

## 1. PRODUCT NAME

### TOTAL WALL

TOTAL WALL Type PM HardCoat Exterior Insulated and Finish Systems (EIFS)  
a) One Coat HardCoat System  
b) Two Coat HardCoat System

## 2. MANUFACTURER

TOTAL WALL, Inc  
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Madison, WI 53708

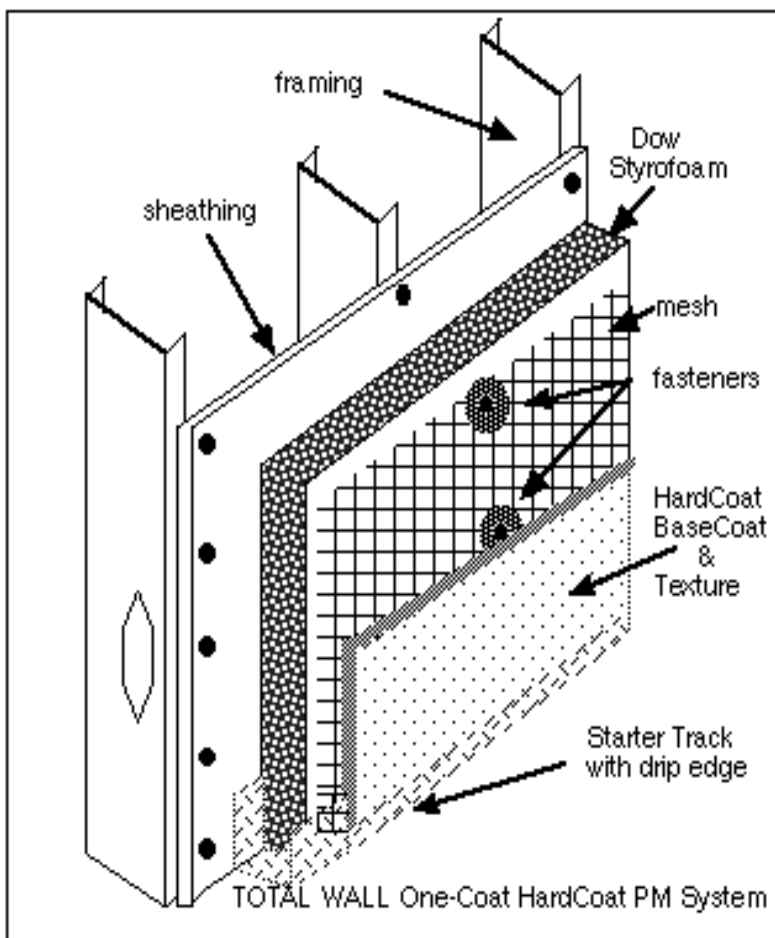
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## 3. DESCRIPTION

TOTAL WALL Type PM HardCoat EIFS is a non-bearing exterior cladding for commercial and residential structures. The TOTAL WALL Type PM EIFS is used to weatherproof, beautify and insulate any structure. Among the advantages of this exterior cladding system are:

- it has a high resistance to sharp impact damage;
- it does not consume interior space;
- it is highly energy efficient and takes advantage of the "mass effect" of the structure;
- the exterior insulation tends to move the dew point toward the outside of the wall;
- practically any combination of color or texture can be achieved;
- the structure can be accessorized with architectural enhancements made of the same materials as the wall system (arches, quoins, etc).



### Limitations:

TOTAL WALL products must be applied in temperatures of 40 F or higher. The freshly applied products must be protected from precipitation and the temperature maintained at 40 F or greater 24 hours. Stored products should be under cover, protected from sun and freezing conditions. TOTAL WALL products are to be installed by TOTAL WALL Approved Applicators or Certified Applicators. Approved Applicators will hold a Letter of Acceptance from TOTAL WALL and their installations are eligible for a 5 year Materials Warranty. Certified Applicators will hold

an ID badge or certificate and their installations are eligible for a 10 year Labor and Materials Performance Warranty. TOTAL WALL reserves the option to use certified inspectors on all phases of any installation. **Materials:** TOTAL WALL Type PM HardCoat EIFS consists of multiple layers. The TOTAL WALL One Coat HardCoat System consists of 3 layers (substrate, extruded polystyrene insulation board, and reinforced base coat). The TOTAL WALL Two Coat HardCoat System consists of 4 layers (substrate, extruded polystyrene insulation board, reinforced base coat, and 100% acrylic finish coat).

TOTAL WALL Type PM HardCoat Systems are always mechanically fastened to any substrate. An adhesive may be used in addition to the mechanical fasteners as an option for increased bond or to help compensate for minor substrate irregularities. Consult TOTAL WALL Technical Services if an adhesive is being considered. The type of fastener used is determined by the substrate. The fastener length is determined by the insulation foam thickness. Specific system trim accessories are also used. The accessories typically include: starter track, corner bead, expansion V-joint, and stop bead.

### Layer 1. Substrate

Approved substrates are: masonry such as brick, concrete block, concrete, or stucco; and sheathings such as exterior gypsum, plywood, cement board, OSB, and Dens-Glass Gold. The sheathings must be properly attached to approved wood or metal framing spaced at either 12", 16" or 24" O.C.

### Layer 2. Rigid Insulation

The rigid insulation board shall be 2 pound per cubic foot density Extruded Polystyrene (XPS) board manufactured by Dow Chemical Company and meeting ASTM C578 Type IV requirements, have an R-value of approximately 5.0 per inch, be in either 4' X 8' sheets or 2' X 8' sheets, and have a minimum thickness of 0.75" and a maximum thickness of 4".

### Layer 3.

- Reinforcing Mesh,
- Fasteners,
- Trim Accessories and
- HardCoat BaseCoat.

### Reinforcing Mesh:

A polymer coated woven fiberglass mesh with a weight of ~ 4.3 ounces per yard, a weave opening of ~ 0.31" by 0.28", meeting ASTM D4029 criteria, a thickness of 0.022" and Roll Dimensions of 38" by 150'. Runs of HardCoat reinforcing mesh are lapped 2.5".

### Fasteners:

TOTAL WALL fasteners use a special design, non-corroding 1.75" polypropylene cap and corrosion resistant screws. Type "W" is for wood, Type "S" is for steel, Type "H-L S" is for light gauge steel, and Type "M" is used for masonry. The length of the fastener is determined by the thickness of the EIFS. For steel or wood, the fastener must be able to penetrate the framing members by at least 0.5". For masonry, the fastener holes must be pre-drilled and the fastener should have a minimum 1" penetration into the masonry substrate.

### Trim Accessories:

Trim Accessories include: Starter Track (used at the lower termination of the system), Corner Bead (used at outside corners), Stop Bead (used at system terminations),

and V-joint (a control joint accessory used to relieve stresses that may cause cracking). The trim accessories are available in metal (either galvanized steel or solid zinc) or in PVC plastic. The use of metal accessories is recommended in climates below 4000 degree days.

### Base Coats:

#### A) One Coat HardCoat System

##### 1. TOTAL WALL pre-bagged One-Coat HardCoat Base

This product is a dry powder that contains white Portland cement, polymer, matrix additive, speciality aggregates, and workability agents. It is available in 50 lb bags. Mix with water using a jiffy mixer blade and drill (or a mortar mixer) until a mortar-like consistency is achieved (use about 5 quarts of water per 50 lb bag). Add colorant as necessary to achieve the desired color. Pot-life will be from 30 to 45 minutes. If the mix stiffens during use, add a few ounces of water and remix.

##### 2. TOTAL WALL field-mixed One Coat HardCoat Ingredients:

1. White Portland cement - type I, II or I-II and be fresh, lump-free and conform to ASTM C150.
2. Sand - clean sharp quartz silica sand with an average 40-55 mesh size distribution and conform to ASTM C144.
3. Matrix additive - a pre-weighed bag of fibers and modifiers.

4. Acrylic Additive - a 100% acrylic polymer emulsion and available only from TOTAL WALL.
5. Colorants - as required and supplied by TOTAL WALL.

TOTAL WALL One-Coat HardCoat Base is field blended using the following mix ratio in a mortar mixer:

94 lbs white Portland cement;  
150 lbs silica sand;  
1 bag of Matrix Additive;  
42 lbs (5 gal) Liquid Acrylic Additive.

Colorants may be added during to the mix as required. Add up to 1 pint of clean water to adjust workability if needed. Allow the mix to stand for about 2 minutes, then remix for 2 minutes. Final consistency should be a mortar-like, easily trowelable mixture.

## **B) Two Coat HardCoat System**

### **1. TOTAL WALL pre-bagged Two-Coat HardCoat Base**

This product is a dry powder that contains Portland cement, polymer, chopped fiberglass strands, speciality aggregates, and workability agents. It is available in 50 lb bags. Mix with water using a jiffy mixer blade and drill (or a mortar mixer) until a mortar-like consistency is achieved (use about 5 quarts of water per 50 lb bag). Pot-life will be from 30 to 45 minutes. If the mix stiffens during use, add a few ounces of water and remix.

### **2. TOTAL WALL field-mixed Two-Coat HardCoat Base**

Ingredients:

1. Portland cement - type I, II or I-II and be fresh, lump-free and conform to ASTM C150.
2. Sand - clean sharp quartz silica sand with an average 40-55 mesh size distribution and conform to ASTM C144.
3. Chopped Fibers - a pre-weighed bag of fibers available from TOTAL WALL.
4. Acrylic Additive - a 100% acrylic polymer emulsion and available only from TOTAL WALL.

TOTAL WALL Two-Coat HardCoat Base is field blended using the following mix ratio in a mortar mixer:  
94 lbs Portland cement;  
150 lbs silica sand;  
1 bag of TOTAL WALL Fibers;  
42 lbs (5 gal) Liquid Acrylic Additive.

Add up to 1 pint of clean water to adjust workability if needed. Allow the mix to stand for about 2 minutes, then remix for 2 minutes. Final consistency should be a mortar-like, easily trowelable mixture.

### **Layer 4. Finish Coat (For Two-Coat HardCoat only)**

The Finish Coat is the outer coating that gives color and texture to the Two-Coat HardCoat system. The Finish coat also provides additional protection against weather, mildew and pollution.

All Total Wall Finishes are 100% acrylic based which gives them superior durability. Total Wall Finishes are available in three grades:  
1. Premier Grade - this grade is rich in internally plasticized acrylic polymer which provides for exceptional movement.  
2. Classic Grade - this grade exceeds all requirements for EIFS industry standard finishes;  
3. Journeyman Grade - this grade is designed for superior workability and performance.

Total Wall Finishes are available in the following textures and may be trowel applied or spray applied:

1. Swirl Coarse- generates a traditional worm hole appearance at ~ 0.078";
2. Swirl Fine- generates a traditional worm hole appearance at ~ 0.065";
3. Sand - generates a fine sand blasted appearance at ~0.046".
4. SandPebble - generates a medium coarse sand blasted appearance at ~ 0.078";
5. ShotBlast Medium- generates a coarse limestone appearance at ~ 0.078";
6. ShotBlast Fine - generates a very fine limestone appearance at ~ 0.044";
7. FreeStyle - generates a variety of hand applied textures at varying thicknesses;
8. Gemstone - generates a variety of marble grain looks using colored aggregates in a clear acrylic base at ~ 0.046".

Note - Ultra Coarse Textures are also available in Swirl and ShotBlast.

## Applicable Standards:

TOTAL WALL has had extensive testing performed on each individual system component and on the assembled system by certified and code approved independent testing laboratories.

International Code Council (ICC), applicable sections of the International Building Code (IBC), Evaluations performed by the National Evaluation Service (NES)

Professional Affiliations: TOTAL WALL maintains memberships and involvement with these organizations:

EDI (Exterior Design Institute)

ASTM (American Society for Testing and Materials)

FSCT (Federation of Societies for Coatings and Technology)

AWCI (American Walls and Ceilings Institute)

NWCB (Northwest Walls and Ceilings Bureau)

## 4. TECHNICAL DATA

R-VALUE ~ R 5 per inch  
Perm Rating ~ 1.53 @ 1 inch  
Weight ~ 3.0 lb per sq ft @ 1 inch  
(weight does not include fastener)  
Impact Rating ~ 45 in-lbs

Compressive Strength of Base Coat ~ 4260 psi

## 5. INSTALLATION

### A. Substrate Preparation

The wall should be in sound condition. Any deteriorated, rotted, damaged or soft areas must be repaired before proceeding.

The wall should be uniform. Planar irregularities greater than 1 inch in 16 feet should be addressed prior to installation.

Plan the placement of control joints (V-Joint accessory). Control joints are recommended to control movement stresses at the following locations:

- door and window corners;
- changes in elevation and changes in substrate material;
- through-wall joints;
- when any panel length to width (or width to length) ratio is greater than 2.5 to 1;
- when any panel size exceeds 150 sq. ft.
- any area that that may have movement stresses.

Protect windows, plants and other areas as necessary before proceeding.

### B. Minimum Tools and Equipment

A mixer for the base and finish coats ( 1/2" drill and jiffy mix-blade or mortar mixer)

A drill and appropriate bits and tips for the fasteners

A razor knife, tape measure, level, rasp, bucket brush and chalk-line

A hot knife tool or fine-toothed saw for cutting foam boards

A stainless steel trowel, a margin trowel, and appropriate float

### C. Mounting the EPS board to the wall.

a) All insulation boards must meet specific performance criteria. These criteria include fire resistance, density minimums, and dimensional stability. Any discolored or warped boards should be rasped and used as cut trim pieces. Using a level and a mason's chalk line, snap a line at what will be the lower edge of the TOTAL WALL Hard Coat wall system.

b) Measure and cut a length of metal weep base and fasten it to the substrate. For colder climates, the weep base must be galvanized steel or solid zinc. Warmer climates may use PVC as an option trim material. The bottom row of insulation boards will rest directly on this weep base strip.

c) Place the rigid insulation board on the wall beginning at the weep base and install two TOTAL WALL fasteners (use opposite corners) to hold the board in place. If the system is being installed over masonry, the fastener holes must be pre-drilled with the proper size diameter masonry bit. Tap (or screw depending on the fastener type) through the pre-drilled holes. For steel or wood studs, screw the fastener through the foam board and sheathing into the stud. In all cases, the heads of the fasteners should be nearly flush with the surface of the insulation boards. Continue mounting insulation boards in this fashion using a running bond pattern.

d) Insert a sliver of foam board in any gaps between insulation boards. At doors, windows and other protrusions, be sure to leave room (~ 0.5") for insertion of backer-rod and caulk sealant between the EIF System and the edge of the door, window, or other protrusion in the wall.

e) Lightly etch board surfaces with a wire brush.

f) Measure and cut long sheets of TOTAL WALL Hard Coat Reinforcing Mesh to cover the entire face of the insulation boards. Attach the reinforcing mesh to the insulation boards by installing the remaining fasteners through the mesh and through the insulation boards and into the studs or masonry as required. The final fastener density should be approximately 1 fastener per square foot. Strips of the 38" wide mesh must overlap by at least 2-1/2". Try to keep the mesh even and snug with the surface of the board.

g) Measure and cut a length of metal surface mount V-joint and place it on the foam. Press plastic gripping nails (available from TOTAL WALL) at the edges of the flanges to hold the V-joint in place. Be sure that the V-joint flanges overlap the reinforcing mesh.

h) Measure and cut lengths of 0.25" ground stop-bead for all system or wall terminations. This includes through-wall joints, window and door edges, other wall protrusions and stops. The flange edge must overlap the reinforcing mesh by at least 2". Press plastic gripping nails (available from TOTAL WALL) into the

edges of the flanges to hold the stop-bead in place.

i) At all outside corners, measure, cut and install corner bead (metal or PVC), or optionally install special corner mesh. Attach the corner units to the foam board with plastic grip nails and be sure that the flanges overlap the reinforcing mesh by at least 2".

## **D. Applying HardCoat BaseCoat**

a) Using a steel trowel, apply Hard Coat Basecoat mix to the surface of the foam insulation boards in a 0.25" thick coat.

b) Use the top edge of the trim accessories to help gauge the 0.25" thickness of the HardCoat BaseCoat application. Immediately fill any voids or gaps in the BaseCoat and continue an uninterrupted application for each system panel. Never stop an application in the middle of a panel. Use a moistened darby or slicker to help level the HardCoat BaseCoat.

## **E. Finishing**

### **1. One-Coat HardCoat**

a) After the Hard Coat Basecoat application from "part b)" above, allow the coating to take an initial set on the wall (about 10 - 30 minutes depending on conditions). The coating should be firm enough to hold a slight indentation when pressed with the tips of the fingers. The One-Coat Hard Coat application may receive either a textured masonry

finish or an exposed aggregate finish. For a textured masonry finish, use a fresh batch of TOTAL WALL Hard Coat Basecoat to trowel apply the preferred texture and float or knock-down the high points of the texture as desired to achieve the selected look. For an exposed aggregate finish, use clean, dry aggregate of desired shape and color. Use a suitable technique to evenly fling or press the aggregate into the HardCoat BaseCoat. Apply enough aggregate to occupy the entire surface of the Hard Coat Basecoat.

b) The One Coat HardCoat application is now complete. Immediately proceed with cleanup and sealant application. Protect the system from precipitation and freezing for 24 hours while protecting from freezing and precipitation.

### **2. Two-Coat HardCoat**

a) Allow BaseCoat to cure for a minimum of 18 hours while protecting from freezing and precipitation.

b) Remove any trowel marks by rubbing a pumice stone over the surface.

c) Apply the TOTAL WALL Finish of choice directly out of the bucket onto the cured BaseCoat using a stainless steel trowel.

d) Texture or float the finish to achieve the desired result.

e) Allow the finish to cure by protecting from freezing and precipitation for 24 hours.

## F. Installing Sealant

Insert a proper diameter backer rod to allow for its compression into the joint at a uniform depth. The depth is to allow for the desired thickness caulk bead. The backer rod should be a closed cell polyethylene material or an extruded polyolefin with a non-absorbing skin. Apply a primer when recommended by the sealant manufacturer. Prepare the sealant according to the manufacturer's instructions. Apply the sealant with pressure gun and properly sized nozzle. Fill the surface of the prepared joint with a smooth, solid, even bead of sealant. The bead must be free of sags, voids and wrinkles. Tool the joint to eliminate air pockets and force contact with the joint surfaces.

## G. Architectural Enhancements

Architectural shapes such as quiones, corners, arches and cornices can be added during the middle or latter phases of the installation process. Foam shapes can be mounted directly to the substrate or over the existing base coated system as applicable. These shapes can be made at the job site or, they can be ordered (from American Prefab) completely prefabricated and finished to a desired color and texture and ready to mount to the wall.

## H. Precautions:

The system must be constructed to prevent water intrusion. Therefore, all details must be properly constructed. These details include: all caulking details, kickouts, flashings, terminations, and utility penetrations.

## 6. AVAILABILITY

TOTAL WALL materials are manufactured in Rio, WI and are purchased by Approved Applicators or Certified Applicators through TOTAL WALL Distributors. Contact your local Distributor for a list of Approved or Certified Applicators or call 888-702-9915 for assistance

## 7. WARRANTY

**a) 5 Year Material Warranty**  
TOTAL WALL, Inc. warrants its system against delamination, fading\*, or material defects when properly installed by an Approved or Certified TOTAL WALL Applicator according to current TOTAL WALL and job specifications in force at the time of installation. The Warranty must be requested before system installation. A properly completed and signed inspection check list must be submitted at job completion prior to issuance of any Warranty. TOTAL WALL reserves the right to review any claim and make the final determination as to the validity of the claim and the cause of the claim. At no time shall the value of the Warranty exceed the original purchase price of the materials. Should TOTAL WALL receive a valid claim, TOTAL WALL, at its option, will either repair the damage, replace materials, or refund in US dollars for the amount of damaged TOTAL WALL materials.

**b) 10 Year Material and Labor Warranty**  
TOTAL WALL, Inc. warrants its system against delamination, fading\*, or material defects when properly

installed by a Certified TOTAL WALL Applicator according to current TOTAL WALL and job specifications in force at the time of installation. The Warranty must be requested before system installation and a properly completed and signed inspection check list must be submitted at the job completion prior to issuance of any Warranty. TOTAL WALL reserves the right to review any claim and make the final determination as to the validity of the claim and the cause of the claim. At no time shall the value of the Warranty exceed the original purchase price of the materials and labor. Should TOTAL WALL receive a valid claim, TOTAL WALL, at its option, will either repair the damage, or refund in US dollars for the amount of damaged TOTAL WALL materials and associated labor. No Warranty stated herein shall not be effective until the goods and labor subject to said Warranty have been paid for in full. TOTAL WALL makes no other express warranty or warranty of merchantability. Further, TOTAL WALL makes no warranty that the products of its manufacture are fit for any particular purpose. Defects caused by misuse, improper storage, mishandling or improper application shall not be Warranted. TOTAL WALL is not responsible for damage or injury for materials not manufactured by TOTAL WALL, acts of God, structural movement, or defective materials or their application on the warranted structure.

\* Fading is defined as a DE of 2.0 or greater on an ACS colorimeter. Base 4 (accent) colors are not Warranted against fading.