



ADDENDUM #1

Project Name: City of Opelousas South City Park Center, Opelousas, Louisiana

Date: 10/15/2025

Project #: 20231117

Address: (TBD) S Market St, Opelousas, LA 705708

ADDENDUM PROVIDED FOR THE FOLLOWING:

A. **BIDDERS LIST & BID DOCUMENTS** – available from:

1. Paul Holmes, LaMATS eAuction & Bid Services, (225) 678-6107, paul@lamats.net

B. **INSTRUCTIONS TO BIDDERS** - Notes added, updated, and/or superseded to the sections found within the Project Manual – included here only:

- SECTION 4.1.1.2 As an alternative method of distribution, the Owner will require electronic registration and will provide access to the Bid Documents in PDF format. They are obtainable without charge and without deposit as stated in the Advertisement for Bids.
- SECTION 4.1.1.2.1 If electronic distribution is available, printed copies will not be available from the Designer or the Owner, but arrangements can be made to obtain them through most reprographic firms.
- SECTION 4.1.1.2.3 If electronic distribution is available, all plan holders are responsible for their own reproduction costs.
- SECTION 5.3.1 Delivery of Bids. Bids delivered in person, by courier, by United States Mail or by express delivery services shall be sealed in an opaque envelope. The bid envelope shall be identified on the outside with the name of the project, and the name, address, and license number of the Bidder. The envelope shall not contain multiple bid forms and will be received until the time specified and at the place specified in the Advertisement for Bids. It shall be the specific responsibility of the Bidder to deliver his sealed bid to the CITY OF OPELOUSAS at the appointed place and prior to the announced time for the opening of bids. Late delivery of a bid for any reason, including late delivery by United States Mail, or express delivery, shall disqualify the bid. Additionally, if the bid is sent by United States Mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "Bid Enclosed" on the face thereof. Such bids shall be sent by Registered or Certified Mail, Return Receipt Requested and shall be addressed to:

CITY OF OPELOUSAS
Attn: CITY CLERK
105 N. Main Street
Opelousas, Louisiana, 70570

Bids delivered by express delivery services, courier or in person shall be delivered to:

CITY OF OPELOUSAS
Attn: CITY CLERK
105 N. Main Street
Opelousas, Louisiana, 70570

The person delivering the bid is responsible for ensuring that the bid envelope is time stamped and that a receipt of delivery is obtained.

- SECTION 5.3.2 Electronic Delivery of Bids. A bid delivered electronically shall be uploaded on the LaMATS eAuction & Bid Services portal – <https://lamats.eauctionservices.com> - in accordance with the electronic instructions provided on the portal. Questions related to submission of bids electronically should be directed to the Electronic Bid Administrator at lacpc@lamats.net. Confirmation of successful upload of bids is provided via email to the registered bidder's email address provided.
- SECTION 5.4 Bid Modification, Withdrawal or Cancellation
- SECTION 5.4.1 Bids Physically Delivered or Received by Mail. A Bid, once physically delivered or received by mail, may not be modified, withdrawn or canceled by the Bidder during the time stipulated in the Advertisement for Bids, for the period following the time and bid date designated for the receipt of bids, and Bidder so agrees in submitting his bid, except in accordance with R.S. 38:2214 which states, in part, "Bids containing patently obvious, unintentional, and substantial mechanical, clerical, or mathematical errors, or errors of unintentional omission of a substantial quantity of work, labor, material, or services made directly in the compilation of the bid, may be withdrawn by the contractor if clear and convincing sworn, written evidence of such errors is furnished to the public entity within forty- eight hours of the bid opening excluding Saturdays, Sundays, and legal holidays".
- SECTION 5.4.2 Bids Submitted Electronically. Bids submitted electronically may be modified, withdrawn or canceled by the bidder at any time up to the submission deadline in accordance with the electronic instructions at <https://lamats.eauctionservices.com>. Where a Bid or Bid document has been substituted but has not been removed at the submission deadline, only the latest Bid or Bid documents submitted will be considered.
- SECTION 5.4.3 Dual Submission of Bids. Dual submission of bids is prohibited. Where a Bid has been physically delivered or received by mail, (and not returned), a subsequent attempt to deliver the bid electronically will be rejected.
- SECTION 5.2 Bid Security
- SECTION 5.2.1 No bid shall be considered or accepted unless the bid is accompanied by bid security in the amount of five percent (5%) of the base bid and all alternates. A delivered bid shall include the original security in the form of a certified check or cashier's check drawn on a bank insured by the Federal Deposit Insurance Corporation, or a Bid Bond written by a surety company licensed to do business in Louisiana and signed by the surety's agent or attorney-in-fact.
- SECTION 5.2.2 A bid submitted electronically shall include a clear copy of the original bid security or Bid Bond required (with the original to be delivered by the apparent low bidder within three (3) business days of the date the low bidder is notified by the city of its low bid status. Failure to submit the original bid security or Bid Bond timely may result in the disqualification of the bid.
- SECTION 5.2.3 The Bid Bond shall be written on the Bid Bond Form provided, and the surety for the bond must meet the qualifications stated thereon. The Bid Bond shall include the legal name of the bidder in favor of the CITY OF OPELOUSAS and shall be accompanied by appropriate power of attorney. The Bid Bond must be signed by both the bidder/principal and the surety in the space provided on the provided Bid Bond Form. Failure by the bidder/principal or the surety to sign the bid bond shall result in the rejection of the bid. Bid security furnished by the Contractor shall guarantee that the Contractor will, if awarded the work according to the terms of his proposal, enter into the Contract and furnish Performance and Payment Bonds as required by these Bid Documents, within fifteen (15) days after written notice that the instrument is ready for his signature. Should the Bidder

refuse to enter into such Contract or fail to furnish such bonds, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as penalty.

C. **PRODUCT SUBSTITUTIONS** – products listed here for substitution & approval documents attached:

1. AWIP (Insulated Panels) request: *Substitution Rejected (panel thickness, width, warranty, & color)*
2. Mondo (Sports Flooring & Underlayment) request: *Substitutions Rejected (width, length, abrasion resistance, chemical resistance, impact, & bleachers)*
3. Tex-Trude (Vapor Barrier) request: *Substitution Approved & attached*
4. Sesco Lighting (Lighting and Controls) request: *Response forthcoming in Addendum #2.*

D. **SPECIFICATION ADDED** – and attached here only:

1. Pre-Engineered Metal Building Specification

E. **QUESTIONS SUBMITTED** – questions and answers listed here:

1. Will a temp field office and a project sign be required? *Temp field office not required. Project Signage is required. Construction sign requirements will be provided in forthcoming Addendum #2.*
2. Who is responsible for the cost of electricity and water during construction? *Refer to spec section 015000. It shall be included in the Contract Sum.*
3. What is the project budget? *Project entire budget, including alternates, has an anticipated range of \$3,600,000 to \$3,900,000.*
4. Is this project Tax Exempt? *Yes. The project is to be exempt from sales and use taxes imposed by any taxing authority. The successful contractor/subcontractors will be required to submit the appropriate tax exemption form R-85012-T (Public Projects Contractor / Subcontractor: Sales Tax Certification and Exemption Application - Louisiana Revised Statute 47:305.7(a)(1)(b)) to the Louisiana Department of Revenue for each contract/subcontract associated with the work.*
5. Page C-3 makes indications that the new walking track will be concrete by referring to page C-8 (sidewalk details). Page A101, Site Plan says that the walking track will be asphalt. Please indicate which is correct. If an asphalt walking track is required, please provide cut-through detail and specifications. If an asphalt walking track is required, will the trench drains shown on page C-3 be required? If so, please provide a cut-through detail. *Response forthcoming in Addendum #2.*
6. Panel signs are only indicated at restrooms and exits. Are room ID panel signs required for each room? Please provide schedule. *Signage is only needed at exits and restrooms. Schedule is on A603.*
7. On the title page of the drawing under Project Scope Summary, the bleachers are described as Aluminum Stationary Bleachers for the base bid and Alternate 2 is for Operable Bleachers. All drawings and specs are for operable bleachers. Can you please provide information for the base bid aluminum stationary bleachers? *Use the Basis of Design for stationary bleachers: Hussey, Maxam1 (approx. 34 units TOTAL); Color: Sand 452 or Pre-Approved Equal.*

8. Can you please confirm that all of the food service equipment below shall be included in Alternate 3?
 - i. *Food service equipment for Alt #3 is specified in scope to be Popcorn machines & (4) shelving units*
 - ii. *2 – Handwashing Sinks (HS1) Included in Base Bid*
 - iii. *2 – SS Countertop and Sink Unit (CS1) Included in Base Bid*
 - iv. *2 – Popcorn Machines (PM1) Included in Alt #3*
 - v. *4 – 18"x 36"x 86" Shelving Units (S3) (2 in each Concession Stand) Included in Alt #3*
 - vi. *2 - 18"x 36"x 86" Shelving Units (S3) (1 in each Pantry) Included in Base Bid*
 - vii. *2 – 12"x 48"x 86" Shelving Unit (S2) (1 in each Pantry) Included in Base Bid*
9. Shall the Counter with Pass Through Window and Security Coil Up Door be included in Alternate 3 as well? *No. It is included in Base Bid.*
10. In reference to detail 4/A301 and wall type WT4 on page A300: Both of these details are for Alternate 1 using insulated metal wall panels. Can you please provide a similar detail for the base bid for (4/A301) and Wall Type WT4, as it pertains to the conventional wall panels and 6" VRR blanket insulation? *Response forthcoming in Addendum #2.*
11. Will the blanket insulation be exposed above the impact resistant panels? *Response forthcoming in Addendum #2.*
12. Can you also please provide exterior wall details for the following wall types as it pertains to the base bid using conventional wall panels and 6" VRR blanket insulation? WT1, WT2, WT4, WT8, WT11, WT13, WT14, WT15, WT16. *Response forthcoming in Addendum #2.*
13. For the base bid, will the R25 insulation on the ceiling be left exposed? *Response forthcoming in Addendum #2.*
14. Please provide a specifications section for Division 13, PEMB. *Added and attached here.*
15. Please provide specification sections for Building Insulation, Metal Roof Panels, and Metal Wall Panels as it pertains to the base bid description. *Response forthcoming in Addendum #2.*
16. Can you please provide spec sections for the chain link fencing and aluminum canopies? My subs would like more information than what is provided in the drawings. *Response forthcoming in Addendum #2.*
17. My sprinkler sub is asking for the following clarifications as the specifications section is not clear on what should be provided: *Refer to MEP drawing sheets for information below.*
 - i. *Remove the standpipe system. It's not required. Refer to Sheet S100 Sprinkler Plan. No standpipe system shown.*
 - ii. *Allow the use of schedule 10 pipe. Refer to Sheet S001 Sprinkler Cover Sheet, Sprinkler Specifications, Sprinkler Piping Item B.*



- iii. Specify one type of FDC, note 3. *Refer to Sheet S001 & S100 for notes, details and specifications regarding the FDC.*
- iv. Identify the system as wet or dry. *Refer to Sheet S100 Sprinkler plan. Boxed note indicated automatic wet pipe fire sprinkler system.*
- v. Show expansion joints. If none exist, take out the requirement for flex loops. *Coordinate with structural and/or architectural drawings.*
- vi. Specify black pipe only, remove galvanized. *Refer to Sheet S001 Sprinkler Cover Sheet, Sprinkler Specifications, Sprinkler Piping.*

Sincerely,
David Beverly, AIA
DB Architecture of Acadiana, LLC
Tel: 337-205-3235
Email: info@dbarchitectureofacadiana.com

SECTION 133419 - METAL BUILDING SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Metal building systems.
2. Structural-steel framing.
3. Metal roof panels.
4. Metal wall panels.
5. Accessories.

B. Related Requirements:

1.2 DEFINITIONS

- A. Terminology Standard: See MBMA's "Metal Building Systems Manual" for definitions of terms for metal building system construction not otherwise defined in this Section or in standards referenced by this Section.

1.3 COORDINATION

- A. COORDINATE WITH ARCHITECT AND WITH STRUCTURAL ENGINEER, INCLUDING, BUT NOT LIMITED TO, DIVIDING CURTIAN, ETC, END-WALL CONDITIONS, AND CANOPIES DURING SUBMITTAL PHASE.
- B. IF ALTERNATE IS ACCEPTED BY OWNER, COORDINATE WITH PRE-INSULATED METAL PANEL MANUFACTURER AND ARCHITECT TO ENSURE PEMB SHALL ACCOMMODATE SYSTEM.
- C. GENERAL CONTRACTOR SHALL COORDINATE ALL ASPECTS OF STRUCTURAL SYSTEM WITH ARCHITECT AND STRUCTURAL ENGINEER DURING SHOP DRAWING AND SUBMITTAL PHASE. BID SHALL ACCOMMODATE VARIATIONS IN STRUCTURAL AND NON STRUCTURAL PEMB REQUIREMENTS.
- D. Coordinate sizes and locations of concrete foundations and casting of anchor-rod inserts into foundation walls and footings. Anchor rod installation, concrete, reinforcement, and formwork requirements are specified in Division 03 concrete Sections.
- E. Coordinate imposed load of HVAC specified in other Sections with structural performance requirements specified in this Section.
- F. Coordinate metal panel assemblies with rain drainage work, flashing, trim, and construction of supports and other adjoining work to provide a leakproof, secure, and noncorrosive installation.
- G. COORDINATE WITH ARCHITECT CONVENTIONAL METAL WALL & ROOF PANEL PROFILES & SIZES, IF ALTERNATE #1 IS NOT ACCEPTED, FOR SELECTION TO MATCH DESIGN INTENT AS INDICATED BY ALTERNATE #1 PANEL PROFILES AND DIMENSIONS AS CLOSELY AS POSSIBLE, INCLUDING RIB ORIENTATION & DIRECTION AS SELECTED BY ARCHITECT. PROVIDE SAMPLES FOR INITIAL SELECTION.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Shop Drawings: By manufacturer of metal building systems. Indicate components by others. Include full building plan, elevations, sections, details, and the following:

1. Anchor-Rod Plans: Submit anchor-rod plans and templates before foundation work begins. Include location, diameter, and minimum required projection of anchor rods required to attach metal building to foundation. Indicate column reactions at each location.
2. Structural-Framing Drawings: Indicate complete fabrication of primary and secondary framing; include provisions for openings. Indicate welds and bolted connections, distinguishing between shop and field applications. Include transverse cross-sections.
 - a. Indicate provisions for attaching roof curbs.
3. Metal Panel Layout Drawings: Indicate roof and wall. layouts of panels including methods of support. Include details of edge conditions, joints, panel profiles, corners, anchorages, clip spacing, trim, flashings, closures, and special

details. Distinguish between factory- and field-assembled work; indicate locations of exposed fasteners.

- a. Indicate roof-mounted items including roof hatches, equipment supports, pipe supports and penetrations, lighting fixtures, and items mounted on roof curbs.
- b. Indicate wall-mounted items including personnel doors, vehicular doors, windows, louvers, and lighting fixtures.

4. Accessory Drawings: Include details of the following items, at a scale of not less than **1-1/2 inches per 12 inches**:

- a. Flashing and trim.
- b. Gutters.
- c. Downspouts.

C. Samples for Initial Selection: Manufacturer's STANDARD AND PREMIUM color sheets, showing full range of available colors for each type of exposed finish.

D. Delegated Design Submittals: For metal building systems, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

A. Letter of Design Certification: Signed and sealed by a qualified professional engineer. Include the following:

1. Name and location of Project.
2. Order number.
3. Name of manufacturer.
4. Name of Contractor.
5. Building dimensions including width, length, height, and roof slope.
6. Indicate compliance with AISC standards for hot-rolled steel and AISI standards for cold-rolled steel, including edition dates of each standard.
7. Governing building code and year of edition.
8. Design Loads: Include dead load, roof live load, collateral loads, roof snow load, deflection, wind loads/speeds and exposure, seismic design category or effective peak velocity-related acceleration/peak acceleration, and auxiliary loads (cranes).
9. Load Combinations: Indicate that loads were applied acting simultaneously with concentrated loads, in accordance with governing building code.
10. Building-Use Category: Indicate category of building use and its effect on load importance factors.

B. Welding certificates.

C. Material Test Reports: For each of the following products, by a qualified testing agency:

1. Structural steel including chemical and physical properties.
2. Bolts, nuts, and washers including mechanical properties and chemical analysis.
3. Tension-control, high-strength, and bolt-nut-washer assemblies.
4. Shop primers.
5. Nonshrink grout.

D. Source quality control reports.

E. Field quality control reports.

F. Surveys: Show final elevations and locations of major members. Indicate discrepancies between actual installation and the Contract Documents. Have surveyor that performed surveys certify their accuracy.

G. Qualification Statements: For manufacturer.

1. Fire-Rated Door Inspector: Submit documentation of compliance with NFPA 80, Section 5.2.3.1.
2. Egress Door Inspector: Submit documentation of compliance with NFPA 101, Section 7.2.1.15.4.
3. Submit copy of DHI Fire and Egress Door Assembly Inspector (FDAI) certificate.

H. Delegated Design Engineer Qualifications: For metal building system.

I. Sample Warranties: For special warranties.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications:

METAL BUILDING SYSTEMS

1. Accreditation: Manufacturer's facility accredited in accordance with IAS AC472.
2. Engineering Responsibility: Metal building system design and preparation of comprehensive engineering analysis and Shop Drawings by a professional engineer who is legally qualified to practice in state where Project is located and who is experienced in providing engineering services of the type indicated.

- B. Erector Qualifications: An experienced erector who specializes in erecting and installing work similar in material, design, and extent to that indicated for this Project and who is acceptable to manufacturer.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver components, sheets, panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.
- B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.

1.8 FIELD CONDITIONS

- A. Weather Limitations: Proceed with panel installation only when weather conditions permit metal panels to be installed in accordance with manufacturers' written installation instructions and warranty requirements.

1.9 WARRANTY

- A. Special Warranty on Metal Panel Finishes: Manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested in accordance with ASTM D2244.
 - b. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

- A. Obtain metal building system components, including primary and secondary framing and metal panel assemblies, from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design metal building system.
- B. Structural Performance: Metal building systems to withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated in accordance with procedures in MBMA's "Metal Building Systems Manual":

1. Design Loads: As indicated on Drawings. (COORDINATE WITH ARCHITECT AND STRUCTURAL ENGINEER DURING SHOP DRAWING AND SUBMITTALS.)
2. Deflection and Drift Limits:
 - a. Design metal building system assemblies to withstand serviceability design loads without exceeding deflections and drift limits recommended in AISC's "Design Guide No. 3: Serviceability Design Considerations for Steel Buildings."

- C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.

1. Temperature Change: **120 deg F**, ambient; **180 deg F**, material surfaces.

- D. Structural Performance for Metal Panels: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing in accordance with ASTM E1592:

1. Wind Loads: As indicated on Drawings.

E. Water Penetration for Metal Roof Panels: No water penetration when tested in accordance with ASTM E1646 or ASTM E331 at the following test-pressure difference:

F. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift-resistance class indicated.

1. Uplift Rating: UL 90.

2.3 METAL BUILDING SYSTEMS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. ACI Building Systems, Inc.
2. American Buildings Company; a Nucor company
3. CBC Steel Buildings; a Nucor company
4. Ceco Building Systems; part of the Cornerstone Building Brands
5. Golden Giant Inc.
6. IDEAL STEEL
7. Inland Building Systems; a Schulte Building Systems Company
8. Nucor Building Systems; a Nucor company
9. OR PRE-APPROVED EQUAL

B. System Description: Provide a complete, integrated set of mutually dependent components and assemblies that form a metal building system capable of withstanding structural and other loads, thermally induced movement, and exposure to weather without failure or infiltration of water into building interior.

1. Primary-Frame Type:

- a. Rigid Clear Span: Solid-member, structural-framing system without interior columns.

2. End-Wall Framing:

- a. Manufacturer's standard, for buildings not required to be expandable, consisting of primary frame, capable of supporting one-half of a bay design load, and end-wall columns.
 - b. Engineer end walls to be expandable. Provide primary frame, capable of supporting full-bay design loads, and end-wall columns.

3. Bay Spacing: As indicated on Drawings.
4. Roof Slope: AS INDICATED ON DRAWINGS .
5. Roof System: Manufacturer's standard lap-seam, tapered-rib metal roof panels.
6. Exterior Wall System: Manufacturer's standard exposed-fastener, tapered-rib, metal wall panels.

2.4 STRUCTURAL-STEEL FRAMING (COORDINATE ALL ELEMENTS BELOW WITH ARCHITECT & STRUCTURAL ENGINEERS)

A. Structural Steel: Comply with AISC 360.

B. Bolted Connections: Comply with RCSC's "Specification for Structural Joints Using High-Strength Bolts."

C. Cold-Formed Steel: Comply with AISI S100 for design requirements and allowable stresses.

D. Primary Framing: Manufacturer's standard primary-framing system, designed to withstand required loads and specified requirements. Primary framing includes transverse and lean-to frames; rafters, rake, and canopy beams; sidewall, intermediate, end-wall, and corner columns; and wind bracing.

1. General: Provide frames with attachment plates, bearing plates, and splice members. Factory drill for field-bolted assembly. Provide frame span and spacing indicated.

- a. Slight variations in span and spacing may be acceptable if necessary to comply with manufacturer's standard, as approved by Architect.

2. Rigid Clear-Span Frames: I-shaped frame sections fabricated from shop-welded, built-up steel plates or structural-steel shapes. Interior columns are not permitted.
3. Rigid Modular Frames: I-shaped frame sections fabricated from shop-welded, built-up steel plates or structural-steel shapes. Provide interior columns fabricated from round steel pipes or tubes, or shop-welded, built-up steel plates.

4. Frame Configuration: REFER TO DRAWINGS
 5. Exterior Column: REFER TO DRAWINGS.
 6. Rafter: REFER TO DRAWINGS.
- E. End-Wall Framing: Manufacturer's standard primary end-wall framing fabricated for field-bolted assembly to comply with the following:
1. End-Wall and Corner Columns: I-shaped sections fabricated from structural-steel shapes; shop-welded, built-up steel plates; or C-shaped, cold-formed, structural-steel sheet.
 2. End-Wall Rafters: C-shaped, cold-formed, structural-steel sheet; or I-shaped sections fabricated from shop-welded, built-up steel plates or structural-steel shapes.
 3. ALL END-WALL CONDITIONS AND FRAMING SHALL BE COORDINATED WITH STRUCTURAL ENGINEER DURING SUBMITTAL PHASE. BASE BID SHALL ACCOMMODATE VARIATION.
- F. Secondary Framing: Manufacturer's standard secondary framing, including purlins, girts, eave struts, flange bracing, base members, gable angles, clips, headers, jambs, and other miscellaneous structural members. Unless otherwise indicated, fabricate framing from either cold-formed, structural-steel sheet or roll-formed, metallic-coated steel sheet, prepainted with coil coating, to comply with the following:
1. Purlins:
 - a. C- or Z-shaped sections; fabricated from built-up steel plates, steel sheet, or structural-steel shapes; minimum **2-1/2-inch** wide flanges.
 - b. Steel joists of depths indicated on Drawings AND IN COORDINATION WITH ARCHITECT & STRUCTURAL ENGINEER DURING SUBMITTAL PHASE.
 - 1) Depth: As needed to comply with system performance requirements.
 2. Girts: C- or Z-shaped sections; fabricated from built-up steel plates, steel sheet, or structural-steel shapes. Form ends of Z-sections with stiffening lips angled 40 to 50 degrees from flange, with minimum **2-1/2-inch** wide flanges.
 - a. Depth: As required to comply with system performance requirements.
 3. Eave Struts: Unequal-flange, C-shaped sections; fabricated from built-up steel plates, steel sheet, or structural-steel shapes; to provide adequate backup for metal panels.
 4. Flange Bracing: Minimum **2-by-2-by-1/8-inch** structural-steel angles or **1-inch** diameter, cold-formed structural tubing to stiffen primary-frame flanges.
 5. Sag Bracing: Minimum **1-by-1-by-1/8-inch** structural-steel angles.
 6. Base or Sill Angles: Manufacturer's standard base angle, minimum **3-by-2-inch**, fabricated from zinc-coated (galvanized) steel sheet.
 7. Purlin and Girt Clips: Manufacturer's standard clips fabricated from steel sheet. Provide galvanized clips where clips are connected to galvanized framing members.
 8. Framing for Openings: Channel shapes; fabricated from cold-formed, structural-steel sheet or structural-steel shapes. Frame head and jamb of door openings and head, jamb, and sill of other openings.
 9. Miscellaneous Structural Members: Manufacturer's standard sections fabricated from cold-formed, structural-steel sheet; built-up steel plates; or zinc-coated (galvanized) steel sheet; designed to withstand required loads.
- G. Canopy Framing: Manufacturer's standard structural-framing system, designed to withstand required loads; fabricated from shop-welded, built-up steel plates or structural-steel shapes. Provide frames with attachment plates and splice members, factory drilled for field-bolted assembly. PEMB IS REQUIRED TO PROVIDE CANOPY FRAMING AND SYSTEM.
- H. Bracing: Provide adjustable wind bracing using any method as follows:
1. Rods: ASTM A36/A36M; ASTM A572/A572M, Grade **50**; or ASTM A529/A529M, Grade **50**; minimum **1/2-inch** diameter steel; threaded full length or threaded a minimum of **6 inches** at each end.
 2. Cable: ASTM A475, minimum **1/4-inch** diameter, extra-high-strength grade, Class B, zinc-coated, seven-strand steel; with threaded end anchors.
 3. Angles: Fabricated from structural-steel shapes to match primary framing, of size required to withstand design loads.
 4. Rigid Portal Frames: Fabricated from shop-welded, built-up steel plates or structural-steel shapes to match primary framing; of size required to withstand design loads.
 5. Fixed-Base Columns: Fabricated from shop-welded, built-up steel plates or structural-steel shapes to match primary framing; of size required to withstand design loads.
 6. Diaphragm Action of Metal Panels: Design metal building to resist wind forces through diaphragm action of metal panels.
- I. Anchor Rods: Headed anchor rods as indicated in Anchor Rod Plan for attachment of metal building to foundation.

J. Materials:

1. W-Shapes: ASTM A992/A992M; ASTM A572/A572M, Grade **50 or 55**; or ASTM A529/A529M, Grade **50 or 55**.
2. Channels, Angles, M-Shapes, and S-Shapes: ASTM A36/A36M; ASTM A572/A572M, Grade **50 or 55**; or ASTM A529/A529M, Grade **50 or 55**.
3. Plate and Bar: ASTM A36/A36M; ASTM A572/A572M, Grade **50 or 55**; or ASTM A529/A529M, Grade **50 or 55**.
4. Steel Pipe: ASTM A53/A53M, Type E or S, Grade B.
5. Cold-Formed Hollow Structural Sections: ASTM A500/A500M, Grade B or C, structural tubing.
6. Structural-Steel Sheet: Hot-rolled, ASTM A1011/A1011M, Structural Steel (SS), Grades **30 through 55**, or High-Strength Low-Alloy Steel (HSLAS) or High-Strength Low-Alloy Steel with Improved Formability (HSLAS-F), Grades **45 through 70**; or cold-rolled, ASTM A1008/A1008M, Structural Steel (SS), Grades **25 through 80**, or HSLAS, Grades **45 through 70**.
7. Metallic-Coated Steel Sheet: ASTM A653/A653M, SS, Grades **33 through 80**, or HSLAS or HSLAS-F, Grades **50 through 80**; with **G60** coating designation; mill phosphatized.
8. Metallic-Coated Steel Sheet Prepainted with Coil Coating: Steel sheet, metallic coated by the hot-dip process and prepainted by the coil-coating process to comply with ASTM A755/A755M.
 - a. Zinc-Coated (Galvanized) Steel Sheet: ASTM A653/A653M, SS, Grades **33 through 80**, or HSLAS or HSLAS-F, Grades **50 through 80**; with **G90** coating designation.
 - b. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A792/A792M, SS, Grade **50 or 80**; with Class **AZ50** coating.
9. Joist Girders: Manufactured in accordance with "Standard Specifications for Joist Girders," in SJI's "Standard Specifications, Load Tables, and Weight Tables for Steel Joists and Joist Girders"; with steel-angle, top- and bottom-chord members, and end- and top-chord arrangements as indicated on Drawings and required for primary framing.
10. Steel Joists: Manufactured in accordance with "Standard Specifications for Open Web Steel Joists, K-Series," in SJI's "Standard Specifications, Load Tables, and Weight Tables for Steel Joists and Joist Girders"; with steel-angle, top- and bottom-chord members, and end- and top-chord arrangements as indicated on Drawings and required for secondary framing.

K. Finish: Factory primed. Apply specified primer immediately after cleaning and pretreating.

1. Clean and prepare in accordance with SSPC-SP2.
2. Coat with manufacturer's standard primer. Apply primer to primary and secondary framing to a minimum dry film thickness of **1 mil**.
 - a. Prime secondary framing formed from uncoated steel sheet to a minimum dry film thickness of **0.5 mil** on each side.

2.5 PERSONNEL DOORS AND FRAMES

A. Swinging Personnel Doors and Frames:

1. As specified in Section 081113 "Hollow Metal Doors and Frames."
2. Ensure Hollow Metal Doors are compatible with metal building

2.6 ACCESSORIES

A. General: Provide accessories as standard with metal building system manufacturer and as specified. Fabricate and finish accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes. Comply with indicated profiles and with dimensional and structural requirements.

1. Form exposed sheet metal accessories that are without excessive oil-canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.

B. Roof Panel Accessories: Provide components required for a complete metal roof panel assembly including copings, fasciae, corner units, ridge closures, clips, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal roof panels unless otherwise indicated.

1. Closures: Provide closures at eaves and ridges, fabricated of same material as metal roof panels.
2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum **1-inch** thick, flexible closure strips; cut or premolded to match metal roof panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.
4. Thermal Spacer Blocks: Where metal panels attach directly to purlins, provide thermal spacer blocks of thickness required to provide **1-inch** standoff; fabricated from extruded polystyrene.

- C. Wall Panel Accessories: Provide components required for a complete metal wall panel assembly including copings, fasciae, mullions, sills, corner units, clips, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal wall panels unless otherwise indicated.
1. Closures: Provide closures at eaves and rakes, fabricated of same material as metal wall panels.
 2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
 3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum **1-inch**- thick, flexible closure strips; cut or premolded to match metal wall panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.
- D. Flashing and Trim: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, **0.018-inch** nominal uncoated steel thickness, prepainted with coil coating; finished to match adjacent metal panels.
1. Provide flashing and trim as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers.
 2. Opening Trim: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, **0.018-inch** nominal uncoated steel thickness, prepainted with coil coating. Trim head and jamb of door openings, and head, jamb, and sill of other openings.
- E. Gutters: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, **0.018-inch** nominal uncoated steel thickness, prepainted with coil coating; finished to match roof fascia and rake trim. Match profile of gable trim, complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum **96-inch**- long sections, sized in accordance with manufacturer's written instructions.
1. Gutter Supports: Fabricated from same material and finish as gutters.
 2. Strainers: Bronze, copper, or aluminum wire ball type at outlets.
- F. Downspouts: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, **0.018-inch** nominal uncoated steel thickness, prepainted with coil coating; finished to match metal wall panels. Fabricate in minimum **10-ft.**- long sections, complete with formed elbows and offsets.
1. Mounting Straps: Fabricated from same material and finish as gutters.
- G. Roof Curbs: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, **0.048-inch** nominal uncoated steel thickness prepainted with coil coating; finished to match metal roof panels; with welded top box and bottom skirt, and integral full-length cricket; capable of withstanding loads of size and height indicated.
1. Curb Subframing: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, **0.060-inch** nominal uncoated steel thickness, angle-, C-, or Z-shaped metallic-coated steel sheet.
 2. Insulation: **1-inch**- thick, rigid type.
- H. Pipe Flashing: Premolded, EPDM pipe collar with flexible aluminum ring bonded to base.
- I. Materials:
1. Fasteners: Self-tapping screws, bolts, nuts, self-locking rivets and bolts, end-welded studs, and other suitable fasteners designed to withstand design loads. Provide fasteners with heads matching color of materials being fastened by means of plastic caps or factory-applied coating.
 2. Fasteners for Metal Roof Panels:
 - a. Self-drilling or self-tapping, zinc-plated, hex-head carbon-steel screws, with a stainless steel cap or zinc-aluminum-alloy head and EPDM sealing washer.
 3. Fasteners for Metal Wall Panels:
 - a. Self-drilling or self-tapping, zinc-plated, hex-head carbon-steel screws, with EPDM sealing washers bearing on weather side of metal panels.
 4. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws with hex washer head.
 5. Blind Fasteners: High-strength aluminum or stainless steel rivets.
 6. Metal Panel Sealants:
 - a. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene-compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape of manufacturer's standard size.
 - b. Joint Sealant: ASTM C920; one part elastomeric polyurethane or polysulfide; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended by

metal building system manufacturer.

2.7 FABRICATION

- A. General: Design components and field connections required for erection to permit easy assembly.
 - 1. Mark each piece and part of the assembly to correspond with previously prepared erection drawings, diagrams, and instruction manuals.
 - 2. Fabricate structural framing to produce clean, smooth cuts and bends. Punch holes of proper size, shape, and location. Members to be free of cracks, tears, and ruptures.
- B. Tolerances: Comply with MBMA's "Metal Building Systems Manual" for fabrication and erection tolerances.
- C. Primary Framing: Shop fabricate framing components to indicated size and section, with baseplates, bearing plates, stiffeners, and other items required for erection welded into place. Cut, form, punch, drill, and weld framing for bolted field assembly.
 - 1. Make shop connections by welding or by using high-strength bolts.
 - 2. Join flanges to webs of built-up members by a continuous, submerged arc-welding process.
 - 3. Brace compression flange of primary framing with steel angles or cold-formed structural tubing between frame web and purlin web or girt web, so flange compressive strength is within allowable limits for any combination of loadings.
 - 4. Weld clips to frames for attaching secondary framing if applicable, or punch for bolts.
 - 5. Shop Priming: Prepare surfaces for shop priming in accordance with SSPC-SP 2. Shop prime primary framing with specified primer after fabrication.
- D. Secondary Framing: Shop fabricate framing components to indicated size and section by roll forming or break forming, with baseplates, bearing plates, stiffeners, and other plates required for erection welded into place. Cut, form, punch, drill, and weld secondary framing for bolted field connections to primary framing.
 - 1. Make shop connections by welding or by using non-high-strength bolts.
 - 2. Shop Priming: Prepare uncoated surfaces for shop priming in accordance with SSPC-SP 2. Shop prime uncoated secondary framing with specified primer after fabrication.
- E. Metal Panels: Fabricate and finish metal panels at the factory to greatest extent possible, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements. Comply with indicated profiles and with dimensional and structural requirements.
 - 1. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of metal panel.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with erector present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Before erection proceeds, survey elevations and locations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments to receive structural framing, with erector present, for compliance with requirements and metal building system manufacturer's tolerances.
- C. Proceed with erection only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean and prepare surfaces to be painted in accordance with manufacturer's written instructions for each particular substrate condition.
- B. Provide temporary shores, guys, braces, and other supports during erection to keep structural framing secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural framing, connections, and bracing are in place unless otherwise indicated.

3.3 ERECTION OF STRUCTURAL FRAMING

- A. Erect metal building system in accordance with manufacturer's written instructions and erection drawings.
- B. Do not field cut, drill, or alter structural members without written approval from metal building system manufacturer's professional engineer.

- C. Set structural framing accurately in locations and to elevations indicated, in accordance with AISC specifications referenced in this Section. Maintain structural stability of frame during erection.
 - D. Base and Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.
 - 1. Set plates for structural members on wedges, shims, or setting nuts as required.
 - 2. Tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
 - 3. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.
 - E. Align and adjust structural framing before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with framing. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
 - 1. Level and plumb individual members of structure.
 - 2. Make allowances for difference between temperature at time of erection and mean temperature when structure will be completed and in service.
 - F. Primary Framing and End Walls: Erect framing level, plumb, rigid, secure, and true to line. Level baseplates to a true even plane with full bearing to supporting structures, set with double-nutted anchor bolts. Use grout to obtain uniform bearing and to maintain a level base-line elevation. Moist-cure grout for not less than seven days after placement.
 - 1. Make field connections using high-strength bolts installed in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts" for bolt type and joint type specified.
 - a. Joint Type: Snug tightened or pretensioned as required by manufacturer.
 - G. Secondary Framing: Erect framing level, plumb, rigid, secure, and true to line. Field bolt secondary framing to clips attached to primary framing.
 - 1. Provide rake or gable purlins with tight-fitting closure channels and fasciae.
 - 2. Locate and space wall girts to suit openings such as doors and windows.
 - 3. Provide supplemental framing at entire perimeter of openings, including doors, windows, louvers, ventilators, and other penetrations of roof and walls.
 - H. Steel Joists and Joist Girders: Install joists, girders, and accessories plumb, square, and true to line; securely fasten to supporting construction in accordance with SJI's "Standard Specifications, Load Tables, and Weight Tables for Steel Joists and Joist Girders," joist manufacturer's written instructions, and requirements in this Section.
 - 1. Before installation, splice joists delivered to Project site in more than one piece.
 - 2. Space, adjust, and align joists accurately in location before permanently fastening.
 - 3. Install temporary bracing and erection bridging, connections, and anchors to ensure that joists are stabilized during construction.
 - 4. Install and connect bridging concurrently with joist erection, before construction loads are applied. Anchor ends of bridging lines at top and bottom chords if terminating at walls or beams.
 - I. Bracing: Install bracing in roof and sidewalls where indicated on erection drawings.
 - 1. Tighten rod and cable bracing to avoid sag.
 - 2. Locate interior end-bay bracing only where indicated.
 - J. Framing for Openings: Provide shapes of proper design and size to reinforce openings and to carry loads and vibrations imposed, including equipment furnished under mechanical and electrical work. Securely attach to structural framing.
 - K. Erection Tolerances: Maintain erection tolerances of structural framing within AISC 303.
- 3.4 INSTALLATION OF METAL PANELS, GENERAL
- A. Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.
 - B. On-Site Fabrication: Subject to compliance with requirements of this Section, metal panels may be fabricated on-site using UL-certified, portable roll-forming equipment if panels are of same profile and warranted by manufacturer to be equal to factory-formed panels. Fabricate in accordance with equipment manufacturer's written instructions and to comply with

details shown.

- C. Examination: Examine primary and secondary framing to verify that structural-panel support members and anchorages have been installed within alignment tolerances required by manufacturer.
 - 1. Examine roughing-in for components and systems penetrating metal panels, to verify actual locations of penetrations relative to seams before metal panel installation.
- D. General: Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.
 - 1. Field cut metal panels as required for doors, windows, and other openings. Cut openings as small as possible, neatly to size required, and without damage to adjacent metal panel finishes.
 - a. Field cutting of metal panels by torch is not permitted unless approved in writing by manufacturer.
 - 2. Install metal panels perpendicular to structural supports unless otherwise indicated.
 - 3. Flash and seal metal panels with weather closures at perimeter of openings and similar elements. Fasten with self-tapping screws.
 - 4. Locate and space fastenings in uniform vertical and horizontal alignment.
 - 5. Locate metal panel splices over structural supports with end laps in alignment.
 - 6. Lap metal flashing over metal panels to allow moisture to run over and off the material.
- E. Lap-Seam Metal Panels: Install screw fasteners using power tools with controlled torque adjusted to compress EPDM washers tightly without damage to washers, screw threads, or metal panels. Install screws in predrilled holes.
 - 1. Arrange and nest side-lap joints so prevailing winds blow over, not into, lapped joints. Lap ribbed or fluted sheets one full rib corrugation. Apply metal panels and associated items for neat and weathertight enclosure. Avoid "panel creep" or application not true to line.
- F. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by metal roof panel manufacturer.
- G. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of metal panel assemblies. Provide types of gaskets, fillers, and sealants indicated; or, if not indicated, provide types used in tested assemblies meeting "Performance Requirements" Article.
 - 1. Seal metal panel end laps with double beads of tape or sealant the full width of panel. Seal side joints where recommended by metal panel manufacturer.
 - 2. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants."

3.5 INSTALLATION OF ACCESSORIES

- A. General: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.
 - 1. Install components required for a complete metal roof panel assembly, including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
 - 2. Install components for a complete metal wall panel assembly, including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
 - 3. Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by manufacturer.
- B. Flashing and Trim: Comply with performance requirements and manufacturer's written installation instructions. Provide concealed fasteners where possible, and set units true to line and level. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
 - 1. Install exposed flashing and trim that is without excessive oil-canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
 - 2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of **10 ft.** with no joints allowed within **24 inches** of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than **1 inch** deep, filled with mastic sealant (concealed within joints).
- C. Gutters: Join sections with riveted-and-soldered or lapped-and-sealed joints. Attach gutters to eave with gutter hangers

spaced as required for gutter size, but not more than **36 inches** o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.

- D. Downspouts: Join sections with **1-1/2-inch** telescoping joints. Provide fasteners designed to hold downspouts securely **1 inch** away from walls; locate fasteners at top and bottom and at approximately **60 inches** o.c. in between.
 - 1. Provide elbows at base of downspouts to direct water away from building.
 - 2. Tie downspouts to underground drainage system indicated.
- E. Circular Roof Ventilators: Set ventilators complete with necessary hardware, anchors, dampers, weather guards, rain caps, and equipment supports. Mount ventilators on flat level base. Install preformed filler strips at base to seal ventilator to metal roof panels.
- F. Continuous Roof Ventilators: Set ventilators complete with necessary hardware, anchors, dampers, weather guards, rain caps, and equipment supports. Join sections with splice plates and end-cap skirt assemblies where required to achieve indicated length. Install preformed filler strips at base to seal ventilator to metal roof panels.
- G. Roof Curbs: Install curbs at locations indicated on Drawings. Install flashing around bases where they meet metal roof panels.
- H. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to panel as recommended by manufacturer.

3.6 ADJUSTING

- A. Roof Ventilators and Adjustable Louvers: After completing installation, including work by other trades, lubricate, test, and adjust units to operate easily, free of warp, twist, or distortion as needed to provide fully functioning units.
 - 1. Adjust louver blades to be weathertight when in closed position.

3.7 CLEANING AND PROTECTION

- A. Repair damaged galvanized coatings on galvanized items with galvanized repair paint in accordance with ASTM A780/A780M and manufacturer's written instructions.
- B. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.
- C. Touchup Painting:
 - 1. After erection, promptly clean, prepare, and prime or reprime field connections, rust spots, and abraded surfaces of prime-painted structural framing, bearing plates, and accessories.
 - a. Clean and prepare surfaces by SSPC-SP 2 or SSPC-SP 3.
 - b. Apply a compatible primer of same type as shop primer used on adjacent surfaces.
 - 2. Cleaning and touchup painting are specified in Section 099113 "Exterior Painting" and Section 099123 "Interior Painting."
- D. Metal Panels: Remove temporary protective coverings and strippable films, if any, as metal panels are installed. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.
 - 1. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.
- E. Louvers: Clean exposed surfaces that are not protected by temporary covering, to remove fingerprints and soil during construction period. Do not let soil accumulate until final cleaning.
 - 1. Restore louvers damaged during installation and construction period so no evidence remains of corrective work. If results of restoration are unsuccessful, as determined by Architect, remove damaged units and replace with new units.
 - a. Touch up minor abrasions in finishes with air-dried coating that matches color and gloss of, and is compatible with, factory-applied finish coating.

END OF SECTION 133419



SUBSTITUTION REQUEST

(During the Bidding/Negotiating Stage)

Project: _____ Substitution Request Number: _____

From: _____
Date: _____
Re: _____ A/E Project Number: _____
Contract For: _____

Specification Title: _____ Description: _____
Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: Tex-Trude X-TREME Vapor Barrier mil
Manufacturer: Tex-Trude, LP Address: 2001 Sheldon Road, Channelview, TX Phone: 281.452.5961
Trade Name: X-TREME Vapor Barrier mil Model No.: _____ mil

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted by: _____
Signed by: _____
Firm: _____
Address: _____
Telephone: _____

A/E's REVIEW AND ACTION

- ☒ Substitution approved - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
☐ Substitution approved as noted - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
☐ Substitution rejected - Use specified materials.
☐ Substitution Request received too late - Use specified materials.

Signed by: *Dan Brady* Date: 10/13/2025

Supporting Data Attached: ☐ Drawings ☒ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ _____

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X-TREME[®]

VAPOR BARRIER

15 MIL CLASS A UNDER CONCRETE SLAB VAPOR BARRIER

Tex-Trude X-TREME Vapor Barrier/Retarder is a high performance film designed for use under concrete slabs to stop moisture migration and to control radon gas, methane, and other soil gases or contaminants. X-TREME Vapor Barriers/Retarders are extruded in a single sheet of material composed of the latest generation of virgin polyolefin resins. This high puncture resistant X-TREME Vapor Barrier/Retarder has superior performance to other materials in the industry and is available in 10 mil, 15 mil and 20 mil.

INSTALLATION ›

Under Concrete Slab: Install X-TREME Vapor Barrier/ Retarder over tamped earth, sand or aggregate base. Follow ASTM 1643 guidelines. Unroll and completely cover the area to receive the building slab or other specified areas. The seams must overlap a minimum of 6" and be sealed with X-TREME Tape or X-TREME Grip Back Tape. All exposed penetrations must also be sealed. A physical inspection of the area should be performed prior to installation.

X-TREME
15 MIL
CLASS A
BARRIER

TECHNICAL DATA › ISO 9001 - 2015

PHYSICAL PROPERTIES	ASTM*	CLASS A 15 MIL
Water Vapor Permeance	ASTM F 1249 – Vapor Transmission Rate	0.0078 Perms
Puncture Resistance	ASTM 1709 – Test method for impact resistance of plastic film by free-fallen dart method	2841 Grams
Tensile Strength	ASTM D 882 – Method for tensile properties of thin plastic sheeting	67.1 lbf/in
ASTM 1745 Permeance After Conditioning – F 1249 Sections 7.1.2 – 7.1.5	ASTM E 154, Section 8 – Permeance after wetting, drying, soaking	0.0098 Perms
	ASTM E 154, Section 11 – Permeance after heat conditioning	0.0097 Perms
	ASTM E 154, Section 12 – Permeance after low temperature conditioning	0.0093 Perms
	ASTM E 154, Section 13 – Permeance after soil organism exposure	0.0095 Perms
Methane Transmission Rate	ASTM 1434 – Standard test method for determining gas permeability	22.4 GTR** (mL(STP)/m ² *day)
Life Expectancy	ASTM E 154 – Test methods for vapor retarders used in contact with earth under concrete slabs, on walls or as ground cover	Indefinite
Radon Diffusion Coefficient	ISO/TS 11665-13	7.6 x 10 ⁻¹² m ² /s
Roll Dimensions		14 x 140 = 1960 ft ²
Roll Weight		142 lbs

*ASTM E 1745, Class A,B,C – Standard specification for water vapor retarders used in contact with soil or granular fill under concrete slabs.

**GTR = Gas Transmission Rate perm unit = Grains/(ft²hr*in-Hg)

Note: Perm Unit = Grains/(ft²*HR*in HG)

The information provided above was preformed and tested by an Independent Laboratory.

LIMITED WARRANTY ›

Tex-Trude warrants this product to meet the published specifications and to be free of defects in workmanship and materials at the time of shipment from our factory. If any X-TREME material proves to contain manufacture defects that substantially affect the performance, then Tex-Trude will at their option replace the material or refund the purchase price. This limited warranty is the only warranty offered by Tex-Trude, LP as it relates to X-TREME products. There are no other warranties, including the implied warranties of merchantability or fitness for a particular purpose. Tex-Trude specifically disclaims liability for any incidental, consequential, or other damages.

Note: Only use X-TREME Accessory Products including X-TREME Tapes, X-TREME Mastic and X-TREME SLM to seal seams, edges, and penetrations.

X-TREME® TAPE

Tex-Trude X-TREME Tape is composed of a 7.5 mil thick strong self-adhering rubber based adhesive that has a high tack for a secure bond and is designed to seal the seams of the X-TREME Vapor Barrier Systems. It is also used to seal penetrations coming through the slab, small repairs, and patch areas.

INSTALLATION ›

Prior to installation, preform a visual inspection of the X-TREME Vapor Barrier to insure a 6" overlap has been achieved and all dust, dirt, debris and moisture has been removed from the X-TREME Vapor Barrier to achieve maximum adhesion.

Slab Penetration: Using X-TREME Vapor Barrier material, cut out a minimum of 12" and one-half times the pipe circumference. Cut slits in the boot half the width of the film. Slide the boot over the penetration. The boot is to be in flat contact with the X-TREME Vapor Barrier. It is important to tape the boot to the pipe and around the base.



Warm conditions: Store out of direct sunlight. Perform normal installation, using industry knowledge of the guidelines for vapor barriers.

Cold conditions: In cold weather applications, it is suggested to condition the tape 8 hours in a warm environment prior to use. This will help the tape reach its optimal performance.

TECHNICAL DATA ›

X-TREME TAPE		PACKAGING	
Thickness	7.5 mil	Size	4"x 180'
Permeance	0.112	Rolls Per Case	12
Tensile Strength	25 lbs/in	Weight	4 lbs/ea
Elongation	85%	Weight Per Case	48 lbs
Adhesion	75 oz/in	Color	Red
Cold Weather Resistance	Excellent		
Application Temperature	30°F - 160°F		
Recommended Storage Conditions	60°F - 80°F		

LIMITED WARRANTY ›

Tex-Trude warrants this product to meet the published specifications and to be free of defects in workmanship and materials at the time of shipment from our factory. If any X-TREME material proves to contain manufacture defects that substantially affect the performance, then Tex-Trude will at their option replace the material or refund the purchase price. This limited warranty is the only warranty offered by Tex-Trude, LP as it relates to X-TREME products. There are no other warranties, including the implied warranties of merchantability or fitness for a particular purpose. Tex-Trude specifically disclaims liability for any incidental, consequential, or other damages.

Note: Only use X-TREME Accessory Products including X-TREME Tapes, X-TREME Mastic and X-TREME SLM to seal seams, edges, and penetrations.

X-TREME® MASTIC

Tex-Trude X-TREME Mastic is a rapid curing water-based, polymer-modified anionic bituminous/asphalt. X-TREME Mastic is designed to be installed around penetrations (pipes) protruding through the X-TREME Vapor Barrier. It is very effective when sealing more than one penetrations that are close together. X-TREME Mastic has an outstanding bond to the X-TREME Vapor Barrier and when used properly helps aid in the protection of concrete from vapor transfer.

INSTALLATION ›

Prior to installation, perform a visual inspection of the X-TREME Vapor Barrier and the penetration to insure a 6" overlap has been achieved and all dust, dirt, debris and moisture has been removed from the X-TREME Vapor Barrier to achieve maximum adhesion. It is important to apply the X-TREME Mastic liberally on the penetration, forming a monolith coating (minimum of 64 mil thick) attaching the X-TREME Vapor Barrier and the penetration.

Warm conditions: Store out of direct sunlight. Perform normal installation, using industry knowledge of the guidelines for vapor barriers.

Cold conditions: In cold weather applications, it is suggested to condition the X-TREME Mastic 8 hours in a warm environment prior to use. This will help the X-TREME Mastic reach its optimal performance.

TECHNICAL DATA ›

X-TREME MASTIC		PACKAGING	
Thickness	64 mil	Pail	1 gallon
Permeance	0.01	Pails per pallet	120
Tensile Strength	1112 psi	Weight	8 lbs/ea
Elongation	1058.466%	Color	Black
Cold Weather Resistance	Excellent		

LIMITED WARRANTY ›

Tex-Trude warrants this product to meet the published specifications and to be free of defects in workmanship and materials at the time of shipment from our factory. If any X-TREME material proves to contain manufacture defects that substantially affect the performance, then Tex-Trude will at their option replace the material or refund the purchase price. This limited warranty is the only warranty offered by Tex-Trude, LP as it relates to X-TREME products. There are no other warranties, including the implied warranties of merchantability or fitness for a particular purpose. Tex-Trude specifically disclaims liability for any incidental, consequential, or other damages.

Note: Only use X-TREME Accessory Products including X-TREME Tapes, X-TREME Mastic and X-TREME SLM to seal seams, edges, and penetrations.

Tex-Trude Warranty

The Tex-Trude X-TREME Vapor Barrier product line is specifically designed and engineered for under concrete slabs. When developing the X-TREME Vapor Barrier Tex-Trude LP purposely chose the best raw materials (polyolefins) in the industry. X-TREME Vapor Barrier far exceeds the ASTM 1745 standards and has raised the bar for other competitors to follow. X-TREME Vapor Barrier test results were performed at and by independent test laboratories.

X-TREME Vapor Barriers are made in the USA and backed with an ISO 9001:2015 Registered certification. The raw materials used in X-TREME are all produced in the U.S. and many of the raw material suppliers are located within 15 miles of our manufacturing plant.

Tex-Trude has 70 years of experience manufacturing a wide range of plastic products. An ISO 9001:2015 Certified company, Tex-Trude has remained focused on providing quality products at a competitive price to customers throughout the United States. All our products are produced on-site and undergo extensive quality control testing before leaving the plant. You can be confident in knowing that when X-TREME Vapor Barrier is installed on your next project that you will be receiving a product that uses the best raw materials available and has undergone extensive quality control.

TECHNICAL DATA

Physical Properties	ASTM*	10 MIL	15 MIL	20 MIL
Water Vapor Permeance	ASTM F 1249 – Vapor Transmission Rate	0.018	0.0078	0.0055
Puncture Resistance	ASTM 1709 – Test method for impact resistance of plastic film by free-fallen dart method	3000	4000	5600
Tensile Strength	ASTM D 882 – Method for tensile properties of thin plastic sheeting	58	64	81
Methane Transmission Rate	ASTM 1434 – Standard test method for determining gas permeability	298.01	252.55	163.71
Life Expectancy	ASTM E 154 – Test method for vapor retarders used in contact with earth under concrete slabs, on walls or as ground cover	Indefinite	Indefinite	Indefinite
Radon Diffusion Coefficient	ISO/TS 11665-13		$7.6 \times 10^{-12} \text{ m}^2/\text{s}$	$6.5 \times 10^{-12} \text{ m}^2/\text{s}$
Roll Dimensions		14 x 210 2940 ft ²	14 x 140 1960 ft ²	12 x 150 1800 ft ²
Roll Weight		142 lbs	142 lbs	173.2 lbs

*ASTM E 1745, Class A,B,C – Standard specification for water vapor retarders used in contact with soil or granular fill under concrete slabs. Note: Perm Unit = Grains/(ft²*HR*in HG) The information provided above was preformed and tested by an Independent Laboratory

LIMITED WARRANTY

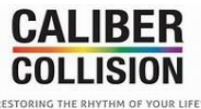
Tex-Trude warrants this product to meet the published specifications and to be free of defects in workmanship and materials at the time of shipment from our factory. If any X-TREME material proves to contain manufacture defects that substantially affect the performance, then Tex-Trude will at their option replace the material or refund the purchase price. This limited warranty is the only warranty offered by Tex-Trude, LP as it relates to X-TREME products. There are no other warranties, including the implied warranties of merchantability or fitness for a particular purpose. Tex-Trude specifically disclaims liability for any incidental, consequential, or other damages.

X-TREME®

Recent Projects

	Project Name: Summerville Logistics Project Date: March-2025 Project Location: Summerville, SC Product Used: 15 MIL X-TREME Vapor Barrier Square Footage: 545,200 Architect: McMillan Pazdan Smith		Project Name: SK Battery S-JW Battery Cell Plant Project Date: January-2025 Project Location: Kingston, GA Product Used: 15 MIL X-TREME Vapor Barrier Square Footage: 1,300,000 Architect: Gansam USA
 THE UNIVERSITY OF TEXAS MD Anderson Cancer Center Making Cancer History®	Project Name: MD Anderson CSB Project Date: May-2024 Project Location: Houston, TX Product Used: 15 MIL X-TREME Vapor Barrier Square Footage: 757,000 - 12 story Architect: Perkins & Will		Project Name: BMW Hi-Voltage Battery Assembly Plant Project Date: May-2023 Project Location: Woodruff, SC Product Used: 10 MIL X-TREME Vapor Barrier Square Footage: 1,000,000 Architect: Barge Design Solutions, Inc
	Project Name: Ford Customer Service Division Packaging Facility Project Date: April-2023 Project Location: Monroe, MI Product Used: 10 MIL X-TREME Vapor Barrier Square Footage: 1,200,000 Architect: Harris Architect	 GEORGIA INTERNATIONAL RAIL PARK	Project Name: Georgia International Rail Park Building 1 & 2 Project Date: January-2023 Project Location: Ricon, GA Product Used: 10MIL X-TREME Vapor Barrier Square Footage: 1,336,000 Architect: Hussey Gay Bell
	Project Name: Target Distribution Center Project Date: December-2022 Project Location: Houston, TX Product Used: 15MIL X-TREME Vapor Barrier Square Footage: 1,300,000 Architect: Ware Malcomb		Project Name: FedEx Ground Project Date: November-2022 Project Location: Belgrade, MT Product Used: 15MIL X-TREME Vapor Barrier Square Footage: 192,800 Architect: Castles Design Group
 SLC GLOBAL LOGISTICS CENTER SALT LAKE CITY, UT	Project Name: SLC Global Logistics Center Project Date: October-2022 Project Location: Salt Lake City, UT Product Used: 10MIL X-TREME Vapor Barrier Square Footage: 875,657 Architect: GSR Andrade Architects	 PORTMAN INDUSTRIAL	Project Name: Portman Industrial Facility Project Date: September-2022 Project Location: Ridgeville, SC Product Used: 10MIL X-TREME Vapor Barrier Square Footage: 1,300,000 Architect: McMillan Pazdan Smith
 Eagle Creek Logistics Building	Project Name: Eagle Creek Logistics Building 1 & 2 Project Date: July-2022 Project Location: Indianapolis, IN Product Used: 10MIL X-TREME Vapor Barrier Square Footage: 1,200,000 Architect: Glavan Feher Architects	 LIVE OAK LOGISTICS CENTER	Project Name: Live Oak Logistics Park Project Date: June-2022 Project Location: Pooler, GA Product Used: 15MIL X-TREME Vapor Barrier Square Footage: 670,000 Architect: GSR Andrade Architects
	Project Name: Amigo-Amazon Distribution Center** Project Date: April-2022 Project Location: Waller, TX Product Used: 15MIL X-TREME Vapor Barrier Square Footage: 1,000,000 Architect: Powers Brown Architecture	 GEORGIA INTERNATIONAL TRADE CENTER	Project Name: Georgia International Trade Center Project Date: February-2022 Project Location: Rincon, GA Product Used: 10 MIL X-TREME Vapor Barrier Square Footage: 1,700,000 Architect: LS3P Associates

We are listed in the Master Spec for....



**We have been on several Amazon Projects throughout many states including TX, TN, IN & GA

CERTIFICATE OF REGISTRATION



TEX-TRUDE HOLDINGS

2001 Sheldon Road
Channelview, Texas 77530 USA

American Global Standards, LLC (AGS) issues this certificate to the firm named above, having assessed and approved the firm's Quality Management system and finding the system conforms to the standards of:

ISO 9001:2015

The Quality Management System is applicable to the following:

Manufacture of Plastic Profile Extrusions, Polyethylene Film and Polyethylene Bags

This approval is subject to the firm maintaining its system to the required standards, which will be monitored by AGS. In the issuance of this certificate, AGS assumes no liability to any party other than the firm named above, and then only in accordance with the agreed upon Quality System Assessment Agreement.

Certification Number: AGS-US022414-I/5
Original Approval: April 29, 2011
Date of Issue: February 24, 2023
Date of Expiration: February 23, 2026


For and On Behalf of American Global Standards, LLC
Stephen Keneally, President



Comparison Chart

November 27, 2023

ASTM E 1745 TEST REQUIREMENTS			10MIL PUBLISHED TEST RESULTS						
Physical Properties		ASTM 1745 Class A	Xtreme	Stego	Perminator	VaporBlock	Yellow Guard	Barrier Bac	Viper II
Water Vapor Permeance	ASTM F 1249 or E96	0.1 perms	0.018	0.0254	0.0183	0.0146	0.028	0.0204	0.0073
			F 1249	F 1249	E 96	E 96	F 1249	E 96	F 1249
Puncture Resistance	ASTM 1709	2200grams	3200	3006	3500	2200	3500	2480	2747
Tensile Strength	ASTM D 882	45.0 lbf/in ³	59.9	50.6	52	52	50	54.2	55
Methane Transmission Rate	ASTM D 1434		44.8	Not Reported	Not Reported	Not Reported	Not Reported	288.6	Not Reported
Roll Dimensions			14x210	14x210	14x210	14x210	14x210	14x210	14x210
ISO Certified Company			YES	NO	NO	YES	YES	YES	NO
Manufacturer			YES	NO	NO	YES	YES	YES	NO
Company Established			1952	1998	1926	1956	1976	1991	1997

ASTM E 1745 TEST REQUIREMENTS			15MIL PUBLISHED TEST RESULTS						
Physical Properties		ASTM 1745 Class A	Xtreme	Stego	Perminator	VaporBlock	Yellow Guard	Barrier Bac	Viper II
Water Vapor Permeance	ASTM F 1249 or E96	0.1 perms	0.0078	0.0086	0.0063	0.01	0.0082	0.007	0.0043
			F 1249	F 1249	E 96	E 96	F 1249	E 96	F 1249
Puncture Resistance	ASTM 1709	2200grams	2841	2266	3200	2600	2300	3350	3485
Tensile Strength	ASTM D 882	45.0 lbf/in ³	67.1	70.6	70	60	79.3	82.1	57
Methane Transmission Rate	ASTM D 1434		22.4	192.8	Not Reported	Not Reported	182.91	135.8	Not Reported
Radon Diffusion Coefficient	ISO/TS 11665-13 or K124/02/95		7.6x10 ⁻¹² m ² /s	8.8x10 ⁻¹² m ² /s	3.3x10 ⁻¹² m ² /s	Not Reported	6.7x10 ⁻¹² m ² /s	6.9x10 ⁻¹² m ² /s	4.9x10 ⁻¹² m ² /s
Roll Dimensions			14x140	14x140	14x140	14x140	14x140	14x140	14x140
ISO Certified Company			YES	NO	NO	YES	YES	YES	NO
Manufacturer			YES	NO	NO	YES	YES	YES	NO
Company Established			1952	1998	1926	1956	1976	1991	1997

All information was collected from the latest published data sheets available online

X-TREME 10 Mil-Data Sheet [Xtreme_VaporBarrier_10mil_SalesSheet_DIGITAL.pdf \(xtremevaporbarrier.com\)](#)

Stego 10 Mil-Data Sheet [StegoUSBinderDIGITALComplete-REV92022.indd \(stegoindustries.com\)](#)

Perminator 10 Mil-Data Sheet [10 & 15 Mil Underslab Vapor Barrier – PERMINATOR Vapor Retarder - W. R. Meadows](#)

VaporBlock 10 Mil-Data Sheet [27-0124-FLYER-VaporBlock-VB10-VB15-8.5x11.pdf](#)

Yellow Guard 10 Mil-Data Sheets [Performance & Specs](#)

Barrier Bac 10 Mil-Data Sheet [VB-250 Technical Data-smooth.indd](#)

Viper II 10 Mil-Data Sheet [V210A_tds.pdf](#)

X-TREME 15 Mil-Data Sheet [Xtreme_15mil_SalesSheet_New.pdf \(xtremevaporbarrier.com\)](#)

Stego 15 Mil-Data Sheet [StegoUSBinderDIGITALComplete-REV92022.indd \(stegoindustries.com\)](#)

Perminator 15 Mil-Data Sheet [10 & 15 Mil Underslab Vapor Barrier – PERMINATOR Vapor Retarder - W. R. Meadows](#)

VaporBlock 15 Mil-Data Sheet [27-0124-FLYER-VaporBlock-VB10-VB15-8.5x11.pdf](#)

Yellow Guard 15 Mil-Data Sheets [Performance & Specs](#)

Barrier Bac 15 Mil-Data Sheet [VB-350 Technical Data-smooth-20230701.indd](#)

Viper II 15 Mil-Data Sheet [V215A_tds.pdf \(isibpc.com\)](#)

15 MIL X-TREME VAPOR BARRIER INSTALLATION INSTRUCTIONS

(ASTM E1745 CLASS A & ASTM E1643 COMPLIANT)

MATERIALS REQUIRED

- › 15-Mil X-TREME Vapor Barrier (meets ASTM E1745 Class A)
 - › X-TREME tape (4" min. width, approved by the manufacturer)
 - › X-TREME mastic (as needed)
 - › Boots or tape for pipe/penetration detailing
 - › Utility knife or scissors
 - › Clean sand or smooth aggregate (optional for protection)
 - › Protective board (if required for heavy traffic during construction)
-

TEMPERATURE GUIDELINES FOR INSTALLATION

- › Ideal installation temperature: Between 40°F and 100°F (4°C – 38°C).
 - › Avoid installation in freezing conditions or during extreme heat (>100°F) without additional precautions.
 - › If installation is required below 40°F, ensure materials are kept warm and pliable prior to installation.
 - › Cold temperatures can reduce tape adhesion – use mastic in addition to tape in low temperatures.
 - › Do not install over frozen ground or standing water.
-

SITE PREPARATION

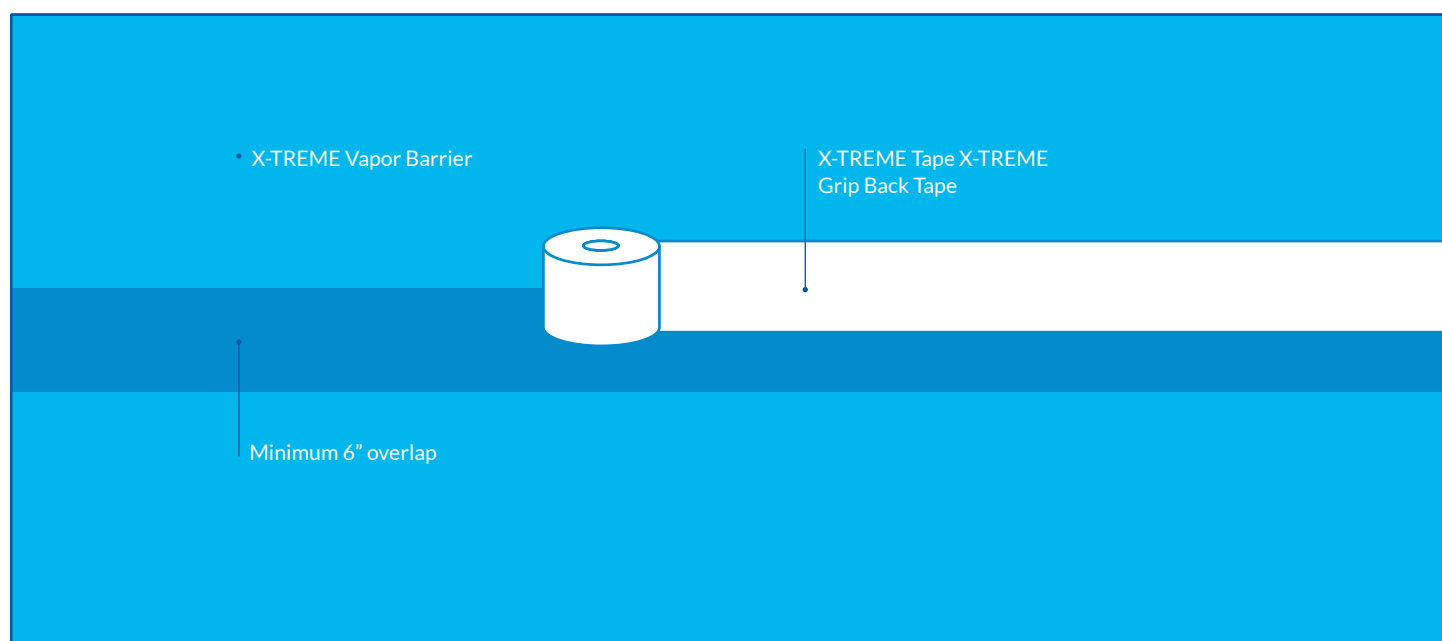
- › Grade the sub-base: Compact the sub-base to create a smooth, level, and void-free surface. Remove all debris, rocks, sharp objects, or standing water.
 - › Ensure no puncture risks: Clear the area of any sharp objects or protrusions that could puncture the barrier.
-

PLACEMENT OF VAPOR BARRIER

- › Unroll the vapor barrier: Lay the 15-mil X-TREME vapor barrier directly over the compacted sub-base. The barrier should be placed as close as possible to the underside of the slab (ASTM E1643).
 - › Overlap seams: Overlap all seams by at least 6 inches. Ensure the overlaps are consistent and aligned in the same direction.
-

SEALING SEAMS

- › Seal all overlaps: Use X-TREME tape (minimum 4" width) to seal all overlapping seams. Press firmly to ensure a tight bond with no wrinkles or air pockets.
 - › For added durability or critical installations, apply mastic over the taped seams.
-



PENETRATIONS AND JOINTS

- › Seal around penetrations: Use custom cut boots or wrap the barrier tightly around pipes, conduits, or other penetrations. Seal with mastic and/or tape to ensure airtight closure.
 - › Column footings or block-outs: Cut around footings and seal all edges with tape and/or mastic to maintain integrity.
-

TERMINATIONS

- › Wall termination: Extend the vapor barrier up foundation walls or vertical surfaces at least 6 inches, then tape or mechanically fasten (as specified).
 - › Ensure all terminations are sealed against moisture migration paths
-

PROTECTION AND SLAB POUR

- › Limit foot traffic: Avoid unnecessary walking on the barrier. If heavy traffic is expected, use protective sheeting or boards.
 - › No puncturing during rebar placement: Take care during rebar or reinforcement installation to avoid damaging the vapor barrier.
 - › Repair any punctures: Before concrete placement, inspect and repair all damage with vapor barrier patches, sealed with tape/mastic.
-

FINAL INSPECTION

- › Verify that:
 - › - All seams are sealed and overlapped 6"+
 - › - All penetrations and terminations are sealed
 - › - There are no unpatched holes, gaps, or tears
 - › - The vapor barrier lies smooth with minimal wrinkles or folds
-

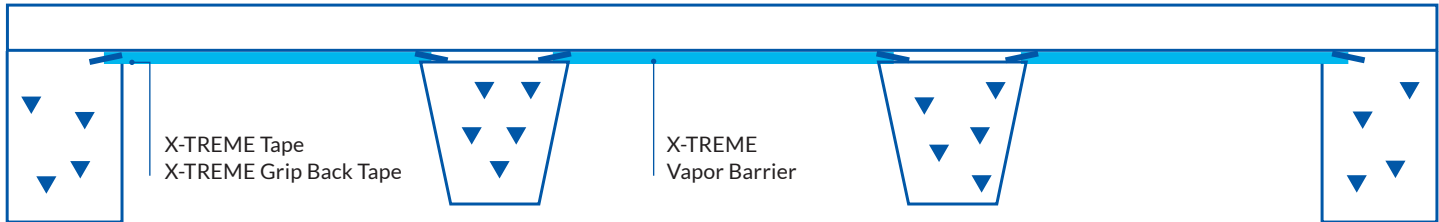
OPTIONAL (PER PROJECT SPEC)

- › Sand layer over vapor barrier – Only if specified. Ensure sand is clean and free of debris that may damage the barrier.
 - › Concrete placement directly on the vapor barrier – Permitted and often preferred to reduce water vapor transmission, provided proper curing methods are used.
-

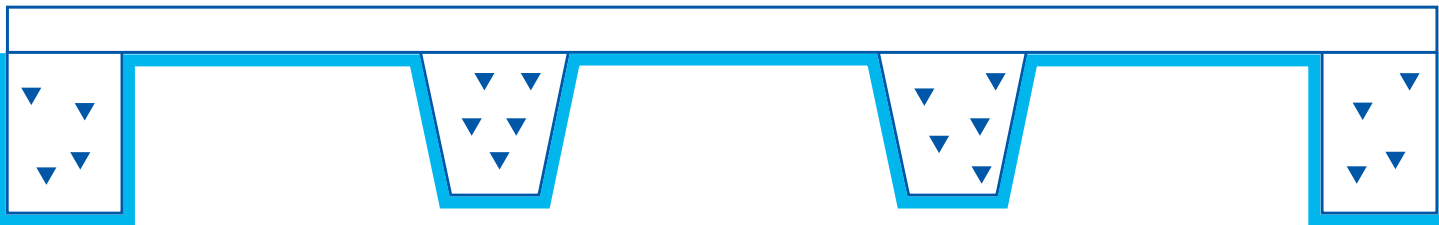
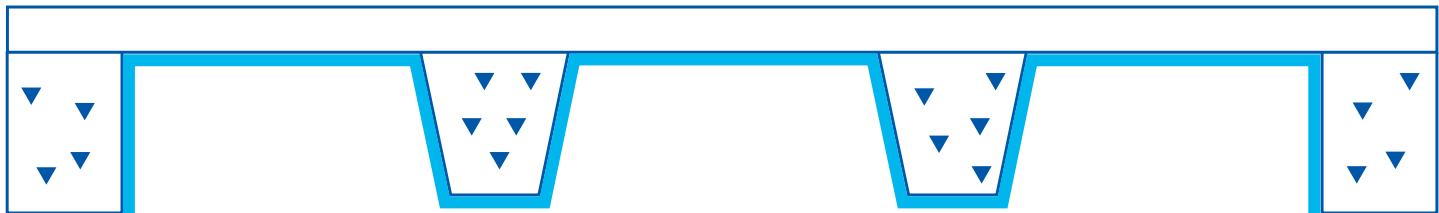
COMPLIANCE NOTES

- › ASTM E1745 Class A: Confirms the vapor barrier's durability and resistance to puncture, tensile forces, and water vapor permeance.
 - › ASTM E1643: Details the proper installation methods for vapor retarders beneath concrete slabs.
-

STRUCTURAL DESIGN



OTHER STRUCTURAL DESIGNS

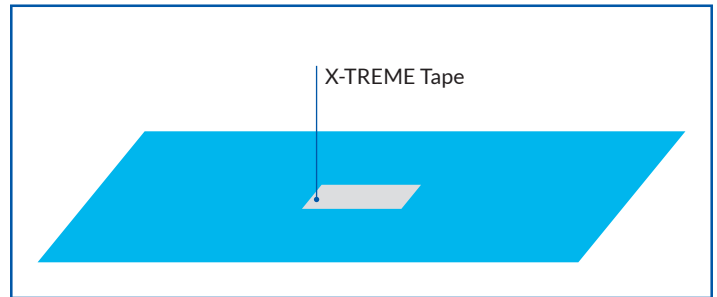
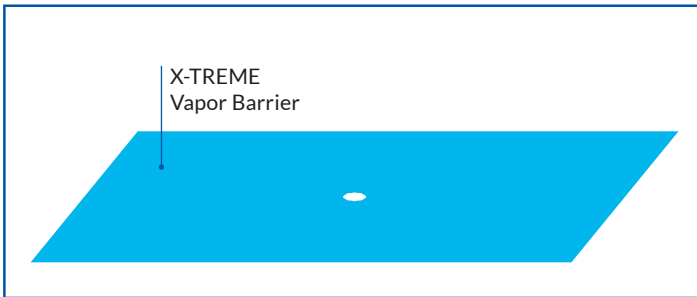


Instructions are based on the ASTM 1643, which is the Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.

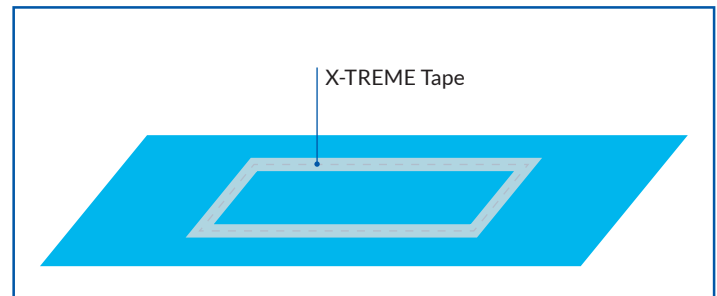
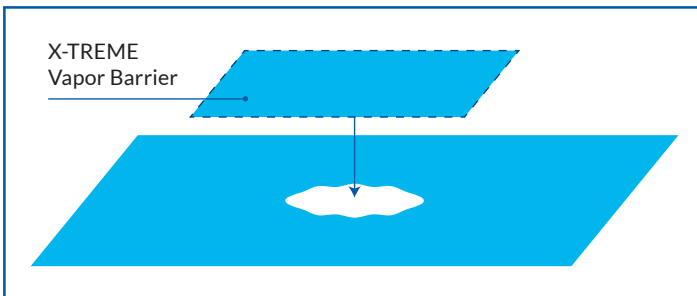
X-TREME® VAPOR BARRIER

REPAIRS

Small Repairs: X-TREME Tape can be used over the hole to repair the area. A small repair would be defined as anything that has damaged the barrier the size of a small hole. A small hole can range from a pin hole and not to exceed 3/8" diameter.



Larger Repairs: Cut a piece of X-TREME Vapor Barrier in a shape, larger than the repair, insuring a minimum 6" overlap in all directions and tape all of the edges.

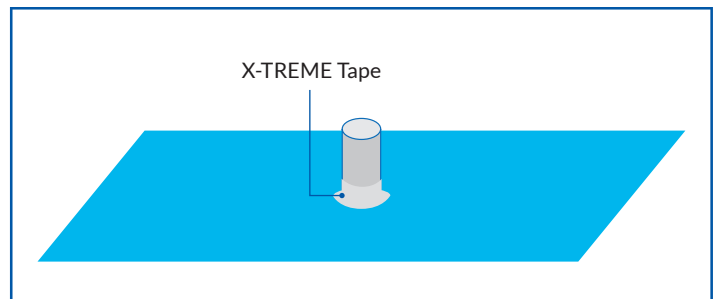
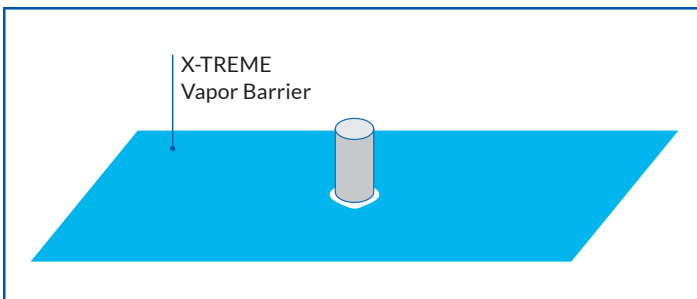


Note: For maximum adhesion, apply the X-TREME Tape immediately after the X-TREME Vapor Barrier Patch has been placed. The X-TREME Vapor Barrier area should be free from dirt, dust, debris and moisture.

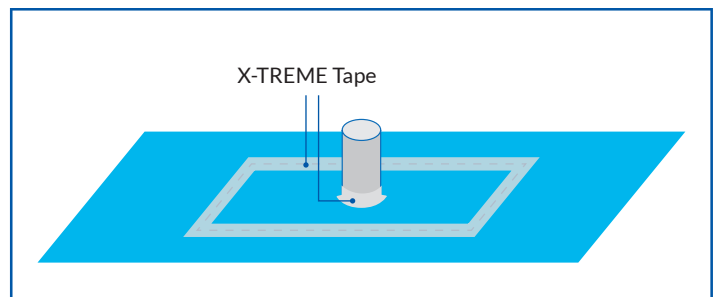
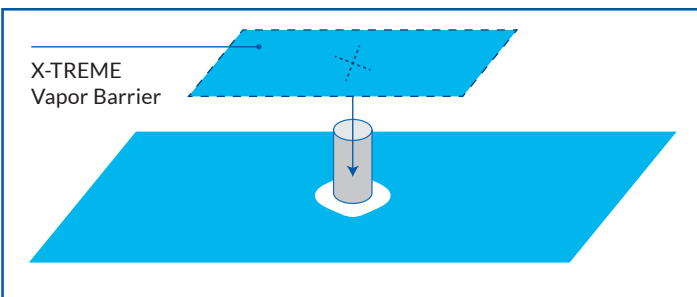
X-TREME® VAPOR BARRIER PENETRATIONS

All penetrations must be sealed. Inspect the area and determine if the space around the pipe is Small or Large. A small space can be sealed with the X-TREME Tape. A larger space will need to be sealed with an X-TREME Patch. Please see below for details.

Small or minimum space around pipe: Place the X-TREME Tape around the pipe, insuring the tape has covered the pipe and is attached to the X-TREME Vapor Barrier more than adequately.



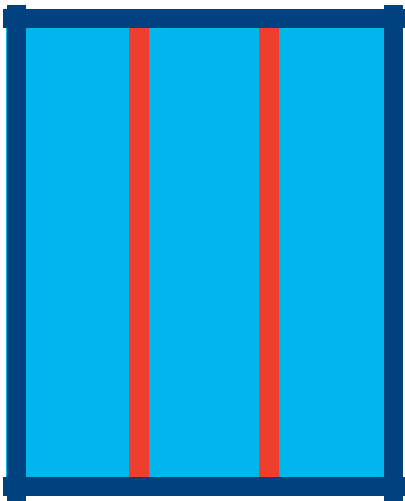
Larger spaces around pipe: Cut a piece of X-TREME Vapor Barrier in a shape, larger than the repair, insuring a minimum 6" overlap in all directions and tape all of the edges. Cut an X the size of the pipe or slightly smaller for a snug fit and slide the patch over the pipe and seal the pipe with the X-TREME Tape.



Note: For maximum adhesion, apply the X-TREME Tape immediately after the X-TREME Vapor Barrier Patch has been placed. The X-TREME Vapor Barrier area should be free from dirt, dust, debris and moisture.

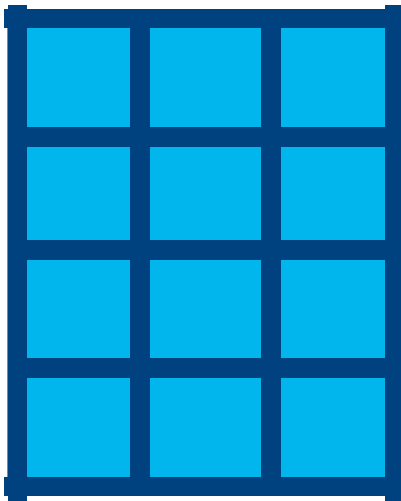
X-TREME® GRIP BACK TAPE

X-TREME Grip Back Tape is designed to adhere and seal the X-TREME Vapor Barrier to the concrete. Below are different examples of applications of the X-TREME Grip Back Tape. If you have any question or a different application, please call to discuss your project.



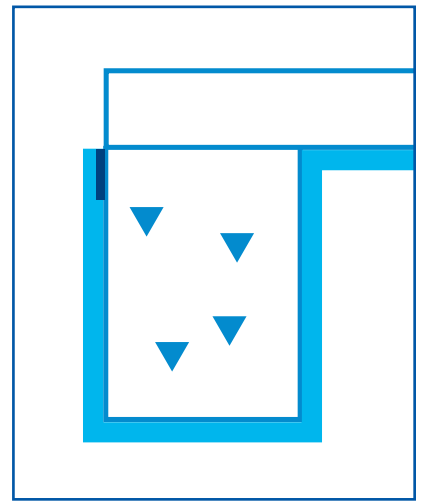
Seal the Slab:

This is the most common method requested by architects. The project request to seal the edges to the concrete. **A.** Install X-TREME Grip Back Tape around the edge of the building. **B.** Use X-TREME Tape to seal the seams of the X-TREME Vapor Barrier.



Carton Form:

Install X-TREME Grip Back Tape on the edge of the slab, use X-TREME Grip Back Tape on the seams, and form a checkered pattern throughout the slab.



Grade Beams:

Install X-TREME Grip Back Tape along the edge of the Grade Beam.

-  X-TREME Vapor Barrier
-  X-TREME Grip Back Tape
-  X-TREME Tape

Note: For maximum adhesion, apply the X-TREME Tape immediately after the X-TREME Vapor Barrier Patch has been placed. The X-TREME Vapor Barrier area should be free from dirt, dust, debris and moisture.

X-TREME® SLM

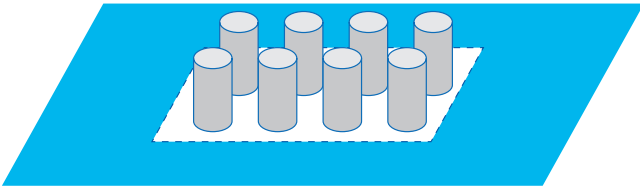
SELF LEVELING MEMBRANE

MULTIPLE PENETRATIONS

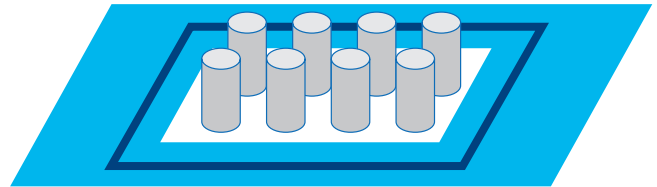
In areas that have multiple penetrations coming through the X-TREME Vapor Barrier can be difficult to seal. The X-TREME SLM (Self Leveling Membrane) is designed for these type of areas.

1. Cut a hole in the X-TREME Vapor Barrier large enough to fit closely to the penetrations, make sure the X-TREME Vapor Barrier is lying flat on the surface and the X-TREME Vapor Barrier is free of dirt, dust, debris and moisture.
2. The X-TREME SLM is a self-leveling product. Create a small stopping point for the SLM to stop the flow. Put a bead of silicone or a small frame a minimum of 6" away from the edge of the hole all the way around the cut in the X-TREME Vapor Barrier. This will make a 6" overlap.
3. Follow the mix instructions on the packaging of the X-TREME SLM. Mix and pour slowly around the penetrations, allow the X-TREME SLM to flow around the penetrations and then pour the SLM until it flows to the silicone bead or wood

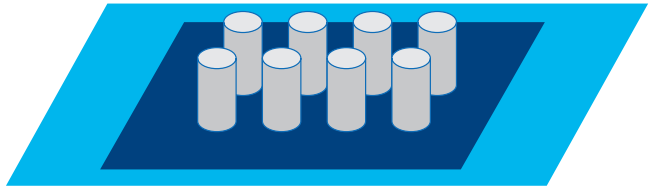
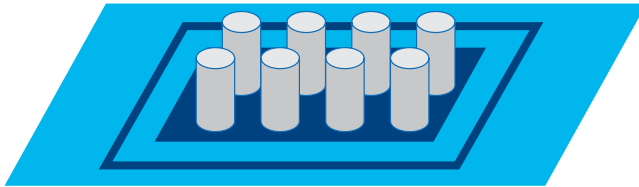
1.



2.



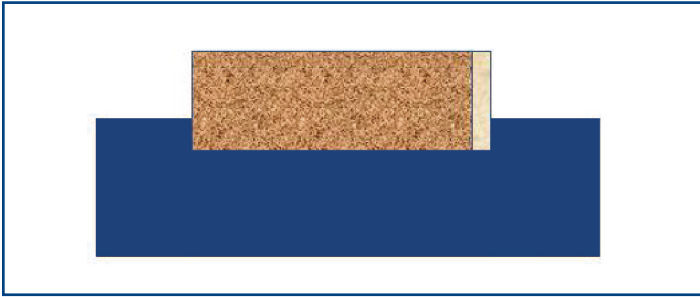
3.



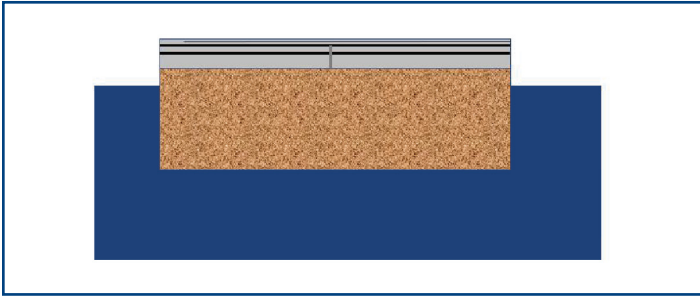
The final result should be a monolithic membrane, sealing around all penetrations and working with the X-TREME Vapor Barrier to protect the building from water vapor.

X-TREME® TEX-CAP

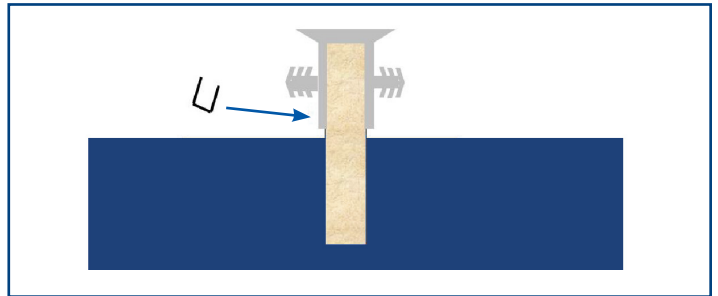
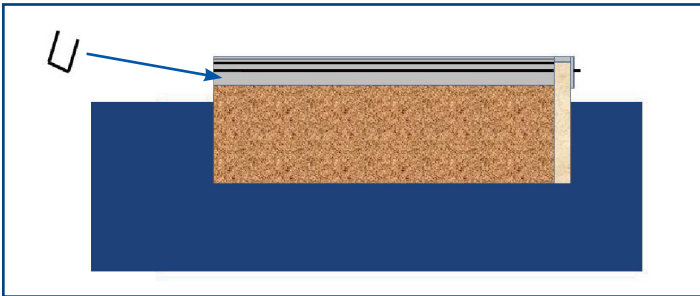
1. Set the expansion board $\frac{1}{4}$ inch below the level of the concrete being placed. Unroll the X-TREME Tex Cap and place on the board.



2. Butt the ends of the X-TREME Tex Cap together. Use 3M Scotch-Grip 4475 Plastic Adhesive to seal the two pieces together. The result should be a monolithic cap joint, sealed at all connections.



3. Secure the X-TREME Tex Cap on the expansion board with Staples or Nails to hold in place during the concrete pour.





I am contacting you for the submittal of the Tex-Trude X-TREME Vapor Barrier to be accepted for the project. The Tex-Trude X-TREME Vapor Barriers exceed the testing requirements of the ASTM E 1745, Class A, standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs. All test studies have been performed by Independent Laboratories.

X-TREME Vapor Barriers key features:

- Puncture Resistance – has a higher puncture resistance than most standard vapor barriers.
- Permeance – is below the ASTM 1745 Standards
- Pricing – Tex-Trude helps lower cost on projects with competitive pricing to the customer.
- Quality Control – ISO Certified 9001-2015 and has control over product produced.
 - (extruding plastic since 1952, over 60 years)
- Manufacturing – we produce own product here in the USA. Others do not.

Attached are the X-TREME Vapor Barrier data sheets and the CSI Substitution Request Form for you review. Thank you for your time and consideration. Tex-Trude is listed with MasterSpec, click to download the latest specification for Vapor Barriers. [http://www.productmasterspec.com/Profile/Tex-Trude Inc/67665](http://www.productmasterspec.com/Profile/Tex-Trude%20Inc/67665)

If you have any questions or need more information, please contact me at your convenience.

Regards,

Amy McNair

Amy McNair
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