

TOTAL WALL

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applicator training manual **DIRECT APPLIED DA**

applicator training manual

applicator training manual

DEFS

— direct applied DA system —



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A comprehensive guide to assist in
the proper installation of Total Wall
Class DA Direct Applied Exterior
Finish System (DEFS)

TOTAL WALL

Welcome To TOTAL WALL

TOTAL WALL is a leading national manufacturer of EIFS and Stucco products centrally located in Wisconsin. TOTAL WALL is a manufacturer of building products for use on homes and commercial buildings. Our products include Interior and Exterior Finishes, Stucco, Coatings, Panels, Sealers, and Exterior Insulation and Finish Systems (EIFS). Our product history dates back over 28 successful years.

We are members of the Northwest Walls and Ceilings Bureau (NWCB), Association of the Walls and Ceilings Industries (AWCI), the American Society for Testing and Materials (ASTM), the Indoor Air Quality Association (IAQA), and the Exterior Design Institute (EDI). Our wall systems and products have been tested by certified testing laboratories, and we have systems that comply with all major model codes including The BOCA National Building Code, the Standard Building Code, the Uniform Building Code, the International Building Code, and the International Residential Code. We hold ICC-ES Report Numbers NER-646 and ER-5245.

Our philosophy is to provide quality, attractive products that are simple to install and show a profit to our customers. Because TOTAL WALL product systems insulate, protect, and beautify any building, they show a return on investment. Building owners save money in energy costs, reduced property maintenance, and increased property utility and resale value.

Our customer service technical support team consists of competent, helpful, and resourceful individuals who are committed to customer service. Our management is committed to being responsive and striving to maintain a personal feeling and attention, backed with high quality products. For comments, questions, or orders we are always happy to hear from you. Our customer service / technical support number is toll-free 888-702-9915.

Thank You,

TOTAL WALL, INC.

PREFACE

Using This Installation Guide

This installation guide is a comprehensive handbook to assist you with the selection and application of TOTAL WALL Class DA Direct-Applied Exterior Finish Systems (DEFS). This guide is formatted into sections covering topics from the concept of DEFS, the components of DEFS, through the installation of the Class DA specific system. Numerous drawings and diagrams are used in each section to help clarify and assist in the explanation of the steps involved. Please use the table of contents to locate the specific information you wish to review. For clarification on technical terms, please refer to the glossary in the appendix.

Please keep in mind that this guide is designed to aid you in understanding the principles and application of DEFS. It is designed to support and not replace applicator training. This guide is not a substitute for on-the-job training or applicator certification seminar programs. Further, this guide is not a substitute for job specifications, materials specifications, or job drawings. As always, if you have any questions call us at 888-702-9915 for assistance.

If you are unfamiliar with DEFS, we suggest that you read through The DEFS Concept in Part 2 of this guide to help with familiarization. If you are considering applying DEFS for the first time, you must attend and pass an approved training seminar or education program in order to be qualified to purchase product and be eligible for a materials warranty. As part of your training, your first field application may be closely monitored and corrected where necessary. A training seminar combined with your actual field application will give you the opportunity to do all the steps in a Class DA application. During the training class, you will be able to ask questions and learn some of the techniques used in a professional application. Additionally, you will learn how to use architectural enhancements and learn the vital points of proper trim and sealant application. Welcome to the growing TOTAL WALL family.

TOTAL WALL
Direct-Applied Exterior Finish Systems (DEFS)
Applicator Certification Guide

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DEFS

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chapter

1

An Overview Of DEFS

The evolution of the Direct
Applied Exterior Finish
System & the DEFS concept.

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The Evolution of Direct Applied Systems

Stated simply, the Direct-Applied Exterior Finish System (DEFS) is an application of Exterior Insulated and Finish Systems (EIFS) lamina directly to sheathing without the rigid expanded polystyrene foam layer. EIFS lamina is a term for the combined layers of the base coat with reinforcing mesh and finish coat and is approximately 1/8" thick.

Just as with Exterior Insulated and Finish Systems, Direct-Applied Exterior Finish System technology was brought into the U.S. from Europe. Again, very similar to what happened with EIFS, Direct Applied systems were quickly changed in this country to make them cheaper and faster to install.

During the 1980's and into the 1990's, DEFS was installed over gypsum sheathing with only a strip of mesh reinforcement at the sheathing board joints. However, the single strip of mesh at the sheathing joints proved to be ineffective reinforcement over time.

DEFS in the U.S. has evolved into the stronger system design it originally possessed in Europe.

Total Wall DEFS incorporates the following:

- a moisture resistive barrier layer and drainage plane;
- full system mesh layer plus double-mesh at sheathing joints and heavier base coat layer;
- cement board sheathing for exterior exposure with gypsum core sheathing permitted in protected areas only; and
- system limitations for use in climates where average low temperatures fall below -30°F.

THE CONCEPT OF MOISTURE DRAINAGE CLASS DA DIRECT-APPLIED EXTERIOR FINISH SYSTEMS (DEFS)

DEFS are multilayered, non-bearing claddings used to weatherproof and beautify exterior walls of a building. Total Wall DEFS incorporates a moisture barrier and drainage plane to allow incidental water to escape the wall system. The drainage plane is constructed behind the exterior sheathing and incorporates a weep starter track.

Beginning at the inner layer and working outward, the basic DEFS system contains the following components:

1. A starter weep track;
2. A moisture barrier lapped onto the starter track;
3. A drainage plane to allow incidental water to escape;
4. An approved exterior sheathing board;
5. A layer of polymer modified Portland cement reinforced with fiberglass mesh; and
6. A textured synthetic finish coat.

The diagram to the right is a cut-a-way example of Total Wall's moisture drainage Direct-Applied Exterior Finish System. The sub-sheathing in this example is plywood. The moisture barrier is StuccoWrap and lapped over a weep track. The starter is carried below the plywood to prevent water damage. StuccoWrap has corrugations to create the drainage plane. The exterior sheathing is ½" cement board. The cement board then receives Total Wall Base Coat, Reinforcing Mesh, and Total Wall Finish.

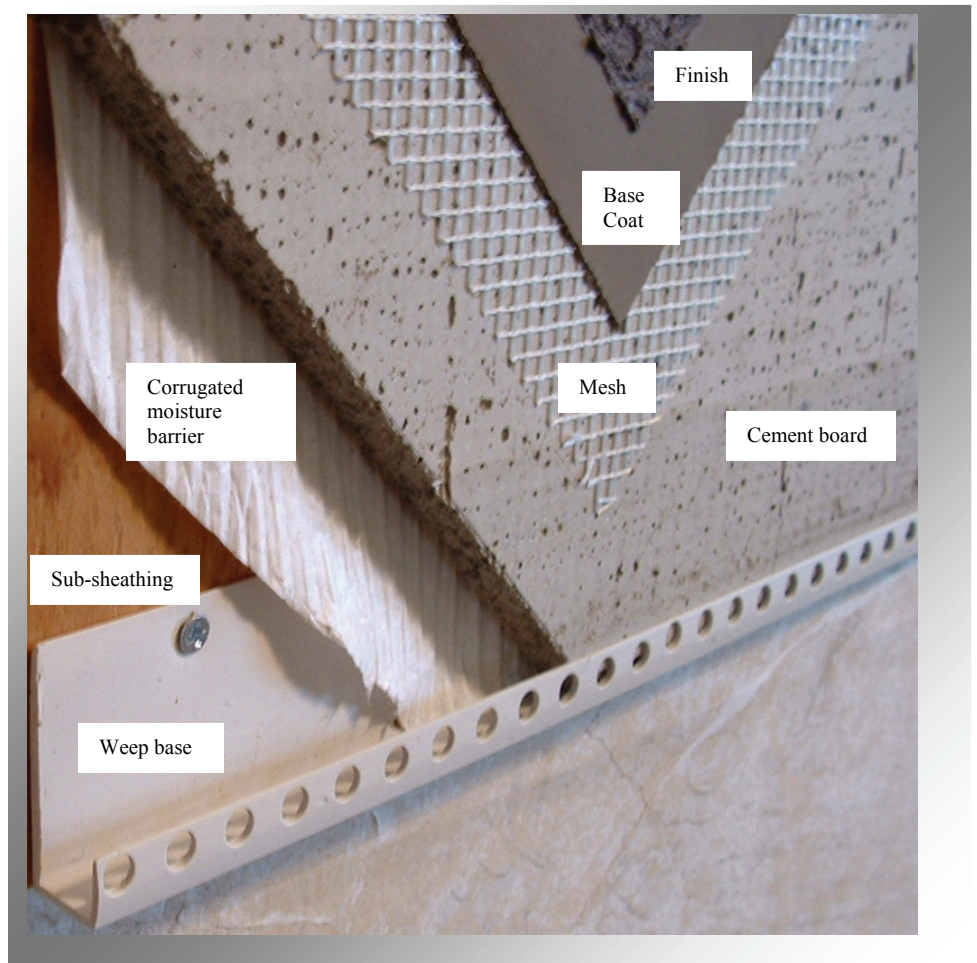


Figure 1

In Figure 1, the Direct-Applied Exterior Finish System is installed over sub-sheathing, such as plywood. Since the moisture barrier is sandwiched between two layers of sheathing, it is important to use a corrugated moisture barrier to facilitate drainage of moisture. Approved corrugated moisture barriers are Tyvek StuccoWrap, RainDrop HouseWrap, Weather Trek Wrap, and Vortec Drainage Barrier.

Accessory materials, such as starter weep base, flashings, casing bead, control joints, and waterproofing tape, are typically employed in the system assembly. The exterior sheathing is installed over the moisture barrier. For areas of direct exposure to weather, the exterior sheathing must be a cement board, meeting ASTM C1325. For protected areas, such as a soffit or portico, the exterior sheathing may be either a cement board or siliconized-core gypsum sheathing, such as DensGlass, Fiberock, or GlasRoc. The exterior sheathing must be ½" thickness minimum over sub-sheathing, such as plywood or oriented strand board. The exterior sheathing is covered with Total Wall Base Coat and Total Wall Reinforcing Mesh. As shown in Figure 2, sheathing joints and other high stress areas receive an additional layer of Base Coat and Reinforcing Mesh. The Base Coat layer is covered with Total Wall Finish Coat, available in a wide range of textures and colors. Finally, a properly installed, approved caulk sealant backed with a bond-breaker tape is applied around windows and other penetrations. Architectural enhancements, such as trim bands, arches, and quoins, are easily incorporated into the system.



Figure 2

Some code jurisdictions, such as the State of Alabama, and several organizations, such as the Exterior Design Institute, classify DEFS as a sub-category of Exterior

Insulated and Finish Systems (EIFS). The parallel classification is likely due to the EIFS manufacturer and applicator usually being the DEFS manufacturer and applicator.

Additionally, EIFS and DEFS are frequently specified on the same project. Nonetheless, many other organizations regard the two systems as completely separate and unrelated.

The key difference between EIFS and DEFS is that DEFS does not have the layer of rigid polystyrene foam insulation board. The polystyrene insulation board layer in EIFS is a soft, low modulus material, which acts as a slip-plane between the exterior coatings and the sheathing. For this reason, wall stresses rarely result in cracking of the exterior coatings in EIFS. On the other hand, DEFS has no slip-plane or other means to absorb wall stresses, and minor cracking may occur. Therefore, it is important to reinforce stress areas, such as sheathing joints. Additionally, cold temperatures greatly increase wall stresses, open joints, and reduce the elasticity of coating materials. For this reason, climate should be taken into account when considering DEFS as an exterior cladding. Total Wall cautions the use of DEFS in climates with an average annual low temperature below -30°F.

United States Frost Zone Map

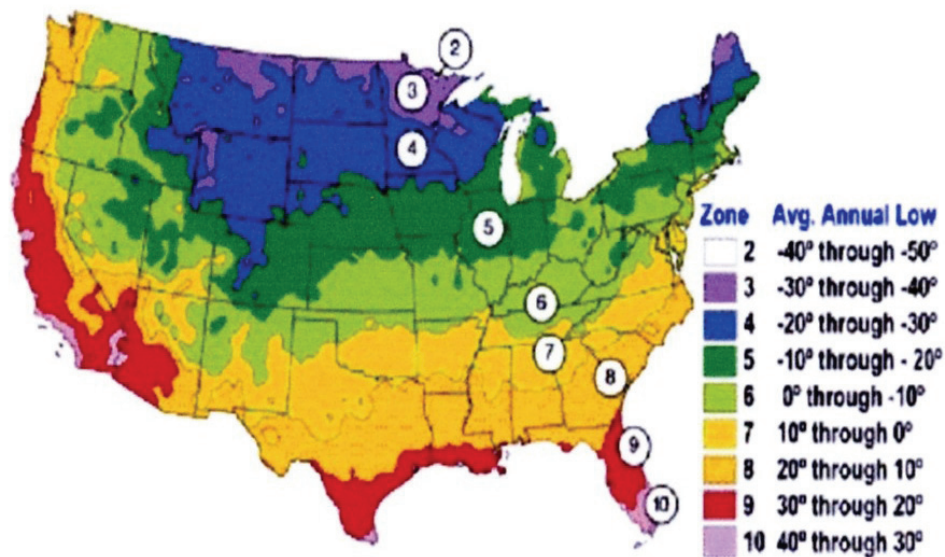


Figure 3

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DEFS

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chapter
2

System Components

ACCESSORIES Weep Starter track, Control Joint, Casing Bead
BARRIER Sheet-Applied Moisture Barrier
Liquid-Applied Moisture Barrier (Total Stop RA)
(OPTIONAL FOR USE OVER SUB-SHEATHING)
(See appendix)
BASECOAT T 2000 Base Coat Data Sheet
Foam & Base Coat Data Sheet
NCB EZ Base Synthetic Data Sheet
NCB EZ Base Tech Note
MESH Total Wall Mesh Product Data Sheet
Mesh Seam Procedure - Detail mesh - for reinforcement
FINISH Elastomeric Finishes: Classic and Premium
Acrylic Siliconized Finishes: Journeyman
SEALANT Approved Sealant Listing

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ACCESSORIES

Accessories are used as components of the Direct-Applied Exterior Finish Systems. The accessories are used to facilitate system terminations, such as window penetrations; allow moisture to exit the system, as in the case of weep starter track; or relieve wall stresses, as with control joint. It is important that virgin PVC accessories be used. Approved PVC accessory manufacturers are Plastic Components, Vinyl Corporation and AMICO. Metal accessories, such as galvanized steel and zinc are acceptable. Use of metal should be avoided near salt water exposure or where potentially corrosive conditions may exist. Common accessories are shown below:

Figure 4

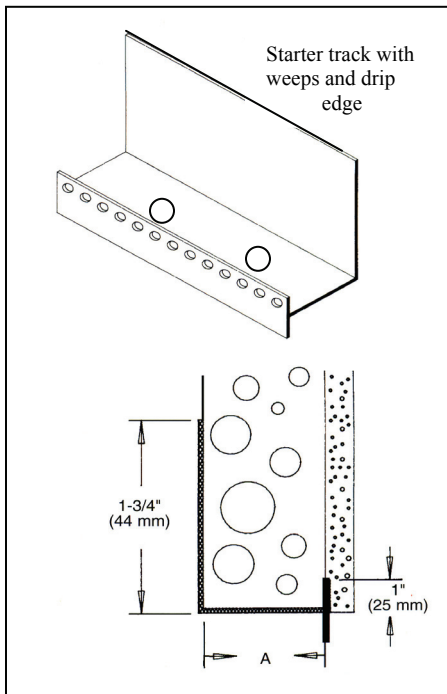


Figure 5

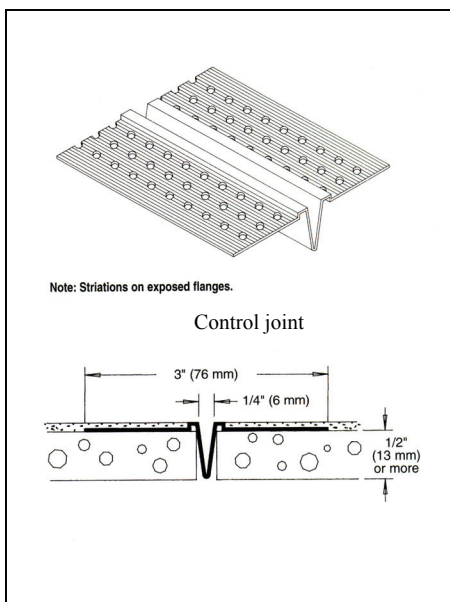
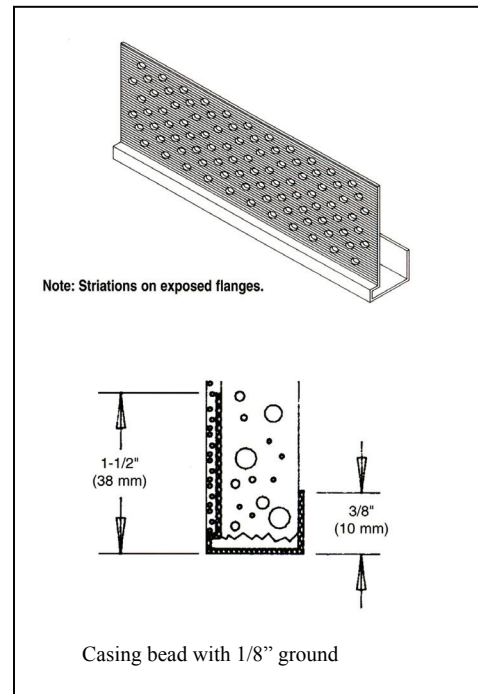


Figure 6

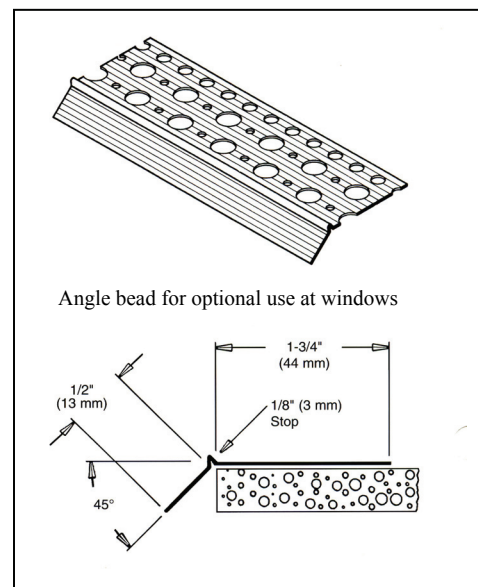


Figure 7

MOISTURE AND AIR RESISTIVE SHEET-APPLIED BARRIERS

Sheet-applied Moisture Barriers installed over sub-sheathing, such as plywood, must meet one of the below criteria and have corrugations or channels to permit moisture drainage. Approved moisture barriers include Tyvek StuccoWrap, RainDrop HouseWrap, Weather Trek Wrap, and Vortec Drainage Barrier.

- American Association Of Textile Chemists & Colorists Method AATCC-127 Hydrostatic Head Test
 - Requirement : 55 cm static pressure for 5 hours without leaking.
- ASTM D779 Water Resistance of Sheet Materials by the Dry Indicator Method
 - Measures time for water to soak through under zero pressure. Minimum Pass Time ¼ hour (15 minutes).
- ASTM E331 – Wind Driven Rain Test (modified by ASTM E1677, which sets test parameters)
 - Water spray at 5 gal/sf./hr at 15 mph for 15 minutes.

In all cases, runs of moisture barrier should be lapped 2” horizontally and 6” vertically to keep water on the outside of the building. The moisture barrier should be sealed at penetrations, such as windows, with waterproofing tape. See figure 8 below.

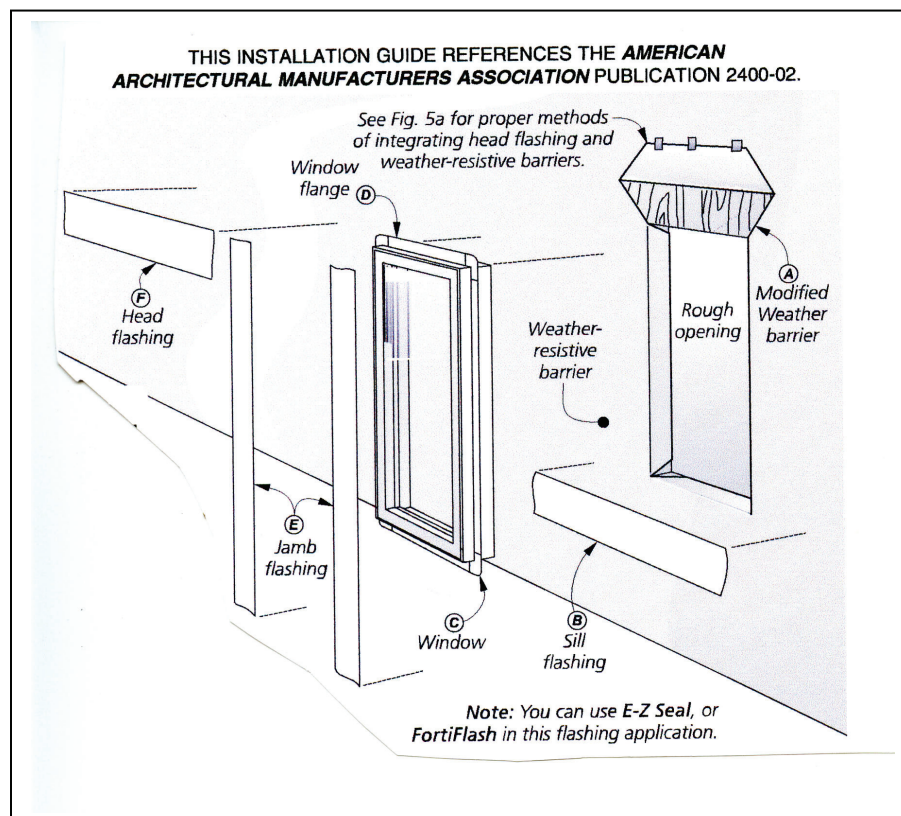
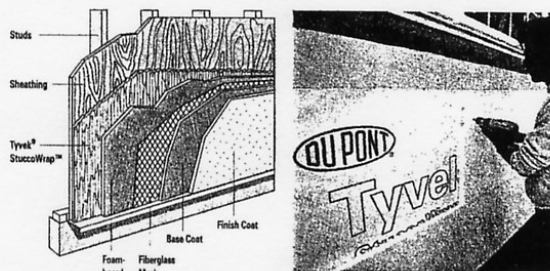


Figure 8

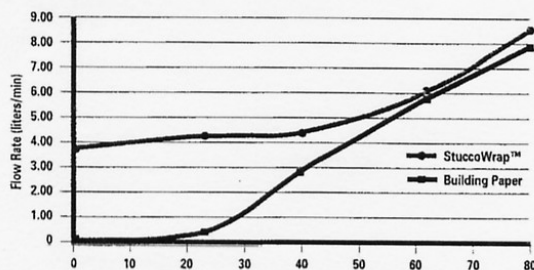
Excellent Drainage for Synthetic Stucco or EIFS

Tyvek® acts as a secondary weather membrane against incidental water that might enter around windows, doors or other joints, and StuccoWrap™ channels it safely to the outside. With StuccoWrap™ between sheathing and the insulating foam board, grooves designed into StuccoWrap™, create a drainage path for water or moisture vapor to escape. Grade D building paper wrinkles as it absorbs water and can create dams that hinder water drainage. The surface texture of StuccoWrap™ was engineered to help transport water and moisture to the outside. Lab tests show StuccoWrap® is *up to 100 times better* than building paper at draining water, even when



no mechanical spacing is used. StuccoWrap™ increases the wall's drying capacity by safely moving incidental water outside. And, because Tyvek® is a breathable membrane, it dissipates potentially damaging moisture vapor. *"After seeing the test results and conducting our own tests we definitely will encourage the use of StuccoWrap® under all USG's water-managed exterior systems, including EIFS", said Jim Reicherts, Product Manager for USG in Chicago.*

StuccoWrap™ vs. 60-min Building Paper Drainage Demonstration



Outstanding Protection Against Water, Moisture Vapor And Air Infiltration

Stucco is susceptible to fractures and cracking. Cracking not only occurs during curing, but also during expansion and contraction of sheathing or wood studs. Water and moisture get behind stucco potentially causing mold, mildew and damage to sheathing, insulation or framing. Grade D paper can absorb water and deteriorate over time—reducing the secondary protection against air, water and moisture. Water can't degrade Tyvek® StuccoWrap™. An outstanding secondary barrier to air and water, and your best defense against damaging in-wall moisture, Tyvek® StuccoWrap™ belongs under stucco.

Installation Is Easier

StuccoWrap™ is much easier to install than building paper. It's more pliable, so it wraps around corners easier. It's lighter weight. Easier to handle. Faster to install. Because it's flexible, Tyvek® easily interfaces at joints and over architectural elements. Like all Tyvek® weatherization products, StuccoWrap™ has excellent tear strength. Rain on the jobsite? No problem. StuccoWrap® won't absorb water like black paper. It stays strong and stable even when it's wet. Accidental jobsite tears? Repair quickly and easily with DuPont tape.



**RainDrop™**
HOUSEWRAP

Patent Pending

Superior Moisture Management. Outstanding Overall Performance.**• Drainage**

- GreenGuard® RainDrop™ Housewrap drains moisture like no other housewrap.
- RainDrop's unique vertical fiber channels enhance moisture drainage, allowing water to exit the wall system. (Patent pending)

• Air and Moisture Infiltration Barrier

- In addition to providing superior drainage, RainDrop is an air and moisture infiltration barrier. By preventing air and moisture from penetrating the wall cavity, RainDrop preserves the energy efficiency of your home.

• Breathability

- RainDrop's unique construction allows the product to "breathe" so that potentially harmful moisture vapor can escape the wall cavity.

• Quick and Simple Installation

- RainDrop is lightweight, so it is easy to handle.
- RainDrop is translucent, which makes it easy to locate studs, edges, corners, and openings.
- RainDrop can be nailed or stapled.
- RainDrop's green color reduces glare, making it easy to work with on bright, sunny days.

• UV-Stable

- RainDrop is UV-stable up to 4 months until covered.

• Two Convenient Roll Sizes

- RainDrop is available in the following sizes:
 - 9 ft x 100 ft
 - 9 ft x 150 ft

TOTAL WALL REINFORCING MESH

Total Wall reinforcing meshes are woven from high quality bundled fiberglass strands which are coated with a protective, alkali-resistant polymer. Total Wall reinforcing meshes are designed to add strength, impact resistance, flexibility, and crack resistance to all Exterior Insulated and Finish Systems (EIFS) and Direct-Applied coating systems. Total Wall reinforcing meshes are made for exceptional workability and ease of use. Total Wall reinforcing meshes are available in a range of strengths and weights to provide cost effective choices in application design.

Mesh Types and Uses

In all cases, the Total Wall reinforcing meshes are used in the base coat layer of lamina. Standard 4.3-ounce reinforcing mesh is the mesh weight commonly used in Direct-Applied Exterior Finish Systems. Standard mesh is available in different width rolls for walls and for detail work. It is also available in a self-sticking version for special situations. Standard mesh has a thickness of 10.7 mils and a relative impact resistance of 25-35 in-lbs measured before the finish coat is applied.

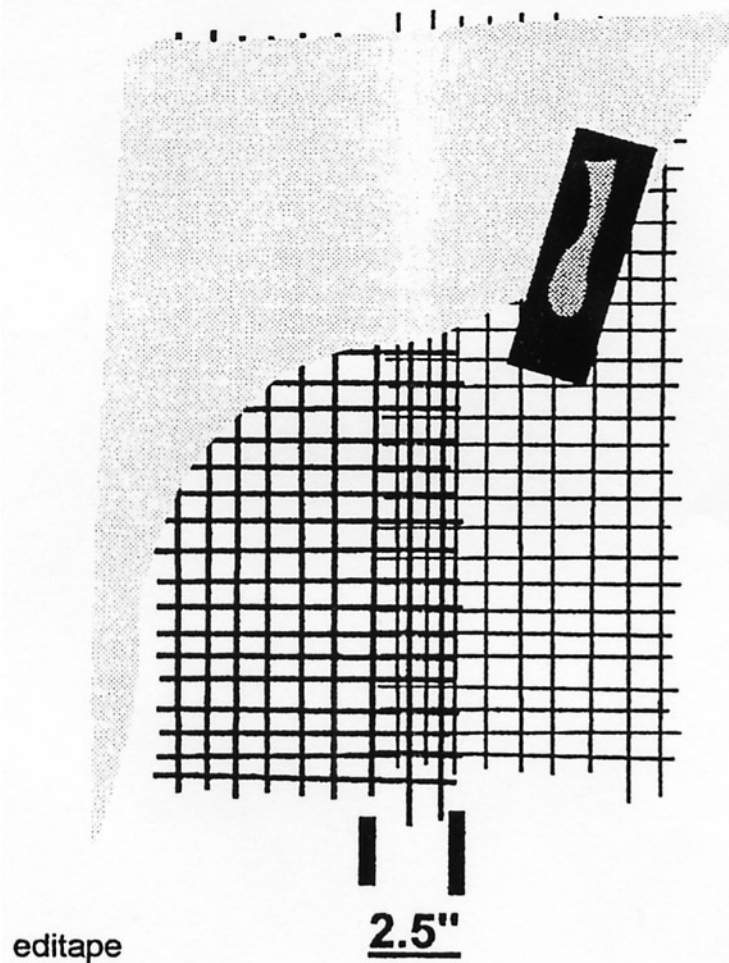
Coverage

Standard Mesh (Also Available in self-stick)

Available Widths	38"	48"	76"	114"
Detail Widths	6"	7"	9.5"	12"
Roll Length	150 feet (all rolls of Standard)			

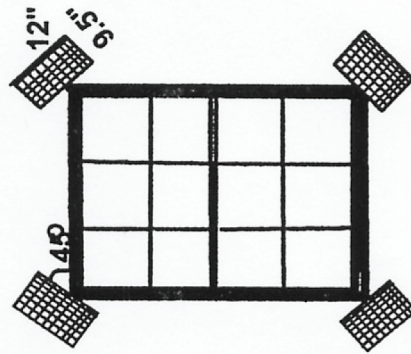
Seam Procedure

For 4.3-ounce Mesh



Overlap
Minimum of 2.5"

Use Of 9.5" Detail Mesh



“Butterflies” (9” x 12” pieces) of detail mesh are used. This section of mesh is embedded in Total Wall base coat as an additional layer to re-inforce areas of high stress such as window corners and sheathing joints. It’s purpose is to transfer localized wall stresses over a larger area, and thereby reduce any incidence of cracking. Detail mesh is also used to back-wrap and reinforce architectural enhancements made with EPS foam and attached to the DEFS wall cladding.

T-2000 Soft Coat Base Coat and Adhesive Product Data Information

Description

T-Wall T-2000 Soft Coat Base and Adhesive is a dry powder that is designed to be mixed with water to produce the base coat that embeds the reinforcing fabric over the face of the cement board sheathing or, in the case of applications in a protected area, the siliconized gypsum core sheathings.

T-Wall T-2000 may also be used as an adhesive for the attachment of EPS architectural enhancements when they are included as details on DEFS installations.

T-Wall T-2000 Soft Coat Base and Adhesive is also available as a Total Wall Journeyman Series product, which is formulated for enhanced workability and designed to help the experienced plasterer increase jobsite production.

Mixing Instructions

Open a 50-lb. bag of T-Wall T-2000 Soft Coat Base and Adhesive. Slowly pour the powder into a 5-gallon pail containing one gallon of clean water while mixing. Add up to 1.5 quarts of additional water and continue to mix with a low speed mixer until the product is homogeneous. Allow the mix to stand for about 15 minutes then remix for one minute.

For Use as a Base Coat

Using a steel trowel (preferably stainless), apply the base coat material to the joints of the cement board sheathing and immediately embed the reinforcing mesh. Work the mesh into the butter coat by starting at the center and trowel toward the edges. Avoid making wrinkles or tears in the mesh and be sure to overlap runs of mesh by a minimum of 2.5". Apply additional T-Wall T-2000 mix as needed to fully embed the mesh. Repeat the process to reinforce high stress areas with butterflies of detail mesh. When all joints and other pre-treated areas are coated, allow the material time to dry. Then proceed to apply a full coat of T-2000 to the entire face of the system, embedding the reinforcing mesh carefully and completely while proceeding. The final coating should be a smooth, even finish, thick enough to embed the mesh so that the mesh pattern is not visible. Consult Total Wall specifications for full instruction on all details.

For Use as an Adhesive

The substrate must be firm, dry, and free of loose debris and any substance that would interfere with bond. The substrate must conform to T-Wall System specifications. Cover the entire back of the EPS trim with adhesive mix using a notched trowel. Immediately press the trim piece onto the substrate with firm, even pressure.

Coverage

60 - 80 square feet/bag as a base coat (including seams). Adjust coverage downward if trim attachment is anticipated.

Handling and Storage

Do not apply to frozen or saturated surfaces. Do not apply if precipitation is forecast within 8 hours of application.

Total Wall Foam N' Base Coat and Adhesive Product Information**Description**

T- Wall Foam N' Base is a 100% acrylic emulsion blend that is designed to be mixed with Portland cement in a 1:1 ratio by weight.

T- Wall Foam N' Base produces the base coating that embeds the reinforcing fabric over the face of cement board sheathing (or siliconized core gypsum sheathing in protected areas) and may be used to adhere EPS architectural enhancements when they are included in DEFS installations.

T-Wall Foam N' Base is also available as a Total Wall Journeyman Series product, which is formulated for enhanced workability and designed to help the experienced plasterer increase jobsite production.

Mixing Instructions

Open a 5-gallon pail of T- Wall Foam N' Base and mix with a low speed mixer until the product is homogeneous. Pour one half of the T- Wall Foam N' Base pail contents (30 pounds) into a clean mixing pail. While mixing the half pail of T- Wall Foam N' Base, slowly add 30 pounds of fresh, lump free Portland type I, II, or I-II cement (approximately 1/3 of a 94 pound bag of cement) to the pail. Add up to 1 quart of clean water to adjust workability. Allow the mix to stand for about 15 minutes then re-mix for one minute.

For Use as a Base Coat

Using a steel trowel (preferably stainless), apply the base coat material to the joints of the cement board sheathing and immediately embed the reinforcing mesh. Work the mesh into the butter coat by starting at the center and trowel toward the edges. Avoid making wrinkles or tears in the mesh and be sure to overlap runs of mesh by a minimum of 2.5". Apply additional T-Wall Foam N' Base as needed to fully embed the mesh. Repeat the process to reinforce high stress areas with butterflies of detail mesh. When all joints and other pre-treated areas are coated, allow the material time to dry. Then proceed to apply a full coat of T-Wall Foam N' Base to the entire face of the system, embedding the reinforcing mesh carefully and completely while proceeding. The final coating should be a smooth, even finish, thick enough to embed the mesh so that the mesh pattern is not visible. Consult Total Wall specifications for full instruction on all details.

For Use as an Adhesive

The substrate must be firm, dry, and free of loose debris and any substance that would interfere with bond. The substrate must conform to T-Wall System specifications. Cover the entire back of the EPS trim with adhesive mix using a notched trowel. Immediately press the trim piece onto the substrate with firm, even pressure.

Coverage

75 - 125 square feet per pail as a base coat.

Handling and Storage

Do not apply to frozen or saturated surfaces. Do not apply if precipitation is forecast within 8 hours of application. Do not apply if the temperature cannot be maintained above 40 F for 24 hours. Shelf life in closed containers is 12-18 months when stored at 50-100 F. Keep containers sealed and under cover when not in use.

EZ Base NCB Product Information

Description

TOTAL WALL Soft Coat EZ Base NCB is a premixed, ready-to-use base coat and adhesive for the Direct-Applied Exterior Finish System (DEFS).

TOTAL WALL Soft Coat EZ Base NCB serves two functions: 1. it produces the adhesive that will bond rigid EPS architectural enhancements to approved substrates, and 2. it produces the base coating that embeds the reinforcing mesh over the face of approved system substrates.

Mixing Instructions

Open a new 5 gallon pail of TOTAL WALL Soft Coat EZ Base NCB. Mix with a low speed mixer for about 30 seconds or until the product is homogeneous. If necessary, add a small amount of water to adjust workability. Final consistency should be a creamy, light, and easily troweled mixture.

For Use as a Base Coat

Measure and cut lengths of Total Wall reinforcing mesh. Apply TOTAL WALL Soft Coat EZ Base NCB mix in a 1/16" thick butter coat over the joints of the sheathing board. Immediately embed the reinforcing mesh using a steel trowel. Work the mesh into the butter coat by starting at the center and trowel toward the edges. Avoid making wrinkles or tears in the mesh and be sure to overlap runs of mesh by a minimum of 2-1/2". Apply additional EZ Base mix as needed to fully embed the mesh. Continue the process for all joints and the application of butterflies in high stress areas. When these areas have dried, the full face of the sheathing boards should be base coated and fully meshed. The final coating should be a smooth, even finish, thick enough to embed the mesh so that the mesh pattern is not easily visible. Consult TOTAL WALL specifications for full instruction on all details.

For use as an Adhesive

The substrate must be firm, dry, and free of loose debris and any substance that would interfere with bond. This product is not recommended as an adhesive for glossy, chalky or deteriorated surfaces. Use TOTAL WALL Blue Mastic as the adhesive for hard to bond to substrates. Trim pieces should be adhered to the system sheathing, either before or after it has been fully based and meshed; they should not be adhered to the sub-sheathing. Cover the back of the trim pieces with adhesive mix using a notched trowel. Immediately press the pieces onto the substrate with firm, even pressure.

Technical Data

AppearanceCreamy, light grey liquid
pH (wet)Approx. 10.5
Density (wet).....12 lbs per gallon
ChemistryAcrylic polymer based

Coverage

75 - 100 sq ft per 5 gallon pail as a base coat only.

Handling and Storage

Do not apply to frozen or saturated surfaces. Protect from precipitation for 12 hours. Do not apply if the temperature cannot be maintained above 40 F for 24 hours. Shelf-life in unopened pails is 12-18 months when stored indoors.

Maintenance

If damage occurs to an installed system, please contact TOTAL WALL for information on repair.

Precautions

This product is a mildly alkaline based material. Do not ingest. Avoid contact with skin and eyes. In case of contact, flush with water. For contact with eyes, get immediate medical attention in addition to flushing. Wear safety glasses and protective clothing. Keep out of reach of children and pets.

Total Wall Synthetic Finish Product Information

Description

Total Wall Synthetic Finish is a high quality trowel grade textured coating material. Total Wall Synthetic Finish is pre-colored, pre-textured, and ready to trowel on directly out of the pail. The eight standard textures available are:

ShotBlast Coarse -- a deep, open sandblasted texture;

ShotBlast Medium -- a rich, uniform sandblasted texture;

ShotBlast Fine -- a rich limestone texture;

Swirl Ultra Coarse -- a deep open swirl pattern;

Swirl Coarse -- a medium open swirl pattern;

Swirl Fine -- a light swirl pattern;

Freestyle -- produces a variety of patterns including skip, knockdown, stipple and brush;

Gemstone -- a variety of marble-like finishes.

Total Wall Synthetic Finish provides a weatherproof, attractive eggshell finish that is designed for permanent flexibility, maximum adhesion, and long term durability.

Total Wall Synthetic Finishes are formulated with high-grade quality pigments and resins to exceed all industry standards for performance and durability.

Total Wall Synthetic Finishes are available in three grades. The Journeyman grade is our high quality standard material. Journeyman Finish is a siliconized acrylic designed with enhanced workability characteristics to maximize production for the craftsman. The Classic grade incorporates a resin backbone to provide a broader range of adhesion and elongation properties and is considered an elastomeric grade material. The Premium grade finish is designed for maximum elongation properties and is considered an elastomeric grade material.

Total Wall Synthetic Finishes are suited for all exterior and interior applications.

Application

The substrate must be clean and free of loose particles, oils, or any substance that would interfere with bond. A smooth, cement-based substrate (such as T-Wall Soft Coat Basecoat or T-Wall Hard Coat Basecoat) is recommended. For interior use, any smooth substrate (such as drywall) will do. A smooth, even substrate will provide better coverage, uniform texture, and a better result than a rough substrate. Glossy surfaces need to be roughened.

Open a new 5 gallon pail of Total Wall Synthetic Finish and mix with a low speed mechanical mixer for one minute. If necessary, add up to 6 ounces of clean water to adjust workability. Using a stainless steel trowel, apply Total Wall Synthetic Finish to the substrate. Use firm pressure to trowel on the coating. For Swirl textures, trowel to the thickness of the largest aggregate in the Total Wall Synthetic Finish. For Gemstone and ShotBlast textures, trowel to a thickness a little greater than the largest aggregate. Try not to over-trowel the coating. Work to a natural stop or break. Depending on drying conditions and the desired result, float the finish within 2-5 minutes. Do not let the T-Wall Acrylic Finish begin to dry before floating is completed. For the ShotBlast finishes, a plastic float or stainless steel trowel are often used. For the Swirl textures, a foam float or plastic trowel is often used. The face of the trowel or float is kept flat to the wall using light to moderate pressure and circular sweeping strokes. Do not over-float the Finish.

Freestyle texture responds to different floating techniques to produce stipple, skip trowel, knockdown, or other attractive textures. The applicator must apply a thin skim coat and then a second coat, with which the applicator produces the final texture.

Use T-Wall Lastic Smooth elastomeric coating if a primer is to be used ahead of Total Wall Synthetic Finish. When used as a primer, T-Wall Lastic can be diluted with one pint of water per gallon of T-Wall Lastic before application.

Features

- ' Meets all VOC, VOS requirements
- ' Is a 100% acrylic water-based coating
- ' Does not create a vapor barrier
- ' Protects against all weather conditions
- ' Provides a long lasting, attractive finish
- ' Resists dirt pickup and is non-chalking

Technical Data

Flash point		>200 F Seta
Density		13.5 lb/gal
Viscosity		approx 1 MM cps
pH		9.0 - 9.8
Elongation		ASTM D412
	Journeyman	up to 30%
	Classic	up to 100%
	Premium	up to 180%
Solids	> 80%	ASTM D1044
Accelerated Weathering	2000 hrs	Pass (ASTM G23)
Mildew Resistance	pass	Mil Std 810D
Flame Spread Index	5	ASTM E84

Coverage

Texture	(per 5-gallon pail)
ShotBlast Coarse	70 – 90 sq.ft. / pail
Freestyle	80 - 140 sq.ft. / pail
Swirl Ultra Coarse	90 - 120 sq.ft. / pail
ShotBlast Medium	90 - 120 sq.ft. / pail
Gemstone	100 - 120 sq.ft. / pail
Swirl Coarse	120 - 150 sq.ft. / pail
Swirl Fine	140 - 160 sq.ft. / pail
ShotBlast Fine	140 - 170 sq.ft. / pail

Handling and Storage

Do not apply to frozen or saturated surfaces. Do not apply if precipitation is forecast within 8 hours of application. Do not apply if the temperature cannot be maintained above 40 F for 24 hours. Shelf life in closed containers is 12-18 months when stored at 50-100 F. Keep containers sealed and under cover when not in use.

Maintenance

If Total Wall Synthetic Finish becomes dirty or stained, clean with a mild cleaner solution and low-pressure spray rinse. For scars or hard to clean stains, recoat with T- Wall Elastomeric.

Precautions

Total Wall Synthetic Finish is an alkaline water based material. Do not ingest. Avoid contact with skin and eyes. In case of contact, flush with water. For contact with eyes, get immediate medical attention in addition to flushing. Wear safety glasses and protective clothing. Keep out of reach of children and pets. For additional information, please contact our Technical Department.

Sealant Listing Update Technical Bulletin

Issue # 1038 revised

Currently, TOTAL WALL recognizes Pecora, Dow, Tremco, Sika and Sonneborn as primary approved sealant manufacturers.

Experience has shown that the approved sealants perform satisfactorily for the Total Wall Exterior Finish and Insulation Systems (EIFS) and hard coat stucco systems. As a minimum requirement, the sealant must meet ASTM C920, Type M and S, Grade NS, Class 25 specifications.

Caulk Sealants Currently Approved For All Applications:

1. Dow 790 ultra-low modulus single component Silicone Sealant.
2. Dow 791 ultra-low modulus single component Silicone Sealant.
3. Dow 795 ultra-low modulus single component Silicone Sealant.
4. Pecora 890 ultra-low modulus single component Silicone Sealant.
5. Tremco Spectrum low modulus single component Silicone Sealant
6. Pecora Dynatrol II two-component Urethane Sealant.
7. Tremco Dymeric and Dymeric 511 two component Urethane Sealants.
8. Sonneborn NP 2 two component Urethane Sealant.
9. Sonneborn Sonnelastic 150 and 150 LM Urethane Sealant.
10. Sika LM 15 single component low modulus Urethane Sealant.
11. Total Wall Mastic#11 single component tintable single-component Sealant.

Below Listed Caulk Sealants Approved for Hard Coat Stucco and EIFS but Must be Pre-approved for EIFS Applications Only:

1. Sonneborn NP1 single component urethane Sealant.
2. Pro-Seal 34 single component polycarbonate sealant.
3. Sikaflex-2c, NS/SL two component urethane Sealant.
4. Bostik Chem-Caulk 500 two component urethane Sealant.

It is worth noting the ultra-low modulus silicones have demonstrated the broadest range of performance. This equates to statistically fewer service problems and an anticipated longer service life, especially in harsh climates on EIFS (Exterior Insulated and Finish Systems) and hard coat stucco. Therefore, in our opinion, the ultra-low modulus silicones should be given extra consideration if all other factors are equal.

For additional information call TOTAL WALL 888-702-9917.

02-2006

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applicator training manual **DIRECT APPLIED DA**

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DEFS

— direct applied DA system —

chapter

3

TOTAL WALL Drainable Class DA System

When to Use TOTAL WALL DEFS
Wall Preparation Check List
About the Exterior Sheathing
A Review of Product Mixing Instructions
Accessory Installation
Moisture Barrier Installation
Exterior Sheathing Installation
Base Coat and Embedding Reinforcing Mesh
Areas to Reinforce
Applying a Choice of Finish Coat
Architectural Enhancements
Joint Sealant Treatments

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When To Use Total Wall Direct-Applied Exterior Finish Systems

DEFS (Direct-Applied Exterior Finish Systems) were developed to provide a durable and easy-to-install exterior cladding for specific types of exterior sheathing where added insulation is not an important factor. The Total Wall design for this system, when used in vertical walls exposed to the weather, always has a means for water to escape from behind the DEFS. Therefore, Total Wall DEFS provides additional protection that is advantageous to moisture sensitive sub-sheathings and other moisture sensitive framing members. TOTAL WALL considers OSB, plywood, and exterior gypsum to be moisture sensitive sub-sheathings. TOTAL WALL considers wood studs, joists, etc., to be moisture sensitive.

In addition, construction practices relating to residential construction are substantially different from commercial practices. The incidence of water intrusion behind the exterior cladding is a higher risk factor in residential construction. Based on these factors, combined with recent changes in building codes, TOTAL WALL requires the following practices with regard to TOTAL WALL DEFS installations:

1. All exterior wall areas with direct weather exposure shall incorporate a moisture resistive barrier, a drainage plane, and a means for water to exit the system;
2. All exterior wall areas with direct weather exposure shall use an approved cement board as the exterior sheathing, with sheathing joints meshed and based, followed by full mesh and base for the entire wall. Protected areas may use siliconized core gypsum sheathing as an alternative to cement board. Anyone with questions regarding Direct-Applied Exterior Finish Systems, warranties, qualified applicators, code requirements, sheathing, framing, products, inspections, detailing, or specifications should call 888-702-9915.

WALL PREPARATION

1. The wall framing, including sub-sheathing, should be plumb, clean, and in sound condition. Any deteriorated, rotted, damaged, or soft areas must be repaired before proceeding.
2. The wall should be uniform, planar, and capable of bearing the weight of the exterior sheathing and coating system.
3. Protect windows, plants, and other areas as necessary before proceeding.

MINIMUM RECOMMENDED TOOLS AND EQUIPMENT

1. A mixer for the base and finish coats (1/2" drill and jiffy mix-blade mixer);
2. A drill/driver and appropriate bits and tips for the fasteners;
3. A razor knife, tape measure, level, rasp, bucket brush, and chalk-line;
4. A hot knife tool, snips, or fine-toothed saw for cutting accessories;
5. A stainless steel trowel, a margin trowel, a notched trowel, and a float; and
6. A staple gun to install sheet moisture barrier or roller to apply liquid barrier (see the appendix of this manual for more information on this option).

MINIMUM SYSTEM MATERIALS REQUIRED

1. TOTAL WALL Base Coat: Use one of the following three products: Foam N' Base Coat (mix with Portland cement) or T-2000 Dry Soft Coat Base Coat (mix only with water) or TOTAL WALL NCB EZ Base or Tuff II (premixed ready-to-use non-cement base coat);
2. Portland cement (used only for TOTAL WALL Foam N' Base Coat);
3. TOTAL WALL Standard Reinforcing Mesh and Detail Mesh;
4. TOTAL WALL Synthetic Textured Finish Coat (with selected color and texture);
5. PVC trim accessories;
6. Approved moisture barrier such as Tyvek StuccoWrap, RainDrop HouseWrap, Weather Trek Wrap, or Vortec Drainage Barrier;
7. Waterproof tape, such as FortiFlash or ProtectoWrap;
8. Approved bond-breaker and caulk sealant.

A REVIEW OF PRODUCT MIXING INSTRUCTIONS**1. a. TOTAL WALL T-2000 Dry Soft Coat Base Coat**

This product is a powder and comes 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 (about 5 quarts of water per 50-lb bag). Allow to stand for 10 minutes, and remix.

1. b. TOTAL WALL EZ Base (Non Cement Base Coat)

Mix before use. Product may be thinned by adding 4 - 6 ounces of water while mixing per 5 gallon pail of TOTAL WALL EZ Base. Mix with a low speed jiffy mixer blade on a drill. Product may be cleaned off surfaces with soap and water before drying.

1. c. TOTAL WALL Foam N' Base Coat

Mix product in a 1:1 ratio by weight with Type I Portland cement. Add 6 – 10 ounces of water to a 5 gallon pail of mix to adjust to a mortar-like consistency. An easy way to measure is to pour off 1/2 pail of Foam N' Base Coat into a clean, empty pail. This will be about 30 lbs. of product in each pail. Now add 1/3 bag of Portland cement to each pail while mixing (a bag of Portland cement weighs 94 lbs., so 1/3 of a bag is about 31 lbs. of cement). Now each pail will have 30 lbs. of Foam N' Base Coat and 31 lbs. of cement. Add 16 - 30 ounces of water while mixing to achieve the desired consistency. Allow to stand 15 minutes, and remix.

2. TOTAL WALL Finish Coatings

These products are premixed and ready to use. However, it is a good idea to mix the product for about 30 seconds with a low speed mixer before use to insure proper consistency. If the product is too thick, add 2 - 8 ounces of water per 5 gallon pail while mixing.

INSTALLATION

The moisture drainage DEFS should be chosen and incorporated into the design and bid phases of construction before installation begins. What is a moisture drainage system? In the event that water accidentally enters the system, for example from a faulty detail, a moisture drainage system will permit that water to safely exit from behind the exterior cladding. Without a moisture drainage system, water that enters the system cannot easily escape and may eventually cause damage to moisture sensitive sheathing and framing in the wall and enter the inside of the building envelope.

Step 1 Beginning with a starter track with weeps

Using a level and chalk line, mark where the lower edge of the system will be on the wall. A starter track with weep holes is installed at the lower terminations of the DEFS. Attach the starter track along the bottom edge of the wall (at the lowest point of the system installation). The lower exterior sheathing boards will rest on this starter track strip, so make sure that it is level and firmly attached to the wall using corrosion resistant screws. Ideally, the system should terminate one inch or more below any wood sheathing or framing. Please see the details section of this manual for more information.

Step 2 Installing the moisture barrier

It is recommended that window and door penetrations receive two layers of moisture barrier. Wrap the first layer of moisture barrier into the raw door opening or window opening. Install head flashing over the window or door heads. Install sill pan flashing as applicable.

Attach moisture barrier to the entire exterior wall sub-sheathing using a staple gun and 1/4" or 3/8" staples approximately every 6". Lap the building paper over the back vertical edge of the starter track. Start at the bottom and work up to lap the moisture barrier so water running down the wall will not get behind the paper. Overlap horizontal runs of building paper at least 2". Lap vertical runs by at least 6". Be sure that the second layer of moisture barrier is lapped over the back of the head flashing and tucked under the bottom edge of the first layer where necessary to prevent water from getting behind the barrier.

Seal the moisture barrier to the penetration transitions with waterproofing tape. Be sure to seal the top of the back riser on the sill pan flashing. Provide a drainage plane for the water to flow out of the system by using Tyvek StuccoWrap, RainDrop HouseWrap, Weather Trek, or Vortec Drainage Barrier proprietary drainable wraps over sub-

sheathing. All other flashings, including kickout flashing and deck flashing, must be installed to work with the drainage system.

Step 3 Attaching the exterior sheathing

For wall areas exposed to weather, the exterior sheathing must be an approved cement board ½" minimum thickness over sub-sheathing. For protected areas, such as porticos and soffits, siliconized-core gypsum sheathing, such as DensGlass, GlasRoc, or Fiberock, may be substituted for cement board. Install cement board loosely butted with the rough side out and long dimension perpendicular to framing members. Attach sheathing to framing members following sheathing board manufacturer instructions. Use corrosion resistant bugle-head cement board screws of the proper length to penetrate sheathing and also penetrate the stud member at least ½". Screws must be spaced vertically no greater than 8" apart and not countersunk into the exterior sheathing more than 1/8". Allow for control joint placement in accordance with sheathing manufacturer specifications. Typically, control joint will be installed every 15 or 16 linear feet and at wall system stress points. At these locations, gap the sheathing joints approximately 3/8" or as needed to allow room for the control joint. Hold the exterior sheathing back at window terminations 3/8" to ½" to allow for casing bead installation and the construction of an isolation joint with bond-breaker tape and sealant.

Step 4 Installing remaining accessories

Prepare system terminations, such as window jambs, by installing casing bead. The angled termination bead, which is installed over the exterior sheathing, may be used in place of casing bead and may work better for some windows. The angled termination bead allows for construction of a fillet bead sealant joint.

Step 5 Installing base coat and mesh

Apply Total Wall base coat to the board face at the butted sheathing joints before embedding Total Wall detail reinforcing mesh. (Note -- detail mesh should be at least 4-1/2" wide). Using a steel trowel, apply Total Wall base coat mix to the surface of the exterior sheathing boards in a 1/16" to 1/8" thick skim coat. Immediately embed the Total Wall standard 4-ounce soft coat mesh) into the freshly applied Base Coat. Use a trowel to press the mesh into the base coat by starting at the center and working toward the edges. Press out the air voids and wrinkles to produce a smooth base coat. Remember to overlap runs of standard mesh by a minimum of 2-1/2 inches.

Overlay a 9-1/2" by 12" section of detail mesh placed at a 45 degree angle at each window corner and door corner if control joints have not been installed at these locations and embed the mesh in Total Wall base coat to reinforce these natural stress points.

Apply additional base coat as necessary to completely cover the mesh so that no mesh color is visible and most of the pattern is not visible. A minimum 1/16" thickness is

required. Allow the Total Wall base coat to dry and cure at least 18 hours while protecting it from freezing and precipitation. Remove any trowel marks by rubbing a pumice stone over the surface.

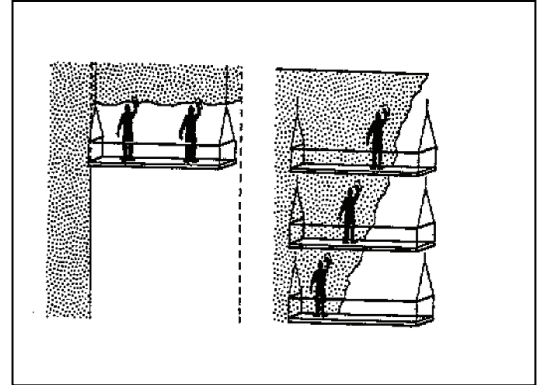
Step 6 Applying the finish coat.

a) Apply TOTAL WALL Finish of choice directly out of the bucket onto the cured base coat using a stainless steel trowel. Be sure to keep a continuous wet edge and work to a natural stop.

Use enough skilled manpower appropriate to the size of the wall and weather conditions.

b) Texture or float the finish to achieve the desired result. During floating, be sure to use the same type float and same motion and pressure to achieve a consistent appearance.

Do not apply finish into the control joints, expansion joints or isolation joints. Sealant should be bonded to a PVC accessory or window or door trim.



Swirl Ultra Coarse, Swirl Coarse, and Swirl Fine are designed to create a popular “worm hole” or “swirl” texture. Apply these finishes to the thickness of the largest aggregate. Use one trowel pass to remove any excess product from the surface. Float in a circular motion using light pressure. Plastic, wood, neoprene, and XPS foam make excellent floats. Each float will produce a different result. A delay in floating will create a “burned” or rougher looking texture. If you float or drag the finish in one straight direction rather than a circular motion, you will obtain a bark texture.

ShotBlast Fine, ShotBlast Medium, and ShotBlast Coarse are designed to create a limestone or sand-blasted surface appearance. These textures are known for being very user friendly. Apply these finishes just slightly thicker than the largest aggregate. Float by using light to medium pressure in a circular motion with a stainless steel trowel, sponge float, neoprene float, or plastic float. Waiting a few minutes for the finish to tighten on the wall will create a more open surface look.

Gemstone is designed to create a marble look. Apply these finishes slightly thicker than the largest aggregate. Float with stainless steel or plastic. A number of other floats have also produced attractive results. A prime coat of Total Lastic is recommended over the base coat ahead of Gemstone Finish.

Freestyle is designed to create a versatile, hand applied natural stucco look. Apply these finishes in a tight skim coat on the first pass. Allow the finish to tighten by waiting at least 20 minutes. Apply additional finish to achieve a stipple, skip trowel, knock-down, brush, or other desired result.

Spraying Finishes: All finishes can be sprayed using specific equipment and a suitable technique. Contact TOTAL WALL if you are considering spraying a finish.

c) Allow all finishes time to cure by protecting from freezing and precipitation for 24 hours.

ARCHITECTURAL ENHANCEMENTS

Architectural shapes such as quoins, corners, arches, and cornices can be added during the middle or latter phases of the installation process. Foam shapes can be mounted to the system sheathing either before or after application of the base coat. Do not adhere or fasten foam shapes to the sub-sheathing. These shapes are then base coated and finished to match the flat wall application described above. Alternatively, completely finished shapes which match or accent the flat wall system can be mounted to the base coated or finished system.

An example of an architectural enhancement is placing quoins (corner reveals) on the building corners. The quoins can be made at the job site, or they can be ordered (from TOTAL WALL) with base coat or completely prefabricated and finished to a desired color and texture, ready to mount to the wall.

SYSTEM INSTALLATION POINTS TO REMEMBER

- *Lower terminations have a PVC weep starter track;
- *System held back 3/8" to 1/2" at doors and windows for bond-breaker tape and sealant;
- *System held up at least 2" above roof line;
- *Moisture barrier properly installed and taped at penetrations;
- *3/4" expansion joint at intersection of dissimilar materials;
- *3/4" expansion joint where through wall joints already exist;
- *3/4" expansion joint at floor lines in wood frame construction;
- *Interlock (stagger) board joints on inside and outside corners;
- *Double mesh all butted sheathing joints;
- *Total Wall base coat and Total Wall reinforcing mesh properly installed;

- *Control joints installed in accordance with sheathing manufacturer's specifications;
- *Dab fastener heads with base coat;
- *Windows properly detailed with PVC accessories, flashed, and caulked;
- *Roof lines are properly flashed;
- *Roof overhangs have drip edges;
- *Deck flashing with end dams properly installed;
- *Kick-outs installed where needed at roof-wall interfaces;
- *Sheathing boards of proper type and thickness and properly fastened;
- *Penetrations are sealed with approved sealant;
- *All detailing, flashings, and weeps designed to work with drainage system.

SEALANT APPLICATION

It is vitally important to carefully consider, review, and follow all of the recommended procedures and details for sealant application. Pay particular attention to:

- joint dimension;
- joint location and spacing;
- joint surface-PVC accessory and/or penetration surface;
- bond-breaker tape placement;
- primer application;
- sealant application.

Improper joint installation and sealant application will lead to serious job problems and could result in a DEFS failure. Therefore, it is prudent to use only experienced applicators and reputable materials in all phases of sealant installation. Pecora, Dow, Tremco, Sika, and Sonneborn are primary approved sealant manufacturers.

TOTAL WALL further recommends use of either a 2-part urethane, such as Dynatrol II by Pecora, or Dymeric by Tremco, or a single component ultra-low modulus silicone such as Dow 790, 791, or 795 silicones or Pecora 890 silicone. In addition, low modulus single component urethane sealants, such as Sika 15LM or Sonneborn 150LM are approved. TOTAL WALL offers its own Mastic #11 tintable caulk sealant. Other sealants may be used, such as a single part urethane (example Sonneborn NP 1) with prior approval from TOTAL WALL in writing. As a minimum requirement, the sealant must meet ASTM C920, Type M and S, Grade NS, Class 25 specifications. For additional information, call TOTAL WALL.

SEALANT APPLICATION ON CLASS DA SYSTEMS

Expansion joints or thru-wall joints should be a minimum width of 3/4" or 4 times the expected movement, whichever is greater. The moisture barrier should be continuous behind the joint.

Joint depth minimums are established by the sealant manufacturer and can be obtained from their literature or by calling Total Wall Technical Services. Typically, a total joint depth of 3/8" for bond-breaker tape and sealant will be sufficient for joints up to 3/4" width. However, silicone sealants typically require a thickness of as little as 1/4" because they function better in a narrower cross section. Mastik #11 requires a thickness of approximately 3/8" for joint widths of 1/2" or wider. In some instances, a fillet bead of sealant over a quarter-round backer rod or bond breaker tape is acceptable to accommodate specific details. Sealant should be bonded to the lateral sides to a PVC accessory or a penetration flange or molding, such as a window trim. It is recommended that PVC control joints be filled with sealant for additional protection and for aesthetic purposes. Apply a primer ahead of sealant when recommended by the sealant manufacturer.

Insert a proper width bond-breaker tape along the very bottom of the sealant joint. Do not apply bond-breaker tape along the sides of the joint. Where joint depth needs to be controlled and there is sufficient room, use a proper diameter backer rod. The depth is controlled 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.

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 solid contact with the joint surfaces. All joints should be regularly inspected to insure that a waterproof seal is maintained.

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DEFS

— direct applied DA system —

chapter

4

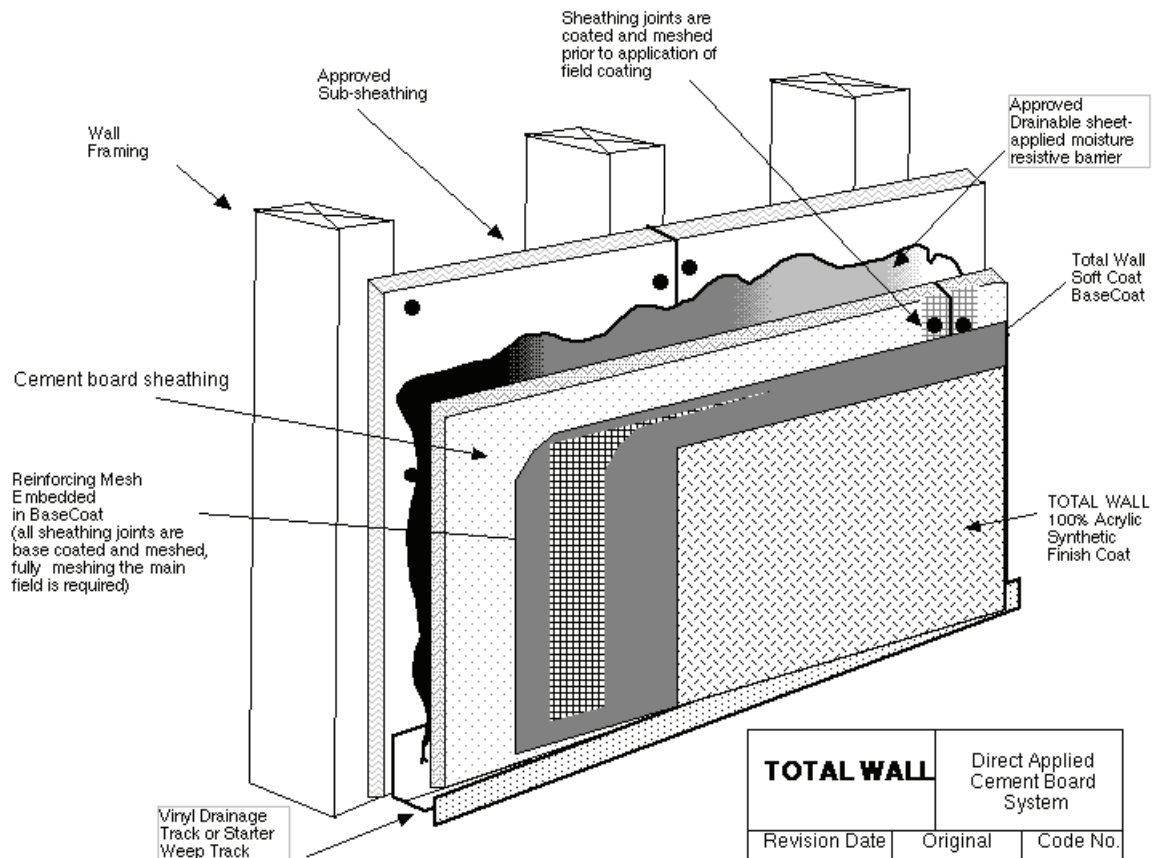
TOTAL WALL MD SYSTEM DETAILS

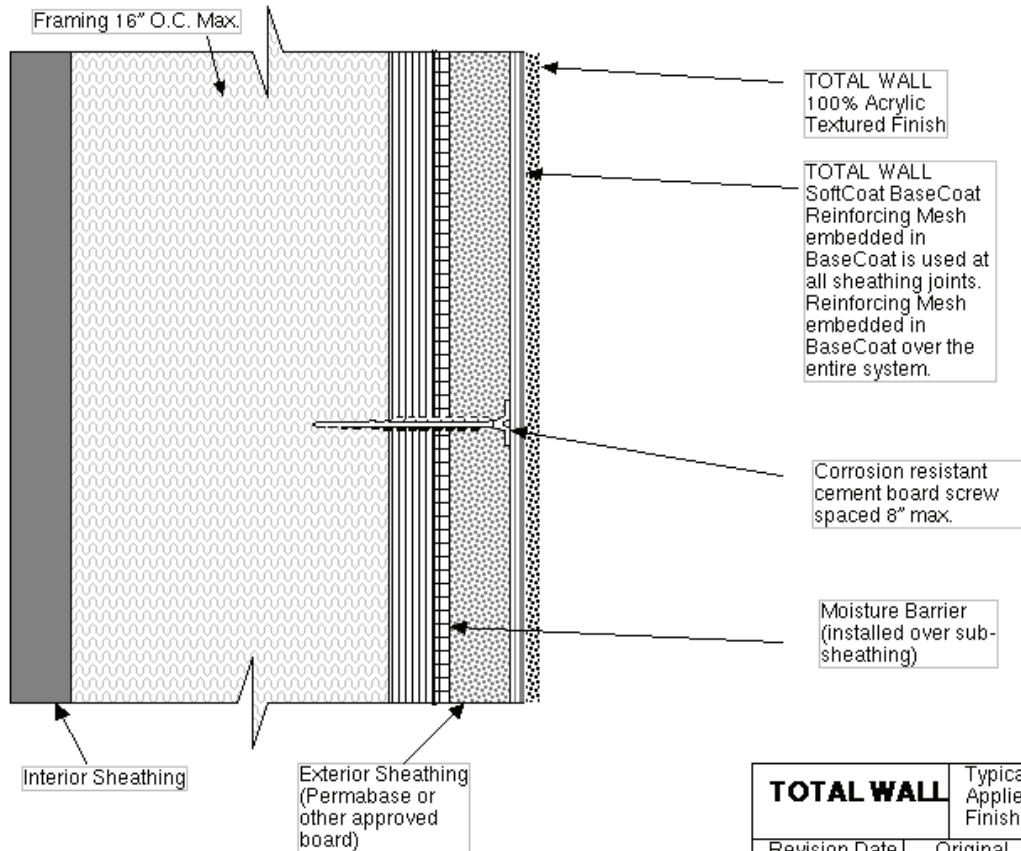
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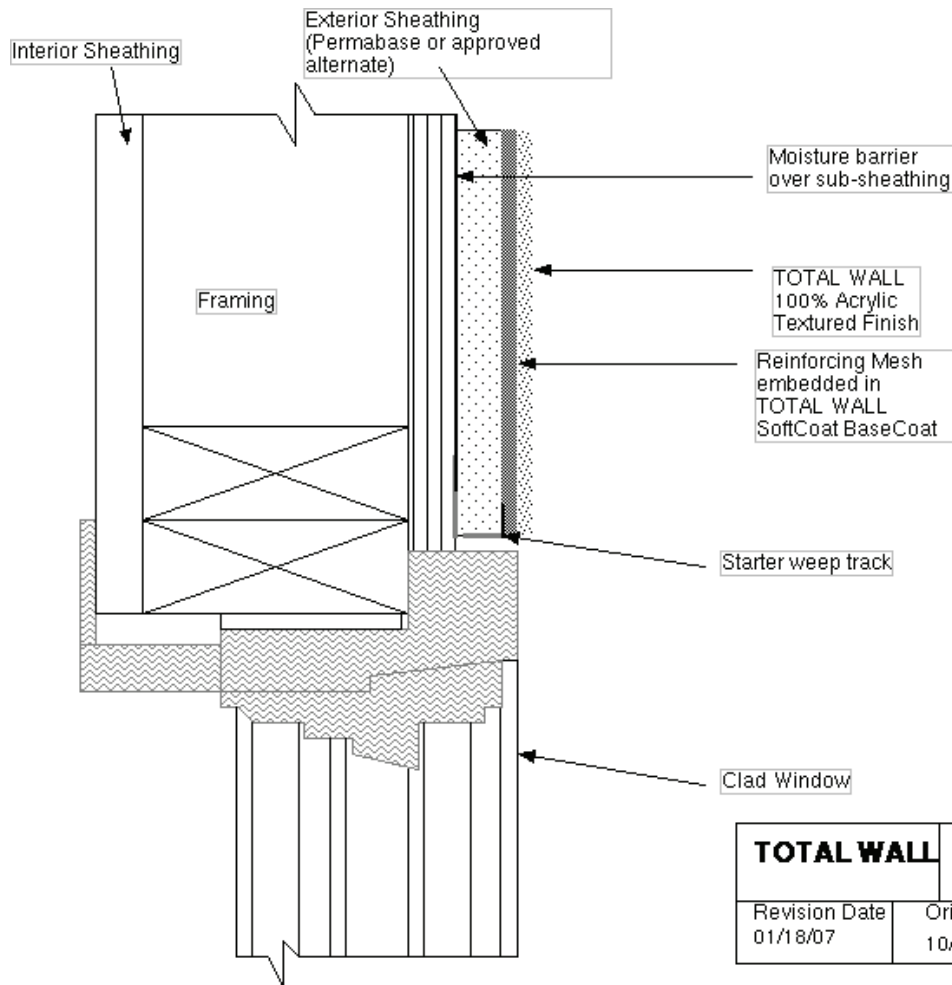
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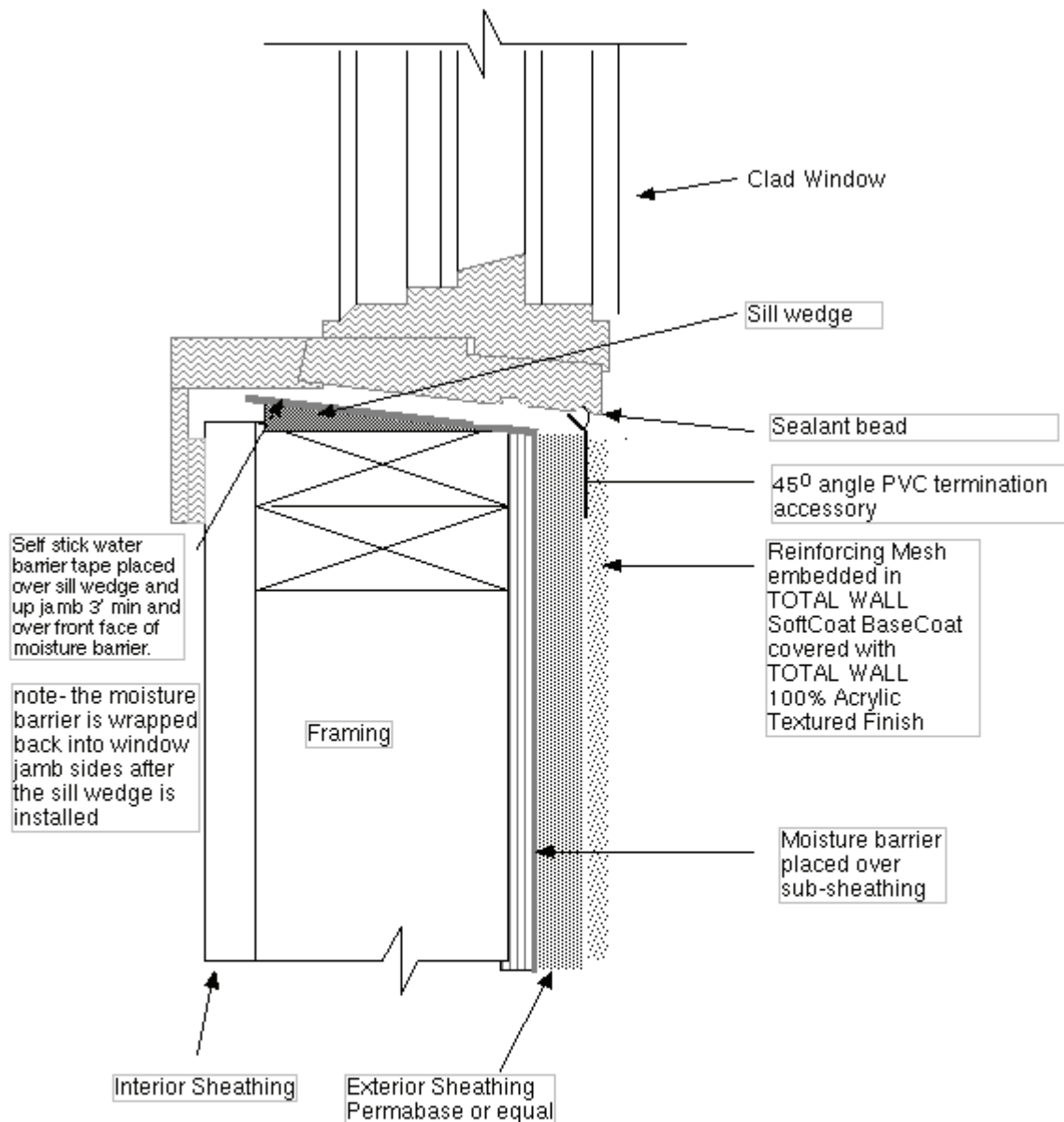




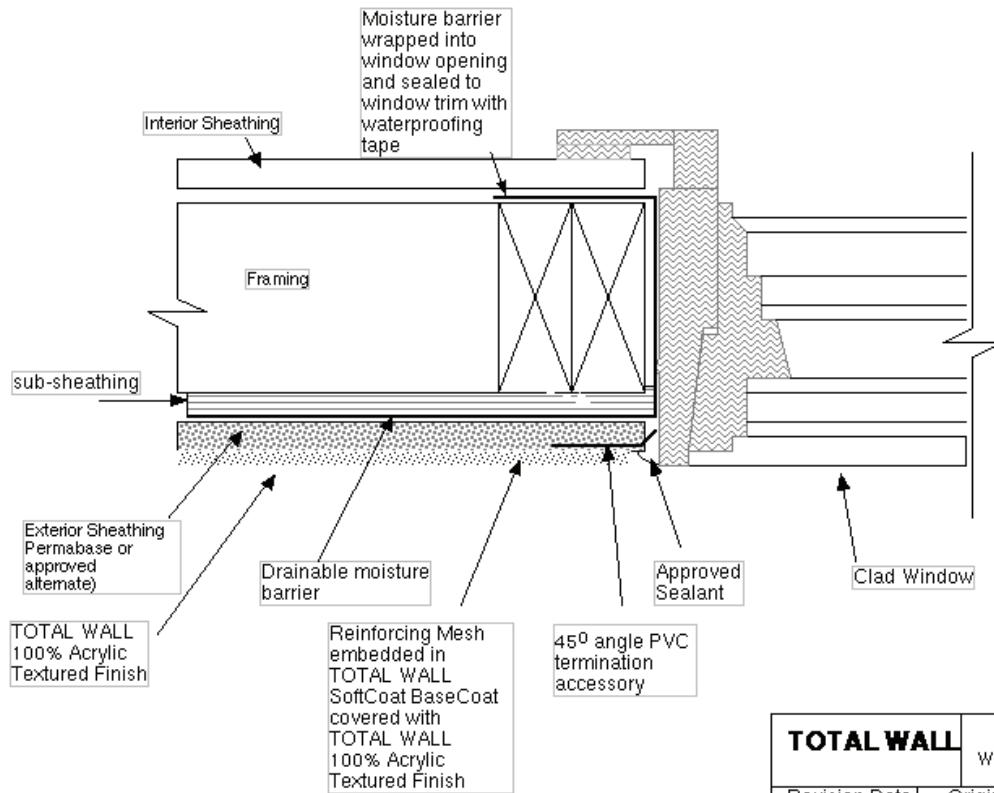
TOTAL WALL		Typical Direct Applied Exterior Finish System
Revision Date	Original	Code No.
04/04/07	10/10/01	DA 1.01



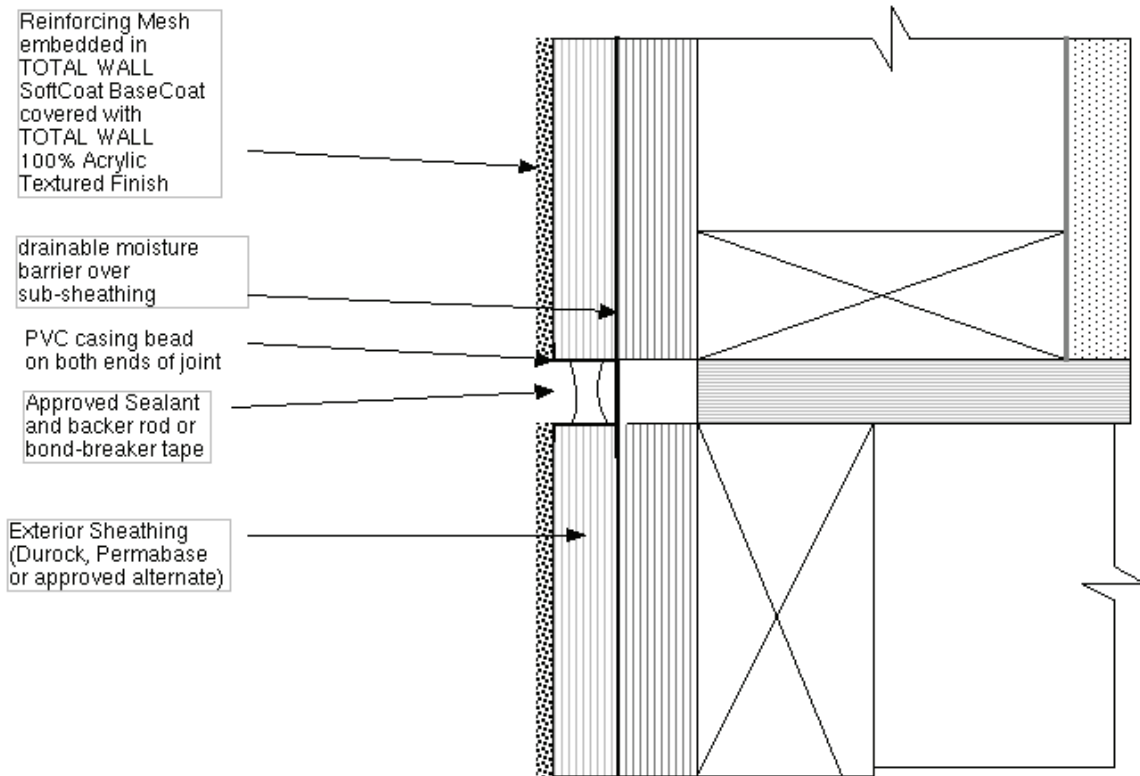
TOTAL WALL		Typical DEFS Window Head Detail
Revision Date 01/18/07	Original 10/08/01	Code No. DA 1.02



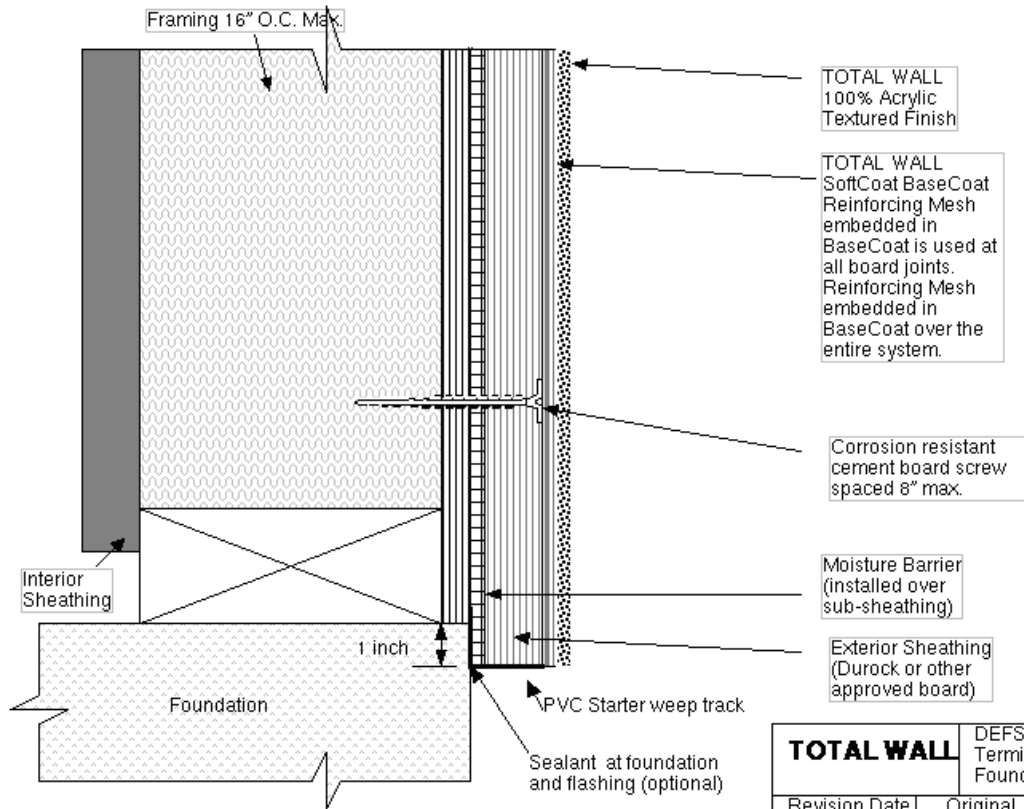
TOTAL WALL		Typical DEFS Window Sill Detail
Revision Date	Original	Code No.
01/18/07	10/08/01	DA 1.03



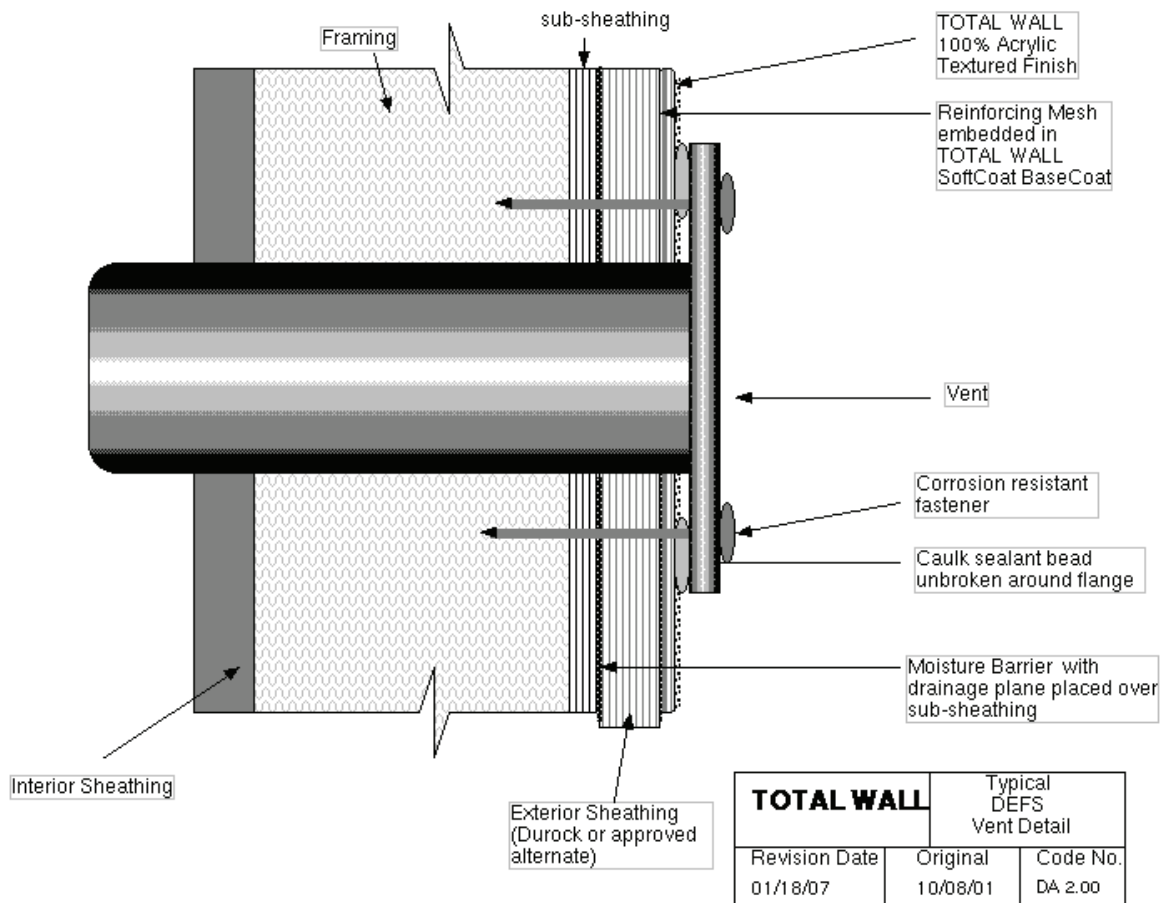
TOTAL WALL		Typical DEFS Window Jamb Detail
Revision Date	Original	Code No.
03/18/07	10/08/01	DA 1.04

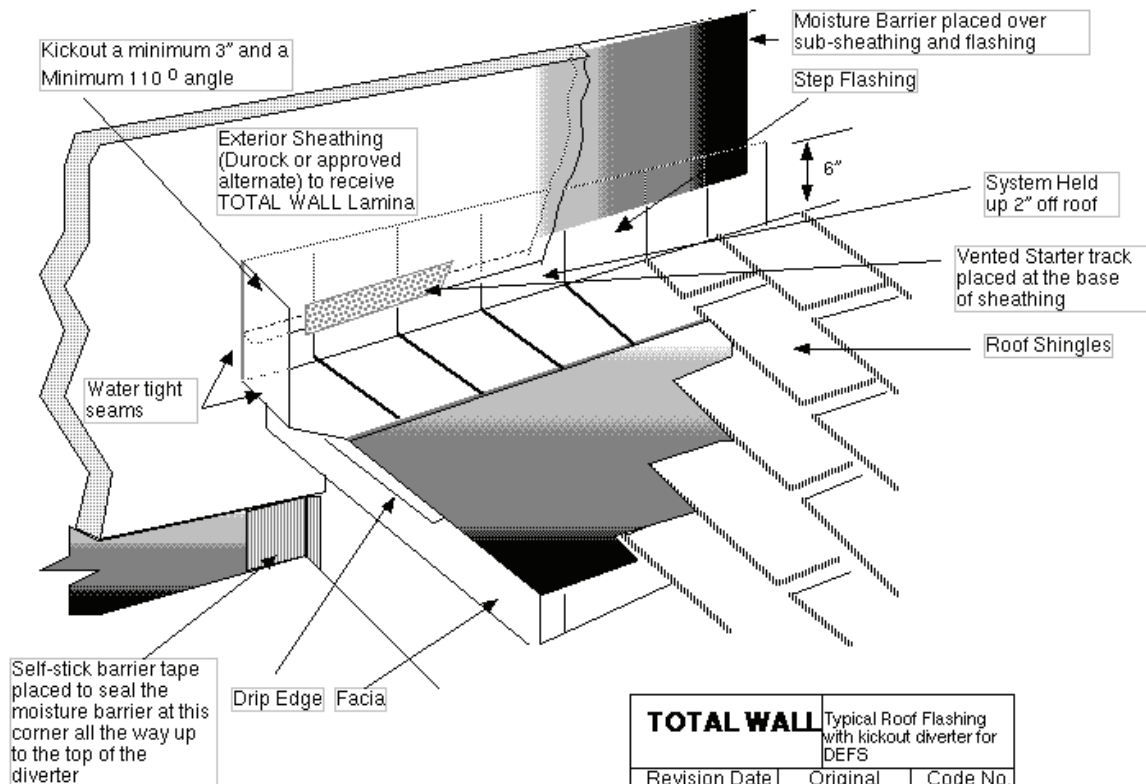


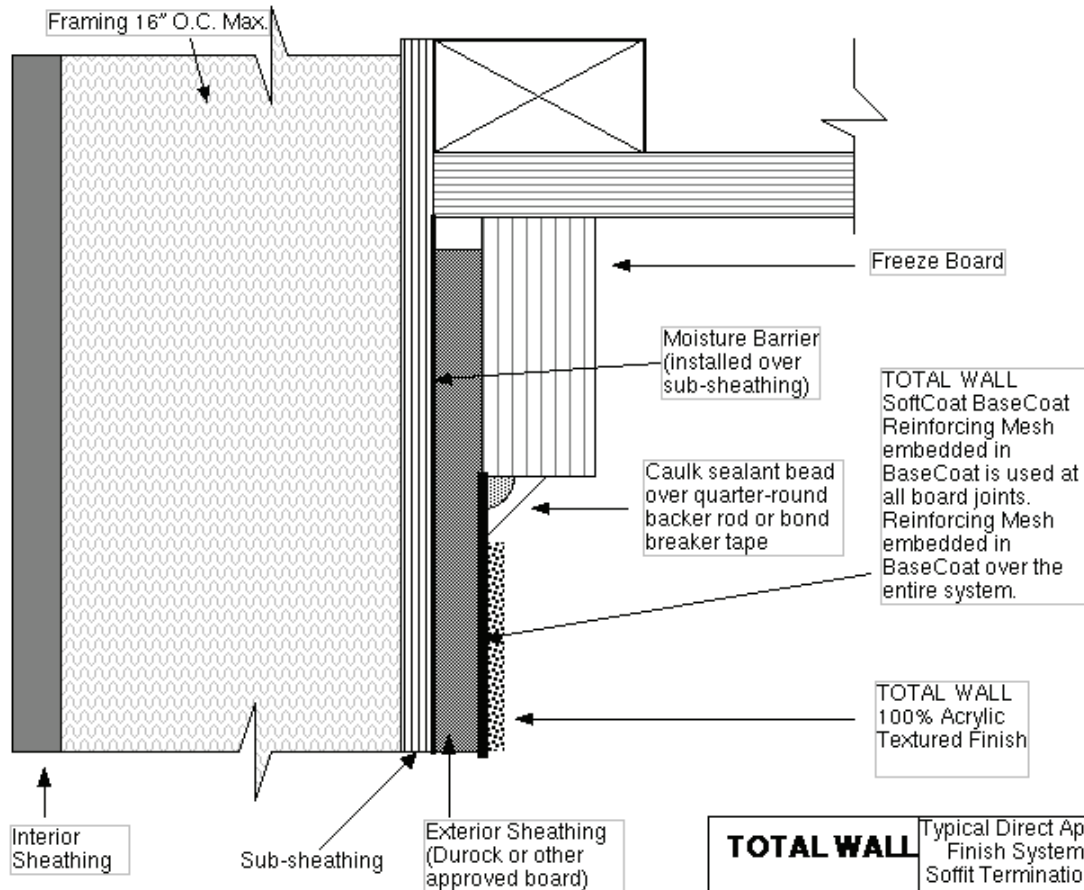
TOTAL WALL		Typical DEFS Floor line Expansion Joint Detail
Revision Date	Original	Code No.
03/18/07	10/08/01	DA 1.05



TOTAL WALL		DEFS Termination at Foundation
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01/18/07	10/08/01	DA 1.11







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DEFS

— direct applied DA system —

chapter

5

TOTAL WALL System Analysis and Inspections

Job Tips
Inspection Check List
System Maintenance
System Repairs

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TOTAL WALL

Job Tips

- Protect your wall application from adverse weather conditions.
- Store job materials under cover and protected from temperature extremes.
- Stage your job to take advantage of sun and shade at different times of the day and ambient temperatures.
- Supply enough manpower to maintain a continuous application of base coat and finish coat to natural wall stops.
- Insure consistent texturing and floating of the finish coat on the entire job.
- Group pails of finish coat by lot (batch) number. When changing lot numbers, mix the last two pails of current lot number with two pails of the next lot number. This will blend any subtle differences that could exist between different lots of materials.
- Always use fresh and clean job materials. These materials include water, Portland cement (when required), and sand (when required).
- When adjusting workability of any material by water addition, record the amount of water added and maintain consistent adjustments. Make small adjustments in workability rather than risking an over-adjustment by adding too much water at one time.
- Thoroughly mix all hand applied materials and products before use.
- Use clean mixing vessels and tools to avoid contaminants such as rust, grease, or left-over product from previous jobs.
- Protect windows, doors, roof sections, plants, and any other areas that could be affected by spills or spatters.
- Clean spills and spatters as soon as possible, especially on non-protected surfaces.
- Maintain good housekeeping practices at all times; keep tools and equipment clean and well maintained.
- Keep yourself and everyone on the job conscious of safety. Keep material safety data sheets available at the job site.

**TOTAL WALL DEFS Step-By-Step Check List
for Class DA Drainable Direct-Applied Installation Inspections**

Note all deviations or concerns in the margins of this page. Use photographs and sketches when necessary. Mark "N/A" next to any item that does not apply to this job.

Project name and location: _____

PRIOR TO APPLICATION

- ☐ 1. The sub-sheathing is flat (no deflections >1" in 16 feet).
- ☐ 2. The structure is sound (no holes, voids, or weak areas).
- ☐ 3. Flashing is properly installed (rooflines, chimneys, dormers, ledger boards, window and door heads, kick-outs, etc).
- ☐ 4. Accessories are properly installed at terminations and joints.
- ☐ 5. A 3/4" gap in sheathing at each floor line (wood construction).
- ☐ 6. Control joints or butterflies of mesh present at stress points.
- ☐ 7. Framing and sub-sheathing in specification.
- ☐ 8. Balconies, decks, and other projections properly prepared and flashed.

TOTAL WALL DEFS APPLICATION

- ☐ 1. All materials supplied by TOTAL WALL are in original unopened containers and protected from sunlight and freezing conditions.
- ☐ 2. Weather check (above 40 F and protected from precipitation).
- ☐ 3. The cement board (or siliconized core gypsum for protected areas) meets ASTM and TOTAL WALL specifications.
- ☐ 4. Moisture barrier properly installed and sealed at terminations.
- ☐ 5. Weep track installed at lower terminations.
- ☐ 6. Moisture barrier properly attached and lapped.
- ☐ 7. Sheathing properly attached and fastened.
- ☐ 8. Mesh and base coat applied at all sheathing joints.
- ☐ 9. Full mesh and base coat over entire system.
- ☐ 10. Overlap runs of Soft Coat mesh (minimum 2 1/2" overlap).
- ☐ 11. Expansion joints (floor lines in wood frame, or changes in substrate, etc.).
- ☐ 12. System held back 3/8" to 1/2" at all penetrations (bond-breaker and caulk).
- ☐ 13. Base Coat applied in 1/16" level thickness.
- ☐ 14. Minimum 6:12 slope on all exposed EIFS trims.
- ☐ 15. System held back 6" from grade and 2" off roofing.

SEALANT APPLICATION

- ☐ 16. Install bond-breaker and sealant (Sealant/primer used _____).
- ☐ 17. Sealant Manufacturer instructions followed.
- ☐ 18. Sealant bonded to Trim or Accessories.
- ☐ 19. All joints and penetrations properly sealed or vented as appropriate.

FINISH APPLICATION

- ☐ 20. Apply and texture TOTAL WALL Finish.
- ☐ 21. Finish applied uniformly with adequate labor and equipment.
- ☐ 22. Maintenance instructions left with building owner.

Printed Name: _____

Title: _____

Signed: _____

Date: _____

Maintenance and Repairs of TOTAL WALL Systems

Your Total Wall exterior wall cladding is designed to be a low maintenance system. TOTAL WALL finishes are equipped with a patented dirt resistance to maintain a clean surface for many years. TOTAL WALL finishes are also protected with agents that prevent growth of mold, mildew, algae and bacteria on the wall. Finally, TOTAL WALL finishes use materials that are stable against all weather and exposure conditions. However, any surface may become dirty, stained or damaged over time. Here are some suggestions for routine maintenance and repairs.

Cleaning--Should the surface need to be cleaned, exterior cleaning can be done with a low pressure washer and a small amount of mild (non-phosphate) cleaner, followed by a clear water rinse. The best cleaner to use is a dilute solution of borax in warm water with a little Joy or Ivory liquid soap. If necessary, light scrubbing can be done with a soft brush. Do not use high-pressure spray equipment as it may damage the finish. Mold and mildew growth is very rare on TOTAL WALL Finishes. Should you ever encounter mold or mildew on a wall, clean the wall with a solution of: 1 quart bleach, 3 quarts water, ¼ cup borax, and 1 ounce Ivory liquid. Use only fresh solution. Dissolve the borax in water before adding bleach. Wear safety goggles and full clothing protection including gloves. Protect plants and sensitive materials from over-spray. Use a low-pressure spray (such as a Hudson sprayer) and wet the wall. Allow the cleaner to work for 3-5 minutes then rinse with clear water.

Changing the Color-- Occasionally, re-coating may be desired for a fresh look or color change. In this instance, re-coating is done with one or two coats of T-Wall Lastic available from TOTAL WALL. T-Wall Lastic will provide a fresh color coat and additional weather resistance while maintaining the stucco look and texture of the existing system. Using T -Wall Lastic will also maintain the integrity of the system.

Repairing Damage--TOTAL WALL recommends that damage be repaired by an approved EIFS or stucco professional. If a section of DEFS becomes damaged, torn, or punctured, repairs can be made by the following procedure:

1. Cut out the damaged section (including the exterior sheathing if damaged) in the shape of a rectangle. Do not cut through the moisture barrier.
2. Next, grind off an additional 2 inches of finish in a perimeter around the rectangle shaped hole you made in step 1. Cut a piece of exterior sheathing to fit snugly into the rectangular hole. The sheathing board must be the same type and thickness as the board that was removed.
3. Use a bugle head screw to attach the sheathing to the substrate.
4. Cut a piece of reinforcing mesh in a rectangular shape, 3 inches wider and 3 inches longer than the rectangular opening. This will allow a 1.5-inch overlap of mesh onto the sanded border on all sides of the rectangular hole.
5. Embed the reinforcing mesh with TOTAL WALL soft coat base coat and remove the excess so that the mesh pattern is barely visible.
6. Allow the TOTAL WALL base coat to cure for 24 hours.

7. Tape off repair area with masking tape and apply original TOTAL WALL finish in the same color and texture. Feather and float the repair to match the original finish as closely as possible. Remove masking and touch up texture.
8. Allow the repair to cure (protected from precipitation) for 24 hours.

Inspections--In general, it is good maintenance practice to have the building inspected every few years. The purpose of the inspections is to identify and correct any problem areas before they have a chance to allow damage to occur.

In addition to professional inspections, the homeowner or building owner can also perform routine visual inspections. Routine visual inspections are recommended every six months. Here is a suggested list of items for routine visual inspections:

1. Check sealant joints for condition of sealant and that sealant is bonded to both sides.
2. Check surface of finish for cracks, delamination, efflorescence, or blisters.
3. Press on the surface of the system with palms of hands to find any spongy or soft areas.
4. Make sure all flashings are properly installed and functioning. Examples of some flashings are kickout diverter flashing, deck ledger board flashing, and window and door head flashing.
5. Inspect all exposed utility penetrations for proper sealant or gasket condition.
6. Inspect the lower termination for condition and proper attachment.
7. Check all roof terminations, chimney caps, and roof flashing for condition.

For both the routine and professional inspections, the date of the inspection and results of the inspection should be recorded. If possible, a set of photographs can be taken to accompany the inspection write-up. Any questionable areas that are discovered during an inspection should be addressed as soon as possible. For additional technical assistance, you may call your local Total Wall distributor, your Total Wall applicator, or you may call Total Wall Customer Service at 888-702-9915 or Technical Service at 888-702-9917. You may also visit our website at www.totalwall.com.

TOTAL WALL

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applicator training manual **DIRECT APPLIED DA**

applicator training manual

applicator training manual

DEFS

— direct applied DA system —

chapter

6

SYSTEM WARRANTIES

Applicator Training and Certification
Approved Applicator Form
Certified Applicator Form
System Warranty Application
Warranty Abstract
Warranty Instructions

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TOTAL WALL

Warranty Program Abstract

TOTAL WALL's Warranty Program has multiple service levels. The multiple levels of warranty are designed to service various market needs.

The standard service level is a 5-Year Material Warranty. This service level incorporates DEFS industry standard practices. An application is eligible for a 5-Year Material Warranty from TOTAL WALL if the installation is done by a Certified or Approved Applicator in accordance with current installation documents. The Certified or Approved Applicator is someone who has satisfactorily demonstrated experience and competence in installing the particular DEFS and holds a Certificate from TOTAL WALL. TOTAL WALL reserves the option to have 3rd party inspectors or corporate technical personnel present during any application.

It is our desire to provide the marketplace with quality materials and reliable installation of these systems. Further, it is our position to fully support our program with solid warranties. The three components to the success of our program are (1) quality materials, (2) knowledgeable installers, and (3) field inspection and record keeping. If you have any questions about our program, please call us at 888-702-9915.

TOTAL WALL APPLICATION FOR WARRANTY

Date of Application _____

This form is an application for a Total Wall Warranty. This form is to be initiated prior to installation of materials to provide opportunity for design review and third party inspection, at the option of Total Wall. Total Wall reserves the right to have any project inspected by a Total Wall agent or third party inspector. At the conclusion of the installation, this fully completed form, along with a completed Total Wall system inspection checklist, should be faxed to 352-629-2070. The approval of the application for Warranty and subsequent issuance of a Warranty Document is contingent upon project completion in accordance with Total Wall specifications, and receipt of payment for Total Wall materials. For assistance, please call 888-702-9917.

Length and type of warranty applied for _____

Distributor _____ Sales Rep. _____

Building Name / Project Description _____

Project Address / Location: _____

Building Owner and Phone No. _____

Architect _____ General Contractor _____

Age of Building _____ Type Construction _____

Project Start Date _____ Square Footage _____

Total Wall Applicator Firm _____

Address and Phone No. _____

Name(s) of Qualified Installers _____ Completion Date _____

SYSTEM INFORMATION:

System Type _____ Substrate _____

Date project was inspected _____ Individual(s) inspecting _____

Fill in the following information where applicable:

Is this a drainage system Y N (circle one) Building Service: Commercial or Residential

Type of moisture barrier _____ Adhesive Type _____

Fastener Type and spacing _____

Type and weight of fiberglass mesh or metal reinforcement _____

Type of Base Coat or Plaster Base _____

Primer or Coating or Sealer _____ Sealant and backer _____

Flashings _____ Accessories _____

Type of Finish / Color and Textures _____

Comments and additional information: _____

Total Wall Application for Approved Applicator

Date of Application: _____

This form is an application for licensing as a TOTAL WALL Approved Applicator. This form is intended to be completed and presented to TOTAL WALL prior to the applicant's installation of any TOTAL WALL materials. TOTAL WALL reserves the right to require proof of the applicant's record of experience and/or credentials. Falsification of the information on this form may lead to the immediate cancellation of the license to apply any TOTAL WALL materials. Please complete as many items on this form as possible and fax it to Total Wall at 352-629-2070. If you require further assistance, or if you have any questions, please call 888-702-9917. If the application is approved, the applicant will receive a Certificate officially qualifying the applicant to install TOTAL WALL products. The qualification is issued to an individual and not to a company. TOTAL WALL reserves the option to request 3rd Party Inspection of any installation of TOTAL WALL materials performed by the applicant. An Approved Applicator may upgrade to Certified Applicator status by attending a TOTAL WALL training class and passing the test.

Name of Applicant: _____

Company Name: _____

Address: _____

City: _____ State: _____ ZIP: _____

Phone: _____ FAX: _____

Email: _____

The different systems have you installed (MD, PB, DEFS, Stucco, Sprint type, etc):

List the brands of materials you have installed: _____

List all manufacturer certifications (with dates):

Estimate total number of EIFS, DEFS and Stucco installations and average square footage:

Additional history with EIFS, DEFS and Stucco:

HAVE YOU PERSONALLY APPLIED OR PERFORMED THE FOLLOWING (Circle All That Apply):

- | | |
|--------------------------------|---------------------------------|
| 1. INSTALLING MOISTURE BARRIER | 2. INSTALL CONTROL JOINTS |
| 3. MECHANICAL FASTENERS | 4. BACKWRAPPING |
| 5. WATERPROOFING TAPE | 6. PLASTIC OR METAL ACCESSORIES |
| 7. EMBED MESH IN BASE COAT | 8. FLOATED SYNTHETIC FINISHES |
| 9. BACKER ROD AND CAULK | 10. INSTALL EXPANSION JOINTS |

Signature of Applicant: _____

Total Wall Application for Certified Applicator

Date of Application: _____

This form is an application for licensing as a TOTAL WALL Certified Applicator. Falsification of the information on this form may lead to the permanent cancellation of the license to apply any TOTAL WALL materials. Please complete as many items on this form as possible and fax it to TOTAL WALL at 352-629-2070. If you require further assistance, or if you have any questions, please call 888-702-9915. If the application is approved, the applicant will receive a Certificate qualifying the applicant to install TOTAL WALL products. The qualification is issued to an individual and not to a company. TOTAL WALL reserves the option to request 3rd Party Inspection of any installation of TOTAL WALL materials.

Name of Applicant: _____

Company: _____

Address: _____

City: _____ State: _____ ZIP: _____

Phone: _____ FAX: _____

Email: _____

What date(s) did you attend TOTAL WALL training: _____

Names of TOTAL WALL Instructor(s) _____

What systems did you learn: _____

What was your test score: _____

Where was the training class held: _____

List the name and location of at least one system installation that you performed that we may inspect. You must have at least 2 years experience to become a certified applicator:

Project location: _____

What Type System: _____ Square footage: _____

Date completed: _____ Materials used: _____

What Finish: _____ Who installed the Caulk Sealant: _____

Comments: _____

Signature: _____

TOTAL WALL

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applicator training manual **DIRECT APPLIED DA**

applicator training manual

applicator training manual

DEFS

— direct applied DA system —

1 APPENDIX

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TOTAL WALL

Storage of Partial Pails of Finish to be Used Later for Touch-up

Issue #0046

To increase the shelf life of touch-up samples or retainers, mist a little water on the surface of the material and around the inner sides and lid of the container before replacing the lid. Do not mix the water into the material, but allow it to rest in a very thin layer on the surface. This will prevent skinning and coagulation and keep the material alive for touch-up purposes for two years or even more. Keep the container in a cool (not freezing) storage area. Avoid high temperatures in storage if possible. If the material is needed for a repair, mix in the water, then repeat the storage process.

For additional technical assistance, you may call your local TOTAL WALL Distributor, Total Wall Applicator, or you may call TOTAL WALL at 888-702-9915 or visit our website at www.TotalWall.com.

R1003

Use Of Tint Vials: Since applicators mix TOTAL WALL Finish before use (possible adding some water adjust Workability), they may prefer to tint the finish by adding a vial of pre-measured colorant during mixing. One advantage for adding the colorant to the Finish-base at the job site is the applicator will tint exactly the number of pails required to do the job. That means there will be no extra pails of colored Finish left over. Also, an applicator may carry extra tint vials and extra pails of Finish-base to the job because he can either use the leftover pails of Finish-base on the next job, or return unopened pails to the TOTAL WALL distributor for credit or refund. Therefore, the applicator need never too much or too little Finish on a job.

Tips for the Applicator

1. Order a few extra pails of Finish-base and colorant vials for the job than you think you will need. You always can return unopened pails of Finish-base or save them for another job. Not all Base 4 colors can use tint vials. Some must be factory tinted due to the amount of color in them.
2. Do not tint pails of Finish ahead of time unless you are sure you are going to use them. Tint the pails as follows:
 1. There are three different Finish-base strengths. They are numbered either 1, 3 or 4. Be sure the other words, if the vials reads Base 1, then the pail must read Base 1.
 2. Be sure the colorant vial has the right color name and number.
 3. Open a new pail of TOTAL WALL Finish-base.
 4. Using a clean paint stick or scoop, make an indent in the top of the Finish (as if you were going to put gravy on mashed potatoes).
 5. Open the colorant vial and carefully pour the colorant into the Finish.
 6. Fill the vial half way with water or up to 4 ounces, whichever is least. Replace the cap and shake the vial. Open the vial and carefully add the rinse water to the Finish. Repeat this step until all the color is out of the vial. Save the vials, you can return them to the distributor. Use the paint stick or scoop to loosely blend the surface colorant with some of the Finish. Wipe your stick or scoop clean into the pails. Be sure the colorant stays in the pail.
 7. Insert your jiffy mixer blade deep into the pail and begin mix on slow speed or with intermittent mixing to avoid any loss of colorant. Gradually increase mix speed, scraping the sides and bottom of the pail to insure complete mix. As always, you may add additional water to adjust workability.
3. If you are using both factory tinted and field tinted Finish on the same job, be sure to box two pails of each source of TOTAL WALL Finish to guarantee a uniform transition on the wall.

Tips for the Distributor

1. Use straight wall wide-mouth plastic jars to hold colorant. You can order them from Total Wall (888-702-9915) or a number of other supply houses. We recommend the clear polystyrene jars, although the natural polypropylene, and PVC will work well to. Most colorant formulas will fit into the 4 oz jars, however, some of the darker colors will require more colorant. Therefore, we recommend that you have several 8 oz and a few 16 oz jars on hand.
2. Label each colorant vial with the color name, the color number, the Finish-base number, and the date.
3. Eyeball the colorant vials after filling. They should all have the same level and colors.
4. Record in your colorant journal the color name, the color number, the Finish-base number and texture, the date, the formula, the applicator, the job, and number of vials (jars) tinted.
5. Put the caps on fairly tight and pack them so they are handled and stored upright.
6. If you are reusing colorant vials, remove old labels and markings then clean them and inspect them before use.
7. Each pail should be mixed for 1-2 minutes to make sure all the color is mixed completely.

Base Coats and Hot Weather

Issue # 1041

It is no secret that hot summer weather will shorten the pot life and open time of any base coat containing Portland cement. T-Wall T-2000 Soft Coat Base Coat and T-Wall Foam N' Base Coat Adhesive products are no exception to this rule. Here are tips and product options that will give you more open time while applying Total Wall Base Coats.

Tips

1. Mix the product slightly looser and wetter than you normally would prepare it. Also, always remember to allow the mix to stand for 3-5 minutes and then re-mix to break the false set.
2. When possible, use cool water and a clean mix container. Water in a hose that is lying in the sunlight can get quite hot, therefore let the water run until cool water is flowing. Also, leftover mix from a previous batch can act as a catalyst; therefore try to keep the mix vessel clean, especially in hot weather.
3. Schedule work to take advantage of any shade and cooler morning or late afternoon hours when applying base coat.

Product Options

This is to remind you that there are two product options that are available to extend pot-life and open time of T-Wall T 2000 Soft Coat Base Coat and T-Wall Foam N' Base Coat Adhesive.

1. The first option is to purchase the "Slow Set" version of the T 2000 Base Coat, or the "Slow Set" version of Foam N' Base Coat. Slow Set versions afford a bit more open time. For example, at 80°F you may expect about 20 minutes additional open time when using the Slow Set versions. At 90°F you may obtain about 12 minutes additional open time.
2. The second option is to have Total Wall Base Coat Retarder on hand at the job site. A small amount of Retarder is added during mixing to slow the set of the base coat. Follow the directions carefully and do not over add Retarder.

**** Note - do not add Retarder to Slow Set products.**

Perm Rating

Issue #0045

The Perm Rating of a material describes how well water vapor will pass through it. A higher Perm Rate number means more water vapor passing through. The Perm Rate has nothing to do with the flow of air or the flow of liquid phase water through a material; it is a measure of the flow of water vapor. By definition, a material that allows 1 grain of water to pass through one square foot of surface area in one hour with a pressure differential of 1 mm of Hg has a Perm Rate of 1. One grain of water is approximately two-thousandths (0.002) of an ounce.

Several terms and definitions regarding Perm Rate are used in industry. The term Permeance refers to Perm Rate while also factoring material thickness. Typically, a Permeance value relates to a 1" thickness of material unless otherwise specified. The Indoor Air Quality Association (IAQA) defines a material with a Perm Rating of less than 1 as a vapor barrier, a material with a Perm Rating between 1 and 10 Perms as a vapor retarder, and a material with greater than 10 Perms as breathable. The National Association of Home Builders (NAHB) and the current ASTM standard define any material with a Perm Rating equal to or less than 1 as a vapor retarder. Under this NAHB definition, there is no distinction between a vapor retarder and a vapor barrier. However, there are currently motions in the ASTM committee to move toward a three-tier definition similar to the IAQA definitions mentioned above.

ASTM E96 is one of the primary standards used for measurement of Perm Rate. This standard employs two test methods: a wet cup and a dry cup. Some materials have a higher Perm Rate when they become damp or wet. These materials are referred to as Smart Vapor Retarders. For example, 15-lb asphalt felt has a dry cup Perm Rate of 1 and a wet cup Perm Rate of 5. Similarly, 15-lb tar felt has a dry cup rating of 4 and a wet cup rating of 18.

The individual Perm Rate of each layer or building component in a wall system influences the Perm Rate. In many instances, it is desirable to have a wall with a relatively high Perm Rate so that it would allow migration of water vapor. In other instances, depending on climate, codes, and building function, it may be desirable to block or retard water vapor migration at one or more layers in the wall system.

Building materials have a wide range in Perm Rate values. EIFS Cladding (1" system) has a typical Perm Rate of between 1 and 3. EIFS greater than 1" thickness have even lower Perm Rates. Tyvek and Tyvek StuccoWrap have a Perm Rate of 20. DensGlass sheathing ½" has a Perm Rate of 23. Hard coat stucco ¾" (unpainted) has an average Perm Rate of 15. Gypsum sheathing ½" has a Perm Rate of 20. Air has a Perm Rate of 120 per inch. Sheet polyethylene 6-mil thickness has a Perm Rate of 0.06, and aluminum foil has a Perm Rate of 0.

Coatings and finishes have a wide range of permeability characteristics. The four main factors that affect permeability are: resin (polymer type), PVC (volume of pigment), texture, and thickness. **RESINS:** Silicones have the highest Perm Rating, followed by vinyls, acrylics, styrenated acrylics, SBRs, urethanes, and epoxies have the lowest permeance. **PVC:** Higher PVC values (more extender and filler and less resin) will increase the Perm Rate. **TEXTURE:** More texture will create capillaries and pores, and increase Perm Rate. **THICKNESS:** A thicker layer of any coating will reduce its Perm Rate. EIFS textured synthetic finishes, as a class, have a high Perm Rate (approximately 15-25). This is because EIFS finishes typically employ a breathable acrylic resin, high PVC loading (70 - 80), and moderate to heavy texture. Some EIFS finishes come in elastomeric grade. The elastomeric grade EIFS finish has slightly lower PVC, which reduces its Perm Rating by only a few Perms. For example, if an EIFS Finish has a Perm Rating of 20, an elastomeric version of the same texture constructed with the same class resin, may have a Perm Rating of 17.

Paints are typically 2-3 mils thick while elastomeric coating maybe 12-20 mils thickness. Paints generally have higher PVC than elastomeric coatings. For these reasons and as a general rule, elastomeric coatings have a lower Perm Rate than paints. There are exceptions to this rule. Dow Allguard, an industrial grade elastomeric coating, has a reported permeance of >40 due to its silicone backbone. Although one EIFS manufacturer purports its acrylic elastomeric coating to have a Perm Rate of 30, a more believable and expected Perm Rate for an acrylic elastomeric coating would be in the 2-12 range. One large paint company, for example, reports a Perm Rate of 10 for their acrylic elastomeric coating with 53% volume solids. Typical vinyl-acrylic house paint applied at 2-3 mils thickness will have a Perm Rate of approximately 8.

Key points to remember:

1. Upgrading from a standard EIFS synthetic textured finish to the elastomeric grade synthetic textured finish in the same product line will not significantly impact the Perm Rate of the system.
2. Use of an elastomeric coating over an EIFS will reduce the Perm Rate of the system somewhat. However, considering that the Perm Rate of the EIFS initially is very low, application of a quality elastomeric coating over the EIFS will not produce a major reduction in Perm Rate. The advantages of the elastomeric coating will usually very much outweigh the small reduction in Perm Rate.

For additional technical assistance, you may call your local TOTAL WALL Distributor, Total Wall Applicator, or you may call TOTAL WALL at 888-702-9917 or visit our website at www.TotalWall.com.

R0603

Terms and Definitions

Accessory: Any ancillary component installed in conjunction with a system. Accessories are typically manufactured by those other than the system's manufacturer. Examples of accessories include starter track, control joints, mechanical fasteners.

Aesthetic Joint/ Reveal: An aesthetic joint/ reveal is a shaped groove or accessory set into the cladding system. It serves as a design feature as well as providing a natural stopping point during the installation of the finish material.

Adhesive: Cementitious and Non-cementitious adhesives. Cementitious materials, either as a premixed dry or a liquid polymer that is mixed with cement, are typically used for the attachment of EPS to gypsum, cement board, or raw masonry substrates. Non-cementitious adhesive is a one part, water-based material which can also be used for the attachment of EPS to various substrates.

Backer Rod: A closed cell foam rod installed in a joint that is to receive sealant. Its purpose is to control joint depth and configuration as well as prevent three-sided adhesion.

Base Coat Adhesive: Cementitious and non-cementitious base coats applied to the face of an insulation board or sheathing board and into which the reinforcing mesh is imbedded.

Brown Coat: The second coat of Portland cement plaster installed in a conventional hard coat stucco system. This coat is for providing additional weather resistance and leveling the wall surface in preparation for the installation of the finish material.

Bond Breaker Tape: A special tape placed in control and expansion joints which serves as a backer and bond breaker ahead of sealant.

Casing Bead: Used as a system stop and is exposed to act as a screed and receive sealant.

Cladding System: The exterior cladding is comprised of, but not limited to, cladding material, windows, roof, flashings, and sealants.

Class DA DEFS: See Direct-Applied Exterior Finish System

Class MD EIFS: EIFS with a drainage plane. A non-load bearing exterior wall cladding system consisting of a thermal insulation board, adhesively and/ or mechanically attached to the substrate, base coat with reinforced fiberglass mesh, a textured finish coat, and a drainage plane allowing incidental moisture to drain to the outside of the cladding system.

Class PB EIFS: A polymer based system applied over expanded polystyrene (EPS) board attached to the substrate with adhesive and/ or mechanical fasteners. Base coat thickness will vary depending on weight of fiberglass reinforcing mesh and number of mesh layers covering the entire surface. Primer may be installed over cured base coat, but is optional or by system specification. Textured or non-textured synthetic finish coat is applied to primed or non-primed base coat.

Class PI EIFS: A polymer based system applied over polyisocyanurate (PI) board attached over open (steel stud) framing or a solid substrate. Base coat thickness will vary depending on weight of fiberglass reinforcing mesh and number of mesh layers covering the entire surface. Primer may be installed over cured base coat, but is optional or by system specification. Textured or non-textured synthetic finish coat is applied to primed or non-primed base coat.

Class PM EIFS: A polymer modified, mechanically fastened EIFS. Insulation board and fiberglass reinforcing mesh are both mechanically attached to the framing and/ or substrate. Typically PM systems call for vinyl or zinc coated trim accessories. Base coat material ranges in thickness from 1/4 to 3/8 inches. The base coat can be coated with a primer, depending on specifications. Finish material can be synthetic or cement based and is applied over the primed or unprimed base coat.

Cold Joint: Occurs when a wet edge is not maintained. This can typically be avoided with proper scaffold, sufficient manpower, and aesthetic reveal/ joints.

Corner Bead: A general-purpose corner bead is an economical and most generally used accessory with wide expanded flanges that are easily flexed.

Cornerite: This product is a strip of painted or galvanized diamond mesh lath used as reinforcement. Cornerite, bent lengthwise in the center to form a 100-degree angle, should be used in all internal stucco angles where metal lath is not lapped or carried around; over substrate, anchored to the substrate, and over internal angles of masonry construction.

Control Joint: Designed to relieve stresses of both expansion and contraction in large wall areas. Made from roll-formed zinc alloy, galvanized metal, or PVC, it is resistant to corrosion in both interior and exterior service.

Curing: This is one of the most critical aspects of good stucco work. Cement plaster requires water for hydration and to develop its full strength. If inadequate water is present, cement hydration is incomplete, producing weaker stucco. Curing during the early days of each coat is essential since shrinkage stresses tend to be high while the plaster has not yet gained full strength.

Direct-Applied Exterior Finish System (DEFS): An exterior finish system without insulation board. Base coat, fiberglass-reinforcing mesh, and finish coat are applied directly to an un-insulated, approved substrate, such as cement board. DEFS for use in unprotected areas of a structure is constructed with a drainage plane to safely eliminate incidental water.

Drainage Mat: A three dimensional core consisting of fused, entangled filaments or a non-woven fibrous, plastic mesh. It is used as a spacer to create a drainage plane.

Drainage Plane/ Cavity: The drainage plane is the space between the cladding and the weather/ moisture barrier through which incidental moisture can be intercepted, conveyed, and drained to the face of the cladding system.

Efflorescence: A crystalline deposit, usually white, that may develop on the face of a masonry material. The deposits are caused by water entering the masonry surface and dissolving some of the calcium salts, which are then carried to the surface during drying.

EIFS: Exterior Insulation and Finish System. A non-load bearing exterior wall cladding system consisting of a thermal insulation board, adhesively and/ or mechanically attached to the substrate, base coat with reinforced fiberglass mesh, and a textured finish coat.

Embed: a method implemented to encapsulate the fiberglass reinforcing mesh in the base coat.

EPS: See insulation board.

Expansion Joint: a complete structural separation of building elements that allows for independent movement of abutting elements without damage to the assembly.

Factory Mixed: a material that is delivered from the manufacturer ready to use from the container. (i.e. finish coatings and non-cementitious base coat)

Field Mixing: the mixing of a manufacturer supplied material with additional materials not manufactured by the system manufacturer. (i.e. EIFS base coat and Portland cement)

Fasteners: Plastic washers used in conjunction with non-corrosive screws to attach sheathing, lath, and/or insulation to substrate and/ or framing.

Flashing: A non-corrosive material of metal or plastic at a systems termination or interface with an opposing cladding component used to drain moisture to the face of the wall assembly.

Finish: A textured and colored material, trowel or spray applied over the reinforced base coat with graded aggregate of either silica or marble

Insulation Board: Aged, molded, expanded (EPS) or extruded (XPS) polystyrene foam. One pound density expanded polystyrene is used with a Class PB or MD EIF system. Extruded polystyrene is used with a Class PM EIF system. Also, there is polyisocyanurate insulation that is typically used with a Class PI system.

Lamina: Base coat, fiberglass-reinforcing fabric/ mesh, and finish coat as a composite unit. Sometimes a primer coat is also incorporated, depending on the application and the manufacturer's system requirements.

Metal Lath: Metal lath embedded within the stucco provides reinforcement. It is readily shaped to ornamental contours to a degree not possible with other stucco bases. Metal lath is a mesh material formed from sheet steel that has been slit and expanded to form a multitude of small openings. It is made of galvanized diamond mesh and rib lath types and is available in different weights.

One Coat Stucco (OCS): A factory blended, fiber-reinforced, Portland cement stucco base coat formulated for assured strength and durability and to save time and labor.

Penetration: Any location in a system where an object passes through all components of the system, such as a window, door, light box, etc.

Primer: A paint-like coating (tinted or untinted) installed over the base coat to enhance adhesion, equalize suction, and improve workability of the finish material.

Reinforcing Mesh: Reinforcing mesh is a polymer coated fiberglass mesh material. Standard reinforcing mesh is a nominal 4.3 oz./sq. yd., symmetrical, interfaced open-weave glass fiber fabric made with minimum 20 percent by weight alkaline resistant coating for compatibility with base coats.

Reinforcing Mesh - High Impact Mesh: Minimum 15 oz./ sq. yd., high impact, double strand, interwoven, open-weave glass fiber fabric with alkaline resistant coating for compatibility with base coats. Ultra-High impact mesh is also available in 20 oz./ sq. yd. from most EIFS manufacturers.

Sealant: Installed with or without a backer rod for the purpose of allowing thermal expansion and contraction of dissimilar cladding components while preventing moisture intrusion at system penetrations and terminations.

Sealant System: The use of primer, backer rod, or bond breaker in conjunction with the installation of sealant.

Scratch Coat: The first coat of Portland cement stucco installed over metal wire or lath. This first coat should be a minimum of 1/4" thick, measured from the backing, to adequately cover the metal wire or lath and still leave enough stucco to permit deep scratching (horizontally) to give a good mechanical key for the next coat, which is the brown coat.

Stucco – Conventional Hard Coat: A solid cement plaster cladding of Portland cement and sand, often containing lime, plasticizers or other admixtures, applied over rigid or non-rigid backing affixed to wood or steel stud framing and reinforced with metal wire mesh or lath.

Substrate: The wall surface to which a system is attached. Acceptable substrates are listed in manufacture specification and building code documents.

Surface Mounted Objects: Anything attached to the face of the system that penetrates the lamina (e.g., light fixtures, etc.). Each system manufacturer has specific details for the attachment of surface mounted objects.

Strip lath: (see cornerite)

Weather/ Moisture Barrier: A sheet good or wet applied coating installed at the face of the substrate as a moisture barrier or drainage plane.

Wrapping: The process of totally encapsulating all edges to seal and strengthen a system by bringing reinforcing mesh embedded in base coat around the system terminations. Wrapping is also referred to as back-wrap or edge-wrap.

TOTAL WALL

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applicator training manual **DIRECT APPLIED DA**

applicator training manual

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DEFS

— direct applied DA system —

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APPENDIX

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TOTAL WALL

USING A LIQUID-APPLIED MOISTURE BARRIER

As an alternative to the method prescribed earlier in this manual, i.e., utilizing a sheet-applied secondary moisture barrier, Total Wall will accept the use of a liquid-applied membrane as an alternative. This method will be applicable only to installations over sub-sheathings such as exterior grade plywood, oriented strand board (OSB), or gypsum sheathing. The liquid membrane used for this application will be Total Stop RA.

Applicators choosing this method would begin by using a knife or trowel to apply Total Stop RA to the joints of the plywood, OSB, or gypsum board. Joints wider than 1/8" would require the use of standard weight (4.3 oz.) reinforcing mesh in strips at least 4" in width. Upon completion of this process, the entire substrate would receive a coating of Total Stop RA thinned to a rollable consistency. OSB requires two coats.

Next would come the installation of the starter/weep base accessory as described earlier. The transition from the Total Stop RA into this accessory is accomplished with the use of a flashing tape (also called weatherproofing or waterproofing tape) no less than 1 1/4" in width and no less than 2.0 mm in thickness. This same tape would be placed vertically on the sheathing surface at the location of the supporting studs. This latter step will provide the drainage capability required of the system.

The only other requirement of this alternate method is that mechanical attachment of the cement board sheathing be done at the location of the studs. Placement of screws between the studs should be done only to make sure the cement board is adequately secured.

Approved Total Wall Class DA DEFS Liquid Applied Moisture Barrier

Total Wall currently approves the following liquid applied moisture barrier:

Total Stop RA liquid-applied membrane moisture barrier.

The moisture barrier is installed directly over the exterior sheathing, for example Oriented Strand Board (OSB), plywood or exterior gypsum. The moisture barrier is knifed or trowel-applied to the sheathing joints. The sheathing joints require reinforcing mesh if the sheathing joint gap is 1/8" or greater. After the joints are allowed to dry, the entire surface is coated with one or two roller-applied coats of Total Stop RA. Up to 16 ounces of water may be added to a 5-gallon pail of Total Stop RA to facilitate rolling with a 1/2" to 3/4" nap roller. Two coats are required for OSB. If a drainage track is being used, waterproofing tape is lapped over the back leg of the drainage track onto the moisture barrier to bridge the transition. When possible, all window and door openings should get the moisture barrier back wrapped into openings before the window or door units are installed. It is recommended to seal the transition between the moisture barrier and window or door flange or trim using a waterproofing tape, such as ProtectoWrap or FortiFlash or Total Stop RA with mesh. Any window and door head flashing should be installed to work with the moisture barrier in keeping moisture away from the sheathing. It is also a good practice to run a thin bead of Silicone Sealant on the surface of the window nailing flange before it is mounted into the opening. This will seal the nailing flange to the moisture barrier.

Some industry professionals feel that use of the liquid-applied moisture barrier has a few inherent advantages over a sheet-applied moisture barrier. For example: A liquid-applied moisture barrier does not require penetrations into the substrate from fasteners or staples. This reduces the chance of water seepage through the moisture barrier. Also, a manufacturer may include mold-preventative agents in the liquid-applied membrane coating to provide a level of protection against mold and mildew. Total Stop RA contains a highly effective mold-preventative agent.

Liquid-Applied Membrane Moisture Barrier Option

Open a new pail of Total Stop Ra and low speed mix for 30 seconds. Use a putty knife or trowel to apply Total Stop Ra to the sheathing joints. Use of 4" or 6" wide reinforcing mesh on sheathing joints is recommended. If the joints are 1/8" or wider, you must use reinforcing mesh (2.5 ounce or 4-ounce weight) on the sheathing joints. Allow the joint treatment to dry. Up to 16 ounces of water can be added to Total Stop RA to adjust for roller application. Use a 1/2" nap roller and apply Total Stop RA to the entire sheathing exterior surface in 15-20 wet mils thickness, including the previously treated joints. OSB sheathing requires two coats of Total Stop RA. Seal the moisture barrier to the penetration transitions with waterproofing tape. Be sure to seal the top of the back riser on the sill pan flashing and the back leg of any drainage track. Also, seal the back leg of the starter track to the moisture barrier using waterproof tape or Total Stop RA and mesh.

Total Stop RA Weather Resistive Barrier Membrane Coating Product Data Information

Description

Total Stop RA is a rubberized coating, which cures to produce a permanent weather resistive barrier.

Total Stop RA is a ready-to-use product that can be trowel applied and roller applied.

Total Stop RA can be applied directly to OSB sheathing, plywood, exterior gypsum sheathing, Dens-Glass Gold, or FiberRock sheathing without the use of a primer.

Total Stop RA cures to produce a moisture barrier that has elasticity to: seal sheathing joints, seal the sheathing surface, seal existing hairline cracks, and in many cases provide zero-point crack protection to bridge future hairline cracks.

Total Stop RA is water vapor permeable and will function similar to Grade D paper relative to perm rating, but with superior water resistance to Grade D paper.

Application

The Surface must be dry and free of dirt, oils, loose debris or any substance that may interfere with the bond. Replace any damaged, fractured or warped sections of sheathing with new sheathing. For exterior gypsum sheathing, the paper facing should be checked for proper adhesion to the gypsum core using the X-cut method as recommended by AWC. Replace any wood sheathing with splits greater than 1/4" wide or with craters greater than 1/4" deep and larger than 2" in any lateral direction. **Total Stop RA** is first applied to all sheathing joints and splits with a trowel. Following the joint treatment, the entire exterior wall surface is coated with **Total Stop RA**. Please follow the application steps as outlined below.

Sheathing Joints: Open a new pail of **Total Stop RA**, add up to 24 ounces of water to adjust viscosity for roller application, and mix with on low speed (500 rpm maximum) with a jiffle-style paddle for 30 seconds. Avoid over mixing or air entrainment of the product. Using a steel trowel, fill all sheathing joints with **Total Stop RA**. Also fill any cracks, splits, knotholes or craters in the face of the sheathing using a trowel stroke of **Total Wall RA**. ANY SHEATHING JOINTS GREATER THAN 1/8" WIDE SHALL BE BRIDGED WITH 6" WIDE 2.5 OUNCE REINFORCING SCRIM MESH EMBEDDED WITH **TOTAL STOP RA**. ALL SPLITS OR CRACKS IN THE SHEATHING GREATER THAN 1/8" WIDE SHALL BE BRIDGED WITH 6" WIDE 2.5 OUNCE REINFORCING SCRIM MESH EMBEDDED WITH **TOTAL STOP RA**. Allow curing a minimum of 4 hours or until dry to the touch before beginning coating.

Sheathing Face: Use a 1/2" nap roller to apply a heavy 15-20 mil wet coat of **Total Stop RA** to the entire sheathing face. Cross-roll the wet coating horizontally and vertically to ensure complete coverage. Allow the **Total Stop RA** to dry and inspect the coating for pinholes or voids. If pinholes or voids are present, apply a second coat of **Total Stop RA** in an 8-10 mil wet thickness. Allow coating to dry a minimum of 18 hours before proceeding with the installation of any direct applied exterior lamina or wall cladding system such as EIFS (Exterior Insulated and Finish System).

Technical Data

Flash point	>200 F	Seta
Density	8.9 lb/gal	
Viscosity	approx 30,000 cps	
pH	9.2 - 9.8	
Elongation	350 %	ASTM D412
Actives	65%	
Solids	57%	
PVC	25.0%	(calculated)
Moisture Vapor Transmission	15 perms	ASTM E96
Resin Chemistry: Internally plasticized resin emulsion		

Handling and Storage

Do not apply to frozen or saturated surfaces. Do not apply if precipitation is forecast within 8 hours of application. Do not apply if the temperature cannot be maintained above 40°F for 24 hours. Shelf life in closed containers is 18-24 months when stored at 50-90°F. Clean up with water or soapy water before drying.

Features

- Has permanent elasticity to help bridge cracks
- Is easy to apply with water cleanup
- Does not create a vapor barrier
- Excellent adhesion to many substrates
- Provides an excellent bonding surface
- Resists mold and mildew

Coverage

Gypsum sheathing	400-500 sq.ft/5-gallon pail
Oriented Strand Board *	250-350 sq.ft/5-gallon pail
Plywood*	250-350 sq.ft/5-gallon pail
	*(2 coats recommended)
Smooth Masonry	400-500 sq.ft/5-gallon pail
Rough Masonry	200-400 sq.ft/5-gallon pail

applicator training manual

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DEFS

— direct applied DA system —

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APPENDIX

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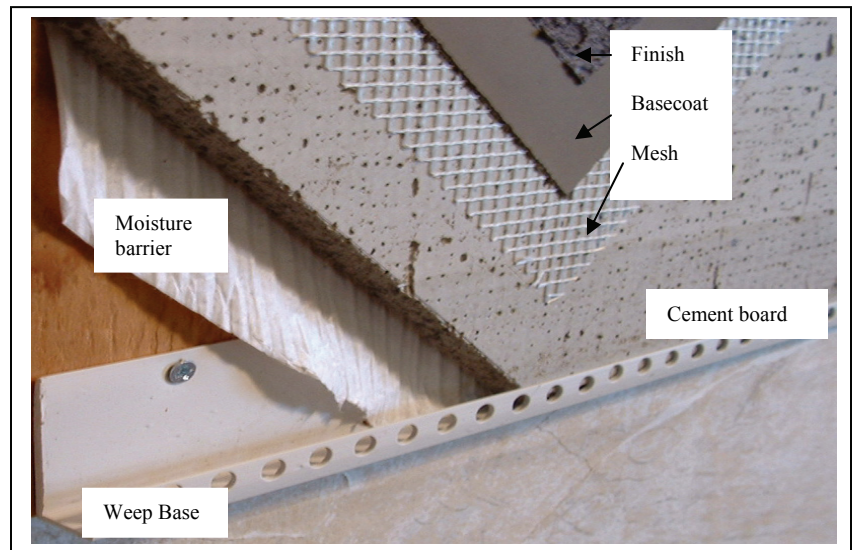
TOTAL WALL

1. PRODUCT NAME

TOTAL WALL Type DA
Direct Applied Exterior Finish
System (DEFS)

2. MANUFACTURER

Total Wall, Inc.
P.O. Box 366
Rio, WI 53960-0366
Phone 888-702-9915
Fax 888-702-9916
390 Viking Circle
Rio, Wisconsin 53960

**3. DESCRIPTION**

TOTAL WALL Type DA Direct Applied System is a non-bearing exterior cladding for commercial and residential structures. The TOTAL WALL Type DA DEFS is used to weatherproof and beautify any structure. Among the advantages of this exterior cladding system are the following:

- it is a relatively low cost yet highly durable cladding;
- when installed with a moisture resistive barrier and proper details, the exterior performs as a moisture drainage system which allows any water that enters the system to safely exit;
- practically any combination of color or texture can be achieved;
- the structure is easily accessorized with architectural enhancements, such as arches, quoins, etc.
- The existing sheathing may be exterior gypsum, plywood, or OSB. The moisture barrier is lapped to prevent water from entering the wall cavity.

Limitations:

Total Wall products must be applied in temperatures of 40 F or higher and protected from freezing and precipitation for 24 hours. Stored products should be covered and protected from freezing conditions. Total Wall products and systems are to be installed by Total Wall Qualified Applicators and their installations are eligible for a Total Wall System Warranty. Total Wall reserves the option to have a trained inspector on the jobsite for quality control purposes.

Materials: Total Wall Class DA DEFS consists of 5 layers or constituents:

Layer 1, Framing and Sub-sheathing

Approved framing is steel or wood with a maximum span of 16" O.C. The sub-sheathing is o may be wood or siliconized-core gypsum sheathing.

Layer 2, Moisture Barrier

An approved self-draining moisture barrier such as Tyvek StuccoWrap, RainDrop HouseWrap, Weather Trek, or Vortec Drainage Barrier is installed over the sub-sheathing. The moisture barrier is lapped to prevent water running down the wall from entering the wall cavity and is installed over a PVC drainage track or starter track with weeps at the lower system termination. PVC accessories are used also at expansion joints and all window and door penetrations.

Layer 3, Approved Sheathing

For exterior wall areas that are exposed to the elements, the sheathing must be a cement board such as Durock, Permabase, or equivalent. For protected areas such as soffits or entrance ways, a siliconized-core gypsum board such as DensGlass, Fiberock, or GlasRoc, in addition to cement board, is approved. The sheathing is installed with galvanized, zinc or climacoat screw fasteners, as approved by the sheathing manufacturer.

Layer 4. Base Coat and Reinforcing Mesh

In Direct Applied Systems, the sheathing joints are treated with Base Coat and a strip of reinforcing mesh followed by the entire surface of the sheathing being covered with Base Coat and reinforcing mesh. This protects the sheathing joints with a double layer of mesh and Base Coat.

Base Coats:

1. T-2000 Base Coat

T-2000 is a dry powder that contains Portland cement, polymer, and specialty aggregates. 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 (about 5 quarts of water per 50-lb. bag). Wait 5 minutes and remix. Pot life will be from 30 to 45 minutes. If the mix stiffens during use, add a few ounces of water and remix.

2. EZ Base NCB (Non Cement Base)

This product is a ready to use, fully synthetic base coat. Mix before use. Product may be thinned by adding 4 - 6 ounces of water per 5-gallon pail of TOTAL WALL EZ Base while mixing. Mix with a low speed jiffy mixer blade on a drill.

3. TOTAL WALL Foam N' Base Coat

This product contains a liquid acrylic polymer plus specialty aggregates and modifiers. Mix in a 1:1 ratio by weight with Type I Portland cement at the job site. Add 16 - 24 ounces of water to a 5-gallon pail of mix to adjust to a mortar-like consistency. Wait 5 minutes and remix. Pot life will be from 30 to 45 minutes. If the mix stiffens during use, add a few ounces of water and remix.

Reinforcing Meshes:

1. Standard Mesh

A polymer coated woven fiberglass mesh with a weight of 4.3 ounces per yard and a relative impact resistance of 25-35 in-lbs.

2. Detail Mesh

A polymer coated woven fiberglass mesh with a weight of 4.3 ounces per yard and a relative impact resistance of 25-35 in-lbs. Available in narrow widths.

Layer 5. Finish Coat

The Finish Coat is the outer coating that gives color and texture to the system. The Finish coat also provides 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 the following textures and may be trowel applied or spray applied:

1. Swirl Coarse- generates a traditional worm hole appearance at ~ 0.065”;
2. Swirl Fine- generates a traditional worm hole appearance at ~ 0.050”;
3. Swirl Ultra Coarse- generates a traditional worm hole appearance at ~ 0.078”;
4. ShotBlast Coarse- generates a very coarse limestone appearance at ~ 0.080”;
5. ShotBlast Medium- generates a coarse limestone appearance at ~ 0.065”;
6. ShotBlast Fine - generates a very fine limestone appearance at ~ 0.048”;
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 ~ 0.055”.

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 Residential Code (IRC)

International Building Code (ICC)

Standard Building Code (SBCCI)

National Building Code (BOCA)

Uniform Building Code (ICBO)

Professional Affiliations:

TOTAL WALL maintains memberships and involvement with these organizations:

ASTM (American Society for Testing and Materials)

EDI (Exterior Design Institute)

AWCI (Association of the Walls and Ceilings Industries)

AIA (American Institute of Architects)

CSI (Construction Specifications Institute)

NWCB (Northwest Walls & Ceilings Bureau)

4. TECHNICAL DATA

Chemistry: Acrylic Polymer coating over coated fiberglass embedded in polymer modified Portland cement

Flame Spread < 5 ASTM E84

Weight~ 0.7 - 0.8 lb (lamina only) per sq. ft.

5. INSTALLATION**A. Substrate Preparation and Panel Inspection**

- The exterior sheathing should be clean and in sound condition with smooth side facing in toward the framing. Any deteriorated, damaged, or soft areas must be repaired before proceeding.
- The wall should be uniform. Planar irregularities greater than 1/4" inch in 8 feet should be addressed prior to installation.
- The ground termination should have a PVC weep base.
- Create control joints at system penetrations, such as windows and doors, if required by sheathing manufacturer. In the absence of control joints at these locations, sheathing boards should be "L" cut around windows and doors with a 1/2" gap to allow for sealant joint construction with a casing bead or a 45 degree PVC trim accessory bead along jambs and sills and will later receive the sealant. The window head receives a weep base, providing the window detailing and design permits this detail.
- Floor lines in wood frame construction must receive a 1/2" to 3/4" expansion joint with each side of the joint terminated with a PVC casing bead. The moisture barrier is continuous behind all joints.
- Expansion joints should be placed at all through-wall joints, at intersections of dissimilar substrate materials, and anticipated high stress areas. Install control joints in accordance with the sheathing manufacturer specifications.
- All sheathing boards are loosely butted, and not gapped, unless required by the sheathing manufacturer.
- Exterior sheathing joints should not align with any sub-sheathing joints. Vertical joints should be staggered so that ends are not in a straight line.
- Fasteners should be corrosion resistant screws of proper length to penetrate either steel framing by 1/2" or wood framing by 1".
- Fasteners should be installed a maximum of 16" O.C. horizontally and 8" O.C. vertically, with heads flush with the panel surface.
- All PVC accessories should be attached with either stainless steel or galvanized staples or nails.

B. Minimum Tools and Equipment

- Drill mixer 1/2" and jiffler mix-blade
- A screw gun and staple gun
- A razor knife, tape measure, level, hammer, bucket brush
- A caulk gun, finishing tools, a fine-toothed saw and snips
- A stainless steel trowel, a margin trowel, and appropriate float
- A chalk-line or laser-level

C. Applying Base Coat and Mesh

1. Using a trowel or knife, fill the gaps between the boards with Base Coat and allow to dry.
2. Using a steel trowel, apply Total Wall Base Coat mix to the surface of the sheathing board joints in a 1/8" skim coat.

3. Immediately embed minimum 4-1/2" width Total Wall detail mesh in the Total Wall Base Coat and allow to dry.
4. Install 9" x 12" butterflies of mesh and base coat at natural stress points, such as corners of windows where control joints do not exist, and allow to dry.
5. Apply Total Wall base coat mix to entire surface of the sheathing boards and immediately embed Total Wall 4.3-ounce reinforcing mesh into the wet base coat. Lap runs of mesh a minimum of 2-1/2". Using a trowel, press the mesh into the base coat by starting at the center and working toward the edges. Press out the air voids and wrinkles to produce a smooth base coat. Apply additional base coat as necessary to completely cover the mesh so that the fabric pattern is not visible or barely visible. The reinforcing mesh and base coat should cover the entire surface and overlap the flanges of the trim accessories. Level the base coat with a second pass eliminate planar differences between areas that have received a double coating of base coat and mesh and those which have a single layer base coat of mesh.
5. Allow Total Wall Base Coat to cure for a minimum of 18 hours while protecting from freezing and precipitation.
6. Remove any trowel marks by rubbing a pumice stone over the surface.

D. Applying the Finish

1. Apply the TOTAL WALL Finish of choice directly out of the bucket onto the cured Base Coat using a stainless steel trowel. The thickness of the Finish is gauged by the largest aggregate in the texture selected.
2. Immediately texture or float the Finish with the proper floating tool and motion to achieve the desired result.
3. Allow the finish to cure by protecting from freezing and precipitation for 24 hours.

E. Installing Sealant

With the exception of aesthetic joints, all isolation joints should be a minimum width of 3/8" to 1/2" and all expansion joints should be a minimum of 1/2" to 3/4" or 4 times the expected movement, whichever is greater. Protected or covered areas that are using siliconized-core gypsum sheathing do not require PVC accessories except at expansion joints. Isolation joints or terminations are sealed with fillet beads of approved sealant. Joint depth minimums are established by the sealant manufacturer and can be obtained from their literature or by calling TOTAL WALL Technical Services. All cement board terminations, such as window and door penetrations, ground terminations, and expansion joints, shall be made with PVC accessories. Apply a primer when recommended by the sealant manufacturer. Insert a properly sized backer rod to allow for its compression into the joint at a uniform depth, or use bond-breaker tape if the joint depth is insufficient for backer rod. The depth is to allow for the desired thickness caulk bead. The backer rod should be a closed cell polyethylene or an extruded polyolefin with a non-absorbing skin. 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.

F. Architectural Enhancements

Architectural shapes such as quoins, corners, arches, and cornices can be added after the base coat has cured. Foam shapes can be mounted using TOTAL WALL Blue Mastic Adhesive or T-2000 and temporary or permanent mechanical attachment as applicable. These shapes are then base coated and finished to match the flat wall application described above. Alternatively, completely finished shapes which match or accent the flat wall system can be mounted to the base coated or finished system. An example of an architectural enhancement is placing quoins (corner reveals) on the building corners. The quoins can be made at the job site, or they can be ordered (from American Prefab 888-702-9918) completely prefabricated and ready to mount.

G. Precautions:

Although this system will safely release water that inadvertently gets behind the DEFS, it is designed to be constructed to prevent water intrusion. Therefore, all details must be properly constructed. These details include all caulking details, kickout diverters, 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 Qualified Applicators, or call 888-702-9915 for assistance.

7. WARRANTY

A standard Total Wall Material or Performance Warranty is available when properly installed by a qualified TOTAL WALL Applicator according to current TOTAL WALL and project specifications in force at the time of installation. The Warranty must be requested prior to system installation. A properly completed and signed inspection check list must be submitted at the job completion. 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 repair the damage, replace materials, or refund in US dollars for the amount of damaged TOTAL WALL materials.

No Warranty stated herein shall 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.