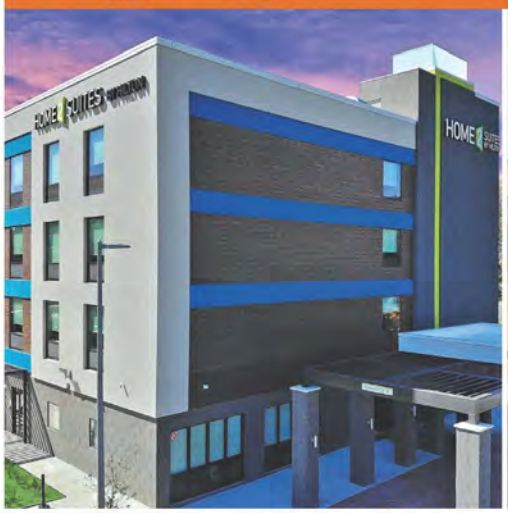
2022 Technical Bulletin Binder

Master Wall Inc.®



PO Box 397 • Fortson • GA • 31808 • 800-755-0825

Master Wall Inc.
Building a Culture of Excellence

PO Box 397
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MW# 101-110597 rev. 200101

Topic: Sill Pans

Much research has been conducted to determine points of water intrusion in Exterior Insulation and Finish Systems (EIFS) or stucco. The area beneath windows seems to be one of the most significantly affected areas. The source of water entry is the window units themselves, not the exterior cladding. Common leak areas are window corners, improper installation, degraded sealant, improper window units for the climate or wood rot.

Whatever the cause for water penetration and given the knowledge that has been gained through research, if a significant amount of water penetrates the wall assembly and gets behind a cladding, water damage could occur to water sensitive building materials. This is extremely important for barrier walls such as our Aggre-flex Drainage EIFS as it is not designed for incidental water drainage.

Since research has given us a better understanding of leaky windows and leaks around windows, Master Wall Inc® requires a full sill pan when our systems are used with wood windows and for storefront type units not designed for drainage. For other applications of our drainage EIFS (Aggre-flex Drainage EIFS, Rollershield Drainage CIFS®, QRW1 Drainage EIFS) or our branded stucco systems either full sill pans or SillDry® internal sill pans are a recommended option.

A sill pan detail is enclosed along with information detailing the SillDry® Flashing. It is important that the sill be sloped to drain water to the exterior of the building.

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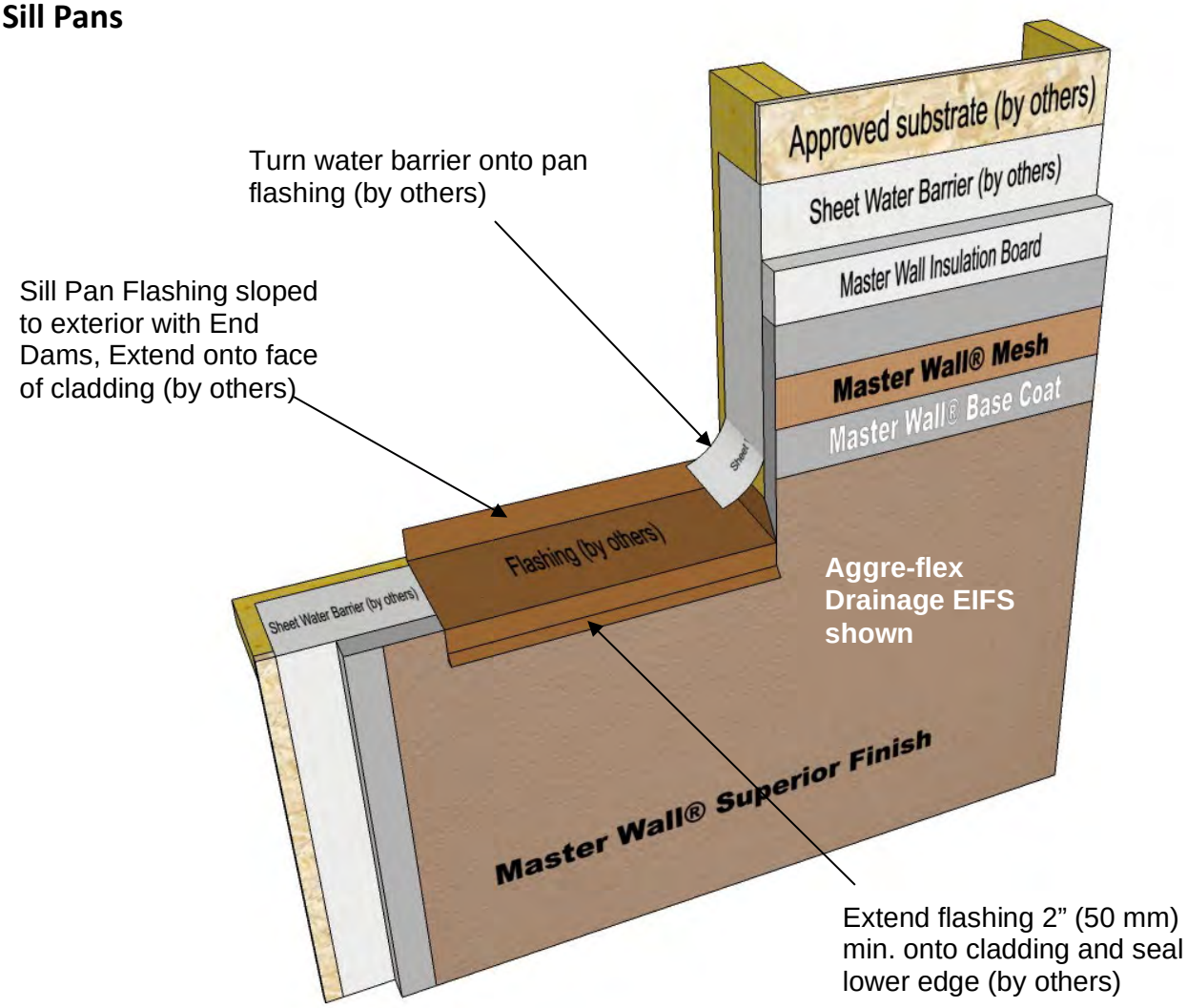
MW# 101-110597 rev. 200101

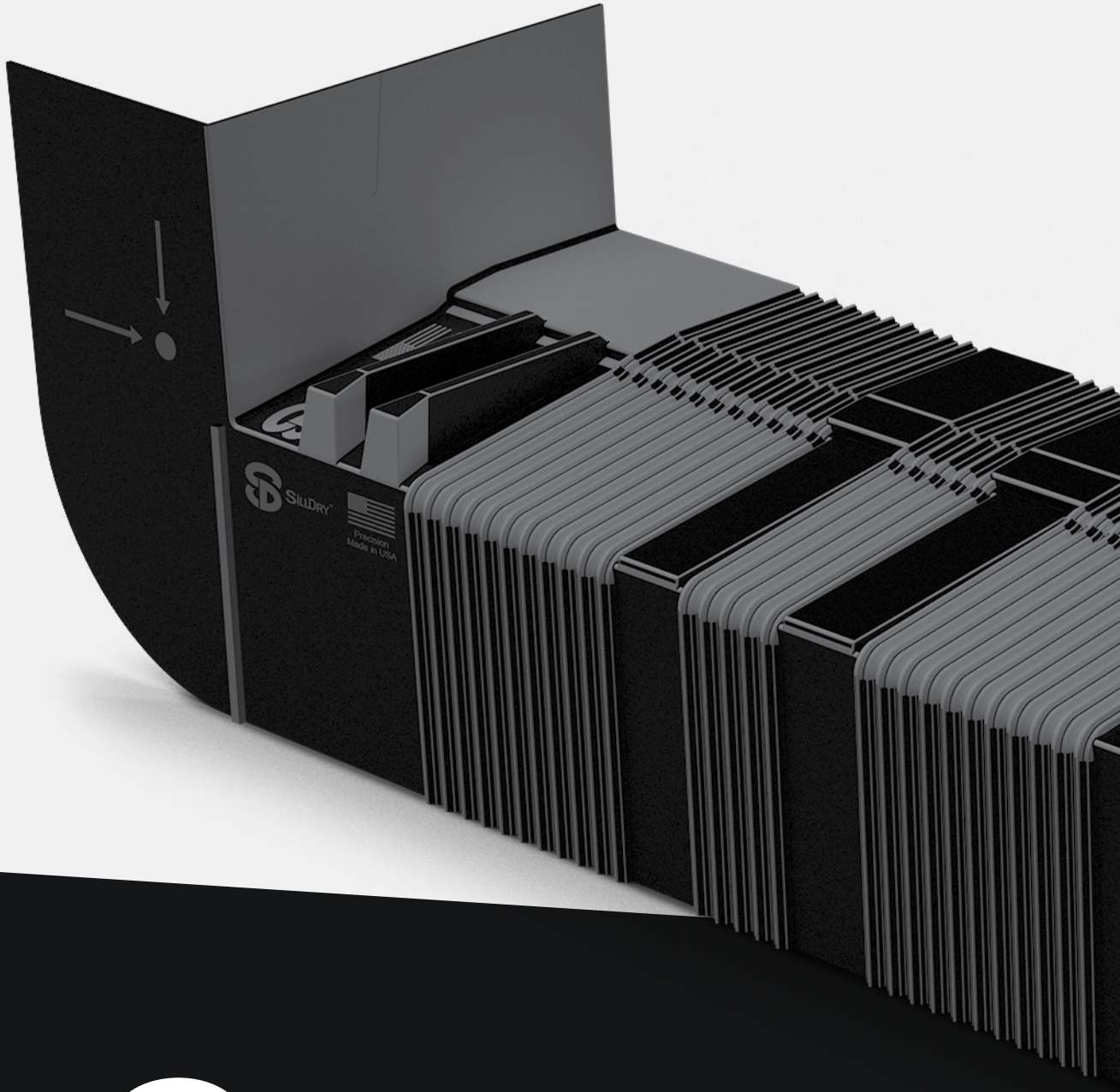
Topic: Sill Pans



Sill Pan Flashing

masterwall.com

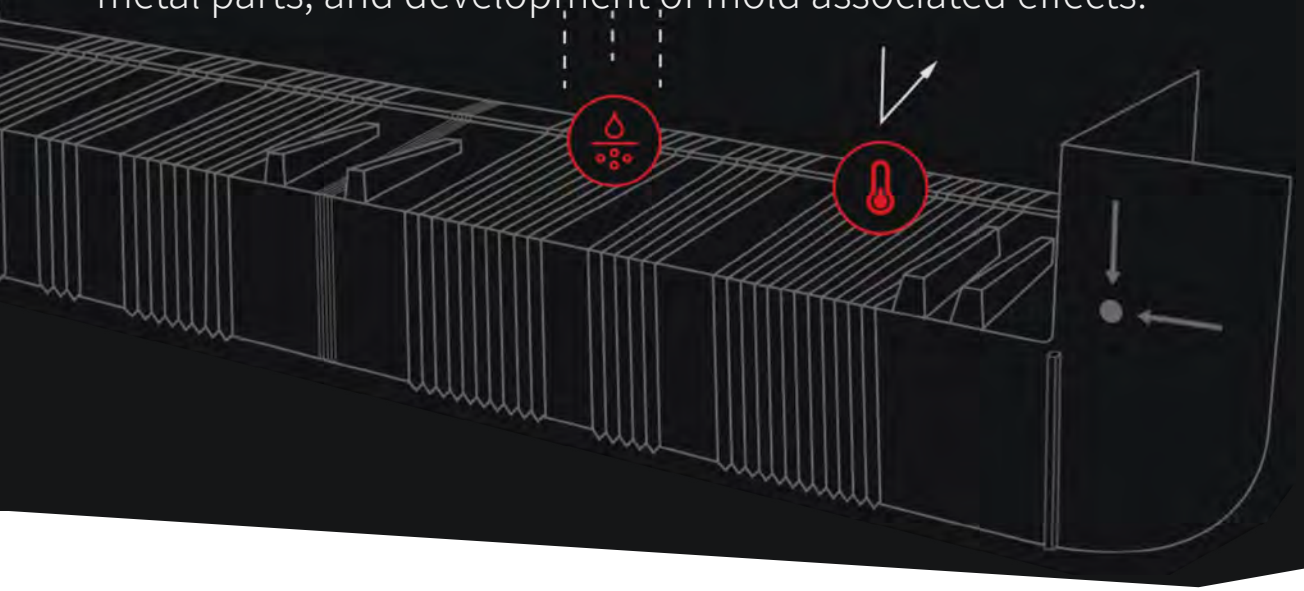
PROTECTING YOUR BUILDING ENVELOPE



SillDry®

You use an umbrella to protect yourself – your clothes, your body, your comfort, and your health – from water intrusion. **Think of the Building Envelope as the umbrella for your structure, protecting integral structural components.** More specifically, the Building Envelope is the exterior layer of the building that provides a physical barrier between the internal and external environments.

Water intrusion destroys the integrity and life span of a building. When exposed to water, an improperly sealed building envelope allows water to penetrate through to the structural, integral components. Possible consequences include the weakening of structural supports, corrosion of metal parts, and development of mold associated effects.



SillDry—an innovative flashing product created by Joel Glickman and Kieran McMahon—is an ideal solution for the prevention of water intrusion. The following eBook provides an overview of SillDry, outlining its development, advantages, and applications, as well as how it compares to alternative flashing products.

THE PROBLEM—WATER INTRUSION

The primary challenge of bringing a two-dimensional blueprint to a three-dimensional building is making sure all of its components are constructed and assembled to precise specifications for a tight seal. Otherwise, the building is at risk of water intrusion and, consequently, water damage.

The building envelope serves as the primary barrier to water intrusion. However, this protective layer is only as effective as its individual components. If any of the building's openings—including windows, doors, vents, and AC units—are inadequately sealed, water can and will penetrate from exterior to interior.

Some of the challenges regarding proper sealing include:

SEASONAL CHANGES

Buildings are constantly shifting. The rise and fall of temperatures, humidity, and inclement weather all slightly alter the building envelope and change the quality and strength of the seal between interlocked parts.

CONSTANCY OF WATER INTRUSION

Water always finds a way to permeate the building envelope. When it comes to preventing water damage, all envelopes have three goals: **(1)** blocking as much water intrusion as possible, **(2)** rerouting water away from vulnerable components, and **(3)** removing any water inside the building as quickly and efficiently as possible.

These challenges, among others, are not always effectively overcome by traditional sealing products. Most flashing options available in the market today do not move with the expansion and contraction of the building, making it easy for water to penetrate during seasonal and weather changes. Additionally, they are often labor-intensive, hard to install, and less environmentally friendly.

WHY DON'T OTHER FLASHING SOLUTIONS WORK AS WELL?

Beyond SillDry, there are many other flashing products available. However, these alternatives are not as effective. Some of the most common flashing solutions and their limitations include:

ADHESIVE TAPES

Over 60 million doors and windows in the United States are installed every year, and contractors often use adhesive tapes to hold them and the surrounding materials in place. However, the cost-effectiveness of installing is relatively low compared to SillDry for several reasons:

ADHESIVE TAPES REQUIRE EXPERT LABOR

Every layer of tape needs to be precisely measured, cut, and installed by hand to prevent as much water intrusion as possible. This requires highly skilled laborers, as the tape must be kept clean and the corners precisely aligned.

ADHESIVE TAPES REQUIRE A LOT OF TIME

Manual labor for installing tapes is slow, even when performed by experts. Additionally, adhesive tapes require specific conditions for installation—the weather must be dry with low winds.

ADHESIVE TAPES GENERATE WASTE

Cutting tape to fit different thresholds and punched out openings creates a lot of material waste, which further adds to project expenses.

Even when adhesive tape is installed correctly, water can still permeate through. Tapes create a flat, two-dimensional seal. When water permeates the seal, it pushes the tape aside, essentially creating a funnel that allows more and more water into the interior of the building. This issue can often go undetected until there is severe structural damage within a building's walls.

Phone: 215.634.9440 info@silldry.com www.silldry.com

TRADITIONAL SILL PANS

Traditional sill pans are plastic, high-grade metal, or copper components that are cut, glued, and soldered on-site to a building's openings. While these flashing products are more effective than adhesive tapes at sealing the building envelope, they also have several limitations.

For example:

- Metal and copper pans are expensive, both in regard to the construction material and installation costs.
- Traditional pans are often flat and cannot move with the structure.
- Plastic pans, while more affordable than metal pans, are more likely to crack along the seal. Additionally, they require intensive labor for installation.

THE SUPERIOR SOLUTION—SILLDRY

SillDry serves as the ideal window and door flashing solution. Through a culmination of years of in-the-field experience and hundreds of research and development hours, inventors Kieran McMahon and Joel Glickman have produced a product that overcomes every water intrusion challenge, sealing the building envelope for good. This is not your ordinary flashing product. It's a revolutionary flashing solution architects, developers, and contractors have been searching for, and now finally have.

Phone: 215.634.9440 info@silldry.com www.silldry.com

SILLDRY PRODUCT FEATURES

INNOVATIVE DESIGN

SillDry features a patented one-piece, expandable construction that requires only a single point of attachment on each side of the opening to protect the pan adequately. Our patented Smart Accordion Technology® allows for easy installation in virtually any opening from 18 inches to 12 feet (our standard sizes). SillDry can also be customized to any larger size. Other elements of the design include:

- Pre-sloped sills, which eliminate the need for shimming, constructing and installing a sloped plane
- Built-in 7.5 degree slope assists in quickly moving water out of the structure
- Precision engineered drainage channels for easy water removal
- A raised dam to prevent water from entering building interior and insulation
- Design allows for easy overlapping of the drainage plane

LOW COST

SillDry's single-piece construction offers a zero-waste solution customized to your project. Every SillDry pan is labeled so that the size is easily identified and matched with every opening on your job site. The design is self-leveling and requires no assembly. Installation is quick and painless, as it involves only two screws, drastically reducing labor and training costs. Additionally, SillDry can be installed in all weather conditions, reducing the risk of schedule disruptions.

PRECISE ENGINEERING

SillDry is well-engineered to prevent water intrusion and direct water away from the opening. Its one-piece design creates a seamless seal, and built-in slope and shims direct water flow out. Our Smart Accordion Technology® allows for easy on-site adjustment without the need for any cutting. SillDry is compatible with virtually all manufacturers' products.

15-YEAR LIMITED WARRANTY

SillDry is built to last. As proof of our confidence in our product, we offer a 15-year limited warranty.

DURABLE CONSTRUCTION

SillDry is made from Thermoplastic Olefin (TPO) material that can withstand all weather conditions and temperatures during and after installation. The material is waterproof, resistant to impact and UV radiation damage, and has low thermal conductivity.

BUILT-IN BUILDING CODE COMPLIANCE

SillDry meets and exceeds the 2018 ICC and IRC building codes. Specifically SillDry meets and exceeds the 2018 IBC Code section 1404.4, 2018 IRC code section R703.4 as well as the ASTM standard set forth in ASTM E2112-07.

APPLICATIONS OF SILLDRY

SillDry serves as an effective window and door flashing solution for a variety of industries, including the following sectors:

HOSPITALITY INDUSTRIAL COMMERCIAL RETAIL HEALTHCARE RESIDENTIAL

PROTECT YOUR BUILDING WITH SILLDRY

SillDry arose as a water intrusion solution through the combined expertise and efforts of Kieran McMahon (an expert in the integration of exterior cladding systems) and Joel Glickman (inventor of K'NEX®). Partnering with The Rodon Group—a U.S based plastic injection molding company with over 60 plus years of precision manufacturing experience—the duo designed and manufactured a flashing product that meets and exceeds 2018 flashing building codes and complies with ASTM best practices with its built-in 7.5-degree slope.

SillDry is committed to professional and community engagement as members of the following:

- American Institute of Architects (AIA) Philadelphia Chapter
- Association of the Wall and Ceiling Industry (AWCI)
- Building Industry Association of Philadelphia
- Central Bucks Chamber of Commerce
- The Chamber of Commerce for Greater Philadelphia
- Home Builders Association (HBA) of Bucks/ Montgomery Counties
- International Code Council (ICC)
- National Association of Home Builders
- Pennsylvania Builders Association

ABOUT SILLDRY

American inventing duos have literally changed the world. From Hewlett & Packard (HP), Gates & Allen (Microsoft), Jobs & Wozniak (Apple) to Ben & Jerry (ice cream), innovation is often the combination of two people with passion, determination and complementary skill-sets. Today, the construction industry has Glickman & McMahon. SillDry is the combination of their decades of expertise in advanced manufacturing and construction.

If you're interested in learning more about SillDry and how it can protect against destructive water intrusion, contact us today. To partner with us on your next building project, request a free quote from our experts.

CONTACT US NOW **VISIT OUR RESOURCE LIBRARY**

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PRECISION MADE IN USA

SILLDRY®

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MW# 103-200101

Topic: NFPA 285 Assemblies

Multi-story fire testing more commonly referenced as NFPA 285 are the line of assembly-specific testing where a fire starts in one room and then tries to burn up the exterior of the building. Systems and components must resist this form of fire and flame spread. Building codes require compliance to this test for building heights over 40 feet in height.

EIFS has had co comply with this requirement for several years and now other cladding materials and insulated assemblies are now required to pass these requirements as well. Initially testing was performed over specific assemblies and lately building officials have been recognizing other forms of compliance, such as a review by a fire engineer.

Individual Component Results

Master Wall® offers several individual products that are resistive to fire or tested as the only combustible product used in the assembly:

Product	Test	Results
Surface Burning Characteristics—Base Coat, Mesh and Finish	ASTM E84	Flame Spread = 0 Smoke Developed = 0
Surface Burning Characteristics—Rollershield	ASTM E84	Flame Spread = 5 Smoke Developed = 5
Combustibility	ASTM E136 Standard Test Method for Assessing Combustibility of Materials in a Vertical Tube Furnace at 750°C, Option A	Pass
Heat and Smoke Release Rates for Rollershield Air/Water Barrier	ASTM E1354, IBC Section 1403.5, Exception 2 Requirements, Peak Heat Release Rate <150 kWm2, Total Heat Release Rate <20 MJ/m2, Effective Heat of Combustion <18 MJ/kg	RS: Peak Heat Release Rate = 32 kWm2, Total Heat Release Rate = 3.6 MJ/m2, Effective Heat of Combustion = 2.5 MJ/kg, VB: Peak Heat Release Rate = 336 kWm2, Total Heat Release Rate = 8.8 MJ/m2, Effective Heat of Combustion = 9.3 MJ/kg

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MW# 103-200101

Topic: NFPA 285 Assemblies

Attached are some common assemblies of our standard systems and those with various forms of insulation. These can vary depending upon individual components and review of the local building official. If you have any specific assemblies, please contact us at 800-755-0825 or tech@masterwall.com.

Master Wall Inc.
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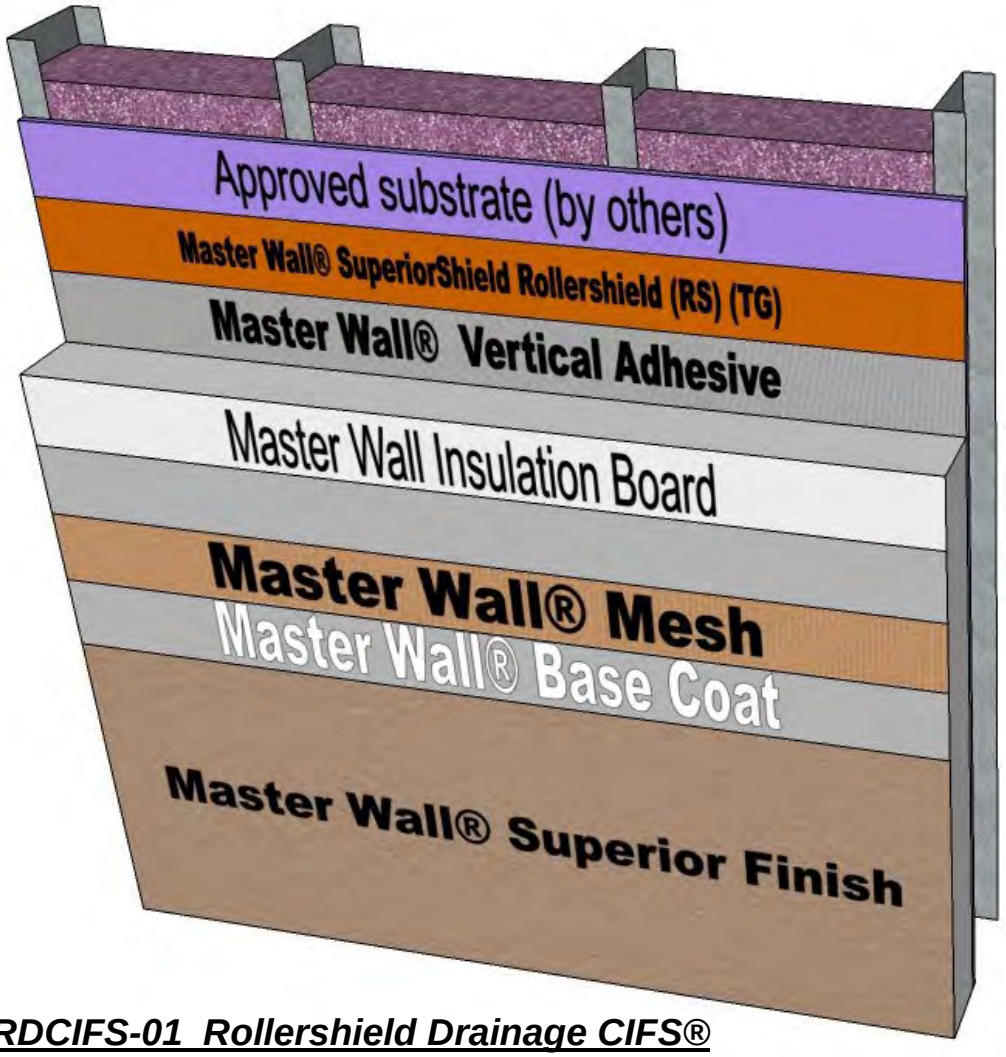
System Detail

Wall Assembly Components

- Interior Drywall, 5/8” Type X
- Metal Framing, 18ga C-studs max. 24” o.c.
- Insulation (optional), Fiberglass Batt (faced/unfaced) or any other noncombustible such as mineral wool
- ASTM C1177 Exterior Sheathing, 5/8” thick
- **Rollershield Air/Water Barrier**
- **Master Wall® Adhesive**
- **Master Wall® Insulation Board, max 4” thick**
- **Master Wall Base Coat**
- **Master Wall Reinforcing Mesh**
- **Superior Finish**



Wall System Reference

- IAPMO UES ER-0433

NFPA-RDCIFS-01 Rollershield Drainage CIFS®

These drawings relay the conceptual conditions of Master Wall® Systems and are not the construction drawings. Ultimately the design and detailing of an entire wall system is the responsibility of a professional. These details will guide the design professional in the use of Master Wall® Products. Master Wall disclaims design, warranty or construction intent or responsibility. Bold or Brand Name = Master Wall® Product.

Master Wall Inc.
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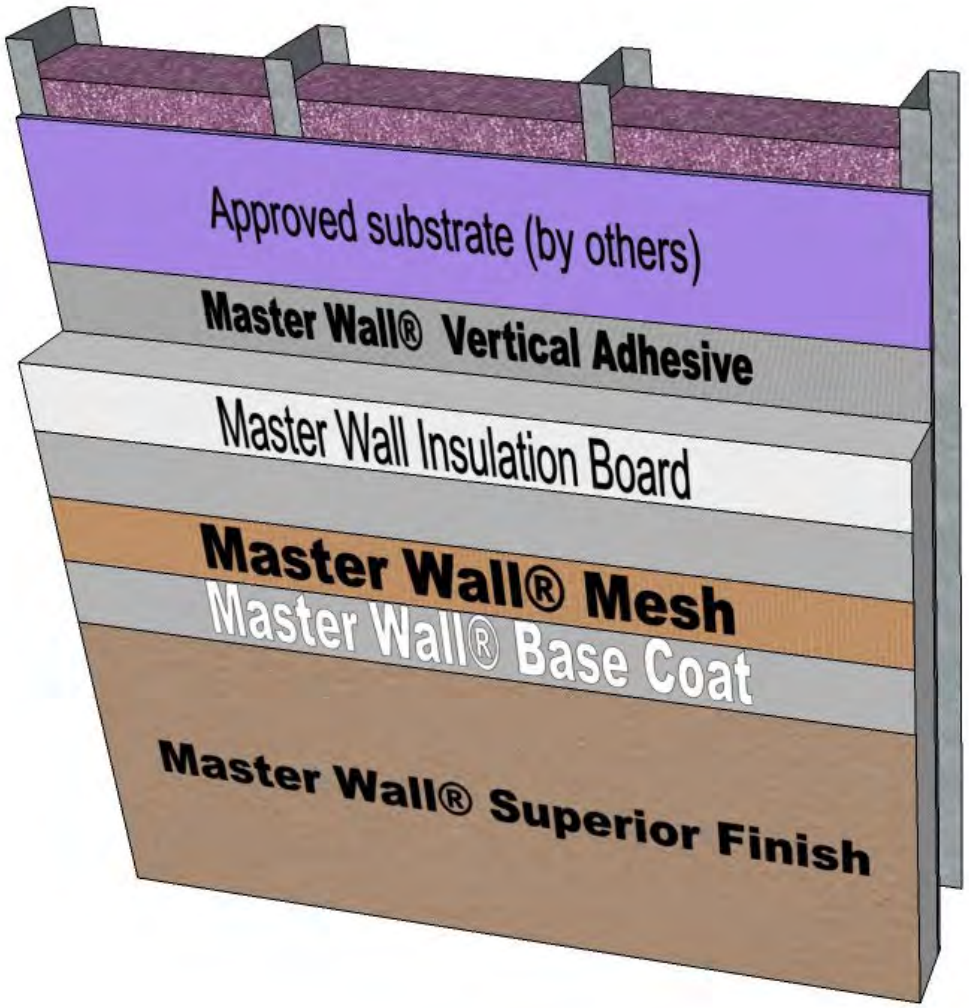
System Detail

Wall Assembly Components

- Interior Drywall, 5/8” Type X
- Metal Framing, 18ga C-studs max. 24” o.c.
- Insulation (optional), Fiberglass Batt (faced/unfaced) or any other noncombustible such as mineral wool
- Type X Exterior Sheathing, 1/2” thick
- **Rollershield Air/Water Barrier**
- **Master Wall® Adhesive**
- **Master Wall® Insulation Board, max 4” thick**
- **Master Wall Base Coat**
- **Master Wall Reinforcing Mesh**
- **Superior Finish**



Wall System Reference

- IAPMO UES ER-0433

NFPA-AFEIFS-01 Aggre-flex EIFS

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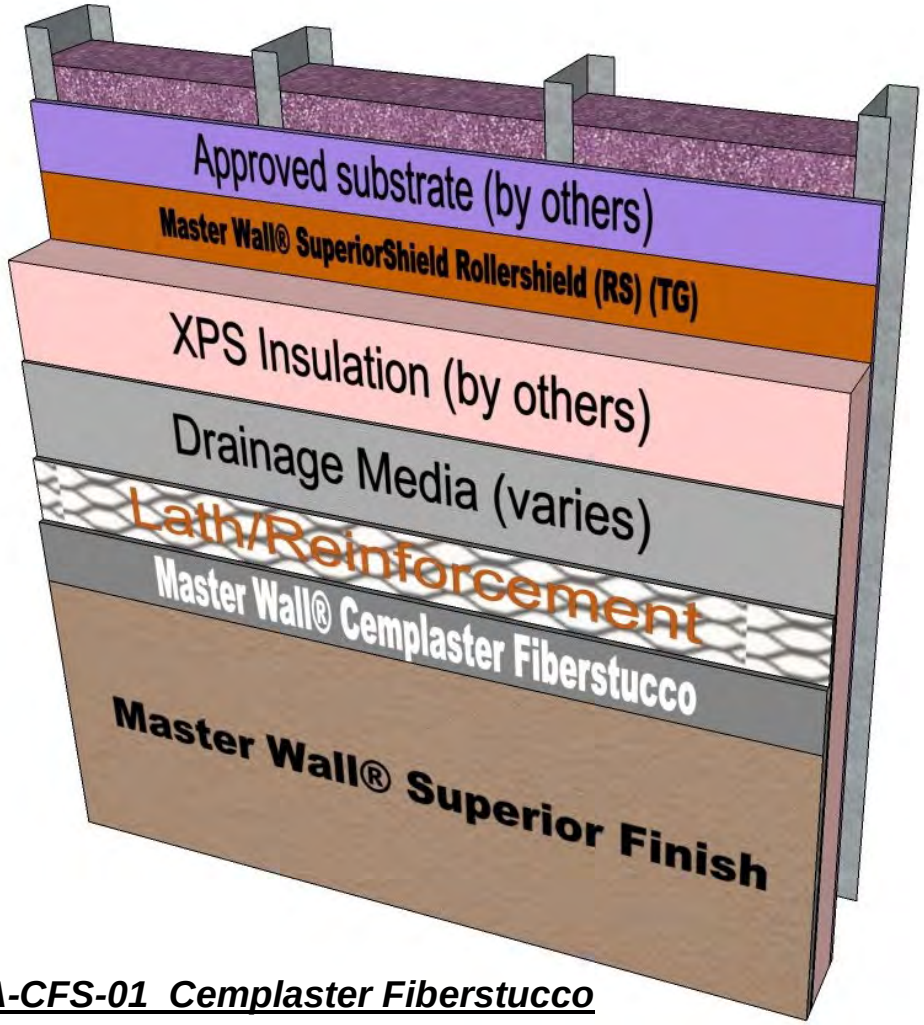
System Detail

Wall Assembly Components

- Interior Drywall, 5/8" Type X
- Metal Framing, 18ga C-studs max. 24" o.c.
- Insulation (optional), Fiberglass Batt (faced/unfaced) or any other noncombustible such as mineral wool
- Type X Exterior Sheathing, 1/2" thick
- Noncombustible substrates such as FRT wood, masonry, or concrete (see individual reports)
- **Rollershield Air/Water Barrier** or other water barrier
- ASTM D226 water barrier or slip sheet as needed
- Insulation Board, XPS or Polyisocyanurate, up to 2" thick (optional)
- **Drainage Media, Keene® 020-1**
- **Cemplaster Fiberstucco, minimum ½" thick**
- **Superior Finish**



Wall System Reference

- Hunter Panels NFPA 285 Assembly Brochures
- Keene® Drainage Mat NFPA 285 Assemblies

NFPA-CFS-01 Cemplaster Fiberstucco

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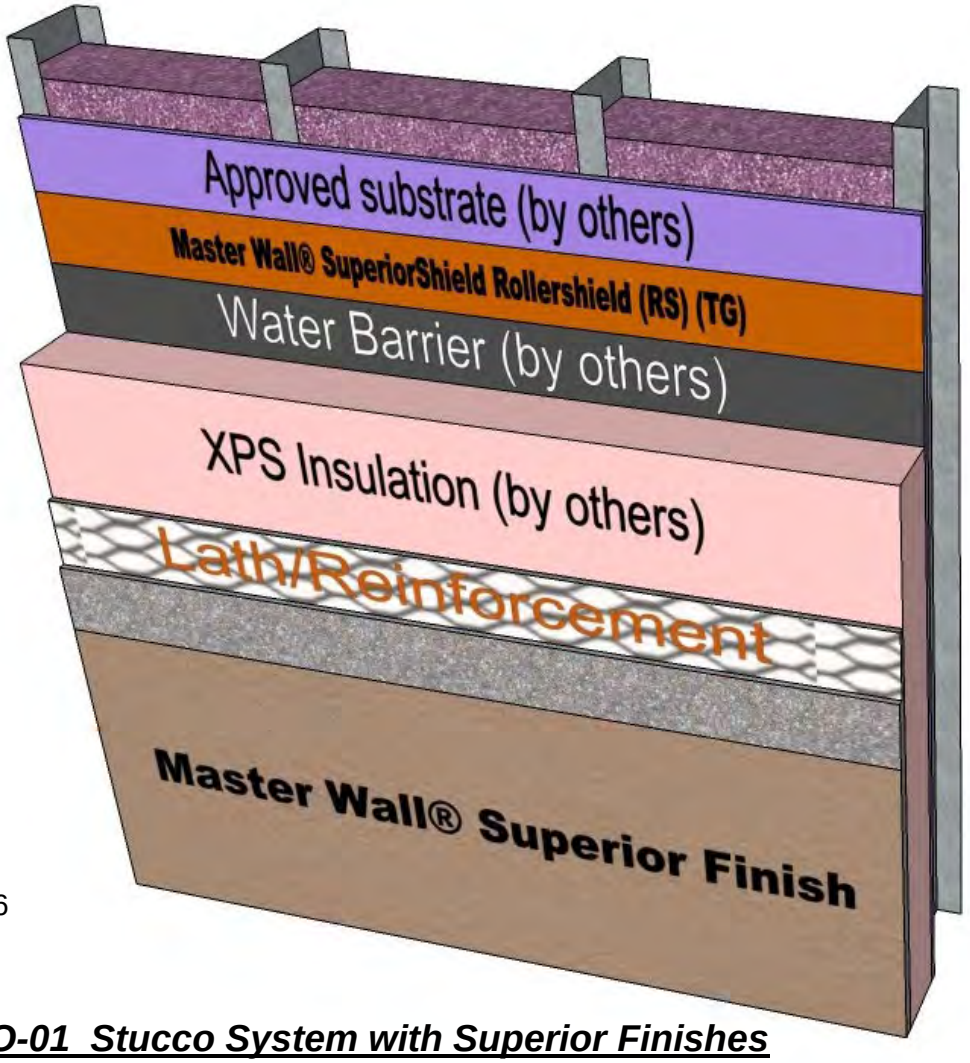
System Detail

Wall Assembly Components

- Interior Drywall, 5/8” Type X
- Metal Framing, 18ga C-studs max. 24” o.c.
- Insulation (optional), Fiberglass Batt (faced/unfaced) or any other noncombustible such as mineral wool
- Type X Exterior Sheathing, 1/2” thick
- Noncombustible substrates such as FRT wood, masonry or concrete (see individual reports)
- **Rollershield Air/Water Barrier** or other water barrier
- ASTM D226 water barrier or slip sheet as needed
- Insulation Board, XPS or Polyisocyanurate, up to 2” thick
- Stucco and Lath, typically 7/8” thick (1/2” with Hunter Panel Polyisocyanurate)
- **Superior Finish**



Wall System Reference

- DOW® NFPA 285 Assembly Brochure
- Hunter Panels NFPA 285 Assembly Brochures
- Owens Corning® NFPA 285 Assembly Brochure
- IBC 2018 Chapters 25 and 26

NFPA-STUCCO-01 Stucco System with Superior Finishes

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MW# 104-010198 rev 200101

Topic: AFM Perform Guard Termite Resistant Insulation

AFM has developed an insulation board that is resistant against termites and carpenter ants. PerformGuard® uses a natural mineral that is formulated to resist insects. This mineral is locked into the insulation board and lasts the life of the insulation board.

PerformGuard® contains no CFC, HCFC or formaldehyde making it environmentally friendly. It is inert and non-nutritive and highly stable. It does not decompose, decay, or produce undesirable gasses or leachates.

PerformGuard® is currently being used in a few applications and partner plants can incorporate this technology into their Wall Specification Grade (WSG) EPS used in Master Wall® Systems. The use of this insulation would be beneficial in areas where termite probability is high.

Attached is AFM's Perform Guard® literature.

Perform Guard®

Termite Resistance.

Foam-Control® molded polystyrene insulation with Perform Guard® is a termite resistant molded polystyrene insulation for all types of construction. It is used in Structural Insulated Panels (SIPs), Perimeter and Under-slab Foundation Insulation, Exterior Insulation and Finish Systems (EIFS), Geofoam, Insulated Concrete Forms (ICFs), and other molded polystyrene Building Products and Systems.

- Meets code requirements for ground contact use
- Resistant to termite damage
- Incorporates EPA registered additive
- Safe for handling and noncorrosive

Insulation helps keep people comfortable. Unfortunately, insulations are susceptible to termite infestation.

Foam-Control insulation with Perform Guard is an important component in preventing this problem. It's made by a process that incorporates a termite resistant additive into the insulation during the manufacturing process. The additive is registered with the Environmental Protection Agency (EPA) for this application. Foam-Control insulation with Perform Guard has been thoroughly tested, is safe for handling, and noncorrosive. And termites hate it.

Proven to meet, or exceed, building codes.

Foam-Control is manufactured under an industry leading quality control program monitored by UL and further recognized in UL Evaluation Report UL ER11812-01. Foam-Control meets ASTM C578, "Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation".

Foam-Control insulation with Perform Guard meets ICC ES AC239, "Acceptance Criteria for Termite-Resistant Foam Plastics".

FOAM CONTROL®

Perform Guard®

FOAM FACTS:

Foam-Control with Perform Guard outperforms XPS.

- Meets ICC ES AC239 requirements for termite resistance foam plastic
- Suitable for use in all areas of termite risk, including Formosan
- Meets requirements of IBC Section 2603.8
- Meets requirements of IRC Section 320.5

Problem.

Termites love to live, work, and eat in comfortable and protected surroundings. All untreated insulations can potentially provide this environment. Most of the U.S. is susceptible to termite activity. It is important that insulation products and systems account for the potential of termite infestation.

- Termites reduce insulation & system performance
- Termites cause problems for structural systems
- Costs to control termites can continue indefinitely

Termite Damaged Untreated Foams

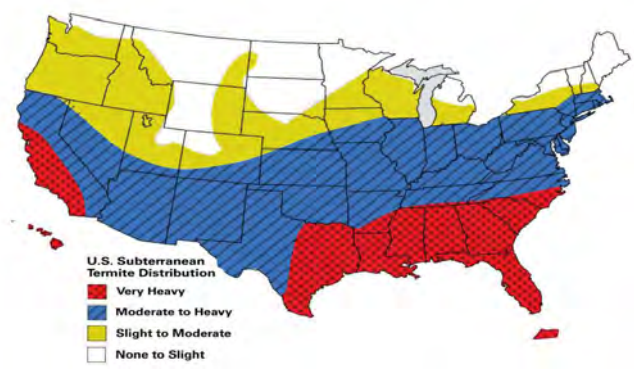
Perform Guard®

Testing.

Extensive research has been conducted to find an effective additive that would deter termites, develop processes for the incorporation of the additive into molded polystyrene and field tested the efficacy of the Foam-Control insulation with Perform Guard.

Termite exposure tests have been conducted by industry recognized institutions following industry recognized test standards of ICC ES AC239. Product performance testing has shown how Foam-Control insulation with Perform Guard resists termite infestation when installed following our recommendations.

Termite Infestation Risk.



Applications.

Foam-Control insulation with Perform Guard is a termite resistant insulation. Foam-Control insulation with Perform Guard is not a barrier system but should be used in conjunction with a total insect management program available from a reputable pest control operator.

Ready to take control? Start here.

If you're ready to have Foam-Control contribute to your next project, just contact your nearest Foam-Control manufacturer and Technical Sales Representative. They will be happy to give you design consultation, information about Foam-Control products, pricing, and answers to all of your questions.

Foam-Control products are manufactured by AFM Corporation licensees.

PG01-01/20

FOAM CONTROL EPS

Perform Guard No. 6010

Subject: **Foam-Control EPS Perform Guard Testing**

Date: **January 2008**

Foam-Control EPS with Perform Guard termite resistant expanded polystyrene (EPS) is recognized in code evaluation reports for below grade applications in regions of very heavy termite pressure. Foam-Control EPS with Perform Guard received this recognition through extensive below grade in-situ testing over a period of 5 years at three termite testing locations in the southern U.S. This bulletin provides a brief description of the testing along with pictures of the test results.

Three test plots were selected for the evaluation of Foam-Control EPS with Perform Guard. The test plots were located in Georgia and Mississippi. These plots are within the region defined as very heavy termite pressure by the model building codes. Foam-Control contracted with a third party testing firm, Rich Mountain, to conduct all testing and report all test results.

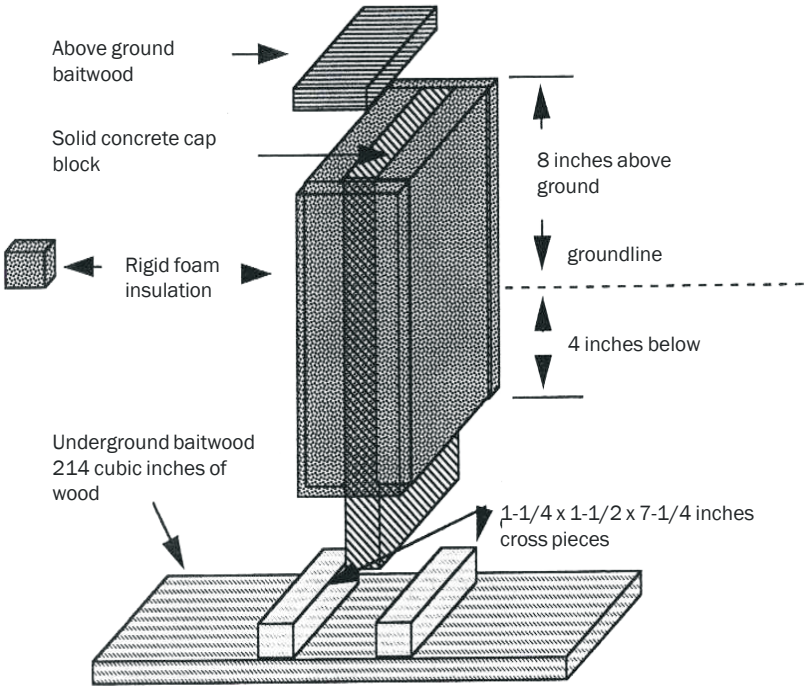
The testing was conducted following a test method developed jointly by Rich Mountain and Foam-Control. The test method was modeled after AWPA E-7-93, "Standard Method Of Evaluating Wood Preservatives By Field Tests With Stakes." The testing consisted of EPS samples adhered with construction adhesives/sealants to a concrete block. This geometry was selected to mirror below grade insulation of concrete/masonry walls. The detailed test method is available from Foam-Control upon request.

The samples geometry was such that the EPS were installed adjacent to below grade bait wood. This was intended to accelerate the exposure to termites by providing an large initial food source for the termites. A second piece of bait wood was installed above the sample to evaluate the extent that termites would excavate and tunnel through EPS.

Attached to this bulletin are pictures from our testing. These include the sample fixture geometry, test plots, and cross sections of excavated EPS samples.

The performance of the Foam-Control EPS with Perform Guard sample is quite dramatic when compared to untreated EPS. Untreated EPS shows very obvious damage resulting from extensive excavation and tunneling. In contrast, Foam-Control EPS with Perform Guard shows very little damage.

The extensive testing conducted on Foam-Control EPS with Perform Guard has led to Perform Guard being the only rigid foam recognized for application in areas of heavy termite pressure.



TEST FIXTURE - replicates below ground applications.

TEST FIXTURE - Prior to installation showing underground baitwood base to attract termites to site. Canister cover to protect termite activity.

Field installation of test textures - Stone County, Mississippi.

Field installation of test textures - Griffin, Georgia.

#45 TEST FIXTURE - Examination of of non-treated EPS after 3 years exposure. Highland Site, Mississippi.

#45 TEST FIXTURE - cut open to reveal extensive termite damage.

#45 TEST FIXTURE - Close-up shows extensive termite damage.

#45 TEST FIXTURE - Close-up shows active termites.

#45 TEST FIXTURE - Close-up shows nesting infestation of termites.

#45 TEST FIXTURE - Close-up shows termite nesting galleries formed in non-treated EPS.

#64 TEST FIXTURE - Examination of Perform Guard EPS after 3 years exposure. Highland site, Mississippi.

#64 TEST FIXTURE - cut open to reveal limited termite damage.

#64 TEST FIXTURE - Close-up shows no termite damage.

#64 TEST FIXTURE - Close-up shows slight termite damage.

#64 TEST FIXTURE - Perform Guard EPS and R-Control Do-All-Ply.

#45 Test Fixture - Non-Treated EPS and standard construction adhesives.

#64 and #45 TEST FIXTURES - Close-up comparison.

Perform Guard® TERMITE RESISTANT

AFM CORPORATION FOAM CONTROL

Foam-Control EPS products are manufactured by AFM Corporation licensees.

Master Wall Inc.®
Building a Culture of Excellence

TECHNICAL BULLETIN

MW# 107-220401

TOPIC: AIA CONTINUING EDUCATION

ORGANIZATION DESCRIPTION

MASTER WALL INC.® MANUFACTURES QUALITY STUCCO, COATINGS AND EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS) FOR RESIDENTIAL AND COMMERCIAL PROJECTS. MASTER WALL® IS WELL POSITIONED IN THE INDUSTRY - LARGE ENOUGH TO MEET YOUR NEEDS, BUT SMALL ENOUGH TO REMEMBER YOUR NAME.

FOUNDED IN DECEMBER OF 1987, THE GOAL OF MASTER WALL® IS TO PROVIDE OUR INDUSTRY WITH THE BEST QUALITY PRODUCTS BACKED BY INFORMED EMPLOYEES COMMITTED TO SERVICE AT A COMPETITIVE PRICE.

AVAILABLE COURSES

THE ETHICS OF ARCHITECTURE (2022-01) LU

AN ETHICAL APPROACH TO SPECIFICATIONS. WITH SUCH GREAT RESPONSIBILITY THE DESIGN TEAM OF ANY PROJECT NEEDS TO UNDERSTAND RIGHT FROM WRONG AND HOW THE SPECIFICATION DRIVES WHAT GETS DONE. FOR THIS REASON, THE SPECIFICATION NEEDS TO BE CLEAR, CORRECT, COMPLETE AND CONCISE. HOWEVER, THERE IS MORE TO THIS, THAN JUST SAYING IT. WE HAVE TO ACT AND MAKE IT HAPPEN. THIS PROGRAM WILL LOOK AT WHY SPECIFICATIONS ARE VITAL TO EVERY PROJECT, HOW THEY HAVE LOST VALUE IN THE EYES OF THE INDUSTRY AND HOW WE CAN ENSURE THEY GAIN BACK THE RESPECT THEY ONCE HAD.

BUILDING ENCLOSURE: DYNAMIC INTERFACES OF FLUID APPLIED BARRIERS, CI, AND FINISH SYSTEMS (MW004) LU/HSW

THE INTEGRATION OF AIR/WATER BARRIERS, CONTINUOUS INSULATION AND A CLADDING CAN BE COMPLICATED. THIS COURSE SIMPLIFIES THE PROCESS SHOWING HOW YOU CAN INTEGRATE THESE COMPONENTS TO KEEP YOUR BUILDINGS DRY AND PROTECTED. (1-HOUR COURSE)

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AVAILABLE COURSES

CONTINUOUS INSULATION AND FINISH SYSTEMS BASE PLUS (2021-01) LU/HSW

THE INTEGRATION OF AIR/WATER BARRIERS, CONTINUOUS INSULATION AND A CLADDING CAN BE COMPLICATED. THIS COURSE SIMPLIFIES THE PROCESS SHOWING HOW YOU CAN INTEGRATE THESE COMPONENTS TO KEEP YOUR BUILDINGS DRY AND PROTECTED. (1-HOUR COURSE)

EIFS REPAIR AND RENOVATION (2021-02) LU/HSW

EIFS REPAIR AND RENOVATION CAN RANGE FROM SIMPLE TO COMPLICATED. EIFS IS A PRIMARY WEATHER BARRIER AND DECORATIVE CLADDING THIS COURSE IDENTIFIES SOME OF THE EVALUATION AREAS ARCHITECTS SHOULD BE AWARE OF WHEN RENOVATING AND THE COMMON RENOVATION OPTIONS. (1-HOUR COURSE)

STUCCO REPAIR AND RENOVATION (2021-03) LU/HSW

STUCCO REPAIR IS COMPLICATED. AS THE PRIMARY WEATHER RESISTIVE CLADDING, THE PROPER EVALUATION IS CRITICAL IF RENOVATING A BUILDING. THIS COURSE IDENTIFIES SOME OF THE EVALUATION AREAS ARCHITECTS SHOULD BE AWARE OF WHEN RENOVATING AND THE COMMON RENOVATION OPTIONS. (1-HOUR COURSE)

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CIFS BASE PLUS CODE REFERENCES WITH LINKS

CI CLADDING BREAKDOWN (CHAPTER 14)

- 1402 PERFORMANCE REQUIREMENTS
  - 1404.2 WEATHER PROTECTION (GENERAL)
  - 1402.5 WATER-RESISTIVE BARRIERS
  - 1403 MATERIALS
- 1403.2 WATER-RESISTIVE BARRIER REQUIREMENTS
- 1403.11 EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS)
- 1403.13 FOAM PLASTIC
- 1404 INSTALLATION
- 1404.3 VAPOR RETARDERS
- 1405 COMBUSTIBLE MATERIAL USE
- 1407 EIFS

IECC CLIMATE ZONE MAP

2021 INTERNATIONAL ENERGY CONSERVATION CODE

IECC BUILDING LEAKAGE REQUIREMENTS

CHAPTER 4

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AIA

Master Wall Inc.® Provider Number J226

Name of Presenter: _____ **Course Date:** _____ □ **Course**_____

Presentation Location and Address: _____

Participants at this course:(Please print)

MEMBER NUMBER	PARTICIPANT NAME	SIGNATURE	EMAIL ADDRESS*Please print clearly	Certificate Request

Provider will submit attendance within **10 business days.** Retain all attendance information for three years; electronic or paper

Master Wall Inc.
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Technical Bulletin

Corporate: P.O. Box 397 • Fortson • Georgia • 31808 • 800-755-0825 • FAX 706-569-6704

MW# 112-210101

Topic: Owner's Responsibilities for Cleaning and Maintenance of Master Wall® Coatings & Systems

Related Technical Bulletins
Repairing Master Wall EIFS
Sealant Use
Window Considerations
EIFS Inspection Guidelines
Stucco Cracking
Fade Resistance
Efflorescence Considerations

What is a Wall System?

A wall system or building envelope consists of all the building components. This typically includes the structural framing, wall cladding, windows, doors, penetrations such as pipes and vents and roof/wall connections. A wall system is more than a single component, more than just Master Wall®.

Inspecting the Wall System

A thorough visual inspection of the wall system is your best defense against problems. In general, you are looking for holes, breaks or cracks that could let water in. Bulk water in large quantities can cause problems over time. All the materials should be designed to shed water including quoins, window heads and brick ledges.

Cladding

Inspect the cladding for any punctures, breaks, cracks, wrinkles, or blisters. Note their location.

- **CIFS®, EIFS and Similar Applications** (Rollershield Drainage CIFS®, Aggre-flex EIFS, Aggre-flex Drainage EIFS, QRW1 Drainage EIFS, Insulated Concrete Form (ICF) Coatings)
    - Temporarily seal holes in the Master Wall® Cladding with DAP® ALEX® Painters Caulk (http://www.dap.com/) or similar product. Schedule a permanent repair with a Master Wall® Certified Applicator following the recommendations of our Technical Bulletin MW#129.
    - Cracks, bulges, wrinkles, and blisters typically indicate structural movement. Temporarily seal the opening with DAP® ALEX® Painters Caulk or similar product. Once the cause of the movement is isolated (consult a professional), the cladding can be repaired following the Technical Bulletin MW#129.

- **Stucco and other Finish Systems or Materials** (Master Wall® Cemplaster Fiberstucco, Finishes over Stucco/One Coat Stucco, Stucco Cement Board Coating, Uninsulated Finish (UF) System, Soffit System, ProTec® and ProGuard® panel applications, Interior Finish applications, ReCote™ applications, LiMa applications)
    - Hairline cracks are somewhat typical for stucco and are generally caused by shrinkage. They should be noted but are not a structural concern. If objectionable it can be painted with a quality 100% acrylic elastomeric paint (see painting).
    - Structural cracks are usually 1/16" or larger. Some type of structural condition usually causes these cracks. Consult a professional for recommended repairs. The cracks may be temporarily sealed with DAP® ALEX® Painters Caulk or similar product while repairs are scheduled with a stucco applicator.

- **Rollershield LAB under Other Cladding Materials** (Master Wall® Rollershield LAB)
    - Maintenance of the Rollershield is not normally needed. Inspect cladding materials for degradation and leaks and repair as necessary.

Sealants

Inspect the sealants for any deterioration, breaks, cracks, or blisters. Note their location for future repair. Sealants should be visible and are generally wide. They are used to bridge the gaps between the wall cladding and other wall system components such as windows, doors, pipes, lights, and vents. See Master Wall® Technical Bulletin MW#131 for recommended sealants.

In stucco systems, sealant should also be visible at the ends and butts of control joints (V-grooves). Sealants should be properly designed and professionally applied. Reference Technical Bulletin MW#149-020104 for typical sealant joint designs.

Windows & Doors

Inspect the windows and doors for signs of leakage and deterioration. Make sure gaskets are in good condition, any weep holes are clear, and any debris is removed from the units on a regular basis. Check with the window/door manufacturer to determine any manufacturer-specific maintenance requirements. Master Wall® Technical Bulletin MW#132 identifies some of the problem areas in window construction.

Buildings in coastal areas will require special attention. Most window and door units are under-designed for the climate and can leak into the building. Most building codes now require the use of hurricane-rated components.

Flashing and Sheet Metal

Flashing and sheet metal are used to either protect water sensitive materials such as wood or to direct rainwater away from the building. Flashing and sheet metal should be check for deterioration and leaks – especially at the seams. Clear away any debris and check the following:

- Check head flashing at the tops of most windows and doors. They are usually used with most systems, but sometimes not with the Aggre-flex System. Confirm flashing requirements with the window/door manufacturer if in doubt.
- Where the roofing material meets the wall, a flashing is normally used. The most common is step flashing, small pieces of metal installed under asphalt shingles. Metal roofs usually use a continuous flashing. Where the roof ends a "kick out" flashing should be visible. This flashing directs water away from the building.
- The flashing in roofs should be visible. Usually the siding is kept up 1" to 2" but this can vary depending upon locally accepted practices.
- Flashing behind decks should be visually inspected and cleared of debris. Decks installed without flashing need to be corrected. Consult with your builder or architect for a determination.
- On commercial buildings, metal parapet caps should be inspected to make sure they are sloped, draining water to the interior of the building, and sealed at the seams to prevent water entry. Also, the face edge of the cap should be sealed to prevent any wind-driven rain.

Chimneys

Inspect chimneys to make sure it provides a watertight seal. Step flashings should be visible around the chimney and a cricket installed to divert water away from the chimney stack.

Other Penetrations

Penetrations such as electrical boxes, hose bibs, dryer vents, downspout cleats, and other terminations to make sure they are sealed. Correct any deficiencies using an approved sealant.

Other Considerations

A lot of keeping a home or building in good condition is common sense. Make sure sprinklers are not directed against the structure. Make sure the ground slopes away from the building. Do not pile mulch against the side of the home and leave a clearance of about 6" to 8" between the siding and grade. Check the roof and gutters for debris and deterioration.

On some older homes, the wall cladding may have been run below grade. Our Technical Bulletin MW#128 discusses some of the options.

Cleaning

Master Wall® coatings are called "Superior Finishes". They are a 100% pure acrylic based textured coating and are available in a variety of standard and custom colors and five different textures. Depending upon the texture and climate regular cleaning may be necessary.

The easiest method is to use a garden hose to spray the wall and clean the surface. A mild household detergent such as Simple Green may also be diluted in water and the surface scrubbed with a soft bristle brush to remove stubborn dirt. Pressure washers may be used provided they are 2500 psi or less with a large spray fan pattern and always kept moving, keeping at least two feet from the surface.

Mold and mildew are usually green, pink, or black in color. It will typically grow in areas that receive minimal sunlight and/or poor air circulation or appear due to environmental conditions. A mixture of one-part household bleach to three parts water and possibly a little household detergent usually removes the growth. Always pre-wet the wall surface prior to applying the bleach and water solution and do not allow it to stand on the wall for a prolonged period prior to rinsing. Flowers and shrubbery may be affected by the solution and it is recommended that the vegetation be watered and protected. Always use safety goggles, gloves and protective clothing when using a bleach solution.

Stains that are exceedingly stubborn will probably require a specialty cleaner. This would include very stubborn dirt, mold, mildew, sprinkler rust stains, tar, and efflorescence. Specialty chemicals are available from these companies:

Demand Products	www.demandproducts.com	800-325-7540
EaCo Chem Inc.	www.eacochem.com	724-656-1055
Prosoco Inc.	www.prosoco.com	800-255-4255
ShoreBest Corporation	www.shorebest.com	800-860-4978
Wind-Lock Corporation	www.wind-lock.com	800-872-5625

Maintenance Products

There are a variety of products available that help with wall system maintenance. Below is a listing of products and their use:

ShoreBest Corporation	*2650 EIFS Protective Clear Coat*
	*2660 EIFS Graffiti Remover**
Wind-Lock Corporation	*Titan Penetrating Sealer*

*See Technical Bulletin MW#155 for additional information

Painting

Painting the finishes are not normally necessary but it can be done using a high quality 100% pure acrylic paint. Do not use an oil or solvent-based product over Master Wall® products.

Master Wall® does make *DuraCote, Elasto-flex, Roller-flex, and SuperiorCote HP* coatings that are a warranted by us along with the system as a single-source. Owners can also use compatible 100% pure acrylic paints. Owners of stucco may wish to use an elastomeric paint, which bridges minor cracking.

The use of another manufacturer's compatible paint product will not affect the Master Wall® warranty, however, non-Master Wall® coatings would be warranted by the respective manufacturer, not Master Wall Inc.®

Compatible Paint Coating Products

Master Wall Inc.®	DuraCote, flat/semi-gloss premium coating Elasto-flex, flat elastomeric coating Roller-flex, flat coating SuperiorCote HP, premium flat hydrophobic coating
Glidden Company	Glidden® Stucco & Masonry Paint
Pittsburgh Paints	SUN-PROOF® Latex Exterior House and Trim Flat Perma-Crete® Elastomeric Coating
Porter Paints	ACRI-PRO 100® Flat Exterior Acrylic Perma-Crete® Elastomeric Coating
Sherwin Williams	A-100® Exterior Flat Latex ConFlex XL™

As always, follow good painting practices and manufacturer's instructions. Finish corner to corner and back roll for best results. Due to the texture of the finish, two coats of paint are normally required.

Bi-Annual Inspection Checklist

Date: _____

Wall Cladding
Wall Cladding Type: _____
Punctures, cracks, breaks, wrinkles, or blisters?
Mold and/or Mildew?
Soiled, needs cleaning?

Sealants
Cracking within sealant?
Sealant Separated from Cladding?
Sealant separated from other surface?
Blisters within sealant?
Properly installed?

Windows and Doors
Windows/Doors are leaking?
Weep holes are functioning properly?
Sealant at jamb and sill intersection functioning properly?
Mold and/or mildew on windows?

Roofs, Flashing and Sheet Metal
Are sheet metal and flashings directing water to the exterior of the wall cladding?
Roof diverter flashing installed as needed?
Parapets damaged or leaking?
Chimney crick installed as required?
Roof and flashing free of debris?
Gutters clean?

Penetrations
Penetrations properly sealed?
Penetrations properly functioning
(if applicable)?

Other Considerations
Sprinklers directed away from the building?
Grade slopes away from building?
Clearance between siding and grade?

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Technical Bulletin

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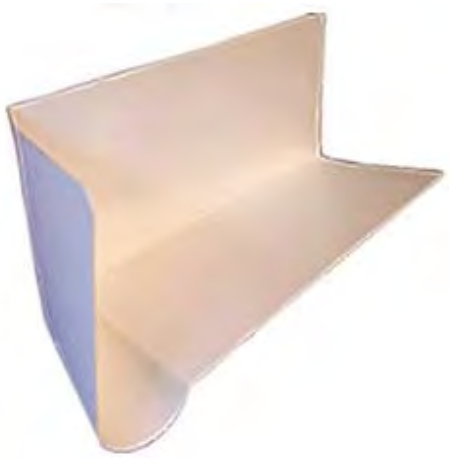
MW# 114-210101

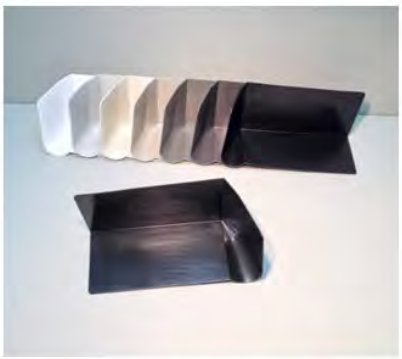
Topic: DryFlekt Diverters



DryFlekt has introduced their new line of kick out flashings. This flashing features several innovations for increased performance compared to site-built alternatives:

- Injection molded for consistent thickness and uniformity.
- Molding design quickly drains water to the outside of the building.
- Injection molding is compatible with all metal flashing types as well as treated lumber.
- Available in right and left designs with a variety of colors.

DryFlekt flashings may be available at most distributorships and from Wind-Lock (www.wind-lock.com). For more information, please contact DryFlekt at 877-985-1010 or on-line at www.dryflekt.com.



Left and Right Parts in 7 Standard Colors

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Technical Bulletin MW#118-200101

System Comparison

Standard EIF Systems

Manufacturer	*Class PB EIFS adhesively or mechanically attached*	*Class PB Drainage EIFS mechanically attached over Standard Water Barrier Tyvek® StuccoWrap® or Similar*	*Class PB Drainage EIFS mechanically attached over a Drainage Mat and Water Barrier*	*Class PB Drainage EIFS mechanically attached with Grooved Insulation Board over Standard Water Barrier*	*Class PB Drainage EIFS adhesively attached to a Trowel Applied Water Barrier*	*Class PB Drainage EIFS channeled adhesive attached to a Roll Applied Water Barrier*	*Class PB Drainage EIFS with Grooved Insulation adhesively attached to a Roll Applied Water Barrier*	*Class PB Drainage EIFS channeled adhesive attached to a Roll Applied Water Barrier, Primer and Improved Pigments*	*Class PB Drainage EIFS channeled adhesive attached to a Roll Applied Water Barrier, Primer and Hydrophobic Finish with Improved Pigments*	*Class PI EIFS mechanically attached over Standard Water Barrier*
Master Wall®	Aggre-flex EIFS (5LM)	Aggre-flex Drainage EIFS (10LM)	Aggre-flex Drainage EIFS (10LM) over approved Drainage Mat	Aggre-flex Drainage EIFS (10LM) using Grooved or Wavy Insulation Board	Rollershield Drainage CIFS® over Rollershield-TG (10 LM)	Rollershield Drainage CIFS® (10LM)	Rollershield Drainage CIFS® (10LM) with grooved insulation	Rollershield Drainage CIFS® with Primecoat and DuroTone pigments (12LM)	Rollershield Drainage CIFS® with Primecoat and SuperiorCoat HP with DuroTone pigments (15LM)	QRW1 Drainage EIFS (5LM)
Dryvit	Outsulation® (10LM)	Outsulation RMD - System 2: Tyvek® StuccoWrap®, (10LM), Outsulation LCMD - System 2: Tyvek® StuccoWrap® (10LM)	Outsulation RMD - System 1: Drainage Mat, (10LM), Outsulation LCMD - System 1: Drainage Mat (10LM)	Outsulation RMD - System 3: Grooved Insulation (10LM), Outsulation LCMD - System 3: Grooved Insulation (10LM)		Outsulation® Plus MD (10LM), Outsulation® RMD System 4 (10LM), Outsulation® HDCI™ (20LM)	Outsulation® Plus MD (10LM), Outsulation® RMD System 4 (10LM), Outsulation® HDCI™ (20LM)			Outsulation SMD (10LM)
Finestone	Pebbletex Classic PB (10M), with Tersus Finish (12M)	Pebbletex-D Option 1: StuccoWrap	Pebbetex-D Option 3: Drainage Mat (10M)	Pebbletex-D Option 2: Grooved Insulation (5M)		Pebbletex CI-DCA (12LM)			Pebbletex CI-DCA with Tersus Finish (15LM)	Quick Clad D, D7 (5, 7M)
Parex	Parex® Standard CI (10-12LM)	Parex® Standard WaterMaster™ LCR CI (8-10M)	Parex® Standard WaterMaster™ LCR CI (8-10M)	Parex® Standard WaterMaster™ LCR CI (8-10M)				Parex® Standard WaterMaster™ (12LM)	Parex® AquaSol WaterMaster™ (15LM)	N/A
Senergy	Senerflex Classic PB (10M)m with Tersus Finish (12M)	Senturion Option 1: StuccoWrap	Senturion Option 3: Drainage Mat (10M)	Senturion Option 2: Grooved Insulation (5M)		Senerflex Channeled Adhesive (12LM), Senerflex Channeled Adhesive with Tersus Finish (15LM)	Senerflex Channeled Adhesive (12LM)		Senerflex Channeled Adhesive with Tersus Finish (15LM)	N/A
Sto	StoTherm Essence (5), Classic (7), Lotusan (10)	Rainscreen, Rainscreen II (5LM)	Rainscreen, Rainscreen II (5LM)	Rainscreen, Rainscreen II (5LM)	Signature (10LM)	StoTherm® ci Classic, Stoloit/Stolit X Finish (12LM), StoTherm® ci Essence, Sto Essence DPR Finish (10LM)	StoTherm® ci Classic, Stoloit/Stolit X Finish (12LM), StoTherm® ci Essence, Sto Essence DPR Finish (10LM)		StoTherm® ci with Loutusan® (15LM)	Sto Therm PI (5LM)

(Warranty Term; M=Material, L=Labor, D=Drainage) Closest Comparable (varies) Insufficient Information N/A - Not Available

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Technical Bulletin MW#118-200101

System Comparison

	XPS EIF Systems				NeoPor® EIF Systems
Class PB EIFS adhered to a Lath over a water barrier	***Class PB Drainage EIFS channeled adhesive attached to a Roll Applied Water Barrier***	***Class PB Drainage EIFS channeled adhesive attached to a Roll Applied Water Barrier with Primer***	***Class PB Drainage EIFS with Grooved Insulation adhesively attached to a Roll Applied Water Barrier***		***Class PB Drainage EIFS channeled adhesive attached to a Roll Applied Water Barrier***
Rollershield Drainage CIFS® adhered to Lath (10LM)	Rollershield Drainage CIFS® with XPS Insulation (10LM)	Rollershield Drainage CIFS® with XPS Insulation and Primecoat (12LM)	Rollershield Drainage CIFS® (10LM) with grooved insulation		Rollershield Drainage CIFS® with NeoPor® Insulation (10LM)
Outsulation RMD - System 5: Metal Lath (10LM), Outsulation LCMD - System 4: Metal Lath, System 5 (10LM)	Outsulation X (10LM)				
Finestone Water Barrier, Permath 1000 and Tersus Finish (12LM), Finestone Water Barrier, Permath 1000 and Senerflex Finish (10LM), Other Water Barrier, Permath 1000 and Tersus Finish (12M), Other Water Barrier, Permath 1000 and Pebbletex Finish (10M)	Pebbletex (5L)	Pebbletex (5L)	Pebbletex-D, D7, D10 (5, 7, 10M)		
	Parex® Standard WaterMaster™ XPS (10LM)	Parex® Standard WaterMaster™ XPS (12LM)	Standard Watermaster LCR (12LM), Optimum Watermaster LCR (12LM)		
Senergy Water Barrier, Permath 1000 and Tersus Finish (12LM), Senergy Water Barrier, Permath 1000 and Senerflex Finish (10LM), Other Water Barrier, Permath 1000 and Tersus Finish (12M), Other Water Barrier, Permath 1000 and Senerflex Finish (10M)					Platinum CI (12LM), Platinum CI with Tersus Finish (15LM)
	StoTherm® ci XPS Classic, Stoloit/Stolit X Finish (12LM), StoTherm® ci XPS Essence, Sto Essence DPR Finish (10LM)StoTherm® ci XPS with Loutusan® (15LM)		Rainscreen, Rainscreen II (5LM)		

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Technical Bulletin MW#118-200101

Stucco System Comparison

Manufacturer	*One Coat Stucco*	*One Coat Stucco with Primer*	*One Coat Stucco with Leveling Base Coat*	*One Coat Stucco with Reinforced Leveling Base Coat*	*Insulated One Coat Stucco*	*Traditional Stucco*	*Finishes over Stucco*
Master Wall®	Cemplaster Fiberstucco (up to 20)	Cemplaster Fiberstucco with Primecoat Primer (5LM)	Cemplaster Fiberstucco with LBC01 Leveling Base Coat (6LM)	Cemplaster Fiberstucco with LBC02 Reinforced Leveling Base Coat (7LM)	Cemplaster Fiberstucco with Continuous Insulation (up to 20)	Cemplaster Fiberstucco (up to 20)	Superior Finishes over Stucco (Varies, LM)
Dryvit		CCP-1, CCP-2 (Weatherlastic), CCP-3 (with Backstop), CCP-5 (furred) (10LM)	CCP-4 (10LM)			Classic Cement Plaster (CCP)	E Finishes, Stuccote (10fade)
Finestone	Finestone Stucco Ultra (7-12LM), Finestone Stucco Plus (7-10M), Finestone Stucco (5-10M)				Platinum CI Stucco Ultra (7-12 LM), Platinum CI Stucco Plus (7-12M), Platinum CI Stucco (5-10M)	Stucco System (3M)	N/A
Parex	Armourwall, Armourwall Watermaster (7-11M)			Armour Krakshield, Armourwall Watermaster Krakshield, 100/300 series (9-11M)		Fiber 47 (N/A)	DPR Standard (5M)
Senergy	Sentry Stucco Ultra (7-12LM), Sentry Stucco Plus (7-10M), Sentry Stucco (5-10M)				Platinum CI Stucco Ultra (7-12 LM), Platinum CI Stucco Plus (7-12M), Platinum CI Stucco (5-10M)	Stucco Wall	N/A
Sto	StoPowerwall® (up to 10), StoPowerwall® DrainScreen (up to 12)				StoPowerwall® ci (up to 12)	N/A	Finishes (3M)

(Warranty Term; M=Material, L=Labor, D=Drainage) ***Closest Comparable (varies)*** ***Insufficient Information*** ***N/A - Not Available***

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Technical Bulletin MW#118-200101

Systems

Manufacturer	Liquid-applied Air/Water Barrier System	Cement Board over Water Barrier	Cement Board over Drainage Mat and Water Barrier	Cement Board over Insulation and Water Barrier	Cement Board over Fluid Applied Air/Water Barrier	Uninsulated Finish System	Soffit System	Insulated Concrete Forms	Foam Shapes	Interior (Dry)	Interior (Wet)
Master Wall®	Rollershield LAB (5M)	Stucco Cement Board Coatings (5 LM)	Stucco Cement Board Coatings (5 LM)	Insulated Stucco Cement Board Coatings (5 LM)	Stucco Cement Board Coatings over Rollershield LAB (10 LM)	UF System (5LM)	Soffit System (5 LM)	ICF System (5 LM)	Foam Shapes (5LM)	Finishes over Drywall	Finishes for Wet Areas
Dryvit	Aquaflash/Backstop		Cement Board MD (10LM)	TAFS (10LM)	TAFS (10LM)	TAFS (10LM)	TAFS (10LM)	TAFS (10LM)	Acrocore Foam Shapes		
Finestone	Finestop	Finescreen 1000 (5M)			Finescreen 1000 over Finestop (10M)	Surfacing (5M)	Soffit /Ceiling System (5M), with Primer (7M)	ICF/SIP Exterior Surfacing System (5M)			
Parex	Weatherseal	NuTech WaterMaster (10M)	NuTech WaterMaster (10M)	NuTech WaterMaster (10M)	NuTech WaterMaster (10M)	ACF Masonry (5M)	ACF Soffit (5M)	ACF ICF (5M)			
Senergy	Senershield-R, RS or VB (5M)	CBS1000 (5M)	CBS1000 over Senergy AWB and BASF Drainage Mat (10M)		CBS1000 over Senergy AWB and BASF Drainage Mat (10M)	Surfacing (5M)	Soffit /Ceiling Systemn (5M), with Primer (7M)	ICF/SIP Exterior Surfacing System (5M)			
Sto	StoGuard®		StoQuik® Silver DrainScreen™ (10M)		StoQuik® Silver DrainScreen™ (10M)	Textured Finish (3M)	StoQuik® Gold Finish System for Soffits and Ceilings	Sto Finish System for ICF's			Sto Interior Finish System for Pool Rooms

(Warranty Term; M=Material, L=Labor, D=Drainage) ***Closest Comparable (varies)*** ***Insufficient Information*** ***N/A - Not***

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Technical Bulletin MW#118-200101

Textured Finishes

yields (sf avg.) ***italics=specialty, limited availability***
Master Wall manufactures both marble and quartz aggregates

Manufacturer	*Riled Finish*	*Coarse Riled*	*Fine Sand*	*Heavy Sand*	*Texturing*	*Elastomeric Finish Trade Name*	*Silicone Additive*	*Mildew Additive*	*Quick Drying*	*Hydrophobic*	*Other*
Master Wall®	Perfect Swirl 2.0 (120-150)	N/A	Fine Sand 1.0 (160-170)	Medium Sand 1.5 (130-150)	Versatex 0.5 (N/A)	Elastomeric Plus	Silicone Coat	Excel	Quick Dry	HP	
Dryvit	Quartzputz® (140)	N/A	Sandblast® (150), Sandpebble Fine® (160)	Sandpebble® (130)	Freestyle® (N/A)	Weatherlastic®		PMR™ Proven Mildew Resistance			E™ Finishes, StucCoat™ Finishes
Finestone	Natural Swirl (140)	Rough Swirl (90)	Limestone (160)	Mojave (120)	Finetex (170)	Aggrelastic					
Parex	530 Swirl Fine (128), Optimum Line	531 Swirl Coarse (83)	533 Sand Smooth (290), 534 Sand Fine (158)	535 Sand Coarse (118)	532 Multi Texture (105)	Flex, e-Lastic, vElastomeric	Silicone: Maximum A/S, Mildew: X-L				
Senergy	Classic (140)	Coarse (90)	Fine (160)	Sahara (120)	Texture (N/A)	Senerlastic, Senerlastic Plus	Silicone: Silcoat				
Sto	Essence Swirl 30 (130)/Stolit R1.5 131 (148)/Powercryl/Powerwall Swirl 472/282 (110)	Stolit R2.0 132 (88)/R3.0 135 (65)	Essence Fine Sand 310 (150)/Stolit 1.0+Dark 130 (153)/Stolit .75 (175)/ Powercryl/Powerflex Fine 470/280 (128)	Essesce Medium Sand 306 (120)/Stolit 1.5 131 (133)//2.0 132 (88)/3.0 135 (65)/Powercryl/Powerflex Medium 471/281 (102)	Powercryl/Powerflex Freeform 473/283 (73), Freeform 2, Limestone 158 (150)	StoLastic/Powerflex/Finisher	Silicone: Siliconized, Mildew: Plus				

(average coverage, SF) ***Closest Comparable (varies)*** *Insufficient Information* ***N/A - Not Available***

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Specialty Finishes

Manufacturer	Limestone Look Finish	Travertine Limestone Look Finish	Smooth Granite Look	Rough Granite Look	Granite Look with Sparkling Mica	Colored Finish with Sparkling Mica	Metallic Coating	Textured Metallic Finish	Venetian Plaster Look	Earthen Look Plaster	Fine Plaster
Master Wall®	Aggrelime (150)	**Travertine (200)**	Superior Stone (100)	Aggrestone (72)	**Lumia (100)**	**LaCantera (100)**	**Metallic Cote (500)**	**MetalTex (125-170)**	**Savannah (300)**	**Taratex (200)**	**Varius (200)**
Dryvit	Lymestone™ (150)	**Tibur Stone™ (105)**	Stone Mist® (75)	Ameristone (65)	**TerraNeo® (100)**		**Reflectit™ (527)**				**Finesse™ (113), SkimIt for metallic (350)**
Finestone	Limestone Rendering	**Coral Stone Rendering**	Aurora TC100 (70)	Aurora Stone (70)	**Alumina (100)**		**Metallic Look, Metallic Top Coat (550)**	**Metallic Finish**			**Ultra Smooth Finish (470), Leveling Skim Coat for metallic (280)**
Parex			630 Cerastone (183)	632 Spraystone (90), 634 Tuffstone (88)							
Senergy Sto			Aurora TC100 (70)	Borealis, Aurorastone (70), Alumina(95)	**Alumina (100)**		**Metallic Look, Metallic Top Coat (550)**	**Metallic Finish**			**Ultra Smooth Finish (470), Leveling Skim Coat for metallic (280)**

(average coverage, SF) ***Closest Comparable (varies)*** *Insufficient Information* ***N/A - Not Available***

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Specialty Coatings

yields (sf avg.)

Manufacturer	Light Textured Coating	Stencil Brick Look	Realistic Brick Look	Wood Grain Look	Antiquing	Clear Sealer
Master Wall®	ReCote™ (300)	Brick Stencil Finish System	CIFS® Brick	CIFS® Wood Grain CI	Vintique (1000)	Clearshield (900)
Dryvit		Custom Brick™	NewBrick®		Tuscan Glaze™ (1100)	SealClear™ (1300)
Finestone		Brick Look			AnticoGlaze (2500)	
Parex						
Senergy						
Sto						Clear Coat Sealer, Clear Coat Sealer Matte (1600)

(average coverage, SF) *Closest Comparable (varies)* *Insufficient Information* ***N/A - Not Available***

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Architectural Coatings

yields (sf avg.)

Manufacturer	Satin Finish Architectural Coating	Hydrophobic Architectural Coating	Flat Finish Architectural Coating	Elastomeric Coating	Primer	Sanded Primer
Master Wall®	DuraCote (2000)	SuperiorCote HP (1325)	Roller-flex (1100)	Elasto-flex (385)	Primecoat (1100)	Sanded Primecoat (1100)
Dryvit	Demandit® Advantage™ (800-1000)	HDP™ Water-Repellent Coating (800-1000)	Demandit® Sanded & Smooth (700) / Weathercoat™ (900)	Weatherlastic® Smooth (360)	Color Prime™ (1500), Color Prime W™, Prymit® (1300), Weatherprime® (1500)	Primer with Sand™ (600)
Finestone		Tersus Color Coat (1400), Pebbletex Tersus Finish	Color Coat (1250)	Senerlastic (1000) & Senerlastic Plus (1000)	Tinted Primer (1250), Stucco Primer (1250), Surface Stabilizer WB (1200)	
Parex			311 DPR Coating (1100), 312 Textured Coating (250), 314 Recoat Gel (900)		310 Primer (1800)	313 Sanded Primer (700)
Senergy		Tersus Color Coat (1400), Pebbletex Tersus Finish	Color Coat (1000)	Senerlastic (1000) & Senerlastic Plus (1000)	ASAP (1000)	
Sto						

(average coverage, SF) ***Closest Comparable (varies)*** ***Insufficient Information*** ***N/A - Not Available***

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Base Coats, Stuccos & Adhesives

yields (sf avg.)

Manufacturer	Pail Base Coat, mixed 1:1 with Portland cement	Bagged Base Coat, mixed with water	Bagged Base Coat, mixed with water Pump Grade	Hi-Build Base Coat, mixed 1:1 with Portland cement	Waterproof Base Coat, mixed 1:1 with Portland cement	Fast Set Base Coat, mixed with water	Stucco Weather Resistant Base Coat	Non-cement Adhesive - ready to use	Non-cement Base Coat, ready to use	One Coat Stucco Concentrate, mixed with sand and water	Ready-Mixed One Coat Stucco, mixed with water	ASTM C-926 Stucco Concentrate, mixed with sand and water	Ready Mixed ASTM C-926 Stucco, mixed with water	Thin Brick/Stone Mortar	One Part Adhesive	Stucco Foam Trim Adhesive
Master Wall®	F&M (120)	MBB (55), MBB Plus (55)	MBB Pump Grade (55)	F&M Plus (120)	Guardian (100)	Quick Set MBB (55)	WeatherStop (200)	N/A	EPSB (120)	Cemplaster Fiberstucco (70)	Ready Cemplaster Fiberstucco (20)	Cemplaster Fiberstucco (40)	Ready Cemplaster Fiberstucco (11)	UltraBond (45)	N/A	N/A
Dryvit	Primus (110)	Primus DM, Genesis DM, DMS (55), Stucco EPS Adhesive (70)	Primus DM, Genesis DM, DMS (55), Stucco EPS Adhesive	Genesis, Genesis FM (140)	Dryflex (125)	Rapidry DM (55)	N/A	ADEPS® (160)	NCB (120)			CCP Plaster Base (38)	CCP Sanded (12.4)		AP Adhesive	EPS Adhesive for Stucco
Finestone	Adhesive/Base Coat (120)	A/BC 1-Step (50)	A/BC 1-Step (50)	FineBuild (110)	FineGuard (180)	N/A	N/A	EZ Grip (250)	NC-II (150), Skim Coat (250)	Stuccobase (85)	Stuccobase Premix (25)	N/A	N/A	MaxGrip Veneer Mortar (45)		
Parex	Base Coat Adhesive 121, 121 Optimum Wet (220)	BC&A 121 Dry, 121 Optimum, 212 XL (120), Stucco Level	BC&A 121 Dry, 121 Optimum, 212 XL (120)	Stucco Level Coat (65)	304 Parflex BC&A (95)	N/A	N/A	303 Sheathing Adhesive (307)	302 ABC N1 (110)	210 Armourwall (80)	202 Armourwall (20)	Fiber-47 (60), Type F Base (71)	N/A			
Senergy	Alpha Base, Standard Base (120)	Alpha Dry, Alpha Dry S (50), Trim	Alpha Dry, Alpha Dry S (50), Trim	Alpha Genie (120)	Xtra Stop (160)	Cool-Set Alpha Dry (50)	N/A	Senerquick (300), NC II (95)	NC-II (150), Skim Coat (250)	Stuccobase (85)	Stuccobase Premix (25)	StuccoBase (42)	StuccoBase Premix (12)			
Sto	AAC Base Coat TC 403 (407), Primer/Adhesive 100 (108)	AAC Base Coat SC 400 (95), BTS Plus 727 (65)/BTS Xtra 731 6)/BTS NC 727 (72)/, Skim Coat 216 (30), Primer	AAC Base Coat SC 400 (95), BTS Plus 727 (65)/BTS Xtra 731 6)/BTS NC 727 (72)/, Skim Coat 216 (30),	Leveler 244 (45)	Flexyl 235 (95)	BTS Fast Set 728 (78)	N/A	Dispersion 829 (368)	RFP 225 (93)	Powerwall (70)	Powerwall Pre Blended 102 (22)	Powerwall Scratch & Brown 108 (160)	N/A			

(average coverage, SF) ***Closest Comparable (varies)*** ***Insufficient Information*** ***N/A - Not Available***

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Meshes, Insulation & Modifiers
(oz/sy)

Manufacturer	*Standard Mesh*	*Improved Standard Mesh*	*Medium Mesh*	*Heavy*	*Ultra Heavy*	*Detail*	*Stucco Reinforcing Mesh*	*Stucco Lath*	*Cement Board Joint Treatment*	*Insulation Board Brand Name*	*Stucco Acrylic*	*Stucco Bonding Agent*
Master Wall®	Standard (4.5)	Hi-Tech (6.0)	Medium (10.4) Medium Plus (12.0)	Strong (15.4)	Ultra (21.0)	Detail (4.5)	BullTec Mesh (475)	Fibalath™ Stucco Mesh	Cement Board Mesh	Master Wall® Insulation Board	Stucco Ad-Liquid	BA57
Dryvit	Standard (4.3), I.S. Mesh (5.0)	Standard Plus (6.0)	Intermediate (12.0)	Panzer 15 (15.0)	Panzer-20 (20.0)	Detail (4.3)			N/A		AC-100™	
Finestone	Standard (4.0)	Intermediate 6 (5.6)	Intermediate 12 (11.0)	Strong 15 (15.0)	Hi-Impact 20 (20.0)	Detail (4.5)	DiamondShield (475)	PermaLath 1000	N/A			StuccoBond
Parex	Standard 355 (4.5)	Mesh 358.6 (6.0)	Intermediate 358.10 (10.0)	High Impact 358.14 (14.0)	Ultra High 358.20 (20.0)	Short Detail Mesh 356			N/A			
Senergy	Flexguard 4 (4.0)	Flexguard 6 (5.6)	Flexguard 12 (11.0)	Flexguard 15 (15.0)	Flexguard 20 (20.0)	Starter Mesh			N/A			
Sto	Mesh 920E, AAC Mesh (4.5), Repair Mesh 218	6 oz Mesh 985 (6.0)	Intermediate 918 (11.0)	Armor Mat 921 (15.0)	Armor Mat XX 922 (20.0)	Detail 919, AAC Detail Mesh			N/A			

(average coverage, SF) ***Closest Comparable (varies)*** ***Insufficient Information*** ***N/A - Not Available***

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Weather Barriers & Flashing Materials

yields (sf avg.)

Manufacturer	Roll-on Weather Barrier, ready to use, Vapor Permeable	Trowel Grade Water Barrier, ready to use	Roll-on Weather Barrier, ready to use, Vapor Barrier	Gun Grade STPE Joint and Flashing	Roll Grade STPE Joint and Flashing	Flashing Tape for Roll/Trowel Applied Barrier	Sheathing Tape for Roll/Trowel Applied Barrier	Trowel Weather Barrier, mixed 1:1 with Portland cement	Peel & Stick Flashing	Waterproof Base Coat, mixed 1:1 with Portland cement
Master Wall®	Rollershield-RS (475)	Rollershield-TG (200)	Rollershield-VB (250)	SuperiorFlash	RollerFlash	SuperiorShield Flashing Tape	SuperiorShield Mesh	WeatherStop (180)	SuperiorShield WeatherStop Tape	Guardian (170)
Dryvit	Backstop® NT Texture, Smooth & Spray(400)	AquaFlash	Backstop® NT-VB (400)	Backstop® Flash & Fill		Backstop® Flash and Fill	AquaFlash Mesh, Grid Tape	Backstop DMS (75)	Flashing Tape	Dryflex (125)
Finestone	Finestop-RA (450), Finestop-RS (575)	N/A	Finestop-VB (290)	MaxFlash™		N/A	Sheathing Fabric	Finestop (180)	WS Flash	Fineguard (180)
Parex	495 Keyguard (450)	Keycoat 395A (170)	495 Keyguard (450)			N/A	396.4, 396.6, 396.9 Sheathing Tape (4", 6", 9")	N/A	365 Flashing Membrane	304 Parflex BC&A (95)
Senergy	Senershield-R (450), Senershield-RS (575)	N/A	Senershield-VB (290)	MaxFlash™		Senershield-R	Senershield	Senershield (185)	Senerflash, Senerwrap	Xtra Stop (160)
Sto	Emerald Coat 264 /Gold Coat 265 (475)/Stoguard Vaporseal 263 (425)/Airseal® (105)	Gold Fill 266 (213)/Gold Coat TA (410), Rapidseal 270	Emerald Coat 264 /Gold Coat 265 (475)/Stoguard Vaporseal 263 (425)			Fabric 4 208/Fabric 6 207/Redicorner 207	Mesn 4.25 267/Mesh 9.5 268	Flexyl	Stoguad Tape 269	Flexyl 235 (95)

(average coverage, SF) ***Closest Comparable (varies)*** *Insufficient Information* ***N/A - Not Available***

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Accessories

yields (sf avg.)

Manufacturer	*Drain/Vent Termination*	*Drainage Mat*
Master Wall®	DV Roll	Various Manufacturers Approved
Dryvit	Drainage Strip	Dryvit Drainage Mat™ Dryvit MD Spacer™
Finestone	N/A	Finestone Drainage Mat/Wrap Drainage Mat DF
Parex	369 Drainage	
Senergy	N/A	Drainage Mat, Drainage Mat DF
Sto	N/A	

(average coverage, SF) ***Closest Comparable (varies)*** *Insufficient Information* ***N/A - Not Available***

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Technical Bulletin

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MW# 125-210101

Topic: Field Observation Forms

Some projects require reporting of field conditions during the application of Master Wall® products. These forms can help the field reporter in the installation. These forms may also be helpful to a special inspector as required by some building codes.

Given the large differences in products and systems installation, we have divided the observation forms into three categories: EIFS, Stucco, and Specialty Systems.

- EIFS applies to the entire Aggre-flex Exterior Insulation and Finish Systems as well as all our Drainage EIFS.
- Stucco applies to our Cemplaster Fiberstucco Stucco system and may be helpful for traditional stucco.
- Specialties refer to direct applied and specialty coating applications.

While these are the forms we will use during site visits, it is important to note that Master Wall Inc.® is not an inspection agency. Inspectors are a third-party independently contracted entity. They may not cover every specific situation, but they will guide the report writer on the more common methods of application.

The observation forms are attached to this bulletin. However, the easiest and fastest way of generating a report is from our website, where you can Create a Field Report. This version has drop down menus and is more convenient to use.

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Field Observation Form - EIFS

Project Name:
Address:
Address:
City, State:

Date:
Time:
Weather:
Applicator:
Author:

System:	**System**	Comments

Design Check		**Comments**
	Expansion Joints at Floor Line?	
	Exp. Jts. at substrate changes?	
	Proper slope on shapes (1:2)	
	Other	

Substrates		**Comments (fastening, clean, flat, dry, etc.)**
	Substrate 1	
	Substrate 2	
	Substrate 3	

Water Barriers & Flashings		**Comments**
	Secondary Barrier	
	Installed Shingle Fashion?	
	Flashing at Penetrations?	
	Kick-out Flashing where needed?	
	Correct Mixing/Application (fluid)	
	Mesh at joints (fluid)	
	Other	

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Field Observation Form - EIFS (page 2)

Adhesive/Attachment Type	Comments
Adhesive	
Mechanical Attachment	
Correct Type for Use?	
Properly Stored?	
Correct Notched Trowel?	
Approved Fastening Pattern?	
Correct Mixing Procedure?	
Correct Temperature Range?	
Cure Temperature Maintained?	
Other:	

Insulation Board and Application	Comments
Thickness Used:	
Insulation Manufacturer:	
Labeled and Bagged?	
Stored Properly?	
Good bond to Substrate (adhered)	
Tightly Butted?	
Gaps Filled w/Insul or similar?	
Rasped?	
Other:	

Base Coat and Application	Comments
Base Coats	
Correct Mixing Observed?	
Mesh fully embedded in BC?	
Approved Thickness?	
Correct Temperature Range?	
Cure Temperature Maintained?	
Other:	

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Field Observation Form - EIFS (page 3)

Mesh Application & Terminations **Comments**

Mesh 1

Mesh 2

Lapped/Butted Correctly?
Fully Embedded in Base Coat?
No Mesh Color Visible?
Insulation Encapsulated?

EIFS Terminations

Other:

Finish Application **Comments**

Finish 1

Finish 2

Mixed/Tinted prior to application?
Applied to clean, dry base coat?
Acceptable Thickness?
Correct temperature range?
Dry temperature maintained?
Other:

Sealants and Finish Installation **Comments**

Sealant Type

Manufacturer:
Joints installed as directed by A/E?
Sealant primer installed?
Correct backer rod/bond breaker?
Final seal comments:

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Field Observation Form - EIFS (page 4)

General/Closing Comments

Photos

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Field Observation Form - Stucco

Project Name:
Address:
Address:
City, State:

Date:
Time:
Weather:
Applicator:
Author:

System:	**System**	Comments

Design Check		**Comments**
	Expansion Joints at Floor Line?	
	Exp. Jts. at substrate changes?	
	Proper slope on shapes (1:2)	
	Other	

Substrates		**Comments** (fastening, clean, flat, dry, etc.)
	Substrate 1	
	Substrate 2	
	Substrate 3	
	Wood sheathing properly gapped?	
	Fastening Pattern?	

Water Barriers		**Comments** (shingle fashion, lapping, attachment, repairs)
	Primary Barrier - wall side	
	Secondary Barrier - stucco side	
	Installed Shingle Fashion?	
	Lapped 2" hor/6" vert or per mfr?	
	Hammer tacker staples 3/8" or less?	
	or Roofing nails/similar at framing	
	Mesh at joints (fluid)	
	Tears repaired?	
	Other	

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Field Observation Form - Stucco (page 2)

Penetrations & Flashing

Comments (types, details, etc)

Window Splining/Peel and Stick:
Window Head Flashing:
Roof Kick Out Flashing:
Small Penetration Sealant:
Other Flashing:
Other Comments:

Metal Lath & Accessories

Comments

Lath Type

Accessory Type

Design:
Control joints located on documents:
Maximum area 144sf:
Length/width 2.5:1 or less
CJ's at dissimilar substrates
Expansion Joints where needed:

Lath Attach:
Installed at right dimensions to frame:
Secured to Framing Members:
Broken at Control Joints
Horizontal seams lapped 1/2" min.
Horizontal seams wire tied @ 9" max.
Vertical seams lapped 1" min.
Lath lapped 2" min. over accessories
Fastened 6" vert, 16" horiz:

Lath Fastener

Size: 3/4" into wood framing, 3/8" into steel, 1" into conc./masonry

Accessories:
Base Term. 6" min. above grade:
Fastened on 7" centers (exc. CJ):
Control Joints wire tied:
Other:

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Field Observation Form - Stucco (page 3)

Stucco Application

Comments

Stucco Type

Stucco Thickness

Stucco Additives (if used)

Correct Mixing Observed:
High Suction bases dampened?
Scratch Coat, 1/4"-3/8"?
Brown, to thickness?

Curing Method

Cure Temperature Maintained?
Other:

Foam Trims

Comments

Base Coats

Mesh 1

Correct Temperature Range?
Cure Temperature Maintained?
Other:

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Field Observation Form -Stucco (page 4)

Finish Application	Comments
Priming/Color Coating	
Finish 1	
Finish 2	
Mixed/Tinted prior to application?	
Applied to clean, dry stucco?	
Acceptable Thickness?	
Correct temperature range?	
Dry temperature maintained?	
Other:	

Sealants and Finish Installation	Comments
Sealant Type	
Manufacturer:	
Joints installed as directed by A/E?	
Sealant primer installed?	
Correct backer rod/bond breaker?	
Final seal comments:	

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Field Observation Form - Stucco (page 5)

General/Closing Comments

Photos

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Field Observation Form - Specialties

Project Name:
Address:
Address:
City, State:

Date:
Time:
Weather:
Applicator:
Author:

System:	**System/Product**	Comments

Design Check		**Comments**
	Expansion Joints at Floor Line?	
	Exp. Jts. at substrate changes?	
	Proper slope on shapes (1:2)	
	Other	

Substrates		**Comments** (fastening, clean, flat, dry, etc.)
	Substrate 1	
	Substrate 2	
	Substrate 3	
	Wood sheathing properly gapped?	
	Fastening Pattern?	

Water Barriers		**Comments** (shingle fashion, lapping, attachment, repairs)
	Water Barrier	
	Installed Shingle Fashion?	
	Lapped 2" hor/6" vert or per mfr?	
	Hammer tacker staples 3/8" or less?	
	or Roofing nails/similar at framing	
	Mesh at joints (fluid)	
	Tears repaired?	
	Other	

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Field Observation Form - Specialties (page 2)

Penetrations & Flashing

Comments (types, details, etc)

Window Splining/Peel and Stick:
Window Head Flashing:
Roof Kick Out Flashing:
Small Penetration Sealant:
Other Flashing:
Other Comments:

Accessories Cement Board & Soffit

Comments

Accessory Type

Design:
Control joints located on documents:
Maximum area 160sf:
Length/width 2.5:1 or less
CJ's at dissimilar substrates
Expansion Joints where needed:

Base Coat and Application

Comments

Base Coats

Correct Mixing Observed?
Mesh fully embedded in BC?
Approved Thickness?
Correct Temperature Range?
Cure Temperature Maintained?
Other:

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Field Observation Form - Specialties (page 3)

Mesh Application & Terminations **Comments**

Mesh 1

Mesh 2

Lapped/Butted Correctly?
Fully Embedded in Base Coat?
No Mesh Color Visible?
Insulation Encapsulated?

EIFS Terminations

Other:

Finish Application **Comments**

Finish 1

Finish 2

Dry temperature maintained?
Other:

Sealants and Finish Installation **Comments**

Sealant Type

Manufacturer:
Joints installed as directed by A/E?
Sealant primer installed?
Correct backer rod/bond breaker?
Final seal comments:

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Field Observation Form - EIFS (page 4)

General/Closing Comments

Photos

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Field Observation Form - Stucco (page 5)

General/Closing Comments

Photos

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MW# 127-210101

Topic: Shipping and Storage of Master Wall® Materials

Cold Weather

Master Wall pail materials can be affected by cold weather. As cold weather approaches additional care is needed in the shipping, storage, and application of our products. If the material freezes it is virtually guaranteed that the product is unusable.

Applicators may want to change their product selection slightly in cold weather. Master Wall® dry bagged products are freeze stable in their dry form. Finishes and other pail goods must be stored in a temperature-controlled location.

Shipping

When shipping during the winter, vulnerable materials will be labeled "Keep From Freezing" and bills of lading will carry the same warning. Freeze sensitive items are shipped via carriers who include "freeze protection" in their published tariffs. If the customer arranges for a pick-up of delivery, the customer will be held responsible for the shipment.

During prolonged periods of extreme cold, heated equipment is in greater demand and long delays can be experienced. Where destinations are remote and one or more transfers are involved, equipment requirements and overnight or weekend storage protection can be overlooked by the carrier. These, unusual conditions require longer lead-time orders and the scheduling of shipments to avoid storage over weekends or holidays.

You can minimize the frequency of such problems by increasing your stocks of freezable goods before the onset of cold weather or by ordering in quantities sufficient to carry your operation for longer periods.

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Here are some suggestions to follow in the event you suspect a shipment has frozen:

- Inspect several containers immediately from different pallets (before signing the delivery receipt). Get a thermometer reading on the material.
- If ice crystals are present in the product, damage is virtually certain.
- Where the condition of the product is doubtful, write "EXCEPTION" on all copies of the carrier's delivery receipt, telephone the carrier's nearest agent, and ask for an immediate inspection.
- Be certain to protect the goods from further damage until the carrier's representative arrives.

Some carriers have also adopted a policy where freezable items are picked up only on Mondays or Tuesdays for delivery during the same week. None may be picked up on any day when the temperature is at or below 10°F (-12°C) at either point of origin or destination.

If you discover a frozen shipment, we at Master Wall will do everything possible to make replacement material. Please note that our responsibility for the condition of the materials ceases when materials leave our plant or warehouse docks. It is your responsibility to initiate claims for damage with the delivering carrier.

Hot Weather

While not as common, hot weather requires similar attention to shipping and storage. The maximum storage temperature is 110°F (43°C). Above that temperature the material can break down.

When shipping, make sure care is used to prevent extended periods of high temperatures. In hot climates tarp pails to prevent solar heat gain or store them indoors.

Title Responsibility

Master Wall's products are shipped F.O.B. origin (plant or warehouse). This means title passes to you when the initial carrier accepts the goods at our dock by executing the Bill of Lading. At this point, the carrier becomes responsible for delivering the material to you in a usable condition. Your shipments are in good hands, but accidents do happen. Tractors break down, heaters fail, and the weather forecasting is not always reliable.

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MW# 128-210101

Topic: Remedial Repairs at Grade

Termite infestation in buildings has become an unfortunate occurrence in certain parts of the country. Many pest control companies started to realize that termites could infest a building without leaving telltale evidence such as mud tubes outside the building if siding materials continue below grade.

Several significant factors have also contributed to the termite issue. For instance, the restriction of certain pesticides by the EPA along with the general design of the foundation at grade.

In the southeast, the use of perimeter slab insulation, commonly known as below grade insulation, became a standard practice with all wall claddings. In fact, this practice was required by code and promoted by energy companies. Unfortunately, the insulation may create a pathway for termites to enter buildings and prevents control with conventional treatments currently available.

In 1996, the Energy Codes and Community Affairs Departments mandated to discontinue the use of perimeter slab insulation due to this problem. However, little was done for all the homes where the insulation runs below grade. Many pest companies will not renew warranties on buildings where the insulation may hide a potential infestation.

The entire situation is actually one where no party is at fault; but all parties must act to remedy the situation. Several methods of the remedial repair are possible. The two attached drawings are good, practical solutions. As always, we are available to review any specific details for your project.

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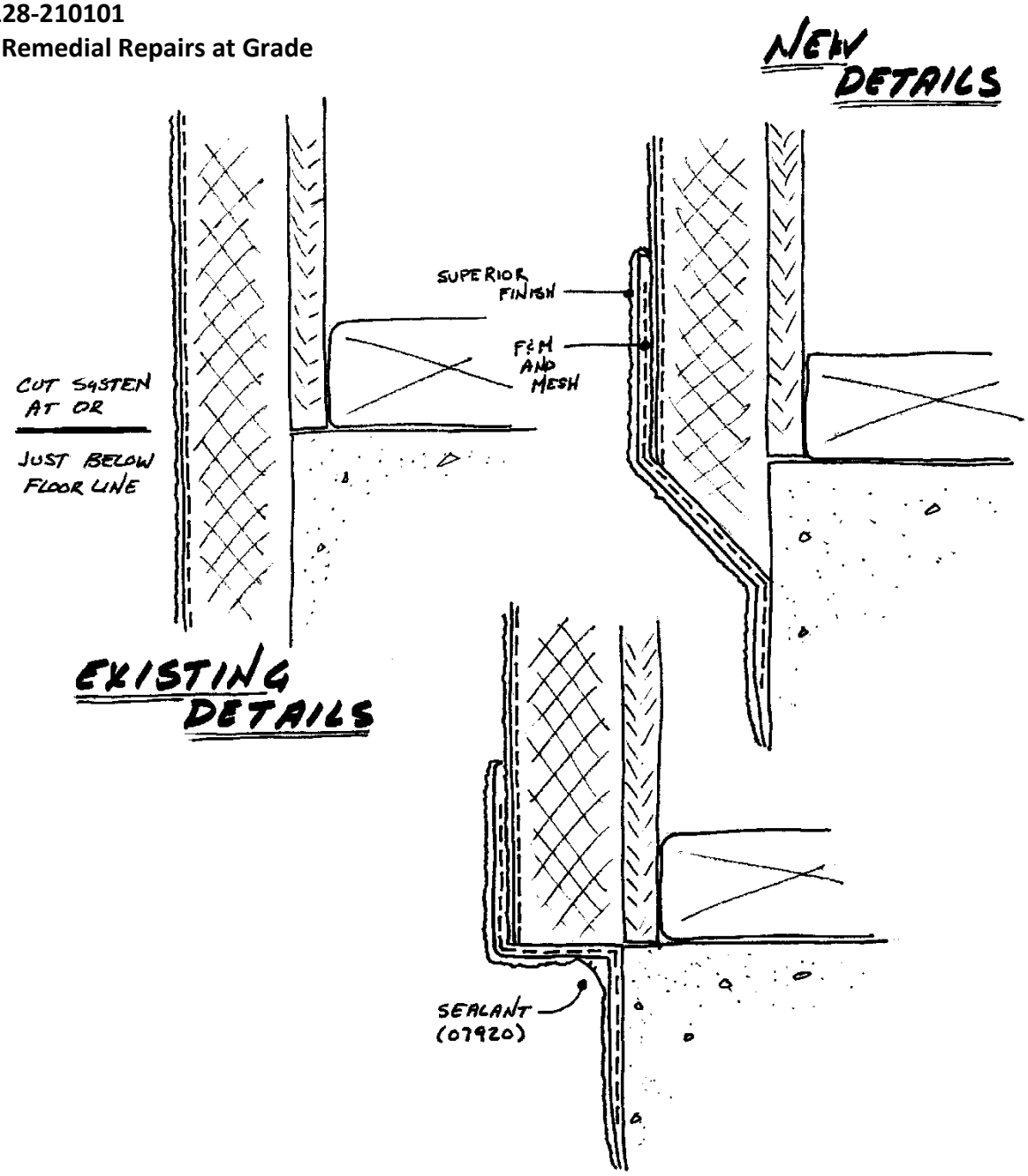
MW# 128-210101

Topic: Remedial Repairs at Grade



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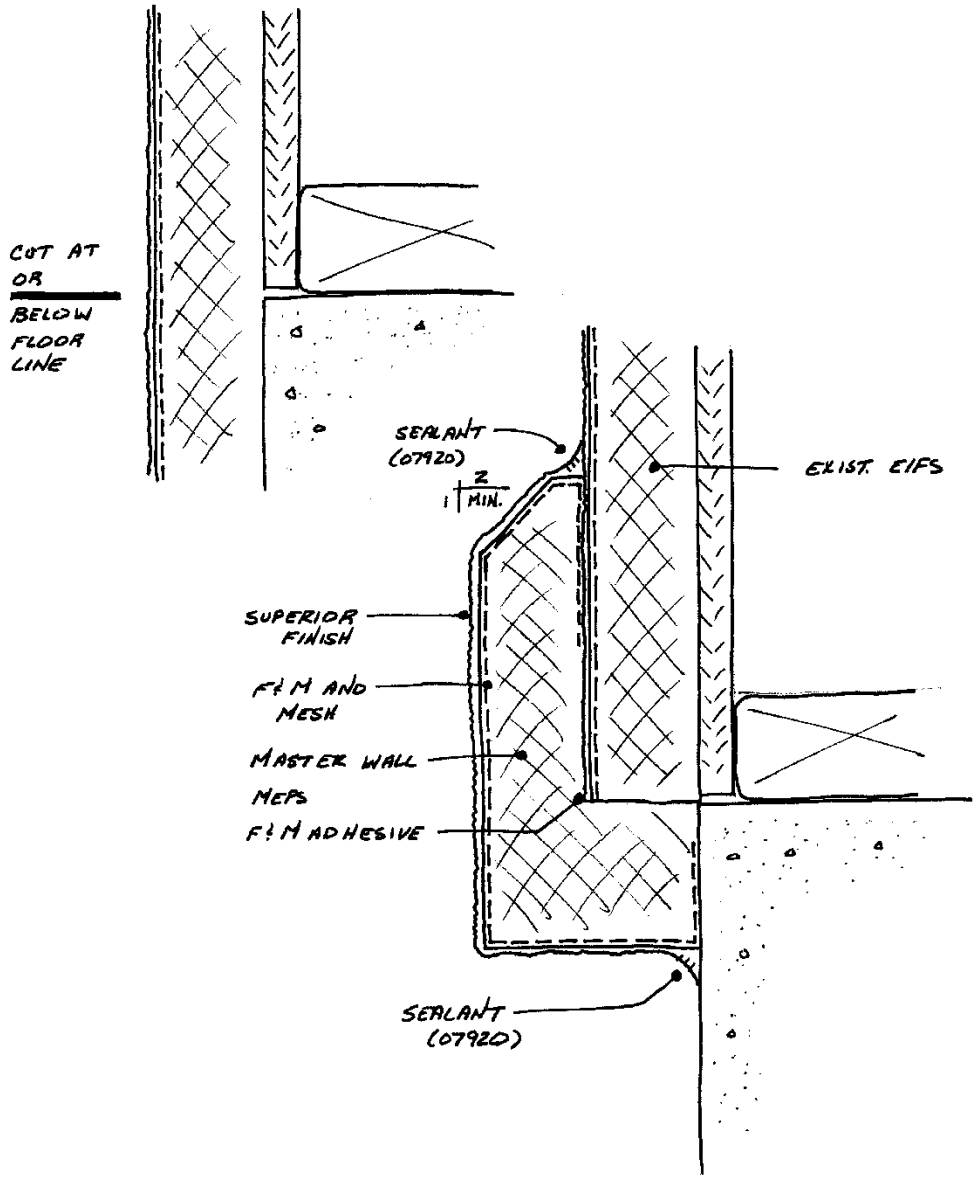

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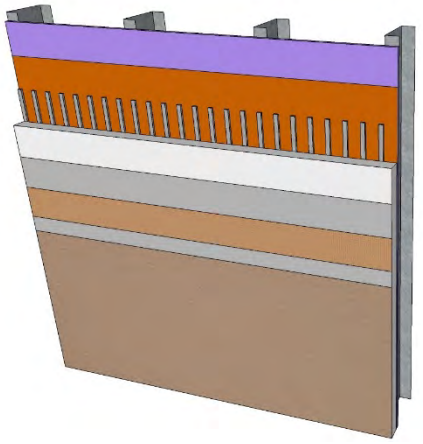
MW# 129-210101

Topic: Repairing Master Wall® EIFS and Stucco



Rollershield Drainage CIFS® shown, Aggre-flex EIFS, Aggre-flex Drainage EIFS, ICF Coating System, QRW1 Drainage EIFS are similar in design.

Damage to the system can occur from various sources to Master Wall® Systems. Typically, the damage falls into one of three categories:

- Finish Only
- Finish and Mesh/Base Coat, or Stucco Base Coat
- Finish, Mesh/Base Coat and Insulation, or Stucco and lath damage

The following repair procedures outline a proven repair method. It is important to keep in mind that texturing will vary by applicator technique and finish color can change due to environmental conditions. Color matching a sample is recommended for the most accurate repair possible.

Tools

- Knife
- Stainless Steel Trowel
- Stainless Steel Margin Trowel
- Tape
- Plastic Float
- Tarp/plastic for protecting other areas
- Face Shield
- Respiratory Protection
- Grinder or disk sander with #12 grit paper
- Mixer and Drill
- Toothpick to help with blending
- Paint Brush – to feather patch

Cemplaster Fiberstucco shown, Stucco Cement Board Coatings, Uninsulated Finish System and Soffit System are similar in design.

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Materials (vary, depending upon application)

- F&M – adhesive and base coat
- MBB – dry bagged base coat
- QSMBB – quick setting dry bagged base coat
- Cemplaster Fiberstucco
- BA57 Bonding Agent
- Aggre-flex Insulation – same thickness as original EIFS
- Aggre-flex Mesh – to match existing mesh type
- Lath to match existing stucco
- Superior Finish to match existing texture, tinted to closely match original color

Patching Expectations

When repairing EIFS and stucco keep in mind that the patch will restore the function and performance of the system. The aesthetics of the patch can vary in color or texture. If there is an expectation of reducing or eliminating the patch entirely, consider the following options in addition to the repair:

- Coating the area corner-to-corner with a matching Master Wall® coating to match the color and help it blend in. This will not change the texture but goes a long way to minimizing the look of the repair. Please reference our cleaning and maintenance bulletin for recommended coatings.
- Advanced strategies for eliminating the patch entirely will require base coat, possible mesh, and a new finish. The area should be finishes corner-to-corner for best results.
- If you have a special condition, please contact us at Master Wall® for specific recommendations.

Finish Repairs

Minor finish damage can usually be touched up with a matching finish or from a retained pail. These types of repairs would include dings and smudges. The finish color may look fresher or different at first but can blend in over time.

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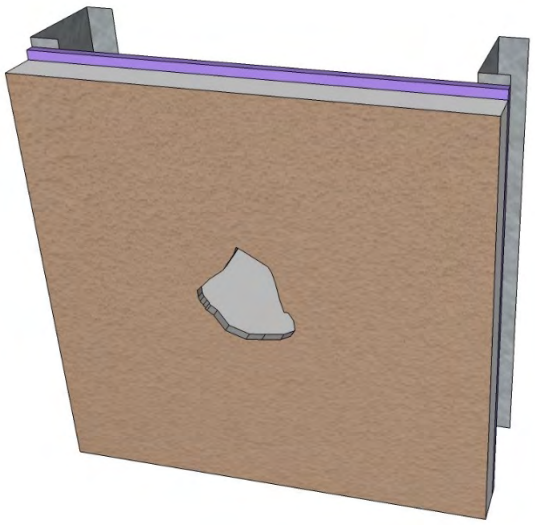
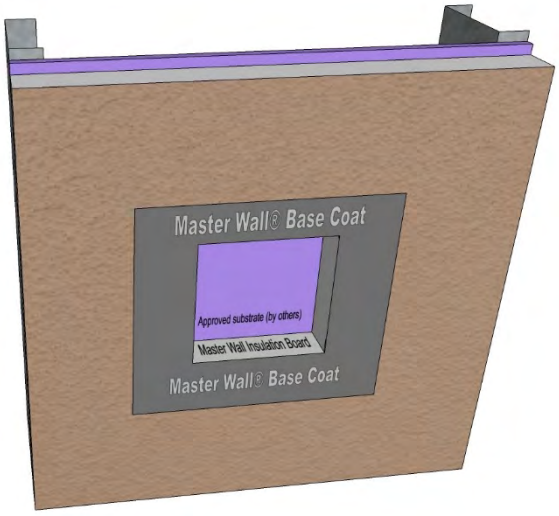
CIFS® and EIFS Repairs



Typical punctured or damaged area. Typical repairs may include damage to the lamina (base coat, mesh, and finish) and damage to the insulation board. In extreme cases damage to the water barrier and sheathing may happen requiring structural repair.



Mark out the section to be removed, usually squaring it off. For best results, never patch an area less than the length of your trowel, unless only touching up.

Wear face and dust protection and protect surrounding areas. Use a disk sander with #12 grit sandpaper to remove the finish down to the Base Coat layer. At least 3” (7.6 cm) of base coat needs to be exposed beyond the patch area.

Cut through the base coat around the puncture as straight as possible.

Remove the damaged insulation board down to the substrate.

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CIFS® and EIFS Repairs

Cut a piece of insulation board to fit tightly into the hole. Apply a coating of Master Wall® Base Coat or other approved adhesive for the substrate type to the back of the insulation piece with the proper trowel and insert it into the prepared area.

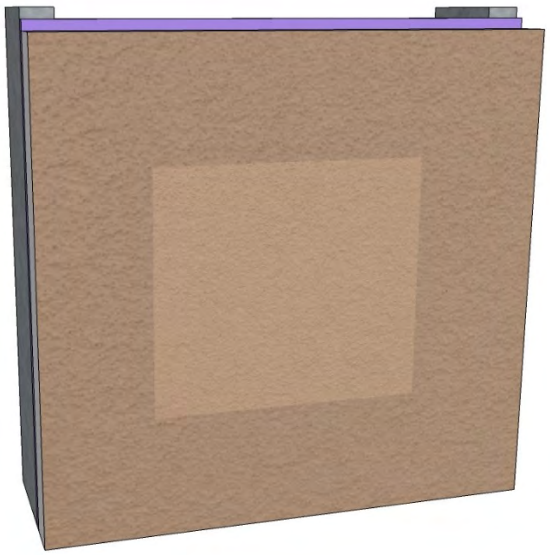
Rasp the insulation board flush with the surrounding area.

Cut a replacement layer of fabric allowing a 2-1/2" (6.3 cm) overlap onto the existing base coat.

Apply Master Wall® base coat to the repair area. Embed mesh into the wet base coat mixture and trowel smooth.

Feather the edges of the fabric ¼" from the edge of the existing finish being careful not to lap onto the finish. Let dry before applying the new finish.

Trowel-apply the Superior Finish being sure it butts up against the existing finish. Do not overlap it. Tape can be used along the edge of the existing finish for added protection. Remove the tape immediately after finishing and feather as shown.



Float the finish to achieve the same texture as the surrounding areas. Feather the edges of the patch into the existing finish to obtain a tight seal. Avoid building up the finish onto the existing finish taking care to obtain the same thickness and texture continuity as the original.

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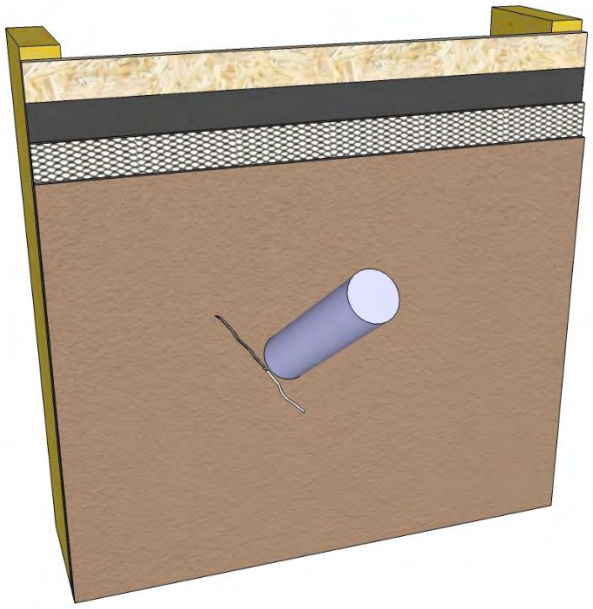
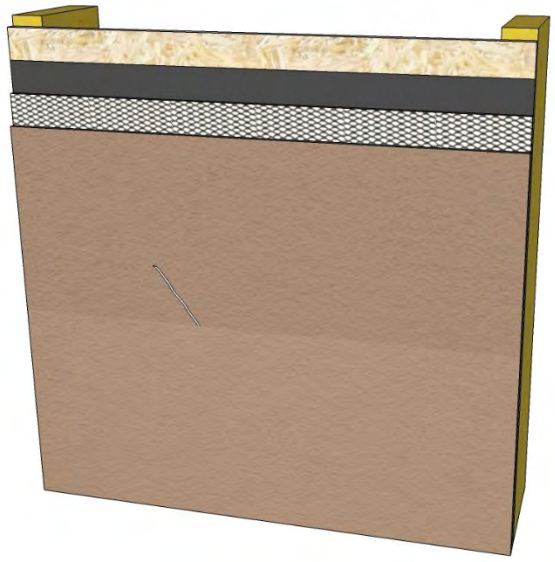
Cemplaster Fiberstucco Crack Repair



Hairline cracks are more or less typical for stucco applications. These are not normally reparable, but they can be minimized by coating with Master Wall® Elasto-flex coating or be left as-is.

Larger structural type cracks, usually greater than 1/16" (1.6 mm) can be filled with a paintable sealant such as DAP® Alex Plus®, a polyurethane type of sealant or any sealant that is paintable. Do not use acrylic sealants.

Rake the crack of loose materials, then fill with the sealant and allow to dry. Paint to match surrounding area or for best results coat the wall corner-to-corner with a Master Wall® coating to help it blend in better.



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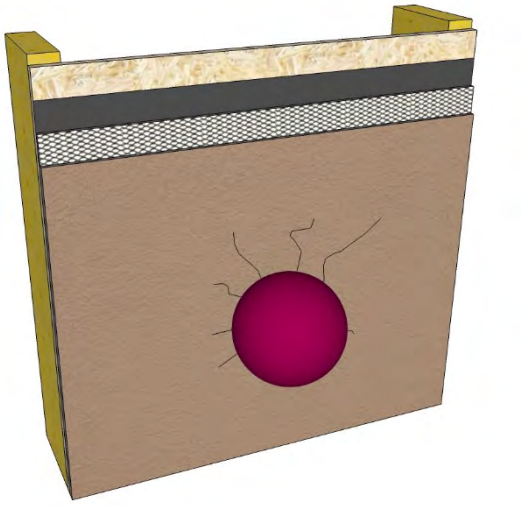
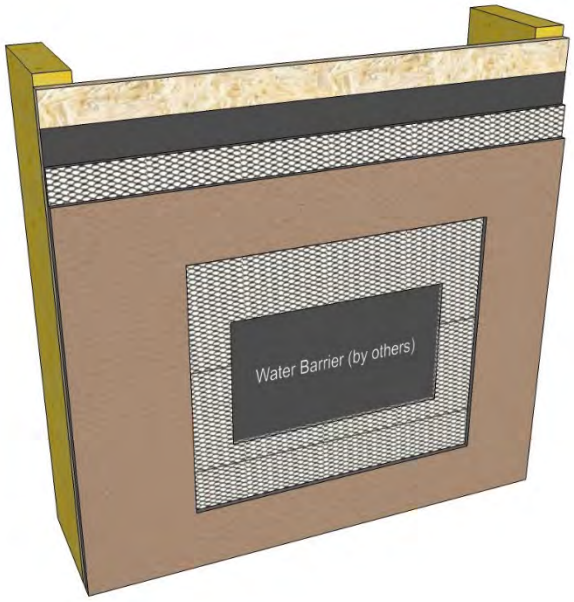
Cemplaster Fiberstucco Repairs



Being heavy and dense, impact damage to stucco may involve some structural damage. Consult an architect or engineer as needed.



Mark out the section to be removed, usually squaring it off. For best results, never patch an area less than the length of your trowel, unless only touching up.

Wear face and dust protection and protect surrounding areas. Carefully cut using a diamond cutting tool down to the lath, then cut out and remove damaged lath. Size the opening so at least 2" (5 cm) of lath is exposed if replacing the lath. Inspect water barrier for damage and repair fi needed.

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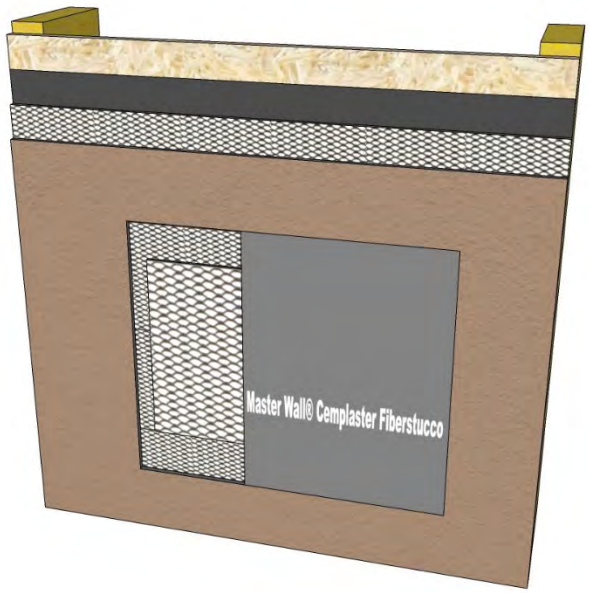
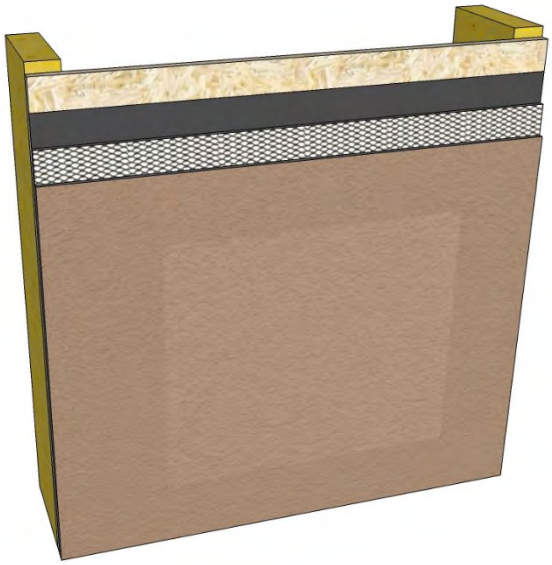
Cemplaster Fiberstucco Repairs



Wire tie new lath to the old lath, lapping it by at least 1" (2.5 cm).

Where the stucco has been cut apply a thin layer of Master Wall® BA57 bonding agent to help with bond.

Apply a scratch and brown coat of Master Wall® Cemplaster Fiberstucco level to the old stucco.



Trowel-apply the Superior Finish being sure it butts up against the existing finish. Do not overlap it. Tape can be used along the edge of the existing finish for added protection. Remove the tape immediately after finishing and feather as shown.

Float the finish to achieve the same texture as the surrounding areas. Feather the edges of the patch into the existing finish to obtain a tight seal. Avoid building up the finish onto the existing finish taking care to obtain the same thickness and texture continuity as the original.

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MW# 131-200901 rev. 08/2021

Topic: Sealant Use with Master Wall® Systems

Related Bulletins: #148 Movement, #149 Sealant Design

Sealants are an important part of a wall system. Professionally installed, they provide a long-lasting watertight seal between our walls and the window, door, or other item they seal. Since the sealant usually bonds to two different substrates, you need to check to see if the sealant is approved for both.

Continuous Insulation and Finish Systems (CIFS®)

CIFS® or Exterior Insulation and Finish Systems (EIFS) sealants must be low modulus (stretchy) and of a high quality. They are usually available from specialty distributors and list EIFS as an approved substrate. They should meet ASTM C920. Currently two types are commonly used, silicone and two-part polyurethane.

Master Wall Stucco or Direct Applied Systems

Stucco systems may benefit from a low modulus sealant, but a more durable sealant can also be used. Common types include silicone, acrylic and polyurethane. Typically, the sealant joint width is usually less than EIFS and many more manufacturers approve stucco, masonry, or concrete as a substrate. Check with your selected manufacturer to confirm that the sealant is approved for stucco.

Rollershield LAB

Interior sealants for Rollershield LAB applications are generally polyurethane. For a flexible seal a one-part product is used to form the interior seal to the penetrating item while a minimal expanding polyurethane foam can be used to insulate and seal.

Sealant Bond

For CIFS/EIFS applications the sealant needs to bond to cured base coat with no mesh pattern visible. The surface needs to be as smooth as possible for best bond. Roller-flex or Finish may be applied into the joint surface for color consistency in the project, but the texture must be removed.

When accessories are used with CIFS/EIFS, Stucco or Direct Applied Systems the accessory needs to be clean and dry.

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Sealant Use and Types

The user, subject to the sealant manufacturer's recommendations, usually determines approval of sealants for a particular use. Check with the sealant manufacturer prior to using sealants on Master Wall® products.

The Sealant Waterproofing & Restoration Institute (SWRI) has publications available on the use and installation of sealants, 816-472-7974 or www.swrionline.org.

Manufacturers are steadily improving sealant color options
(color chart courtesy Adfast Corp.)

Sealant Types

Polyurethane: A one or two-part structural adhesive with excellent flexibility and durability. Cure requires a catalyst, heat, or air evaporation. Short shelf life with hydroscopic tendencies (water absorption). Excellent for where flexibility is required. Good for bonding plastic substrates. Generally slower cure with more complicated handling and curing procedures. Polyurethane sealants are generally less UV resistant but are paintable.

Silicone: Any member of a family of polymeric products whose molecular backbone is made up of alternating silicon and oxygen atoms and which has pendant hydrocarbon groups attached to the silicon atoms. Used primarily as a sealant, silicone is known for its ability to withstand large variations in temperature (-100°F to +600°F). Silicone is reliable and is relatively easy to handle with good UV resistance but tends to retain dirt on the surface and is not paintable. Sealant colors have generally been limited but some companies have been increasing the amount or offering custom color matching.

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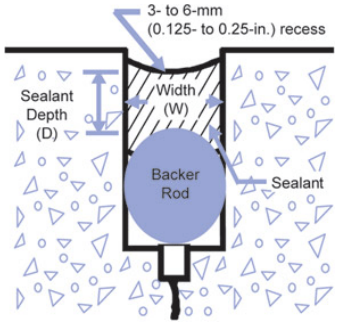
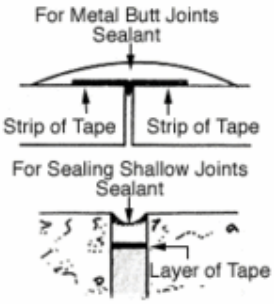
Backer Rod

Closed cell backer rods are recommended for EIFS installations and perform better in all installations. The backer rod should be approved by the sealant manufacturer.

Backer rods can vary from foam rods to triangular backer rods for fillet-type sealant joints. Joints that lack depth for backer rods can use bond breaker tape.





Backer Rod, Bond Breaker Types and Tools
(Courtesy Demand Products and CR Laurence)

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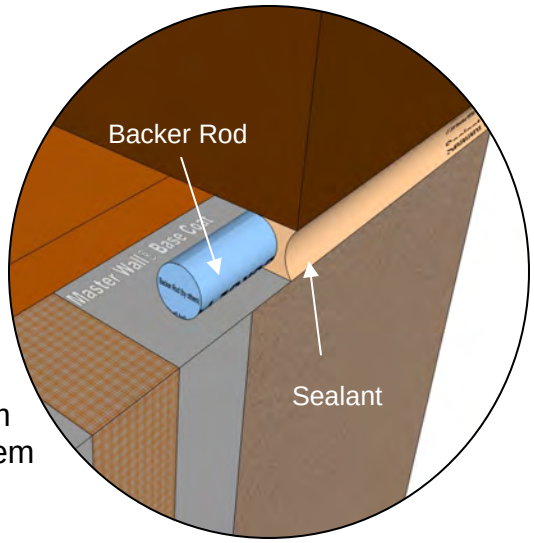
Continuous Insulation and Finish System Sealants



Rollershield Drainage CIFS®
Aggre-flex EIFS
Aggre-flex Drainage EIFS
QRW1 Drainage EIFS

These systems require specialty sealants and are typically sized to 4x anticipated movement with 1/2" (12.7 mm) minimum at windows and doors and 3/4" (19 mm) for where the system ends, or movement is anticipated.

Company	Sealant	Type	Movement	Primer
Adfast Corp.*	Adseal LM 4600 Series	S	+100, -50	Adseal Primer MK60095
Dow Corning	790 Silicone	S	+100, -50	1200
Dow Corning	795 Silicone	S	+50, -50	1200
Dow Corning	Contractors Weatherproofing Sealant	S	+25, -25	Verify with manufacturer
Pecora	Dynatrol II	P	+50, -50	P-75 or P150
Pecora	890 NST Silicone	S	+100, -50	P-64
Sika	Silaflex 15 LMτ	P	+100, -50	429 Primer
Sika	Silaflex-2C NSτ	P	+50, -50	429 Primer
Sika	Sikasil® WS-290	S	+100, -50	Primer 2100 if recommended
Master Builders Solutions	MasterSeal NP2	P	+25, -25	#733 or 766 (verify)
Master Builders Solutions	MasterSeal NP 150	S	+100, -50	Primer 2000 (verify)
Tremco	Spectrem 1τ	S	+100, -50	Tremprime Porous Silicone Primer
Tremco	Spectrem 3	S	+50, -50	Tremprime Porous Silicone Primer
Tremco	Spectrem 4τ	S	+50, -50	Tremprime Porous Silicone Primer
Tremco	Dymeric 240 FC	P	+50, -50	Tremco Primer #1
Tremco	Dymonic FC	P/S	+35, -35	Tremco Primer #1 or Tremprime®

τ ASTM C1382 Compliant *For Adfast customer service email serviceMO@adfastcorp.com

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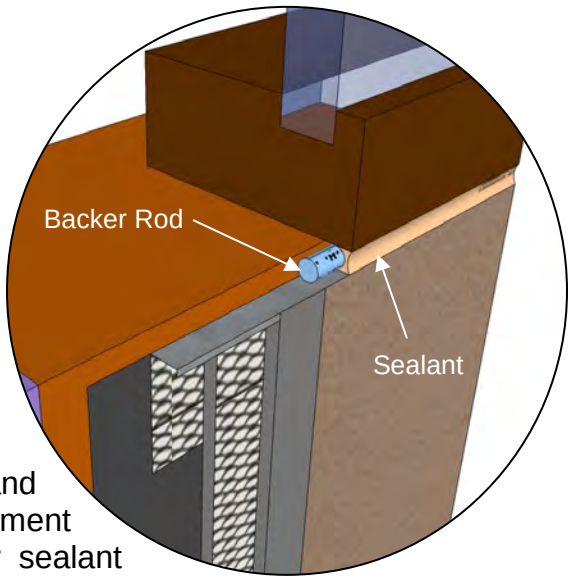
Master Wall® Stucco and Direct Applied Finish System Sealants



Cemplaster Fiberstucco
Stucco Cement Board Coatings
Insulated Concrete Forms (ICF)
Uninsulated Finish Systems (Direct Applied)
Superior Finishes over Stucco
Soffit System

These systems offer more latitude with sealant selection and include all the CIFS/EIFS sealants referenced in this document as well as one-part polyurethane sealants or any other sealant recommended to bond one surface to another. Sealants are sized per the architectural documents with 3/8" (9.5 mm) minimum at windows and doors and 3/4" (19 mm) for where the system ends, or movement is anticipated.

Company	Sealant	Type	Movement	Primer
Adfast Corp.*	Adseal DWS 4580 Series	S	+50, -50	Adseal Primer MK60095
Dow Corning	Contractors Weatherproofing Sealant	S	+25, -25	Verify with manufacturer
Sika	Silaflex 15 LMτ	P	+100, -50	429 Primer
Sika	Silaflex-2C NSτ	P	+50, -50	429 Primer
Sika	Sikasil® WS-290	S	+100, -50	Primer 2100 if recommended
Master Builders Solutions	MasterSeal NP1	P	+25, -25	#733 or 766 (verify)
Master Builders Solutions	Sonolastic 150 VLM	S	+100, -50	Primer 2000 (verify)
Tremco	Dymonic 100	P	+50, -50	Tremprime®

*For Adfast customer service email serviceMO@adfastcorp.com

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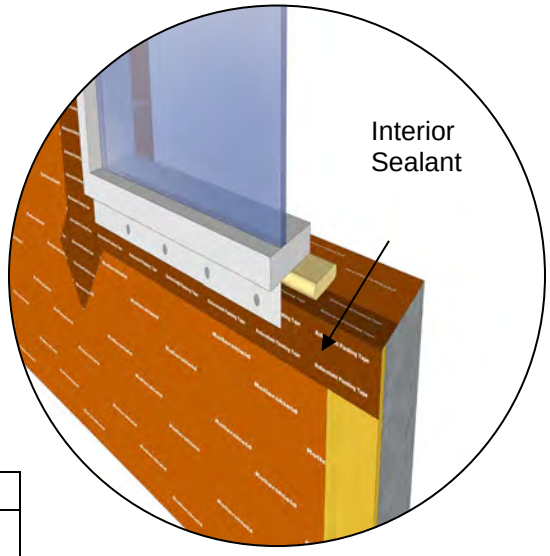
Rollershield LAB Compatible Sealants



These sealants perform the function as an interior air seal and secondary air seal when specified as part of an airtight assembly.

Company	Sealant	Type
Adfast Corp.*	Adseal DWSP1940 Series***	Hybrid
Adfast Corp.*	Adseal 4600	S
Adfast Corp.*	Adseal 4580	S
Adfast Corp.*	Adseal 1940	S
Adfast Corp.	Adfoam Flex 1875	Spray Polyurethane
Dow Corning	795 Silicone**	S
Dow Corning	Enerbond Foam Adhesive	Spray Polyurethane
Pecora Corp.	864NST	S
Pecora Corp.	890NST	S
Pecora Corp.	890FTS	S
Pecora Corp.	895NST[A]	S
Pecora Corp.	Dynatrol I-XL Hybrid[B]	Silicone Urethane Hybrid
Sika	Silaflex 15 LM***	P
Sika	Silaflex-2C NS***	P
Master Builders Solutions	MasterSeal NP1***	P
Tremco	Dymonic 100***	P

* For Adfast customer service email serviceMO@adfastcorp.com

**field verify bond (varies)

***Also bonds to SuperiorFlash

[A]With P120 Primer with Rollershield RS & TG
[B]With P120 Primer with Rollershield VB

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MW# 123-210101

Topic: Universal Drainage Tracks

Universal Drainage Tracks are designed for insulation boards of varying thickness. They replace full-thickness casing beads in EIFS and CIFS® applications at window heads or where the systems end at foundations.

Manufacturers:

Plastic Components
www.plasticomponents.com
U-Drip Trac™ UDT-1

Wind-Lock Corporation
www.wind-lock.com
Universal Starter Track W-UST10

Master Wall® recognizes these trim pieces for use with our Rollershield Drainage CIFS®, Aggre-flex Drainage EIFS and QRW1 Drainage EIFS applications. Attached are typical details.

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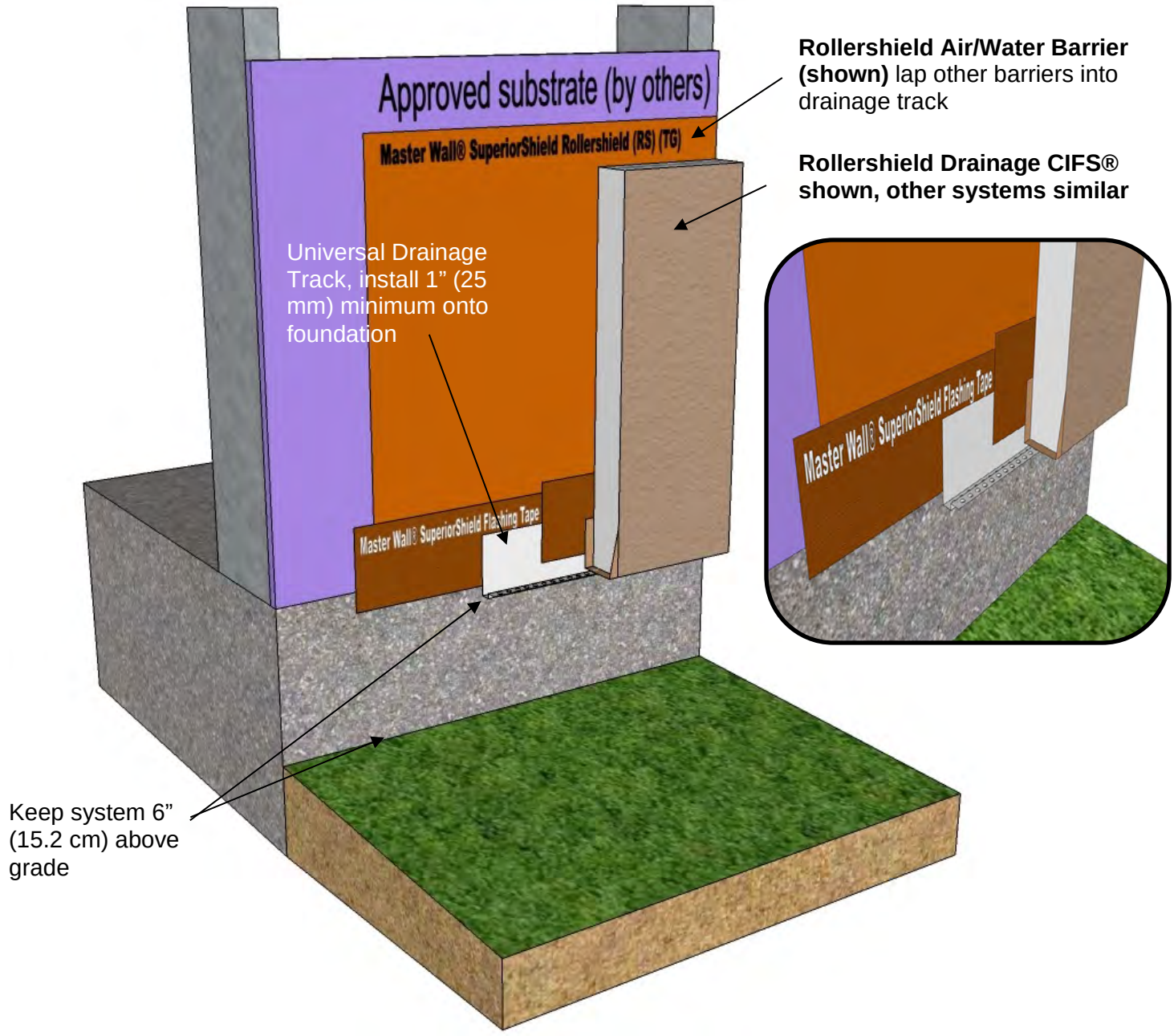
System Detail



CIFSUT-01 Detail at Grade

These drawings relay the conceptual conditions of Master Wall® Systems and are not the construction drawings. Ultimately the design and detailing of an entire wall system is the responsibility of a professional. These details will guide the design professional in the use of Master Wall® Products. Master Wall disclaims design, warranty or construction intent or responsibility. Bold or Brand Name = Master Wall® Product.

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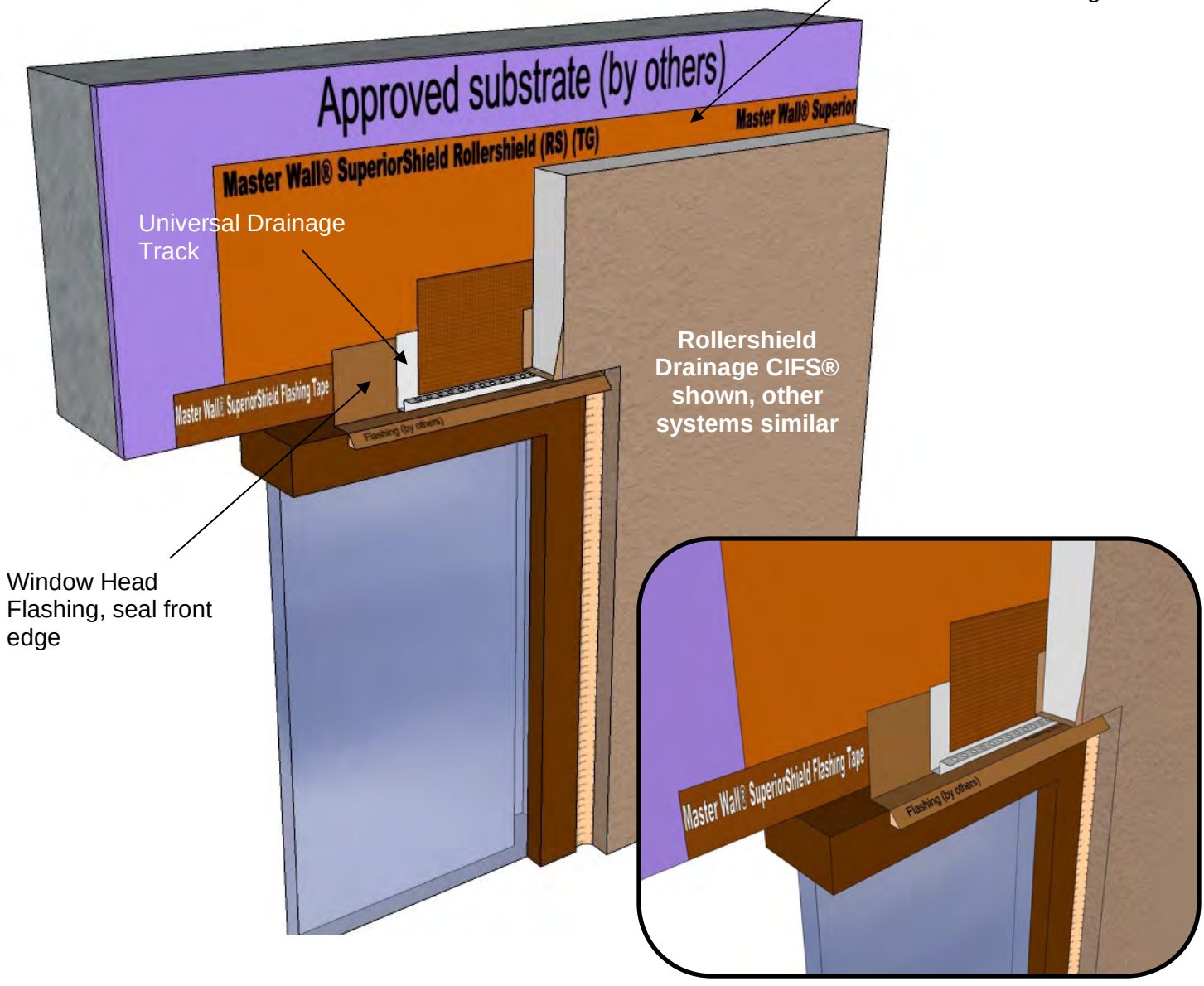
System Detail

Rollershield Air/Water Barrier (shown) lap other barriers into drainage track



CIFSUT-02 Window Head

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MW# 136-210201

Topic: Acrylic Polymer Benefits

Master Wall® formulates our products using industrial grade acrylic polymers. Our polymers are water-based which translates to an environmentally friendly product line with lower VOC content compared to solvent-based materials with easy workability.

High performance resins and chemicals developed with water-based acrylic polymers offer many improvements over solvent based products. Water-based acrylic polymers are environmentally friendly and easy to work with. They clean up easily with soap and water yet when dry is extremely durable and resistant to environmental and chemical degradation.

Acrylic Polymer Benefits

Acrylic polymers in Master Wall® products offer many benefits such as

- Improved adhesion to non-porous surfaces
- Excellent finish, gloss, and clarity
- Superior hardness
- Outstanding durability and weatherability
- Alkali-resistance Anti-corrosion properties
- Longer storage stability
- Improved product feel, flow, and solubility
- In finishes acrylics form a film, sealing in the protection

Maintaining high levels of acrylic content, while beneficial, is also one of the more expensive additions to an exterior product. Lower cost competitors often manipulate polymer levels or add extenders such as fibers. At the extreme end latex is used instead of acrylic, resulting in a brittle, poor performing finish that is priced as a cut-rate option.

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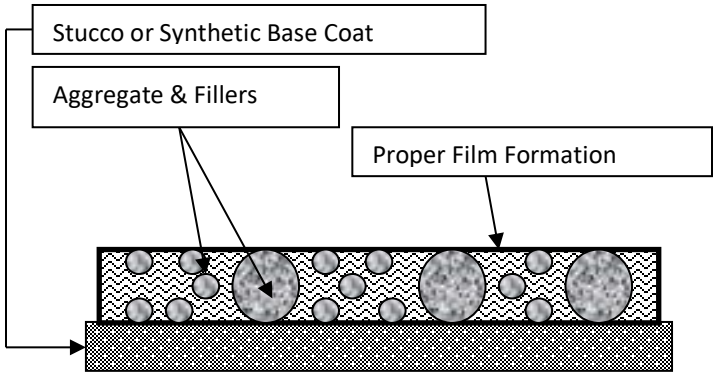
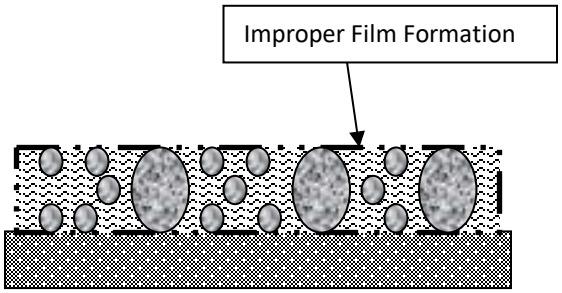
Acrylics in Textured Finishes

Higher levels of acrylic are needed in textured finishes to provide long-term protection for the buildings. As the material dries the acrylic cross-links on the surface of the finish forming the protective shell, locking in the protection.

While it is possible to engineer a finish that passes lab tests and minimum standards, the cross-linking is incomplete, resulting in microscopic gaps that affect the long-term performance of the finish. After reviewing finishes that are being sold in the EIFS and Stucco Industry today, it is evident that some manufacturers do not have enough binder to provide long-term protection against the weather elements.



Continuous Polymer Coating with Sufficient Binder Level



Polymer Coating with Insufficient Binder Level

In summary, Master Wall® products are engineered for long-term building performance with higher levels of acrylic polymers at the forefront of our ability to both bind the product and protect the building. As with the building owners and architects we serve, and as one of the last American-owned and privately held businesses in our industry, our products are judged by each project, not by manufacturing the cheapest materials.

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MW# 137-210101

Topic: EIFS Inspection Guidelines

Exterior Insulation and Finish Systems (EIFS) are a durable, long lasting, and attractive siding option. It offers great curb appeal at a reasonable price. From an inspection standpoint, it is much easier to check than brick and the traditional stucco claddings.

When to Inspect

Most building component manufacturers recommend at least annual visual inspections of a home or building. This would include a thorough examination of windows and doors, foundations, patios, roofs, etc. In cooler climates, spring and fall inspections are the norm.

Inspector Qualifications

There are several organizations that train people how to inspect EIFS and recent training from AWCI (Association of Walls and Ceilings, International) is certainly a benefit. Most important is knowledge of construction and how the materials interface and work together. Simply put, most anyone with some construction experience can compare manufacturers details to those installed at a job site, quality inspectors can interpret those conditions for an owner.

Inspection Basics

The scope of work for a typical inspection can vary. We suggest the following four-step process:

- Visual Inspection (annually or bi-annually)
- Moisture Scan
    - General scan using a Tramex RWS Non-destructive Moisture Meter
    - Limited destructive testing at unusual areas of concern using an appropriate moisture meter such as a Delmhorst BD-9
    - Thermal scan with a Flir to detect areas of heat loss.
- Report identifying areas of concern, interpretation of details and repair recommendations.
- Follow-up inspection a reasonable time after repairs to confirm repairs worked.

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Tools

Proper tools help the inspector. However, they are not without limitations:

- Tramex RWS (http://www.tramexltd.com/) is one of the most useful tools an inspector can own. Walls with up to 2" of insulation are easily and quickly checked. The tool is sensitive to metal and thick base & finish coats.
- Delmhorst Wood Moisture Meter (http://www.delmhorst.com/) is a useful tool for checking wood moisture content. It requires the punching of holes and drilling into the substrate to confirm moisture content. One of the common mistakes in confirming wet wood is to attempt to measure moisture content on the surface of the substrate (this only confirms a wet/dry condition, not moisture content). The current accepted guideline is to drill into the wood surface about ¼" and confirm moisture content at that level.
- Thermal Scanners such as a Flir (https://www.flir.com) to review any heat loss in the wall system both interior and exterior.
- Digital Camera – great for showing overall conditions, good conditions, and areas of concern. Digital pictures can be overlaid with a grid in the final inspection report.
- Repair Materials – If destructive testing was performed, temporary or permanent repair materials should be available, so the inspection does not cause undue damage to the wall system.

Details

Manufacturer and industry details should be available, along with the architect/designer details. Master Wall has an extensive array of conceptual details for the designer. These details relay intent and may or may not be appropriate for any particular situation. The inspector should interpret the existing conditions for the owner, stating whether or not the as-built conditions will affect the overall performance of the building or direct them to a professional who can.

Interpretation Common Field Conditions

Identifying areas of concern are relatively easy. Interpreting them is the hard part. The overall intent of any EIFS design is to verify that all points where the system ends are sealed to prevent water entry. Below are some common elements, their intended use, and a recommended interpretation of the condition.

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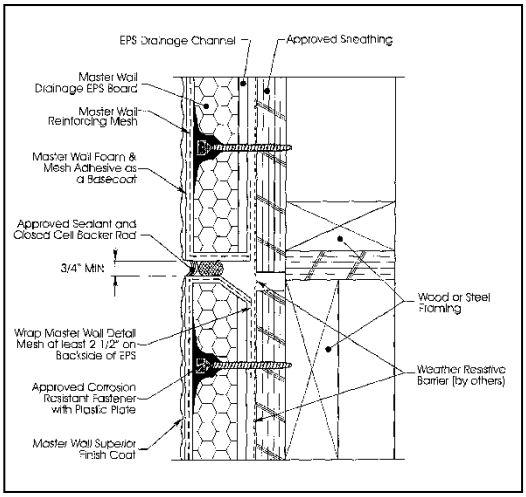
Floor Line Expansion Joints

Intent: Since the invention of floor framing, lumber shrinkage has been a problem, but often overlooked in construction. This is evident in other forms of siding material such as vinyl siding that bulges or brick that pushes up a roof line as the building shrinks while the floor framing dries.

Master Wall suggests a ¾" minimum expansion joint to allow for this one-time shrinking. Omitting the expansion joint can result in spot delaminating of the system, buckling of the substrate, cracking of the system or nothing at all.

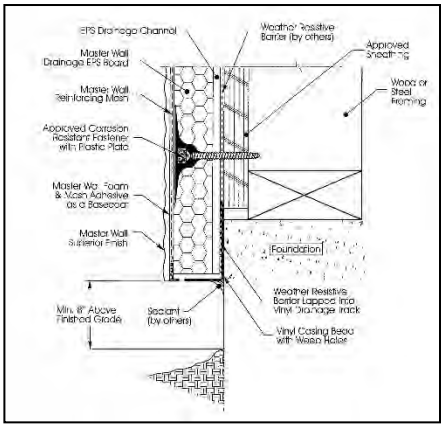


Interpretation: If no problem has occurred, no further action is recommended. Bulging or cracking of the system may require relief of the compression from the sheathing level out, depending upon the severity of the condition. Pre-engineered floor framing usually does not experience cross-grain shrinkage.

Termination Above Grade

Intent: Most siding systems need to end above grade either for snow or to provide for inspection in termite-prone areas.

Most building codes recommend from 6" to 8" of clearance for these purposes.



Interpretation: The inspector should determine the root cause of the problem, whether it is the system installation below grade, excessive backfill/grading, or plantings.

The inspector should keep in mind that finishes could be applied over the foundation. This is not the same as running a system below grade.

Removal of insulation below grade is addressed in Master Wall Technical Bulletin MW#128.

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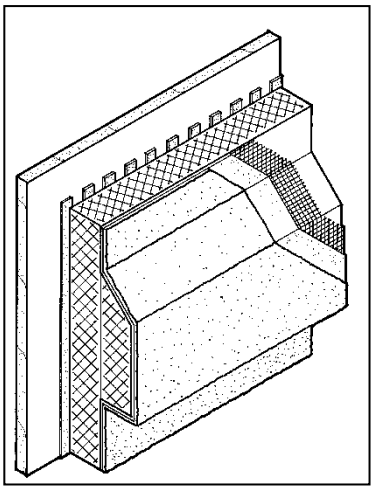
Minimum Slope for Trims

Intent: Sloping small decorative trims such as quoins or cornices is intended to reduce the potential of accumulation of snow and sitting of water that could soften the surface.

Master Wall's minimum slope recommendation of 1:2 (6" in 12") provides positive drainage but may be objectionable aesthetically to some designers and builders.

Interpretation: Realistically, small trim pieces that extend 1-1/2" or less pose little concern for water infiltration. If signs of damage are noted, a sealant bead could be used at the projection junction with the wall surface.



Holes and Punctures

Holes and punctures need to be repaired promptly by qualified applicator. Any test holes need to be sealed to prevent water entry. Reference Master Wall Technical Bulletin MW#129 for repair recommendations.

Electrical & Plumbing Penetrations

Intent: Regardless of siding type and details, most plumbing and electrical codes require sealing of the penetrations by the respective trades.

Interpretation: Confirm that wall penetrations are sealed to prevent the entry of water.

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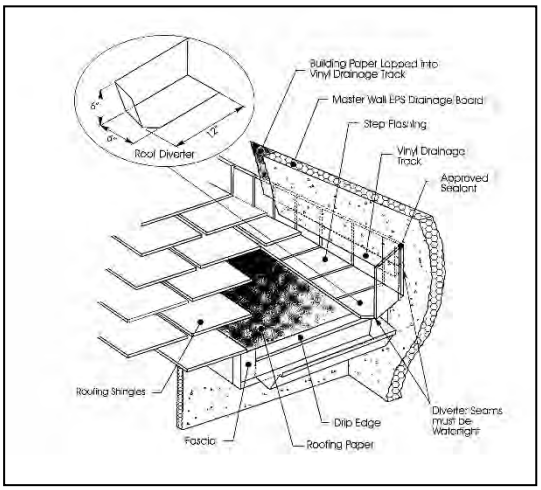
Roof Kick-outs and Diverters

Intent: Water run-off at the roof/wall intersection needs to be diverted or "kicked out" to the outside of the building. This has been a recommendation of the NRCA (National Roofing Contractors Association) for many years.

Interpretation: Make sure a diverter is in place to direct the water to the outside of the building.



Wall System Height Above Roofline

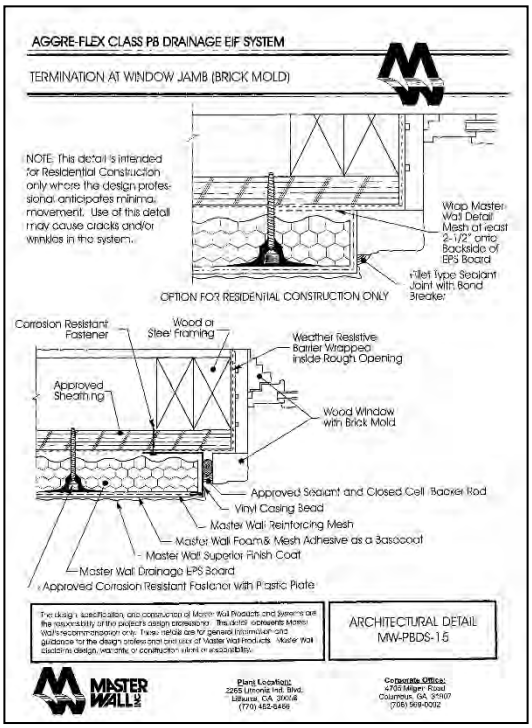
There is much discussion of what is an appropriate height to end the system above the roofline. The NRCA suggests from 1" to 2", but that can vary depending upon regionally accepted designs. Regardless of the height above the roofline, a siding system must accomplish the following:

- Cover the roof step flashing by about two inches.
- Allow for the reasonable removal and replacement of an aged roof system.

Door & Window Penetrations

Intent: Windows, doors and other penetrations need to be sealed to prevent water entry.

Interpretation: Sealant joint designs vary but must allow for anticipated thermal movement while providing a watertight seal. Reports should address whether or not the penetration is sealed to prevent water entry.



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Window/Door Maintenance

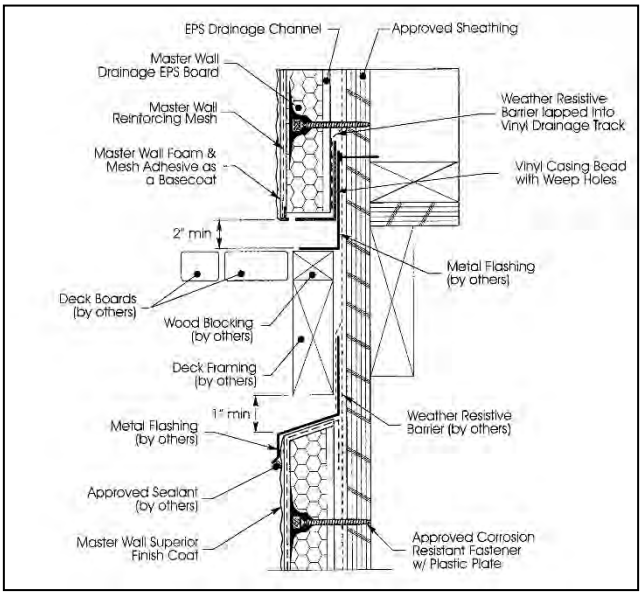
Intent: Windows and doors require maintenance. Even the best manufactured windows and doors can leak if improperly or sloppily installed. A thorough inspection should include the disassembly and review of at least one window to determine if there are any concerns. Window maintenance should be performed annually.

Interpretation: All windows and doors need to be properly installed and sealed to prevent water entry behind the system. Annual inspections of this wall component along with the rest of the building will provide long-term service.

Deck Flashing

Intent: Decks require flashing or other means of protecting against water entry. Designs will vary, but in general the EIFS will end above the deck some distance to allow for inspection and/or maintenance of the flashing.

Interpretation: Verify that the detailing around the deck is well coordinated to prevent water entry.



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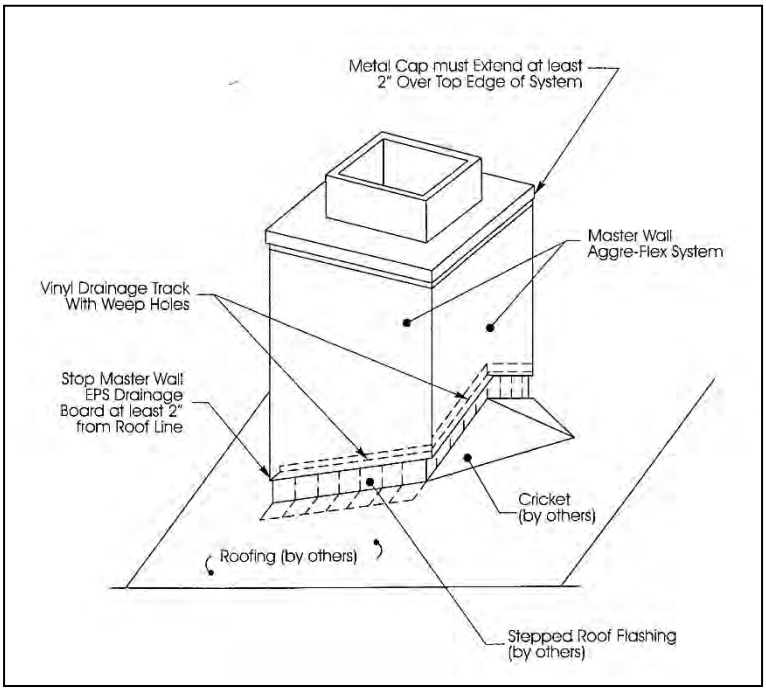
Chimney Flashing



Intent: Chimney's must be flashed to prevent water entry. Sometimes the roof is mis-designed and may allow water to over-run the flashing resulting in leaks.

Interpretation: Verify the roof design is proper for local conditions.

Caulking & Sealants

Intent: Caulking or Sealants are the critical means of joining building components. For dynamic (moving) joints, specialty sealants are used; other joints could be sealed with a more available sealant.

Interpretation: The wall system needs to be sealed to prevent water entry. Seal any obvious breaks. Reference Master Wall Technical Bulletin #MW-131 for approved dynamic sealant products.

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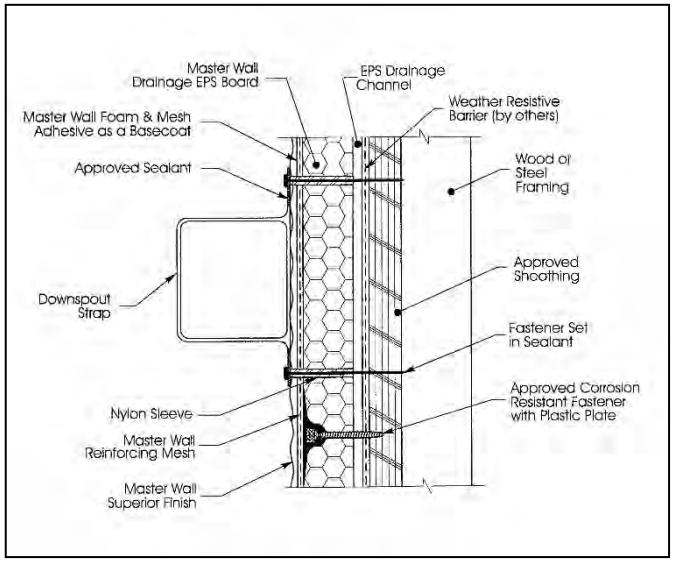
Downspout Attachment

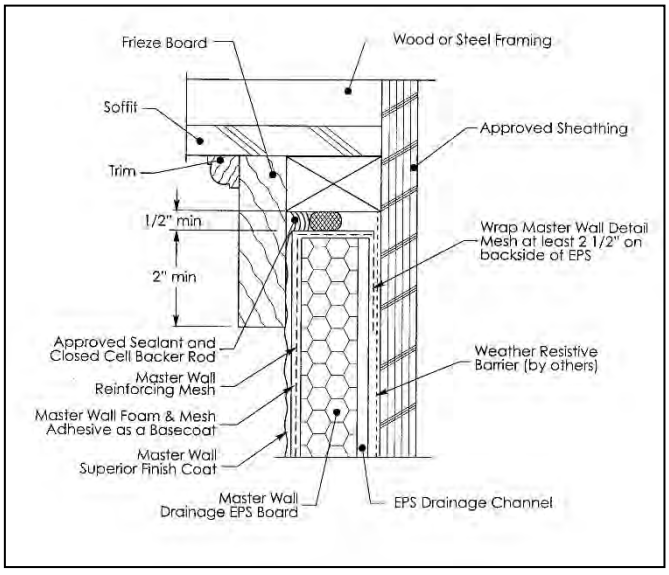
Intent: Downspouts need to be fastened to a solid substrate. This means that the fastener needs to grow through the EIF System, which is non-structural.



Interpretation: Downspouts should be attached using fasteners and through an appropriate sleeve, which is filled with sealant.

Gable & Soffit Ends

Intent: Where the EIFS meets a gable, there needs to be some type of seal to prevent wind-driven rain from entering the system.



Interpretation: Soffit designs vary widely. Any design that allows for the protection of the system is usually acceptable.

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MW# 138-210201

Topic: R-Values of Common Building Materials used in EIFS, CIFS® and Stucco

The R-value of a material determines how quickly heat is conducted across it. The values below are some of the more common R-factors for surfaces found on building walls.

To convert R values to RSI values, divide the R value by 5.67826
U Value is 1/R
Values: Inches (millimeters)

Insulation Boards

Type I EPS (EIFS Standard, Common Sizes)
3/4" (19): ***2.85****, 1" (25):* ***3.8****, 1.5" (38):* ***5.7****, 2" (51):* ***7.6****, 3" (76):* ***11.4****, 4" (102):* ***15.2***
Type II EPS *3/4" (19):* ***3****, 1" (25):* ***4****, 1.5" (38):* ***6****, 2" (51):* ***8****, 3" (76):* ***12****, 4" (102):* ***16***
Type IV EPS *3/4" (19):* ***3.75****, 1" (25):* ***5****, 1.5" (38):* ***7.5****, 2" (51):* ***10****, 3" (76):* ***15****, 4" (102):* ***20***
Type VIII EPS *3/4" (19):* ***2.85****, 1" (25):* ***3.8****, 1.5" (38):* ***5.7****, 2" (51):* ***7.6****, 3" (76):* ***11.4****, 4" (102):* ***15.2***
Type X XPS *3/4" (19):* ***3.75****, 1" (25):* ***5****, 1.5" (38):* ***7.5****, 2" (51):* ***10****, 3" (76):* ***15****, 4" (102):* ***20***
Neopor® Graphite EPS *1" (25):* ***5****, 2" (51):* ***1***
Polyisocyanurate *5/8" (.61):* ***3.75****, 3/4" (19):* ***4.5****, 1" (25):* ***6****, 1.5" (38):* ***9****, 2" (51):* ***12***
Mineral Wool *1.5" (38):* ***6****, 2" (51):* ***8****, 3" (76):* ***12****, 4" (102):* ***16***

Common Sheathing Materials

Gypsum Board *1/2" (12.7):* ***0.45****, 5/8" (15.8):* ***0.56***
Plywood *1/2" (12.7):* ***0.63****, 5/8" (15.8):* ***0.78****, 3/4" (19):* ***0.94***

Fiberglass Batt Insulation

Standard *3.5" (89):* ***11****, 5.5" (140):* ***19***
Improved *3.5" (89):* ***13****, 5.5" (140):* ***22***
High Performance *3.5" (89):* ***15****, 5.5" (140):* ***24***

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Masonry, Concrete and Stone

Common Brick 4" *(102):* ***0.80***
Face Brick *4" (102):* ***0.44***
Concrete Masonry Unit (CMU) ***4***" *(102):* ***0.80****, 8" (204):* ***1.11****, 12" (305):* ***1.28***
Concrete 60 pounds per cubic foot, per inch (25) thickness: ***0.52***
Concrete 70 pounds per cubic foot, per inch (25) thickness: ***0.42***
Concrete 80 pounds per cubic foot, per inch (25) thickness: ***0.33***
Concrete 90 pounds per cubic foot, per inch (25) thickness: ***0.26***
Concrete 100 pounds per cubic foot, per inch (25) thickness: ***0.21***
Concrete 120 pounds per cubic foot, per inch (25) thickness: ***0.13***
Concrete 150 pounds per cubic foot, per inch (25) thickness: ***0.07***
Granite per inch (25) thickness: ***0.05***
Sandstone / Limestone per inch (25) thickness: ***0.08***

Cemplaster Fiberstucco and ASTM C926 Stucco

Stucco *3/8" (9.5):* ***0.7****, 1/2" (12.7):* ***0.1****, 3/4" (19):* ***0.15****, 7/8" (22):* ***0.18***

Air Spaces

Non-Reflective *3/4" (19):* ***0.78****, 4" (102):* ***0.85***
Reflective *3/4" (19):* ***1.67****, 4" (102):* ***2.06***

Air Films

Interior Wall ***0.68***
Interior Ceiling ***0.61***
Exterior Wall, Summer ***0.25***
Exterior Wall, Winter ***0.17***

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MW# 140-210201

Topic: Wood Framing Considerations

Wood framing is one of the more popular forms of building construction. It is modular, somewhat insulated, easy to cut and highly customizable. The market is roughly 21 billion dollars in size and is growing at almost 2.6% this year. It is a time-proven support system for Master Wall® Systems.

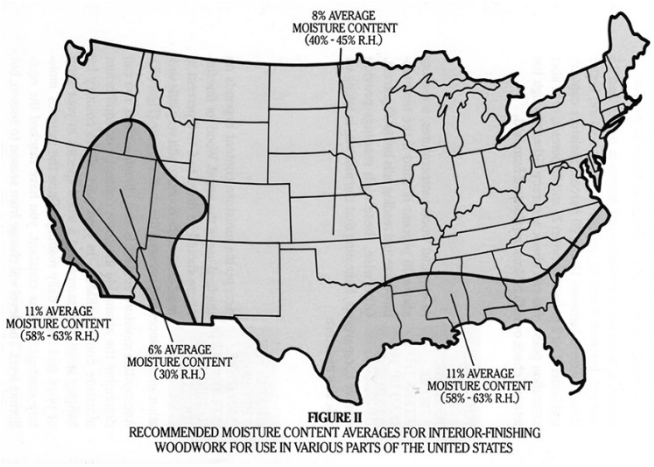

FIGURE II
RECOMMENDED MOISTURE CONTENT AVERAGES FOR INTERIOR-FINISHING WOODWORK FOR USE IN VARIOUS PARTS OF THE UNITED STATES

Not all wood is the same, but all wood can change dimensions depending upon the environment. Wood is considered "dry" anywhere from 6% in arid environments to 11% in the Southeast and this can vary by season. Some other considerations for wood moisture content from experience:

- Dry framing number may not be <u>that</u> dry. This depends upon the supplier and their drying procedures.
- Large pieces of wood, such as your floor framing 2x members can shrink as much as 3/4" in the first year.
- Treated lumber, either with decay or fire treatments can be very wet after treatment. It needs to be dried after treatment or needs to dry out in place, especially if you are coating it with our air and water barrier.
- Engineered framing or panels (plywood/Oriented Strand Board) because of their manufacturing process are often delivered dryer than the average moisture content. This means they have the potential to swell as they condition on the jobsite.
- Sloppy framing techniques cause significant and unpredictable movement.

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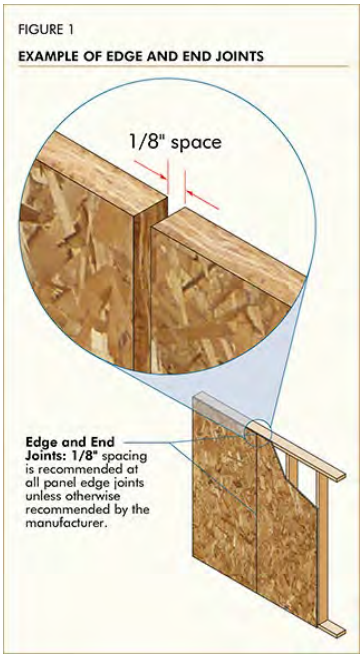
Tips for Success

A good framing job makes the Master Wall® application easier and will make any wall cladding last longer. Here are some common areas to make your framing better:

- Check your lumber to make sure it is dry enough.
- If using 2x framing members (2x10, 2x12) you need to plan for their potential to shrink during the first year of service. This means you should provide at least 3/4" gap in the sheathing for shrinkage and an expansion joint is needed in the system. Please reference typical details for your system to avoid bulges or cracks in the system.
- Make sure treated lumber is dry to equilibrium before continuing with the application.
- Gap engineered wood panels such as plywood and OSB to allow for expansion. Butted panels are considered the #1 cause of stucco cracking.
- If floors are framed with engineered lumber (joists or webs), these generally are not going to have cross-grain shrinkage. Verify with the manufacturer, but in most Master Wall® applications an expansion joint is not needed at the floor line.
- Sloppy framing will yield movement. This will be unpredictable.
- Good framing may also yield some movement, but it can often be predictable. Framing members will compress to a degree. Plan for this with proper job sequencing making sure the walls are built, the roof trusses and roof are complete and preferably the building has been initially loaded with drywall prior to the Master Wall® application. The weight will help framing members settle in.



Panel Gap Recommendations
Source: American Plywood Association

Floor line bulge due to cross-grain shrinkage. This can cause Master Wall® Systems to bulge or crack as well.

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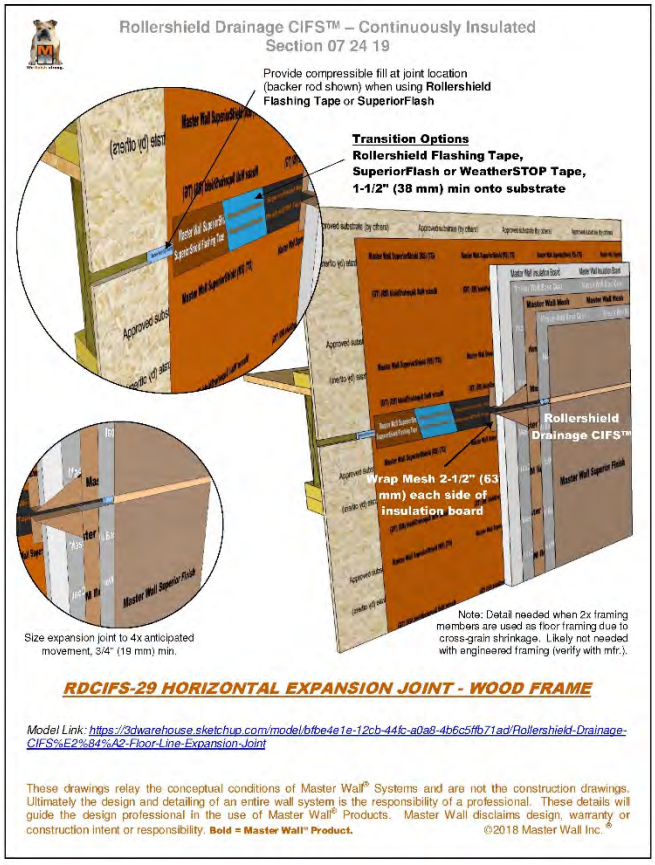
What Anticipating Floor Movement Looks Like

The external appearance can vary slightly depending upon the system and water barrier selection, but in general the system will have an expansion joint on the exterior wall surface. If there is movement the sealant joint can bulge, which is easy enough to replace.

The exact location of the expansion joint on the framing member seems to be of less importance, just make sure it is located somewhere along the floor line. This weak spot is where the movement will occur.



Final Thoughts

In summary, wood framing continues to be one of the most common substrates for Master Wall® Systems and the market seems to be growing. All these techniques will be helpful for any cladding material and awareness regarding movement is something that needs to be anticipated in construction projects. As you have questions on your particular project, please feel free to reach out to us at 700-755-0825 or email at tech@masterwall.com.

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MW# 141-210201

Topic: Prefabricated Architectural Shapes for use with Master Wall® Systems

Easily applied trims and decorations are one of many benefits of using Master Wall® as a cladding. In the past decorative shapes were made in stucco using metal lath, wood and a pattern called a "screed". Now you can order insulation board custom cut to any pattern you can draw from almost any insulation manufacturer.

Several companies have strived to make the installation process even easier by manufacturing the custom cut insulation along with a protective coating of reinforced base coat, urethane, or polymers. Some companies such as Foam Systems Inc. can also pre-finish the pieces and offers specialty trims such as prefabricated cornice corners for a neater job.

These shapes are easier to install but may not offer the performance of a Master Wall System, especially fire, impact resistance and durability. Master Wall suggests using the pre-coated shapes as an accessory for the wall and not an integrated part of the system. This means that the Master Wall System should run continuously under the shape. Using this technique, a failure in the shape will not mean wall system failure. It would also simplify any warranty claims against an accessory manufacturer.

Pre-coated shapes should be installed according to the shape manufacturer's instructions. Please contact the specific manufacturer for recommendations and Master Wall for any coordination concerns.

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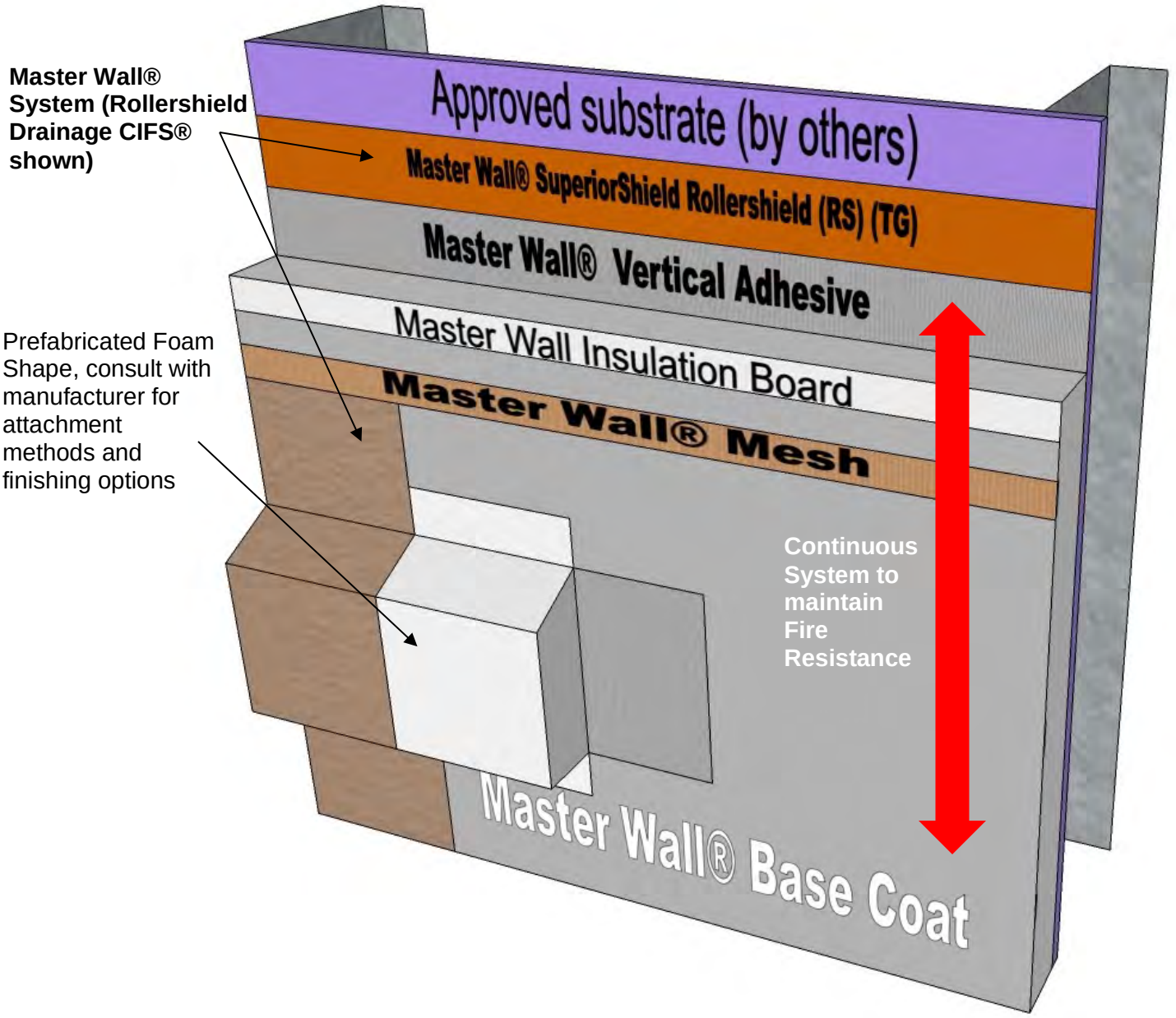
System Detail



PFS-01 Prefabricated Foam Shape Detail

These drawings relay the conceptual conditions of Master Wall® Systems and are not the construction drawings. Ultimately the design and detailing of an entire wall system is the responsibility of a professional. These details will guide the design professional in the use of Master Wall® Products. Master Wall disclaims design, warranty or construction intent or responsibility. Bold or Brand Name = Master Wall® Product.

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MW# 143-210201

Topic: Weight of Materials used in Master Wall® Systems

The values below are some of the more common R-factors for surfaces found on building walls.

To convert kg/m^2 multiply psf by 4.8824

Component	Weight (psf)
Structural Concrete, cu. ft	144.00
8” Concrete Block	55.00
12” Concrete Block	85.00
2x4 wood studs @ 16” o.c.	4.00
2x4 metal studs @ 16” o.c.	4.00
Sheathing Materials	
1/2” Interior Gypsum	2.00
5/8” Interior Gypsum	2.75
1/2” Exterior Gypsum	2.00
5/8” Exterior Gypsum	2.50
1/2” Cement Board	3.00
5/8” Cement Board	3.75
Hardie Board	2.00
1/2" Plywood/OSB	1.60
5/8” Plywood/OSB	2.00
¾” Plywood/OSB	2.40
Weather Barriers	
15# Asphalt Felt	0.15
30# Asphalt Felt	0.30
Tyvek® or similar	0.10
Rollershield-RS/VB	0.15
Rollershield-TG	0.20
WeatherSTOP	0.70

Component	Weight (psf)
Metal Lath	
Stucco Netting/Fibalath	0.10
1.75 Metal Lath	0.06
2.5 Metal Lath	0.90
3.4 Metal Lath	0.13
Insulation	
Aggre-flex Insulation Board	
3/4"	0.07
1”	0.09
1-1/2”	0.13
2”	0.17
3”	0.25
4”	0.34
Extruded Expanded Polystyrene	
1”	0.13
1-1/2”	0.25
2”	0.34
Polyisocyanurate	
5/8”	0.10
3/4"	0.12
1”	0.16
1-1/2”	0.24
2”	0.34

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Component	Weight (psf)
Mineral Wool	
1-1/2”	1
2”	1.3
3”	2
4”	2.6
Adhesives and Base Coat Materials	
F&M Adhesive	0.85
F&M Base Coat	
1-layer w/Mesh	.045
2-layer w/Mesh	1.20
1/4” Cemplaster Fiberstucco	2.80
3/8” Cemplaster Fiberstucco	4.20
1/2" Cemplaster Fiberstucco	5.60
3/4” Cemplaster Fiberstucco	8.4
1” Cemplaster Fiberstucco	10.00
Finishes	
Superior Finishes/Superior Elastomeric Plus	
Perfect 2.0	0.60
Fine Sand 1.0	0.50
Medium Sand 1.5	0.80
Versatex 0.5	.05-1.0
Specialty Finishes	
Aggrelime	0.40
Aggre-stone	0.50
LaCantera	0.50
Lumia	0.50
Metallic Cote	0.10
MetalTex	0.50

Component	Weight (psf
Specialty Finishes	
Savannah	0.40
Superior Stone	0.50
Taratex	0.50
Travertine	0.50
Varius	0.50
ReCote ™	0.10
CIFS® Brick	0.80
CIFS® Wood Grain CI	0.40
Brick Stencil Finish System	0.60
Superior Coatings	
DuraCote	0.10
SuperiorCote HP	0.10
Roller-flex	0.10
Elasto-flex	0.10
Primecoat	0.10
Sanded Primecoat	0.10

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MW# 145-080103

Topic: Finish Drying and Color Variations

Master Wall Superior Finishes are formulated as a final color and texture coat for Exterior Insulation and Finish Systems (EIFS), Cemplaster Fiberstucco and Traditional Stucco. The products are manufactured and colored for excellent pail-to-pail consistency. When properly boxed and applied the color is consistent and the texture is crisp.

Color Variations due to Drying

Different drying rates will affect the color. Generally, a noticeable difference occurs from one of the following reasons:

- *Cold Joints in the field*
  - Usually as a result of the finish drying and setting up.
  - Sometimes caused by poor design in an overly long building. Applicators need starting and stopping points for the finish.
  - Cold joints are usually accompanied by some texture variations if it occurs in the field of the wall.

Finishes dry differently in the shadows of the scaffolding

- *Scaffold Lines on the wall*
  - Caused by a different drying rate because of the scaffold shadows.
  - Often aggravated by applying the finish to a hot wall.

The two samples of #180 Beige Spray texture were both applied and textured at the same time. The sample on the left dried at low temperature out if direct sunlight while the right sample dried at high temperature in direct sunlight.

- *Inconsistent Wall Temperatures*
  - Applying finish to an overly hot or overly cold wall will affect the drying conditions. A very hot wall may be difficult to texture and a cold wall may require additional "open time" before the finish can be textured.

- *Inconsistent Application Temperatures*
  - When temperatures vary excessively day to day a color variation can be noticed.

- *Inconsistent Supplemental Water*
  - Different amounts of water per pail will make the overall color inconsistent.

Recommendations

To minimize the affect of cold joints and inconsistent drying, we suggest the following techniques:

- *Sample Approval*
  - Always refer to the approved sample's texture and color for comparison.
  - The approved sample should be field applied under the same climate conditions. Expect shop-fabricated samples to vary, as drying and texturing conditions will be different.

- *Cold Joints in the field*
  - Always work from corner to corner or aesthetic joint to aesthetic joint.
  - Inform designers that color consistency on large, flat wall areas are difficult without starting and stopping points.
  - Always maintain a wet edge on your finish.

- *Scaffold Lines on the wall*
  - Plan your work to avoid working in direct sunlight. Provide some temporary protection if needed.
  - Avoid finish application to very hot walls.

- *Inconsistent Wall Temperatures*
  - Time your work when the wall temperatures are most consistent. Typically after the dew burns off in the morning and before the day's high temperature is reached.
  - As texture effects color, plan your texture operations to take advantage of the time when the finish textures easily but doesn't burn or smear.

- *Inconsistent Application Temperatures*
  - If possible, apply finishes to an elevation under consistent temperatures. While the actual color variation between the two samples is minimal, when viewed side by side there is a slight difference.
  - Expect a color variation in phased construction during different seasons and climate conditions.

- *Inconsistent Supplemental Water*
  - Always add the same amount of water to each pail and mix thoroughly.
  - Up to 24 ounces of clean, potable water may be added to each pail for workability.

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MW# 146-100103

Topic: Curing and Drying of Master Wall & Related Products

Trowel-applied products are either drying or curing to provide protection of the wall. Water-based products such as Master Wall® Superior Finish or EPSB rely on evaporation of water to dry. Portland cement when used with products such as F&M, MBB or traditional stucco actually causes a chemical reaction that cures over time.

The actual drying or curing of a product is based on several conditions, primarily time, temperature and humidity. This bulletin outlines some of the basic curing and drying times. Times will vary based upon actual field conditions.

Application Temperature for all products: 40°F to 110°F

Finishes, EPSB, (air dry)

- Firm sets in 8-12 hours, fully set in 48-72 hours at room temperature.
- Protect from rain and temperatures less than 40°F for a minimum of 24 hours.

F&M, MBB, F&M Plus, Guardian, WeatherStop (curing)

- Initial set in 8-12 hours at room temperature.
- Protect from rain and temperatures less than 40°F for a minimum of 24 hours.

Quick Set MBB (curing)

- Initial set in 3-4 hours as an adhesive and about 2 hours as a base coat at room temperature.
- Protect from rain and temperatures less than 40°F for a minimum of 24 hours.

Rollershield (air dry)

- Dries to the touch in 1 hour at room temperature, ready for re-coat in 2 hours.
- Protect from rain and temperatures less than 40°F for a minimum of 24 hours.

Primecoat/Roller-flex (air dry)

- Dries to the touch in 1/2 hour at room temperature, ready for re-coat in 2 hours.
- Protect from rain and temperatures less than 40°F for a minimum of 24 hours.

Traditional Stucco, One Coat Stucco, Cemplaster Fiberstucco (curing)

- *Normal Cure Time: 7 days minimum before priming or finishing*

Mean Daily Air Temperature 75°F and greater:
Protect products from uneven and excessive evaporation during hot, windy and dry weather.

Moist curing or wetting is required for 48 hours after application of products when the ambient temperature is more than 75°F. Moist cure at the start and end of the workday.

Mean Daily Air Temperature 74°F to 40°F:
Moist curing is not required if humidity is higher than 70% and plaster is substantially protected from excessive evaporation. Proof, method and means of moist curing in written form or by other acceptable means should be available to the building department.

Mean Daily Air Temperature 40°F to 32°F:
Stucco shall be protected from rain or snow for 24 hours.

Mean Daily Air Temperature 32°F to 25°F:
Stucco shall be completely protected for 24 hours.

Mean Daily Air Temperature 25°F and below:
Stucco shall be completely tented and heated for a minimum of 24 hours.

Cold Weather Construction (stucco being worked on)

Air Temperature 40°F to 32°F:
Sand OR mixing water shall be heated to minimum of 70°F and a maximum of 160°F

Air Temperature 32°F to 25°F:
Sand AND mixing water shall be heated to a minimum of 70°F and maximum of 160°F.

Air Temperature 25°F to 20°F:
Sand AND mixing water shall be heated to a minimum of 70°F and maximum of 160°F. Salamanders or other sources of heat shall be used on both sides of walls under construction. Windbreaks shall be employed when wind is in excess of 15 mph.

Cemplaster Fiberstucco with Stucco Ad-Liquid

Cemplaster Level II: Moist cure after the stucco has set by lightly fogging for at least 48 hours. Fog as frequently as required during the 24-48-hour period to prevent loss of moisture from the stucco. Avoid eroding the stucco surface with excess moisture. If relative humidity exceeds 75% the frequency of moist curing can be eliminated.

Level III and IV: Allow the Cemplaster Stucco to cure a minimum of 24 hours before applying leveling coat and Mesh.

OCS with Stucco Ad Liquid Substitution for water: Allow the OCS to cure a minimum of 24 hours before applying leveling coat and Mesh.

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MW# 147-210201

Topic: Treated Framing Lumber

As of January 1, 2004, the Environmental Protection Agency (EPA) is banning chromated copper arsenate (CCA) as a preservative for wood intended for residential use (except for lumber that is used in permanent wood foundations). CCA-lumber may still be available for industrial or agricultural use.

The replacement for CCA treatment will either be alkaline copper quat (ACQ, Types B and D) and copper azole (CBA-A, CA-B). These new preservatives gain their performance by increasing the copper content in the wood. In addition to being more expensive, it will also change the way we build.

Treated Lumber Uses

Read the new tags for specific uses

Decking
5/4 deck boards, lowest retention level

Above Ground
2x stock, approved for above grade outdoor use, higher retention level than decking

Ground Contact
4x and 6x stock, deck posts and dock framing, higher retention level than Above Ground

The copper content in the treated lumber will be much more of an issue. The problem lies with galvanic reaction between the wood and any dissimilar metals, especially steel, lightly galvanized steel and aluminum. For most builders, this means re-thinking any exterior project such as a simple deck, where the lightly coated deck hangers may not be sufficient.

As EIFS and stucco applicators, we need to be concerned if we're attaching systems or joining into roof flashing. We recommend using fasteners that are at least G-185 coated for galvanized steel, Wind-Lock CCS coated screws or stainless steel. Please remind the builders that aluminum step or flashing will quickly corrode around the treated wood and plan kick out flashings accordingly. Copper, heavily galvanized steel or flexible membranes may be the best choice.

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MW# 148-210201

Topic: Thermal Movement and Sealant Calculations

Sealant joints in a building need to be sized for anticipated movement. Anticipating the movement of a sealant joint is usually based upon scientific formulas tempered with the design professional's expertise. Master Wall does suggest sealant joint sizes, but ultimately the sealant joint size and design is the responsibility of a design professional or architect.

When materials are heated or cooled, their length changes by an amount proportional to the original length and temperature change. The amount can be calculated by the following equation:

L L T

L The change in length
The coe icient o thermal e pansion see chart
L The length o the panel or dissimilar material
T Change in temperature

Change in temperature can ar rom simpl using weather data to anticipating the effect of dark colors with high solar gain.

Expansion Coefficients

Galvanized Steel/Steel
0.0000067 of an inch/inch/degree Fahrenheit

Stainless Steel
0.0000096 of an inch/inch/degree Fahrenheit

Aluminum
0.0000129 of an inch/inch/degree Fahrenheit

Vinyl Siding
0.000031 to 0.000036 of an inch/inch/degree Fahrenheit

PVC Plastic
0.000028 of an inch/inch/degree Fahrenheit

Brick Masonry
0.0000034 of an inch/inch/degree Fahrenheit

Stucco
0.0000070 of an inch/inch/degree Fahrenheit

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Example 1

Anticipate the mo ement o a white 8 8 aluminum clad window in a moderate climate 15°F winter, 110°F summer, 95° range

0 0000129 8 12 t 95° 0 12 or about 1 16 each side

Example 2

Anticipate the movement of a dark bronze aluminum clad ribbon window, 4' tall by 30' long, in a cold climate 0°F winter, 100°F summer, 100° range As the designer, you may want to allow for the anticipated solar gain of a dark color, which can be as high as 180°F, 160°F is shown in the example.

0 0000129 0 12 t 160° 0 74 or about 8 each side

Historical weather data may be available locall in the most recent ersions o the building codes IBC IRC or rom ASHRAE publication 4580 RP-1171 -- Estimation o U S Design Temperatures Using Dail Ma imum and Minimum Temperatures http://resourcecenter.ashrae.org/ More in ormation on designing sealant joints will be in the next Technical Bulletin

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TECHNICAL BULLETIN

MW#149-220801

TOPIC: SEALANT JOINT DESIGN

GOOD SEALANT JOINT DESIGN IS ONE OF THE MORE IMPORTANT PARTS OF A WALL SYSTEM'S PERFORMANCE. DESIGN PROFESSIONALS AND ARCHITECTS MUST USE THE SAME QUALITY AND PERFORMANCE PARAMETERS IN SELECTING A SEALANT AS THEY WOULD IN SELECTING A DOOR, WINDOW, OR OTHER BUILDING COMPONENT. THIS IS NOT AN EASY TASK, BECAUSE JOINT DESIGN WILL VARY BY SEALANT MATERIAL TYPE AND MANUFACTURER. DESIGNERS MUST DESIGN THE JOINT FOR THE PARTICULAR PURPOSE.

TYPES OF SEALANT JOINTS

THERE ARE THREE BASIC TYPES OF SEALANT JOINTS: BUTT, FILLET, AND BRIDGE. EACH HAS ITS OWN PARTICULAR USE AND DESIGN PARAMETERS. ALL ARE DESIGNED TO ELIMINATE THREE-SIDED ADHESION, WHICH WILL SHORTEN THE SERVICE LIFE OF THESE DYNAMIC (MOVING) JOINTS. ALL THESE JOINTS USE SOME FORM OF BOND BREAKER. CLOSED CELL BACKER ROD IS ONE OF THE MORE COMMON BOND BREAKERS FOR WIDE JOINTS, TYPICALLY SIZED 25% LARGER THAN THE JOINT OPENING. THE BACKER ROD MUST BE SET INTO THE OPENING A SPECIFIC DEPTH TO MEET THE SEALANT MANUFACTURER'S WIDTH TO DEPTH RATIO. ANOTHER OPTION IS THE USE OF BOND BREAKER TAPE. THIS METHOD IS ESPECIALLY USEFUL FOR SEALANT JOINTS THAT ARE TOO SHALLOW TO ALLOW FOR A BACKER ROD. ANOTHER METHOD IS TO USE A LOW-QUALITY CAULK AS A BOND BREAKER. CHECK WITH THE SEALANT MANUFACTURER TO SEE IF THIS METHOD IS APPROVED.

SEALANT JOINT DESIGN

THE DESIGN OF SEALANT JOINT WILL DEPEND UPON THE SEALANT JOINT MANUFACTURER'S REQUIREMENTS AND THE THERMAL MOVEMENT OF THE BUILDING COMPONENTS. EXPECTED MOVEMENT CAN BE CALCULATED IN TECHNICAL BULLETIN MW#147. RECOMMENDED SEALANTS OUTLINED IN MW#131.

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SEALANT JOINT DESIGN CALCULATIONS

EXAMPLE 1

LET US ASSUME THE WINDOW UNIT IN EXAMPLE 1 IS A RESIDENTIAL UNIT MEETING WITH MASTER WALL'S CEMPLASTER STUCCO. THE WINDOW IS MOVING 1/16" EACH SIDE AND WE HAVE SELECTED TREMCO® DYMONIC® FC AS THE SEALANT (HTTPS://WWW.TREMCOSEALANTS.COM/). IT IS A QUALITY 1-PART POLYURETHANE SEALANT, WHICH THE MANUFACTURER SAYS IS DESIGNED FOR +/-35% JOINT MOVEMENT CAPABILITY. WE WILL PLAN ON A FILLET-TYPE SEALANT JOINT TO MINIMIZE THE HOMEOWNER COMPLAINTS OVER WIDE SEALANT JOINTS.

IF THE ANTICIPATED MOVEMENT IS .0625" AND THE SEALANT MATERIAL IS DESIGNED FOR 35% MOVEMENT, WE NEED A SEALANT JOINT THAT IS 1/4" WIDE (4*.0625). FOR JOINTS UP TO 1/4" THE MANUFACTURER LISTS A 1/4" DEPTH AT THE MIDPOINT. CONSIDERING THE DEPTH TO WIDTH RATIOS ARE IDENTICAL IT WILL PROBABLY BE BEST TO SPECIFY A LATEX BOND BREAKER SEALANT FOLLOWED BY A SEALANT JOINT 1/4" TO 3/8" WIDE. TO CONFIRM THAT MOVEMENT, A 1/4" JOINT MULTIPLIED BY THE ALLOWABLE MOVEMENT (35%) IS 0.09" OR MORE THAN ANTICIPATED.

EXAMPLE 2

THE RIBBON WINDOW IN EXAMPLE 2 IS A COMMERCIAL UNIT AND THE WALL CLADDING IS MASTER WALL'S ROLLERSHIELD DRAINAGE CIFS® - CONTINUOUS INSULATION AND FINISH SYSTEM (OR EIFS). EIFS COATINGS REQUIRE SPECIFIC LOW MODULUS SEALANTS AND WE'VE ANTICIPATED 3/8" MOVEMENT ON EACH SIDE OF THE WINDOW.

THE SEALANT PLANNED FOR THE WINDOW UNIT IS DOW CORNING #795 SILICONE SEALANT THAT IS DESIGNED FOR +/- 50% MOVEMENT AND IS LOW MODULUS FOR COMPATIBILITY WITH THE EIFS. THE ANTICIPATED MOVEMENT IS .375" MULTIPLIED BY 2 IS .75" OR 3/4" WIDE. JOINTS THIS WIDE TYPICALLY USE THE CLOSED CELL BACKER ROD. CONFIRMING THAT MOVEMENT, 3/4" MULTIPLIED BY THE ALLOWABLE MOVEMENT (50%) IS RIGHT AT THE SAME AS ANTICIPATED MOVEMENT.

NON-DYNAMIC JOINTS

MOVING JOINTS ARE THE MOST IMPORTANT ONES IN CONSTRUCTION; HOWEVER, THERE ARE OTHER JOINTS THAT ARE MORE AESTHETIC OR LIMITED IN NATURE. FOR EXAMPLE, ELECTRICAL LIGHT SEALANT REQUIRED BY THE NATIONAL ELECTRICAL CODE OR THE SEALANT BEAD APPLIED AT THE LOWER EDGE OF A COMMERCIAL ROOF COPING CAP ARE NOT MOVING TO ANY SIGNIFICANT DEGREE, BUT IT HELPS KEEP OUT WIND-DRIVEN RAIN AND CLEANS UP THE GAP BETWEEN THE MATERIALS. SIMILARLY, A SOFFIT TRANSITION FROM EIFS TO A DIRECT-APPLIED SOFFIT COULD RECEIVE SIMILAR TREATMENT PROVIDED STRUCTURAL MOVEMENT IS NOT ANTICIPATED. USUALLY, A BOND BREAKER IS NOT USED WITH THESE TYPE JOINTS.

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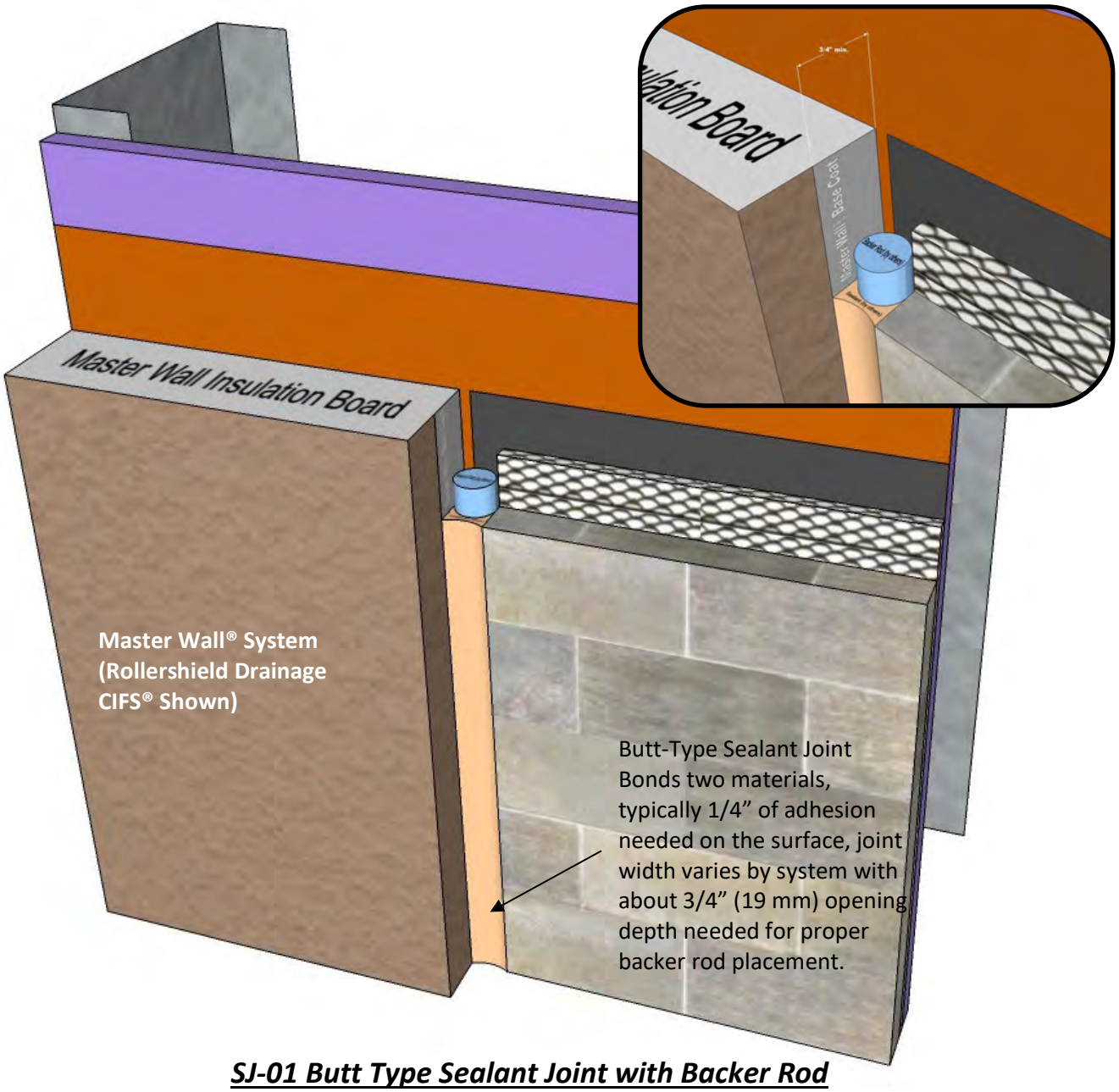
SYSTEM DETAIL



SJ-01 Butt Type Sealant Joint with Backer Rod

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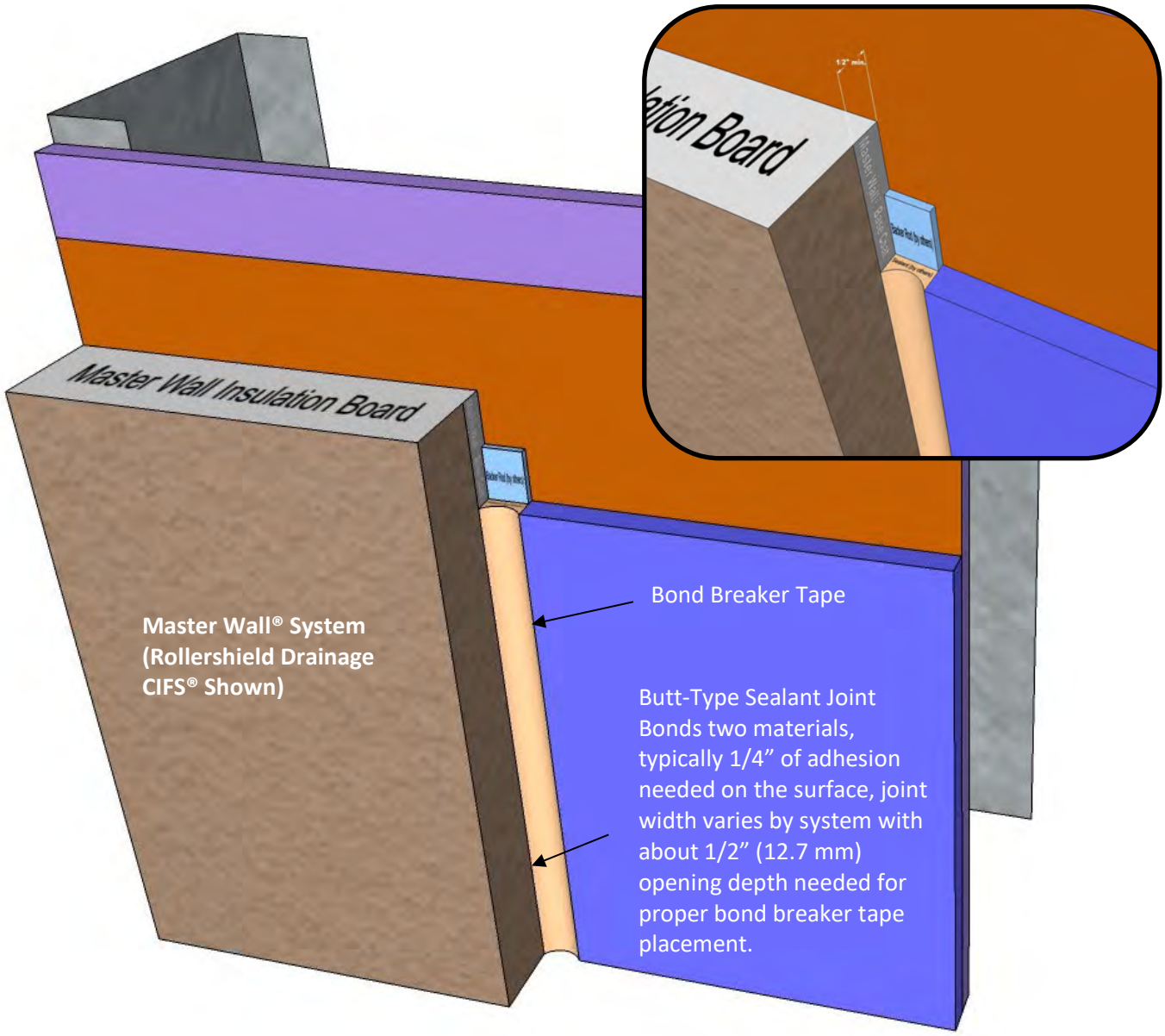
SYSTEM DETAIL



SJ-02 Butt Type Sealant Joint with Bond Breaker Tape

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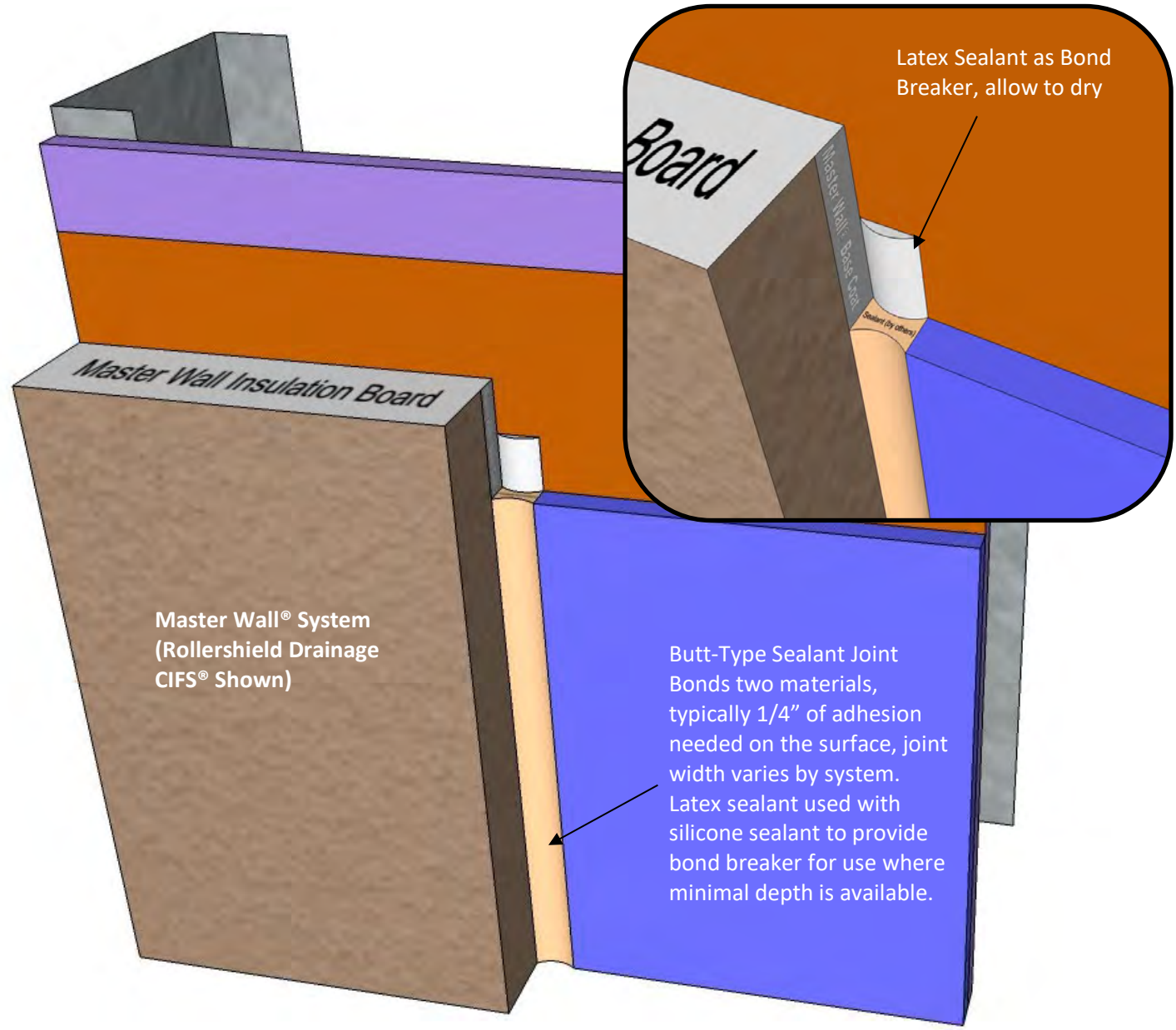
SYSTEM DETAIL



SJ-03 Butt Type Sealant Joint with Latex Sealant Bond Breaker

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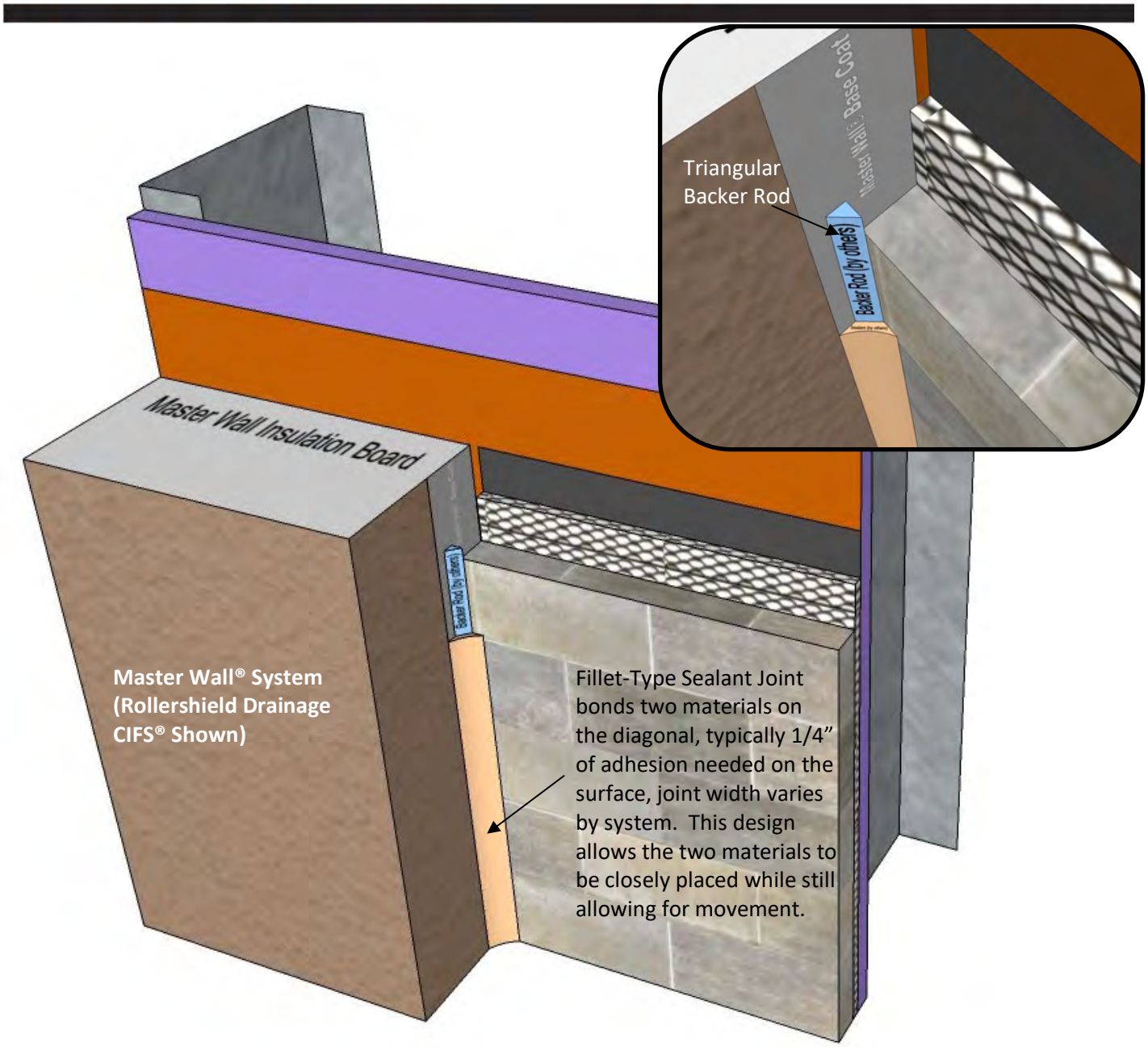
SYSTEM DETAIL



SJ-04 Fillet Type Sealant Joint with Triangular Backer Rod

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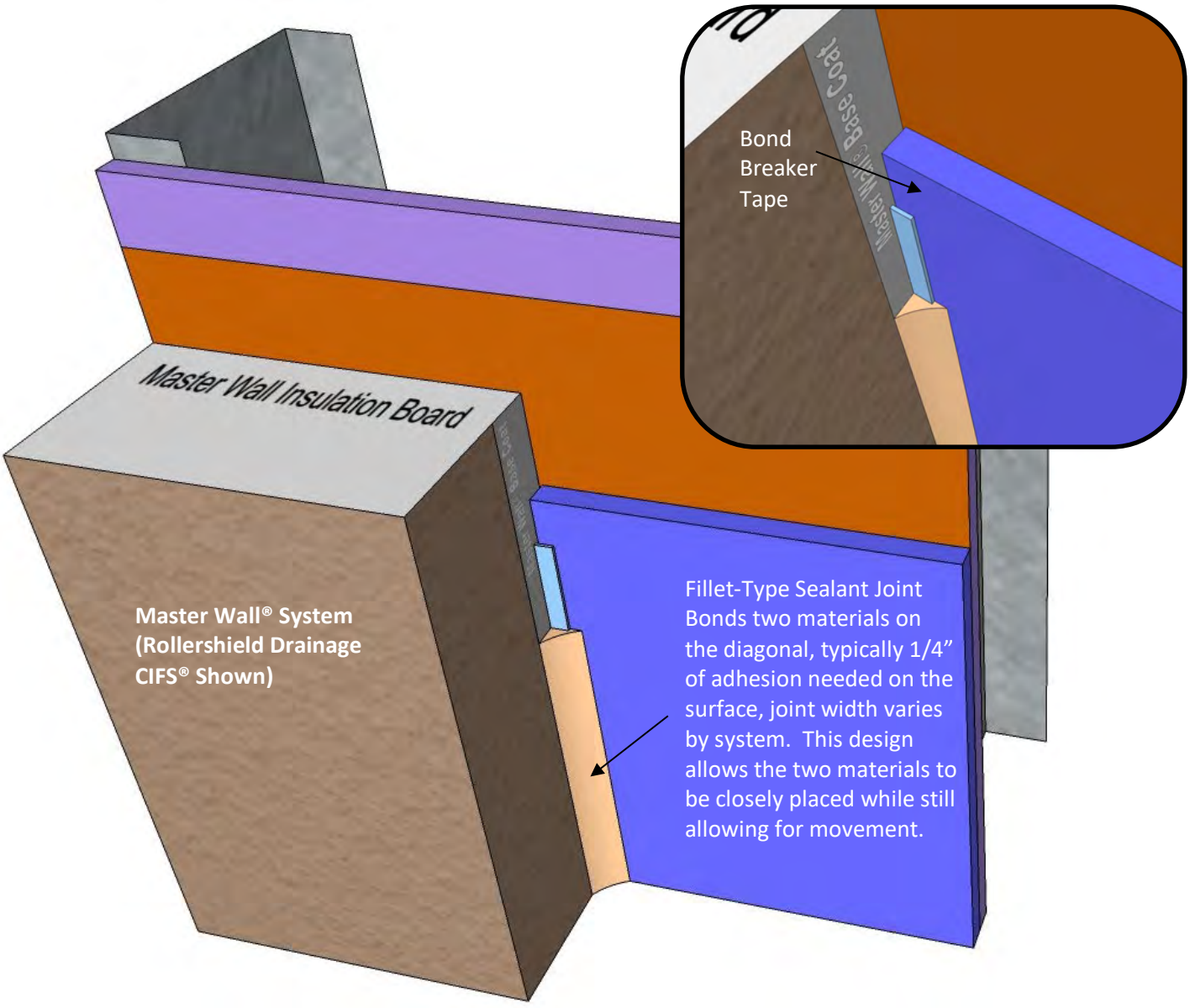
SYSTEM DETAIL



SJ-05 Fillet Type Sealant Joint with Bond Breaker Tape

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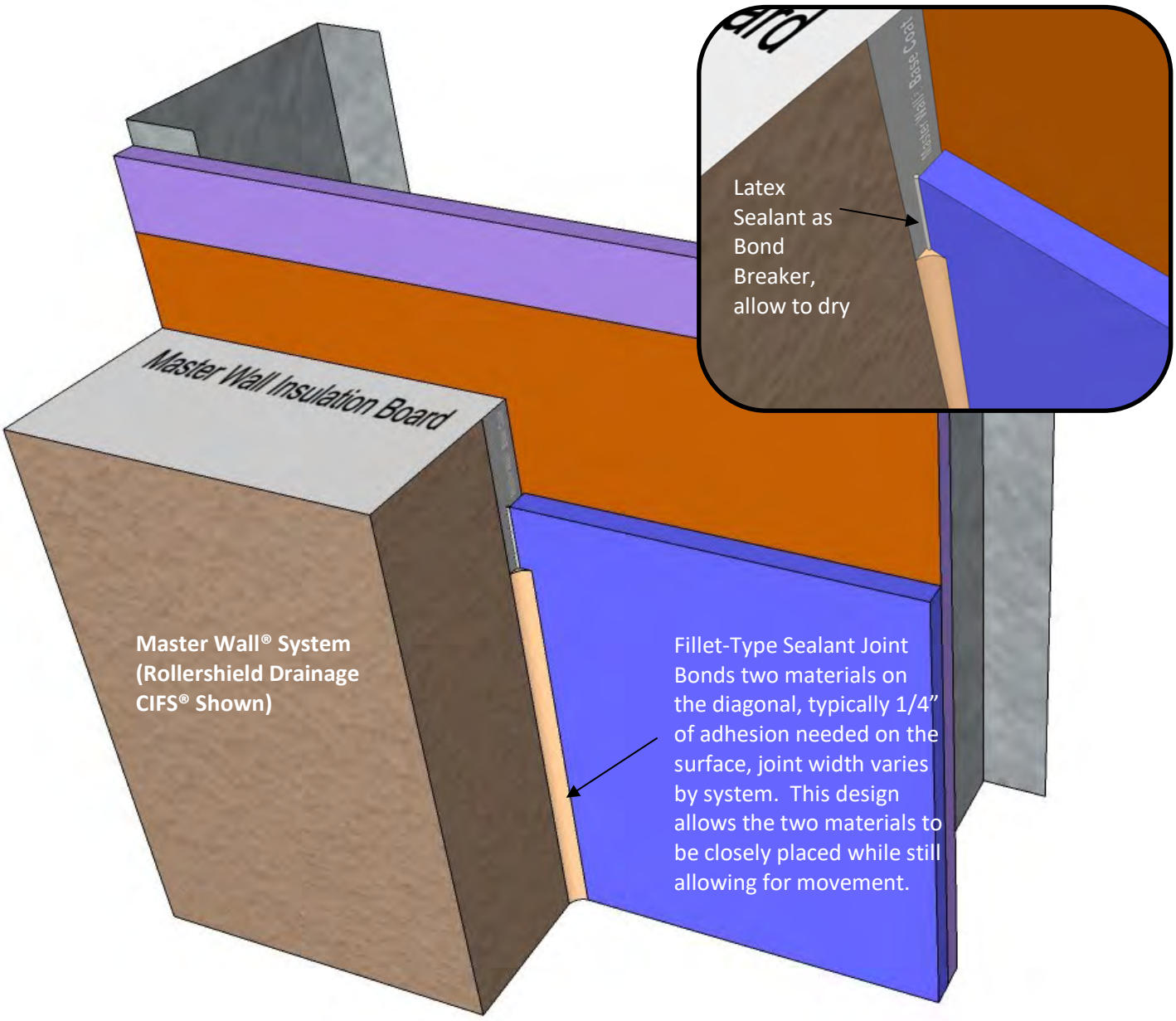
SYSTEM DETAIL



SJ-06 Fillet Type Sealant Joint with Latex Sealant Bond Breaker

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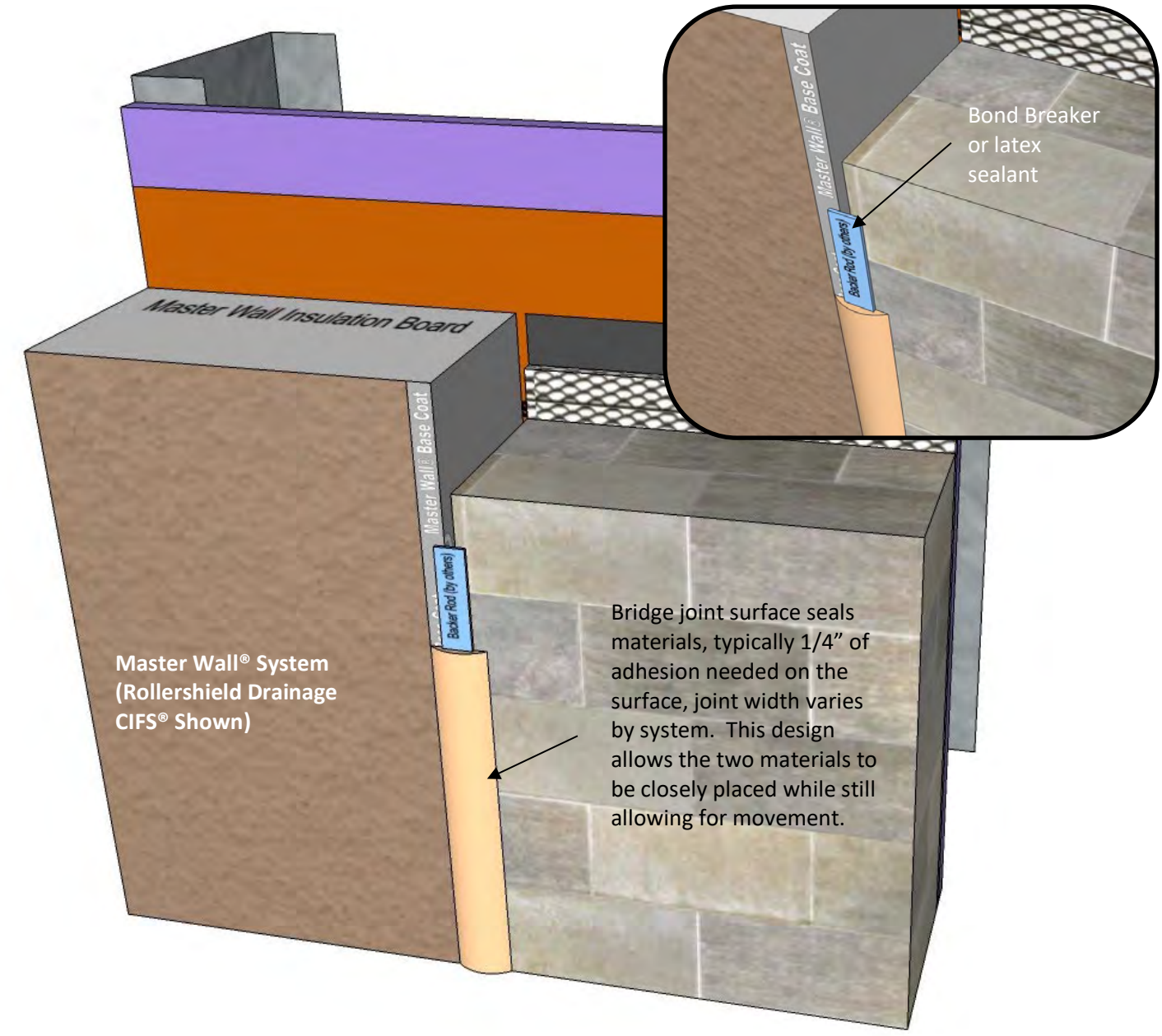
SYSTEM DETAIL



SJ-07 Bridge Type Sealant Joint with Bond Breaker Tape

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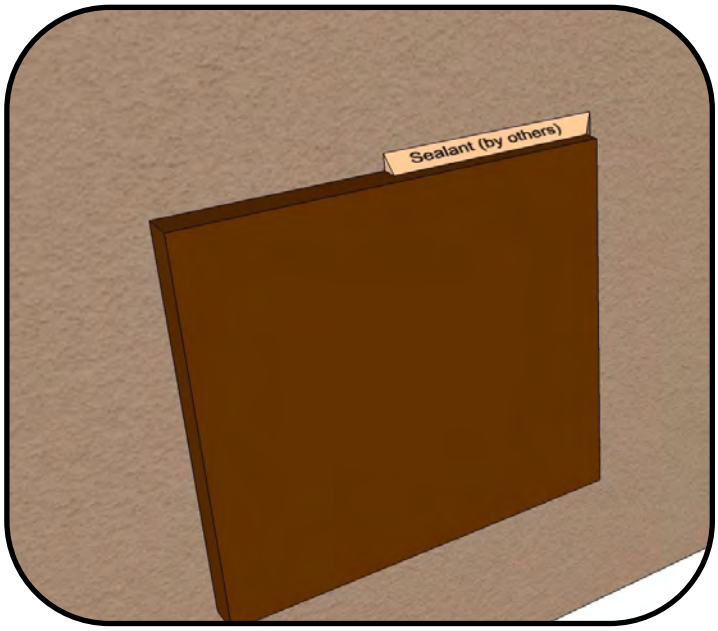
SYSTEM DETAIL



Non-dynamic joints are typically used where movement is not anticipated but an aesthetic or gasketing function is needed.

SJ-08 Non-Dynamic Sealant Joints

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Technical Bulletin

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MW# 150-210201

Topic: Ladder Use

Ladders are a necessary part of building or home maintenance. Careful placement and use are recommended for any siding product including Master Wall® Systems. Nobody wants a home or building unsightly ladder marks.

Recommended Techniques

During application, most contractors use scaffolding, so nothing touches the walls. This is the preferred method, but not very practical in everyday use. Subcontractors and maintenance personnel use ladders to gain access to high portions of the walls. In addition to being careful on ladders, methods need to be incorporated to protect the home or building from damage during repairs or maintenance.

Ladder Mitts

As purchased, most ladders will leave marks on any surface if you are not careful. Using a ladder without protection is not recommended. It can leave marks on some of our systems and permanently dent others.

Ladder mitts are a popular form of ladder protection. In addition, they provide traction between the ladder and the building that helps to prevent side-to-side sliding. These are great for harder surfaces such as brick, stucco and Cemplaster Fiberstucco.

Ladder with Protection Device

Master Wall® Exterior Insulation and Finish Systems (EIFS or CIFS®), and QRW1 EIFS are significantly softer because of the insulation used in the assembly. These systems require even greater protection from ladder damage. The recommended technique is to spread the load across a wide area and use a protective covering to protect the finish from damage. One such device is a piece of scrap 2x4 at least 26” wide with a protective covering of old carpeting.

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Ladder Safety

From OSHA

http://www.osha.gov/

Loads

Self-supporting (foldout) and non-self-supporting (leaning) portable ladders must be able to support at least four times the maximum intended load, except extra-heavy-duty metal or plastic ladders, which must be able to sustain 3.3 times the maximum intended load.

Angle

Non-self-supporting ladders, which must lean against a wall or other support, are to be positioned at such an angle that the horizontal distance from the top support to the foot of the ladder is about 1/4 the working length of the ladder.

Rungs

Ladder rungs, cleats, or steps must be parallel, level, and uniformly spaced when the ladder is in position for use. Rungs must be spaced between 10 and 14 inches apart.

For extension trestle ladders, the spacing must be 8-18 inches for the base, and 6-12 inches on the extension section.

Rungs must be so shaped that an employee's foot cannot slide off and must be skid-resistant.

Slipping

Ladders are to be kept free of oil, grease, wet paint, and other slipping hazards. Wood ladders must not be coated with any opaque covering, except identification or warning labels on one face only of a side rail.

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Other Requirements

Foldout or stepladders must have a metal spreader or locking device to hold the front and back sections in an open position when in use.

When two or more ladders are used to reach a work area, they must be offset with a landing or platform between the ladders.

The area around the top and bottom of ladder must be kept clear.

Ladders must not be tied or fastened together to provide longer sections unless they are specifically designed for such use.

Never use a ladder for any purpose other than the one for which it was designed.

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MW# 151-210201

Topic: Insulation Thickness

Foam plastic insulation boards of several varieties are used as part of the Master Wall Aggre-flex Systems, QRW1 EIFS and sometimes under Portland cement stucco. The insulations are available in several thicknesses; however, building codes may limit how much insulation may be used on a project.

Most codes limit the maximum combustible content of insulation to 6000 Btu per square foot of insulation. As a general rule, this corresponds to the following maximum thickness:

- Aggre-flex Insulation (1.0 pcf): 4" maximum thickness
- QRW1 (Polyisocyanurate) Insulation: 2" maximum thickness
- Extruded Polystyrene Insulation: 2" maximum thickness

Can thicker insulation be used? Designers often incorporate thicker insulation into a building, which may exceed these maximums. During the design process they should consult with the local jurisdictional building authority to determine the local building requirements. Some building officials may choose to average the overall insulation thickness, while others strictly adhere to the code-mandated maximum. Thicker insulation is not a warranty issue, but one of code compliance.

If allowed, thicker insulation boards and decorative foam trim pieces may be heavy. For these thicker pieces, some form of temporary or permanent fastening device is often required while the adhesive cures. Wind-Lock (www.wind-lock.com) has Long-Lock fasteners ranging from 4-1/2" to 14" thick designed specifically for this purpose. Consult with Technical Services for project-specific recommendations.

In summary, Master Wall will warrant projects using thicker insulation, but the designer should seek approval from the local building official.

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Corporate: P.O. Box 397•Fortson•Georgia•31808•800-755-0825•FAX 706-569-6704
Technical: 800-760-2861

MW# 152-090115

Topic: Plastic Components Ultra-Lath Plus® HDPE Lath

With a service history of over 16 years, Plastic components Ultra-Lath® has gained a following in coastal climates and other extreme environments where rusting of the stucco reinforcing is an issue. Available in sheets or rolls, new Ultra-Lath Plus® is now recognized as an alternative to metal reinforcement for stucco under the IBC and IRC.

In addition to rust resistance, Ultra-Lath Plus® offers several application and performance benefits:

- Self-furred 1/4" for positive keying of the stucco
- Fully resistant to the harsh chemicals found in cement-based products
- Unlike fiberglass lath products it doesn't rely on alkali resistant coatings for performance
- Cuts easy for faster installed costs
- Lightweight for easy transport to the jobsite

Ultra-Lath Plus® undergoing NFPA 285 testing

One limitation of plastic lath has been fire resistance. Plastic Components has addressed this with the passing of the NFPA 285 multi-story fire test. With this test the fire resistance is confirmed and the product will no longer be limited to combustible Type V construction as noted in a future code report revision.

Master Wall Inc.® recognizes the use of Ultra-Lath Plus® as an approved alternative for vertical applications of our Cemplaster Fiberstucco System 3/4" and above and will recognize specific alternative installations on a case-by-case basis. This approval is subject to the limitations in Plastic Component's code report, local jurisdictional building authority acceptance and designer/owner acceptance.

Plastic Components products are available at most Master Wall® distributor locations and can be contacted directly at:

Plastic Components, Inc.
9051 NW 97th Terrace
Miami, Florida 33178
800-327-7077/305-885-0561
FAX 305-887-2452
www.plasticomponents.com

PLASTIC COMPONENTS inc.

Ultra-Lath Plus™ Plastic Lath

PRODUCT INFORMATION

NEW MEETS ASTM C1764 C1780

Plastic Components' **Ultra-Lath Plus**™ plastic lath is the labor-saving, non-rusting alternative to metal laths. ***It now MEETS ASTM and comes backed with asphalt-impregnated paper for superior moisture control.***

Safe and easy to use, and unaffected by salt, moisture and chemicals, heavy-duty Ultra-Lath Plus is self-furred for improved keying, and compatible with all cement-based products. The paper-backed option combines paper and lath applications into one process, saving even more time.

Available Sizes

Paper-backed Ultra-Lath Plus:

27" x 96" sheets

Ultra-Lath Plus:

- 27" x 96" sheets
- 27" x 75' rolls

Strip-Lath® strips:

- 96" long x 3", 4", 6" or 8" widths

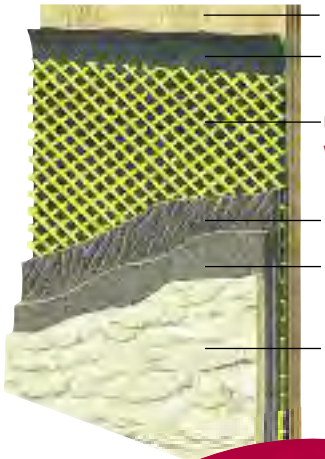
Strip-Lath reinforces stress points at window/door openings, and provides a bridge between dissimilar materials.

Uses

Ultra-Lath Plus meets ASTM. Use for three-coat stucco and stone veneer system applications.

- *NEW* **1/4" self-furred** for improved keying of stucco to substrate
- Lower installed cost
- Light weight
- Cuts with a utility knife
- Easy to handle
- Easy to shape, won't crimp or kink
- Non-dimensional
- Long, outdoor life –unaffected by sand and chemicals in cementitious wall coatings

Note: Not for use on soffits or open framing.



Available in Paper-Backed Sheets!

UER #0284

For best results use Plastic Components' PVC trims with all Ultra-Lath Plus applications. Patent pending

9051 NW 97th Terrace Miami, FL 33178 **800.327.7077 • Fax 305.887.2452 • www.plasticomponents.com**

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MW# 153-210201

Topic: Minor Substrate Changes in Systems

Master Wall® Systems are designed to clad over a variety of substrates. Typically framing with sheathing is common as well as a variety of masonry and concrete surfaces. The application procedures for the individual substrates are well defined, but what happens when the substrate changes? This bulletin will help guide the designer in detailing systems when substrates change.

Basic Technical Requirements

By definition, a change in substrates requires some form of expansion joint in the wall cladding. Why do we need to provide for expansion? Usually, it is because the two substrates can move differently thermally or structurally (or both). Typical suggested detailing:

System	Suggested Minimum	Expansion Provision
Aggre-flex Aggre-flex Drainage QRW1 Drainage Rollershield Drainage CIFS®	¾" (19 mm)	Sealant Joint
Cemplaster Fiberstucco Stucco Cement Board Coatings Uninsulated Finishes Superior Finishes over Stucco	Varies by design, typically ¼" (6 mm) to ¾" (19 mm)	Control Joint Sealant Joint

See our Technical Bulletins MW#131 *Sealant Use* and MW#149 *Sealant Joint Design* for specifying and detailing sealant joints.

Can a designer vary these requirements to suit their particular project? Of course, they can, they are the designer, and the overall project is their responsibility. Below are some examples of when a designer may choose to vary a manufacturers requirement.

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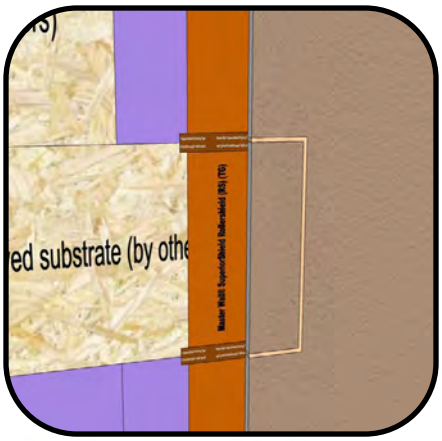
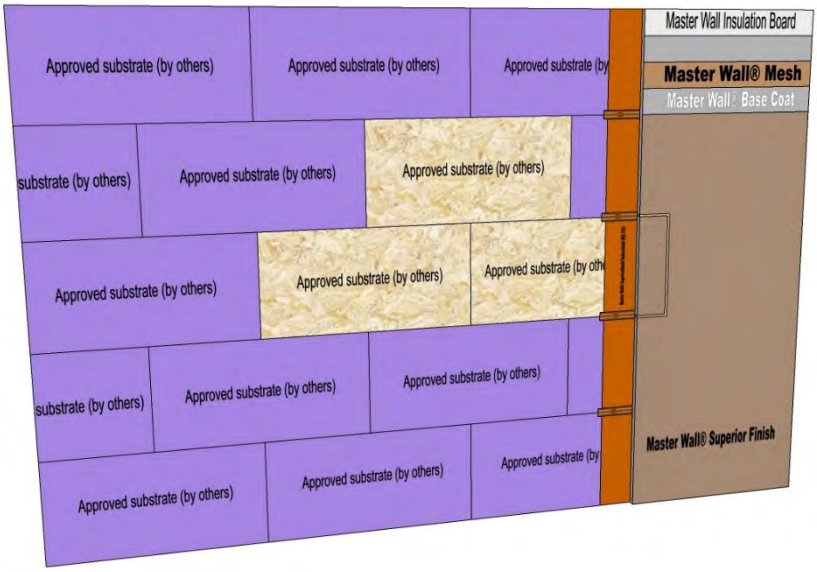
Signage

A common substrate change for designers involves the use of signage. Signage is used on a building requires the structural support of a wood-based panel while the rest of the building uses gypsum sheathing. This substrate change is usually irregular, making a full expansion joint detrimental to the building appearance. The designer needs to consider the following:



- System Type
- Insulation thickness as it relates to substrate expansion
- Methods of attachment
- Any special environmental or structural conditions (racking, wind load, earthquake, etc.)

System requirements may vary with the application. For example, adhered systems may require different attachment methods over different substrates or mechanical attachment. An Aggre-flex Drainage System is mechanically attached over all substrates and a Cemplaster or One Coat Stucco System technically uses metal lath attached to the framing as a substrate.



Plywood to Gypsum Sheathing Transition for signage, following the rules for minor substrate transitions with a sealant joint can result in an odd-looking application

Oftentimes the insulation thickness, attachment methods and environmental conditions allow the designer to proceed with the wall cladding without incident. The designer, not the manufacturer, determines the suitability of these particular installations.

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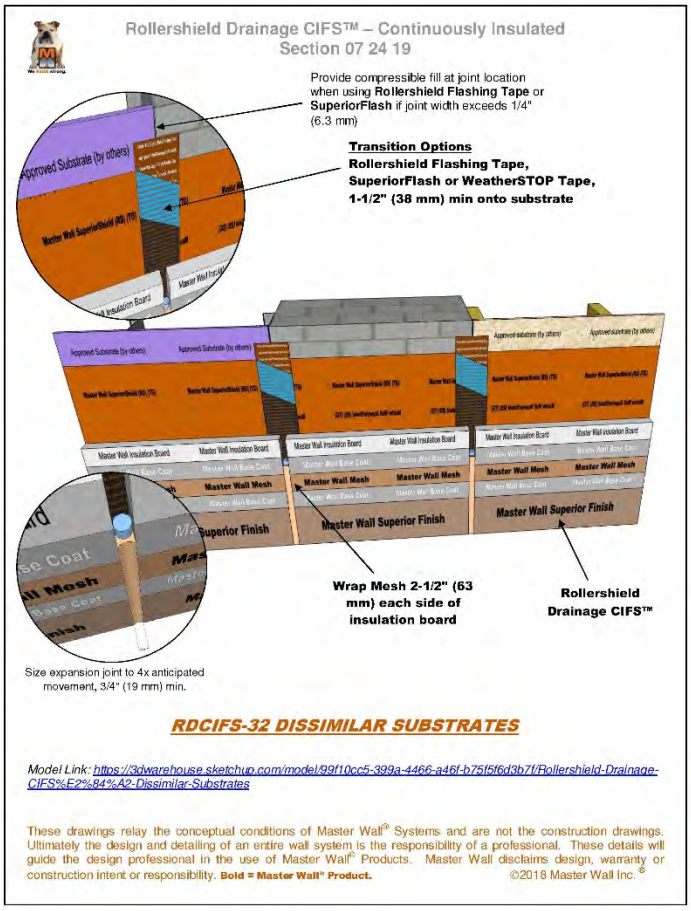
Corner Bracing

Much like signage, it is somewhat common in light commercial construction to use plywood or oriented strand board (OSB) as structural bracing in corners with an approved gypsum panel in the rest of the wall. Using similar methods above, the designer can determine the need for a building expansion joint.

Framing Changes

Changes in structural framing require careful consideration. A change from a framed and sheathed wall to masonry almost always requires some type of expansion provision. These walls usually move differently structurally and thermally. Unless the area is relatively small in size, a designer is encouraged to incorporate an expansion joint in the wall cladding.



Panelized Framing

Sometimes wall cladding is panelized. This can include prefabricated, fully framed wall panels or some of the popular varieties of Structural Insulated Panels (SIPS). Designers need to consider the framing attachment and thermal movement qualities as they relate to wall movement. For example, a prefabricated framed wall joined at the top and bottom plates as well as adjacent panels will typically move as a unit. The same panel without adjacent panel attachment could move independently and may need an expansion provision.

Summary

As with any building project, there are many considerations for the designer. A manufacturer's general requirement may not specifically apply to a particular situation. The designer needs to consider the intent of the design condition and the overall project use before determining the need for an expansion provision when substrates change.

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Technical Bulletin

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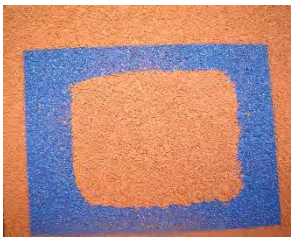
MW# 155-210201

Topic: Graffiti Protection

Perfect Texture (after removal)

To some, graffiti is sometimes considered an art form. Most building owners, however, consider it an unwelcome addition to their building. Since not all artists are Michelangelo, many building maintenance companies are searching for a "magic eraser" to remove any unwanted graphics.



Fine Sand Texture (after removal)

While no graffiti remover can work on everything, one promising product is *2650 EIFS Protective Clear Coat* by ShoreBest Corporation. This clear coating can be applied to our standard Superior Finishes and allow for removal of most graffiti with their *2660 EIFS Graffiti Remover* product. Much like painting, the clear coat should be applied from corner to corner to minimize any sheen difference.

These products are available from:

ShoreBest Corporation
Telephone: 412.471.3330, 800.860.4978
Email: Sales@shorebest.com
www.shorebest.com

Postal Address
2305 Duss Avenue, Suite 3
Ambridge, PA 15003

Physical Address
2305 Duss Avenue Building 4 and 8
Ambridge, PA 15003

Medium Sand Texture (after removal)

ShoreBest also manufacturers EIFS cleaners as well. Enclosed are data sheets for the ShoreBest Products.

SB 2660 EIFS Graffiti Remover

SB 2660 EIFS Graffiti Remover is a specially formulated blend of solvents and surfactants designed to remove graffiti from surfaces previously treated with SB 2650 EIFS Protective Clear Coat. Unlike the petroleum based solvents used in many ordinary paint strippers, SB 2660 uses solvents derived from renewable plant sources. In addition to the environmentally friendly attributes, like biodegradability and renewability, these solvents are also less likely to damage if incidental contact with the EIFS EPS board occurs.

Preparation

Provide protection to all surfaces and materials that might be harmed upon exposure to a solvent cleaner. Test all surfaces prior to general use of the product. Take precautions to protect foliage, avoid spillage into drains or other areas that might create an adverse effect, including exposure to open flames. Testing should include all types of graffiti where more than one type of graffiti is to be removed.

Dilution and Coverage

Dilution: This product is used undiluted -- test application recommended
Coverage: Dependent upon substrate and other conditions

Application

Apply with natural bristle brush, rag or solvent resistant sprayer. Do not alter the product with water or any other solvent prior to application. Allow a 5 to 15 minute dwell time, based upon prior testing, and remove with a clean rag and solvent. A pressure washer may be beneficial for removal from some surfaces. Repeat if necessary.

SB 2660 should be used by professionals only. Do not use SB 2660 on any surface or for any purpose other than those recommended in the data sheet. Dispose of all waste and containers according to local laws and regulations. Incorrect disposal can be a fire hazard. Do not return contaminated product back to original container.

Technical Data

Appearance: Yellow Liquid	pH: 4 to 5 in Concentrate
Biodegradable: Yes	Rinsing: Complete
Flash Point: >114 F	Solubility: 100%
Odor: Mild	Wetting Ability: Excellent

Safety

Causes mild skin irritation. Causes serious eye damage.

DANGER

Refer to product SDS or product label for hazard statements, precautionary statements and safety information

Warranty

Shore Corporation warrants that this product conforms to the chemical composition described in the Product Label. SHORE CORPORATION EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Shore Corporation shall not be responsible for any direct or consequential damages sustained as a result of the use of this product. Further, Shore Corporation shall not be liable for personal injuries, property damage or any other damages as a result of the use of this product, the sole responsibility of Shore Corporation under the within WARRANTY being the replacement of any nonconforming product. Acceptance and use of this product absolves Shore Corporation from any other such liability whatsoever and from whatever source. The within WARRANTY may not be modified or extended by Shore Corporation representatives or distributors, neither of which are empowered to make any product representation inconsistent with the terms hereof.

Contact

Trained representatives are available to assist with project assistance and product recommendations. Call **412/471-3330**.

SB 2650 EIFS Protective Clear Coat

SB 2650 EIFS Protective Clear Coat is designed for application over existing sound EIFS surfaces to provide protection from graffiti, most organic growth and the effects of acid rain deterioration. SB 2650 is a clear water based micro dispersion of an elastomeric silicone resin. SB 2650 is very UV resistant but is transparent to UV rays which allows for an even change in color when only a portion of the structure is treated. This product is designed for use with SB 2660 EIFS Graffiti Remover for the removal of most common types of graffiti. When properly applied, SB 2650 EIFS can greatly extend the service life of an EIFS surface that is in the early stages of breakdown as well as provide for the easy removal of most offensive graffiti. SB2650 might also be considered for treatment of new EIFS surfaces when the construction site is in a known graffiti prone area.

Preparation

Apply SB 2650 to properly cleaned and dry surfaces only. Protect all non EIFS surfaces from dripping or over spray. Provide protection for windows, foliage, adjacent surfaces that are not to receive treatment, vehicle and pedestrian traffic. Take precautions to protect other surfaces from wind drift.

Using the method to be used on the project, apply a test area of 10 square feet to calculate the coverage rate per gallon and to determine if there will be any unacceptable color change.

Dilution and Coverage

Dilution: This product is used undiluted -- test application recommended. This product is a single application only.
Coverage: 150 to 200 square feet per gallon -- dependent upon substrate and other conditions

This product can be diluted with 1 to 2 parts water to 1 part product and used as a masonry water repellent for vertical surfaces.

Application

A flood coat spray application is highly recommended but roller applications can be successful as long as there is a sufficient amount of solids deposited on the surface to meet performance standards. Apply with a coarse low pressure spray creating a saturating 4 to 6 inch run down of the fluid. For some coarse finishes, a spray and back roll with a one half inch nap roller that is saturated with SB 2650 may be the best means of application to avoid streaks. Clean application equipment with soap and water immediately after usage.

All EIFS surfaces must be free of any agent or agents that will prevent adhesion of the coating. Application should not be undertaken when rain is eminent within 12 hours or if there is frost or ice on the surface. The best results are obtained when surface and ambient temperatures are 40 degrees and rising and below 95 degrees. Do not alter the product with any other material. SB 2650 is not acceptable for application over other anti graffiti treatments or non-standard EIFS coatings. If the coating comes in contact with window glass or other non-EIFS surfaces, remove immediately with a water soaked rag or pressure washer. SB 2650 applications may cause a slight color enhancement of some surfaces. Testing is recommended, prior to the start of a project, to determine if there are any appearance changes that are unacceptable. Graffiti removal agents, other than SB 2660 EIFS Graffiti Remover, may cause damage to the SB 2650 treatment and or the underlying EIFS system. Repainting with EIFS paints may not be possible without first removing the SB 2650.

Technical Data

Appearance: Milky Liquid	pH: 7
Odor: Mild	Stability: Good

Safety

There are no GHS ratings that apply to this product at this time.

Refer to product SDS or product label for hazard statements, precautionary statements and safety information

Warranty

Shore Corporation warrants that this product conforms to the chemical composition described in the Product Label. SHORE CORPORATION EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Shore Corporation shall not be responsible for any direct or consequential damages sustained as a result of the use of this product. Further, Shore Corporation shall not be liable for personal injuries, property damage or any other damages as a result of the use of this product, the sole responsibility of Shore Corporation under the within WARRANTY being the replacement of any nonconforming product. Acceptance and use of this product absolves Shore Corporation from any other such liability whatsoever and from whatever source. The within WARRANTY may not be modified or extended by Shore Corporation representatives or distributors, neither of which are empowered to make any product representation inconsistent with the terms hereof.

Contact

Trained representatives are available to assist with project assistance and product recommendations. Call **412/471-3330**.

SB 2600 EIFScrub

SB 2600 EIFScrub is a non acid cleaner for the general maintenance and cleaning of EIFS surfaced buildings and most painted trim such as fascia, soffit, gutters and downspouts. SB 2600 will remove atmospheric soiling, auto and diesel exhaust, some oxidation stains and most organic growth. SB 2600 EIFScrub is also recommended for cleaning of conventional stucco, concrete, painted surfaces, and vinyl and aluminum siding.

Preparation

Provide protection for foliage and pedestrian traffic. Test all surfaces which might be exposed to product for possible adverse reactions. Protect all surfaces and surrounding areas from possible damage which might occur from spillage or spray during usage. Concentrated product may damage aluminum surfaces.

All projects should start with a test application to determine the suitability of the cleaner, acceptable application method and dilution ratio. Test areas of at least 10 square feet are recommended and should involve the most severely contaminated condition. When possible, the test area should be left to dry in order to check for any latent reaction that might require a change in methods or dilutions ratio.

Dilution and Coverage

Dilution: 1 to 4 parts water to 1 part product -- test application recommended
Coverage: Dependent upon substrate and other conditions

Application

Protect and/or wet down foliage and nearby surfaces before application of the SB 2600. If it is a hot, dry day, pre-wet the EIFS surface to cool it down. SB 2600 EIFScrub may be applied by low pressure spray, synthetic fiber brush or roller. Brush agitation may be helpful on some projects or areas with the most buildup of soils. Dwell times may vary from 5 to 20 minutes. Longer times will not damage most surfaces as long as it is kept wet by misting with either more product or water. Do not allow the cleaner to dry on the surface. Removal of the cleaner and contamination can be accomplished with pressure rinsing equipment or a garden hose. Care should be taken in the selection of water pressure and the wand tip angle to avoid damage to the EIFS surface. Most manufacturers recommend 600 psi or less with a tip angle of 45 degrees held about a foot from the surface. If using a hose, mild brush agitation may be required to complete remove the loosened soils. In all cases, a thorough rinsing is required. Cleaning efficiency can be improved by the use of warm, not scalding, water pressure rinsing equipment in some projects. Application of the cleaner requires less time per square area than removal. After the dwell time of a section is reached, it is suggested to use a quick, low pressure rinse to remove any unreacted cleaner before the slower process of removing the loosened soils is started.

SB 2600 is for use by professional contractors only. Projects should not be undertaken when temperatures are below 50 degrees F. Do not allow the cleaner to dry on the surface. Misting of drying cleaner is permissible to avoid possible reapplication. Concentrated cleaner may dull bright aluminum and it should not be used near external surface metalized glass or self cleaning glass.

Before/After Using SB 2600 on EIFS Test Panel for Project

Technical Data

Appearance: Amber Liquid	pH: 14 in Concentrate
Biodegradable: Yes	Rinsing: Complete
Flash Point: None	Solubility: 100%
Foaming: High	Stability: Good
Odor: Citric	Wetting Ability: Excellent

Safety

Causes severe skin burns and eye damage. Causes serious eye damage.

WARNING

Refer to product SDS or product label for hazard statements, precautionary statements and safety information

SB 2600 EIFScrub

SB 2600 EIFScrub is a non acid cleaner for the general maintenance and cleaning of EIFS surfaced buildings and most painted trim such as fascia, soffit, gutters and downspouts. SB 2600 will remove atmospheric soiling, auto and diesel exhaust, some oxidation stains and most organic growth. SB 2600 EIFScrub is also recommended for cleaning of conventional stucco, concrete, painted surfaces, and vinyl and aluminum siding.

Warranty

Shore Corporation warrants that this product conforms to the chemical composition described in the Product Label. SHORE CORPORATION EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Shore Corporation shall not be responsible for any direct or consequential damages sustained as a result of the use of this product. Further, Shore Corporation shall not be liable for personal injuries, property damage or any other damages as a result of the use of this product, the sole responsibility of Shore Corporation under the within WARRANTY being the replacement of any nonconforming product. Acceptance and use of this product absolves Shore Corporation from any other such liability whatsoever and from whatever source. The within WARRANTY may not be modified or extended by Shore Corporation representatives or distributors, neither of which are empowered to make any product representation inconsistent with the terms hereof.

Contact

Trained representatives are available to assist with project assistance and product recommendations. Call **412/471-3330**.

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Technical Bulletin

Corporate: P.O. Box 397 • Fortson • Georgia • 31808 • 800-755-0825 • FAX 706-569-6704

MW# 156-210201

Topic: Pre-Application and Post-Application Checklists

Master Wall® Systems and coatings are part of a building envelope wall system. As with any construction project, there is work going on before the wall system is applied and work continues after the applicator leaves the project.

The attached checklists are designed to help the Builder or General Contractor make sure the building is ready for application to begin. This work is not part of the Master Wall System and is performed by others. Keep in mind there may be system-specific requirements or local code requirements that will also need to be considered.

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Pre-Application Checklist

Project Name: _____ Address: _____	Date: _____ Time: _____ Weather: _____

Substrate & Framing

- ❑ The maximum deflection: L/240 for EIFS, L/360 for Stucco.
- ❑ Acceptable substrates for system type:
  - o Painted brick, unit masonry, concrete
  - o Unpainted brick, unit masonry, concrete
  - o Stucco brown coat
  - o Exterior grade gypsum sheathing
  - o Cement Board: _____
  - o Exterior Wood Sheathing (Plywood/OSB), gapped 1/8” to 1/4"
- ❑ Wall is flat to within 1/4" in 10’-0”
- ❑ Sheathing broken at floor line to allow for cross grain shrinkage (if required)

Flashing and Sheet Metal

- ❑ Roof Step Flashing Installed
- ❑ Roof Kick-Out Flashing Installed
- ❑ Window/Door Head Flashing Installed
- ❑ Continuous metal flashing shall be installed at heads of ganged windows.
- ❑ Sill Pans installed where required
- ❑ Window/Door Spline Flashing Installed
- ❑ Crickets and step flashing properly installed around chimneys.
- ❑ Wooden decks properly flashed.

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Water Barrier (if used)

- Code approved weather resistive barrier (i.e., Southern Building Code; minimum one layer type 15 felt or equivalent) installed over substrate on all exterior walls.
- Weather resistive barrier installed horizontally with upper layers overlapping lower layers a minimum of 2". Vertical joints shall overlap a minimum of 6".
- Wrapped into rough openings at windows, doors, mechanical equipment, and any other openings through the system. Overlap sill flashing tape at jambs at least 2".
- Lap weather resistive barrier over attachment flange of drainage track a minimum of 2".
- All penetrations such as hose bibs, dryer vents, lighting fixtures, air-conditioning hoses, etc. properly sealed.

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Post Application Checklist

Project Name: _____ Address: _____	Date: _____ Time: _____ Weather: _____

Post Application

- ❑ Provide protection from rain and temperatures below 40°F (4°C) for a minimum of 24 hours after application. Longer protection may be necessary during lower temperatures and/or higher humidity conditions.

Job Site Clean Up

- ❑ Clean work area in accordance with contract documents removing all excess materials, droppings, and debris. Clean adjacent surfaces.

Sealants

- ❑ Sealants and backer rod installed in system
  - o Expansion Joints
  - o Dissimilar Substrates
  - o Floor Lines
  - o Other Areas noted on the architectural drawings
- ❑ All penetrations through the system:
  - o Hose Bibs
  - o Dryer Vents
  - o Lighting fixtures
  - o Air Conditioning Hoses
  - o Other: _____
- ❑ Sealants applied under coping cap flange termination to wall cladding.

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Flashing and Sheet Metal

- Metal Cap and Secondary Water Barrier installed at parapet
- Roof Kick-Out Flashing sealed
- Wooden decks properly flashed.

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MW# 157-210201

Topic: Stucco Crack Reduction

Stucco is a field mixed and applied product. Sourcing can vary from a ***Master Wall® Cemplaster Fiberstucco*** in concentrate or ready form or traditional stucco, which is a mixture of cement, sand and lime and a ***Master Wall® Superior Finish***. While all stuccos are manufactured with quality materials, even the best mixed and applied stucco can crack from time to time. This bulletin explores some of the various causes and strategies for minimizing cracking in stucco.

Like any construction project, there are several factors involved including the owner's expectations, basic stucco design, project scheduling & construction, shrinkage cracks and structural cracking. All have a bearing on the quality of the finished project.

Owner's Expectations

Some owner's expect the best. In stucco that would mean a very smooth looking project with very minimal cracking, if any. Specifiers and applicators can be prepared to deliver with an improved stucco , which would include ***Stucco Ad-Liquid***, a second reinforced base coat using ***F&M***, ***MBB*** or ***F&M Plus*** and ***Standard Mesh***, ***Primecoat***, and a ***Superior Elastomeric Finish***.

Lesser stucco systems can still perform extremely well, but the owner or architect needs to fully describe the expectations and the degree of quality required.

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Basic Stucco Design

There are two basic standards for stucco, ASTM C926, *Standard Specification for Application of Portland Cement-Based Plaster* and ASTM C1063, *Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster*. These publications are available from the American Society for Testing and Materials (www.astm.org). Parge coats may be applied directly to clean, unpainted concrete and masonry according to this standard. More commonly, stucco is applied over a sheathing, which requires the use of control joints These joints help to control the cracking in stucco. In general, the following guidelines apply for stucco over sheathing:

A. Structural
   1. Design for maximum allowable system deflection, normal to the plane of the wall, of L/360.
   2. Design wall assembly for wind load in conformance with code requirements.

B. Moisture Control

Prevent the accumulation of water into or behind the Portland cement-based plaster (stucco), either by condensation or leakage into the wall construction, in the design and detailing of the wall assembly.

   a. Provide corrosion resistant flashing to direct water to the exterior where it is likely to penetrate components in the wall assembly, including, above window and door heads, beneath window and door sills, at roof/wall intersections, decks, abutments of lower walls with higher walls, above projecting features, and at the base of the wall.
   b. Wall System Design – design wall to eliminate vapor condensation within the wall assembly.

c. Weather Resistant Barrier – Provide a barrier over framed construction consisting of a minimum of one (*International Residential Code*) to two-layers (*International Building Code*) asphalt felt meeting ASTM D-226, Type 1, Grade D or building code-approved alternate. Verify requirements with local building code authority.
    1. Protect sills of rough openings with water resistant barrier or "peel and stick" type membranes recognized by local codes. Where casing bead is used back-to-back at expansion joints back joints with barrier membrane. Refer to Master Wall details.
    2. Slope sills and other areas a minimum of 1:2 to shed water.

C. Grade Condition
    1. Keep stucco a minimum of 6" to 8" above grade in framed construction (varies by Code).

D. Aesthetic Projections
    1. Aesthetic projections may be formed out of stucco or EPS Foam. Slope all projections a minimum of 1:2 to shed water. Follow local code guidelines for the installation of foam plastic insulation (maximum 4" thick).

E. Expansion Joints
    1. Provide expansion joints where directed by the design professional. Common locations include the following:
        A. Where building movement is anticipated.
        B. At dissimilar substrates.
        C. At floor lines in certain wood framed constructions.
        D. Where the stucco meets dissimilar materials.
    2. Expansion joint design depends upon the anticipated movement. Master Wall suggests the following minimum sizes, subject to design acceptance and detailing: Windows/Doors – 3/8", Building Expansion/Dissimilar Substrates & Materials – ½", Floor Line (shrinkage) – ¾".

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F. Control Joints
   1. Provide control joints where directed by the design professional. Common locations include the following:
      A. To limit cracking in the system at a maximum area of 144 ft^2 (13.4 m^2).
      B. Length to width ratio should not be more than 2.5:1.
      C. At dissimilar substrates.
   2. Increase joint requirements where thicker stucco or special structural conditions exist.
   3. Typically control joints are tied to the metal lath, which is cut to make two discontinuous slabs.
   4. When stucco is bonded to a solid substrate such as concrete or masonry the control joint requirements may be revised. Control joints may be aligned with any control joints in the plaster base.

G. Sealing or caulking of V-grooves, exposed ends, and edges of plaster panels exterior work to prevent entry of water shall be provided by sealant trades (07920).

H. The designer shall indicate location of joints, accessories, and accessory type on architectural drawings.

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Project Scheduling & Construction

Scheduling and construction has a bearing on the amount of stucco cracking. Preferably, the stucco should be installed near the end of the project for best results. Builders should look to correct the following conditions prior to the application of stucco:

- Build on a solid foundation and verify that site has proper compaction prior to stucco application.
- Make sure carpenters install outside framing members crown out for a consistent, even wall.
- Make sure the straightest framing members are used where cabinets are placed
- Verify that wood panels are properly spaced to allow for structural, thermal or seasonal movement (generally 1/8" to 1/4" gap). Refer to the APA publication, *Installation of Stucco Exterior Finish Over Structural Wood Panel Wall Sheathing* at www.apawood.org.
- Make sure a proper gap in the sheathing is provided at the floor lines for cross-grain shrinkage, if required. Please reference Technical Bulletin MW#140-020102 for additional considerations.
- At the very least, load the home or building with drywall prior to stucco application. Preferably have the drywall installed as nailing or screwing can affect the stucco.
- Load home or building with roofing materials prior to lath application.
- Have cabinets on outside walls installed prior to stucco application.

Shrinkage Cracking

Shrinkage cracks, commonly called hairline, eggshell or check cracks are usually caused when the stucco cures or dries quickly. Rapid drying under hot or windy days also contributes to the problem.

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These small cracks are generally less than 1/16" wide and can be somewhat normal for stucco. The small cracks are usually covered with a ***Master Wall Superior Finish*** or ***Superior Elastomeric Finish***, which is designed specifically for stucco hairline cracks. Obviously, hairline cracks that occur after the finish is applied will show up in the finish.

Hairline cracks are rarely a major source of water entry for properly designed stucco walls.

Beyond the design basics, there are several strategies to reduce the amount of hairline cracks in a wall. They can include the following:

- Fog the wall during hot or windy conditions. See Technical Bulletin MW#146 for specific recommendations.
- Let the stucco cure a minimum of seven days or until the stucco is clean, dry and hard.
- Add Master Wall ***Stucco Ad-Liquid*** to the stucco mix. This acrylic modifier forms a film that helps reduce cracking and strengthens the stucco mix. It also eliminates the need to fog the wall if the levels are high enough.
- Add fibers to the traditional stucco. ***Cemplaster*** and ***Master Wall One Coat Stucco*** both have fibers for better crack resistance.
- Add a leveling base coat and mesh to the stucco. Using either ***F&M***, ***MBB*** or ***F&M Plus*** and ***Standard Mesh*** will not only help level the surface, but it will cover and reinforce any hairline cracks.
- Use ***Superior Elastomeric Finish*** over the hairline cracks. This product is designed to bridge minor hairline cracks in the stucco.

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Structural Cracking

Stress transferrred to the stucco often results in structural cracking. These cracks are a direct result of some external force placed on the stucco. Determining the exact cause of the cracking may require the involvement of a stucco expert or engineer and may include the following conditions:

- Ground or foundation movement
- Earthquakes
- Structural or frame movement
- Point Loads
- Green Lumber
- Wood panel expansion due to improper gapping
- Structural, mechanical or other movement
- Wind loads that exceed design
- Excessive deflection

In summary, even the best applied stucco can crack. A thorough review of the owner's expectations tempered with good design, application and construction will minimize cracking issues. For any specific concerns please contact Master Wall Technical Services at 800-760-2861.

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MW# 158-210201

Topic: Drainage Options

There are several options available to the designer for applying Exterior Insulation and Finish Systems (EIFS) over a water barrier. Some manufacturers give these options special names or terms that can be confusing to all but the most seasoned professional. This bulletin explains in generic terms the benefits and considerations when installing EIFS under a variety of conditions.

EIFS with Flat Insulation Board over a Water Barrier

Technically, applying Aggre-flex EIFS or QRW1 Drainage directly over a standard water barrier such as ASTM D-226 asphalt felt is not considered a drainage system by most building code authorities. However, this basic system does drain water with 97.8% drainage efficiency which exceeds the test minimum of 90%. The concern of the building authorities is that a specific drainage plane isn't provided for. This application may be a good choice where extra protection is desired but not mandated by building codes.

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EIFS with Flat Insulation Board over a Wrinkled Water Barrier

Some manufacturers have introduced specialty water barriers with wrinkles or spacers that provide a drainage plane behind the EIFS. Products such as Tyvek® StuccoWrap® (www.construction.tyvek.com) or Ludlow WeatherTrek® (www.ludlowcp.com) were intoduced to fill this need. Building codes recognize the use of these in Master Wall's code report ESR-1181. This is likely the most economical drainage system option.

Courtesy DuPont®
Tyvek®

EIFS with Flat Insulation Board over a Spacer & Water Barrier

Using a spacer behind sidings is nothing new. In fact, it's recommended under wood sidings to prevent paint peeling. From an EIFS standpoint, spacers such as Keene® have been used for years (http://www.keenebuilding.com). Some manufacturers offer this under their own trade name. The spacers do provide a small space, but caution should be used under thin insulation boards as they have a tendency to pucker when fastened. Insulation thicker than 1-1/2" should be considered for these applications.

Drainage Mats such as Keene® are a good choice for EIFS, Stucco and Stone applications

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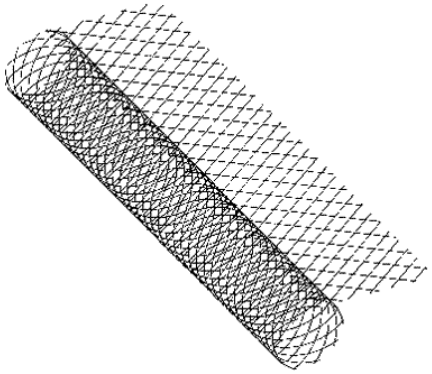
Courtesy Benjamin Obdyke

Other lower cost and more widely available options include plastic lath such as Ultra-Lath®, available in sheet form or rolls from Plastic Components (www.plasticomponents.com) or Benjamin Obdykes Home Slicker® (www.benjaminobdyke.com). Keep with insulation board 1-1/2" or greater to avoid excessive waves in the insulation board.



Courtesy Plastic Components

QRW1 Drainage may also used foam sill sealer such as Dow Styrofoam Sill Sealer (www.dow.com) at the framing lines as a spacer. The insulation board used with the QRW1 System is higher density and spans the spacers. As above, thicker insulation boards are suggested, 1" or greater in thickness.

Courtesy Dow®

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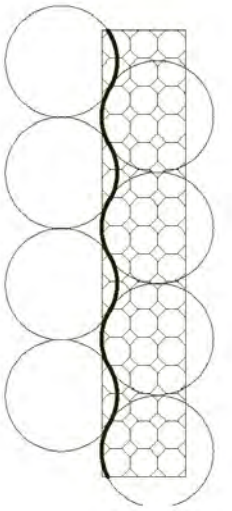
EIFS with Wavy Insulation Board over a Water Barrier



Master Wall's wavy insulation board has been used for years as part of the Aggre-flex Drainge System. The insulation board has a gentle wave to the underside that provides a drainage plane under the system. In addition, the wave pattern, compared to square-cut patterns of other manufacturers, provides for easier attachment to varied substrates and minimizes stress on the insulation board.

Wavy insulation board is typically special ordered and may be subject to availability. Wall systems must be designed to accommodate at least 1-1/2" insulation thickness.

Seaside home with leaky windows used two water barriers, fiberglass flashing, metal lath and the Aggre-flex System over metal lath for a long-lasting durable repair.

EIFS adhered to Metal Lath over a Water Barrier

This is a high-end option usually considered for extreme climates such as coastal areas and for clients where cost is not a primary consideration. Adherering Aggre-flex EIFS to a 2.5 or 3.4 lb/sy metal lath is a common application over painted surfaces. This same application technique is expanded by applying that system over one or two water barriers.

This application offers very good drainage performance as well as high wind-load resistance for Master Wall® Systems.

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MW# 159-210201

Topic: Textured Finish Considerations

In a previous Technical Bulletin, MW#145, we discussed how color could change somewhat depending upon how it dries. Another variable is how we view color due to texture differences. Arguably, texture can change the appearance of color more than any other factor in the application process.

Differences in color and texture. For the project above, consistency was required. The project below used texture variations and Vintique as an accent.

Texture differences are a normal, natural phenomenon within any texture selection. Master Wall varies the textures in our Superior Finishes with finely graded aggregate of similar, or different sizes. All textures are hand-made and subject to the limitations of surface absorption & condition, temperature, humidity, and technique.

Texture changes color by increasing or decreasing the surface roughness or variation. Bolder aggregates tend to change the color appearance somewhat and finer aggregates lessen this effect. The type of plastic float used will also affect the appearance and color of the finish. Some provide a firm grip while others simply skim over the top of the aggregate.

As color and texture are highly dependent upon the technique, Master Wall® suggests that the approved sample be made using the same techniques planned for the field. This way, everything can be verified to the approved sample.

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Suggested Tips & Techniques

These are some tips in techniques for making the most of your walls:

Samples

Some projects require samples of the colors and textures. You may supply some standard samples, but for very critical applications, field application using the same tools and techniques may be the best representation of what to expect in the final texture.

Same color, different looks. The sample on the upper right was worked harder leaving a grainier appearance and a darker looking color. The sample on the lower right was under-worked leaving a smoother, lighter looking color.

Color/Texture Matching

Master Wall's tinting process is simplified to allow tinting of all our tint bases with the same color formula. While providing good color matching, it may not match exactly when different textures are used of the same color. Please contact Master Wall for exact formulas if attempting to match both color and different textures on a wall and we can provide a starter formula.

Application

Master Wall Superior Finishes are formulated for professional production application. This means they apply quickly and easily and are typically applied and textured in a quick operation. Less open time typically translates to fewer wash-offs in the field compared to slower setting products.

The same tools and application technique gives consistent finish results. If more than one individual is floating the wall, make sure they are using the exact same float and using the same floating technique. Take care at scaffold transitions so not to overwork or underwork the finish.

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Where bolder texture definition is desirable, the finish can be slightly over-worked to increase the grain. This gives a deeper recess and more color variation. Take care not to overwork to the point where the aggregate is falling off the wall leaving the color behind. A more aggressive neoprene float will grip the aggregate better giving a bolder texture.

Under working can sometimes be accomplished by floating with a harder/unseasoned plastic float. This limits aggregate movement resulting in a smoother overall texture.

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Technical: 800-760-2861

MW# 160-030118

Topic: Light Reflectance and EIFS

Dark colors absorb more of the sun's energy than lighter colors. This isn't surprising as we've all experienced this in one way or another, but how does this apply to EIFS? Color choice can spell the difference between a successful project and failure.

Why is this Important?

The EIFS lamina is directly bonded to the insulation board. The lamina is thin and will, more or less, transfer 100% of the solar energy directly to the insulation board, which has a service temperature up to 160F (C) and can begin melting at 180F (C).

On a sunny day a white surface can rise to about 115F (C), but a black surface can rise to 195F (C). See a problem? While colors are rarely absolutely white or black, keeping the insulation board at or below its service temperature becomes very important if the building is to perform as intended.

This black building melted the insulation board shortly after installation. White and gray panels on either side were fine. Avoid large, dark surfaces with EIFS.

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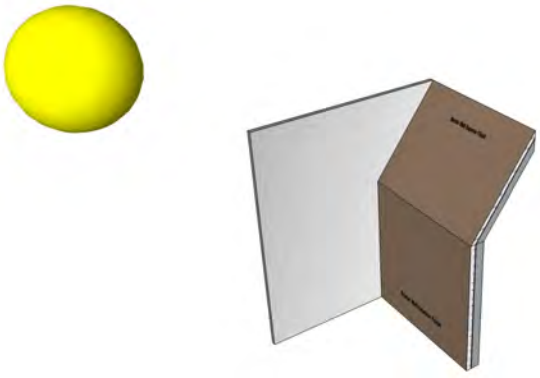
Light Reflectance Value

The reflectance value of an individual color indicates the amount of light that individual color will reflect. Black has a reflectance value of zero and absorbs all light. Surfaces low in reflectance value are generally very dark and can get very hot (such as the black seats in a car). On the other hand, white has a reflectance value of nearly 100 and keeps buildings light and cool. All colors fit between these two extremes. A color with a reflectance value of 60 (which means it reflects 60% of the light that falls on it) will reflect more light than a color with a reflectance value of 30 (which means it reflects 30% of the light that falls on it).



Consider the angle of the wall as it absorbs more sunlight. Reflective adjacent surfaces can reflect intense light onto the system.

Understanding Light Reflectance in Design

When designing buildings, design professionals need to consider not only the overall color scheme for the building, but the effect that a color choice will have on the building. Aside from basic pigment tints, the reflective properties of a finish will also affect its performance. Lighter, brighter colors reflect the sunlight and typically use less pigments. Darker colors can accelerate the breakdown of organic pigments and increase solar absorption. Highly reflective glass either on the building or elsewhere can concentrate light and increase the intensity.

The “angle of incidence” with the sun will also affect the reflectivity of a surface. The closer a shape is to perpendicular to the sun the more sunlight it will absorb. Designers should consider limiting the use of great expanses of angled walls to limit solar heat gain and maximize reflectivity.

Small areas of dark color will absorb less sunlight than larger ones. Plan for this in the design.

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Master Wall® recommends that colors with a light reflectance value (LRV) of 30% or greater in EIFS applications. If darker colors are used they should be limited to very small areas as large surfaces will absorb more solar radiation.

Can the designer still be creative within these limitations? Historically the answer has been yes. Most “Manufacturer’s Standard” colors are designed around a softer palette of colors that compliment the occasional bold feature. Attached are our LRV's for the standard colors. If considering custom colors please reach out to us and we can help.

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Light Reflectance Values for Standard Colors

COLOR	LRV%
#840 White	91.10
#420 White	91.06
#609 Linen	90.25
#461 Pampas White	90.13
#108 Burns White	89.59
#301 China White	89.36
#143 White Waters	88.52
#341 Silky White	88.05
#22 Kool	87.17
#933 Stow	85.08
#406 Silver Fox	84.27
#410 Beech	84.26
#610 Dutch Cream	83.54
#106 Sky	83.42
#611 Flax	83.12
#559 Mellow	82.64
#101 Polar White	82.43
#400 Crème	82.19
#482 Magnolia White	81.65
#102 Seamist	81.29
#505 Pearl Gray	80.47
#606 Fuzzy Peach	80.28
#413 Amarillo White	80.25
#208 Sandle Beige	80.09
#460 Amarillo	79.55
#402 Par	79.54
#463 Calvary	79.49
#522 Antique Ivory	79.27
#473 Truffle	78.78
#500 Egg	78.29
#107 Beach Sand	78.09
#206 Natural White	77.63
#340 Mockingbird	76.17
#475 Chalk	75.41
#380 Mountain Haze	74.90
#504 Oyster Gray	74.78
#155 Tripoli Tan	74.24

COLOR	LRV%
#105 Gillam	73.54
#660 Taupe	73.14
#368 Driftwood	72.05
#120 Salmon	72.01
#408 Sandlewood	71.93
#360 English Fog	71.58
#104 Clay	70.85
#934 Pebble Sand	70.83
#613 Boca Raton	70.45
#210 London White	70.38
#909 Victorian	70.22
#180 Beige	69.34
#618 Light Beige	69.32
#372 Soft Plum	68.76
#464 Lunar	68.75
#310 Ash	67.16
#150 Iris	66.27
#330 Dove Gray	65.98
#900 Adobe	65.37
#403 Weathered	63.61
#616 Tan	62.82
#646 Sage	57.97
#930 Pink Champagne	57.72
#517 Wooden Oar	56.38
#227 Brown	55.88
#920 Pine Cone	46.07
#927 Scarlet Red	45.41

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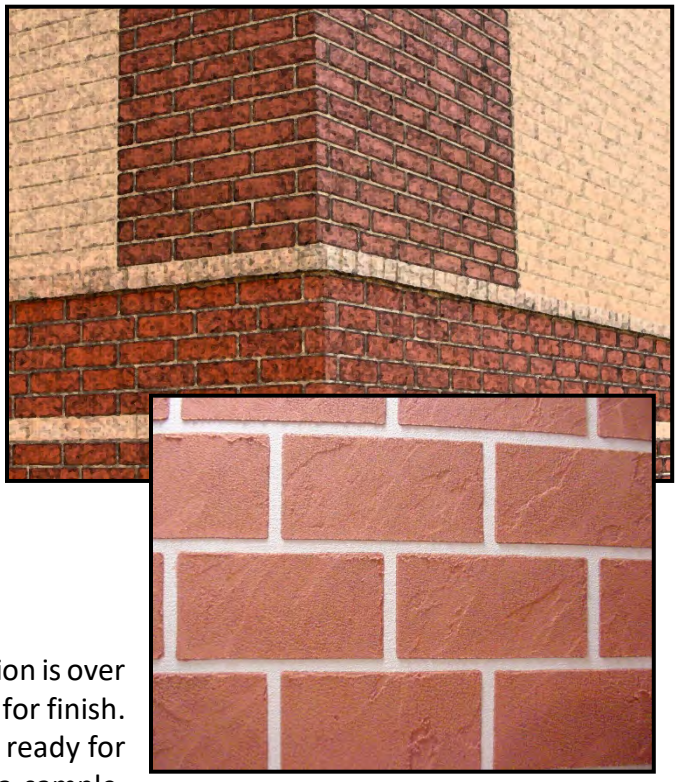
MW# 161-210201

Topic: Brick Stencil Technique



Brick or stencil patterns are becoming a popular method of finishing off EIFS or stucco projects. They can offer an effective representation of brick or stone without the weight or difficulty of installation. Of course, much is dependent upon the skill and creativity of the applicator.

The Steps

The steps involved are relatively simple. If the installation is over EIFS, the wall must be meshed and base coated, ready for finish. Stuccos and One Coat Stuccos must be cured, dry and ready for a finish coat. This bulletin will show the making of a sample, along with tips for wall applications and includes the following steps:

- Base Color Application
- Stencil Application
- Finish Color Application
- Texturing
- Accenting

Creating these looks is more art than science. You may find the need to vary the techniques to suit your particular project.

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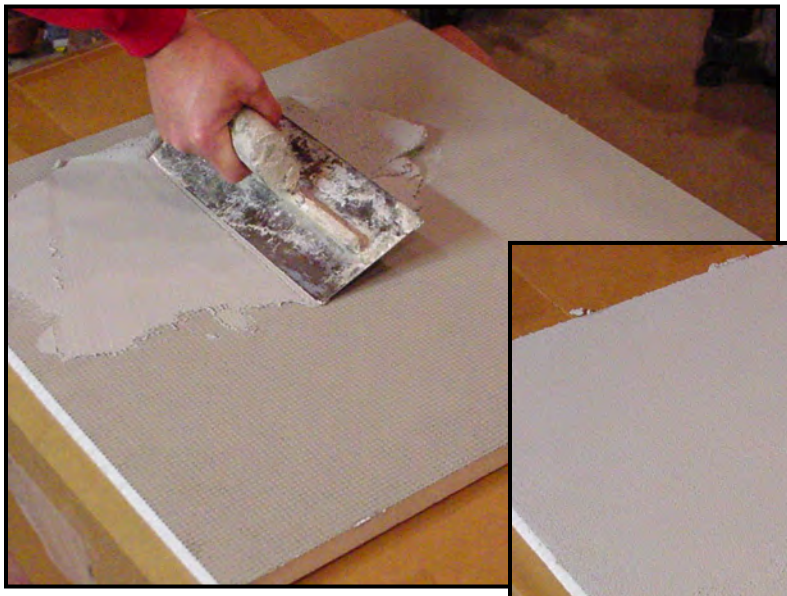
Base Color Application

For stenciling, work your way from the base color outward. In this case, Master Wall® Superior Finish in Versatex 0.5 texture was selected in color #360 English Fog to represent a gray mortar color. Colors can be varied depending upon your particular design.

The Versatex 0.5 is applied using a stainless-steel trowel and smoothed out for an even appearance. This is allowed to dry following Master Wall's recommendations.



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Stencil Application

Stencils from Artcrete may be ordered with an adhesive that allows it to be adhered directly to the wall as part of a peel and stick process. Their adhesive is formulated for compatibility with acrylic finishes. Stencil patterns are included at the end of this Technical Bulletin.

For wall areas, strike a level line for stencil alignment. Unroll the stencil to a manageable length and apply to the wall, adhering it with your trowel as you go. Make sure there is firm bond to the base color application to prevent the finish color from bleeding in.

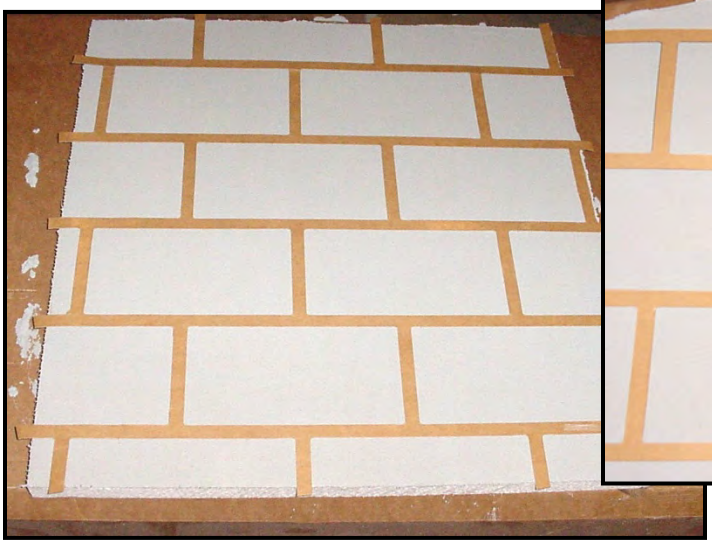
Stencil Sourcing

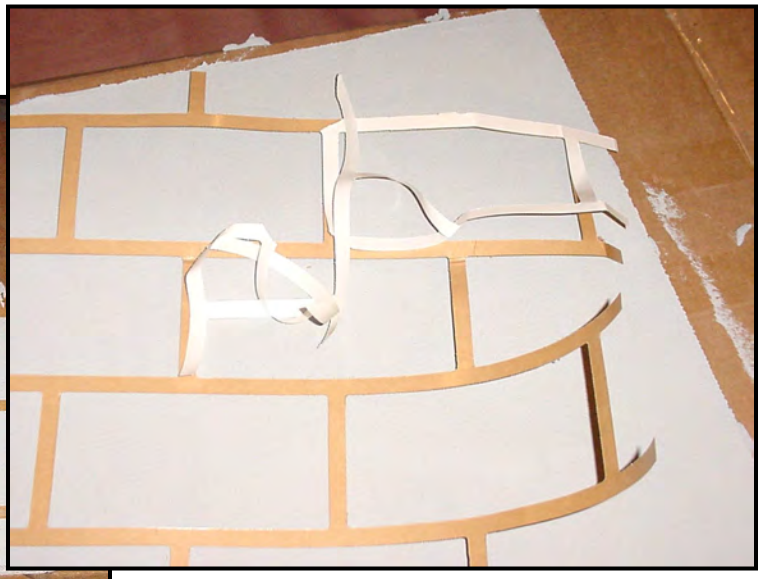
Artcrete Stenciled Concrete

Steve Peters, Regional Sales
888-328-9321
speters@artcrete.com

Corporate Office
5812 Highway 494
Natchitoches, LA 71457
318-379-2000
FAX 318-379-1000

www.artcrete.com





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Finish Color Application

Master Wall Superior Finish, Versatex 0.5 texture in #927 Scarlet Red was selected to represent a typical red face brick. The Versatex 0.5 texture is applied over the stencil pattern and drawn smooth and tight to the stencil.

Another option would be the use of Perfect 1.5, drawn in a “travertine” (vertical) float. This would create a kind of wire cut brick look.

Texturing

Once the finish color has set up firmly enough to accept another layer of finish, a second layer or texture layer can be added. This can be as random or varied as you would like. The key is to make the “bricks” look varied.

In the sample, Versatex 0.5 was randomly spattered on the surface, and then drawn down with a stainless-steel trowel. Variations could include different colors or veining with Versatex 0.5 to create a different look or replicate stone.

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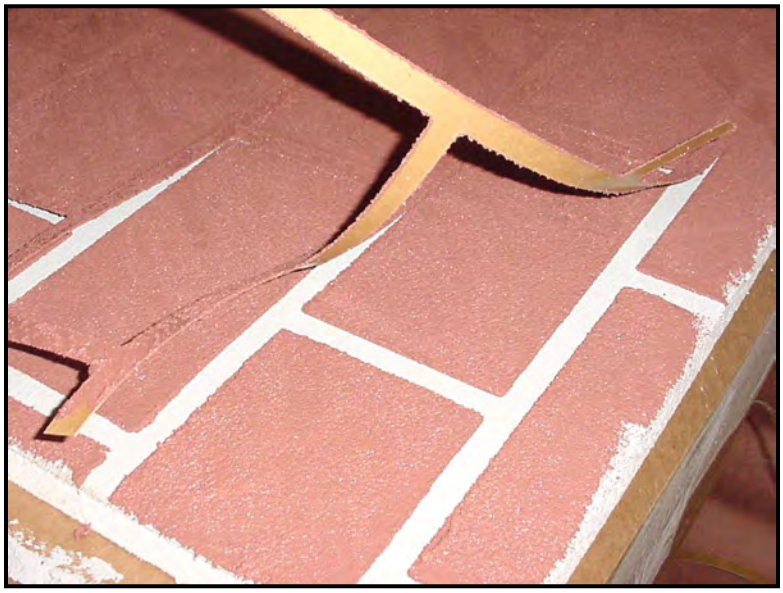
Carefully remove the stencil and let the finish dry according to Master Wall recommendations.



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Accent

The illusion of random brick can be achieved by accenting individual bricks. In this case, black Vintique was used to create a slight "reclaimed brick" look with a sponge. The techniques varied and included the following:

- Full sponge of an individual brick
- Wipe sponge over the high points of the brick
- Partial coloring of a brick
- Partial sponge wipe of a brick.

Vary the techniques to meet the particular look you want to achieve.

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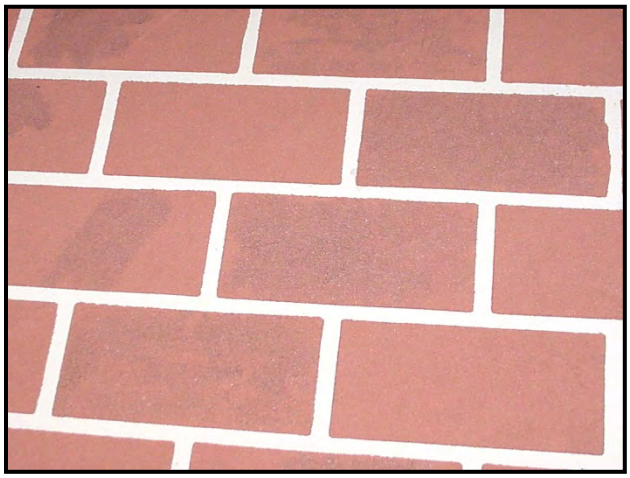
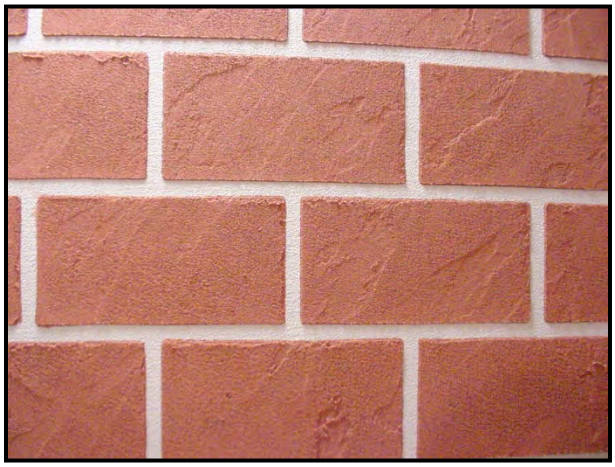
Final Thoughts

Creating an effective illusion of brick or stone is a very creative process. Applicators will need to adapt these methods to best suit their needs and the expectations of the customer. Successful applicators will discover a niche market with little to no competition.





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MW# 162-210201

Topic: Fade Resistance of Finishes

One of the most exciting aspects of Master Wall Superior Finishes is the availability of colors. We offer a color chart with 64 options. On top of that we will match most anything from paint manufacturers to your personal favorite color.

All Master Wall colors are fade resistant. However, given the right conditions, any color can fade. The color choice, solar intensity and localized environment need to be considered for any color choice. Lighter colors generally have better color retention than dark colors.

The real cause of fading is a breakdown of organic pigments. All Master Wall Superior Finishes use high quality pigments encapsulated in Master Wall's 100% acrylic polymer binder. The high acrylic polymer levels in Master Wall Superior Finishes help keep them brighter and fresher than competitive products. However, some of the pigments used in our finishes such as red, yellow, blue, and green can break down over time given the right conditions. This is more pronounced when designers select especially intense colors such as bright reds, intense yellows, deep blues, and dark greens using high levels of organic pigments. These organic pigments tend to fade quicker than non-organic pigments. Organic pigments are used exclusively in our industry and this condition is common to all manufacturers.

Muted colors tend to fade less than bright, graphic ones.

Designers looking to add strong colors to their projects should consider limiting the number of intense colors to specific areas. This way they could be easily recoated. Painting with a compatible 100% acrylic paint is recommended as part of a maintenance program with intense colors.

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MW# 163-210201

Topic: Vintique Techniques

Vintique is Master Wall®'s antiquing accent for interior and exterior walls. It is a semi-transparent acrylic liquid that comes in brown, black or white as standard colors with custom colors available. Being an artistic product, it is dependent upon a skilled applicator familiar with decorative techniques to achieve the desired results. This bulletin is a guide for some of the more basic techniques, and hopefully a foundation at developing your own style.

Basic Materials

Vintiquing can be as simple or as complex as needed. Basic application materials should include the following:

- Vintique, tinted to desired color.
- Application pan to hold Vintique.
- Hard sponge for softening areas or removing any drips or runs.
- Brush for blending, where needed.
- Tape, plastic, or protection shield to protect other areas not to receive the Vintique.

Preparation

Prior to beginning the Vintique application the wall system should be complete with a Master Wall Superior Finish applied and clean/dry and ready for application. While any of our finish textures can be used, Fine Sand 1.0 or a textured Versatex 0.5 textures are most common. Versatex 0.5 can be textured in a variety of ways from knockdown to Spanish.

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Sponge or Rag Application

The most basic application technique is a sponge/rag overlay. Using a natural sponge or a clean, undyed rag simply dip it into a pan filled with Vintique and dab onto the finished wall surface. Feather out any drips or runs if you want using either the rag, sponge or blending brush.

This technique offers a lot of control for the application of Vintique, but likely takes the longest amount of time as well.

Vintique application on a brick stencil pattern using the sponge technique

Spray Bottle

The spray bottle technique works best when Vintiquing smaller parts of the building such as around windows and doors. Use a disposable spray bottle and fill it with Vintique. Keep well shaken and spray where needed and blend with a sponge or brush.

Sprayer Application

A pump-up type sprayer commonly used for spraying chemicals or stains/sealers on decks may be used to impart Vintiquing to larger areas. Keep the Vintique well shaken and spray on the wall in a random pattern. Detail with a sponge or brush.

A spray bottle is great for smaller areas

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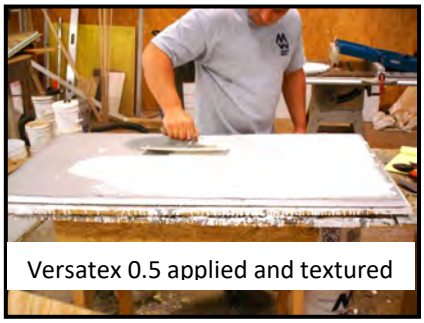
Blank with dry base coat


Versatex 0.5 applied and textured


Dry Versatex 0.5


Vintique Rolled on Sample

Roller Technique

This method not only antiques the surface but seals it as well. It works best over a more heavily textured Versatex 0.5 than other finishes. Often the Versatex 0.5 may be applied untinted with the Vintique providing the coloring.

Use a foam roller to apply the Vintique liberally over the surface. Sponge off excess and highlight with a hard sponge. Work until the desired texture is achieved and allow to dry.

When using this method expect much less than published coverage.

Final Thoughts

When Vintiquing, the Superior Finish becomes a canvas for some very creative work by skilled applicators. We are just touching the surface of all the possibilities and hope this helps in your next project.


Apply Liberally


Sponge Off Excess


Detail to Desired Effect

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MW# 164-210201

Topic: Versatex 0.5 Textures

What exactly is Versatex 0.5? While it is part of our Superior Finish and Elastomeric line, describing what it looks like is highly dependent upon the artistic talents of the applicator.

Master Wall manufactures Versatex 0.5 to an even consistency. A variety of texturing techniques can be used to create very individualized effects. These effects required a skilled applicator. Designers need to be aware that the effects are not considered a "standard" technique, but these techniques can make your building extraordinary.

Creating Texture

The textures below use the same texture names the *Portland Cement Plaster (Stucco) Manual* available from the Portland Cement Association (www.cement.org). While their manual applies to creating textures with stucco, texturing with Versatex 0.5 is similar, but with better color consistency and workability. The texturing techniques described in this bulletin are unique to Versatex 0.5.

Application techniques are suggested and highly dependent upon the applicator skill. Your results may vary, and a sample board should be created to determine the exact techniques for a particular project. Suggested pressure settings and orifice sizes will vary.

Finish Coverage

Determining the exact rate of finish usage with Versatex 0.5 will vary and Master Wall Inc. is not responsible for finish coverage. We recommend the actual applicator determine the coverage based upon field application using the same tools and techniques planned for the project.

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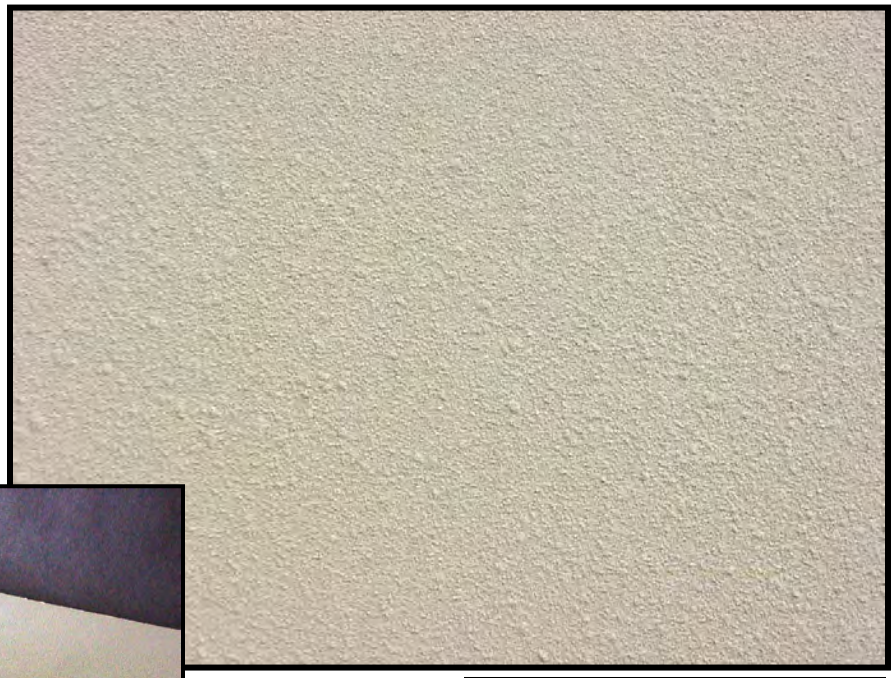
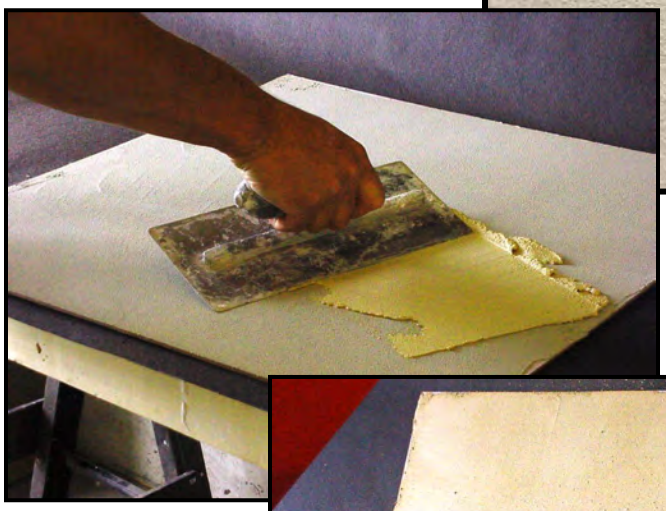
Light Dash

- Trowel-apply a coat of Versatex 0.5 to the surface for complete color coverage.
- Using a hopper gun or proven pump, apply a dash coat for texture depth and uniformity.





Hopper Gun Settings

Orifice: small (3/16")
Dash Coat: 23-25 psi
- 1/3 trigger pull

Field Notes

You may begin with the dash coat as soon as the first coat is applied.

Thin Versatex 0.5 to the approximate consistency of a very thick paint for the dash coat.

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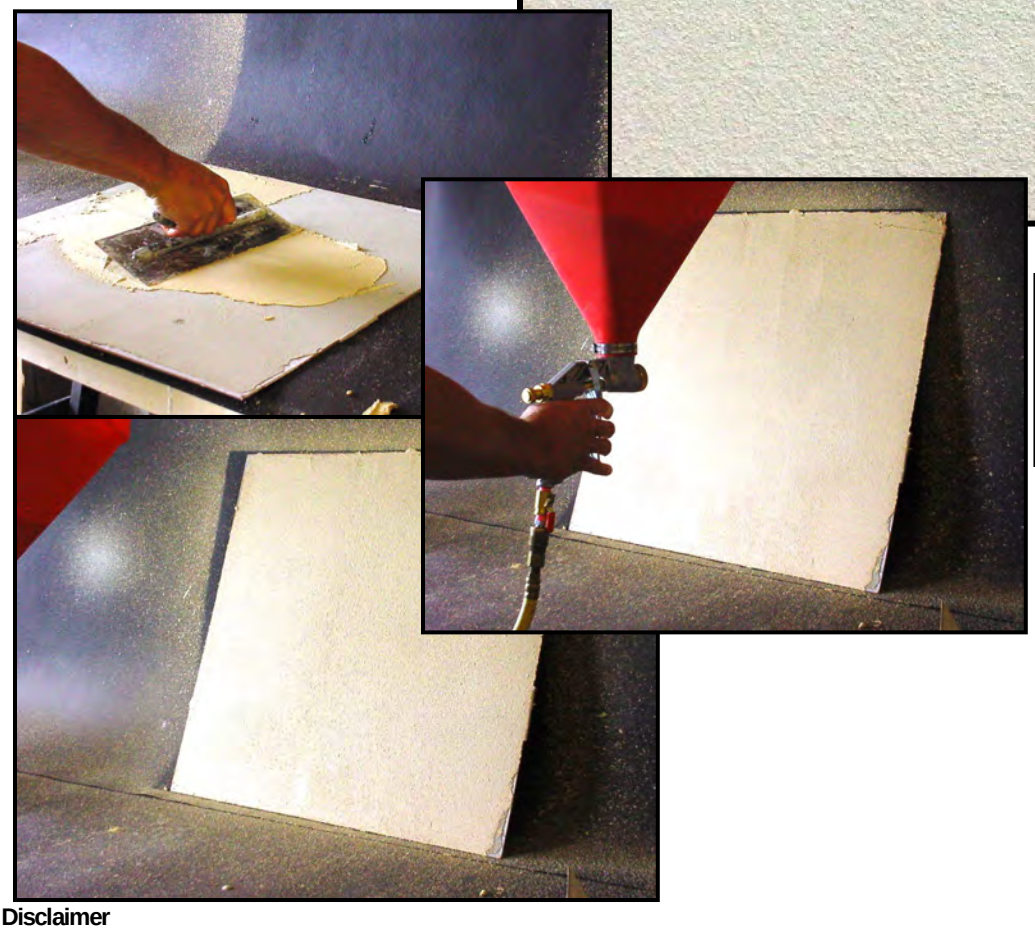
Medium Dash

- Trowel apply a coat of Versatex 0.5 to the surface for complete color coverage.
- Using a hopper gun or proven pump, apply a dash coat for texture depth and uniformity.



Hopper Gun Settings
Orifice: medium (1/4")
Dash Coat: 17-20 psi
- 1/2 trigger pull

Field Notes

You may begin with the dash coat as soon as the first coat is applied.

Thin Versatex 0.5 to the approximate consistency of a very thick paint for the dash coat.

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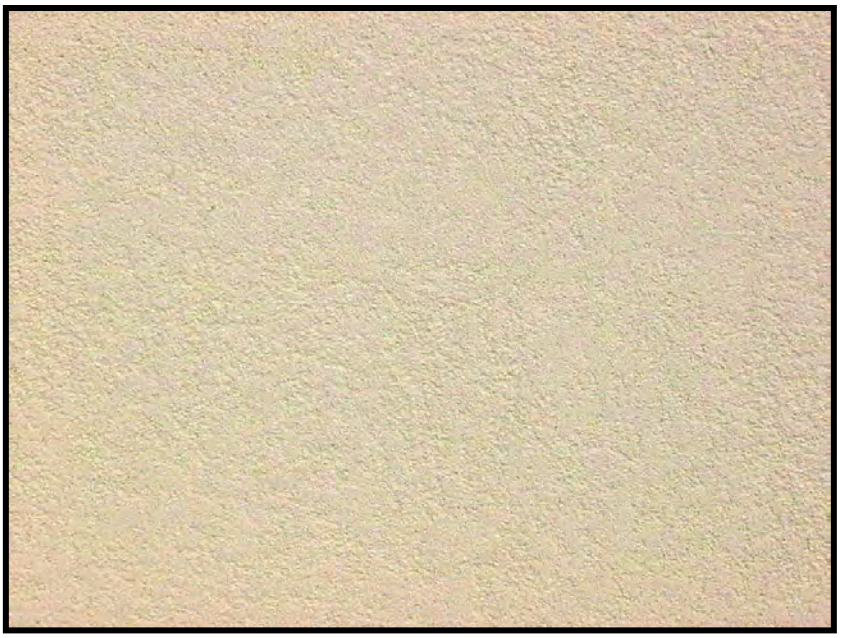
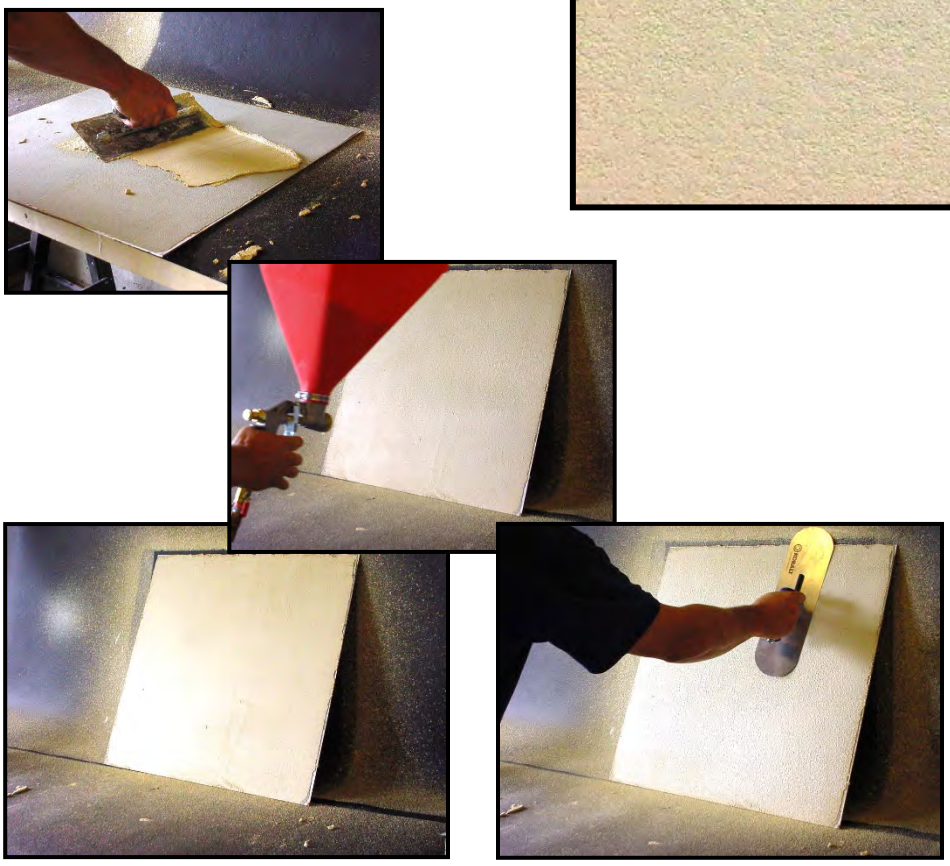
Knockdown Dash

- Trowel apply a coat of Versatex 0.5 to the surface for complete color coverage.
- Using a hopper gun or proven pump, apply a dash coat for texture depth and uniformity.
- Lightly trowel after the dash coat begins to firm up.





Hopper Gun Settings

Orifice: medium (1/4”)
Dash Coat: 17-20 psi
- 1/2 trigger pull

Field Notes

You may begin with the dash coat as soon as the first coat is applied.

Thin Versatex 0.5 to the approximate consistency of a very thick paint for the dash coat.

The correct time to knock down is after the water leaves the surface.

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Monterey

- Trowel on a relatively smooth first coat of Versatex 0.5, allow to set up.
- Apply a second coat in a random texture, using overlapping strokes of the trowel.

Field Notes

The texture is best created by random globs of Versatex 0.5, then knocking them down in a random manner.

Thicker finishes take longer to dry. Extend weather protection as necessary.

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Light Lace

- Trowel on a relatively smooth first coat of Versatex 0.5, allow to firm up.
- Apply a light second coat in a random manner vertically up the wall.

Field Notes

This texture is best created with a light touch and a "chatter" type application of the second coat that deposits little material.

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Heavy Lace

- Trowel on a relatively smooth first coat of Versatex 0.5, allow to firm up.
- Apply a second coat in a random manner vertically up the wall.

Field Notes

This texture is best created with a light touch and a "chatter" type application of the second coat that deposits enough material to create a depth of texture.

Thicker finishes take longer to dry. Extend weather protection as necessary.

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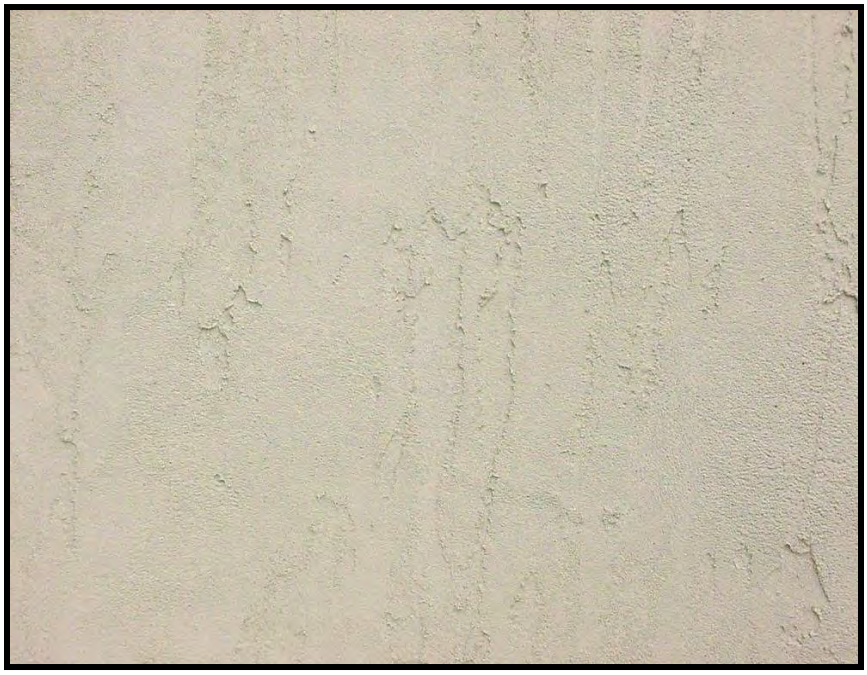
Glacier

- Trowel on a relatively smooth first coat of Versatex 0.5, allow to set up.
- Float the surface with a plastic float to raise/burn the aggregate.
- Trowel on a light texture coat of Versatex 0.5 in a random manner over the surface, allow to set up slightly.
- Knock down surface with a trowel.



Field Notes

Timing is critical for achieving this texture. The many steps make it labor-intensive.

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English

- Trowel on a relatively smooth first coat of Versatex 0.5.
- Using a rounded trowel, apply a thick texture coat with short strokes in varying directions leaving a rough, irregular pattern.

Field Notes

The first coat could be considered optional provided the coverage is obtained.

The roll application of Vintique and sponging off excess can enhance texture appearance. See Vintique Technical Bulletin.

Thicker finishes take longer to dry. Extend weather protection as necessary.

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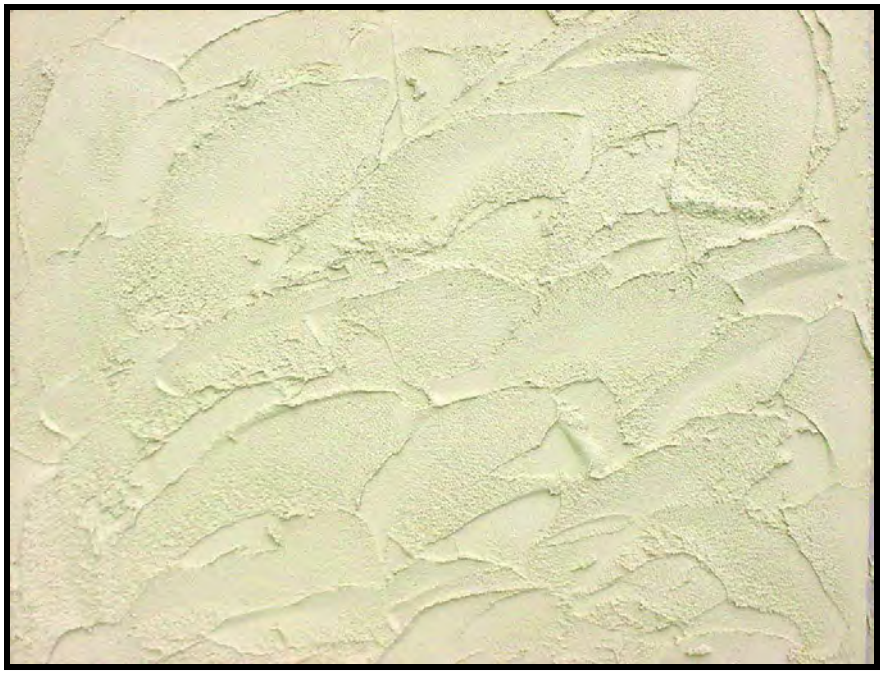
Spanish

- Trowel on a relatively smooth first coat of Versatex 0.5.
- Apply a second coat in a random texture using overlapping strokes of a square trowel.



Field Notes

The first coat could be considered optional provided the coverage is obtained.

The roll application of Vintique and sponging off excess can enhance texture appearance. See Vintique Technical Bulletin.

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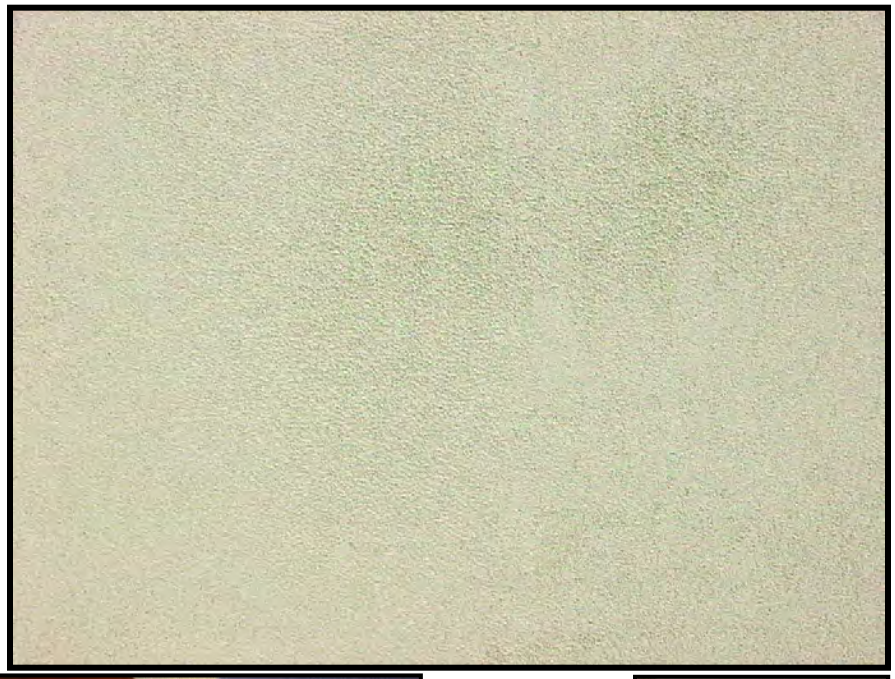
Scraped

- Apply Versatex 0.5 approximately 1/8" thick and allow to firm up.
- Scrape vertically with a stainless-steel trowel held at a right angle to the wall. Remove enough material to leave a torn surface, free from smooth spots or joints.



Field Notes

Timing is critical for achieving this texture. Be careful not to expose base coat.

Thicker finishes take longer to dry. Extend weather protection as necessary.

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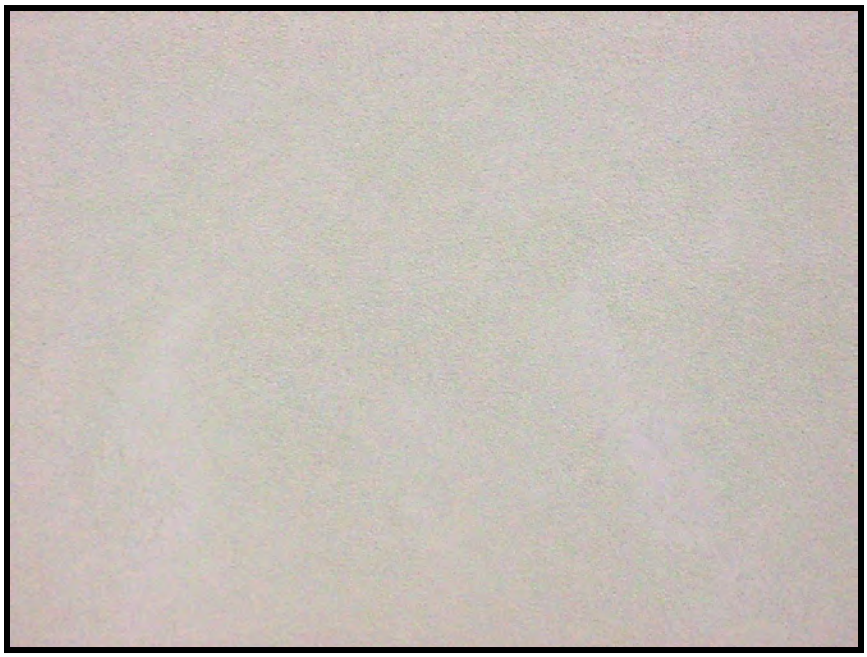
Smooth or Limestone

- Apply Versatex 0.5 approximately 1/16" thick and allow to firm up in some areas.
- Float the surface with a plastic float to raise/burn the aggregate.
- Additional layers of Versatex 0.5 could be added to increase mottling affect.



Field Notes

Timing is critical for achieving this texture. Finish should only be partially dry before floating.

This is an extremely fine finish that could expose wall irregularities more than other finishes. Additional base coat work may be necessary to level the surface. Even so, a glass smooth appearance may not be achievable with field techniques.

While acceptable for trim, texturing an entire wall with this technique is not recommended due to wall variations.

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MW# 165-210201

Topic: DuroTone Pigment UV Resistance

Stucco applicators are exposed to and have to plan their schedules around the weather. Oftentimes this means finishing quickly to avoid the sun in hot conditions and working in a heated tent during the winter months. During the application, rain, ice, snow, and wind all affect the approach to the finishing process. This bulletin discusses some techniques and conditions that can commonly occur during the finish application process over stucco or One Coat Stuccos in marginal weather conditions.

What is Marginal Weather?

Everyone has their own opinion as to what is marginal weather, but it all boils down to "less than ideal" conditions. It is the somewhat damp, cloudy, windy, or cool conditions that may require additional protection or techniques to help the finish set.

Superior Finish Drying Time

- Varies by Air Temperature, Surface Temperature and Humidity
- Firm sets in 8-12 hours at room temperature
- Fully set in 48-72 hours
- Must be protected from rain and temperatures less than 40°F (5°C) for a minimum of 24 hours

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Stucco

After stucco is applied and begins to harden it starts the curing process. Hardening stucco likes water – lots of water. It helps the cement particles hydrate and during the curing process actually makes the stucco harder. It is like a sponge that will absorb as much water as it can.

This can be deceptive to the applicator. The stucco looks dry, feels dry but can actually be loaded with water. This is especially true during marginal conditions when the stucco can absorb a lot of water that gets retained in the cement. Finishing over this will either slow or prevent finish absorption and setting. It can lead to sagging finish or a complete wash off days after application.

To determine the condition of the stucco, the applicator can use a couple of techniques. The first is to get a "dry" reading with a moisture meter such as a Delmhorst BD-10 or similar (www.delmhorst.com). This is a relative reading but gives a fairly accurate idea as to how dry the stucco is. Another "shade tree engineer" method is to duct tape a square of plastic to the stucco to see if condensation occurs. This needs to be done in sunny surfaces and is not as reliable as a meter. Condensation will form on the plastic if there is a vapor drive of moisture.

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If the finishes are applied over a wet surface, they will either be slow to dry or will not set at all. This is especially true when applying finishes during high humidity conditions.

Temperature

For the application of stucco, temperature plays a significant part in the curing process. As the temperature drops, hydration (curing) slows. Actually, hydration stops at temperatures below 40°F (5°C). For cooler temperatures, applicators may want to consider extending the curing times before finishing.

Stucco is also a material with a lot of mass. This means it can retain its temperature longer than the ambient air temperature. When applying finish the day after a cool night it might be a good idea to verify the surface temperature with an infrared temperature gauge.

Finishes applied over a cooler surface will take longer to set and dry. Applicators should plan on additional protection until the finishes are fully set.

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Summary

Unlike EIFS, Stucco has the ability to absorb a lot of water and can maintain a moist condition days after a rain. It warms and cools slowly which may affect finish drying. When applying finish in marginal conditions, applicators should consider using some test equipment to make sure the wall is clean, dry and within temperature limitations for application of Master Wall products.

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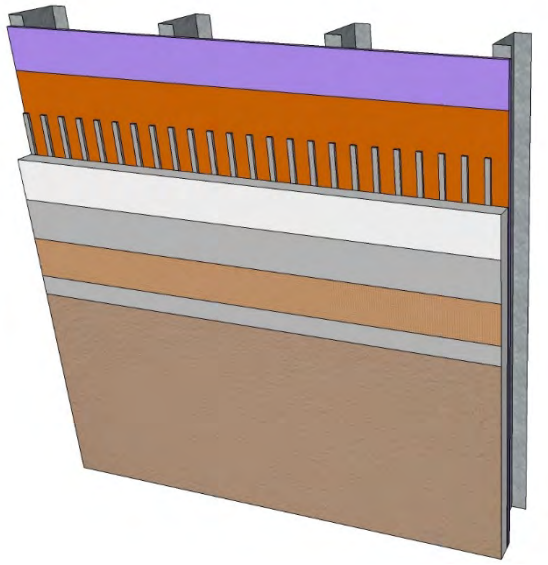
Corporate: P.O. Box 397 • Fortson • Georgia • 31808 • 800-755-0825 • FAX 706-569-6704

MW# 166-210201

Topic: Is it EIFS or "Not EIFS"

Master Wall® products can be used in a variety of ways. This can sometimes lead to confusion with some not involved in the day-to-day application of the products to lump them into the general category of EIFS, which may not be appropriate. In this bulletin we will attempt to define the terms and clarify the issues.



Rollershield Drainage CIFS®, It is EIFS

What is EIFS?

EIFS stands for "**E**xterior **I**nsulation and **F**inish **S**ystem" and some of our systems are called CIFS® which is Continuous Insulation and Finish System. It is designed to provide wall insulation, weatherproofing and a decorative finish in a single integrated product. It generally consists of the following products:

- **Proprietary or non-proprietary water barrier**. This can be a Master Wall® product as shown above or a sheet good.
- I**nsulation Board.** Rigid insulation boards are attached to the wall system using either an adhesive or mechanical attachment depending upon the application.
- **Base Coat.** A weather-resistive barrier applied directly to the insulation board using a trowel, while embedding fiberglass reinforcing mesh into the wet adhesive.
- **Finish Coat.** A colored, textured surface finish applied over the dry base coat.

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What is Not EIFS?

NOT EIFS is everything else that does not fit the definition for EIFS. One of the more confusing variants is foam trim. Foam trims are decorative pieces that can be attached to a variety of substrates. It is made of foam insulation but provides little to no insulation value to the wall and can often be completely removed without affecting the weather resistance of the wall.

Stucco with Foam Trim (Not EIFS)

Does Master Wall offer "EIFS" and "Not EIFS" applications?

There are a variety of ways to apply our products. The chart below is an outline of the possibilities. Please contact Master Wall if you have any questions about your specific project.

System	EIFS	Not EIFS
Aggre-flex EIFS	•	
Aggre-flex Drainage EIFS	•	
Cemplaster Fiberstucco or stucco		•
Cemplaster Fiberstucco or stucco over Insulation Board		•
Cemplaster Fiberstucco or stucco with foam shapes		•
QRW1 Drainage EIFS	•	
Rollershield Drainage CIFS®	•	
Stucco Cement Board Coatings		•
Stucco Cement Board Coatings with foam trim		•
Uninsulated Finish System		•
Uninsulated Finish System with foam trim		•
Superior Finishes over Stucco		•
Superior Finishes over Stucco with foam trim		•
Soffit System		•
Insulated Concrete Forms		•

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MW# 167-201201

Topic: Metal Building Strategies

Putting a Master Wall® on a metal building is a good option for improving the looks or even adding a decorative element to the surface. In many cases it can be an economical application, but some are complicated due to unknown variables that we need to understand to create a successful wall cladding solution. These variables are movement, attachment methods and design potential. This bulletin explores these variables to help the architect or engineer determine the best solution for their project.

Movement Considerations

All buildings move, but sometimes metal buildings move more. In this case the movement we are speaking of is deflection under load. Metal building panels can be highly flexible and still perform well. Excessive deflection movement works against other cladding systems and can cause cracking or additional stress.

In general, older metal buildings seem to have been designed to move more than newer ones. Or at least the deflection is now documented on the architectural drawings which makes for a quick determination of suitability.

Deflection is the measure of how much building components move under load. Sometimes drawings will list the deflection criteria such as L/180, L/240, L/360 etc. with the lower denominator (lower number) indicating more movement capability. An L/180 wall can move twice as much as an L/360 wall. This calculation is the height of the wall (in inches) divided by the lower number. What you get is the allowable maximum deflection when the wind load is applied. Movement cracks stucco and can overly stress CIFS® Therefore the engineers are involved.

Deflection Limitations

- ***L/240***: Master Wall® Rollershield Drainage CIFS®, Aggre-flex Drainage EIFS, Aggre-flex EIFS, QRW1 Drainage EIFS.
- ***L/360***: Master Wall® Cemplaster Fiberstucco, Stucco Cement Board Coatings, Traditional and One Coat Stuccos.
- ***L/600***: Master Wall® LiMa Systems, Direct applied coatings to masonry or concrete surfaces.

Attachment Methods

CIFS® and EIFS transfer structural loads either to a mechanically attached substrate or through fasteners that hold the insulation in place. For metal buildings, the simplest approach of attaching to the metal siding works best provided there is enough structure in the metal and the structure successfully transfers the load to the girts or other sub-structures.

Sometimes the metal can be too thin to simply attach through it and anything thinner than 25 ga will not be appropriate for standard applications. If investigating mechanically attaching the following properties are needed of the fastener:

Metal Thickness	**25 ga**	**22 ga**	**20 ga**
Pull Out (minimum, lbs.)	178	244	277
Thickness (galvanized, in)	0.0247	0.0336	0.0396
Thickness (plain steel, in)	0.0209	0.0299	0.0359

In addition to needing stiffer substrates, stucco and cement board systems also add weight to the wall. Additional weight may require more fasteners.

Secondary Attachment Options

If the metal or the profile is not appropriate for the direct attachment of a CIFS®/EIFS or other system, there are some other options for the designer:

- Add more fasteners. If the metal is marginal or the wind load requirements are move, additional fasteners may help. Our non-nailable substrate fastening pattern is set on 16" centers but it could be revised to 12" if there is appropriate support in the metal.
- Add a sheathing, increase fasteners spacing from the typical 8" centers to 4". This also helps if the metal profile is not appropriate for a mechanically attached application.
- Add structure to the building. This could be the same as framing the building at 16" centers with the framing attached to the girts, then sheath the wall typical of a standard system

Design Potential

For the easiest CIFS/EIFS application the flatter the metal panel the better the substrate is. Metal panels are often reversed to give more flat surface than void. We recommend a 6" minimum flat area with a 2" maximum void area and 1-1/2" minimum insulation board thickness for EPS insulation (1" minimum for polyisocyanurate).

Wide voids are not appropriate for the system. If deflection and attachment criteria have been met it may be possible to fill the voids with mechanically attached insulation with a layer of additional insulation over the top.

Summary

The addition of a cladding to metal panels adds greatly to the overall building aesthetics but there is no single method that will work for every building. The design professional needs to evaluate the building and if needed adjust the support systems to provide the best solution.

Attached are some common solutions and the reasons they are used based upon how the variables of movement, attachment and design potential affect the structure.

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Metal Building System Detail

Attach insulation using approved fasteners and plates following recommended pattern at the minimum rate of one fastener per square foot

Design Check

Movement Considerations
Meets deflection requirements.

Attachment Methods
Meets attachment requirements.

Design Potential
Metal deck profile within limits with more flat areas than void.

Master Wall® Systems

- Aggre-flex/Aggre-flex Drainage EIFS (1-1/2" insulation minimum)
- QRW1 Drainage EIFS (1" insulation minimum)
- Stucco Cement Board Coatings (L/360 deflection required)

MB-01 Metal Building Attachment Profile

These drawings relay the conceptual conditions of Master Wall® Systems and are not the construction drawings. Ultimately the design and detailing of an entire wall system is the responsibility of a professional. These details will guide the design professional in the use of Master Wall® Products. Master Wall disclaims design, warranty or construction intent or responsibility. Bold or Brand Name = Master Wall® Product.

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Metal Building System Detail

Attach substrate to the panel ridges every 8" vertically by 16" horizontally. Additional fasteners will provide more wind resistance

Design Check

Movement Considerations
Meets deflection requirements.

Attachment Methods
Meets attachment requirements with enough support for the substrate.

Design Potential
Wide spaced panels make spanning the voids impossible, substrate provides an acceptable surface for the system attachment.

Master Wall® Systems

- Rollershield Drainage CIFS® (shown)
- Aggre-flex EIFS
- Aggre-flex Drainage EIFS

MB-02 Metal Building Attachment Profile Using an Approved Substrate

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Metal Building System Detail

Structural members attached to girts to meet attachment and deflection considerations.

Attach substrate to structural members every 8” vertically by 16” horizontally. Additional fasteners will provide more wind resistance

Design Check

Movement Considerations
Panels that do not meet deflection criteria require metal structure to transfer load onto girts.

Attachment Methods
Thin metal does not provide enough strength to hold fasteners

Design Potential
More flat than void areas but structure and an approved substrate are added for a successful application.

Master Wall® Systems

- Rollershield Drainage CIFS® (shown)
- Aggre-flex EIFS
- Aggre-flex Drainage EIFS

MB-03 Metal Building Attachment Profile Using an Approved Substrate and Structural Support

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Metal Building System Detail

Insulation board flush with metal panel ribs

Attach insulation using approved fasteners and plates at the minimum rate of one fastener per square foot

Design Check

Movement Considerations
Meets deflection requirements.

Attachment Methods
Meets attachment requirements.

Design Potential
More flat than void areas but insulation provides support for the application.

Master Wall® Systems

- Aggre-flex EIFS (shown, minimum 1-1/2" insulation thickness)
- Aggre-flex Drainage EIFS (minimum 1-1/2" insulation thickness, mechanically attached to ridges of metal panel)
- QRW1 Drainage EIFS (minimum 1" insulation thickness, mechanically attached to ridges of metal panel)

MB-04 Metal Building Attachment Profile with Infill Insulation

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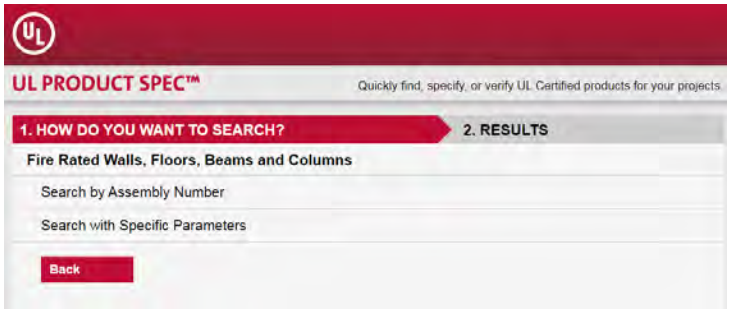
MW# 168-191001

Topic: ASTM E119 Fire Rated Assemblies

Master Wall® Systems may be applied over a variety of walls; CMU, wood framed with wood sheathing, or metal framed with gypsum sheathing are some of the more common wall types. How do architects choose walls types? For the most part they don't. The International Building Code Chapter 6 sets the fire Resistance Ratings for the building based upon the type of construction. The Types of Construction are referenced in Chapter 5.

Building walls to these requirements is complicated. Architects typically rely on Underwriters Laboratory (UL) or product manufacturers information to develop their wall systems. UL has recently updated their website, making it easier to look up wall types. Click on the image to look up available wall systems.



Demonstrating Compliance

Many of the UL assemblies don't even list an exterior covering. This has led to some interesting conversations regarding what to cover that framing with, and how to demonstrate compliance.

For Cemplaster Fiberstucco or traditional stucco for that matter, demonstrating compliance is easy. Why? Most importantly, **IT DOESN'T BURN**. In addition to that Cemplaster Fiberstucco has a code report for the product and stucco is covered in Chapters 14 and 25 of the building code.

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EIFS is not so easy because foam plastic is part of the assembly and while covered in Chapter 14 of the building code the foam plastic used falls under Chapter 26. Thankfully there is a history with EIFS, and it has proven itself to neither add to nor reduce the fire resistance rating of a wall assembly. We've developed an ASTM E119 equivalency paper to demonstrate compliance to various assemblies. You can view the paper here:

PRIEST & ASSOCIATES CONSULTING, LLC

ENGINEERING EVALUATION

Engineering Evaluation to Justify the Allowance for Master Wall® EIFS Systems With Fire Resistance Rated Wall Designs

Project No. 10783

Prepared for:

Master Wall Inc.
P.O. Box 397
Fortson, GA 31808

August 6, 2019

In summary, if you're choosing EIFS for your wall surface insulation board, up to 4" thick may be used without affecting the rating of the wall. Of course, we comply with NFPA 285 for taller buildings as well.

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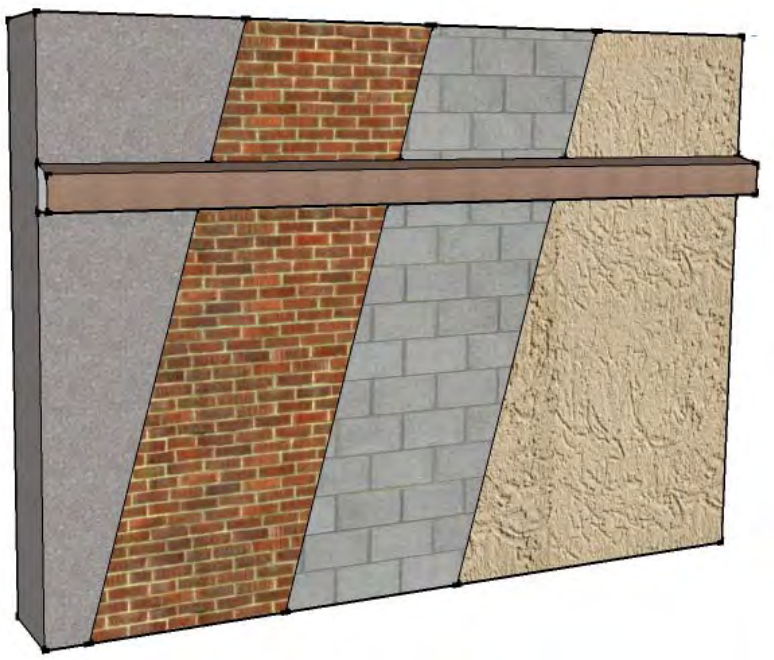
MW# 169-070111

Topic: Master Wall Foam Shapes



Decorative foam shapes can be fabricated out of Master Wall products. Foam shapes are not considered to have any insulation value and are always attached to a substrate that isn't moisture-sensitive such as brick, concrete, masonry or stucco.

If adhered with Master Wall adhesive, Master Wall warrants the adhesive. If the shapes are prefabricated with Master Wall and another adhesive is used, only the Master Wall products will be warranted.

The standard warranty for foam shapes is a 1-year material warranty when used alone. If foam shapes are used with any of our Exterior Insulation and Finish Systems, OCS Fiberstucco, Cemplaster Stucco or any other Master Wall System, it will be warranted for the terms of that system.

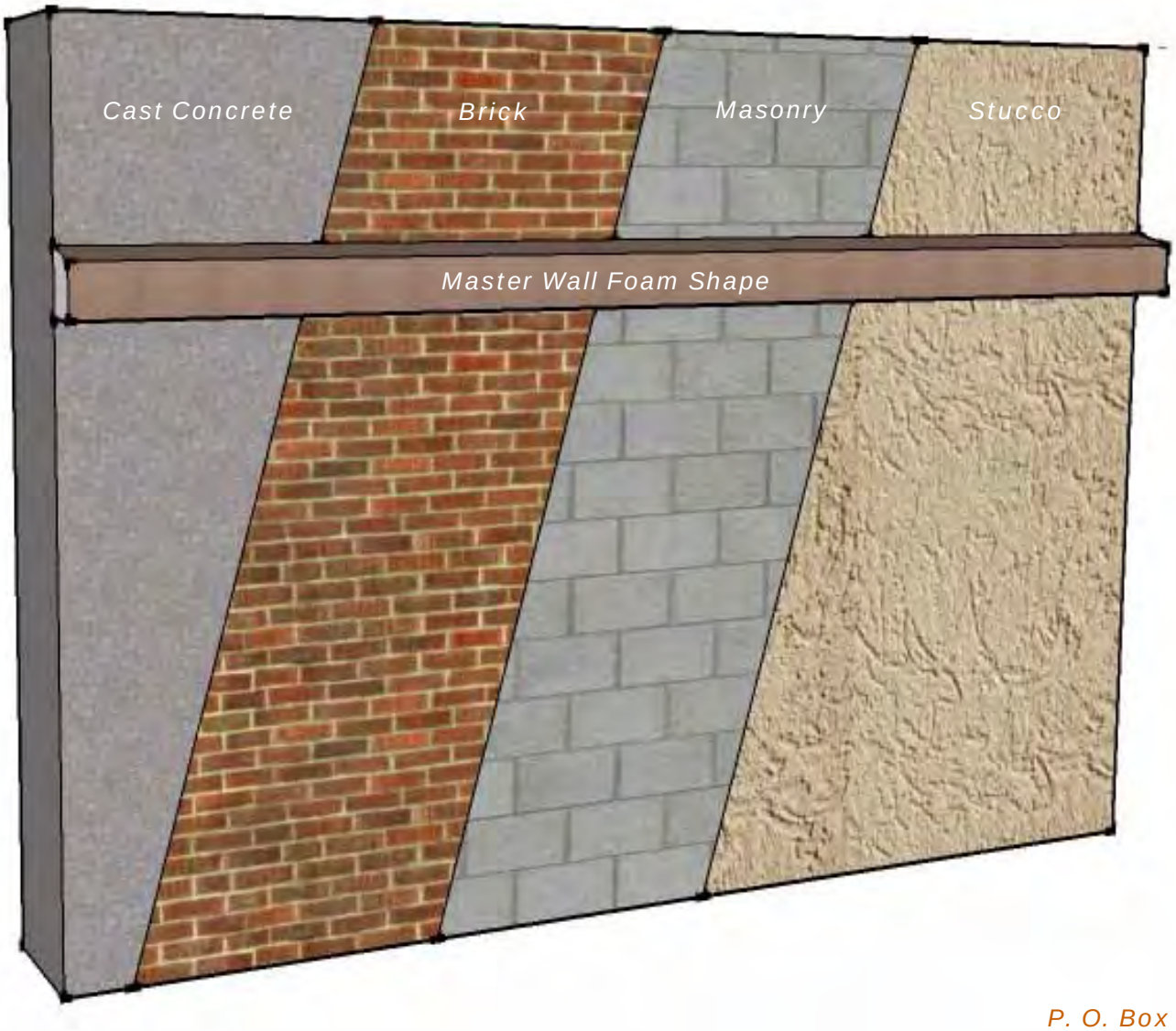
Attached is the product data sheet for Master Wall Foam Shapes and a sample warranty.

09 27 23

Foam Shapes

Decorative Foam Shapes with Master Wall Coatings

Master Wall Foam Shapes create the look of stone or stucco at the fraction of the cost and weight of the cast or natural counterparts. Easily fabricated from molded expanded polystyrene, an endless variety of shapes can be created and applied over non-moisture sensitive substrates.



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Foam Shapes

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1.0 General

This is a short form specification.

1.1 System Description

The Master Wall Foam Shapes are a decorative building element with negligible insulating value. Foam shapes are adhered to non-moisture sensitive substrates and may consist of an adhesive attachment, molded expanded polystyrene, reinforcing mesh and a textured finish.

1.2 Design Requirements:

A. Slope all surfaces a minimum of 1:2 (6" in 12") to shed water, maximum 12" (305mm) wide.
B. Maximum deflection of substrates shall not exceed L/360.
C. Typical acceptable substrates include unpainted brick, masonry, concrete or stucco. Contact Master Wall for other approved substrates.
D. Expansion joints are required in the foam shape where significant movement occurs.

1.3 Quality Assurance

A. The finish shall be tested for: Accelerated weathering, mildew resistance, salt spray resistance and structural performance.

1.4 Job Conditions

A. Store all materials protected from weather and direct sunlight at temperatures above 40°F (5°C).
B. The ambient and wall temperature shall be a minimum of 40°F (5°C) and shall remain so for at least 24 hours after installation.

2.0 Products

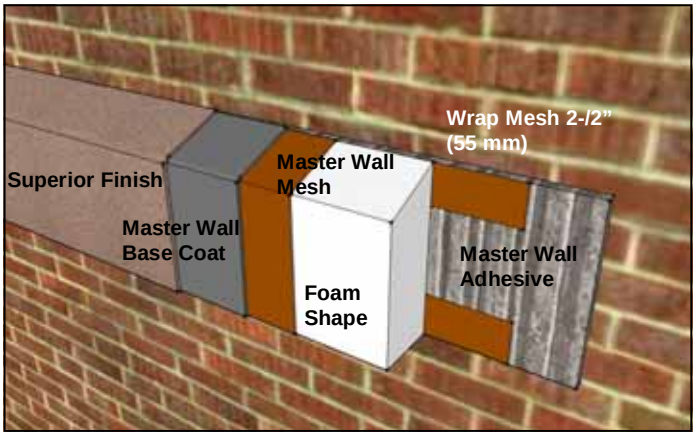
All components of the foam shape application shall be manufactured by Master Wall and supplied by an authorized distributor.

A. Master Wall Adhesives and Base Coats:
   1. *Foam & Mesh Adhesive (F&M), F&M Plus:* A 100% pure acrylic-based adhesive that is field mixed with Portland cement.
   2. *Master Wall Bagged Base (MBB), MBB Plus:* A ready to use dry base that is field mixed with water.
B. *Foam Shape*: Molded Expanded Polystyrene insulation board manufactured to Master Wall specifications.
C. *Aggre-flex Mesh*: Standard Mesh.
D. *Superior Finish:* 100% pure acrylic formulation with integral color and texture. Perfect, Spray, Desert Sand, R-Coarse and Refinish textures.
E. Master Wall Coatings:
   1. *Primecoat & Sanded Primecoat*: A water-based primer.
   2. *Roller-flex*: A water-based architectural finish coating.

3.0 Installation

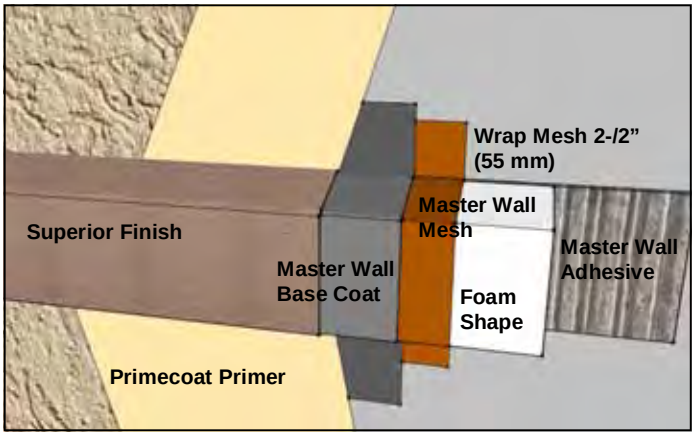
A. Inspect the substrate to ensure that it is free of all foreign materials that would affect the adhesion of the Foam Shape.
B. Apply the shapes in strict accordance with Master Wall product data sheets, architectural drawings and architectural specifications.

Backwrap Method



The foam shape is adhered to the wall surface using either a full layer of Master Wall adhesive (preferred) or notched trowel adhesive. Shape is backwrapped or pre-wrapped with mesh embedded in Master Wall base coat. Once cured, a Superior Finish is applied to the shape.

Mesh Transition Method



The foam shape is adhered to the wall surface using either a full layer of Master Wall adhesive (preferred) or notched trowel adhesive. Mesh is embedded in Master Wall base coat and run onto the wall surface. Once cured, Superior Finish is applied to the shape. Prime the stucco wall with Primecoat Primer before finishing with Superior Finishes to minimize finish absorption variations.

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Master Wall
Foam Shapes

1 Year Material Limited Warranty

Master Wall Inc. warrants the properly designed and installed Master Wall Inc. materials for 1 year from the date of installation. Master Wall Inc.'s exclusive liability under this warranty is to supply replacement materials, if it is shown that the materials supplied by Master Wall Inc., were defective when installed by the Master Wall Inc. certified applicator. Remedies shall be solely determined by Master Wall Inc. and no other warranties are expressed or implied. For a valid warranty, the system and products must be installed in accordance with Master Wall Inc.'s written recommendations, specifications, details, bulletins and other project-specific written recommendations. Master Wall Inc. must be notified in writing within 10 business days of the original discovery of the defect.

Master Wall Inc., is not responsible for structural conditions, design conditions beyond those noted in our literature, architecture, engineering or workmanship of any project. Workmanship, aesthetics and installation are beyond the scope of this warranty as are any deviations from Master Wall Inc. Documents not specifically approved in writing.

Abuse, misuse, excessive weather or environmental conditions beyond what the products or systems have been tested, designed or approved for is expressly limited. Certain colors with organic pigments are less fade-resistant than others. The building, system and products must be properly maintained in accordance with Master Wall Inc., documents, local environmental conditions and good building practices. In no case is Master Wall Inc. responsible for incidental and consequential damages.

This warranty becomes effective only when all bills for the components of the system have been paid.

Except as stated, Master Wall, Inc., expressly disclaims any warranty of merchantability or fitness for a particular purpose. The above remedies are to be deemed exclusive.

Project:

Applicator:

Warranty Date:

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MW# 170-080111

Topic: Efflorescence Considerations

Related Bulletins
146 Curing and Drying
162 Fade Resistance of Finishes
171 Dark Colors
172 Cold Weather Application Considerations

What is Efflorescence?

There are more technical explanations, but efflorescence at its most basic level is the depositing of salts on the surface of a material. It's common in any material that contains Portland cement and seems to be more common during application in cooler weather and/or on shaded walls. It can happen under rainy conditions as well – it's unpredictable.

This home had "fading finish". It's not fading, it's efflorescence. Original color at downspout.

What causes Efflorescence?

Water and Portland cement. That's the short answer but in traditional and One Coat Stucco the materials are hydrating and as part of their normal curing process can have efflorescence. Water on the surface and cool, damp conditions can cause it to form, and water behind the wall can definitely cause long-term efflorescence issues – that's why it's important to keep water from getting behind the wall during construction.

Remember all that water you used mixing the base coat or stucco? It's got to go somewhere. Initially a lot of that water goes away during the initial set, but it's generally considered not fully cured until 28 days. During that time the water is still passing through the wall and it can leave deposits on the finish given the right conditions.

..and you thought waiting 7-14 days for stucco curing was just to slow the job down

Thinly applied finishes can also make efflorescence more visible.

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Is Efflorescence a Problem?

It's a job-related nuisance. Common concerns include the following:

Uncapped wall lead to a streaky appearance on this dark color

- It will need to be removed from approved concrete, masonry and brick prior to application of our products.
- It can form on traditional stucco, Master Wall Cemplaster and One Coat Stucco as well as our cement type base coats and can prevent bond of the finishes.
- It can form on the surface of the finish, as the base material is still curing.
- It can be misinterpreted as a "fading finish".
- It can cause streaks or visual stripes in the building if conditions are right.
- It can appear to come back to the original color when wet.
- It can be more visible on dark colors compared to light ones. See our bulletin for dark color strategies.

The typical field check for efflorescence is to rub your finger over the surface. If you remove white deposits it's most likely efflorescence.

How do you avoid Efflorescence?

Under some conditions it's nearly impossible to avoid getting some efflorescence, but there are some good strategies that have helped reduce the occurrence:

- Prime the base coat or stucco with Primecoat or Sanded Primecoat Primer. This equalizes finish absorption and the dried coating helps to keep from excessively re-hydrating the base coat. This is especially true for dark colors, as they tend to show efflorescence more.
- Keep your wall dry. Take care to make sure water can't run down the wall surface or get behind the surface. If the schedule allows, avoid working during damp, high humidity or cool conditions.
- Make sure the timing is right. Both stucco and EIFS base coats take longer to dry during cooler temperatures and higher humidity. Make sure they're ready. Take a little more time if darker colors are used.
- Use only clean, potable water, as we require.

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Removing Efflorescence

Efflorescence is normally an easily removed powder if you're quick to recognize it occurrence. With the proper precautions, the following methods have been successful at its removal:

- Dry Brush & Water: scrubbing the surface with a soft bristle brush, then rinsing is a quick and easy way to remove light efflorescence.
- White Vinegar: clean, green and not too smelly, white vinegar is a mild acid and can be used and it can be used either 1:1 with water for light efflorescence or full strength for more stubborn conditions. Pre-wet the wall with water prior to lightly spraying on the vinegar solution.
- Wind-Lock/Sentry Chemical Efflorescence & Scale Remover: Apply per their recommendations.
- Sure Klean 600 (hydrochloric acid): Dilute 1:20 with water and follow ProSoCo's recommendations.
- Muriatic Acid: Safety precautions are definitely necessary and extreme care is needed if you're applying it over finishes (it can damage it and it won't be warranted). Dilute 1:20 and don't leave it on the surface long to avoid damage. Pre-wet the wall before application and rinse thoroughly.

Top: Test Wall
Middle: Muriatic acid fizzes on wall
Bottom: Dried and restored finish

Always pre-test cleaners in a small inconspicuous area. In all cases don't use a pressure washer, just a low-pressure pump. Work from top to bottom of the wall surface. At most leave the cleaners on the surface no more than 5 minutes or until fizzing stops. Allow to dry thoroughly before application of any additional products.

Efflorescence is a common occurrence in any Portland cement based material and is more common in cooler temperatures and especially over dark colors. Proper curing and priming helps reduce efflorescence. It is not a product defect nor is it an indicator of poor application practices. Luckily it's easily removed.

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MW# 171-080111

Topic: Dark Color Strategies

Related Bulletins
146 Curing and Drying
160 Light Reflectance Values
162 Fade Resistance of Finishes
170 Efflorescence Considerations
172 Cold Weather Application Considerations

When the color palette deepens, there are some additional considerations you should be aware of in the application process. Dark colors can, under certain conditions, have some or all of the following traits:

- Due to high pigment loading, dark colors can take longer to dry compared to the lighter beige and gray standard palette options.
- Dark colors can cause solar absorption to the point it damages the insulation board in EIFS applications (not true of OCS, Cemplaster or Stucco applications).
- Dark colors promote more vapor drive compared to lighter colors. Efflorescence deposits are more visible when applied over curing base coats and stucco.
- An immediate "fading" usually isn't fading, it's efflorescence.
- Thinly applied finishes are more prone to mottling or light efflorescence deposits.
- Poor protection practices seem to cause surface efflorescence.
- Cooler weather aggravates all these conditions.

This finish was installed in cooler weather and left unprotected. Inset photo – efflorescence check showing original color

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These are not material quality issues; they are application and timing concerns. Applicators can't always apply materials under clear, sunny weather and architects do occasionally want a truly flawless surface. When that's the case, consider the following strategies:

This project effloresced immediately, and then it sat for two years. Cleaning and painting is the only solution now.

- Prime the surface. Using tinted Primecoat or Sanded Primecoat helps to seal the surface and adds another layer of protection against the formation of efflorescence on the surface. It's cheap, quick and easy.
- Let your base coat or stucco cure more thoroughly. This is especially true in cooler temperatures when both are slow to cure. See the related bulletins for details.
- Apply the finish consistently. Larger voids with dark colors do tend to dry lighter.
- Consider a layer of base coat over One Coat Stucco, Cemplaster Stucco and traditional stucco. It not only fine-tunes the surface but also helps seal against the formation of efflorescence.
- Use EPSB as a base coat. Master Wall's Expanded Polystyrene Base Coat doesn't contain cement so there's nothing to effloresce. It can also be tinted to better match the finish color.
- Protect, Protect, Protect. If water gets behind or runs down the newly applied surface it's probably going to effloresce.
- Unless there are continual water problems the efflorescence can usually be removed by following our recommended techniques.
- If efflorescence is present or locked into the surface, the wall could be painted with Roller-flex or a quality exterior latex coating after a thorough cleaning.

Applicators may also want to inform owners/architects/general contractors in writing that efflorescence blooms are more obvious in dark colors. It's not guaranteed this will work but it can get them thinking about some of these strategies.

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EIFS Stucco Drainage Systems Coatings Elastomerics

Corporate · P.O. Box 397 · Fortson · Georgia 31808 · 800-755-0825
Technical Service · 800-760-2861 · FAX 734-433-0930

Friday, August 12, 2011

Owner/General Contractor

Ref:

System:

Dear Sir:

Please be advised that a dark color was selected for this building. Darker colors can, under certain conditions, effloresce leaving a white powder on the surface that will need to be removed. This can be normal for any Portland cement-based products and is not a product or application deficiency. {Applicator} can perform this removal at an additional charge should it occur.

I am pleased to be of service for this project. Should you have any questions or require more information, please feel free to call me at XXX-XXX-XXXX.

Sincerely,

Applicator

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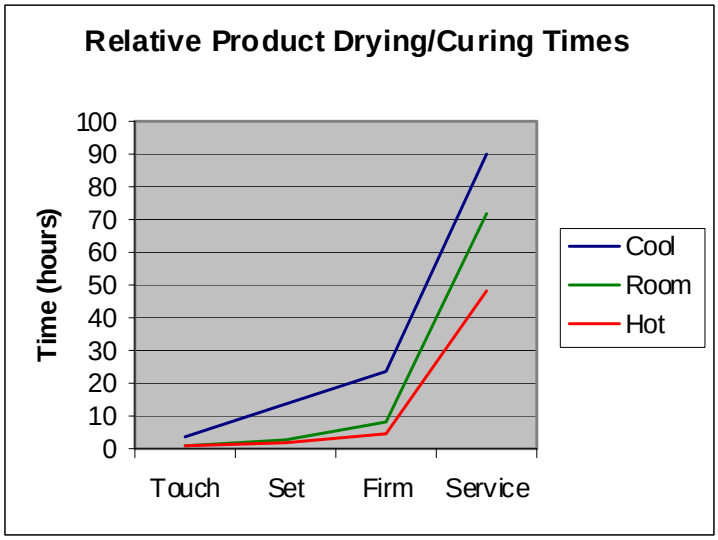
MW# 172-090111

Topic: Cold Weather Application Strategies

Related Bulletins
127 Shipping and Storage
145 Finish Drying and Color Variations
146 Curing and Drying

Cold, damp weather will have an effect on Master Wall materials. Low temperatures and high humidity levels cause the curing or setting of the materials to extend, oftentimes beyond what expected. The applicator may have to take additional precautions to protect the wall system.



Cooling trends – Low temperatures and high humidity can significantly extend cure times.

Temperature Matters

When applying wet goods, the air and substrate temperature must be 40°F or above and remain that way for at least 24 hours. In cooler temperatures with high humidity levels the setting times may need to be extended. During winter months, applicators will often tent the scaffold and heat the structure. Temperatures are often very high, but so is the humidity. When tenting and heating it's important not only to tent the structure, but also to vent the warm, moist air.

Winter operations:

- Tented
- Vented
- Heated

Reinforced plastic and propane heaters keep things nice and warm.

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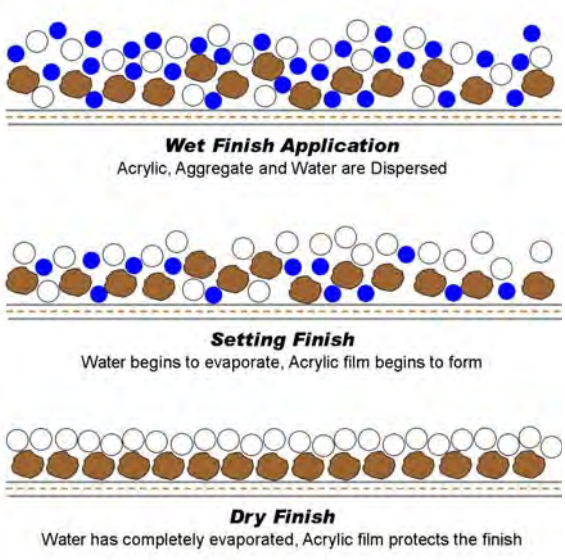
Film Formation

The key to long-term performance of Master Wall products is film formation. It's important the 100% pure acrylic monomers link together and form a film on the surface of the coating. Low temperatures and high humidity can prevent this film formation from occurring. Unfortunately this is not always something that can be visually seen.



Cementitious base coats dry faster, therefore the film formation is quicker. Cement-based products such as F&M, F&M Plus, MBB or Quick Set MBB develop heat during the initial phase of setting which aids in film formation. This does not mean that less protection is required for the base coat application but it does explain why they are less affected by adverse weather.

Rollershield air/water barrier, EPSB non-cementitious base coats and Superior Finishes are air-dry products and dry much slower than cement-based products. Therefore, protection for longer periods may be necessary. Very low temperatures and high humidity levels may block the film formation resulting in a "wash off" or blistering during a hard rain, even after the materials appear fully set. During cold weather it may be beneficial to keep the wall warm longer than you would normally expect, even longer than we require.

Blistering and wash off caused by cool weather application…and a leaking downspout

During cooler periods the applicator will need to take precautions to ensure the materials remain within the setting/curing range.

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MW# 173-050115

Items Needed
Utility Knife
Duct Tape
Lead check test kit (optional)
Denatured Alcohol
Paint Thinner
Clean rag
Cleaning Solution
Master Wall BA57
Master Wall Adhesive or Coating
Master Wall Standard Mesh
Pencil or Pen

Topic: Bonding to Painted Surfaces

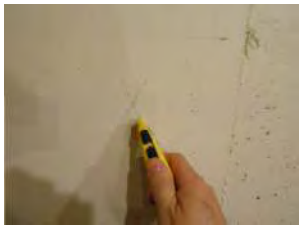
Adhering Master Wall® Coatings or EIFS to an existing painted surface will require bond testing. Since we **in no way guarantee bond of the paint to the substrate** you need to carefully evaluate the surface and the designer, specifier, applicator and owner/specifier assumes responsibility should failures occur. Any Master Wall warranty ends where the paint begins. The methods shown here are basic in nature and there are more sophisticated means of evaluating the surfaces. If your project requires a high degree of evaluation, please contact a qualified engineer for a full evaluation.

We recommend the following procedures for determining the paint type and application of Master Wall® materials:

Paint Bond Check

Since a manufacturer's warranty begins where the paint ends, checking the paint type and bond is an important part of predicting long-term performance. Of course, the surface needs to be clean and dry with no peeling, powdering or scaling. The paint must be gloss free.

To check paint bond cut an "X" on the surface with a utility knife. Press some duct tape over the cut area and pull off at a 90-degree angle. If none to a small amount of paint is visible on the duct tape in the X location this indicates that the paint bond is good. If more paint comes off the bond is not acceptable and alternate methods will need to be considered.



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Paint Type Check

Check the paint type. In our experience there are three paint types we encounter in the field; acrylic (latex), oil (alkyd) and epoxy. Within these three products quality can vary wildly so be sure to evaluate the surface quality for chalking, cracking and other considerations that would affect the overall bond to new materials. In general, latex paints remain flexible through their life cycle while oil paints tend to become more brittle.

Check for the material type by rubbing first with denatured alcohol (acrylic test), then paint thinner (oil test). When rubbed the surface should look significantly cleaner and the paint should rub off on the rag with one of the two solutions. If nothing is achieved with either, the surface is most likely an epoxy and bond won't be acceptable without mechanical abrasion to a clean substrate.

Paint Type	Solvent	Results	Adhesion Potential
Acrylic (Latex)	Denatured Alcohol	Paint color visible on rag	Good
Oil (Alkyd)	Paint Thinner	Paint color visible on rag	Marginal, not recommended
Epoxy	Denatured Alcohol and Paint Thinner	No paint color visible with either solvent	Not Acceptable

Now might be a good time to check for lead with a test kit should removal be necessary. For additional information go to the EPA web site.

Bond Test over an acrylic paint: Mineral spirits did not remove any of the coating, denatured alcohol did

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Adhesion Check

Cleaning and Preparation

A good cleaning is needed to ensure good adhesion. For the test area you will want to use the exact same preparation and cleaning intended for the rest of the building. Typically Trisodium Phosphate (TSP) or a TSP substitute is used over paint. Add some bleach if removing mildew. Follow the manufacturer's recommendations for heavy duty cleaning and allow to dry. Power Washing is recommended.

Bonding Agent/Rollershield/EPSB

In general we recommend some type of bonding agent to aid and bond and protect the existing surface from alkali degradation. Depending upon the application either Master Wall® BA57 bonding agent, Rollershield or EPSB could be used as the bonding agent. Rollershield is appropriate if you're applying the Rollershield Drainage EIFS, otherwise apply BA57 to the test area and allow to dry.

Architectural coatings (Roller-flex, Elasto-flex, ReCote™) do not require bonding agent.

Test Strips

Make test strips out of Master Wall® Standard Mesh measuring 2" wide by 24" long. Cut the mesh so that the wider strips of fiberglass are 2" wide and the weave is 24" long (see photo). Typically about one test strip per 1000 square feet is satisfactory.

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Choose Materials

Select the appropriate Master Wall® material for the intended use. In general you want to test the first material making contact with the prepared surface.

Material	Master Wall® Systems	Notes
Cement Base Coats & Barriers: F&M, MBB, F&M Plus, MBB Plus, Quick Set MBB, Guardian, WeatherStop	Aggre-flex EIFS (adhered), Commercial Drainage EIFS, Uninsulated Finish	Cemplaster Fiberstucco is not allowed to be adhered to painted surfaces. Use metal lath.
Finishes: Superior or Superior Elastomeric Plus Finishes (direct to paint)	Superior Finishes over Stucco	BA57 not normally needed. Surface needs to be smooth for finish application, requiring EPSB
Rollershield	Rollershield Drainage EIFS	Apply Rollershield directly to the surface without using BA57
EPSB Base Coat	Uninsulated Finish	BA57 not normally needed
Architectural Coatings: Roller-flex, ReCote™, Elasto-flex	Coating over a previously painted surface	For these applications paint a test area, allow to dry, and then check adhesion by placing duct tape over the surface and removing.

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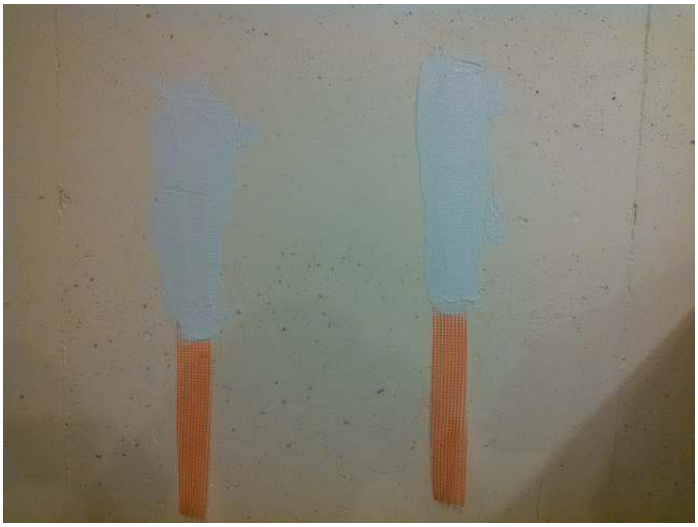
Apply Materials

Mix or prepare the material according to data sheet instructions.

For Base Coats: Apply a layer measuring about 3" wide x 12" long. Immediately embed the Standard Mesh test strip into the surface and cover with additional material. Compared to regular applications the base material needs to be thin with pattern showing. Allow to dry for at least 3 days in good weather. About one foot of the mesh will remain exposed

For Architectural Coatings, Superior Finishes to painted stucco and Rollershield: Apply the coating to the surface measuring about 3" wide x 12" long. Allow to dry for at least 3 days in good weather.



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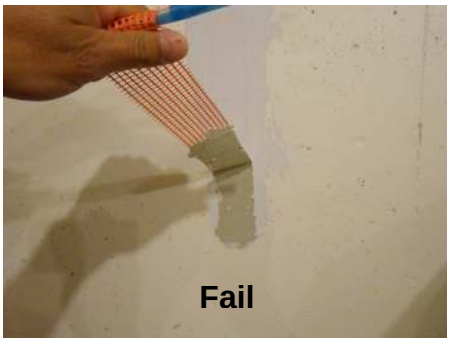
Bond Testing

After the test area has dried for at least three days check bond in the following manner:

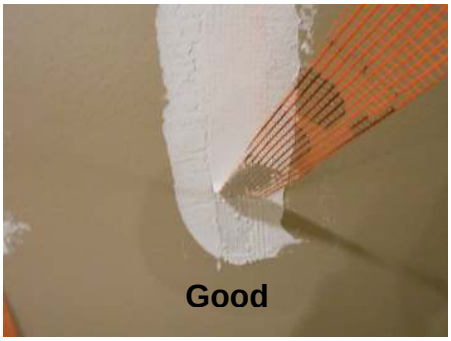
For Base Coats and Finishes: Roll the loose test strip around the pencil or pen and pull off surface at a 90-degree angle and note findings. A successful pull test will leave material on both the wall and the mesh with no loss of bond to the coated surface.

For Superior Finishes over painted stucco: Take your margin trowel and check bond by trying to get under the aggregate and remove the finish. In a successful test the finish can't be removed.

For Coatings and Rollershield: Cut an "X" on the surface with a utility knife. Press some duct tape over the cut area and pull off at a 90-degree angle. If none to a small amount of paint is visible on the duct tape in the X location this indicates that the coating bond is good.


Fail


Fail


Good

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From Adhesion to Application

If the bond test proves successful, continue with the application following the cleaning/preparation process, BA57 bonding agent, and Master Wall® recommended application practices. While the testing conducted does verify that short-term bond is good it does not guarantee that the paint will remain bonded for the life of the building. We recommend considering the following strategies to ensure a longer-term application:

Coatings Direct to Paint (Roller-flex, ReCote, Elasto-flex): No further action required.
Rollershield Coating: No further action required.
Superior Finishes over painted stucco: No further action required.
Uninsulated Finish Application: Strongly consider the use of mesh over the painted surface. Should any spot de-bonding occur it will help to reinforce the area. Make sure flashings direct water away from the wall.
Master Wall EIFS Applications: Consider the addition of about four fasteners per sheet as additional support.

Alternate Methods

If the bond is poor then Master Wall products will not adhere to the surfaces. Alternative methods could include the following:

- Removal of the painted surface down to a clean, approved substrate by abrading, sandblasting or water blasting. Care would be needed to contain any lead paint for proper disposal.
- Applying a mechanically attached EIFS to the surface.
- Mechanically attaching metal lath to the surface, then adhering the EIFS to the metal lath.
    - Lath should be either 2.5#/sy or heavier
    - Mechanically attach with appropriate fastener every 6” vertically and 16” horizontally
    - Adhere with an approved Master Wall adhesive such as F&M or MBB.

Ultimately it’s up to the owner as to whether or not this method will work for their project as the paint bond is not guaranteed and there is risk with this evaluation method. Please contact Master Wall® if you have any concerns about your specific application.

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Field Adhesion Checklist

Project: _____

Address: _____

City/State: _____

Approximate square footage of application: _____

Paint Bond Check (X-Test)

of test areas: _____

- o Pass: _____
- o Fail: _____

Paint Type Check

- o Acrylic Latex
- o Oil Based
- o Other

Field Adhesion Test

Master Wall® Product Used: _____
# of Test Areas: _____
Date/Time Applied: _____
Date/Time Tested: _____

- o Pass: _____
- o Fail: _____

Additional Comments: _____

Submitted by (name, email and phone): _____

Fax to 706-562-6704 or email to tech@masterwall.com

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MW# 174-110111

Topic: Specifying Liquid Applied Barriers

Related Information
Rollershield Drainage EIFS
Rollershield LAB
Rollershield Data Sheet
Trowelshield Data Sheet
Rollershield Mesh Data Sheet
Rollershield Flashing Tape Data Sheet

Whether called Liquid Applied Barriers (LAB), Fluid Applied Barriers (FAB) or the simply put "water barrier in a can", these fluid applied materials represent the future of the building protection. Consider their near-magical properties:

- They resist water infiltration.
- They offer extremely low air infiltration capabilities.
- They adhere directly to the substrate, no laps, gaps or rattling in the wind.
- They stick to most flashing components including copper, steel, aluminum and vinyl.
- They can be flashed into openings. They incorporate proprietary flashing components.
- Site damage is easy to repair, much easier than any sheet good.
- Many are water based with low VOC.
- Some are vapor permeable, some are designed to be vapor barriers.
- Some are very cost effective, others are premium priced.

Rollershield used in a renovation project. Rollershield was flashed onto the framing. The windows behind the framing would eventually be removed and replaced with new units.

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LAB Properties

The primary function of a LAB is to resist the penetration of water. The test method for measuring the performance of the fluid applied barriers is ICC-ES AC212; *Acceptance Criteria for Water-Resistive Coatings used as Water-Resistive Barriers over Exterior Sheathing*. Contained in the criteria are various tests one would expect such as water hold out, vapor transmission and bond. Unique to these products is a racking and water spray test. This test subjects the wall to structural movement and *then* measures its ability to resist water entry.

The secondary function of a LAB is to resist air infiltration. The fluid nature of the product allows for a continuous application with very low infiltration rates. Typically extra care is needed at windows, doors and other penetrations to make sure the air is restricted from entering the building.

Rollershield along with Rollershield Flashing Tape easily conforms to wall irregularities.

Thickness of application can vary. For example, Master Wall's Rollershield is specified as a 15-mil wet thickness, 10 mil dry thickness. Trowelshield would be a nominal 60 mil. Some other products are even thicker. LAB's may normally be applied with roller, trowel or spray equipment. Some substrates like OSB or very porous CMU may require two coats for complete coverage.

Rollershield Properties

ASTM C297 Tensile Bond		
	Dens Glass Gold	31.6 psi
	Exterior Gypsum	28.2 psi
	OSB	40.4 psi
	Plywood	79.1 psi
	Cement Board	70.6 psi
	Copper	185.1 psi
	Galvanized Steel	180.8 psi
	Rigid PVC	168.2 psi
	Aluminum	184.2 psi
	Color Coated Aluminum	203.5 psi
	Stainless Steel	183.0 psi
ICC-ES AC212 Freeze Thaw		
	Plywood	Pass
	Cement Board	Pass
	OSB	Pass
	Exterior Gypsum	Pass
	Dens Glass Gold	Pass
ASTM D2247 Water Resistance ICC-ES AC212		
	Exterior Gypsum	Pass
	Dens Glass Gold	Pass
	Cement Board	Pass
	Plywood	Pass
	OSB	Pass
ASTM E96	**Water Vapor Transmission**	
	203 g/24 hr/m2	
	30.5 perms	
ICC-ES AC212 Full Scale Conditioning and Water Testing		Pass
ICC-ES AC212 Weathering 55 cm Head		
	Exterior Gypsum	Pass
	Dens Glass Gold	Pass
	Cement Board	Pass
	OSB	Pass
	Plywood	Pass
ASTM E2273 EIFS Drainage Performance ICC-ES AC212		99.2% Efficiency
ASTM E2178 Air Permeability		
	0.0002 cfm/ft^2 at 1.57 psf	
ASTM E-84 Combustibility		
	Flamespread-5	
	Smoke Developed-5	

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LAB Barrier Types

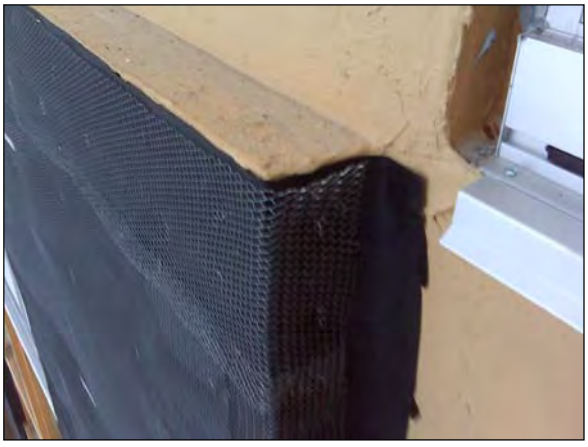
Some are water resistant but vapor permeable (or retardant). Others are true vapor barriers. Not all LAB's are air barriers.

In most cases you want a barrier that resists the transfer of bulk water and air, yet is breathable to allow the passage of water vapors. This helps should any water get into the wall it has the possibility to dry out.

New Definitions
Class I Vapor Retarder: 0.1 perm or less
Class II Vapor Retarder: 1.0 perm or less and greater than 0.1 perm
Class III Vapor Retarder: 10 perm or less and greater than 1.0 perm
Vapor Permeable: 10 perms or greater

Old Definitions
Vapor Permeable: Greater than one perm
Vapor Barrier: Less than one perm

Vapor barriers or the new Class definition of vapor retarders restrict vapor movement. In these cases it's important to understand that the wall will not be drying out through the vapor barrier. Condensation dew points should be calculated and careful sealing of penetrations is necessary.



LAB Use under Wall Cladding

Typically a LAB may be used under any cladding type. Brick, vinyl and cement board are some of the more popular applications. We recommend a second water barrier under traditional stucco or synthetic stone and require them under Master Wall -branded stuccos.

Some concerns have been expressed about the need to seal brick ties or other fastener penetrations. This can be a concern where strict air-infiltration requirements are needed but are not part of a typical installation. Gaskets, sealant or a dab or Rollershield/Trowelshield could be specified in those cases.

Top: Rollershield was run continuously over the entire substrate. Paper Backed lath is used at the stone areas. Bottom: Completed installation of EIFS and Stone.

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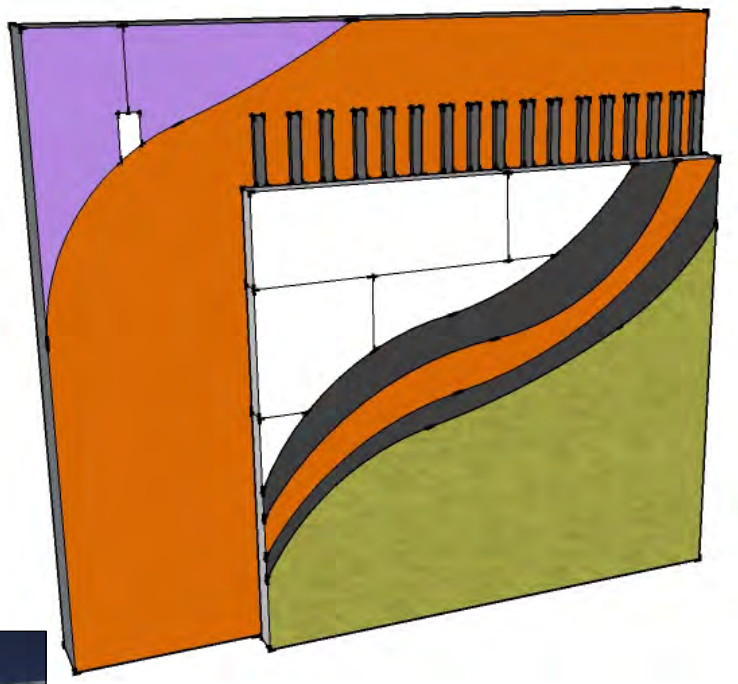
EIFS is Unique

While other cladding applications rely on a mechanical means of attachment, EIFS is special because it can be adhesively attached directly to the water barrier. In order for this to occur extensive testing is performed on the wall assembly to verify that it drains water when needed and also stays adhered to the wall surface under loading.

Because of this unique property specifiers need to require the same manufacturer supply the LAB and EIFS. The alternative to this option is a mechanically attached EIFS over the LAB.



Top: Rollershield Drainage EIFS adhered assembly. One manufacturer, one warranty.

Left: Active application with insulation removed showing drainage channels.

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MW# 175-210501

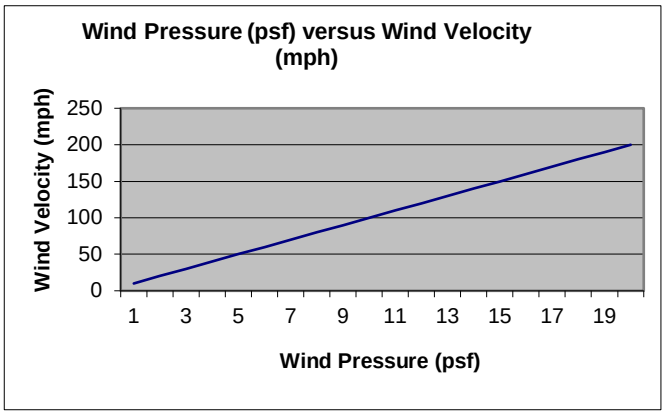
Topic: Wind-Rated Assemblies

Master Wall Inc.® has tested a variety of our systems for wind loading. Those recognized under the code report have been tested to failure. Others such as Dade County were tested following a specific protocol (not to failure). The results are included in this bulletin.

Calculating Wind Loads

EIFS calculations are in pounds per square foot (psf), but region wind requirements in the ICC Building code is in miles per hour (mph). The calculation is psf = .00256 (mph)2 . This is a basic calculation and typically things like importance factors or regional requirements are added. ASCE-7 is another method of calculating building requirements. Ultimately, it is up to the designer to perform the calculations and list the requirements in psf.

Basic Wind Pressure Values



10	20	30	40	50	60
0.26	1.02	2.30	4.10	6.40	9.22
70	80	90	100	110	120
12.54	16.38	20.74	25.60	30.98	36.86
130	140	150	160	170	180
43.26	50.18	57.60	65.54	73.98	82.94
190	200	210	220	230	240
92.42	102.40	112.90	123.90	135.42	147.46

Wind Velocity (mph)
Wind Pressure (psf)

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Wind Load Strategies

Master Wall Systems are acceptable for most wind-load requirements, but what if something more is needed? Here are some strategies:

- For EIFS, consider the adhesively applied systems as they offer the best wind load resistance. Adding fasteners to these systems is beneficial from a psychological standpoint but will not add to the wind rating.
- Mechanically attached systems are limited by the insulation board shear thickness. Thicker insulation board will perform better.
- Upgrade your sheathing from C-79 to C1177. They are harder and more durable.
- Increase substrate fastener spacing. Typically reducing the spacing from 8" centers to 4" improves wall performance significantly.
- For stucco, increase the lath fastener spacing. ASTM says no less than 7", Master Wall lists 6" for our OCS Fiberstucco and Cemplaster Stucco systems, and Florida now says 5" maximum spacing.
- For stucco, consider Lath Locks or similar larger head plates. They increase the surface contact area with the lath.

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MW# 175-210105

Topic: Wind-Rated Assemblies

International Building Code Assemblies

Assembly	Systems	Studs	Spacing	Substrate	Insulation	Attachment	Ultimate Positive Load (psf)	Ultimate Negative Load (psf)	Allowable Positive Load (psf)	Allowable Negative Load (psf)
EIFSWPM01	AF, AFD	2x4 SPF	16” o.c.	½” Plywood	1”	Mechanical	175.25	68.9	60	25
EIFSWPM02	AF, AFD	2x4 SPF	16” o.c.	½” Plywood	1 ½”	Mechanical	185.12	100.01	60	35
EIFSWPA01	AF, RSD	2x4 SPF	16” o.c.	½” Plywood	¾”	Adhered	200.55	180.96	65	60
EIFSWPA02	AF, RSD	2x4 SPF	16” o.c.	7/16” OSB	¾”	Adhered	160.15	168.83	55	55
EIFSWGA01	AF, RSD	2x4 SPF	16” o.c.	½” Gypsum	¾”	Adhered	169.35	131.91	55	45
QEIFSWPM01	QR	2x4 SPF	16" o.c.	7/16” OSB	5/8" PISO	Mechanical	161.72	83.01	55	30
EIFSMGA01	AF, RSD	4” C, 18 Gauge	16” o.c.	½” Gypsum	¾”	Adhered	262.77	151.15	90	50
EIFSMGA02	AF, RSD	4” C, 18 gauge	16” o.c.	5/8” Gypsum	¾”	Adhered	287.04	218.75	95	75
EIFSMGA03	AF, RSD	4” C, 18 gauge	12” o.c.	5/8” Gypsum	¾”	Adhered	262.6	183.39	90	60
EIFSMGA04	AF, RSD	4”C, 18 gauge	16” o.c.	½” Dens Glass Gold	¾”	Adhered	200.2	138.67	65	45
EIFSCA01	AF, RSD			Concrete/Brick/CMU	¾”	Adhered	*	*		
EIFSML01	AF, AFD, RSD	2.5#/sy metal lath		Approved	¾”	Adhered	*	*		
OCSWPM01	CFS	2x4 SPF	24" o.c.	7/16" OSB	None	Mechanical			42	38
OCSMGM01	CFS	4"C, 20 gauge	24" o.c.	1/2" Gypsum	None	Mechanical			36	27
OCSMC01	CFS			Concrete/Brick/CMU		Mechanical	*	*		
OCSCA01	CFS			Concrete/Brick/CMU	None	Adhered	*	*		

* Limited by wall structural capability

AF=Aggre-flex EIFS, AFD=Aggre-flex Drainage EIFS, RSD=Rollershield Drainage CIFS®, QR=QRW1 Drainage EIFS, CFS=Cemplaster Fiberstucco

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MW# 175-210105
Topic: Wind-Rated Assemblies

Hurricane Assemblies

Assembly	Systems	Studs	Spacing	Sheathing or Substrate	Impact Mesh & Base	Attachment	Insulation	Meshes	Rated Load (psf)
H110F1	AF, RSD	6" C, 16 gauge	16” o.c.	5/8" Dens Glass Gold	HiTech, F&M	Adhesive	1”	Ultra & Standard	110
H070F2	RSD	3-5/8" C, 18 gauge	16” o.c.	5/8" Dens Glass Gold	HiTech, Rollershield	Adhesive	1"	Ultra & Standard	70
H00F4	CFS, FS	2x4 SPF	16” o.c.	5/8" 5-ply Plywood	None	Mechanical	7/8" Stucco	None	*
H75F5 (large missile)	AF, RSD	3-5/8" C, 18 gauge	16” o.c.	1/2" Dens Glass Gold	Ultra Mesh, F&M	Adhesive	1"	Standard	75
H75F6 (small missile)	AF, RSD	3-5/8" C, 18 gauge	16” o.c.	1/2" Dens Glass Gold	None	Adhesive	1"	Standard	75
H140C1	AF,RSD			8" CMU	None	Adhered	1"	None	140
H00C2	CFS, FS			8" CMU	None	Adhered	5/8" Stucco	None	*
H00C4	UF			8" CMU or Concrete	Standard (optional)	Adhered	UF System	None	*
H00C5	ICF			Dade Compliant ICF	Standard	Adhered	ICF	None	*

* Limited by wall structural capability
AF=Aggre-flex EIFS, RSD=Rollershield Drainage CIFS®, CFS=Cemplaster Fiberstucco, FS=Superior Finishes over Stucco, UF=Uninsulated Finish System
ICF=Insulated Concrete Form Finish System

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MW# 176-020112

Related Information
Master Wall Drainage Systems and Stucco Systems

Topic: Window Head Flashing

By Dennis Deppner

Long before I was Technical Services Manager at Master Wall I worked in the field as a carpenter, and later managed the roofing and waterproofing department of a consulting firm. Knocking tin was a daily occurrence, either in the field or as a designer on commercial projects.

There's a lot to know about the appropriate use of flashing. In this article we will review the fabrication a simple head flashing along with some comments/opinions that I have learned. You may choose to do things differently (or better).

Basic Tools

- Prefabricated Flashing
- Tape Measure
- Hammer
- Knife
- Tin Snips
- Marker
- Square
- Rivet Gun
- Sealant
- Gloves
- Wiss HS-1 Hand Seamer (only specialty item)

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Measure your window width. In this case our window is 26-3/4" wide.

The sealant joint for an EIFS is ½" wide and in this case we're ending the sealant joint at the bottom of the flashing.

Finally every head flashing needs an end dam to keep water from dumping down the wall. In this case we used 1".

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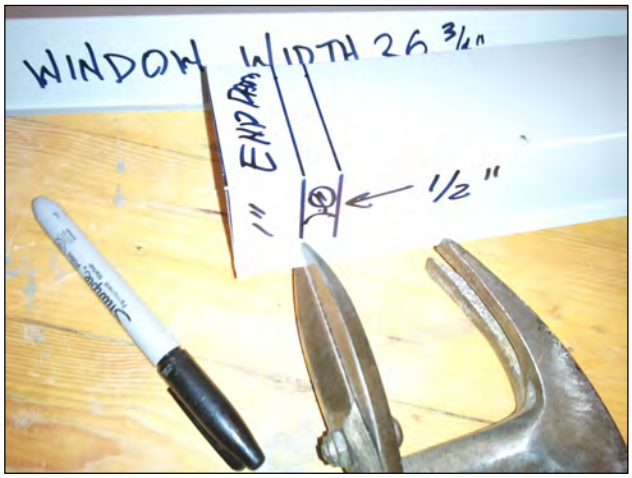
To form the end dam cut the vertical portions of the flashing. The back flange and the front turn down are cut.

The front turn down should be removed. In this case the sheet metal was thin so a knife was used to score the fold, then the small piece removed.



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Now fold the end dam upward using the hand seamer. Note how the end dam cutoff goes behind the flashing.

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Install a pop rivet or fastener to hold the end dam in place. Keep the location of the rivet as high as possible from the bottom of the flashing.

Use a compatible rivet of the same material as the flashing otherwise galvanic reaction (corrosion) will occur.

The rivet stuck out a little far on the back side of the flashing so the hand seamer was used to flatten it.

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Finally, I like to bevel the end dams to suit the application. In this case leaving 1/8" at the back, 0" at the front. On completed systems the flashing looks thin and the system has a 1/8" gap to allow for drainage.

If you want a full height end dam just cut it off straight at 1/8".

If needed, a small amount of sealant could be added at the back corner or over the rivet as additional protection.

In tropical environments with heavy wind-driven rain you should consider setting the flashing in a full bed of sealant.

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MW# 178-070114

Related Systems
Cemplaster Fiberstucco

Topic: Cemplaster Fiberstucco Control Joint Option

The practice of control jointing is listed in ASTM C1063. Section 7.10.1.4 specifically states that for a control joint the lath shall not be continuous through control joints but shall be stopped and tied at each side. Control joints are used to control stucco thermal/shrinkage movement and to provide a leveling guide for stucco application.

Control joints are not expansion joints. Where structural movement occurs back-to-back casing bead and a true expansion joint is required.

At first blush, the standard is straightforward but in practical use it does present some problems:

- If both sides are wire tied the control joints can tend to move or bulge depending on their location, especially without support framing.
- If structural securement is needed, additional framing needs to be provided.
- The additional framing should be located by the architect or designer, meaning if it is not provided there will usually be a change order.
- The full depth control joints are placed directly against the water barrier.

Surface Mounted Control Joint

The lathing sequence is slightly different; once the weep screed is placed, casing beads and lath are applied, a control joint is wire tied to the lath per the plans. This control joint has slightly less depth (or ground) than the full depth control joint but would perform the same function. It also offers the following benefits:

- No need for additional framing.
- No fastened attachment points so less points for water entry.
- A small amount of stucco is behind the control joint making it more consistent with the rest of the wall construction.

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Industry Support
This type application is endorsed by the following trade groups:

SCWCPA/TLPCA in their publication.
TSIB in their publication.

In addition, the practice of limited depth control joints is recognized in concrete slabs by these groups:

ACI in their publication.
NRMCA in their publication.

In these publications, the concrete reinforcement is run continuously.

Master Wall Support
Ultimately, it is up to the designer or field engineer to determine if executing a policy in strict compliance with ASTM C1063 suits their needs. From Master Wall Inc's perspective, the use of the control joint accessory over the lath will not affect our product warranty.

While the calculated thermal stress at the control joint is practically nil, keep in mind that all stucco can crack whether the ASTM or optional detail is used. We have developed a Technical Bulletin outlining some crack reducing strategies.

Please reference the enclosed Special Detail for consideration.

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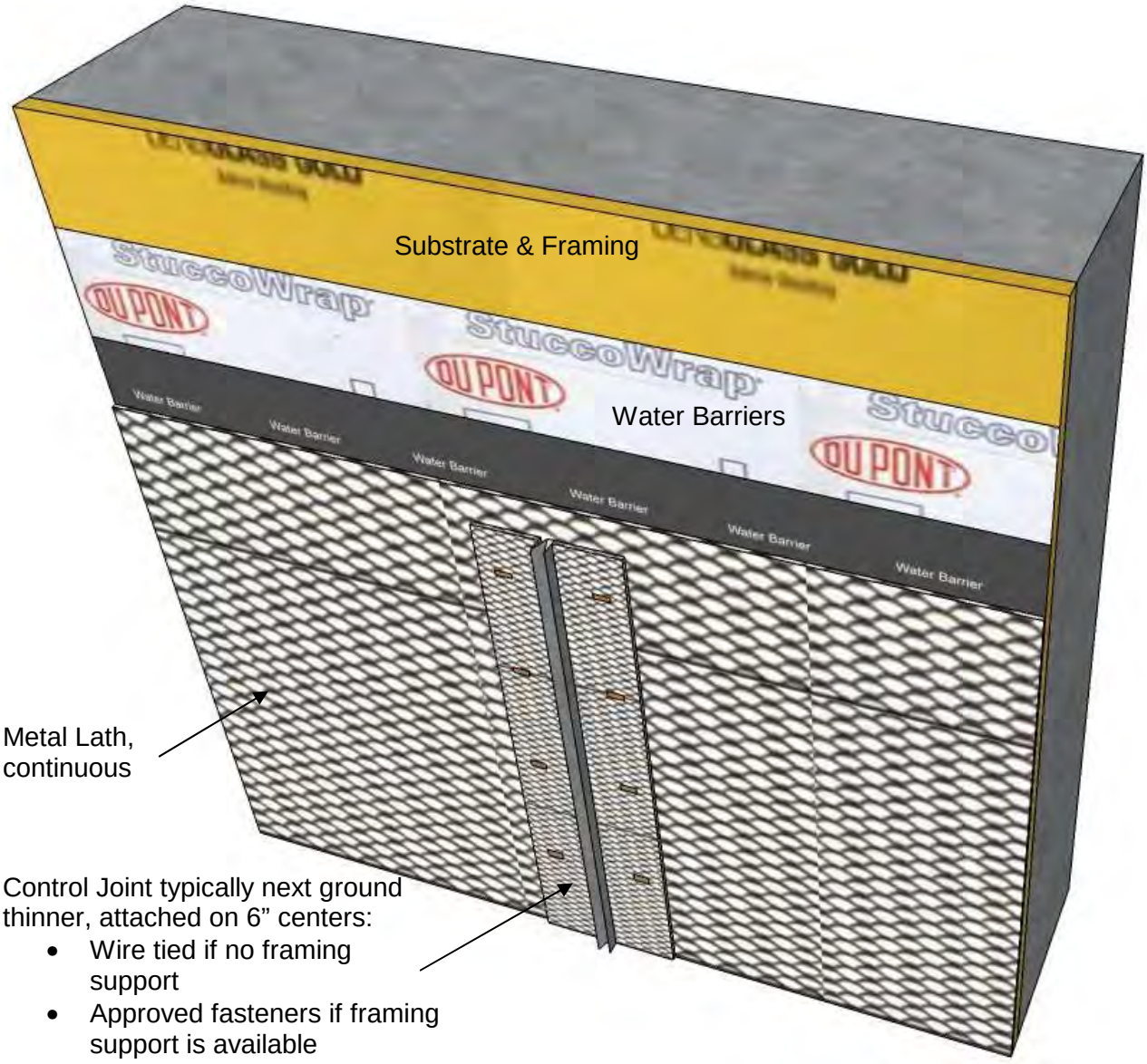
Master Wall® Systems
Conceptual Detail
PO Box 397 Fortson, GA 31808 800-755-0825 Technical 800-760-2861

June 24, 2014



CFSSD-003 Stucco Control Joint over Lath

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MW# 179-120115

Related Systems
Cemplaster Fiberstucco

Topic: Expanded Metal Lath

Diamond Mesh Lath has been around practically forever in various forms such as flat, dimpled, paper backed, and it is easy to take it for granted that it is a commodity and they are all the same. Unfortunately, this is not always the case.

The reference standard for metal lath is ASTM C847. This standard was revised in 2014 and includes some revisions including extending the length from 96" to 97". As you can see from the photo at the right, some suppliers are not on board with the new standard.

Big Box can lead to big problems when it comes to non-compliant lath

Why is this important for your projects? It all comes down to the application of the lath. In standard applications the lath needs to be lapped a minimum of 1/2" (12.7 mm) at the sides (ASTM C1063, 7.8.2). The 97" length makes it easier to meet the lap requirement over a framing member without having to resort to wire tying the metal lath as you would with non-compliant lath.

Compliant Lath Benefits

With compliant lath you get other benefits that extend beyond the purchase price. These include the following:

- A building code compliance report to help you breeze through any building official concerns.
- Technical support from both the lath manufacturer and Master Wall®.
- A valid Master Wall® warranty when our products are used.

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Field Checking Lath for Conformance

The lath in full bundles should be labeled with a tag, band or label with the manufacturer's identification, lath weight, notation that it meets ASTM C847 and possibly color-coding (Blue for 2.5, Red for 3.4). If the manufacturer has performed third-party testing it will be noted on the tag as well. 1.75#/sy lath is not included in ASTM C847 and relies on a manufacturer's code compliance report.

The lath itself should measure 27" (686 mm) by 97" (2462 mm) with a nominal thickness of 5/16" (7.9 mm) for self-furring lath.

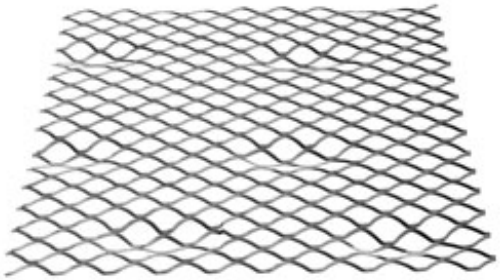
A fish scale or any 10lb scale can be used to check the lath weight. The ASTM standard permits a +/- 10% of target weight (section 4.5.4) and it should weight within the tolerances noted below:


ATI Evaluation Service
A Division of Architectural Testing – Certification Services
Code Compliance Research Report CCRR-0204

Quality lath comes with a code report and manufacturer support
Courtesy ClarkDietrich™ Building Systems, LLC

Sheet Style	Total Sheet weight (range)
1.75 lbs/sq.yard	3.5 lbs/sheet (3.15 lbs – 3.85 lbs)
2.5 lbs/sq. yard	5.00 lbs/sheet (4.5 lbs – 5.5 lbs)
3.4 lbs/sq.yard	6.8 lbs/sheet (6.12 lbs – 7.48 lbs)

If you finding lath weights not within these ranges, contact the manufacturer to report the discrepancy and ask for a properly weighted product to be supplied.



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MW# 180-170301

Topic: Tight House Syndrome

The focus of this bulletin is not about EIFS or stucco or even water barriers. It is more an observation on how we are building or how we are going to be building in the near future. With energy codes dictating how much continuous insulation we need and how little air they can leak, we are more or less building our own version of a cooler.


A great place to store a cold one…but you do not want to live there

Coolers are amazing things. They keep hot things hot. They keep cold things cold. However, they don't keep live things alive and we need to think about that. People live in our coolers…

….and those people! They're stinky, they cook, they take a lot of showers and they let loose with a surprising amount of moisture. The typical house is a gold mine of toxins, out gassing building products and cleaning chemicals. No wonder they say home air is much worse than outdoor air, and some people experience sick building syndrome.

For the most part, we engineer commercial buildings to provide continuous air changes. Fresh air is brought in, stale air is sent out and the building is under positive pressure. Being slightly pressurized the building "leaks" filtered air to the exterior. That's OK.

Residential buildings are exactly the opposite, for years we have relied on the home's "leakiness" to change the air. The leaky air is unfiltered and uncontrolled. This does not work well. We can be left with a stinky home with unusually high humidity and negatively pressurized. This negative pressure or suction can bring in dirty air and occasionally water. The point is that with the new tools available such as liquid applied air/water barriers, homeowners can be the victims of a well-planned air barrier strategy but a poorly executed mechanical solution. Building code officials are thinking about it…as you can guess, it costs more.

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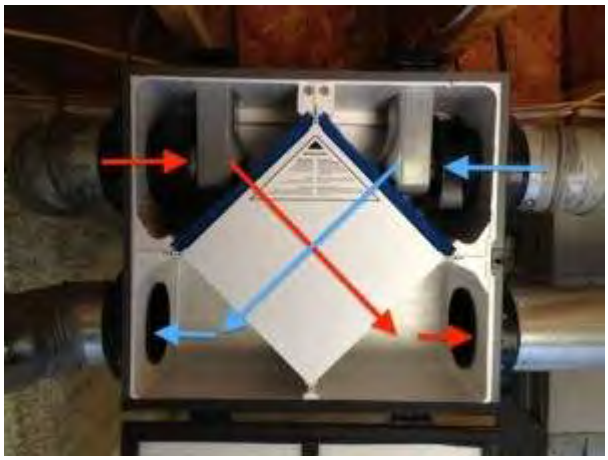
Of course, you could just open a window to ventilate the home but this doesn't work well in extreme temperatures and controlling humidity will be a problem. Mechanically provided air changes are going to be the future of residential HVAC because they can heat or cool the air as needed along with removing any excess moisture in the home. The two most common units are a Heat Recovery Ventilator (HRV) and an Energy Recovery Ventilator (ERV). There are nuances to each, but the point is both exchange either the heated or the cooled air with incoming air to save energy while providing fresh filtered air from a single location.



HRV or ERV's either pre-heat or cool the entering air to reduce energy loss. The intake and exhaust never touch each other and exchange energy through a radiator.

In addition to defining required air changes in a home, some local code agencies are now requiring balanced mechanical ventilation. Since products like our Rollershield Liquid–applied Air/Water Barrier (LAB) have reduced the air leakage rate to practically zero, it is likely you will start to see these units in use on homes soon.

Is Tight House Syndrome something you should focus your business on? Probably not. However, it is something you need to be aware of as your business grows and building codes begin to mandate these advanced systems.

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MW# 181-190101

Topic: Metallic Finishes Tips and Tricks

Metallic finishes are hot right now. Designers are looking to these finishes to add drama and visual variation to the wall surface. Master Wall® has several options for the designer and applicator to consider, but some are more appropriate than others when planning the application.

Texture Concerns

Standard finishes and colors always came with the saying "Texture is color, color is texture", meaning that as the finish becomes bolder or smoother the color will look slightly different. With metallic finishes the texture usually starts with our Fine Sand 1.0 and only gets finer. The color looks the same but any surface variations become more pronounced with finer finishes meaning greater care is required to help avoid dips as even the smallest variation can show up depending upon the sun's orientation.

The reality is, if the surface is more than ten feet away it is hard to tell a textured finish from a fine one. So it is to the designer's benefit to have some texture in the surface to minimize the effects of planar surface variations.

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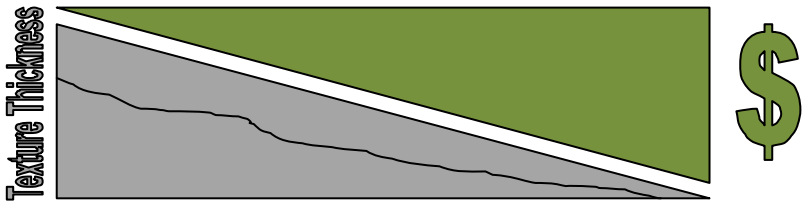
Surface Considerations

The finer the finish, the finer the subsurface needs to be. This can include double or triple base coats, leveling coats and diagonal rasping or sanding techniques. When the finish is expected to look like a metal panel, the techniques and skill needed is much the same as a custom auto body shop, and one way or another you are going to need to break up the panels.



The finer the texture, the greater the overall costs

Visual Panelization

As the finish becomes finer it becomes more important to visually break the panels with grooves. Why? First, you are approaching the limitations of the wall and the mechanic performing the work. Buildings are not that exact. Therefore, the walls need to be broken into smaller panels so they can accurately be worked smooth. In the same manner that a metal panel will oil can or vary, metallic finishes will change slightly in plane and this may be visually objectionable.

Example of oil cannning a.k.a. buckling or surface variation on a metal building

Wall Panel with Metallic Cote

Walls are never straight. While we suggest a maximum of 5' x 5' panels, for very smooth applications panels should be much smaller. This will help hide surface and wall variations the same way it would in real metal panels.

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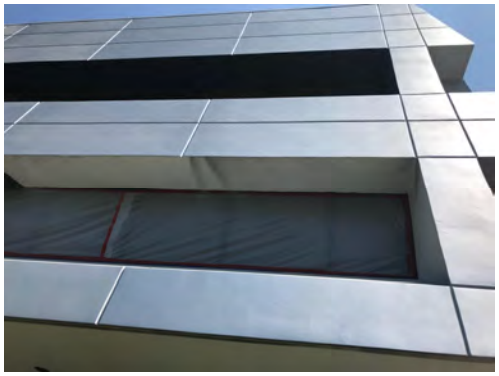
Practical Recommendations

For larger areas where you want the metallic look use either a base of Fine Sand 1.0 with a coating of Metallic Cote or use our MetalTex Fine Sand with the metallic coating infused into the product.

For smaller pieces our MetalTex Aggrelime can be used, but keep the areas small such as a quoin or trim.

If you are going for a metal panel look without the appearance of oil canning, you will want to visually divide the panels into very small panels, no larger than 3'x3'. These panels will need 2-3 coats of base coat, at least two leveling coats of our Savannah finish using the cross-sanding technique described in our bulletin and a professional spray out of 1-2 coats of Metallic Cote.



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MW# 182-190401

Topic: Critical Light

It can have several terms, but Critical Light best describes what can happen to buildings when a light source is at or near parallel to a wall surface. It can be visible from a man-made light source such as uplighting but is more commonly seen when the sun is parallel to the wall. Under these critical light conditions any small imperfections in the wall becomes visible, if only for a few minutes each day.

Exterior Insulation and Finish Systems (EIFS, CIFS®), stucco and direct applied finishes are hand applied materials, and there are natural and normal variations that will occur with the practice. It will not be perfect, and this variation does not affect the performance of the coatings and should be expected.

Causes of Critical Light Occurrence

Just because variations in the surface plane are expected does not mean they are appreciated. These are some common causes of variations:

- Out of Plane Framing
- Large flat wall surfaces
- Lack of secondary aesthetic treatments (Foam Bands, V-Grooves)
- Fine to super fine finishes

The flatter the wall framing, the better the project will look. The requirement is to have a wall flat to 1/4" in 10' both vertically and horizontally. EIFS is more tolerant of wall variations as the insulation board can be rasped somewhat easily. Stucco is less tolerant and direct applications mirror the substrate conditions almost directly.

Due to their size, large flat wall surfaces seem to show more variations when the sun is parallel to the wall. Corners, curves and aesthetic treatments tend to break up even the most irregular walls both visually and from critical light.

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MW# 182-190401
Topic: Critical Light

The finer the finish the more variations can be seen. Painted stucco shows almost every variation and bolder finishes such as Medium Sand 1.5 cover wall variations and help minimize critical light.

Tips to Avoid Critical Light Conditions

While critical light will never go away entirely there are some visual tips and tricks to minimize the condition:

- Realize it won't last forever. Critical light only happens while the light source is parallel to the wall and will disappear as quickly as it occurs.
- Avoid up lighting in favor of a wash. Shining an up light parallel to a building will show any wall variations and common floor-to-floor variations. The stucco applicator can't take out what the carpenter put in.
- Break up the building. If it fits aesthetically, break up the building with corners, aesthetic joints or projections. All these seem to break up the appearance and reduce the critical light effect.
- Landscape helps. Trees or anything that blocks parallel light sources against the building will break up the appearance of wall variations.
- Bolder finishes hide variations. While current trends are toward smoother surfaces, consider bolder finishes for larger wall areas. It really does help hide wall variations.

Summary

From the framing outward, normal variations can be expected in any wall. Critical light is tied to the building conditions and orientation. Since buildings are not perfectly flat it will occur but will go away when the light source moves.

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MW# 183-190401

Topic: DuroTone Pigment UV Resistance

Master Wall® DuroTone pigments are the next generation in performance pigments formulated specifically for exterior stucco and CIFS® walls. Formulated for deep and intense colors, it is an option to supplement standard pigments and has some unique properties:

- The pigments are more intense than standard pigments.
- They are formulated to block efflorescence more effectively.
- High colorfastness and resistance to UV degradation is significantly better.
- The colors are warranted for colorfastness rather than fade resistance.

All these claims could easily be perceived by an architect or owner as creative marketing, especially when the pail and even the tint in the pail generally look the same. So what can a distributor or applicator do to demonstrate this is needed or even better?

Color & Formula Review

Architects are selecting deeper, intense and vivid colors for many projects. This is not how it used to be. For the past thirty years colors have generally been beige or gray. Bold colors with standard pigments can be tinted and the pigments are fade resistant, but they just break down quicker and are not fade proof.

When custom colors are requested we review the formulations to determine if DuroTone pigments would be a good choice for the color and suggest their use where appropriate. Architects and designers need to be aware DuroTone pigments cost more and projects bidding with a standard formulation may not include DuroTone. You need to request it.

One may be tempted to deduce Master Wall® just uses poor quality pigments. The standard pigments we use are used by most if not all manufacturers in our industry and are considered the benchmark of quality. DuroTone is simply a better option when colorfastness is needed.

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UV Aging

Explaining the benefits of DuroTone pigments is difficult without quality testing equipment. A weatherometer is a piece of state-of-the-art equipment used to rapidly age color samples. In this case we are looking for visible color change.

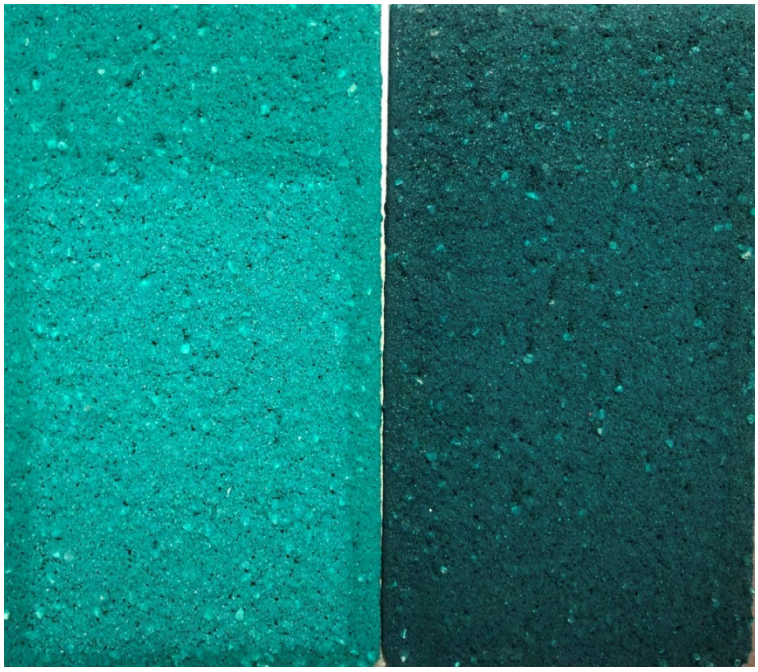
DuroTone Aging Experiment

To demonstrate the benefit of DuroTone pigments, a standard base Superior Finish was tinted with 10-oz of standard primary color and another sample with the same quantity of DuroTone pigments and subjected to a 2000 hour-UV aging.

The first thing you notice about the samples is the DuroTone is much more vivid. This is due to the intensity of the color. These samples represent pure color. Keep in mind that tinted colors will be a mixture of several pigments.

Pthalo Green

In this primary green tinted finish you can clearly see the degree of fading in the color.



In these samples the lighter square is exposed to the UV while the top portion is protected by the jig that holds it in place.

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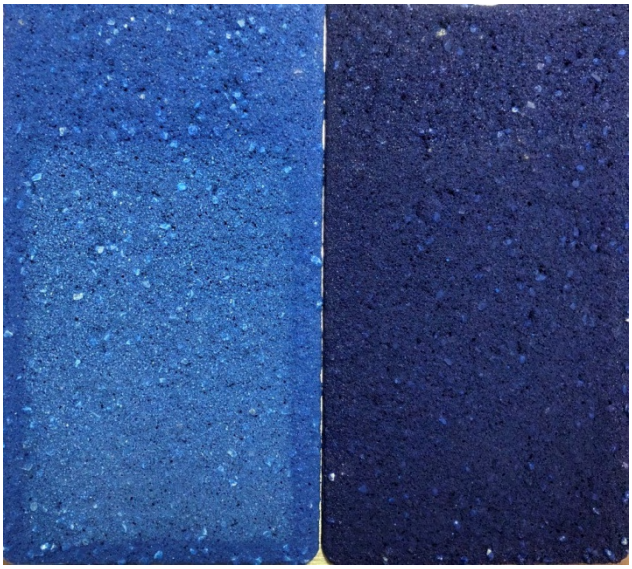
Organic Red

In this primary red tinted finish you can see a slight shifting of the color with the intensity of the DuroTone remaining vivid.



Pthalo Blue

This primary blue tinted finish had a significant difference in color intensity and a very recognizable color shift.

.

Lamp Black/Carbon Black

Being at the end of the color scale, absolute black changes absolutely. Here the color shift and breakdown of the organic pigment has significantly changed.

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MW# 184-210301

Topic: Floor Line Drainage Flashing

Providing drainage for CIFS®, Cemplaster Fiberstucco and other Master Wall® Systems will depend upon a variety of factors. While not a manufacturer requirement, depending upon the project and environment it may be a valid consideration.

Regarding the need for drainage at regular intervals, the building code does not require it either:

IBC 21

1404.4 Flashing.

Flashing shall be installed in such a manner so as to prevent moisture from entering the wall or to redirect that moisture to the surface of the exterior wall finish or to a *water-resistive barrier* complying with Section 1403.2 and that is part of a means of drainage complying with Section 1402.2. Flashing shall be installed at the perimeters of exterior door and window assemblies, penetrations and terminations of *exterior wall* assemblies, *exterior wall* intersections with roofs, chimneys, porches, decks, balconies and similar projections and at built-in gutters and similar locations where moisture could enter the wall. Flashing with projecting flanges shall be installed on both sides and the ends of copings, under sills and continuously above projecting trim. Where self-adhered membranes are used as flashings of *fenestration* in wall assemblies, those self-adhered flashings shall comply with AAMA 711. Where fluid applied membranes are used as flashing for *exterior wall* openings, those fluid applied membrane flashings shall comply with AAMA 714.

1404.4.1 Exterior wall pockets.

In *exterior walls* of buildings or structures, wall pockets or crevices in which moisture can accumulate shall be avoided or protected with caps or drips, or other *approved* means shall be provided to prevent water damage.

1404.4.2 Masonry.

Flashing and weep holes in anchored *veneer* designed in accordance with Section 1404.6 shall be located not more than 10 inches (245 mm) above finished ground level above the foundation wall or slab. At other points of support including structural floors, shelf angles and lintels, flashing and weep holes shall be located in the first course of masonry above the support.

IRC 21

R703.4 Flashing.

Approved corrosion-resistant flashing shall be applied *shingle-fashion* in a manner to prevent entry of water into the wall cavity or penetration of water to the building structural framing components. Self-adhered membranes used as flashing shall comply with AAMA 711. Fluid-applied membranes used as flashing in exterior walls shall comply with AAMA 714. The flashing shall extend to the surface of the exterior wall finish. *Approved* corrosion-resistant flashings shall be installed at the following locations:

1. Exterior window and door openings. Flashing at exterior window and door openings shall be installed in accordance with Section R703.4.1.
2. At the intersection of chimneys or other masonry construction with frame or stucco walls, with projecting lips on both sides under stucco copings.
3. Under and at the ends of masonry, wood or metal copings and sills.
4. Continuously above all projecting wood *trim*.
5. Where exterior porches, decks or stairs attach to a wall or floor assembly of wood-frame construction.
6. At wall and roof intersections.
7. At built-in gutters.

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Considerations for Floor Line Flashing

While there are neither building code nor a manufacturer requirement for floor line flashing, does that mean that including them has a benefit? Our opinion is that it depends upon the design and environment. Here are some design considerations for determining if it is a benefit:

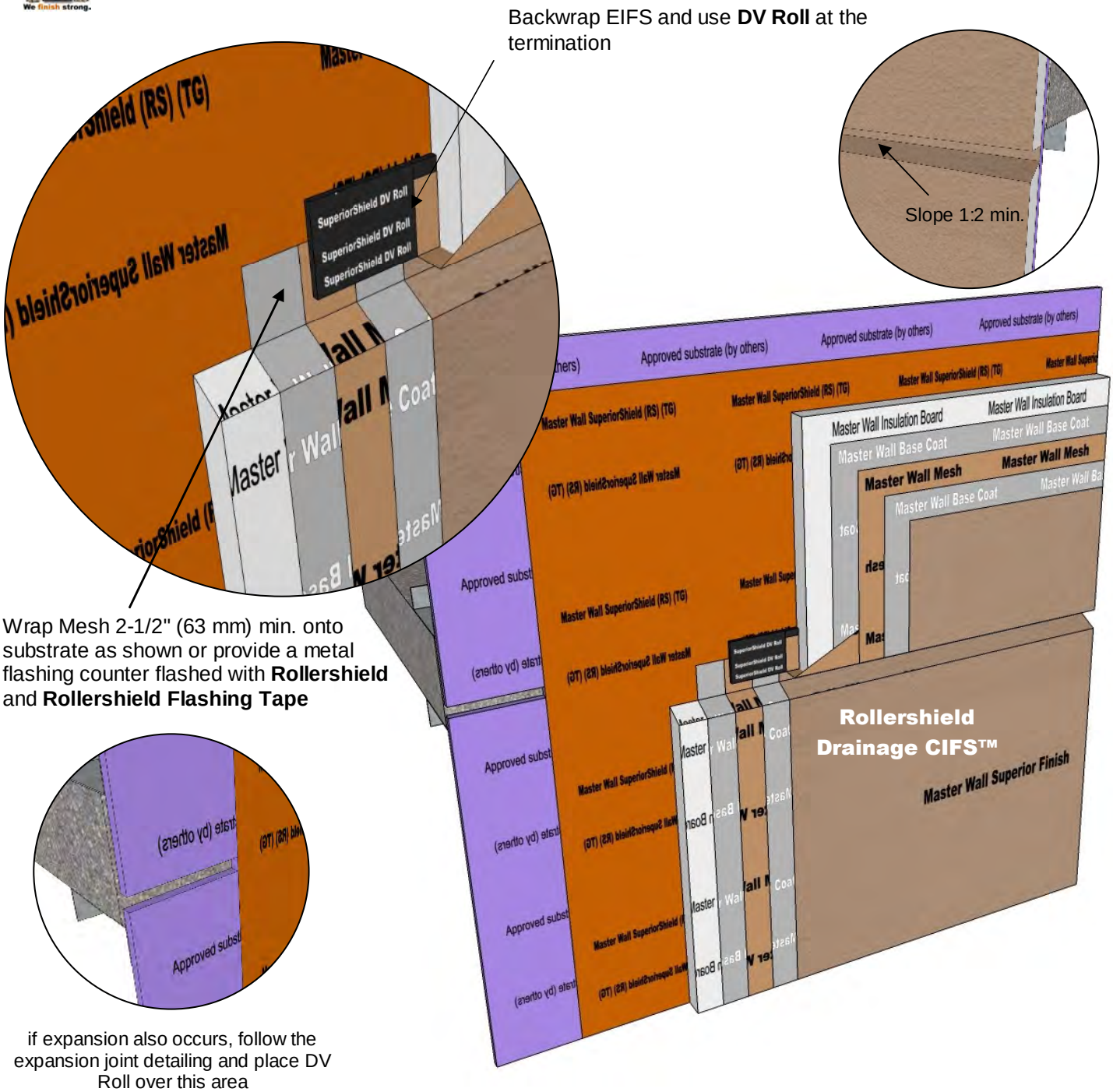
- Shorter in height buildings have less exposure to weather and less need for floor line drainage.
- Taller buildings have more exposure and less means of draining any incidental water, so floor line drainage might be a benefit.
- Building designs with few penetrations have a lessened chance of water penetration.
- Specifying lower grade windows and other building envelope products will increase the chances of water entry.
- Floor line flashing in an arid environment may not be needed, the same project in a wet environment it may be a necessity.
- The system selection may play a role in the need for flashing. For example, CIFS® has a monolithic lamina that is highly resistive to bulk water entry and designing for the least number of penetrations is one of the true benefits of these systems. Control joints in Cemplaster Fiberstucco and traditional stucco are less resistant to bulk water and may benefit from floor line flashing.

Detailing Floor Line Flashing

If the designer has reviewed the considerations and decides to add floor line flashing to their project the locations should be clearly noted on the documents or if being considered later, a change order noting the additional requirements. As there are no requirements, some designers will require drainage at each floor and others seem to use an “every third floor” model. The frequency is the responsibility of the designer.

The attached details show examples of floor line flashing. Additionally, the designer may wish to seal the open portion with a sealant joint and weep tubes at 24” (61 cm) centers. This is especially important in regions that have wind-driven rain to prevent entry.

Rollershield Drainage CIFS™ – Continuously Insulated
Section 07 24 19



RDCIFS-31 FLOOR LINE DRAINAGE

Model Link: https://3dwarehouse.sketchup.com/model/1068f0c3-2ac5-4b93-b907-2e81ad57c55b/Rollershield-Drainage-CIFS%E2%84%A2-Floor-Line-Drainage

These drawings relay the conceptual conditions of Master Wall® Systems and are not the construction drawings. Ultimately the design and detailing of an entire wall system is the responsibility of a professional. These details will guide the design professional in the use of Master Wall® Products. Master Wall disclaims design, warranty or construction intent or responsibility. **Bold = Master Wall® Product.**

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Cemplaster Fiberstucco

Cemplaster Fiberstucco Conceptual Details
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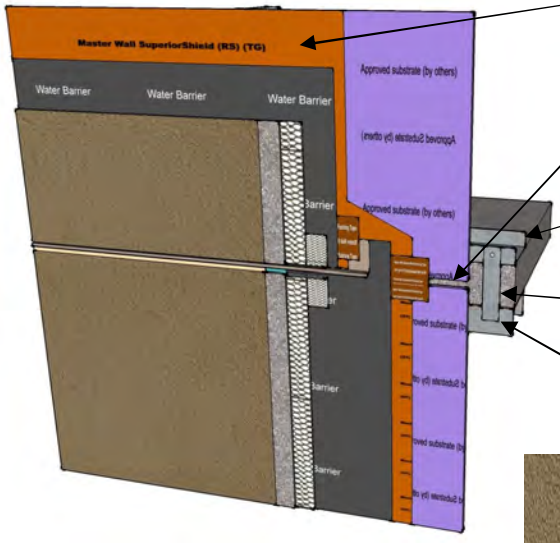
Technical • 800-760-2861• FAX 734-433-0930

Design



Rollershield LAB

Space Sheathing for anticipated movement

Track

Provide support strapping spaced on 8" centers, fastened top only if slab is offset from framing

Slip Track, anticipated movement occurs here

Framing, Sheathing & Water Barrier over **Rollershield**

Flashing

Sealant sized for anticipated movement, 3/8" (9.5 mm) min.

Fiberstucco Assembly/Options

WRB, DRS, CFS, SA, LBC, PRIME, FIN, FA

Note: Rollershield & Rollershield Flashing Tape shown, WeatherStop Tape could also be used at floor lines for additional protection

Casing Bead, place about 1/8" (3 mm) above flashing

Floor Line Expansion Joint with Drainage Provision and Rollershield

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MW# 185-210801

Topic: Weep Tube Drainage Design

Weep tubes or straws are specified for brick walls, but they can be incorporated into a CIFS®, Cemplaster Fiberstucco and other Master Wall® System as a means of drainage. These systems are designed to resist bulk water at the exterior surface but need the ability to drain incidental water from the water resistive barrier.

The weep tube design can offer projects a cleaner look compared to either open flashing or drainage tracks, along with the opportunity for slightly better wind-driven rain resistance.

Weep Tube Sources

Most masonry supply yards will carry plastic weep tubes. They will likely need to be cut to size and are wedged in place prior to placing the backer rod. Once set they are sealed.

Alternatively, Master Wall DV Roll could be cut into strips for drainage and sealed in a similar manner.

Detailing

Detail and space the weep tubes as shown on the attached drawings.

DV Roll
Source: Master Wall Inc.®

Brick Weep Tube
Source: Hohmann & Barnard, Inc.

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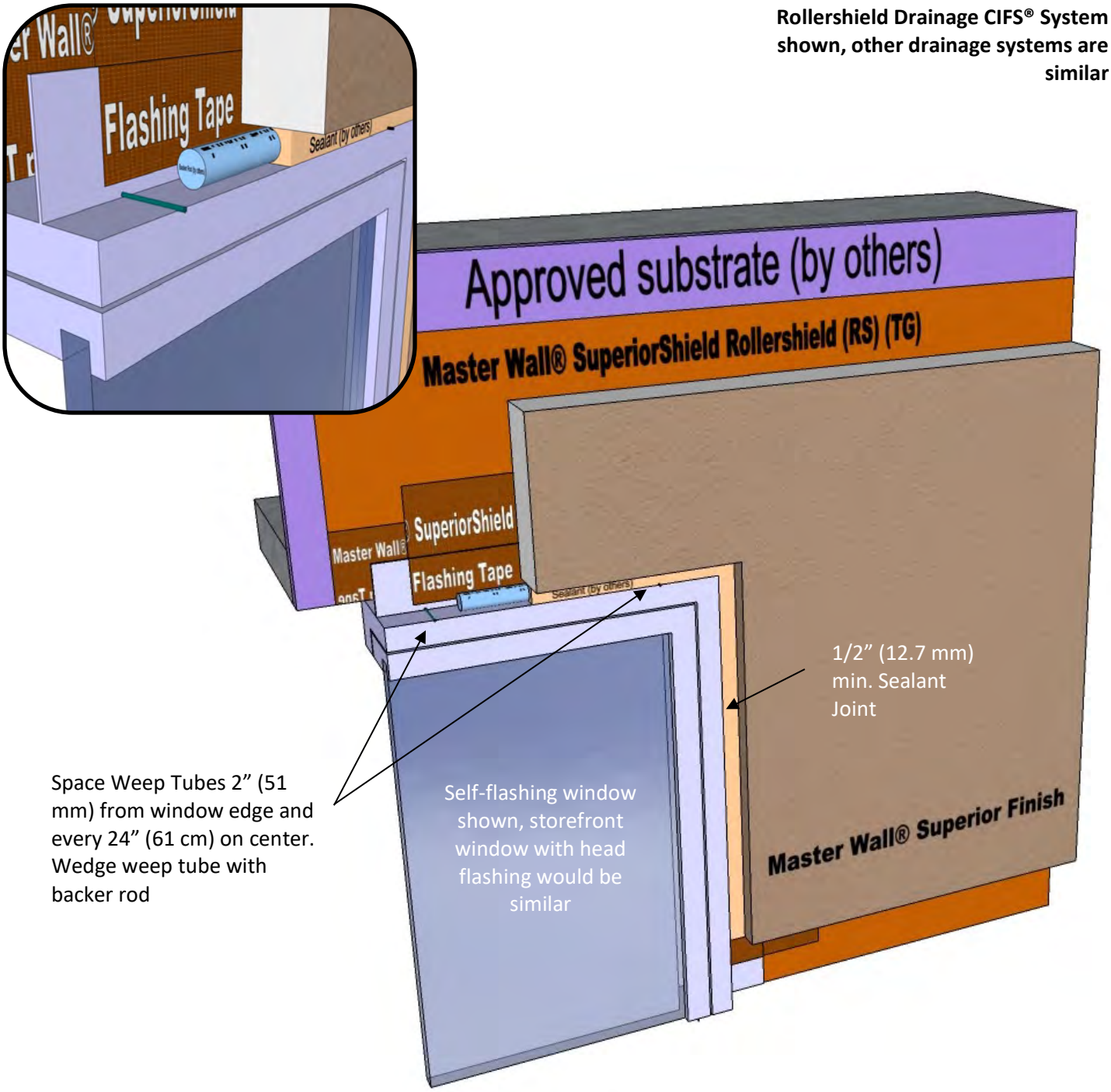
System Detail

Rollershield Drainage CIFS® System shown, other drainage systems are similar



WT-1 Window Head Detail

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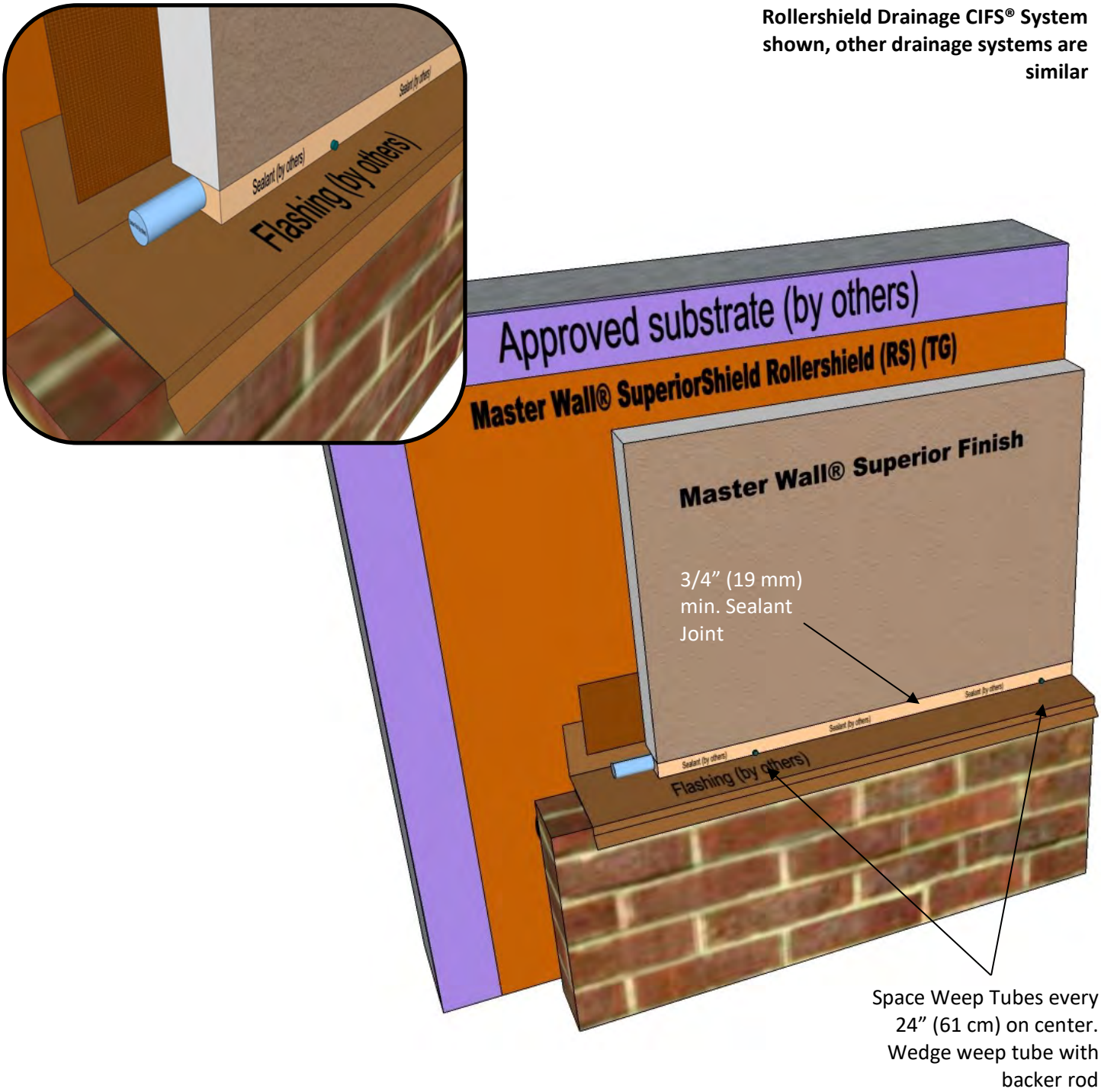
System Detail

Rollershield Drainage CIFS® System shown, other drainage systems are similar



WT-2 Wall Flashing Detail

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TECHNICAL BULLETIN

MW# 186-220201

TOPIC: STUCCO AND ENGINEERED STUCCO

Stucco and engineered stucco are often assumed to be interchangeable. This is often not the case when the application becomes technical, but there are overlaps in product use that can be confusing to those not familiar with stucco. Stucco has many variants in mixing and application that require the designer to make specific choices for the application.

What Is Stucco?

Stucco, often called traditional stucco is a mixture of materials. Most commonly this is cement, sand, and lime. Variations of stucco have been used for centuries.

The benefit of stucco is the longevity, it is indeed traditional. This benefit has been further recognized with building codes, standards, and properties:

- International Building Code, Chapter 25
- International Residential Building Code, Chapter 17
- ASTM C926, *Standard Specification for Application of Portland Cement-Based Plaster*
- ASTM C1063, *Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster*
- Countless tested wall assemblies for fire performance
- It does not burn and also protects other materials from fire

Stucco is mixed at the jobsite using various formulas contained in ASTM C926. The expertise of the person mixing the materials becomes paramount to product quality. Field mixed stucco does not have a warranty and the application must follow the published standards.

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What Is Engineered Stucco?

Engineered stucco has various forms. Some products are packaged ASTM C926 stucco while others are called One Coat Stucco (OCS). The Master Wall® brand is called Cemplaster Fiberstucco, which is a OCS.

These stuccos came about because of the need for consistency and performance in the application. Being factory blended, mixes are easier to proportion. The blending process is strictly followed and in the case of OCS, there are regular plant inspections and testing for performance. OCS is recognized as a code alternative to stucco and carries a separate code report demonstrating compliance.

Not all stucco can be applied as OCS, but all OCS may be applied as traditional stucco. This is because they have been engineered for application as thin as 3/8" so thicker applications will not affect the product quality.

Other Engineered Stucco Benefits

Beyond product quality and consistency, Engineered Stucco has other benefits that help the designer and benefit the owner. This includes the following:

- Verified product quality through third-party plant observations
- Manufacturer involvement in the design
- Manufacturer standard details (stucco must be designed and detailed by the architect)
- Custom details tailored to a specific application
- Product use information
- Manufacturer site visits
- Also verified as noncombustible, same as stucco
- A manufacturer's warranty for the product, ours is up to 20-years!

Product Testing

Engineered stucco excels when verified product performance is a requirement. Stucco only has tradition without testing while stucco has results. The verified testing is outlined on the attached comparison.

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System/Product Test Comparison

Master Wall System: Cemplaster Fiberstucco

Comparable System: ASTM C926 Stucco with Cement Finish

Superior Finishes

TEST	TEST METHOD	CRITERIA	MASTER WALL RESULTS	COMPETITOR RESULTS
Abrasion Resistance	ASTM D968	No deleterious effects after 500 liters (528 quarts)	Pass	Not Tested
Accelerated Weathering	ASTM G155 Cycle 1	No deleterious effects after 2000 hours	Pass	Not Tested
Accelerated Weathering	ASTM G23 (G152&153)		Pass	Not Tested
Accelerated Weathering	ASTM G53	No deleterious effects after 2000 hours (QUV)	Pass	Not Tested
Freeze-Thaw	ASTM E2485 (EIMA 101.01)	No deleterious effects after 60 cycles	Pass	Not Tested
Freeze-Thaw	ASTM C67 modified/ICBO AC24	No deleterious effects after 10 cycles	Pass	Not Tested
Freeze-Thaw	ASTM E2485/ICC-ES Proc.ICC ES (AC 235)***	No deleterious effects after 10 cycles	Pass	Not Tested
Mildew Resistance	ASTM D3273	No growth during 28 day exposure period	Pass	Not Tested
Salt Spray	ASTM B 117	No deleterious effects after 300 hours exposure	Pass	Not Tested
Water Vapor Transmission	ASTM E 96 Water Method	Vapor permeable perm (ng/Pa.s.m2)	Finish**=12 (674)	Not Tested

** Finish perm value based on Master Wall Perfect Texture

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System/Product Test Comparison

Master Wall System: Cemplaster Fiberstucco
Comparable System: ASTM C926 Stucco with Cement Finish

One Coat Stucco (OCS)

TEST	TEST METHOD	CRITERIA	MASTER WALL RESULTS	COMPETITOR RESULTS
Finishes & Coatings	Varies		Reference EIFS & Coatings Data	Not Tested
Accelerated Weathering	ASTM G26/G155	No deleterious effects after 2000 hours	Pass	Not Tested
Freeze-Thaw	ICC AC11	No deleterious effects after 10 cycles	Pass	Not Tested
Compressive Strength	ASTM C109	Average load for cured sample	1910 psi	Not Tested
Transverse Load	ICC AC11/ASTM E330	Withstand positive and negative wind loads as specified by the building code	Pass. Assemblies vary from 81-124 psf*	Designed per code requirements
Fire Resistance	ASTM E119	No effect on the fire resistance of a rated wall assembly	See Technical Bulletin MW#168-030111 for assemblies	Rated Assemblies per code

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TECHNICAL BULLETIN

MW# 187-220601

TOPIC: FIELD BOND TEST TECHNIQUES FOR FLUID APPLIED AIR/WATER BARRIERS

FIELD TEST BONDING CAN BECOME A CONCERN DURING BUILDING CONSTRUCTION. IN THIS BULLETIN WE REVIEW SOME TECHNIQUES TO VERIFY BOND TO SUBSTRATES OR OTHER MATERIALS ALONG WITH SOME COMMON RECOMMENDATIONS AND TECHNIQUES TO CONFIRM BOND.

SPECIFYING

THE BEST ADVICE TO THE SPECIFIER IS TO CHOOSE A SINGLE MANUFACTURER AND USE THAT MANUFACTURER THROUGHOUT THE PROJECT. MASTER WALL® HAS OUR SUPERIORSHIELD PRODUCT LINE THAT INCLUDES AIR/WATER BARRIERS AND FLASHING MATERIALS NEEDED FOR A COMPLETE APPLICATION. ADDITIONALLY, AS EXTERIOR INSULATION AND FINISH SYSTEMS ARE A UNIQUE APPLICATION FROM THE AIR BARRIER OUT, OUR ROLLERSHIELD DRAINAGE CIFS® IS FULLY COMPATIBLE AND WARRANTED AS A SYSTEM.

WHEN THE SPECIFIER USES DIFFERENT MANUFACTURERS AND MATERIALS RATHER THAN A SINGLE SOURCE, BRIDGING THE TWO CAN BECOME COMPLICATED. THE SIMPLEST METHOD WOULD BE TO BUTT THE TWO MATERIALS AND USE A "BRIDGE." THIS BRIDGE CAN OFTEN BE A COMPATIBLE SEALANT.

SOMETIMES THE SPECIFIER WILL ASSUME THAT JUST LAYERING ONE BARRIER OVER THE OTHER WILL WORK. IT MAY OR MAY NOT, BUT MANUFACTURERS ARE RELUCTANT TO ABSORB LIABILITY FOR ERRORS IN SPECIFYING. IN THESE CASES, THE SPECIFIER MAY NEED TO PERFORM DUE DILIGENCE TO VERIFY THAT THE DIFFERENT MATERIALS WILL BOND AS EXPECTED.

SPECIFYING IS IMPORTANT, SPECIFYING CORRECTLY IS PARAMOUNT.

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TECHNICAL BULLETIN

MW# 187-220601
TOPIC: FIELD BOND TEST TECHNIQUES FOR FLUID APPLIED AIR/WATER BARRIERS

ASTM D4541

THE ACCEPTED AND VERIFIABLE FIELD TEST METHOD IS ASTM D4541, *STANDARD TEST METHOD FOR PULL-OFF STRENGTH OF COATINGS USING PORTABLE ADHESION TESTERS*. THIS METHOD USES A DOLLY THAT IS ADHERED TO THE SUBSTRATE THAT IS PULLED OFF THE AIR/WATER BARRIER (OR COMBINATION OF AWB'S). IT PROVIDES VERY SPECIFIC RESULTS AND A MINIMUM OF 15 PSI BOND STRENGTH IS REQUIRED EITHER TO THE SUBSTRATE OR TO THE LAYERED BARRIERS.

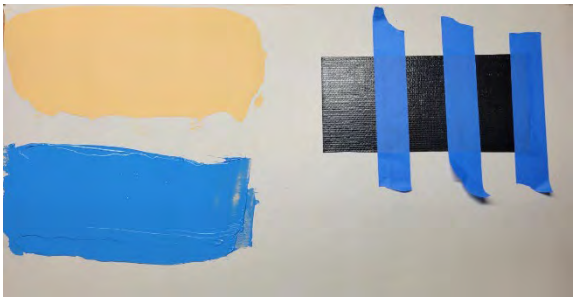
THE PROCESS IS EASY ENOUGH BUT REQUIRES THE HIRING OF A THIRD PARTY TO PERFORM AND VERIFY THE RESULTS.

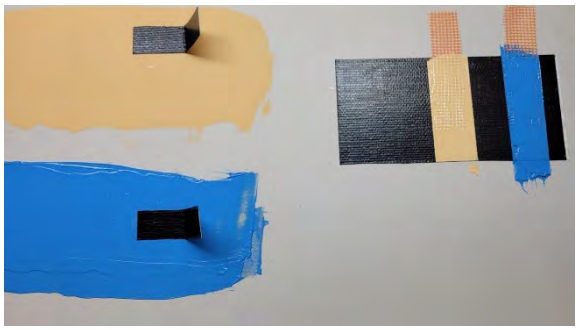
FIELD BOND TESTING

ANOTHER METHOD OF CHECKING BOND IS A FIELD BOND TEST. THIS METHOD NEED NOT BE DESTRUCTIVE TO THE ASSEMBLED WALL AS IT IS IN ASTM D4541, IT CAN BE PERFORMED ON A SAMPLE BOARD. THE NARRATIVE BELOW SHOWS HOW THIS TEST CAN BE PERFORMED. ADDITIONALLY, THIS TEST CAN BE USED TO TEST OTHER MATERIALS SUCH AS BASE COATS OR COATINGS, NOT JUST AIR/WATER BARRIERS OR FLASHING.

IN THIS EXAMPLE WE HAVE CREATED A SAMPLE BOARD WITH ROLLERSHIELD (ORANGE) AND SUPERIORFLASH (BLUE) AND ARE CHECKING BOND OVER AND UNDER A PEEL AND STICK FLASHING (BLACK). A STRIP OF THE BLACK PEEL AND STICK FLASHING WAS ADHERED TO THE DRY SAMPLES. WE USED A 1" WIDE STRIP OF STANDARD MESH EMBEDDED INTO WET ROLLERSHIELD AND SUPERIORFLASH AND ALLOWED THEM TO DRY.

AS WITH ALL TESTING, YOU DON'T KNOW UNTIL YOU TEST.





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TECHNICAL BULLETIN

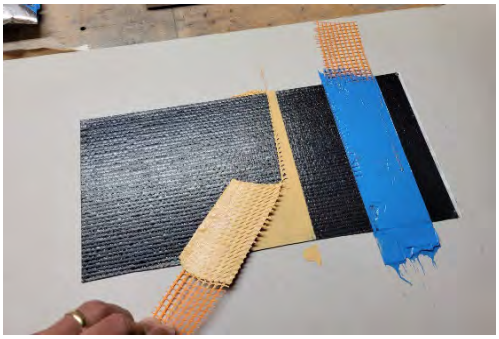
MW# 187-220601
TOPIC: FIELD BOND TEST TECHNIQUES FOR FLUID APPLIED AIR/WATER BARRIERS

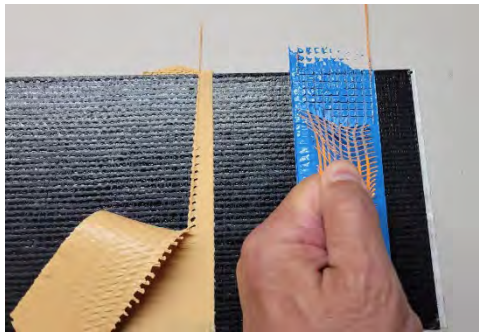
PULL TESTING PROVIDED VARIED RESULTS:

- PEEL AND STICK BOND TO ROLLERSHIELD WAS EXCELLENT, SHOWING SUBSTRATE FAILURE.
- PEEL AND STICK BOND TO SUPERIORFLASH WAS MARGINAL. THERE WAS SOME BOND, BY FEEL LIKELY MORE THAN 15 PSI, BOT NO SUBSTRATE FAILURE.
- ROLLERSHIELD BOND TO THE PEEL AND STICK WAS POOR. IT PULLED OFF EASILY WITH LITTLE ADHESIVE QUALITIES ON THIS MATERIAL.
- SUPERIORFLASH BOND TO THE PEEL AND STICK WAS EXCELLENT. THE MESH DEFORMED DURING THE PULL AND THE FAILURE MODE WAS COHESIVE, WITHIN THE SUPERIORFLASH.

OBSERVATIONS BASED UPON THE TESTING:

IN THIS CASE THE PEEL AND STICK WOULD BE ACCEPTABLE IF DETAILING REQUIRED ADHESION TO ROLLERSHIELD BUT IF LAPPING ONTO IT A BRIDGE OF SUPERIORFLASH WOULD BE RECOMMENDED FOR LONG-TERM BOND. THE MORE ACCURATE ASTM D4541 WOULD BE NEEDED TO QUALIFY THE FLASHING BOND TO SUPERIORFLASH.





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TECHNICAL BULLETIN

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TOPIC: FIELD BOND TEST TECHNIQUES FOR FLUID APPLIED AIR/WATER BARRIERS

FIELD BOND TEST DOCUMENTATION

IF REQUESTED, MASTER WALL INC.® CAN DOCUMENT THE FIELD BOND TEST WITH THE RESULTS OF THE SHORT-TERM BOND TEST ALONG WITH OUR RECOMMENDATIONS BASED UPON THE RESULTS. SEND YOUR PROJECT INFORMATION AND FIELD PHOTOS TO TECH@MASTERWALL.COM.

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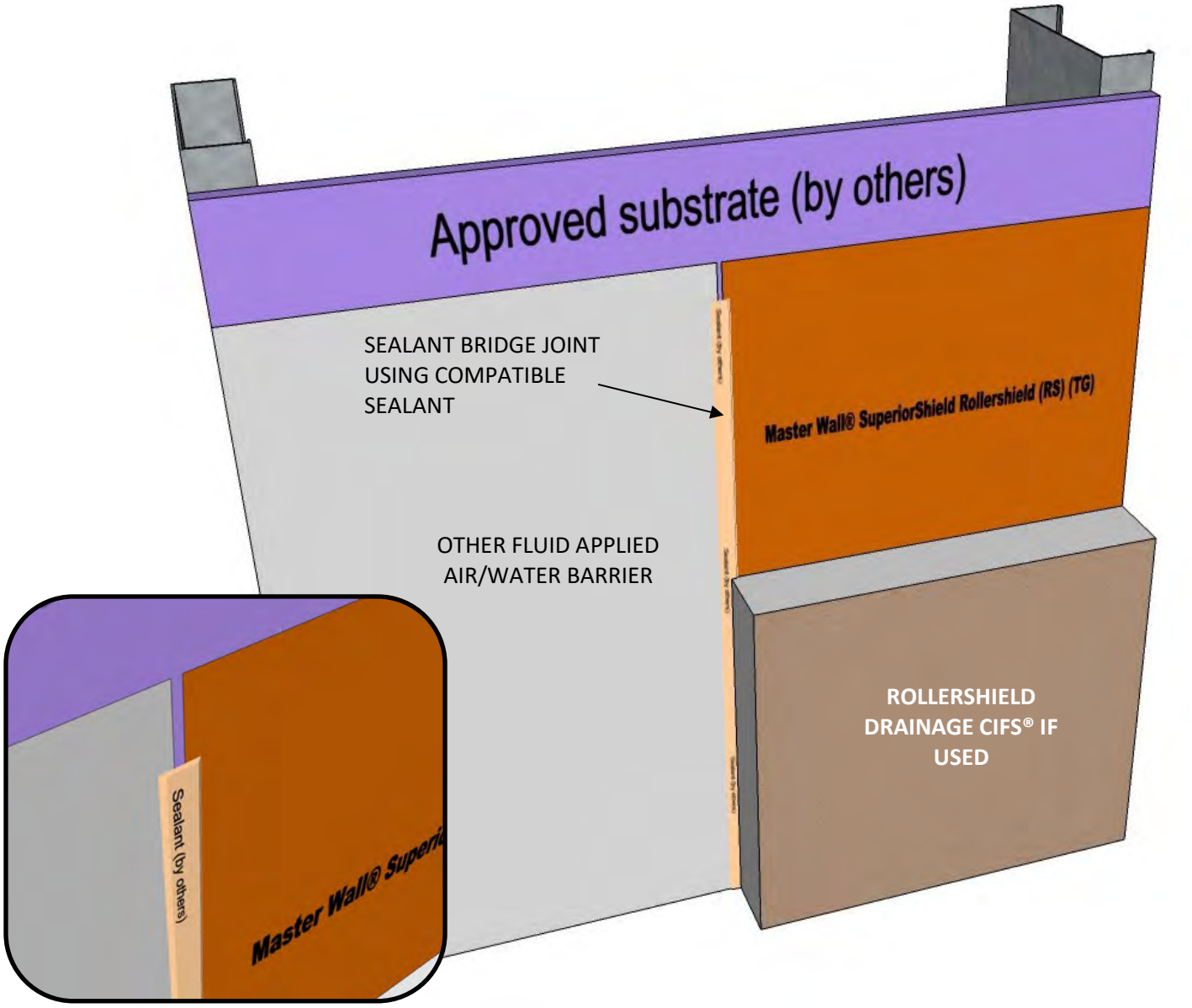
SYSTEM DETAIL



RSLAB BR-01 BRIDGE JOINT

SUPERIORSHIELD ROLLERSHIELD LAB

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TECHNICAL BULLETIN

MW# 188-220701

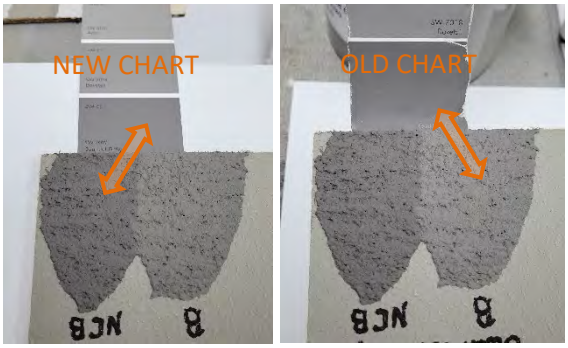
TOPIC: COLOR CHART AND SAMPLE VARIATIONS

COLOR AND COLOR MATCHING IS A LARGE PART OF OUR WORK AT MASTER WALL®. WE OFFER STANDARD COLORS MATCHED TO OUR COLOR CHART, COLOR MATCHING TO PAINT MANUFACTURER'S CHARTS AND EVEN CUSTOM COLOR MATCHING TO SAMPLES SENT IN BY CUSTOMERS.

COLOR MATCHING MAY NOT BE PERFECT

THE COLOR CHIPS ON CHARTS ARE RENEWED PERIODICALLY AS NEW ONES ARE NEEDED. INTENTIONALLY OR NOT, THERE CAN BE VARIATIONS FROM ONE SET OF CHARTS TO ANOTHER ONE. WHEN A VARIATION IS REPORTED WE REVIEW THE NEW TO OLD AND CAN MAKE ADJUSTMENTS. BECAUSE THIS IS UNPREDICTABLE, WE DO NOTE THAT ON OUR COLOR FORMULAS.

THE SAME GOES TO TEXTURED SAMPLES ON THE PROJECT SITE. THESE CAN VARY WILDLY AS THEY ARE TINTED EITHER BY A MANUFACTURER OR A DISTRIBUTOR. TINTING MACHINES CAN VARY.



EXAMPLES OF VARIATIONS

FIRST IS A GRAY COLOR. AN ORIGINAL MATCH WAS MADE ON 10/14/19 AND THAT DATE IS SHOWN ON THE MASTER WALL COLOR FORMULA. AT SOME TIME, THE MANUFACTURER CHANGED THE COLOR ON THE CHART, AND NOW IT IS DARKER. THIS IS WHY YOU WILL SEE DIFFERENT COLOR FORMULAS WITH THE SAME NAME ON OUR TINTING WEBSITE.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NEW FORMULA

Company:	Sherwin Williams	Texture:	Medium Sand 1.5/Fine Sand 1.0
Color #:	7019	Tint Base:	Mid Base
Color Name:	Gauntlet Grey	C.L.R. #:	18289
Date Formulated:	2022-04-07	Plant Location:	Lithonia
Matched To:	Fandeck		


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OLD FORMULA

Company:	Sherwin Williams	Texture:	Medium Sand 1.5/Fine Sand 1.0
Color #:	7019	Tint Base:	Mid Base
Color Name:	Gauntlet Grey	C.L.R. #:	20160
Date Formulated:	2019-10-14	Plant Location:	Vinonia
Matched To:	Fandeck		

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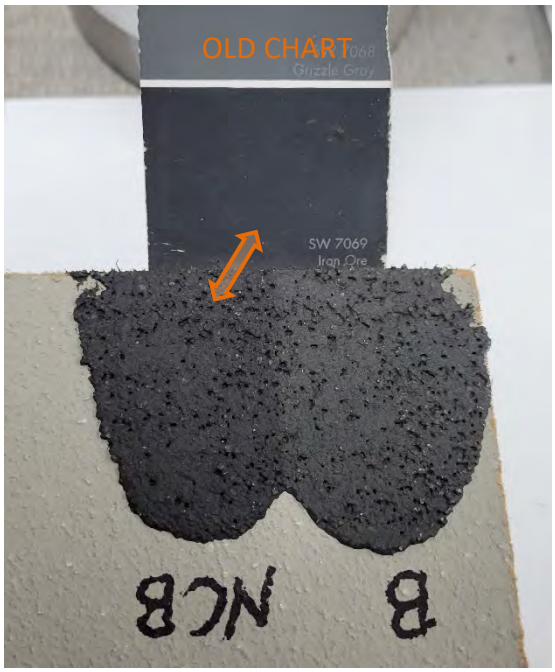
TECHNICAL BULLETIN

MW# 188-220701

TOPIC: COLOR CHART AND SAMPLE VARIATIONS

A SIMILAR SITUATION IN THE OPPOSITE DIRECTION HAPPENED WITH A BLACK COLOR. NOW THE COLOR ENDED UP BEING LIGHTER. AGAIN, THIS IS REFLECTED IN THE COLOR FORMULAS AND DATES.



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NEW FORMULA

Company:	Sherwin Williams	**Texture:**	UDB Fine Sand 1.0 Only
Color #:	7069	**Tint Base:**	Ultra Deep Base
Color Name:	Iron Ore	**C.L.R. #:**	21344
Date Formulated:	2020-02-05	**Plant Location:**	Lithonia
Matched To:	Fandeck		

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OLD FORMULA

Company:	Sherwin Williams	**Texture:**	UDB Fine Sand 1.0 Only
Color #:	7069	**Tint Base:**	Ultra Deep Base
Color Name:	Iron Ore	**C.L.R. #:**	19006
Date Formulated:	2018-11-01	**Plant Location:**	Lithonia
Matched To:	Fandeck		

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KEYS FOR SUCCESSFUL COLORS

COLOR CAN SOMETIMES BE ELUSIVE SO DEPENDING UPON THE PROJECT. THESE ARE SOME KEYS FOR A SUCCESSFUL OUTCOME ON COLORS:

- STANDARD MATCH. OUR COLOR MATCHES ARE SPOT-ON FOR MOST COLORS AS WE WILL COLOR MATCH TO A CHIP OR SAMPLE. THIS IS THE EASIEST AS NOTHING NEEDS TO BE DONE. MOST PROJECTS END UP BEING MATCHED THIS WAY.
- VERIFICATION MATCH. IF THE PROJECT IS LARGE OR THE ARCHITECT IS NEEDING A PERFECTED MATCH, YOU SHOULD REQUEST A PHYSICAL SAMPLE OF THAT COLOR FOR VERIFICATION FROM THE DISTRIBUTOR. IF THERE ARE VARIATIONS IT WILL SHOW AND CAN BE CORRECTED EASILY. PUT IT ON THE WALL AND IT BECOMES A LARGER PROBLEM.
- CUSTOM MATCH. ARCHITECTS CAN BE VERY COLOR-CENTRIC AND HAVE A SINGLE PARTICULAR COLOR THAT HIGHLIGHTS THE PROJECT. IN THESE CASES, YOU WOULD WANT TO ORDER A CUSTOM MATCH TO THAT COLOR FROM A SAMPLE PROVIDED TO THE MASTER WALL DISTRIBUTOR. WHILE HIGHER IN DETAIL, THIS WILL GET YOU THE BEST MATCH.
- DISTRIBUTORS FINDING TWO DIFFERENT COLORS ON THE MASTER WALL COLOR WEBSITE SHOULD BE EXTRA CAREFUL IN SAMPLE MATCHING.

IN SUMMARY, COLOR CHARTS AND FIELD SAMPLES CAN VARY SO WHEN THE COLOR NEEDS TO BE PERFECT IT SHOULD BE VERIFIED WITH AN ACTUAL SAMPLE TINTED AND APPLIED IN THE SAME METHOD AS PLANNED IN THE FIELD.

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TOPIC: ROLLERSHIELD APPLICATION OVER LARGE SHEATHING GAPS AND OUT OF SPECIFICATION CONDITIONS

GAPS IN SHEATHING SUBSTRATES ARE ACCEPTED AS PART OF A TYPICAL ROLLERSHIELD LIQUID APPLIED AIR/WATER BARRIER (LAB) APPLICATION. THE SYSTEM AND PRODUCTS HAVE BEEN TESTED FOR VARIATIONS AND ARE DESIGNED TO PERFORM WELL WITH THEM. THIS BULLETIN OUTLINES STRATEGIES FOR WHEN THE SHEATHING APPLICATIONS ARE NOT WITHIN TOLERANCE.

STANDARD REQUIREMENTS

THE STANDARD REQUIREMENTS FOR A ROLLERSHIELD ARE AS FOLLOWS:

- SUBSTRATE IS SMOOTH WITH A 1/4” IN 10’ MAXIMUM VARIATION
- FASTENERS INSTALLED FLUSH TO SLIGHTLY RECESSED IN THE SHEATHING
- 1/4" MAXIMUM SHEATHING GAP
- MINIMUM 1/8” GAP FOR WOOD BASED SHEATHING PANELS (PLYWOOD/OSB)

OUT OF SPECIFICATION REQUIREMENTS

SOMETIMES THE SHEATHING APPLICATION CAN BE OUT OF TOLERANCE, NOT MEETING THE MINIMUM REQUIREMENTS FOR A SATISFACTORY APPLICATION. THESE CONDITIONS CAN BE WALLS THAT ARE OUT OF PLANE, UNDER OR OVER DRIVEN FASTENERS, AND LARGE SHEATHING GAPS.

THESE ARE NOT THE EXPECTED STARTING POINT FOR A QUALITY APPLICATION. WE SUGGEST CONSIDERING THE FOLLOWING APPROACH PRIOR TO BEGINNING THE WORK:

- NOTE ANY PROBLEMS WITH THE SUBSTRATE TO THE GENERAL CONTRACTOR IN WRITING.
- NOTE PROPOSED CORRECTIONS TO MAKE IT ACCEPTABLE. THIS COULD INCLUDE HAVING THE SUBSTRATE CONTRACTOR CORRECT THEIR WORK, FILLING IN WITH ADDITIONAL SUBSTRATE, REPLACING OVER/UNDERDRIVEN FASTENERS, ETC. AS NEEDED TO BRING THE SUBSTRATE WITHIN SPECIFICATION.
- PROPOSE POSSIBLE CHANGE ORDER TO EITHER FILL IN GAPS, FILL IN OVER PENETRATED FASTENERS ETC. TO COVER ADDITIONAL WORK NEEDED TO CORRECT THE CONDITIONS WITH AIR BARRIER MATERIALS.

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TOPIC: ROLLERSHIELD APPLICATION OVER LARGE SHEATHING GAPS AND OUT OF SPECIFICATION CONDITIONS

SHEATHING DEFECT - FASTENER HEADS

FLUSH TO SLIGHTLY RECESSED FASTENER HEADS WILL NEED LITTLE TO NO SPOTTING. FOR OVER-DRIVEN FASTENERS USE EITHER ROLLERSHIELD-TG OR SUPERIORFLASH TO COVER THE HEADS. THE SUBSTRATE CONTRACTOR OR ARCHITECT MAY NEED TO REVIEW THE SUBSTRATE AS WELL TO MAKE SURE ADDITIONAL FASTENERS ARE NOT NEEDED.

SHEATHING DEFECT – LARGE GAPS

GAPS LARGER THAN 1/4" SHOULD BE REVIEWED FOR ADDITIONAL CORRECTIVE WORK. PLACEMENT OF ADDITIONAL SHEATHING IS PREFERRED, BUT IN THOSE CASES WHERE IT IS NOT PRACTICAL, THE ATTACHED DETAILS OUTLINE POSSIBLE SOLUTIONS.

FOR FIRE RATED SHEATHING THE REMEDIES SHOULD BE REVIEWED BY THE ARCHITECT TO MAKE SURE THEY WILL COMPLY WITH PROJECT REQUIREMENTS.

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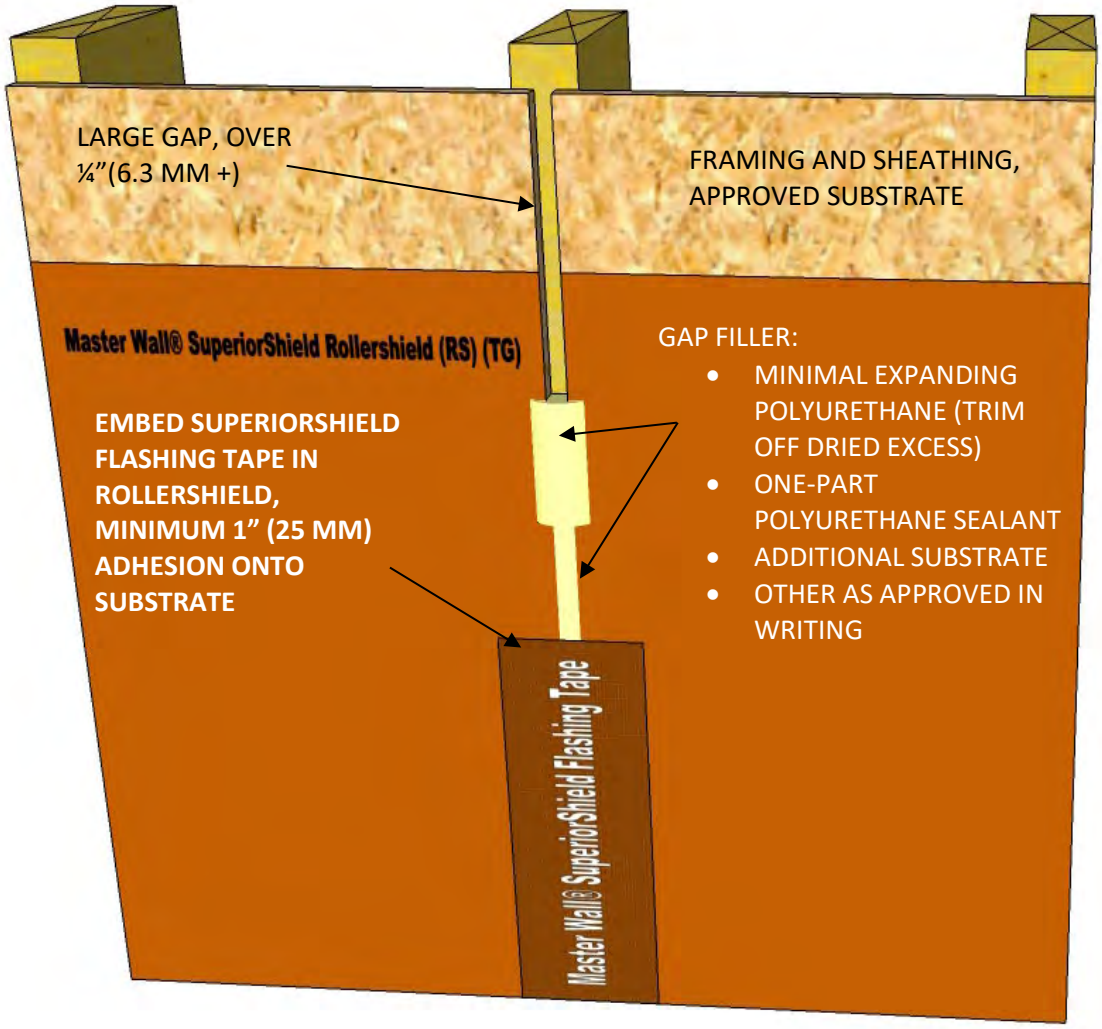
SYSTEM DETAIL



RSLAB-TB189 LARGE GAP WITH SUPERIORSHIELD FLASHING TAPE

ROLLERSHIELD LAB & ROLLERSHIELD DRAINAGE CIFS®

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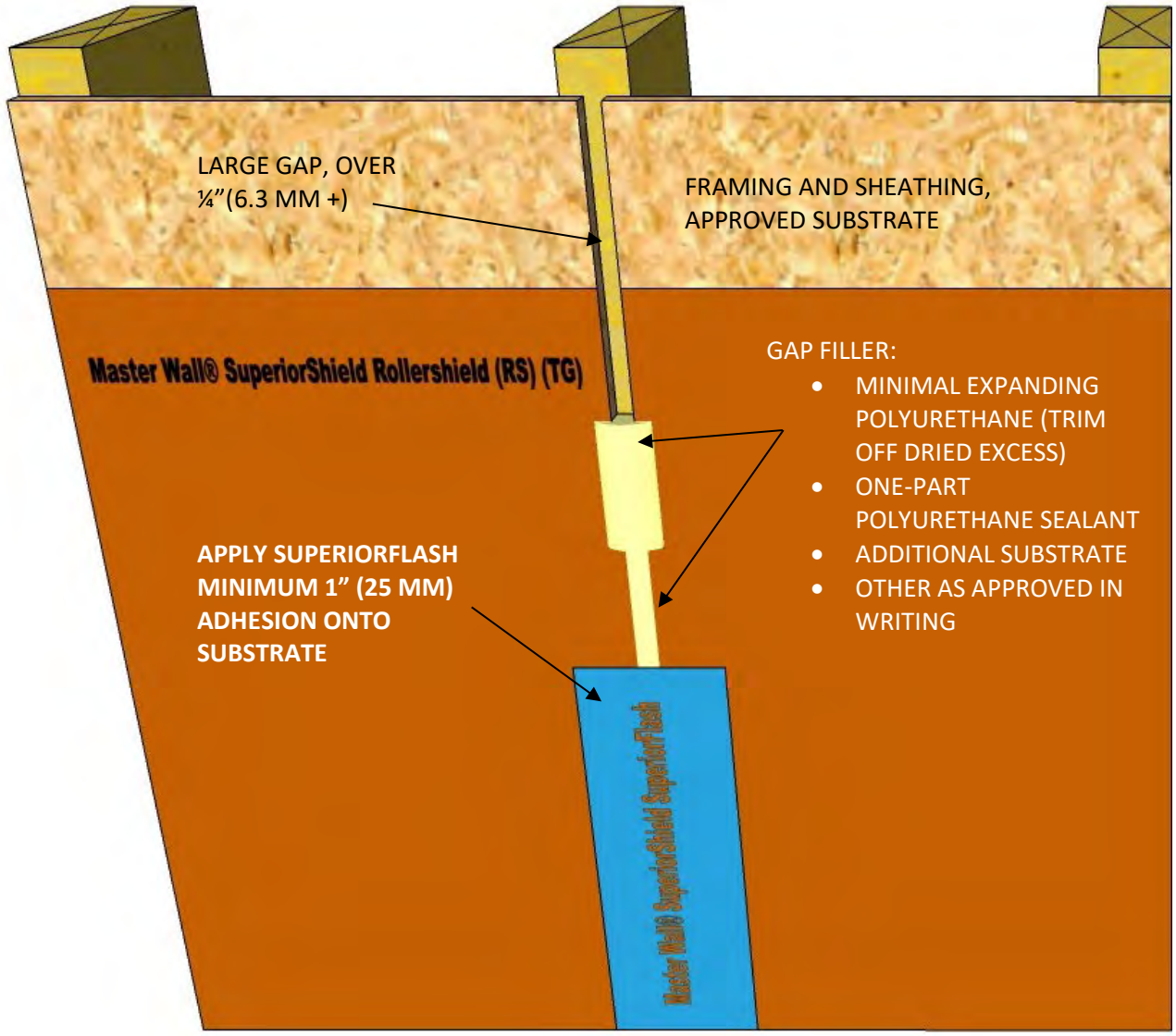

RSLAB-TB189 LARGE GAP WITH SUPERIORSHIELD SUPERIORFLASH

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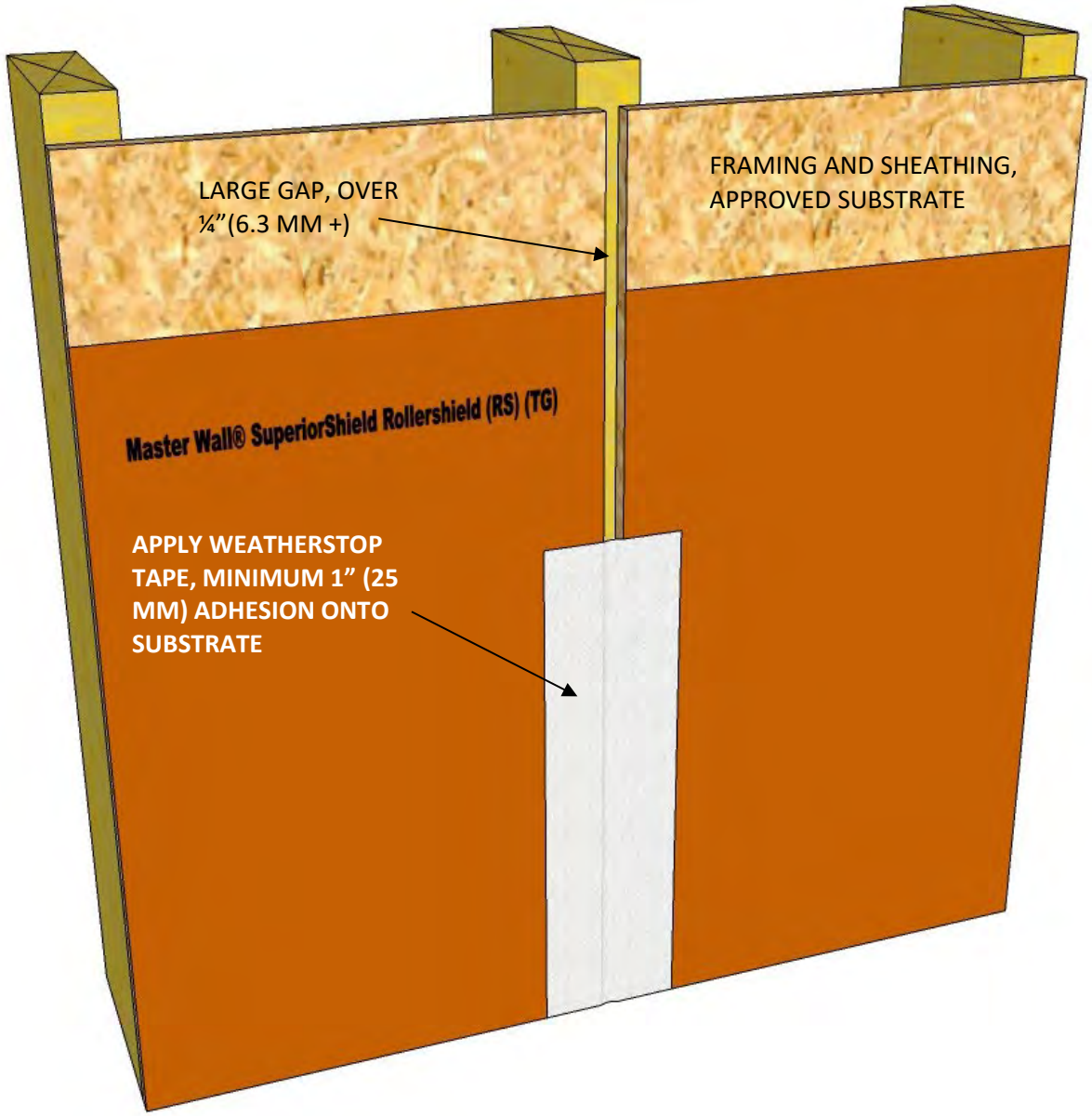
SYSTEM DETAIL



RSLAB-TB189 LARGE GAP WITH SUPERIORSHIELD WEATHERSTOP TAPE

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