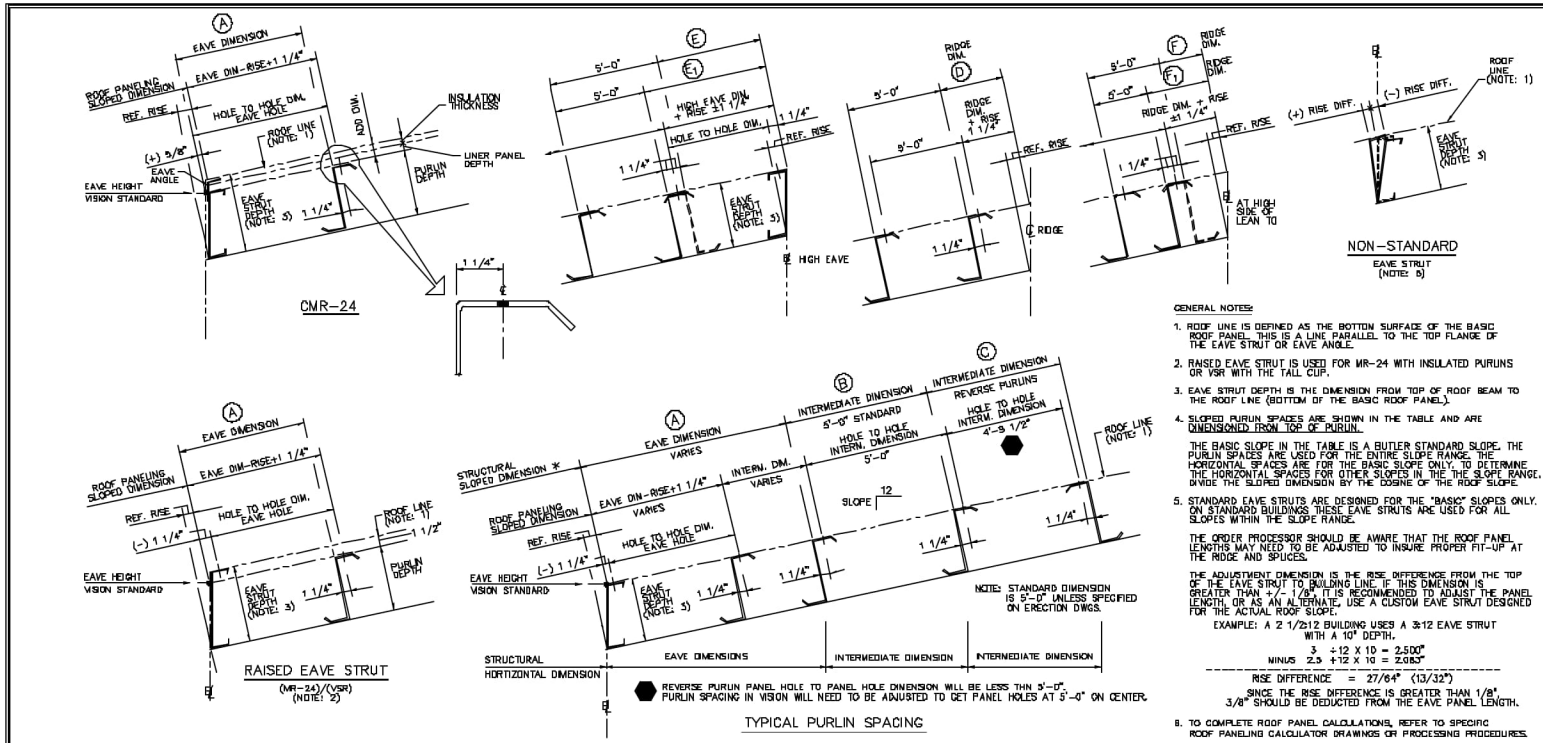
**DETAIL-C**

(SEE DETAILS R510M3 AND R510N3  
FOR (REC-) CONN. AT PIGGYBACK CANOPY)

**GENERAL NOTES:**

1. ATTACH RAKE CHANNELS TO TOP ONLY OF PURLIN EXTENSION AND EAVE STRUT EXTENSION WITH 1/2" X 1 1/4" THIN HEAD BOLT (096636) AND 1/2" NUT (095032), EXCLUDING EAVE STRUT ATTACHMENT WITH INSULATED PURLINS.
2. FOR EAVE STRUT CONNECTION WITH INSULATED PURLINS SEE DETAIL-A, THIS DRAWING.
3. FOR FIELD CUTTING OF SGC CHANNEL AT RIDGE, SEE DETAIL-B.
4. FOR GABLE CHANNEL LAP CONN. WITH REC- ON PIGGYBACK COND. SEE DETAIL-C, THIS DRAWING.

| RAKE CHANNEL WITH OUT FASCIA<br>INSTALLATION DETAILS |               |                         |       |
|--|---------------|-------------------------|-------|
| DRAWN BY   | CHECKED BY    | GROUP NUMBER: 00-000-00 |       |
| BSN  | RHE           | C                       | P-RCI |
| FIRST RELEASE DATE                                   | REVISION DATE |                         | 05    |
| 01/21/10   | 10/23/23      |                         |       |



**GENERAL NOTES**

1. ROOF LINE IS DEFINED AS THE BOTTOM SURFACE OF THE BASIC ROOF PANEL. THIS IS A LINE PARALLEL TO THE TOP FLANGE OF THE EAVE STRUT OR EAVE ANGLE.
2. RAISED EAVE STRUT IS USED FOR MR-24 WITH INSULATED PURLINS OR VSR WITH THE TALL CLIP.
3. EAVE STRUT DEPTH IS THE DIMENSION FROM TOP OF ROOF BEAM TO THE ROOF LINE (BOTTOM OF THE BASIC ROOF PANEL).
4. SLOPED PURLIN SPACES ARE SHOWN IN THE TABLE AND ARE DIMENSIONED FROM TOP OF PURLIN.  
THE BASIC SLOPE IN THE TABLE IS A BUTTER STANDARD SLOPE. THE PURLIN SPACES ARE USED FOR THE ENTIRE SLOPE RANGE. THE HORIZONTAL SPACES ARE FOR THE BASIC SLOPE ONLY. TO DETERMINE THE HORIZONTAL SPACES FOR OTHER SLOPES IN THE SLOPE RANGE, DIVIDE THE SLOPED DIMENSION BY THE COSINE OF THE ROOF SLOPE.
5. STANDARD EAVE STRUTS ARE DESIGNED FOR THE "BASIC" SLOPES ONLY. ON STANDARD BUILDINGS THESE EAVE STRUTS ARE USED FOR ALL SLOPES WITHIN THE SLOPE RANGE.  
THE ORDER PROCESSOR SHOULD BE AWARE THAT THE ROOF PANEL LENGTHS MAY NEED TO BE ADJUSTED TO INSURE PROPER FIT-UP AT THE RIDGE AND SPICES.  
THE ADJUSTMENT DIMENSION IS THE RISE DIFFERENCE FROM THE TOP OF THE EAVE STRUT TO BUILDING LINE. IF THIS DIMENSION IS GREATER THAN +/- 1/8", IT IS RECOMMENDED TO ADJUST THE PANEL LENGTH OR AS AN ALTERNATE, USE A CUSTOM EAVE STRUT DESIGNED FOR THE ACTUAL ROOF SLOPE.  
EXAMPLE: A 2 1/2:12 BUILDING USES A 3:12 EAVE STRUT WITH A 10' DEPTH.  
$$\frac{3}{12} \times 12 \times 10 = 2500"$$
$$\text{MINUS } 2.5 \times 12 \times 10 = 2083"$$
$$\text{RISE DIFFERENCE} = 27/64" \text{ (13/32)"}$$
  
SINCE THE RISE DIFFERENCE IS GREATER THAN 1/8", 3/8" SHOULD BE DEDUCTED FROM THE EAVE PANEL LENGTH.

6. TO COMPLETE ROOF PANEL CALCULATIONS, REFER TO SPECIFIC ROOF PANELING CALCULATOR DRAWINGS OR PROCESSING PROCEDURES.

| SLOPE RANGE     | A<br>LOW EAVE DIMENSION FIRST AND SECOND PURLIN SPACES | E<br>INTERMEDIATE DIMENSION | C<br>SINGLE SLOPE REVERSE PURLIN DIMENSION | D<br>DBL. SLOPE RIDGE DIMENSION                        | E<br>DOWN SLOPE HIGH EAVE DIMENSION | E<br>UP SLOPE HIGH EAVE DIMENSION | F<br>DOWN SLOPE LEAN TO HIGH SIDE OR PERG. TRANSITION DIMENSION  | F<br>UP SLOPE LEAN TO HIGH SIDE OR PERG. TRANSITION DIMENSION    | RISE DIMENSION (IN INCHES) EAVE STRUT DEPTH (NOTE: 3)                    |  |  |  |        |        |        |        |
|-----------------|--|-----------------------------|--|--|-------------------------------------|-----------------------------------|--|--|--|--|--|--|--------|--------|--------|--------|
|                 |  |                             |  |  |                                     |                                   |  |  | 7"   | 8 1/2"   | 10"  | 11 1/2"  |        |        |        |        |
| .25             | SLOPED * VARIES  | 2'-0" 80.00                 | 5'-0" 80.00                                | 7" 13.15<br>8 1/2" 13.00<br>10" 13.00<br>11 1/2" 13.00 | 5'-0" 80.00                         | 5'-0" 80.00                       | 10 7/8" 10.88<br>10 7/8" 10.88<br>10 7/8" 10.88<br>10 7/8" 10.88 | 10 7/8" 10.88<br>10 7/8" 10.88<br>10 7/8" 10.88<br>10 7/8" 10.88 | 1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38 | 1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38 | 1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38 | 1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38 | 1.408  | 1.171  | 2.083  | 2.298  |
| .251 THRU .749  | SLOPED * VARIES  | 2'-0" 80.00                 | 5'-0" 80.00                                | 7" 13.15<br>8 1/2" 13.00<br>10" 13.00<br>11 1/2" 13.00 | 5'-0" 80.00                         | 5'-0" 80.00                       | 10 7/8" 10.88<br>10 7/8" 10.88<br>10 7/8" 10.88<br>10 7/8" 10.88 | 10 7/8" 10.88<br>10 7/8" 10.88<br>10 7/8" 10.88<br>10 7/8" 10.88 | 1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38 | 1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38 | 1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38 | 1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38 | 2.817  | 3.542  | 4.167  | 4.792  |
| .75 THRU 1.249  | SLOPED * VARIES  | 2'-0" 80.00                 | 5'-0" 80.00                                | 7" 13.15<br>8 1/2" 13.00<br>10" 13.00<br>11 1/2" 13.00 | 5'-0" 80.00                         | 5'-0" 80.00                       | 10 7/8" 10.88<br>10 7/8" 10.88<br>10 7/8" 10.88<br>10 7/8" 10.88 | 10 7/8" 10.88<br>10 7/8" 10.88<br>10 7/8" 10.88<br>10 7/8" 10.88 | 1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38 | 1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38 | 1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38 | 1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38 | 5.833  | 7.083  | 8.333  | 9.583  |
| 1.25 THRU 2.249 | SLOPED * VARIES  | 2'-0" 80.00                 | 5'-0" 80.00                                | 7" 13.15<br>8 1/2" 13.00<br>10" 13.00<br>11 1/2" 13.00 | 5'-0" 80.00                         | 5'-0" 80.00                       | 10 7/8" 10.88<br>10 7/8" 10.88<br>10 7/8" 10.88<br>10 7/8" 10.88 | 10 7/8" 10.88<br>10 7/8" 10.88<br>10 7/8" 10.88<br>10 7/8" 10.88 | 1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38 | 1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38 | 1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38 | 1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38 | 1.1887 | 1.4187 | 1.8867 | 1.9167 |
| 2.25 THRU 3.499 | SLOPED * VARIES  | 2'-0" 80.00                 | 5'-0" 80.00                                | 7" 13.15<br>8 1/2" 13.00<br>10" 13.00<br>11 1/2" 13.00 | 5'-0" 80.00                         | 5'-0" 80.00                       | 10 7/8" 10.88<br>10 7/8" 10.88<br>10 7/8" 10.88<br>10 7/8" 10.88 | 10 7/8" 10.88<br>10 7/8" 10.88<br>10 7/8" 10.88<br>10 7/8" 10.88 | 1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38 | 1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38 | 1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38 | 1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38 | 1.7500 | 2.1250 | 2.5000 | 2.8750 |
| 3.5 THRU 4.0    | SLOPED * VARIES  | 2'-0" 80.00                 | 5'-0" 80.00                                | 7" 13.15<br>8 1/2" 13.00<br>10" 13.00<br>11 1/2" 13.00 | 5'-0" 80.00                         | 5'-0" 80.00                       | 10 7/8" 10.88<br>10 7/8" 10.88<br>10 7/8" 10.88<br>10 7/8" 10.88 | 10 7/8" 10.88<br>10 7/8" 10.88<br>10 7/8" 10.88<br>10 7/8" 10.88 | 1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38 | 1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38 | 1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38 | 1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38<br>1'-1 3/8" 15.38 | 2.3333 | 2.8333 | 3.3333 | 3.8333 |

\* DEFAULT DIMENSION USED BY VISION

**FORMULAS USED IN ROOF CALCULATIONS:**

1. (CONVERT ROOF SLOPE DIMENSIONS TO DECIMAL FOR THESE CALCULATIONS)
2. RISE DIMENSION = (ROOF SLOPE DEG) X EAVE STRUT DEPTH
3. SLOPED DIMENSION = (HORIZONTAL DIM. / COSINE OF THE ROOF SLOPE DEGREES)
4. HORIZONTAL DIM. = (SLOPED DIM. X COSINE OF THE ROOF SLOPE DEGREES)
5. ROOF SLOPE DEG = ARC TANGENT (OR INVERSE TANGENT) X (ROOF SLOPE DEG)

**Z-PURLIN ROOF STRUCTURAL LOCATION PURLIN SPACING**

|                    |               |              |
|--------------------|---------------|--------------|
| DRAWN BY           | DESIGNED BY   | GROUP NUMBER |
| BSN                | MCC           | 00-000-00    |
| FIRST RELEASE DATE | REVISION DATE |              |
| 01/21/10           | 11/06/14      |              |

C P-ZRSLD 05