



# Weaver

CONSTRUCTION MANAGEMENT

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## SUBMITTAL TRANSMITTAL

February 3, 2012

**Submittal No: 07501-002**

PROJECT: **Harold Thompson Regional WRF**  
Birdsall Rd.  
Fountain, CO 80817  
Job No. 2908

ENGINEER: **GMS, Inc.**  
611 No. Weber St., #300  
Colorado Springs, CO 80903  
719-475-2935 Roger Sams

OWNER: **Lower Fountain Metropolitan  
Sewage Disposal District**  
901 S. Santa Fe Ave.  
Fountain, CO 80817  
719-382-5303 James Heckman

CONTRACTOR: **Heath Steel**  
141 Racquette Dr  
Fort Collins, CO 80522  
970-490-8031 Randy Gates  
rgates@heathsteel.com

SUBJECT: Submittal for the EM Building Metal Wall Panels by Custom Panels

SPEC SECTION: 07501 - Metal Wall Panels

PREVIOUS SUBMISSION DATES: 1/31 - Voided submittal

DEVIATIONS FROM SPEC: \_\_\_ YES x NO

CONTRACTOR'S STAMP: This submittal has been reviewed by WCM and approved with respect to the means, methods, techniques, & safety precautions & programs incidental thereto. Weaver General Construction also warrants that this submittal complies with contracted documents and comprises on deviations thereto.

Contractor's Stamp:

Engineer's Stamp:

Date: 2/3/12

Reviewed by: John Jacob

( ) Reviewed Without Comments

(X) Reviewed With Comments

ENGINEER'S  
COMMENTS:



**Project: HDTWRF Project**

**Location: Fountain, CO**

**Supplier: Heath Steel**

**Date: 2/3/12**

**Submittal 07501-02 Equipment & Maintenance building wall panels by Custom Panels.**

**Additional Submittal Review Comments:**

- 1. Other items covered in Section 07501 and NOT supplied by Heath Steel include roof, gutter and down spouts and roof trim.**
- 2. Installation of wall panels by other.**
- 3. Section 2.2.B.4.c. requires No 410 SS fasteners. Heath is submitting an alternate Weather Gard Impax fasteners.**
- 4. Section 2.2.B.5. states end laps are not permitted. Heath Steel states stacked joint are required for contrast color strip.**
- 5. Section 2.2.C.6 and 7. – Heath steel proposing Chief Building CS 29 GA liner panel as equivalent to Metal Sales product listed. Color to be white.**
- 6. Please confirm color selection.**

SECTION 07501

METAL ROOF AND WALL PANELS

PART 1 – GENERAL

1.1 SUMMARY

- HEATH STEEL IS PROVIDING THE WALL SYSTEM ONLY, NOT THE ROOF.
- A. Section Includes: Factory-formed metal roof and wall panels, including fascia, soffit and other trim panels
  - B. Related Sections
    - 1. Section 06100: Carpentry
    - 2. Section 07200: Insulation
    - 3. Section 07600: Flashing and Sheet Metal
    - 4. Section 07900: Joint Sealants
    - 5. Section 13121: Prefabricated Metal Building

1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM)
  - 1. ASTM A653 Standard Specification for Steel Sheets, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
  - 2. ASTM D2247 Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity
  - 3. ASTM E283 Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
  - 4. ASTM E331 Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
  - 5. ASTM E1646 Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference
  - 6. ASTM E1680 Standard Test Method for Rate of Air Leakage Through Exterior Metal Roof Panel Systems
- B. Underwriters Laboratories, Inc. (UL)
  - 1. ~~UL 580 Tests for Uplift Resistance of Roof Assemblies~~ BY OTHERS
  - 2. ~~UL 2218 Standard for Safety for Impact Resistance of Prepared Roof Covering Materials~~

1.3 SYSTEM DESCRIPTION

- A. Design Requirements
  - 1. Refer to the Design Criteria given on the Drawings

2. All products designed, fabricated and installed according to the 2011 Pikes Peak Regional Building Code
- B. Provide metal ~~roof~~ and wall panels which have been manufactured, tested, fabricated and ~~installed~~ according to the following criteria
1. ASTM A653
  2. ASTM D2247
  3. ASTM E283
  4. ASTM E331
  5. ASTM E1646
  6. ASTM E1680
  7. UL 580
  8. UL 2218

#### 1.4 SUBMITTALS

- A. General: In accordance with Section 01340
- ✓ B. Product Data: Submit manufacturer's product data and installation instructions
- ✓ C. Shop Drawings
- ✓ 1. Provide drawings indicating panel layout, project specific construction details and related information
  - ✓ 2. Submit complete fabrication, assembly and installation drawings
  - ✓ 3. Submit detailed specifications and data describing materials, parts, devices and accessories
  - ✓ 4. Submit data for verification of compliance with specifications and to illustrate construction and assembly of products
    - ✓ a. Dimensions
    - ✓ b. Materials
    - ✓ c. Thickness or gages
    - ✓ d. Fasteners
    - ✓ e. Finishes
    - ✓ f. Sealants
  - ✓ 5. Door, window and equipment rough opening details and layouts fully dimensioned
- D. Samples
- ✓ 1. Color charts: Manufacturer's factory standard colors, finishes and textures
- E. Quality Assurance
- NA → 1. Submit Manufacturer's certificate that products meet or exceed specified requirements.
- F. Closeout Submittals
1. Warranty documents specified herein

INSTALL  
BY OTHERS

## 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: The installer shall have demonstrated experience on projects of similar size and complexity

## 1.6 DELIVERY, STORAGE AND HANDLING

- ✓ A. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact
- ✓ B. Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer
- ✓ C. Materials damaged during delivery, storage and handling or by the elements shall be restored to new condition or replaced

## ✓ 1.7 WARRANTY

- ✓ A. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under contract documents
  - 1. Warranty Period for Finish: 20 years beginning with date of substantial completion

## PART 2 – PRODUCTS

### 2.1 METAL ROOF PANELS BY OTHERS

- A. Panel Types
  - 1. Structural standing seam roof panels
  - 2. Embossed tile facsimile roof panels
- B. Material: Full hard steel, galvanized, primed, coated
- C. Material Standard: ASTM A653 or ASTM A792
- D. Minimum thickness
  - 1. Structural standing roof seam panels: 24 gauge
  - 2. Embossed tile facsimile roof panels: 26 gauge
- E. Yield Strength: 50,000 psi
- F. Configuration
  - 1. Panels to be installed over solid substrate or open framing
    - a. Coordinate with pre-engineered metal building supplier for spacing requirements of purlins and other support members



ROOF BY OTHERS

- b. Refer to Drawings
  2. Structural standing seam roof panels
    - a. Nominal panel width: 10 inches; total panel width may vary to accommodate manufacturer's standard, 2'-0" to 4'-0"
    - b. Nominal panel seam height: 1¾ inches
    - c. Smooth panel face without ribs or striations
    - d. Side seams
      - 1) Continuous interlocking, snap lock or mechanically crimped
      - 2) Include factory installed sealant
      - 3) Utilize concealed roof clips
        - a) Specifically designed for roof panel system
        - b) Allow for thermal movement of roof panel system
  3. ETF panels
    - a. Simulate clay roofing tiles
    - b. Nominal panel width: 36 inches
    - c. Nominal tile corrugation dimensions: 7" wide x 12" long x 1½" high
    - d. Each panel to include alignment ridges, fasteners, dimples and factory-profiled end cuts for seam mating
  4. Provide single panel coverage from peak to eave or ridge, hip to eave
- G. Finish
1. Factory applied, baked on finish of Kynar® 500 or equal
  2. Minimum coating thickness: 1.0 mils
  3. Owner to select color from manufacturer's standard color palette
- H. Trim and Accessories
1. Manufacturer's standard configuration
  2. One-piece factory formed panels
  3. Match roof slope
  4. Panel closures and rib covers to match panel profile
  5. Eave and soffit trim
    - a. Refer to Drawings for dimensions and configurations
    - b. Manufacturer's standard eave trim acceptable in lieu of framed soffit
    - c. Coordinate with pre-engineered building supplier for eave construction
  6. Transition rib or tile covers at all changes in roof pitch
  7. Provide ice and water shield membrane as recommended by manufacturer
  8. Gutters and downspouts
    - a. Manufacturer's standard configurations
    - b. Size and location as indicated on Drawings
      - 1) Conform size to local code requirements
    - c. Downspouts to be full box configuration
    - d. Galvanized steel with factory paint finish
    - e. Galvanized steel gutter hangers as required
    - f. Gutters configured to avoid damage from snow and ice falling off roof
      - 1) Position gutters below roof plane as indicated on Drawings
      - 2) Provide ice breaks where gutter position is not below roof plane
    - g. Pre-formed closures and seals
  9. Fasteners
    - a. Screw fasteners with integral waterproofing washer/gasket

ROOF BY OTHERS

- 1) Wood screw or self-drilling sheet metal depending on substrate material
  - b. UL 90 concealed panel clips and substrate screws, zinc plated
  - c. Pop rivets where recommended by manufacturer, stainless steel
  - d. All exposed fasteners to have finish matching roof panels
  - e. Exposed fasteners permitted for trim members only
10. Refer to Paragraph 2.3 for additional requirements

I. Design Basis

- 1. Structural standing seam roof panels: Fabral, Inc. Thin Seam roofing system
- 2. Embossed tile facsimile roof panels: Met-Tile, Inc. Met-Tile roofing system
- 3. Equivalent products of other manufacturers may be accepted subject to compliance with design, function, materials and performance of the specified items
  - a. Compliance shall be determined by the Engineer based upon review of proposed equipment prior to bidding
  - b. It will be the manufacturer's or supplier's responsibility to coordinate and furnish, for review by Engineer, complete product data and specifications verifying complete conformance with the specified items

2.2 METAL WALL PANELS

~~A. Smooth faced exterior wall panels to be same as roof panels~~ TEXTURED

✓ B. Textured Exterior Wall Panels

- ✓ 1. Material: ASTM A446, G90 galvanized
- ✓ 2. Minimum thickness: 20 gauge ✓
- ✓ 3. Configuration
  - ✓ a. 16 inch maximum coverage width
  - ✓ b. Flush appearance with minor inset groove at seam
  - ✓ c. Textured finish
  - ✓ d. Concealed fasteners
- 4. Fasteners
  - a. Exposed fasteners permitted for trim members only
  - b. Through panel flange fasteners to have weather seal washers
  - c. ~~No. 410 stainless steel conforming to Fed. Spec. QQ-5-763C~~
- 5. Endlaps: Not permitted ← STACKED JOINT REQ'D FOR CONTRAST COLOR STRIP
- ✓ 6. Panel finish
  - ✓ a. Polymer/aggregate finish
  - ✓ b. Owner's choice of colors from manufacturer's standard colors
    - ✓ 1) Refer to Drawings for multiple color or texture requirements in any given exterior wall extent, i.e., accent or rustication strips
- 7. Design basis
  - ~~a. Varco Pruden "Texture Clad" wall system~~
  - ✓ b. Custom Panel Systems "Stucco Building Panel" system
  - c. Or equal
- 8. Equivalent products of other manufacturers may be accepted subject to compliance with design, function, materials and performance of the specified items

WALL PANEL FASTENERS ARE CONCEALED AND THEREFORE NOT OF STAINLESS STEEL. STAINLESS STEEL SCREWS ARE BRITTLE AND NOT SUITABLE FOR SELF-DRILLING APPLICATIONS.



- a. Compliance shall be determined by the Engineer based upon review of proposed equipment prior to bidding
- b. It will be the manufacturer's or supplier's responsibility to coordinate and furnish, for review by Engineer and Owner, complete product data and specifications verifying complete conformance with the specified items

C. Interior Wall and ~~Ceiling~~ Panels

29 GA CS LINER PANEL BY CHIEF.  
 SEE ATTACHED PRODUCT LITERATURE  
 PANEL ELEVATIONS INC. IN 13121 SHOP DRAWINGS

- 1. Material: ASTM A653, G90 galvanized ✓
- 2. Minimum thickness: 29 gauge ✓
- 3. Configuration
  - a. Nominal panel coverage width: 36 inches ✓
  - ✓ b. Trapezoidal rib profile
    - ✓ 1) Nominal rib height: ~~5/8 inches~~ 1 1/8" TALL MAJOR RIBS
    - ✓ 2) Nominal rib spacing: ~~9 inches~~ 12"
    - ✓ 3) Intermediate striations per manufacturer's standard products
  - ✓ c. Smooth finish
  - ✓ d. Exposed fasteners
  - ✓ e. Capable of being installed over open framing or solid substrate
- ✓ 4. Fasteners
  - ✓ a. Galvanized steel for dry, conditioned spaces
  - ~~b. Stainless steel for humid spaces~~
  - ✓ c. Provide seal washers for all fasteners
- ✓ 5. End laps are not permitted
  - ✓ a. Refer to Drawings for panel length/height required
- ✓ 6. Panel finish
  - ✓ a. Factory applied polyester finish
  - ✓ b. Paint finish warranty of 15 years for dry, conditioned spaces
  - c. Owner's choice of manufacturer's standard color palette
    - 1) Submit standard color palette including white, ivory and light beige
- 7. Design basis
  - ✓ a. ~~Metal Sales Manufacturing Corp., Pro-Panel II~~ CHIEF BUILDING CS PANEL
  - ✓ b. Or equal
  - c. Equivalent products of other manufacturers may be accepted subject to compliance with design, function, materials and performance of the specified items
    - ✓ 1) Compliance shall be determined by the Engineer based upon review of proposed equipment prior to bidding
    - ✓ 2) It will be the manufacturer's or supplier's responsibility to coordinate and furnish, for review by Engineer, complete product data and specifications verifying complete conformance with the specified items

2.3 ACCESSORIES

- A. Provide all system accessory components required, including but not limited to the following
  - ~~1. Ridge, hip and peak caps~~ BY ROOFING CONTRACTORS
  - 2. ~~Rakes~~ and corners
  - ✓ 3. Base guard trim



- ~~4. Fascia trim~~
- ~~5. Eave trim~~
- ~~6. Gable trim~~
- 7. Sidewall and end wall trim *BY ROOFING CONTRACTOR*
- 8. Drip cap
- 9. Flashing and counter flashing
- ✓ 10. Trim at all required door, window and equipment locations
- ~~11. One-piece fascia and soffit~~ *BY ROOFER*
- ~~12. Inside and outside closures~~ *NONE REQ'D FOR WALLS.*
- 13. Lap sealant tape
- ✓ 14. Sill flashing at all required openings
- ~~15. Rain caps and flashing at all flue and vent penetrations~~ *BY ROOFER*
- 16. Other trim as required for building accessories as shown on the Drawings

### PART 3 – EXECUTION

#### 3.1 MANUFACTURER'S INSTRUCTIONS

- A. Comply with the instructions and recommendations of the ~~roof~~ and wall panel manufacturer

#### 3.2 EXAMINATION

- A. Site Verification of Conditions

- 1. Verify that site conditions are acceptable for installation of roof and wall panels and accessories
- 2. In order to ensure panels seal at side laps, ensure that structure is square and true before beginning panel installation
- 3. Do not proceed with installation of roof and wall panels until unacceptable conditions are corrected

#### 3.3 PREPARATION

- A. Coordination: Coordinate metal ~~roofing and~~ wall panel work with other work including drainage to provide a non-corrosive and leakproof installation
- B. Dissimilar Metals: Prevent galvanic action of dissimilar metals

#### 3.4 INSTALLATION *BY OTHERS*

- A. General: Install metal roofing and wall panels to profiles, patterns and drainage indicated and as required for leakproof installation
  - ✓ 1. Provide for structural and thermal movement of work
  - ✓ 2. Seal joints for leakproof installation
  - 3. Provide uniform, neat seams
  - 4. Conceal fasteners where possible in exposed work. Cover and seal fasteners and anchors for watertight and leakproof installation
  - 5. Provide sealant-type joints where necessary. Form joints to conceal sealant.

*INSTALL BY OTHERS*

## B. Wall Panel Installation

1. Install panels plumb, true and square to correct alignment with framing, in accordance with shop drawings and manufacturer's printed installation instructions
2. Do not attach panels to improperly seasoned or damp lumber
3. Cut only one panel sheet at a time, exposed side down, away from other unused or installed panels
4. Clean panel area of all shavings before installation

## C. Roof Panel Installation

1. Face side laps away from prevailing wind
2. Lay first sheet along eave at downwind side of roof, farthest away from direction of prevailing winds
3. Install inside closures to prevent bird nesting or insect infestation at openings
4. Protect against wind uplift and provide finished appearance by applying rake trim or gable trim
5. Install ridge cap to prevent leakage. Seal off ridge and panel using closure strip
6. In order to prevent corrosion, immediately remove loose metal shavings and debris such as leaves or dirt left on the roof surface

## D. Screw Installation

1. When pre-drilling fastener holes, use a cover sheet to prevent hot shavings from adhering to panels
2. Use appropriate screw fasteners for substrate material
3. Torque fasteners according to manufacturer's instructions
4. Compress integral washer/gasket per manufacturer's instructions; do not under or over compress gasket
5. Install fasteners without distorting panel surfaces

## 3.5 CLEANING

### A. Upon completion of panel installation

1. Remove temporary coverings and protection of adjacent work areas.
2. Repair or replace damaged installed products
3. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance
4. Remove and legally dispose of construction debris from project site

## 3.6 PROTECTION

- ### A. Protect installed work from damage due to subsequent construction activity on the site

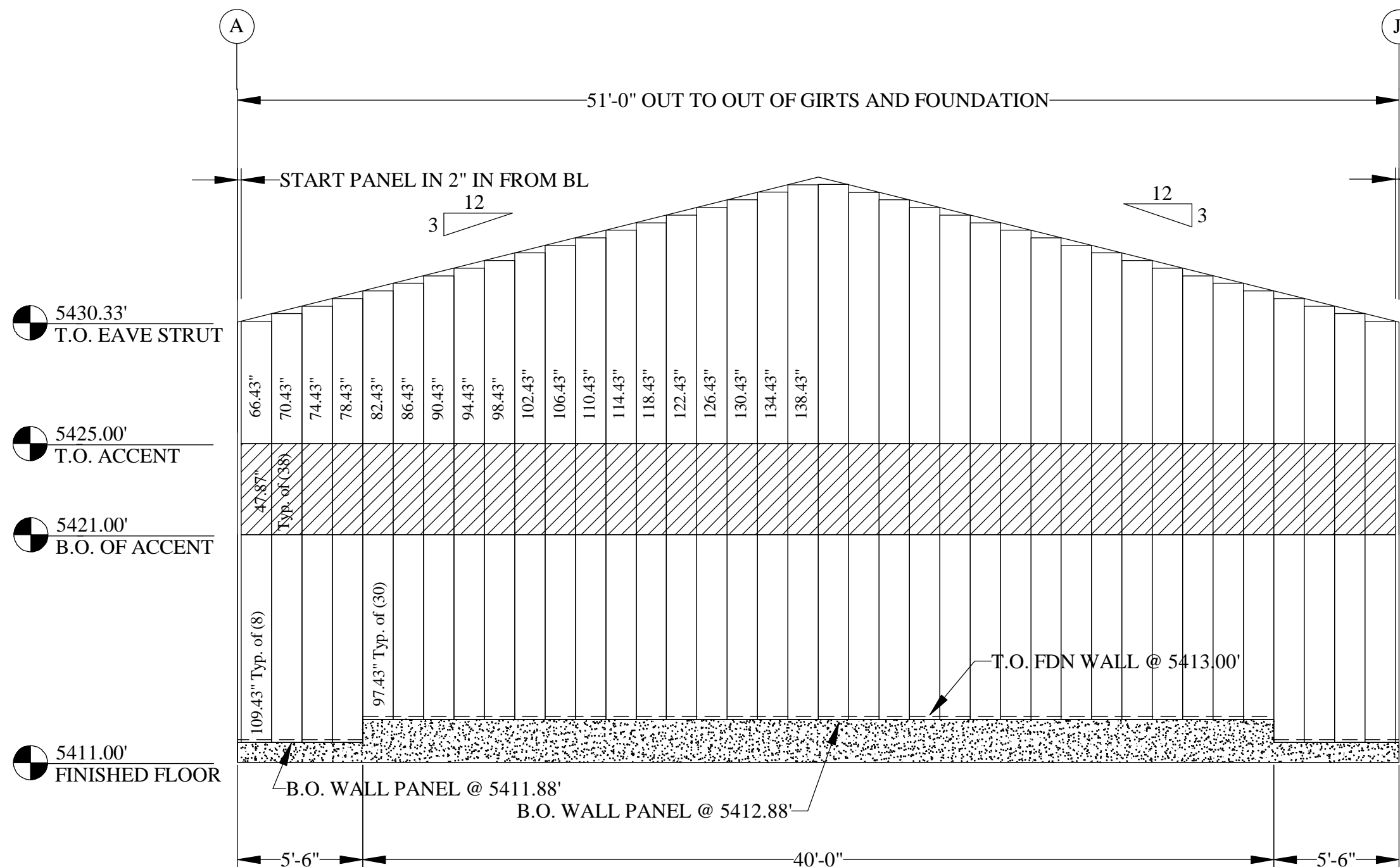
END OF SECTION



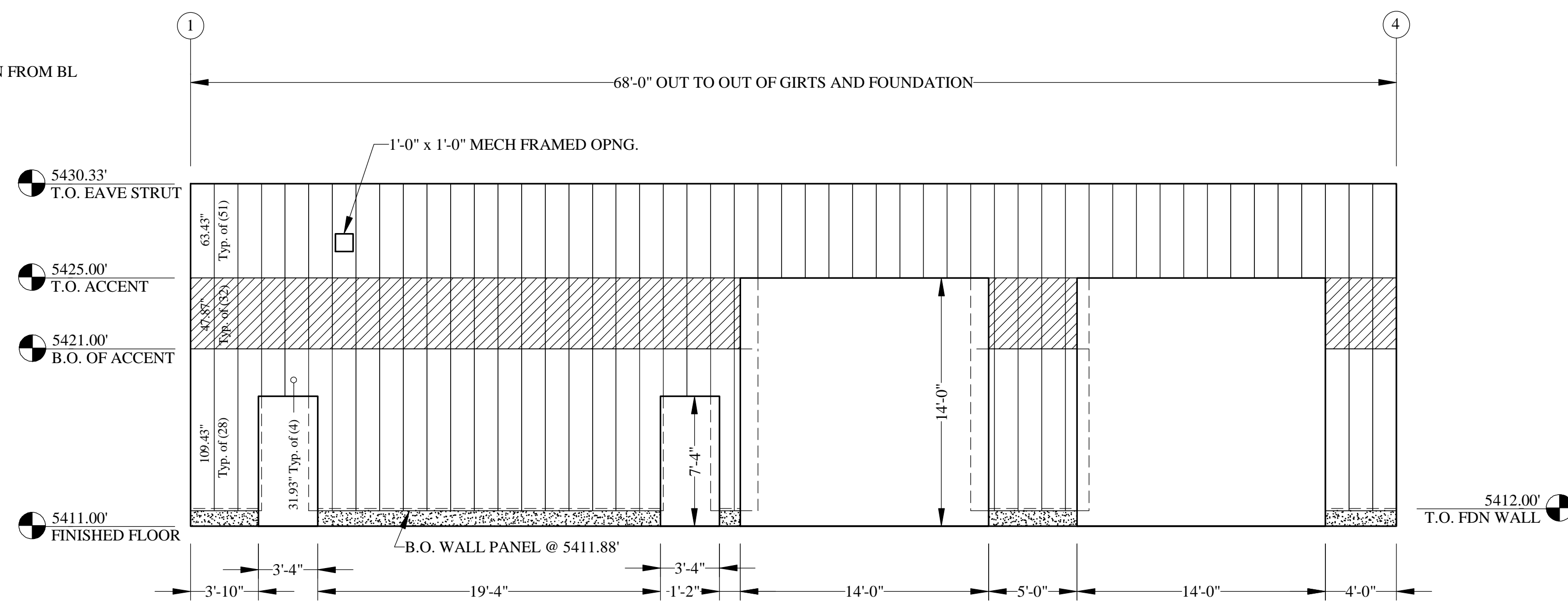
HEATH STEEL  
 P.O. BOX 473  
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 (970) 490-8031

HAROLD D. THOMPSON  
 REGIONAL WATER RECLAMATION FACILITY  
 EQUIPMENT MAINTENANCE AND STORAGE BUILDING  
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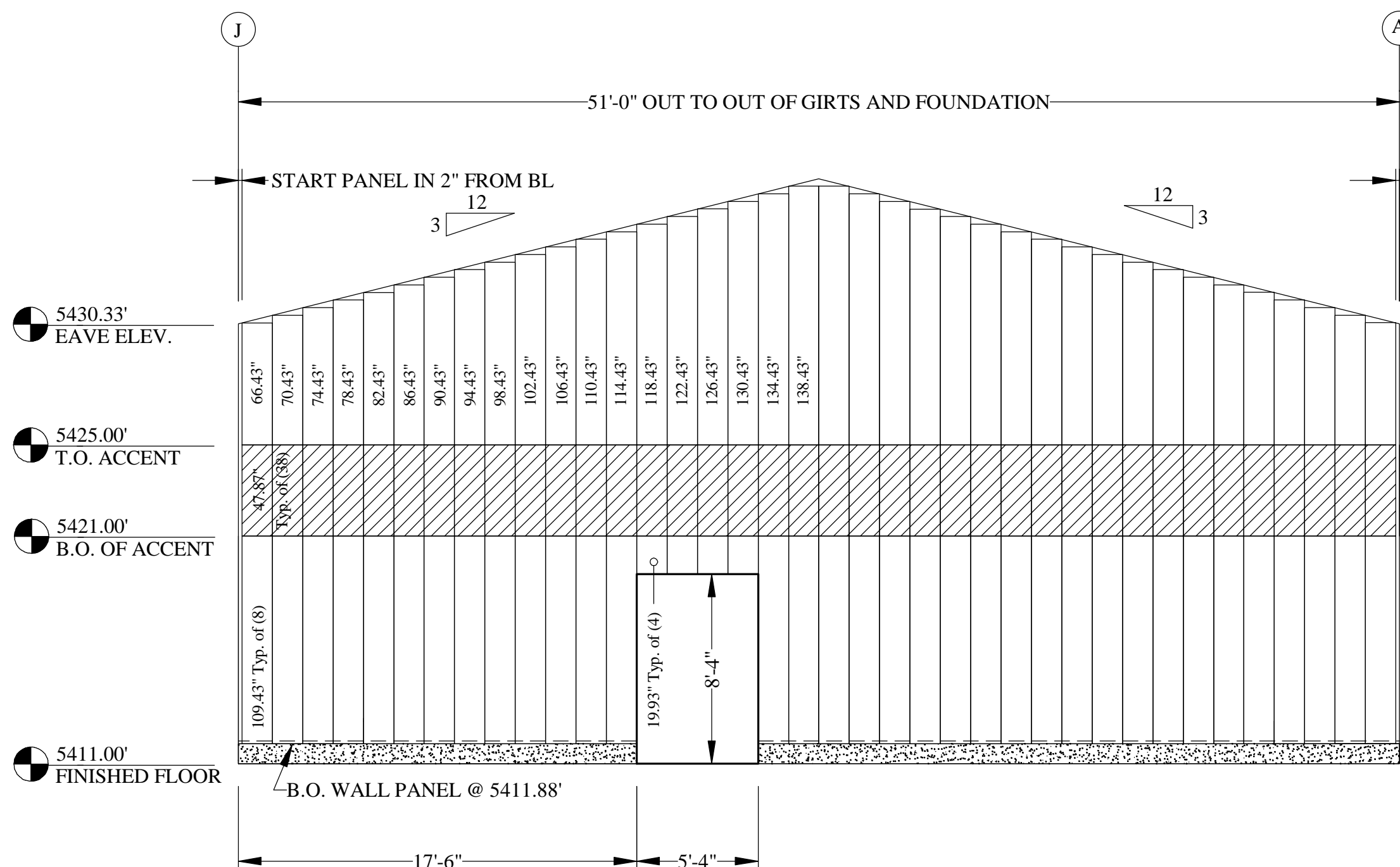
ISSUED FOR: \_\_\_\_\_ DATE: \_\_\_\_\_  
 APPROVAL: \_\_\_\_\_ January 27, 2012  
 REVISE APPROVAL: \_\_\_\_\_ February 02, 2012



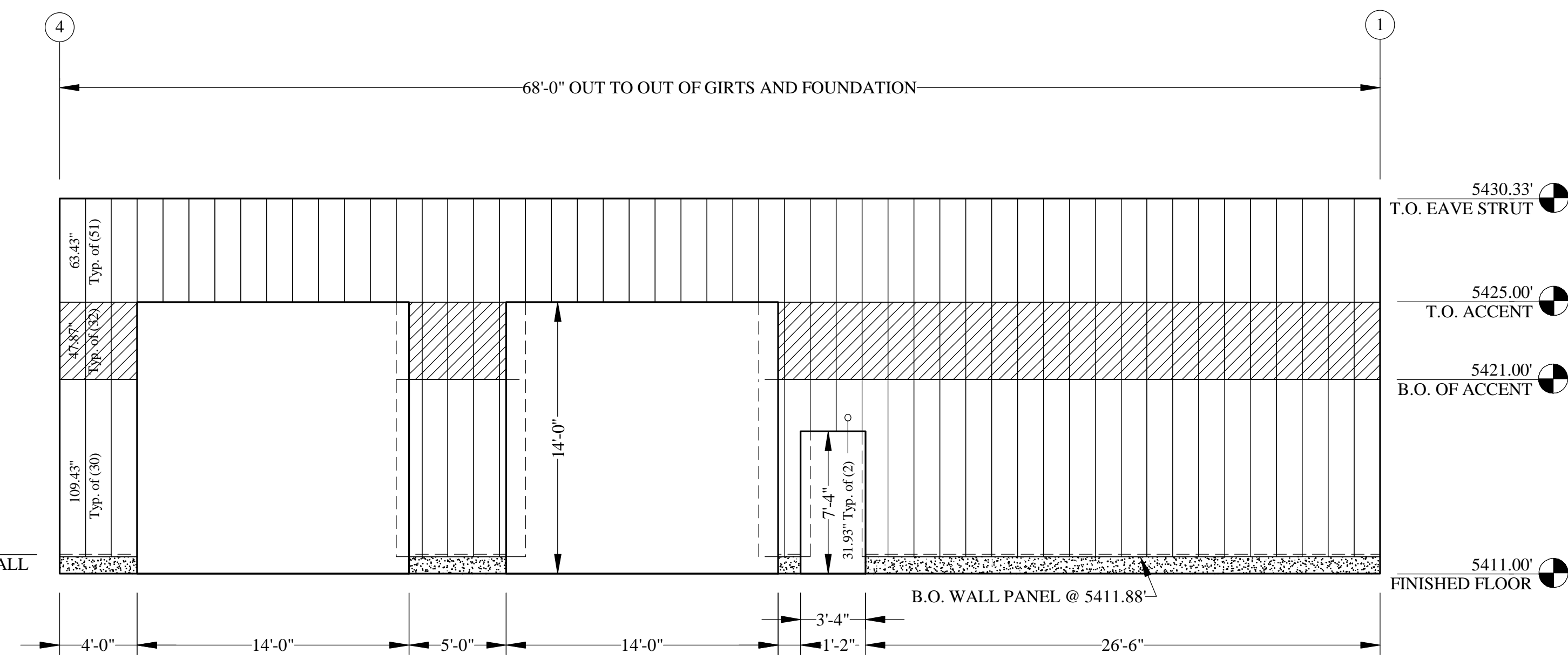
**NORTH ENDWALL PANEL ELEVATION**  
 GRID LINE 4  
 NOT TO SCALE



**EAST SIDEWALL PANEL ELEVATION**  
 GRID LINE A  
 NOT TO SCALE



**SOUTH ENDWALL PANEL ELEVATION**  
 GRID LINE 1  
 NOT TO SCALE



**WEST SIDEWALL PANEL ELEVATION**  
 GRID LINE J  
 NOT TO SCALE

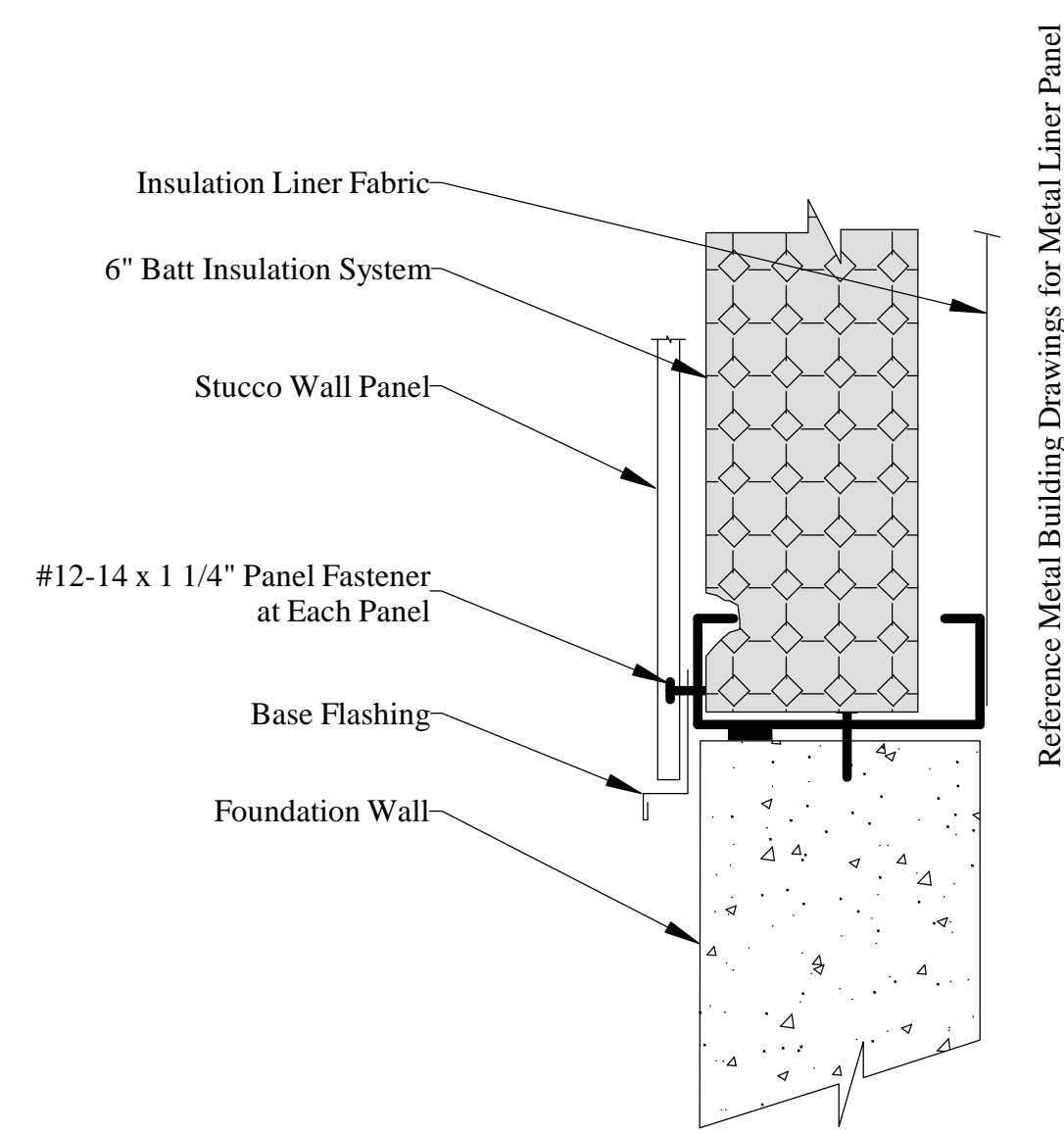
- INSTALLATION NOTES:**
- 1) Installer of the wall panel system is to completely familiarize themselves with the 27-page install manual from the manufacturer.
  - 2) Roof system and roof trims are by others and not detailed in these drawings.
  - 3) Field cut the wall panels to rake of the roof at the endwalls.
  - 4) Gutter and downspouts are by others and not shown in these drawings.
  - 5) Use M-1 Structural sealant in the vertical joints of the wall panel seams.
  - 6) Use sealant in the horizontal stacked wall panel joints of the proper color.
  - 7) Start sidewall panel on Building Line (BL) at the corners.
  - 8) Start endwall panel 2" in from Building Line (BL) at the corners.
  - 9) Reference the metal building manufacturer's erection drawings and general detail manual for specific information pertaining to the erection of the building's structure.
  - 10) Touch-up the heads of all rivets with the panel manufacturer's supplied matching touch-up paint.

**WALL PANEL COLOR SELECTIONS  
 SELECTED FROM CUSTOM PANEL SYSTEMS  
 STANDARD COLORS:**

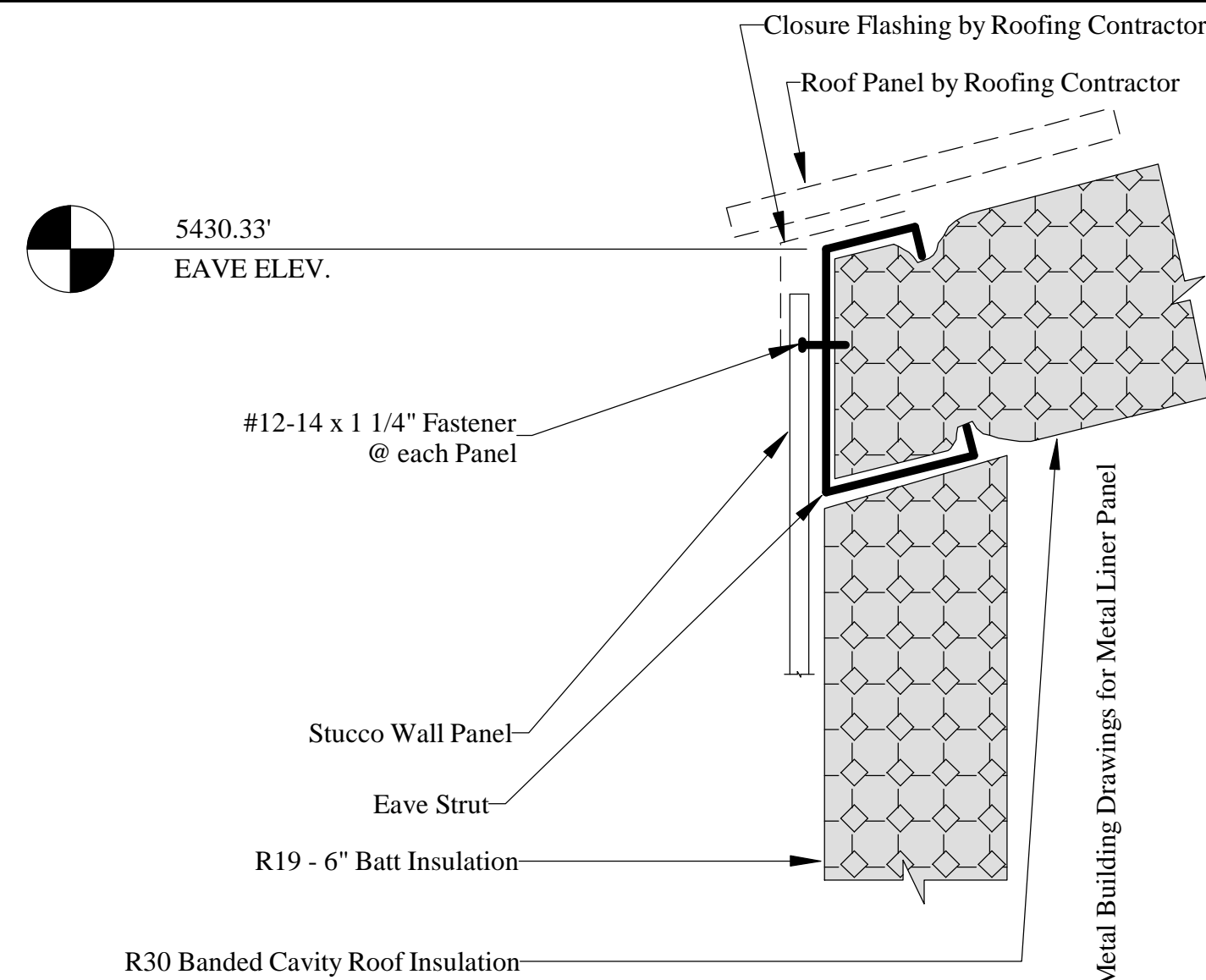
WALL PANEL COLOR: \_\_\_\_\_

ACCENT WALL PANEL COLOR: \_\_\_\_\_

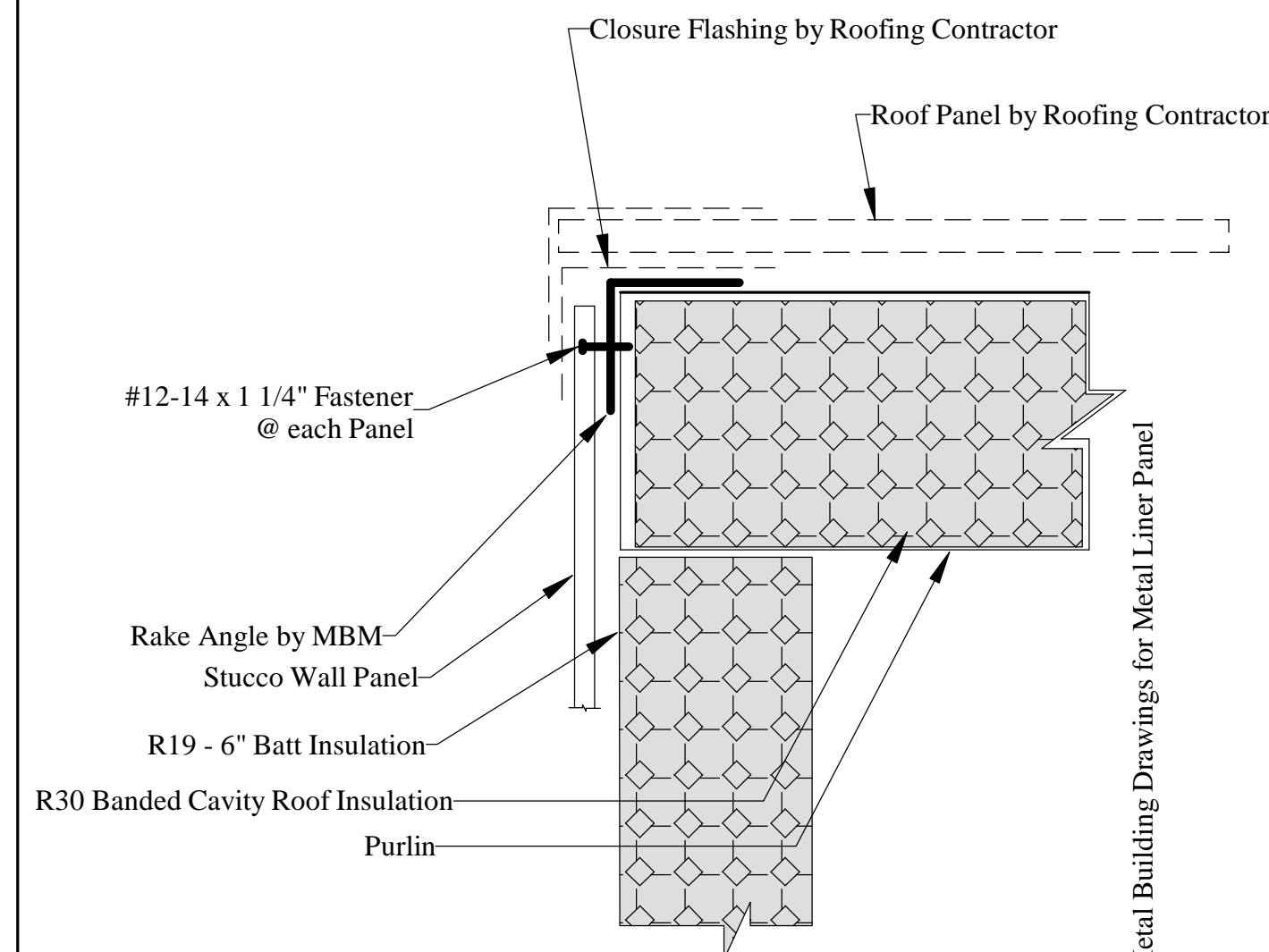




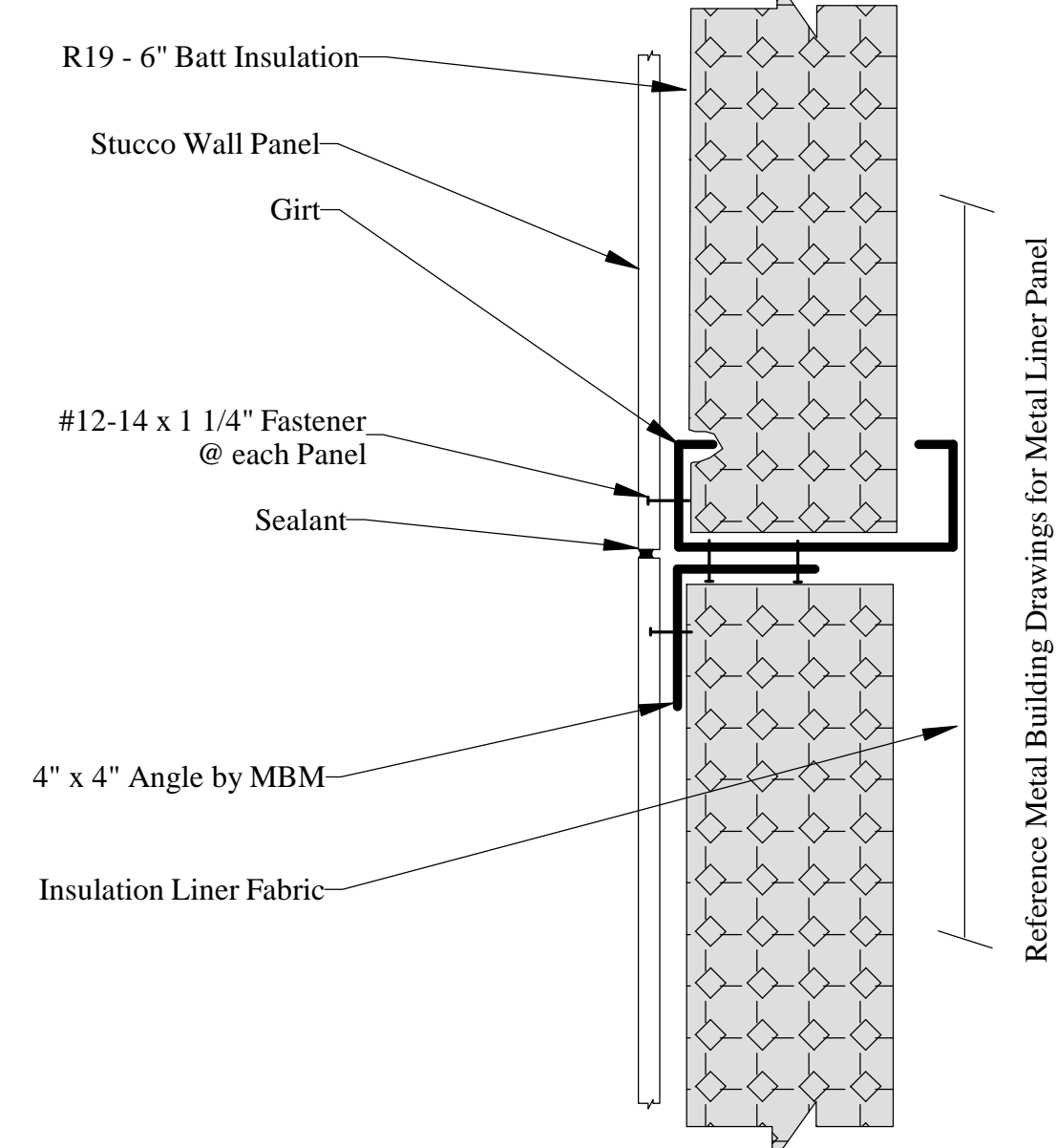
**TYPICAL WALL PANEL BASE DETAIL**



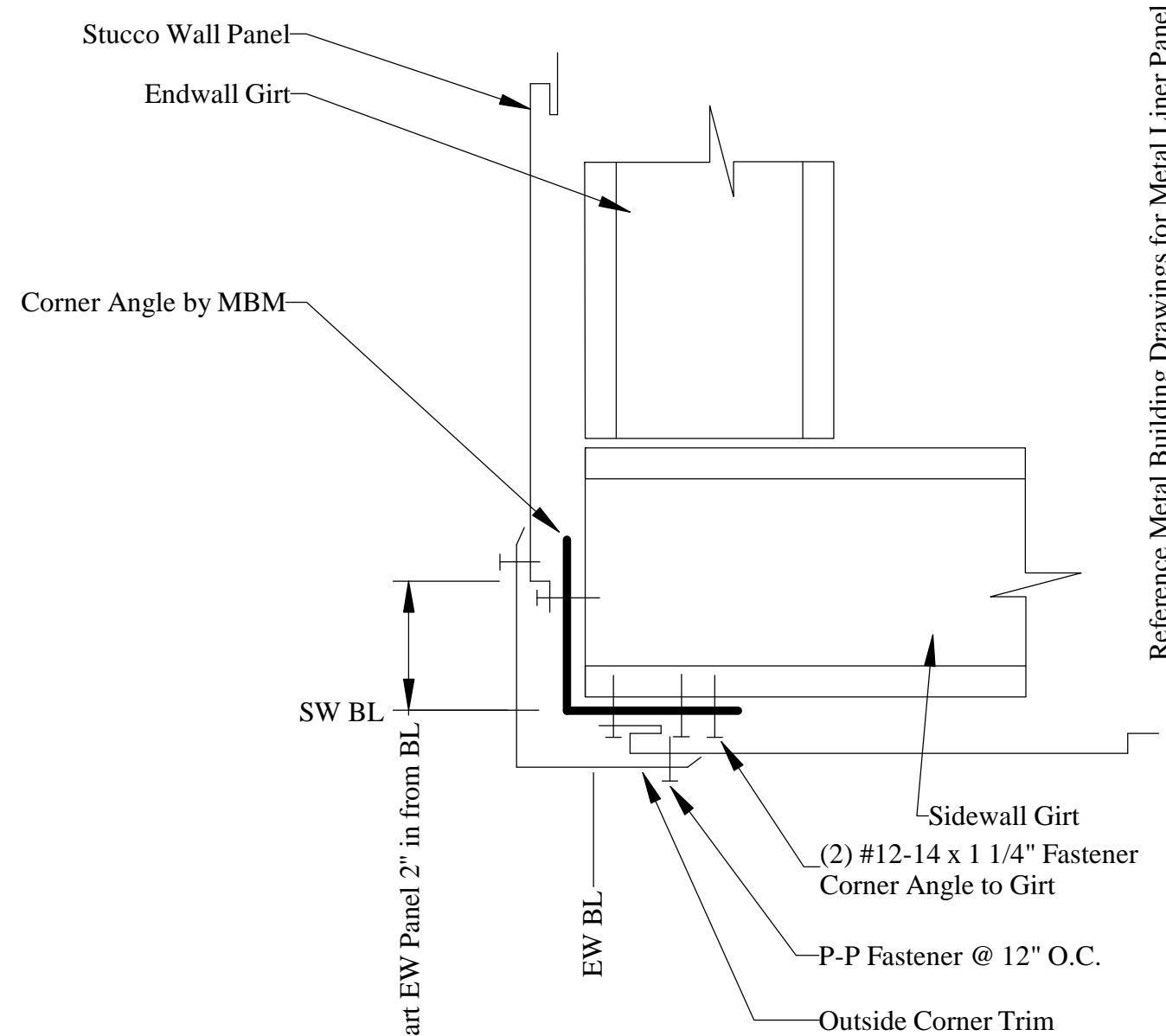
**TYPICAL WALL PANEL EAVE DETAIL**



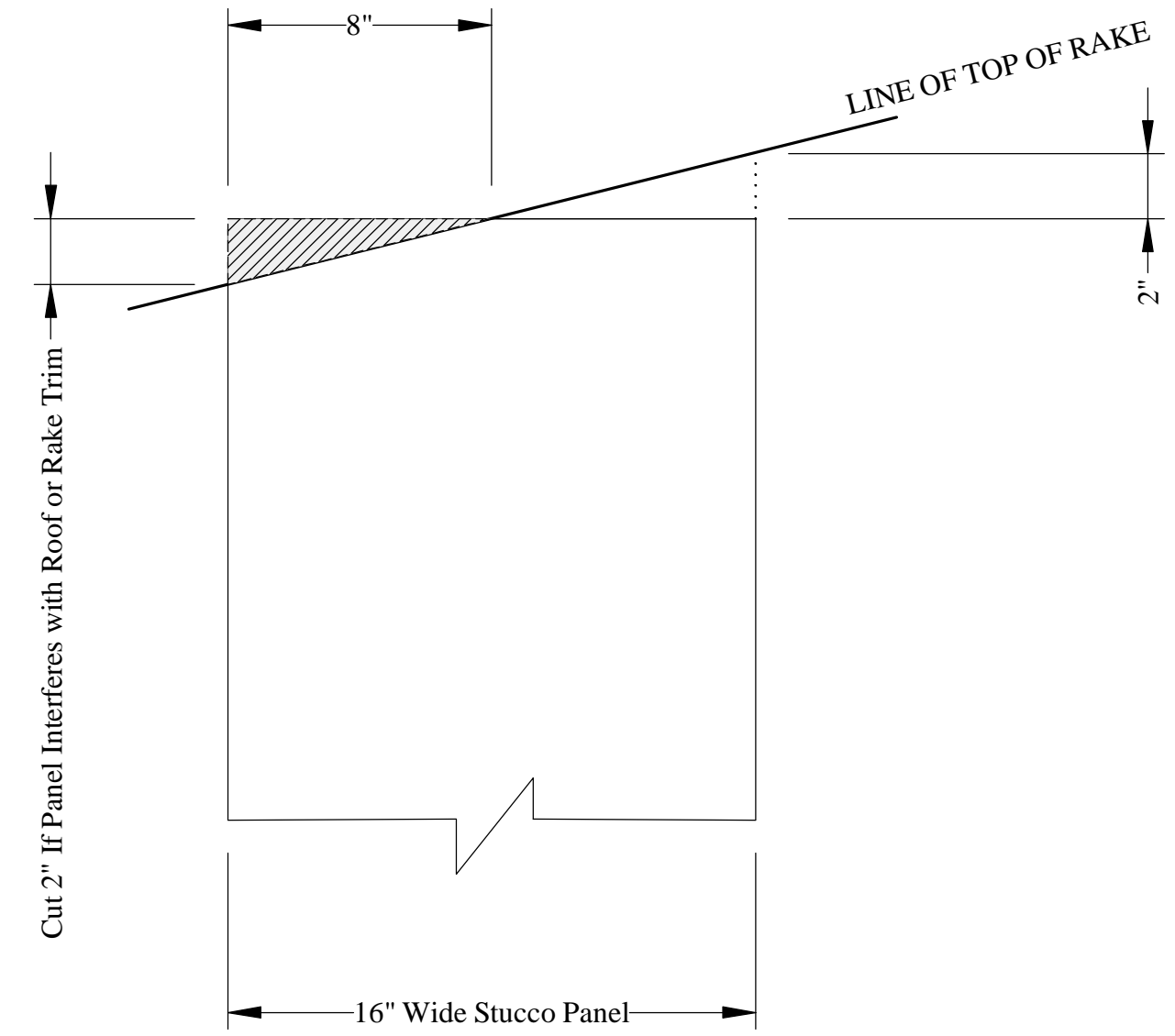
**TYPICAL WALL PANEL RAKE DETAIL**



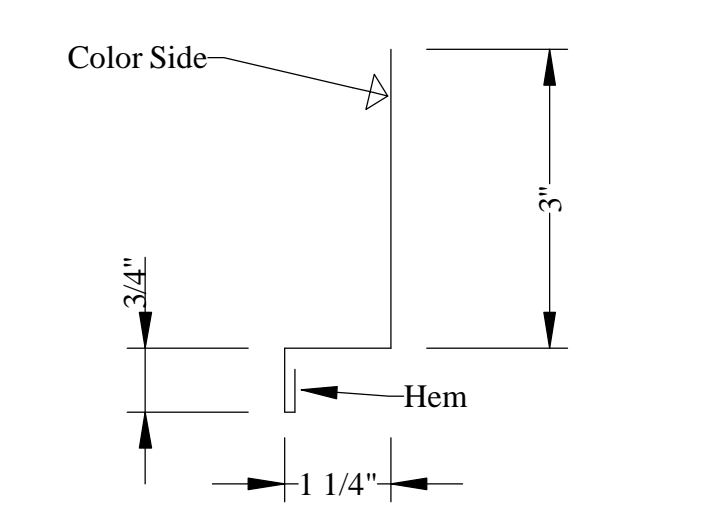
**TYPICAL STACKED WALL PANEL JOINT DETAIL**



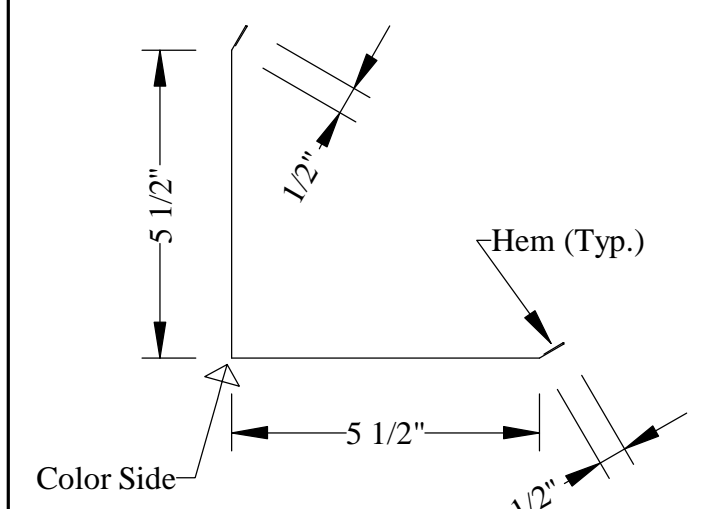
**TYPICAL WALL OUTSIDE CORNER DETAIL**



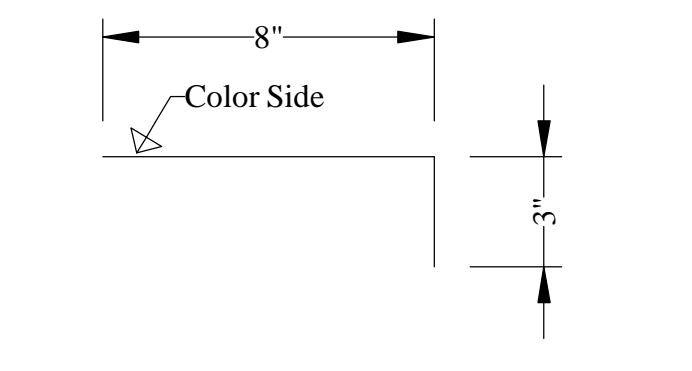
**TYPICAL WALL PANEL AT RAKE DETAIL**



**OUTER BASE FLASHING**  
(18) each 10'-0" pcs Req'd Not to Scale



**OUTSIDE CORNER TRIM**  
(8) each 10'-0" pcs Req'd Not to Scale



**OVERHEAD DOOR JAMB COVER**  
(18) each 10'-0" pcs Req'd Not to Scale



HEATH STEEL  
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**ISSUED FOR:**      **DATE:**  
APPROVAL                      January 27, 2012  
REVISE APPROVAL            February 02, 2012

**CHEM LINK Products LLC**

Telephone: 800-826-1681  
Fax: 269-679-4448  
353 East Lyons  
Schoolcraft, MI 49087  
www.chemlink.com

Last Revision: 09/14/11

**Product Description**

**M-1**<sup>®</sup> is a moisture curing, polyether adhesive sealant designed for application in damp, dry, or cold climates. **M-1** is solvent free and contains no isocyanates. **M-1** will not shrink upon curing, will not discolor when exposed to UV light, and can not “out-gas”, or bubble, on damp surfaces as urethane sealants often do. **M-1** has resilient “elastomeric” properties and excellent adhesion to most construction materials. **M-1** is capable of joint movement in excess of 25% in both compression and extension. **M-1** can be used effectively in many difficult construction site conditions, cures in wet or dry climate conditions and at low temperatures (30°F / -2°C).

**Applicable Performance Standards**

- ASTM C-920, Type S, Grade NS, Class 25, Uses NT, T, M, G, A, and O
- Federal Specification TT-S-00230-C Type II, Class A
- Corps of Engineers CRD-C-541, Type II, Class A
- Canadian Standards Board CAN 19, 13-M82

**Regulatory Compliance**

- Conforms to OTC Rule for Sealants and Caulks
- Meets requirements of California Regs: CARB BAAQMD, and SCAQMD
- Conforms to California Proposition 65
- Conforms to USDA requirements for Non-food Contact

**Green Standards:**

- LEED 2.2 for New Construction and Major Renovations: Low Emitting Materials (Section 4.1) eligible for 1 Point
- NAHB Model Green Home Building Guidelines: 5 Global Impact Points
- VOC Content: less than 20 grams / liter ASTM D2369 EPA Method 24 (includes water, tested at 240°F)



**Advantages**

- Solvent free, 100% solids will not shrink
- Non-slump, applies vertically and overhead
- 20 minute skin over, will not pick up dirt
- No outgassing on damp surfaces
- Very good color stability, will not suntan
- Paintable within 24 hours
- Gun grade, no special tools or mixing required

**Colors**

White	Gray	Limestone
Black	Tan	

**Packaging**

- **10.1 oz (300 ml)** 24 cartridges/carton, 45 cartons / pallet
- **20 oz (825 ml)** 12 sausages/carton, 45 cartons / pallet
- **28 oz** - 12 cartridges/carton 40 cartons/pallet White only / Other colors by special order
- **5 gallon pails and 50 gallon drums** Available by special order

## Joint Preparation

Joint surfaces should be clean, dry and free from all contamination including: dirt, oils, grease, tar, wax, rust and any other substance that may inhibit the sealant's performance.

## Joint Design

Install all joint applications per ASTM and SWRI recommendations and guidelines. Joints shall be designed with a depth to width ratio of 1:2 (joint depth one-half the width). Control the depth of the sealant by using a polyethylene backer rod that is 25% larger than the joint opening at standard temperature. To prevent three-point adhesion use a backer rod or bond breaker tape to ensure proper joint movement and a long lasting weatherproof seal. Where the joint configuration will not permit a backer rod, CHEM LINK recommends that an alternative bond breaker be used.

Joint Depth Inches (mm)	Joint Depth Inches (mm)
1/4 - 1/2 (6-13)	1/4 (6)
1/2 - 3/4 (13-19)	1/4 - 3/8 (6-10)
3/4 - 1 (19-25)	3/8 - 1/2 (10-13)
1 - 2 (25-50)	1/2 (13)

Basic Uses
Expansion joints
Pre-cast concrete
Block and Masonry
Curtain Walls
Window and Door Frames
Siding
Parapets
Cove Joints
Transportation
Weather Sealing

Typical Uncured Properties	
Gun Grade	Zero Slump ASTM C697
Viscosity	800,000+ cps Brookfield RVF, TF spindle, 4 RPM, 73°F (22°C)
Tack Free Time	20 minutes ASTM C-679
Odor	Mild Mint Smell

Typical Cured Properties		
Elongation at Break	400-450%	ASTM D-412
Hardness Shore A	45 +/- 3	ASTM C-661
Shear Strength	400 PSI	ASTM D-1002
Low temperature flex	Pass ¼ inch mandrel at -10°F (-23°C)	ASTM D-816
Shrinkage	No measurable shrinkage after 14 days	
Service Temperature	-40°F to 200°F -40 to 104°C continuous service	
Shelf Life	Cartridges and sausages: 1 year Pails: 3 months	

Compatible Substrates*
EPDM and SBS Mod Bit
Aluminum Galvanized Metal
Engineered Plastics, PVC
Glass
Fiberglass FRP
Wood
EIFS
Block and Brick
EPS Foam
Concrete and Stone

**\*Test and evaluate to ensure adequate adhesion.**



## Application Guidelines

### Concrete

Prior to application remove any residual contamination by mechanical abrasion, sand blasting or power washing. On green concrete, remove all release agents, friable and loose concrete. Dry all visible and standing water prior to applying **M-1**. Install an appropriate backer rod to avoid three-point bonding.

### Metal

Prepare all metal to ensure maximum adhesion. Remove all rust, scale and residue by wire brushing to a bright metal sheen. Remove films, loose or inappropriate coatings and oils with an appropriate solvent such as alcohol.\*

*\*CHEM LINK Products recommends that coated substrates be tested for adhesion prior to starting a project. Please contact Technical Services for specific application guidelines and recommendations.*

### Wood

Wood should be clean, sound and dry prior to sealant application. Allow treated wood to weather for six months prior to application. Remove all coatings and paint (or test for compatibility) to ensure proper bonding. Do not use on fire retardant lumber.

### Priming

In most instances **M-1** will not require a primer. However, certain applications or substrates may require a primer to ensure a long lasting bond and weatherproof seal. It is the applicator's responsibility to determine the need for a primer. CHEM LINK recommends a primer be used for any application where prolonged immersion is anticipated.

### Storage

Store original, unopened containers in a cool, dry area. Protect unopened containers from water, heat and direct sunlight. Elevated temperatures will reduce shelf life. **M-1** will not freeze.

### Shelf Life

One year from date of manufacture when stored in normal environments. High temperature and high relative humidity may significantly reduce shelf life. Pails and special orders have a shelf life of three months.

## Application Instructions

Remove all dirt, oil, loose paint, frost and other contamination from all working surfaces with alcohol. DO NOT USE petroleum solvents such as mineral spirits or xylene. Maintain **M-1** at room temperature before applying to ensure easy gunning and leveling. Test and evaluate to ensure adequate adhesion. Carefully gun the sealant with a smooth, continuous bead. If tooling is needed, do so within fifteen minutes of application.

## Clean-Up

Wet sealant can be removed using a solvent such as alcohol. Cured **M-1** can be removed by abrading or scraping the substrate.

## Caution

Avoid prolonged contact with skin. Uncured adhesive irritates eyes. In case of contact with eyes, immediately flush with water. Call a physician. Please refer to the MSDS for First Aid information. Most current MSDS can be found at [www.chemlink.com](http://www.chemlink.com). KEEP OUT OF REACH OF CHILDREN.

## Limitations

- In areas where prolonged chemical exposure is anticipated, contact Technical Services for recommendations.
- Allow treated wood to "cure" for six months prior to application per APA guidelines.
- Do not use in areas subject to continuous immersion.
- Do not store in elevated temperatures.
- Remove all coatings and sealers before application.
- Do not apply at temperatures below 30°F (-2°C).
- Test and evaluate all paints before application. Alkyd and oil based paints may dry slowly.
- Do not use on TPO without CHEM LINK Products TPO primer.



**CHEM LINK**<sup>®</sup>  
Advanced Architectural Products  
*Contractor Driven*

**A Complete Product Line of Adhesives, Sealants and Waterproofing**

- High Performance
- ZERO Solvents
- Odor FREE
- Non Flammable
- Non Toxic
- Non Polluting
- LEED Eligible

*Contractor Hot Line*  
**800-826-1681**  
www.chemlink.com

**Notes:**

Read and ensure that the most up-to-date MSDS and technical guidelines are being followed. Proper use and application are the responsibility of the applicator. Direct any questions to Technical Services at 800-826-1681 prior to starting the project.

**IMPORTANT NOTICE**

Except where prohibited by law, CHEM LINK Products makes no warranties, expressed or implied, statutory or otherwise, including but not limited to, any implied condition or warranty of merchantability or fitness for a particular purpose. User is responsible for determining whether this CHEM LINK Products material is fit for a particular purpose and suitable for user's method of application. M-1<sup>®</sup> is a registered trademark of Chem Link Incorporated.

**LIMITATIONS OF REMEDIES AND LIABILITY**

If this CHEM LINK Products material is proved to be defective, the exclusive remedy at CHEM LINK Products' option shall be to refund the purchase price of or to repair or replace the defective CHEM LINK product. CHEM LINK shall not otherwise be liable for loss of damages, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including negligence, warranty or strict liability.

Document CLP 108

**CHEM LINK**<sup>®</sup>  
Advanced Architectural Products  
*Contractor Driven*

**Contractor Hot Line**

**800-826-1681**

www.chemlink.com



# CUSTOM PANEL SYSTEMS

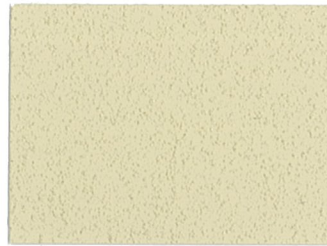
3991 Green Park Rd. • St. Louis, MO 63125 • 314.631.9244 FAX 314.631.3003

## *Pre-Finished Stucco Wall Panels*

Standard Colors



SUMMER



PUEBLO



SUNSET



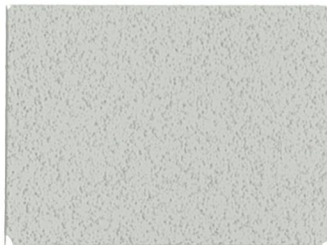
MESA



ADOBE



DUSK



EVEREST



ASH



GRAY



SLATE



HACIENDA



DUNE



HORIZON



SKY



OLIVE

\*NOTE: These color chips are to give a basic representation of standard colors. Slight color variations may occur between sample materials and finished product. Samples are not intended to show texture of actual panels.



# CUSTOM PANEL SYSTEMS

3991 Green Park Rd. • St. Louis, MO 63126 • 314.894.3903 Fax 314.631.3003

[www.CustomPanelSystems.com](http://www.CustomPanelSystems.com)

# Fax

Phone 314-894-3903

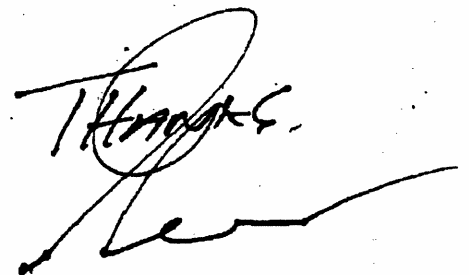
Fax 314-631-3003

To: RANDY GATE'S From: GEORGE BAGOT  
 Company: HEATH STEEL Pages: 7  
 Fax: 970-490-8081 Date: 12/6/11  
 Ref: \_\_\_\_\_ CC: \_\_\_\_\_

Urgent     For Review     Please Comment     Please Reply     Please Recycle

• Comments:

RANDY -  
 HERE IS THE INFORMATION YOU REQUESTED.



**CUSTOM PANEL SYSTEMS  
PRE-FINISHED STUCCO WALL PANEL  
20 GA STEEL, 16" WIDE  
(WITH M-1 STRUCTURAL SEALANT IN SIDE JOINTS)**

**NEGATIVE DESIGN LOADS**

SPAN (FT)	ULTIMATE TEST LOAD (PSF)	DESIGN LOAD (PSF)
2	161.0	107.0
2.5	-	100.2
3	-	93.5
3.5	-	86.8
4	-	80.0
4.5	-	73.3
5	100.2	66.6

**NOTES:**

- 1) The above loads were derived from uplift tests done in accordance with ASTM E1592-95 (see Farabaugh Engineering and Testing, Inc. Test Report No. T201-01 for specific test data)
- 2) Design values are interpolated from tests performed at spans of 2'-0" and 5'-0" only.
- 3) Design Load contains a 2.0 factor of safety and a 33% increase due to wind per AISI 1996.
- 4) This material is subject to change without notice. Please contact Custom Panel for most current data.
- 5) Yield of steel min. 50 ksi.

Project No. T201-01

TEST DATA FOR 16" CUSTOM WALL PANEL 20 GA W/SEALANT 3 SPANS @ 5'-0" oc							
LOAD (PSF)	DEFLECTION DIAL READINGS (INCHES)						REMARKS
	DIAL 1	DIAL 2	DIAL 3	DIAL 4	DIAL 5	DIAL 6	
1.9	0	0	0	0	0	0	PANEL WT.
12.3	0.166	0.079	0.1	0.122	0.081	0.134	PANEL WT.
1.9	0.027	-0.027	0.001	-0.012	0.015	0.01	PANEL WT.
17.5	0.232	0.161	0.125	0.185	0.085	0.197	PANEL WT.
1.9	0.055	-0.033	0.01	-0.007	0.037	0.018	PANEL WT.
22.7	0.307	0.272	0.239	0.274	0.093	0.263	PANEL WT.
1.9	0.082	-0.005	0.033	0.024	0.052	0.045	PANEL WT.
27.9	0.398	0.382	0.304	0.364	0.115	0.352	PANEL WT.
1.9	0.125	0.034	0.062	0.048	0.077	0.088	PANEL WT.
33.1	0.51	0.472	0.417	0.467	0.177	0.456	PANEL WT.
1.9	0.153	0.044	0.094	0.086	0.104	0.141	PANEL WT.
43.5	0.681	0.649	0.579	0.661	0.222	0.58	PANEL WT.
1.9	0.263	0.166	0.173	0.197	0.154	0.219	PANEL WT.
53.9	0.809	0.839	0.738	0.8	0.266	0.749	PANEL WT.
1.9	0.288	0.286	0.277	0.317	0.236	0.349	PANEL WT.

ULTIMATE TEST LOAD = 100.2 PSF (FASTENER PULLOVER)

NOTE: SEE SKETCH 1 FOR LOCATION OF FASTENER PULLOVER.



*WITHOUT SEALANT*

Project No. T142-01

TEST DATA FOR 16" CUSTOM WAL PANEL 20 GA 3 SPANS @ 5'-0" oc							
DEFLECTION DIAL READINGS (INCHES)							
LOAD (PSF)	DIAL 1	DIAL 2	DIAL 3	DIAL 4	DIAL 5	DIAL 6	REMARKS
1.9	0	0	0	0	0	0	PANEL WT.
7.1	0.097	0.109	0.08	0.157	0.009	0.093	
1.9	0.01	0.008	0.018	0.008	-0.002	0	PANEL WT.
12.3	0.184	0.359	0.186	0.404	0.05	0.331	
1.9	0.026	0.043	0.021	0.05	0.008	0.029	PANEL WT.
17.5	0.263	0.57	0.263	0.657	0.093	0.529	
1.9	0.056	0.064	0.038	0.071	0.012	0.033	PANEL WT.
22.7	0.321	0.827	0.337	0.911	0.133	0.73	
1.9	0.085	0.08	0.056	0.094	0.029	0.053	PANEL WT.
27.9	0.393	1.047	0.394	1.148	0.162	0.94	
1.9	0.105	0.112	0.092	0.149	0.042	0.068	PANEL WT.
31.0							SIDE JOINT DISENGAGEMENT

NOTE: SEE SKETCH 1 FOR LOCATION OF SEAM DISENGAGEMENT.

THIS SHEET IS FOR THEIR SYSTEM WITHOUT SEALANT. WE ARE USING THE SPECIFIED M-1 STRUCTURAL SEALANT

CUSTOM PANEL SYSTEMS  
PRE-FINISHED STUCCO WALL PANEL  
20 GA STEEL, 16" WIDE *W/O SEALANT*  
NEGATIVE DESIGN LOADS

SPAN (FT)	ULTIMATE TEST LOAD (PSF)	DESIGN LOAD (PSF)
2	39.4	26.2
2.5	-	25.2
3	-	24.3
3.5	-	23.4
4	-	22.4
4.5	-	21.5
5	31.0	20.6

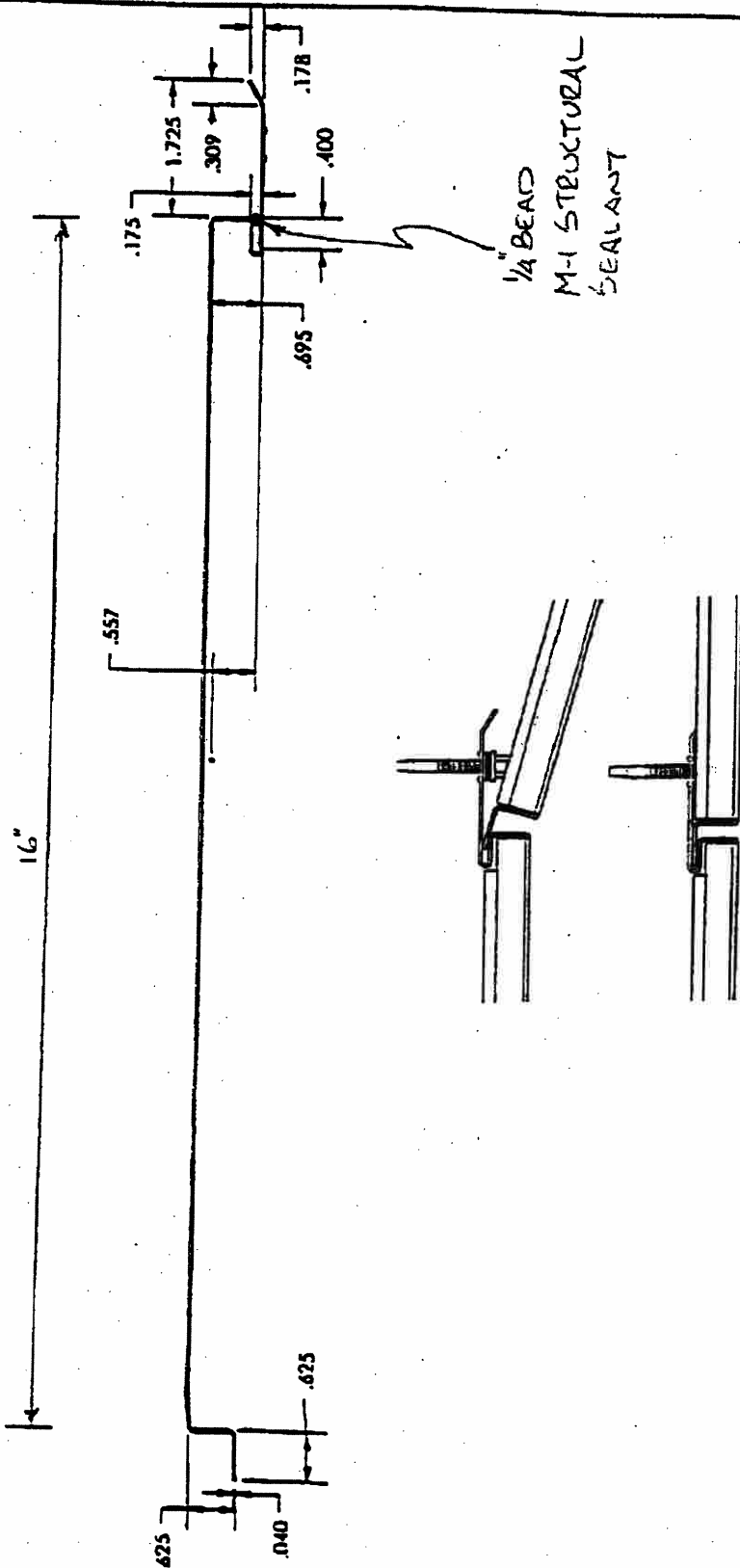
## NOTES:

- 1) The above loads were derived from uplift tests done in accordance with ASTM E1592-95 (see Farabaugh Engineering and Testing, Inc. Test Report No. F142-01 for specific test data)
- 2) Design values are interpolated from tests performed at spans of 2'-0" and 5'-0" only.
- 3) Design Load contains a 2.0 factor of safety and a 33% increase due to wind per AISI 1996.
- 4) This material is subject to change without notice. Please contact Custom Panel for most current data.
- 5) Yield of steel min. 50 ksi.

THIS SHEET IS FOR THEIR SYSTEM  
WITHOUT SEALANT. WE ARE USING  
THE SPECIFIED M-1 STRUCTURAL  
SEALANT

Project No. T201-01

# CUSTOM PANEL SYSTEMS





# West Penn Testing Laboratories, Inc.

1010 Industrial Blvd, New Kensington, PA 15068  
Voice: (724)334-1900 Fax: (724)334-9785 E-mail: info@wplabs.com



Date: 21-Aug-01  
Page No.: 1 of 1

Project No. T201-01

## Summary Page: Tensile Testing of Sheet Steel

Client: Farabaugh Eng. & Testing, Inc.

PEN #	Dimensions (in.) Width x Thickness	Area (sq.-in.)	Yield Point (lbs.)	Tensile Strength (lbs.)	Yield Strength (psi.)	Tensile Strength (psi.)	Elongation (% in 2 in.)	n-Value
Custom panels 20ga	0.5060 x 0.0356	0.0180	307	950	44850	52790	32.5	0.180

Test Method: ASTM E-8-00 (Yield point determined by 0.2% offset)  
Equipment Used: Satco Vertex/60 HLY #1602, Extensometer # SE2-12.5/1231  
Test Performed by: w. sackst

Respectfully Submitted,  
  
WEST PENN TESTING LABORATORIES, INC.



Impax™ — Performance Self-Drill

12-14 Impax and 1/4-14 Impax lap self-drill  
For metal to metal

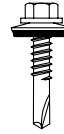
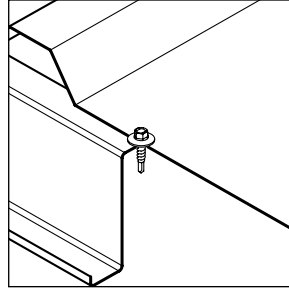
- Precision cold forged assuring superior point strength and the fastest drilling time performance through high strength steel and nested purlins.
- Ultimate performance in light, medium and heavy gage applications.

- Designed and engineered to have low driving and thread engagement torque and provide maximum clamp load.
- Corrosion resistant coating system.

Application

→ 12-14 Impax  
Metal to metal

Drilling capacity: .035 – .210  
Thickness is based on normal, single thickness purlin/girt or multiple material thickness combined for total.  
Min projection: 3/16" of threads below substrate



5/16" AF Hex Washer Head  
Thread Major Dia: .215 – .209  
Thread Minor Dia: .164 – .157

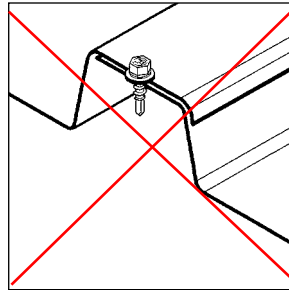
**Strength (lbs ult.):**  
Tensile: 2900  
Torsional: 92 in-lbs  
Shear: 2050

**Pull-out (lbs ult.):** **SD2** ~~SD3~~  
12 ga (.109): 1539 1480  
14 ga (.075): 1010 823  
16 ga (.060): 724 624

**Pull-over with Bond Seal (lbs ult.):**  
22 ga (.030): 1249  
24 ga (.024): 1056  
26 ga (.018): 654

~~1/4-14 Impax Lap  
Panel to panel side lap~~

~~Drilling capacity: .030 – .095  
Some applications may require attaching light gage (24 – 26 ga) to sub-structural member. Composite thickness should not exceed .095.~~



~~5/16" AF Hex Washer Head  
Thread Major Dia: .246 – .240  
Thread Minor Dia: .192 – .185~~

~~**Strength (lbs ult.):**  
Tensile: 3800  
Torsional: 150 in-lbs  
Shear: 2850~~

~~**Pull-out (lbs ult.):**  
22 ga (.030): 379  
24 ga (.024): 304  
26 ga (.018): 204~~

Notes

Dimensions are nominal inches unless noted. Self-drill pull-out values (pounds ultimate) are based on 57,000 psi hot rolled steel material. Lap self-drill pull-out values are based on 40,000 psi AZ55 Galvalume steel sheet material. Ultimate values listed are the result of laboratory testing. The specific job conditions should be considered and appropriate safety factors applied when specifying the proper fasteners. #12 fasteners 1" and longer have special long pilot lengths to accommodate nested purlins.

Selection

Length	Part No. #12 Bond Seal (15 mm)	Part No. #12 No Washer	Part No. 1/4-14 Impax Lap w/ Bond Seal	Part No. 1/4-14 Lap No Washer
12-14 x 3/4" SD3	V2361-EDF	A2361F	—	—
12-14 x 3/4" SD2	S4495-EDF	S4495F	—	—
12-14 x 1" SD2	V4577-EDF	S4577F	—	—
→ 12-14 x 1-1/4" SD2	V4632-EDF	S4632F	—	—
12-14 x 1-1/2" SD2	V4677-EDF	S4677F	—	—
12-14 x 2" SD2	V4777-EDF	S4777F	—	—
12-14 2-1/2" SD2	S4902-EDF	S4902F	—	—
12-14 x 3" SD2	S4952-EDF	S4952F	—	—
12-14 x 4" SD2	S4981-EDF	S4981F	—	—
1/4-14 x 7/8"	—	—	V5051-GUF	S5051F

Installation

Tools: 0 – 2000 rpm screwdriver equipped with depth sensing nosepiece.

Options

