

**EXTERIOR INSULATION AND FINISH SYSTEM (EIFS) GUIDE SPECIFICATION
(with Metric analogs) FOR CLASS MD (Moisture Drainage)****TOTAL WALL'S CLASS MD-A MOISTURE DRAINAGE SYSTEM
Adhered Over Roller-Applied Liquid Membrane Moisture Barrier****PART 1: GENERAL**

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1.01 DESCRIPTION AND SCOPE

- A. Requirements contained within Division I (General Requirements) are applicable to the work required of this section. Provide labor, materials, equipment, and supervision necessary to complete the exterior wall and finish systems including:
1. application of liquid applied moisture barrier over the sheathing substrate;
 2. installation of drainage track or optional backwrap termination with sealant weeps;
 3. installation of window and door head flashing and installation of waterproofing tape to bridge transitions between the moisture barrier and other materials;
 4. application of vertical ribbons of adhesive to form drainage channels;
 5. application of a TOTAL WALL soft coat base coat and TOTAL WALL reinforcing mesh over the insulation boards;
 6. application of TOTAL WALL acrylic finish coat;
 7. installation of backer rod and caulk sealant.
- B. Related work specified elsewhere:
1. Masonry, Division 4
 2. Metals, Division 5
 3. Wood Construction, Division 6
 4. Sheathing, Division 9
 5. Caulking/Sealants, Division 7
 6. Portland Cement Plastering, Division 9
- C. Referenced Documents:
1. Standards:
 - ASTM A526 Specification for Sheet Steel, Zinc Coated (Galvanized) by Hot-Dip Process, Commercial Quality;
 - ASTM B69 Specification for Rolled Zinc;
 - ASTM B117 Test Method for Salt Spray (Fog) Testing;
 - ASTM C67 Mod. Test Method for Saturated Freeze/Thaw Cycles of Exposure;
 - ASTM C150 Specification for Portland Cement;
 - ASTM C297 Test Method for Tensile Strength of Flat Sandwich Constructions in Flatwise Plane;
 - ASTM C578 Specification for Preformed, Cellular Polystyrene Thermal Insulation;

ASTM C1135 Test Method for Determining Tensile Adhesion Properties of Structural Sealants;
 ASTM D968 Test Method for Abrasion Resistance of Organic Coatings by Falling Abrasive;
 ASTM1784 Specification for Rigid PVC;
 ASTM D2247 Practice for Testing Water Resistance of Coatings in 100% Relative Humidity;
 ASTM E84 Test Method for Surface Burning Characteristics of Building Materials;
 ASTM E108 Mod. Full Scale Structural Fire Testing of Wall Systems;
 ASTM E330 Test Method for Structural Performance by Uniform Static Air Pressure Difference;
 ASTM E331 Test Method for Water Penetration by Uniform Static Air Pressure Difference;
 ASTM E695 Method fro Measuring Relative Resistance to Impact Loading;
 ASTM G23 and G53 Accelerated Weathering for Exposure of Nonmetallic Materials;
 Fed Mil Spec 810D Test Method for Determining the Resistance to Mold and Fungus Growth;
 NFPA Standard Test Method 268 Radiant Heat Fire Test;
 UBC 26-9 Intermediate Scale Multi-story Fire Testing.

2. Building Code Standards:
 - National Building Code, Building Officials and Code Administrators (BOCA), Section 1406.0;
 - Standard Building Code, Southern Building Code Congress International (SBCCI), Sections 717.4 and 717.5;
 - Uniform Building Code, International Conference of Building Officials (ICBO), UBC Standard 26-4;
 - International Building Code, International Code Council (ICC), Applicable IBC Standards;
 - International Residential Code (IRC).

D. Terms and Definitions

1. Class MD (Moisture Drainage) System

A class of EIFS (Exterior Insulated and Finish System) in which the substrate sheathing is covered by an air/moisture resistive barrier and a drainage channel for water is created over the moisture barrier. Incidental water that enters the system can safely migrate down the drainage channel and exit the system at designed weep points. Expanded polystyrene insulation board (EPS) is attached over the moisture resistive barrier and drainage plane with vertical ribbons of adhesive, which create the drainage channels. The EPS is covered with a lamina consisting of two layers. The inner layer is TOTAL WALL reinforcing mesh is embedded into a TOTAL WALL soft coat

base coat of 1/16" (1.6 mm). The top (outer) layer is a Total Wall acrylic finish coat that provides texture and final color to the system.

2. **Moisture Barrier**
The moisture barrier is a liquid-applied, water and air resistive, vapor permeable layer that is applied directly to the substrate.
3. **Insulation Board**
A preformed rigid insulating foam plastic that functions to reduce heat flow through a wall and to provide a surface for the base coat and reinforcing mesh. Typically, a 2' by 4' (0.61 M by 1.22 M) expanded polystyrene (EPS) foam board with an average density of 1 lb. per cubic foot (16.02 g/liter) is used in thicknesses that vary from 1" to 4" (25.4mm to 101.6 mm). The EPS board must meet specific performance and safety specifications.
4. **Adhesive**
A material that functions to adhere the EPS insulation to the moisture barrier coated substrate. The same material may also function as the base coat.
5. **Base Coat**
A material that is applied to the face of the insulation board and is used to embed the reinforcing mesh and functions as a weather barrier.
6. **Reinforcing Mesh**
An open weave fiberglass fabric that is coated with a protective plastic. It is embedded into a layer of Total Wall base coat to strengthen the system.
7. **Finish Coat**
A premixed, synthetic plaster material. It functions to provide a decorative color and texture coat and additional weather resistance.
8. **Accessories**
Items such as weep bases, corner beads, and casing beads that may be utilized in the assembly of the system. Flashing for window and door treatments, decks, roof kick-out areas, and dormers is utilized.
9. **Weatherproofing Sealant Tape**
A bitumen-faced flashing tape that is used to bridge transitions between the moisture barrier and an adjacent surface.
10. **Sealant**
A permanently flexible self-sticking compound that is used to seal seams in the system such as the seams occurring between the system and windows and doors.

1.02 DESIGN LIMITATIONS AND DETAILING

- A. The maximum allowable system deflection, normal to the plane of the wall, is L/240.
- B. Design wind load shall not exceed TOTAL WALL's allowable wind load as stated in TOTAL WALL Code Evaluation Reports.
- C. All details shall conform to TOTAL WALL recommendations and shall be consistent with the project requirements.

1. General

- a. At all locations the EPS board shall be completely encapsulated by the lamina or terminated with an approved PVC accessory.
- b. The insulation board shall be separated from the interior of the building by 1/2" (12.7 mm) gypsum wallboard or equivalent fire resistive barrier material, which will limit the average temperature rise of the unexposed surface to not more than 250 F (121 C) after 15 minutes of fire exposure, when subjected to the ASTM E-119 time-temperature curve.
- c. The minimum thickness of EPS shall be 1" (25.4 mm), the maximum thickness shall be 4" (101.6 mm), with the exception of architectural enhancements.
- d. The length and slope of inclined surfaces shall follow the guidelines listed below:
 - (1). Minimum slope: 6" (152.4 mm) of rise in 12" (304.8 mm) of horizontal projection.
 - (2). Inclined surfaces shall not be used for areas defined as roofs by building codes.
 - (3). Use not meeting the above criteria shall be approved in writing by TOTAL WALL prior to installation.

2. Substrate System

- a. Shall be engineered to withstand all applicable loads, including live, dead, positive and suction wind, seismic, etc. Bond strength, fastener strength, and connection strength shall be analyzed and engineered. Appropriate factors of safety shall be used.
- b. The maximum deflection under positive or suction full design loads of the substrate system shall not exceed L/240.

3. Substrates

- a. Application of the system shall be to one of the following substrates:
 - (1). Siliconized core gypsum sheathing
 - (2). Exterior grade gypsum sheathing
 - (3). Oriented strand board
 - (4). Exterior grade plywood

- b. Substrates other than those listed above shall be approved in writing by TOTAL WALL prior to installation of the system.
 - c. Sheathing substrates shall be oriented with their strong axis perpendicular to the supporting framing.
 - d. The applicator shall verify that the proposed substrate is acceptable to the applicable regulatory authorities prior to installation of the system.
 - e. The substrate shall not have any planar irregularities greater than 1/4" (6.35 mm) in 8 lineal feet (2.44 M).
4. System Joints
- a. Continuous expansion joints shall be installed at the following locations:
 - (1). Where expansion joints occur in the substrate;
 - (2). Where building expansion joints occur;
 - (3). At floor lines in wood-frame construction;
 - (4). Where the system abuts other materials;
 - (5). Where the substrate changes;
 - (6). To limit system runs to 80 lineal feet;
 - (7). Where significant structural movement may occur, e.g.:
 - (a). in walls longer or wider than 80 lineal feet;
 - (b). changes in building shape and structural system.
 - b. Expansion and contraction of the system and adjacent materials shall be taken into account in the design of expansion joints, with proper consideration given to sealant properties, installation conditions, temperature range, coefficient of expansion of materials, joint width-to-depth ratios, etc.
 - c. Isolation joints are required around all wall penetrations, including doors and windows.
5. Details
- a. TOTAL WALL's latest published information shall be followed for standard detail treatments.
 - b. Non-standard detail treatments shall follow the recommendations of TOTAL WALL.
 - c. Corners shall be reinforced by wrapping reinforcing fabric around the corner from both directions for a minimum of 8" (203.2 mm), or with corner mesh, or approved PVC accessory.
 - d. Openings shall be reinforced using a 9 1/2" (241.3 mm) wide strip of detail mesh placed at a 45 degree angle to the opening corner.
 - e. Flashing is detailed at window and door heads, deck ledger boards, roof kick-outs, and roof/wall interfaces.

Deck flashing must have end dams. Window sill pan-type flashing is a recommended option.

- D. All areas requiring higher than standard impact resistance shall be detailed in the drawings and described in the contract documents.
- E. The use of dark colors must be considered in relation to estimated wall surface temperatures as a function of local climate conditions.

1.03 QUALITY ASSURANCES

A. Contractor

The contractor shall have a minimum of two years experience in the wall construction trades, be licensed by TOTAL WALL for application of MD Systems, demonstrate the ability to install the system based on projects of similar size and complexity, and meet the approval of the architect. The contractor shall provide a list of completed projects. The contractor shall provide the equipment, manpower, and supervision necessary to install the system in compliance with the project plans and specifications.

B. Insulation Board Manufacturer

The insulation board manufacturer shall be recognized by TOTAL Wall as capable of producing insulation board to meet the system requirements. The insulation board manufacturer shall be listed by an approved agency, and the board and packaging shall be labeled as required by TOTAL WALL and the applicable building code.

1.04 SUBMITTALS

- A. Sample Panel: The contractor shall submit to the architect a sample panel of at least 1' x 1' (30 cm X 30 cm) demonstrating the texture and color of the finish desired. The architect shall review the panel and determine the suitability of the finish presented.
- B. The contractor shall submit a list of three projects, exhibiting the contractor's EIFS installation skills, which have been completed within the last five years. The list shall include project name, location, description of work, and date.
- C. TOTAL WALL's literature, including application instructions, specifications, and details.
- D. The insulation board manufacturer's documentation to show compliance with TOTAL WALL and code requirements.

1.05 PRODUCT DELIVERY AND STORAGE

- A. Delivery: Deliver all materials supplied by Total Wall in original, unopened containers with legible manufacturer's identification intact.
- B. Storage:
 - 1. Store all products off the ground, under cover, and protected from dampness and sunlight.

2. Warning: EPS rigid insulation is combustible and may constitute a fire hazard if improperly used or installed. EPS insulation should be adequately protected. Use only as directed by the specific instructions for these products. During shipping, storage, installation, or use, these materials should not be exposed to open flame or any ignition sources. For proper protection of rigid insulation, consult the National Fire Protection Association (NFPA) standards or the authority having jurisdiction. Store EPS under cover, off the ground with full support, stacked horizontally.
3. All liquid products shall be stored at 40 F (4.4 C) or above and protected from freezing. Protect from exposure to direct sunlight during storage.

1.06 JOB CONDITIONS

- A. Install all materials in strict accordance with all safety and weather conditions required by the product literature.
- B. Apply all coatings when the ambient temperature is 40 F (4.4 C) and rising. A minimum temperature of 40 F (4.4 C) should be maintained twenty-four hours after completion of work. Supplementary heat must be provided if stated temperature conditions do not exist. Do not apply coatings to a frozen surface.
- C. Protect surrounding areas and surfaces during application of the wall system.
- D. Protect system from precipitation during application and for at least 24 hours after application.

1.07 COORDINATION AND SCHEDULING

- A. Closely coordinate work with related sections and trades.
- B. Protect the tops of walls to prevent water from entering behind the system. Any required cap flashing, overhangs, or drip edges shall be installed as soon as possible after the finish coat has been applied.
- C. Install all sealants in a timely fashion. Protect open joints from water intrusion with backer rod or other means until the sealant has been installed.
- D. When required by code or job requirements, contract with a certified 3rd party EIFS inspector prior to TOTAL WALL EIFS installation. The inspector shall be EDI (Exterior Design Institute) certified or other applicable certifying agency as approved by TOTAL WALL and the local code official. The inspector will make a minimum of three on-site inspections, which will include the following examinations:
 1. material storage and environmental application conditions;
 2. substrate -- material(s) and condition;
 3. moisture barrier and weatherproofing tape -- type and installation;
 4. flashings -- kick-out, deck, window and door heads;
 5. drainage channel material and trim accessories (if applicable);

- 6. rigid EPS foam -- labeling, dimensions, installation, rasping;
- 7. fasteners -- type, labeling, size, installation;
- 8. trims and architectural enhancements -- configuration and installation,
- 9. base coat -- type, labeling, mixing, application;
- 10. mesh -- type, labeling, backwrapping, corner reinforcement, general installation;
- 11. finish -- type, labeling, mixing, application;
- 12. sealant, backer rod -- type, labeling, joint dimensions, joint preparation, joint placement, sealant application.

The inspector shall provide a minimum of three interim text reports and one final report, which will include photographs. The inspected items shall be compared with job documents and TOTAL WALL specifications and reported accordingly. Report copies shall be issued to TOTAL WALL.

- E. If a third party inspector is not specified, a manufacturer's representative shall perform a minimum of three on-site documented inspections. Report copies shall be issued to TOTAL WALL Corporate, the architect, the applicator, and the general contractor.

1.08 SYSTEM WARRANTY

- A. A Total Wall warranty application form shall be completed prior to the commencement of the EIFS installation.
- B. Upon completion of the EIFS installation in accordance with specifications and payment of monies due Total Wall, Total Wall shall issue a single source WARRANTY.

PART 2: PRODUCTS

2.01 MANUFACTURERS

- A. All materials related to EIFS shall originate from TOTAL WALL, 390 Viking Circle, Rio, WI 53960 [888-702-9915].

2.02 EXTERIOR INSULATION SYSTEM COMPONENTS

- A. The air/moisture resistive barrier shall be the following:
 - 1. Total Stop RA liquid-applied waterproofing membrane barrier.
- B. The drainage starter track shall be PVC as manufactured by Plastic Components or Vinyl Corp.
- C. Rigid insulation board shall be 2' x 4' (0.61M by 1.22 M) Grade 1 EPS, meeting ASTM C578 performance standards, an average density of 1 pound per cubic foot (16.02 g/L), cured for 6 weeks at 68 F (20 C) or equivalent accelerated conditions, labeled with Total Wall and code markings, and with a minimum thickness of 1" (25.4 mm) and a maximum thickness of 4" (101.6 mm) as specified by drawings.
- D. Adhesive shall be TOTAL WALL T-2000 (or T-2000 Journeyman

Series), a dry polymer modified Portland cement based mixture that is mixed with water at the job site; or TOTAL WALL Foam N' Base coat (or Journeyman Series Foam N' Base), a wet acrylic polymer slurry that is mixed with Portland cement at the job site.

- E. Base coat shall be TOTAL WALL T-2000 (or T-2000 Journeyman Series), a dry polymer modified Portland cement based mixture that is mixed with water at the job site; or TOTAL WALL Foam N' Base (or Journeyman Series Foam N' Base), a wet acrylic polymer slurry that is mixed with Portland cement at the job site; or EZ Base NCB, a pre-mixed ready-to-use base coat. The selected mixture is used to embed the TOTAL WALL reinforcing fabric to the face of the polystyrene board.
- F. Reinforcing mesh shall be a plastic coated fiberglass reinforcing fabric as required and supplied by TOTAL WALL:
1. 4.3 oz. -- Standard, 25-35 in-lbs (2.8-4.0 Newton-M) impact;
 2. 6 oz. -- Standard Plus, 35-40 in-lbs (4.0-4.5 Newton-M) impact;
 3. 11 oz. -- Intermediate, 75-90 in-lbs (8.5-10.1 Newton-M) impact;
 4. 15 oz. -- High, 180-220 in-lbs (20-25 Newton-M) impact;
 5. 20 oz. -- Ultra High, 230-240 in-lbs (26-27 Newton-M) impact.
 6. The High and Ultra High meshes require a second layer of Standard 4.3 ounce mesh and base coat.
- Note: Impact strengths are tested on specimens with nominal base coat thickness with no finish coat and are considered highly conservative values.
- G. Portland cement shall be Type I, I-II, or II meeting ASTM C150, fresh and free of lumps.
- H. Water shall be clear, potable, and free of foreign matter.
- I. Sealant Systems:
1. Shall be one of the following:
 - a. Tremco, Inc.:
 - (1). Sealant: "Dymeric"
 - (2). Prime: use manufacturer's recommended primer.
 - (3). Backer rod: Dow "Ethafoam"
 - (4). Bond breaker: 3M #226, 481, 710
 - b. Pecora Corporation:
 - (1). Sealant: "Dynatrol II" or 890 Silicone
 - (2). Prime: use manufacturer's recommended primer.
 - (3). Backer rod: Dow "Ethafoam"
 - (4). Bond breakers: 3M #480 or Valley Industrial Products #90
 - c. Dow Corporation:
 - (1). Dow 790 series sealants (790, 791, 795)
 - (2). Prime: use manufacturer's recommended primer.

- (3). Backer rod: Dow "Ethafoam"
- d. Sonneborn Corporation:
 - (1). Sonneborn 150 or 150 LM sealant
 - (2). Prime: use manufacturer's recommended primer.
 - (3). Backer rod: Dow "Ethafoam"
- e. Sika Corporation
 - (1). Sika LM 15
 - (2). Prime: use manufacturer's recommended primer.
 - (3). Backer rod: Dow "Ethafoam"
- f. Total Wall Inc.
 - (1). Total Wall Mastic #11
 - (2). Prime: primer not required.
 - (3). Backer Rod: Dow "Ethafoam"
- g. Alternate sealant as approved in writing by Total Wall.
- 2. Sealant shall be bonded to the base coat layer of the system, not to the finish.
- 3. System materials shall be dried prior to sealant installation.
- 4. Color shall be selected by the architect.
- J. Finish coat shall be a 100% acrylic pre-textured and pre-tinted synthetic finish as manufactured by TOTAL WALL.
- K. The weatherproofing tape shall be a bitumen faced flashing tape such as FortiFlash, ProtectoWrap, DuPont white weatherproofing tape, or equivalent.

2.03 MIXING AND PREPARATION

- A. TOTAL WALL T-2000 Base Coat
 - 1. Obtain a clean container for mixing. Do not use contaminated or dirty containers.
 - 2. Add 5 quarts (4.7 Liters) of fresh, potable water to the container.
 - 3. Open a new 50 lb (22.7 Kg) bag of TOTAL WALL T-2000 Base Coat.
 - 4. Using a low speed mechanical mixer, begin stirring while adding the TOTAL WALL T-2000 Base Coat. After all of the material is added, continue mixing an additional minute, being sure to scrape the sides and bottom of the mixing container. Add up to 1 quart (.95 Liters) of additional water to adjust the mixture to a creamy, trowel-grade consistency.
 - 5. Allow the mixture to stand for 5 minutes and mix again on low speed for an additional minute. Clean water may be added to enhance workability.
 - 6. Begin using product immediately.
- A2. TOTAL WALL Foam N' Base Coat (an alternative to TOTAL WALL T-2000 Base Coat)

1. Obtain a clean container for weighing and mixing. Do not use contaminated or dirty containers.
 2. Open a new pail of TOTAL WALL Foam N' Base Coat and stir with a low speed mechanical mixer for one minute.
 3. In separate containers, weigh equal quantities of TOTAL WALL Foam N' Base and Portland cement.
 4. Using a low speed mechanical mixer, begin stirring the TOTAL WALL Foam N' Base Coat while adding the Portland cement in small increments. Up to 1 quart (.95 Liters) of clean water may be added to enhance workability. After all of the Portland cement is added, continue mixing on low speed an additional two minutes, being sure to scrape the sides and bottom of the mixing container.
 5. Allow the mixture to stand for 5 minutes. Mix again on low speed for an additional minute. Additional clean water may be added to enhance workability.
 6. Begin using product immediately.
- A3. TOTAL WALL EZ Base NCB (an alternative pre-mixed base coat)
1. The TOTAL WALL EZ Base NCB shall be stirred for 1 minute with a low speed mixer until a uniform workable consistency is obtained.
 2. A small amount of water may be added to adjust workability; maximum water addition not to exceed 6 oz. (0.177 Liters) per 5 gal. (18.93 Liter) pail. The water must be clean and potable.
 3. No additives or material of any kind, such as rapid binders, antifreeze, accelerators, fillers, pigments, etc., shall be added unless specified by TOTAL WALL.
 4. The TOTAL WALL Base NCB shall be used immediately after mixing. The container shall be kept closed when not in use.
 5. The mixing tool shall be cleaned immediately after use.
- B. TOTAL STOP RA Liquid-applied membrane air/moisture resistive barrier.
1. Open a new pail of TOTAL STOP RA liquid-applied membrane.
 2. Mix with a low speed mixer for one minute.
 3. Up to 16 ounces of water may be added per 5-gallon pail during mixing to adjust workability.
 4. For trowel application of product on sheathing joints, a minimal addition of water is recommended.
 5. For a roller-applied application over the sheathing surface, 8 to 16 ounces of water may be added for ease of application.
- C. TOTAL WALL EIFS Finish Coat
1. The TOTAL WALL Finish Coat shall be thoroughly stirred with a clean mixer until a uniform workable consistency is obtained.
 2. A small amount of water may be added to adjust workability. Maximum water addition not to exceed 12 oz. (0.355 Liter) per

- 5-gal (18.93 Liter) pail. The water must be clean and potable.
- 3. No additives or material of any kind, such as rapid binders, antifreeze, accelerators, fillers, pigments, etc., shall be added unless specified by TOTAL WALL.
- 4. The TOTAL WALL Finish Coat shall be used immediately after mixing. The container shall be kept closed when not in use.
- 5. The mixing tool shall be cleaned immediately after use.

2.04 PERFORMANCE REQUIREMENTS

The TOTAL WALL system and its components shall meet the following performance requirements:

ASTM E84 Surface Burning	FSI = 10, SDI = 35
ASTM E108 mod. Full Scale Fire Test	Pass (no flame spread)
MIL STD 810D Mildew Resistance (Method 508.3)	28 days -- no growth
ASTM E695 Full Scale Impact Loading	No damage
ASTM D968 Sand Abrasion, 500 liters, 260 L/ml,	No deleterious effects
ASTM D2247 Water Resistance	No deleterious effects
ASTM B117 Salt Spray (300 hours)	No deleterious effects
ASTM E96 Water Vapor Transmission	1.79 perms
ASTM C67 Mod. Saturated Freeze/Thaw (50 cycles)	No deleterious effects
ASTM C297 Tensile Adhesion	No failure in adhesive, base, or finish
ASTM E330 Modified by E72-80 Negative and Positive Wind Load	(Pos. 0.079, Neg. 0.079 Kg/cm ²)
ASTM E331 Wind Driven Rain (5 gal/sq.ft./hour rain fall plus 65 mph wind)	No penetration
ASTM D2797 Impact resistance	2.5 Newton-Meters
ASTM G23 Accelerated Weathering (2000 hrs.)	No deleterious effects
ASTM C209 Tensile Bond	26 PSI (1.846 Kg/cm ²)

DIVISION 7

SECTION 07240

MasterFormat™ 2004 Section 07 24 19

ASTM C203 Flexural Strength	1.41cm deflection at 33.4 Kg load
Radiant Heat Fire Test, NFPA 268	Pass
ISMA Multi-story Fire Test UBC 26-9	Pass

PART 3 EXECUTION

3.01 COMPLIANCE

- A. The installation shall be performed strictly in accordance with TOTAL WALL's current literature and current job specifications.

3.02 INSPECTION

- A. Examination of Substrate
 - 1. Prior to installation of the system, the substrate shall be examined by the applicator as follows:
 - a. The substrate shall be a type approved for the system (see Section 1.02.C.3.a).
 - b. The substrate shall be examined for compliance with contract documents.
 - c. The substrate shall be examined for soundness, such as tightness of connections, crumbling or looseness of surface, voids, and projections.
 - d. The substrate shall be examined for dimensional correctness.
 - 2. The architect and general contractor shall be advised of all discrepancies. Work shall not proceed until unsatisfactory conditions are addressed.

3.03 FRAMING and SHEATHING

- A. Requirements of Framing
 - 1. The framing assembly components shall be constructed to meet local code requirements and framing manufacturer requirements.
 - 2. Wood and steel framing shall be a maximum of 16" o.c., designed not to exceed L/240 deflection based on stud properties only. Steel framing shall be minimum 20 gauge and have a corrosion resistance equal to or better than G60 hot dipped galvanized coating.

3.04 INSTALLATION

- A. Mixing -- All materials requiring preparation shall be labeled accordingly; the contractor shall follow all instructions.
- B. System Terminations -- At all system terminations, the system shall be terminated with the proper PVC accessory or proper backwrapping.
 - 1. Weep starter track can be installed at lower terminations,

at flat window and door heads, and at roof/wall intersections. Attach track to the framing through non-screwable sheathing using corrosion resistant nails or screws. Butt sections of track together and miter inside and outside corners.

2. With the exception of terminations using a PVC accessory, the insulation boards shall be backwrapped with reinforcing mesh and base coat.
 - a. Reinforcing mesh and base coat shall be applied so that it will encapsulate the terminated edge of the insulation board. The back-wrapping shall extend a minimum of 2 1/2" (63.5 mm) on the face and the back of the insulation board.
 - b. The encapsulated edge of the insulation board may be completed either prior to board attachment, or after board attachment, by first attaching the reinforcing mesh to the substrate.
 - c. System details may also be terminated with approved system accessories.

C. Installation of Weather Resistive Air/Moisture Barrier

1. Total Stop RA Liquid-Applied Membrane

- a. Using a spatula or trowel, apply a tight skim coat of Total Stop RA to all sheathing joints. Be sure to press the Total Stop RA into the joint space. Allow a minimum of four hours cure before proceeding.
- b. Joint reinforcement with mesh is strongly recommended; if the joint is 1/8" or greater in width, meshing is required. Apply 4.3 ounce Total Wall reinforcing mesh in minimum 6" wide strips over the Total Stop RA treated sheathing joints. Overlap edges of reinforcing mesh 2 1/2". Self-stick mesh or standard mesh may be used for joint reinforcement.
- c. Cover the entire sheathing exterior surface with minimum of 1 roller-applied coat of Total Stop RA in a 15 - 20 mil wet coat. Two coats of Total Stop RA are recommended. For OSB sheathing, two coats of Total Stop RA are mandatory. When possible, apply the Total Stop RA moisture barrier back into window and door openings. Allow the Total Stop RA to dry.
- d. All PVC accessories should be installed after the Total Stop RA has been applied and allowed to dry.
- e. Use FortiFlash, ProtectoWrap, or other approved weatherproofing tape to bridge and seal the starter weep base accessory flange to the cured Total Stop RA membrane. The weatherproofing tape can be used to bridge termination joints at windows, doors and other penetrations.

- f. Total Stop RA, in combination with reinforcing mesh, may be used in place of the weatherproofing tape.
- D. Installation of Rigid Insulation
- 1. Grade 1 EPS
 - a. Grade 1 EPS shall be applied to the substrate surface starting from the bottom.
 - b. The Grade 1 EPS shall be applied with the long edge oriented horizontally, with its joints offset with respect to the sheathing joints, using a running bond pattern, and with interlocking insulation boards at inside and outside corners.
 - c. Grade 1 EPS pieces shall be precut to fit openings, corners, and projections prior to application of the back-wrapping and TOTAL WALL adhesive as applicable.
 - d. EPS board joints shall be offset from sheathing joints by a minimum of 4" (10 cm).
 - e. EPS boards shall be "L" cut (drywall cut) at window corners and door corners.
 - 2. Attaching foam over liquid-applied moisture barrier.
 - a. Use a TOTAL WALL soft coat base coat as the adhesive
 - b. Apply adhesive to the dry TOTAL STOP RA membrane using a notched trowel to create vertical ribbons, or apply the adhesive across the short dimension of the EPS board so the ribbons will be vertical on the wall. The ribbons of adhesive create the drainage channels. Use a trowel with minimum 3/8" depth notches spaced between 1-1/2" and 2" apart.
 - c. Immediately press the EPS board to the wall and apply firm, even pressure to level and secure the board. Allow 24 hours to cure before proceeding.
 - d. It is important that the ribbons of adhesive are not squashed too tightly when the EPS board is placed into the drainage track. This could potentially block the drainage channels. Use a slightly wider drainage track (for example: use a 1-1/4" track to receive 1" EPS), or rasp off the lower back corner of the EPS to a height greater than the back flange of the drainage track to create the extra 1/4" width for the channels.
 - 3. If gaps in the Grade 1 EPS board occur, slivers of Grade 1 EPS shall be cut and shaped to fit the gaps and inserted without using any adhesive or filler between EPS boards. As an alternative, gaps may be filled with EnerFoam or equivalent low expanding urethane foam and rasped off after curing.
 - 4. Once the TOTAL WALL adhesive has taken a set, all surfaces of the Grade 1 EPS boards shall be sanded or rasped until flush.

Low areas shall not be filled with base coating to produce a level surface.

5. Aesthetic reveals, which may be required as a design feature, shall be routed into the outside surface of the Grade 1 EPS using a high-speed router, hot groover, or hot knife and proper blade. The remaining thickness of the Grade 1 EPS at any point in the routed groove or feature shall not be less than 3/4" (19 mm).
6. Foam shapes of Grade 1 EPS, if used, shall be applied to the surface of the system's EPS layer, either before or after applying the base coat and reinforcing mesh.
7. TOTAL WALL's latest published detailed instructions and special instructions for this project shall be followed regarding installation of the Grade 1 EPS.

E. TOTAL WALL Soft Coat Base Coat

1. The surface of the Grade 1 EPS shall be inspected as follows:
 - a. For flatness, use a straight edge. High areas and out of plane Grade 1 EPS joints shall be sanded flat. Low areas shall not be built up with base coating to form a flat surface.
 - b. If any mechanical fasteners are used, fastener heads will be skimmed with the TOTAL WALL base coat and allowed to dry before proceeding.
2. Damaged areas and foreign materials shall be addressed prior to application of the base coat or finish.
3. For deterioration due to weathering or any other cause, refinish the EPS surface by sanding, while maintaining the flatness of the surface.
4. Using a stainless steel trowel, apply the TOTAL WALL soft coat base coat to the surface of the Grade 1 EPS to a uniform thickness of approximately 1/16" (1.5875 mm).
5. The reinforcing mesh shall be embedded immediately into the wet base coating using the steel trowel. Working from the center to the edges while smoothing out wrinkles, the surface of the base coating shall be smoothed with the trowel until the reinforcing mesh is fully embedded. Apply additional TOTAL WALL base coat as necessary so that the color or pattern of the reinforcing mesh is not readily visible beneath the surface of the base coating.
6. The reinforcing fabric pieces shall be lapped a minimum of 2 1/2" (63.5 mm) on all sides.
7. A period of 18 hours shall elapse to allow the TOTAL WALL base coat to cure. The base coat shall be protected from damage and weather while curing.
8. Details of the installation of the base coat at the ends of walls, windows, insulation board edges, corners, etc., shall

be in accordance with TOTAL WALL's latest detailed installation instructions and current job drawings.

- F. High Impact or Ultra High Impact Mesh (Optional -- see drawing for areas required)
1. Using a steel trowel, the TOTAL WALL base coat shall be applied to the surface of the Grade 1 EPS to a uniform thickness of 3/32" (2.38 mm).
 2. The high impact mesh shall immediately be embedded into the wet base coating using a stainless steel trowel. The surface of the wet base coating shall be smoothed with the trowel until the high impact mesh is fully embedded. The pattern of the high impact mesh shall not be visible beneath the surface of the base coating.
 3. Ends of adjacent high impact mesh pieces shall be tightly abutted. High impact mesh pieces shall not be lapped. High impact mesh sections shall be worked into the wet base coating from the center to the edges while smoothing out wrinkles.
 4. A period of 18 hours shall elapse to allow the first layer of high impact mesh and base coat to form a positive bond and shall be protected from damage and weather while curing.
 5. The surface of the first layer shall be examined after curing for projections, loose strands of mesh, etc., and corrected to produce a flat surface.
 6. A second layer consisting of TOTAL WALL base coat and standard reinforcing Mesh shall be applied over the first layer per Section 3.03.E.4-8 above.
 7. Details of the installation of the high impact mesh and base coat at the ends of walls, windows, panel edges, corners, etc., shall be in accordance with TOTAL WALL's latest published detailed installation instructions.
- G. Finish
1. The TOTAL WALL EIFS 100% Acrylic Finish Coat shall be applied continuously and in one operation to the entire wall surface, or to a logical break point. A wet edge shall be maintained. The TOTAL WALL finish coat shall not be allowed to set up in a distinct area. Sufficient manpower, scaffolding, and equipment shall be employed to insure a continuous operation and a uniform appearance. In some instances, a primer may be used over the base coat ahead of the finish coat. The primer may be T-Wall Lastic Smooth or other material only as approved by Total Wall in writing.
 2. Work shall proceed toward natural wall stops and corners.
 3. A clean stainless steel trowel shall be used.
 4. Apply the TOTAL WALL finish to the dry base coat or dry primer maintaining a wet edge at all times. The thickness of the

TOTAL WALL finish coat shall be in accordance with TOTAL WALL specifications and job requirements to achieve the desired result.

5. Immediately texture the finish with the appropriate float, trowel, or other tool required to achieve the specified texture and appearance. All mechanics shall use the same design tool, equipment, timing, and technique to achieve uniformity.
6. Certain finishes may be spray applied. TOTAL WALL shall be contacted for specific information for this project if a spray application is indicated.
7. The finish shall be protected from contamination, weather, and damage for a minimum of 24 hours.
8. Do not wrap the finish into expansion joints or isolation joints. The primer and sealant should be bonded directly to the base coat in the joint.

H. Sealant

Insure that proper backer rod, primer, and sealant are installed at all required locations, such as expansion joints and isolation joints, in accordance with TOTAL WALL details and the sealant manufacturer's specifications. In instances where a backwrap termination is used rather than a vented starter track, weeps must be placed in the sealant bead approximately every 12". The sealant weeps are made using short lengths of PVC or polyethylene tubing between 5/16" and 5/8" diameter.

3.05 JOB SITE CLEANUP

- A. All excess TOTAL WALL system materials shall be removed from the job site by the applicator.
- B. All surrounding areas where TOTAL WALL EIFS has been applied shall be left free of debris and foreign substances.

3.06 INSPECTION

- A. The TOTAL WALL applicator, a representative of the property owner's team, and a TOTAL WALL representative shall inspect the EIFS installation and prepare an inspection summary with a copy to TOTAL WALL.
- B. If an EIFS 3rd party inspector is used, a copy of the final report shall be submitted to TOTAL WALL.

End of Specification