



SECTION 072113 - WATER-MANAGED FOAM BOARD INSULATION SYSTEM

This Section specifies the “**DripWave Insulation System**,” a unique solution to water intrusion and mold/mildew problems caused by traditional one-coat stucco over board insulation applications. The DripWave insulation system is produced by **StyTek**, 6200 Sky Creek Drive, Sacramento, CA 95828. Tel. No.: 916-383-0500. Website: www.stytek.com.

Unlike flat stock expanded polystyrene (EPS) insulation used for one-coat stucco work, DripWave eliminates the root causes of water intrusion, mold, and mildew. This is achieved through an integral air space created by the unique sinewave board profile that maximizes air gaps. The patented design provides a vertical “gutter” or drainage plane to collect and redirect entrapped moisture to a galvanized weep screed and away from the building cladding system. Further, this will maintain the integrity of any water-resistive barrier and sheathing components in the wall assembly, without compromise due to water intrusion.

The board insulation system has only three major components; rigid foam board insulation, self-adhering board joint tape, and galvanized weep screed. This represents an uncomplicated system solution to complex exterior building wall problems. It is cost-efficient and easy to install.

DripWave has been fully tested for resistance to water penetration, UV degradation, thermal resistivity, and fire performance properties. Certified test results are available upon request.

The DripWave system is designed for use on both commercial and residential projects. When combined with a proper water-resistive barrier, wall sheathing panels, and stucco finish system, DripWave delivers a superior solution to an age-old problem.

Section Editing: “Editing Notes” will appear in red throughout the text to aid in the writing of this Section. Also, bold bracketed text will require a choice to be made.

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Water-managed rigid EPS foam board insulation system over continuous wall sheathing. Components include:
 - 1. Water-managed rigid foam board insulation.
 - 2. Self-adhering insulation board joint tape.
 - 3. Galvanized metal weep screed.



1.2 RELATED REQUIREMENTS

Editing Note: Edit the following referenced Sections to suit Project requirements. Requires close coordination with components of the exterior building wall assembly.

- A. Section 013000 - Submittals.
- B. Section 061600 - Sheathing. For **[Wood-based] [glass-mat gypsum]** wall sheathing to receive water-resistant barrier.
- C. Section 072500 - Weather Barriers. For water-resistant barrier (WRB) materials installed over wall sheathing.
- D. Section 072713 - Modified Bituminous Sheet Air Barriers. For water-resistant barrier (WRB) materials installed over wall sheathing.
- E. Section 072715 - Butyl Sheet Air Barriers. For water-resistant barrier (WRB) materials installed over wall sheathing.
- F. Section 072726 - Fluid-Applied Membrane Air Barriers. For water-resistant barrier materials installed over wall sheathing.
- G. Section 092400 - Cement Plastering. For exterior cement plaster finish system, including lath, applied over installed water-managed foam board insulation.

1.3 REFERENCES

Editing Note: Delete references not applicable to project requirements.

- A. ASTM A653/A653M: Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- B. ASTM B117: Standard Practice for Operating Salt Spray (Fog) Apparatus.
- C. ASTM C177: Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded Hot-Plate Apparatus.
- D. ASTM C203: Standard Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation.
- E. ASTM C272: Standard Test Method for Water Absorption of Core Materials for Sandwich Constructions.
- F. ASTM C303: Standard Test Method for Dimensions and Density of Preformed Block and Board-Type Thermal Insulation.
- G. ASTM C518: Standard Test Method for Steady-State Thermal Transmission Properties.



- H. ASTM C578: Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
 - I. ASTM C1002: Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
 - J. ASTM C1063: Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster.
 - K. ASTM D1000: Standard Test Methods for Pressure-Sensitive Adhesive-Coated Tapes Used for Electrical and Electronic Applications.
 - L. ASTM D1621: Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
 - M. ASTM D1622: Standard Test Method for Apparent Density of Rigid Cellular Plastics.
 - N. ASTM D2126: Standard Test Method for Response of Rigid Cellular Plastics to Rigid Cellular Plastics to Thermal and Humid Aging.
 - O. ASTM D2863: Standard Test Method for Measuring the Minimum Oxygen Concentration to Support Candle-Like Combustion of Plastics (Oxygen Index).
 - P. ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials.
 - Q. ASTM E96: Standard Test Methods for Water Vapor Transmission of Materials.
 - R. ICC-ES AC38: Acceptance Criteria for Water-Resistive Barriers.
 - S. PSTC 101: Peel Adhesion of Pressure Sensitive Tape.
- 1.4 DEFINITIONS
- A. CFC: Chlorofluorocarbon.
 - B. CHC: Chlorinated Hydrocarbon.
 - C. HCFC: Hydrochlorofluorocarbon.
 - D. EPS: Expanded polystyrene.
 - E. IBC: International Building Code.
 - F. ICC-ES: International Code Council Evaluation Service.
 - G. WRB: Water-resistive barrier. A Code-acceptable material behind the water-managed foam board insulation system that prevents moisture in the air cavity from intrusion into the exterior building wall assembly.



1.5 SUBMITTALS

- A. General: Comply with Section 013000 - Submittals.
- B. Product Data: For each product specified. Include the following:
 - 1. Technical product data, including component descriptions, details, and performance criteria.
 - 2. Manufacturer's printed surface preparation and installation instructions.
 - 3. Safety Data Sheets (SDS).
- C. Verification Samples: 12 inch by 12 inch board sample.
- D. Quality Assurance Submittals:
 - 1. Installer qualifications.
 - 2. Certified test reports showing compliance with specified performance criteria.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: A firm with a minimum of three years documented experience installing work similar to scope and complexity of work required by this Section.

Editing Note: Code(s) listed are assumed to be the current edition(s) in force. For reference and examples, both the California Building Code and Florida Building Code have adopted the International Building Code, with amendments provided by the particular state code commissioning authority.

- B. Code Compliance: **[International Building Code] [California Building Code] [Florida Building Code] [insert governing code(s) for project]**.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. General: Comply with manufacturer's written instructions for handling, storing, and protecting materials to be installed.
- B. Deliver and store materials in manufacturer's original packaging and clearly identified. Protect materials from harmful environmental elements, such as UV rays, and other potentially detrimental conditions in a dry, weathertight storage location.
- C. Do not expose EPS board to sunlight except as required for installation and subsequent concealment by the **[stucco] [decorative]** exterior finish system.

1.8 ENVIRONMENTAL CONDITIONS

- A. Do not apply insulation system materials when the air temperature or relative humidity is outside the manufacturer's range limitations.



1.9 WARRANTY

- A. **Materials Warranty:** Provide manufacturer's written warranty for physical properties of foam board insulation. Upon inspection and testing by the manufacturer, noncompliant foam board insulation will be replaced at no cost up to original purchase price.
 - 1. **Exclusions:** Warranty is not applicable if the foam board insulation was improperly installed, improperly maintained, or was used for another purpose other than the intended use as defined by this Specification Section.
 - 2. **Warranty Duration:** 20 years from the date of Substantial Completion.

PART 2 - PRODUCTS

2.1 FOAM BOARD INSULATION

- A. **Basis of Design:** "DripWave Insulation System"; StyTek.
- B. **Foam Board Insulation:** Expanded polystyrene (EPS) board, compliant with ASTM C578, Type II, 15 psi minimum compressive strength. Formulated without CFCs, CHCs, HCFCs, or formaldehyde. The proprietary curved wave profile on the EPS board back surface allows any accumulated moisture to evaporate or drain out of the system before damaging a WRB or sheathing component of the exterior wall assembly.
 - 1. **Product:** StyTek's "DripWave EPS."
- C. **Joint Profile:** Tongue-and-groove horizontal joint design for fitting boards together without gaps. Flush vertical joints.

Editing Note: Choose board size suitable for Project requirements.

- D. **EPS Board Size:** **[4 feet by 8 feet] [2 feet by 8 feet] [2 feet by 4 feet]**.

Editing Note: Verify insulation thickness for required R-value contribution to the exterior building envelope. Additional EPS board thicknesses are available in 1/2 inch increments up to 4 inches.

- E. **EPS Board Thickness:** **[7/8 inch] [1 inch] [1-1/2 inches] []**.

2.2 FOAM BOARD PERFORMANCE CRITERIA

- A. **Water Vapor Transmission (Permeability):** 3.5 perm-inch; ASTM E96.
- B. **Water Absorption:** Less than 3.0 percent by volume; ASTM C272.



- C. R-Value: The following stable R-values per inch, tested according to ASTM C518 or ASTM C177:
 - 1. R4.73 at 25 deg F.
 - 2. R4.55 at 40 deg F.
 - 3. R4.33 at 75 deg F.
- D. Surface Burning Characteristics: Maximum 20 Flame Spread Index and maximum 300 Smoke Development Index; ASTM E84.
- E. Density: 1.50 pcf, minimum; ASTM C303 or ASTM D1622.
- F. Compressive Strength: 15 psi to 21 psi minimum, at 10 percent deformation; ASTM D1621.
- G. Flexural Strength: 35 psi, minimum; ASTM C203.
- H. Dimensional Stability: 2.00 percent; ASTM D2126.
- I. Oxygen Index: 24 percent, minimum; ASTM D2863.

2.3 ACCESSORY MATERIALS

- A. General: Provide accessory materials as recommended by the manufacturer.
- B. Adhesive for Securing Insulation: Manufacturer's standard adhesive, compatible with WRB substrates.
- C. Self-Adhering Joint Tape: Heavy duty polyethylene backing coated with synthetic rubber-based adhesive. 9.0 mils total thickness. Contrasting color to EPS board color.
 - 1. Product: StyTek's "DripWave Panel Tape."
 - 2. Widths: 2 inch seam tape and 4 inch corner tape.
 - 3. Peel Adhesion: 70 oz./inch; PSTC 101.
 - 4. Tensile Strength: 22 lbs./in.; ASTM D1000.
 - 5. Elongation: 100 percent; ASTM D1000.
- D. Galvanized Metal Drip Screed: Hot-dip galvanized steel sheet; ASTM A653/A653M, minimum G60 zinc coating. Minimum 26 gage metal thickness. Designed to redirect water from the insulation system to the building exterior.
- E. Fasteners: Type 304 stainless steel or polymer-coated screw fasteners complying with ASTM C1002.
 - 1. ACQ Rated Fasteners: Provide fasteners acceptable for alkaline copper quaternary (ACQ) pressure preservative treated wood attachment substrates.
 - 2. Polymer-Coated Screw Fasteners: Comply with ASTM B117 for corrosion-resistance.



PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates to receive the work and conditions under which the work will be performed.

Editing Note: An ASTM D226 Type I asphaltic building felt, minimum Grade D Kraft building paper, or other approved materials, are acceptable pursuant to compliance with the IBC (Ref.: IBC Chapter 14).

- B. Verify:
 - 1. Wall sheathing is in place and properly installed with Code-compliant fasteners. Planar irregularities are not greater than 1/4 inch over 10 feet.
 - 2. Wood-based wall sheathing gapped 1/8 inch to allow for expansion.
 - 3. Maximum allowable deflection of structural wall components not greater than 1/360 of the span.
 - 4. WRB is in place, continuous, and properly installed. WRB compliant with governing Code for barrier type and ICC-ES AC38.
 - 5. Expansion and control joint design and locations are acceptable.
 - 6. All openings and penetrations are properly flashed with suitable provisions for redirection of water to building exterior.
 - 7. Protection of all structural hardware components and connections prior to installation.
 - 8. All sheathing fasteners are installed flush with sheathing surface.
- C. Commencement of work will constitute acceptance of substrates to receive the work.

3.2 PREPARATION

- A. General: Comply with manufacturer's written requirements.
- B. Ensure all substrates to receive the work are clean, dry, and structurally sound.
- C. Protect adjacent substrates not to receive the work.

3.3 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions.
 - 1. Do not install EPS board insulation system below grade. Terminate a minimum of 4 inches above grade and as required by governing Code.
- B. Use whole boards where possible. If cutting is necessary, use only cutting blades acceptable to manufacturer.



- C. Butt panels together for a tight fit at tongue-and-groove horizontal joints and flush vertical joints. Finish panel joints with specified self-adhering joint tape.
- D. Securely attach insulation boards to WRB substrates with specified adhesive.
- E. Install drip screed at bottom of foam board insulation assembly to allow water to drain and escape to building exterior. Secure to installation substrates with specified fasteners; comply with ASTM C1063. Coordinate with installers of sheathing and WRB to ensure proper installation of drip screed.

3.4 PROTECTION

- A. Repair any damage to adjacent substrates and surfaces due to work of this Section.
- B. Upon completion of work, provide suitable protections until scheduled installation of stucco finish system.

END OF SECTION 072113