



# QRW1 Drainage EIFS – Continuously Insulated Section 07 24 19



**Master Wall Inc.®**  
PO Box 397  
Fortson, GA 31808  
706-569-0092  
800-755-0825  
www.masterwall.com

## Master Wall Guide Specification QR QRW1 Drainage EIFS

### PART I – GENERAL

#### 1.01 SUMMARY

A. This document is to be used in preparing specifications for projects utilizing the Master Wall Inc.® QRW1 Drainage Class PI (polymer-based, polyisocyanurate insulation) drainage type Exterior Insulation and Finish System (EIFS) designed to provide drainage of incidental water entering the system. Related Master Wall Inc.® documents:

1. Master Wall Inc.® QRW1 Drainage System Data Sheet
2. Master Wall Inc.® QRW1 Drainage System Application Instructions
3. Master Wall Inc.® QRW1 Drainage System Installation Details
4. Master Wall product data sheets

B. Related Sections

1. Unit Masonry – Section 04200
2. Concrete – Sections 03300 and 03400
3. Light Gauge Cold Formed Steel Framing – Section 05400
4. Wood Framing – Section 06100
5. Sealant – Section 07900
6. Flashing – Section 07600

#### 1.02 SUBMITTALS

- A. Manufacturer's specifications, details, installation instructions and product data
- B. Manufacturer's code compliance report
- C. Manufacturer's standard warranty
- D. Applicator's industry training credentials
- E. Samples for approval as directed by architect or owner
- F. Sealant manufacturer's certificate of compliance with ASTM C 1382
- G. Prepare and submit project-specific details (when required by contract documents)

#### 1.03 REFERENCES

- A. ASTM Standards:
  - ASTM B117 (Federal Test Standard 141A Method 6061) Standard Practice for Operating Salt Spray (Fog) Apparatus
  - ASTM C150 Standard Specification for Portland Cement
  - ASTM C297 Standard Test Method for Flatwise Tensile Strength of Sandwich Constructions
  - ASTM C578 Specification for Preformed Cellular Polystyrene Thermal Insulation
  - ASTM C1177 Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing
  - ASTM C1396 (formerly C 79) Standard Specification for Gypsum Board



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- ASTM D968 (Federal Test Standard 141A Method 6191) Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive
  - ASTM D1784 Specification for Rigid Poly (Vinyl Chloride) (PVC) and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds
  - ASTM D2247 (Federal Test Standard 141A Method 6201) Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity
  - ASTM D3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
  - ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials
  - ASTM E96 Test Methods for Water Vapor Transmission of Materials
  - ASTM E330 Test Method for Structural Performance of Exterior Windows, Doors and Curtain Walls by Uniform Static Air Pressure Difference
  - ASTM E331 Test Method for Water Penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Air Pressure Difference.
  - ASTM E2098 Test Method for Determining Tensile Breaking Strength of Glass Fiber Reinforcing Mesh for Use in Class PB Exterior Insulation and Finish System after exposure to Sodium-Hydroxide Solution
  - ASTM E2134 Test Method for Evaluating the Tensile-Adhesion Performance of an Exterior Insulation and Finish System (EIFS)
  - ASTM E2178 Test Method for Air Permeance of Building Materials
  - ASTM E2273 Test Method for Determining the Drainage Efficiency of Exterior Insulation and Finish System (EIFS) Clad Wall Assemblies
  - ASTM E2357 Standard Test Method for Determining Air Leakage of Air Barrier Assemblies
  - ASTM E2485 (formerly EIMA Std. 101.01) Standard Test Method for Freeze-Thaw Resistance of Exterior Insulation and Finish Systems (EIFS) and Water-Resistive Barrier Coatings
  - ASTM E2486 (formerly EIMA Std. 101.86) Standard Test Method for Impact Resistance of Class PB and PI Exterior Insulation and Finish Systems (EIFS)
  - ASTM E2568 Standard Specification for Class PB Exterior Insulation and Finish Systems
  - ASTM E2570 Test Method for Water-Resistive (WRB) Coatings used Under Exterior Insulation and Finish Systems (EIFS) or EIFS with Drainage
  - ASTM G23 Standard Practice for Operating Light-Exposure Apparatus (Carbon-Arc Type) with and without Water for Exposure of Nonmetallic Materials
  - ASTM G53 Practice for Operating Light- and Water-Exposure Apparatus (Fluorescent UV-Condensation Type) for Exposure of Nonmetallic Materials
- B. Building Code Standards
- AC235 Acceptance Criteria for EIFS Clad Drainage Wall Assemblies (November, 2009)
- C. Other Referenced Documents
- APA Engineered Wood Association E30, Engineered Wood Construction Guide
  - UES Evaluation Report 433, Master Wall EIF Systems



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### 1.04 SYSTEM DESCRIPTION

A. General: The Master Wall Inc.® QRW1 Drainage System is a continuously insulated (CI) Exterior Insulation and Finish System, Class PI (polymer-based, polyisocyanurate insulation), consisting of mechanical fasteners, polyisocyanurate insulation board, base coat, reinforcing mesh(es) and finish. The System shall be attached over an approved substrate and air/water barrier in accordance with the QRW1 Drainage application Details.

#### B. Methods of Installation

1. Field Applied: The QRW1 Drainage System is applied to the substrate system in place.
2. Panelized: The QRW1 Drainage System is shop-applied to the prefabricated wall panels.

#### C. Design Requirements

1. Acceptable substrates for the QRW1 Drainage System shall be:
  - a. Exterior sheathing having a water-resistant core with fiberglass mat facers meeting ASTM C 1177.
  - b. Exterior fiber reinforced cement or calcium silicate boards.
  - c. Exterior or Exposure 1 Rated Plywood, Grade C-D or better, nominal 12.7 mm (1/2 in), minimum 4-ply.
  - d. Unglazed, unpainted brick, cement plaster, concrete, or masonry.
  - e. APA Exposure 1 rated Oriented Strand Board (OSB) or plywood, nominal 12.7 mm (1/2 in).
  - f. Other substrates approved in writing from the manufacturer.
2. Deflection of substrate systems shall not exceed 1/240 times the span.
3. The substrate shall be flat within 6.4 mm (1/4 in) in a 3.05 m (10 ft) radius.
4. The slope of inclined surfaces shall not be less than 6:12, and the length shall not exceed 305 mm (12 in).
5. All areas requiring an impact resistance classification higher than “medium”, as defined by ASTM E 2486 (formerly EIMA Std. 101.86), shall be as detailed in the drawings and described in the contract documents.
6. Expansion Joints
  - a. Design and location of expansion joints in the QRW1 Drainage System is the responsibility of the project designer and shall be noted on the project drawings. As a minimum, expansion joints shall be placed at the following locations:
    - 1) Expansion joints shall be installed in the EIFS a maximum of every 30 lineal feet (9 m). Reference construction documents for specific locations.
    - 2) Where expansion joints occur in the substrate system.
    - 3) Where building expansion joints occur.
    - 4) At floor lines in wood frame construction (Reference Technical Bulletin #140).
    - 5) At floor lines of non-wood framed buildings where significant movement is expected.
    - 6) Where the QRW1 Drainage System abuts dissimilar materials.
    - 7) Where the substrate type changes
    - 8) Where prefabricated panels abut one another
    - 9) Where significant structural movement occurs such as changes in roofline, building shape or structural system.
7. Terminations
  - a. Interior foam expanding foam sealant may be required behind penetration openings.
  - b. The QRW1 Drainage System shall be held back from adjoining materials around openings and penetrations such as windows, doors and mechanical equipment a minimum of 12.7 mm (1/2 in) for sealant application. Sealant joints shall be properly sized and designed for their anticipated movement (Reference Master Wall Inc.® Technical Bulletins #148 & 149).
  - c. The system shall be terminated a minimum of 152 mm (6 in) above finished grade.
  - d. Sealants
    - 1) Shall be manufactured and supplied by others.
    - 2) Shall be compatible with QRW1 Drainage System materials. Refer to current Master Wall Inc.® Technical Bulletin #131 for listing of sealants approved by sealant manufacturer for use with EIFS.
    - 3) The sealant backer rod shall be of closed cell.
8. Vapor Retarders and barriers – The use and location of vapor retarders and/or barriers within a wall assembly is the responsibility of the project designer and shall comply with local building code requirements.



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9. Dark Colors - The use of dark colors must be considered in relation to wall surface temperature as a function of local climatic conditions. Use of dark colors in high temperature climates can affect the performance of the system.
10. Flashing: Shall be provided at all roof-wall intersections, windows, doors, chimneys, decks, balconies and other areas as necessary to prevent water from entering behind the QRW1 Drainage System and wall system.

### 1.05 PERFORMANCE REQUIREMENTS

A. QRW1 Drainage System shall have been tested as follows:

#### EIFS Weather Resistance and Durability Performance\*

TEST	METHOD	CRITERIA	RESULTS
1. Accelerated Weathering	ASTM G 153 (Formerly ASTM G 23)	No deleterious effects at 2000 hours when viewed under 5x magnification	Pass
2. Accelerated Weathering	ASTM G 154 (Formerly ASTM G 53)	No deleterious effects at 2000 hours	Pass
3. Freeze/Thaw Resistance	ASTM E 2485	No deleterious effects at 10 cycles when viewed under 5x magnification	Pass
4. Water Penetration	ASTM E 331 (modified per ICC-ES AC 235)	No water penetration beyond the plane of the base coat/insulation board interface after 15 minutes at 6.24 psf (299 Pa) or 20% of design wind pressure, whichever is greater	Pass at 2.86 psf (137 Pa), 6.24 psf (299 Pa), and 12.0 psf (575 Pa) consecutively
5. Drainage Efficiency	ASTM E 2273	90% minimum	98%
6. Water Resistance	ASTM D 2247	No deleterious effects at 14 day exposure	Pass @ 28 days
7. Salt Spray	ASTM B 117	No deleterious effects* at 300 hours	Pass @ 300 hrs
8. Abrasion Resistance	ASTM D 968	No cracking or loss of film integrity at 528 quarts (500 L) of sand	Pass
9. Mildew Resistance	ASTM D 3273	No growth supported during 28 day exposure period	Pass
10. Impact Resistance	ASTM E 2486	Level 1: 25-49 in-lbs (2.83-5.54J) Level 2: 50-89 in-lbs (5.65-10.1J) Level 3: 90-150 in-lbs (10.2-17J) Level 4: >150 in-lbs (>17J)	Pass with one layer Standard Mesh Pass with one layer Standard Mesh Pass with Medium & Standard Mesh Pass with Strong & Standard Mesh
11. Transverse Wind Load	ASTM E330	Withstand positive and negative wind loads as specified by the building code.	Pass. Assemblies vary from 68-287 psf*

\* Ultimate wind loads – contact Master Wall for specific assemblies.



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### EIFS Fire Performance

TEST	METHOD	CRITERIA	RESULT
1. Fire Endurance	ASTM E 119	Maintain fire resistance of existing rated assembly	See Technical Bulletin MW#168-030111 for assemblies

### EIFS Component Performance

TEST	METHOD	CRITERIA	RESULT
1. Alkali Resistance of Reinforcing Mesh	ASTM E2098 (formerly EIMA 105.01)	Greater than 120 pli (21 dN/cm) retained tensile strength	Pass
2. Requirements for Rigid PVC Accessories	ASTM D 1784	Meets cell classification 13244C	Pass
Polyisocyanurate Insulation (Physical Properties)	ASTM C1289		Pass
Thermal Resistance 1"	ASTM C272	6.0 @ 4.4 °C (75 °F)	Pass
Flame Spread Smoke Developed	ASTM E84	25 max. 450 max.	Pass

### 1.06 QUALITY ASSURANCE

#### A. Qualifications

1. System Manufacturer: Shall be Master Wall Inc.®. All materials shall be manufactured or sold by Master Wall Inc.® and shall be purchased from Master Wall Inc.® or its authorized distributors.
2. Contractor: Shall be knowledgeable in the proper installation of the Master Wall Inc.® QRW1 Drainage System and shall be experienced and competent in the installation of Exterior Insulation and Finish Systems. Additionally, the contractor shall possess a current Master Wall Inc.® applicator certificate issued by Master Wall Inc.®
3. Insulation Board Manufacturer: Shall be approved by Master Wall Inc.®, shall be capable of producing the polyisocyanurate insulation in accordance with current Master Wall Inc.® specification and code requirements and have a third party quality assurance program in place.

#### B. Regulatory Requirements

1. The Polyisocyanurate shall be separated from the interior of the building by a minimum 15-minute thermal barrier.
2. The use and maximum thickness of Polyisocyanurate shall be in accordance with the applicable building codes.

#### C. Certification

1. The QRW1 Drainage System shall be recognized for the intended use by the applicable building code(s).

#### D. Mock-Up

1. The contractor shall, before the project commences, provide the owner/architect with a mock-up for approval.



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2. The mock-up shall be of suitable size as required to accurately represent the products being installed, as well as each color and texture to be utilized on the project.
3. The mock-up shall be prepared with the same products, tools, equipment and techniques required for the actual application. The finish used shall be from the same batch that is being used on the project.
4. The approved mock-up shall be available and maintained at the job site.
5. For panelized construction, the mock-up shall be available and maintained at the panel fabrication location.

### 1.07 DELIVERY, STORAGE AND HANDLING

- A. All Master Wall Inc.® materials shall be delivered to the job site in the original, unopened packages with labels intact.
- B. Upon arrival, materials shall be inspected for physical damage, freezing, or overheating. Questionable materials shall not be used.
- C. Deliver all materials in original unopened packages with labels intact. Verify all quantities, colors, and textures against bill of lading.
- D. Store all materials protected from direct exposure to weather conditions and at temperatures not less than 40°F (4°C) or greater than 110°F (43°C).
- E. Stack insulation board flat, fully supported off the ground and protected from direct exposure to the sun.
- F. Material Safety Data Sheets (MSDS) or Safety Data Sheets (SDS) shall be supplied for the components of the EIFS and be available at the job site.

### 1.08 PROJECT CONDITIONS

- A. Ambient air temperatures shall be 40°F (4°C) or greater and rising at the time of installation of the Master Wall Inc.® products and shall remain at 40°F (4°C) or greater for at least 24 hours after application.
- B. Provide supplemental heat and protection as required when the temperature and conditions are not in accordance with installation requirements. Sufficient ventilation and time shall be provided to ensure that materials have sufficiently dried prior to removing supplemental heat.
- C. Adequate protection shall be provided to prevent weather conditions (humidity, temperature, and precipitation) from having an affect on the curing or drying time of Master Wall Inc.® materials.
- D. Adjacent materials and the QRW1 Drainage System shall be protected during installation and while curing from weather and shall be protected from site damage.
- E. Coordinate installation of the QRW1 Drainage System with related work specified in other sections to ensure that the wall assembly is protected to prevent water from getting behind the system. The cap flashing shall be installed as soon as possible after the finish coat has been applied. When this is not possible, temporary protection shall be provided immediately in this area.
- F. All sealant work shall be installed in a timely manner. Protect open joints from water intrusion during construction with backer rod, or temporary covering, until permanently sealed.
- G. Sufficient manpower and equipment shall be employed to ensure a continuous operation, free of cold joints, scaffolding lines, and texture variations, etc.
- H. Existing Conditions - The contractor shall have access to electric power, clean water, and a clean work area at the location where the Master Wall Inc.® materials are to be applied.

### 1.09 SEQUENCING AND SCHEDULING

- A. Installation of the QRW1 Drainage System shall be coordinated with other construction trades.
- B. Sufficient manpower and equipment shall be employed to ensure a continuous operation, free of cold joints, scaffold lines, texture variations, etc.

### 1.10 LIMITED MATERIALS WARRANTY

- A. Provide a manufacturer's warranty against defective material upon request.

### 1.11 MAINTENANCE

- A. Maintenance and repair shall follow the procedures noted in Master Wall Inc.® Technical Bulletins #112 and #129.





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### **PART II – PRODUCTS**

#### **2.01 MANUFACTURER**

- A. All components of the QRW1 Drainage System shall be supplied or obtained from Master Wall Inc.® or its authorized distributors. Substitutions or additions of materials other than specified will void the warranty.

#### **2.02 MATERIALS**

- A. Portland Cement: Shall be Type I or II, meeting ASTM C 150, white or gray in color, fresh and free of lumps.  
B. Water: Shall be potable, clean and free of foreign matter.  
C. Metal Flashing Components: Complying with SMACNA Recommendations. Reference Section 07620.  
D. Sealant Systems: Reference Sealant Specification, Section 07900.  
E. Window & Door Systems: Detailed by the designer and suitable for EIFS. Reference Section 08000.

#### **2.03 COMPONENTS**

(Typical Application/Optional Component)

##### **A. Starter Tracks/Drainage Tracks**

1. Vinyl Corp. foundation sill screed product #WS50-250U, Plastic Components Product # 632-50, Amico Foundation Weep Screed AMFWS425-500, Amico Foundation Weep Screed (NO. 7) or approved equal.
2. Vinyl Corp. PB Starter Strip/Casing Bead product # CBS 150-16W or Plastic Components Starter Track product # STWP-15 shall be used in accordance with Master Wall Inc.® details.
3. Alternate termination methods may be used in accordance with Master Wall Inc.® details and recommendations.

##### **B. Mechanical Fasteners and Plastic Washers**

1. The Wind Lock ULP304 or 402 plate or approved equal shall be used with the appropriate corrosion-resistant fastener shall be used to meet the requirements of the specific project, local building code and the anticipated wind loads.

##### **C. Drainage Mats**

1. Where required drainage mats shall be approved by Master Wall Inc.

##### **D. Insulation Board**

1. Thermax Quik-R as manufactured by Celotex/Dow Building Products Division
2. Stucco-Shield II as manufactured by Atlas Energy Products Division
3. Approved equal insulation board.
4. Minimum 5/8" (15.87 mm) thickness is required, maximum 2" (50.8 mm).

##### **E. Reinforcing Mesh**

Open weave glass fiber fabric, treated for alkaline resistance and compatibility with Master Wall Base Coats, and conforming ASTM D-76, D-579, D-5035, MIL-Y-1140 and meeting a minimum Medium Impact Resistance (50-89 in-lbs) when tested to EIMA 101.86 Impact Resistance Standards.

1. Detail Mesh
2. Standard Mesh
3. Hi-Tech Mesh
4. Medium Mesh
5. Strong Mesh
6. Ultra Mesh

##### **F. Base Coats**

1. Master Wall Inc.® Foam & Mesh (F&M) Adhesive: An acrylic-based product mixed one-to-one by weight with Portland cement for use with reinforcing mesh as the base coating over the insulation board.
2. Master Wall Bagged Base Coat (MBB): A polymer based cementitious product mixed with 5 to 6 quarts of water for use with reinforcing mesh as the base coating over the insulation board.
3. F&M Plus: An acrylic-based high build product mixed one-to-one by weight with Portland cement designed for use with reinforcing mesh as the base coating over the insulation board. (This product shall be used where indicated on the construction drawings when a leveling base coat is required.)
4. Expanded Polystyrene Base (EPSB): a 100% pure acrylic polymer based noncementitious base coat.



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### G. Water Resistant Adhesive & Base Coat

1. Guardian – An acrylic-based product mixed one-to-one by weight with Portland cement for use as the adhesive to bond insulation board to an approved substrate and/or as a base coat with reinforcing mesh over insulation board. (This product should be used as designated on the construction drawings where additional resistance to moisture is needed.)

### H. Primer – Especially useful under dark colors

1. Primecoat Primer - Acrylic-based tintable primer
2. Sanded Primecoat Primer - Acrylic-based tintable primer with sand

### I. Superior Finishes: Master Wall Inc.® Superior Finishes are acrylic-based wall coatings available in a variety of colors and textures. The following textures are available:

1. Perfect2.0 (Perfect) - riled texture
2. Fine Sand 1.0 (Spray) – sand type texture
3. Medium Sand 1.5 (Desert Sand) – coarse sand texture
5. Versatex 0.5 (Refinish) – Fine texture used to create numerous finishes

### J. Finish Enhancements

1. Silicone Coat - Factory added silicone enhancement for better water resistance and to keep buildings cleaner.
2. Excel Mildew Enhancement - Factory added mildew booster exceeding ASTM D3273 requirements.
3. Elastomeric Plus - Increases flexibility and bridges minor hairline cracks.

### K. Specialty Finishes

1. Superior Stone
2. Aggrestone
3. Lumia
4. Plaster Flex
5. Metallic Cote
6. Savannah
7. Marbleflex
8. Travertine
9. Eco Glass
10. Aggrelime
11. Brick Finish System

### L. Accents & Coatings

1. Roller-flex architectural coating
2. Elasto-flex elastomeric architectural coating
3. Clearshield clear protective coating
4. Vintique antiquing accent

## **PART III – EXECUTION**

### **3.01 EXAMINATION**

- A. Prior to installation of the QRW1 Drainage System, the contractor shall verify that the substrate:
  1. Is of a type listed in Section 1.04.C.1.
  2. Is flat within 6.4 mm (1/4 in) in a 3 m (10 ft) radius.
  3. Is sound, dry, connections are tight, has no surface voids, projections or other conditions that may interfere with the QRW1 Drainage System installation or performance.
- B. Prior to the installation of the QRW1 Drainage System, the architect or general contractor shall insure that all needed flashings and other waterproofing details have been completed, if such completion is required prior to the QRW1 Drainage application. Additionally, the Contractor shall ensure that:
  1. Metal roof flashing has been installed in accordance with Asphalt Roofing Manufacturers Association (ARMA) Standards.
  2. Openings are flashed in accordance with the QRW1 Drainage System Installation Details or as otherwise necessary to prevent water penetration.
  3. Chimneys, Balconies, and Decks have been properly flashed.





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4. Windows, Doors, etc. are installed and flashed per manufacturer's requirements and the QRW1 Drainage System Installation Details.
- C. Prior to the installation of the QRW1 Drainage System, the contractor shall notify the general contractor, and/or architect, and/or owner of all discrepancies.

### 3.02 PREPARATION

- A. QRW1 Drainage materials shall be protected by permanent or temporary means from inclement weather and other sources of damage prior to, during, and following application until completely dry.
- B. Protect adjoining work and property during QRW1 Drainage installation.
- C. The substrate shall be prepared as to be free of foreign materials, such as, oil, dust, dirt, form release agents, efflorescence, paint, wax, water repellents, moisture, frost and any other condition that inhibit adhesion.

### 3.03 GENERAL GUIDELINES

- A. The system shall be installed in accordance with the current Master Wall Inc.® QRW1 Drainage System Application Instructions.
- B. The overall minimum base coat thickness shall be sufficient to fully embed the mesh.
- C. Sealant shall not be applied directly to textured finishes.
- D. When installing the QRW1 Drainage System, adhere according to Master Wall Inc.® and local requirements.
- E. High impact meshes shall be installed as specified at ground level, high traffic areas and other areas exposed to or susceptible to impact damage.

### 3.04 QRW1 DRAINAGE EIFS INSTALLATION

- A. Design Considerations
  1. The minimum slope of inclined surfaces shall not be less than 6" (152 mm) in 12" with a maximum length of 12" unless approved in writing by Master Wall Inc.®. Inclined surfaces which are or could be defined as roofs by the building codes or application are not approved by Master Wall Inc.®
  2. The use of dark colors must be considered in relation to wall surface temperature as a function of local climatic conditions.
  3. The Insulation Board shall be separated from the interior of the building by a 15-minute thermal barrier.
  4. The use and maximum thickness of insulation board shall be in accordance with the applicable building codes, typically ¾" (19 mm) minimum and 4" (102 mm) maximum.
  5. The EIF System shall be recognized by a current code report.
  6. It is the responsibility of the architect and the purchaser to determine if a product is suitable for their intended use. The architect or designer of the project shall be responsible for all decisions pertaining to the design, details, structural capability, attachment details, shop drawings and the like. Master Wall Inc.® has prepared specifications, details and data sheets to assist as guidelines for the use and installation of the products. Master Wall Inc.® is not responsible for the design, details, structural capability, attachment details and shop drawings whether it is based on Master Wall Inc.® information or not.
  7. Expansion joints in the system are required at building expansion joints, at prefabricated panel joints, where substrates change, at floor lines in wood framed construction, and where structural movement is anticipated. Reference construction documents for exact locations.
  8. Aesthetic Joints may be installed to provide sufficient break points in the EIF System to prevent cold joints from occurring in the finish coat. Aesthetic joints shall not be used in lieu of an expansion joint
- B. Mixing
  1. Mix the products following the instructions on the product data sheets.
  2. Additives shall not be added to Master Wall Inc.® materials unless written approval has been received from Master Wall Inc.®
- C. Preparation
  1. Protect contiguous work from damage during application of the QRW1 Drainage EIF System. Temporary covering may be required to prevent over spray or splattering of exterior finish coatings on other work.
  2. Protect substrate from inclement weather during installation. Prevent infiltration of moisture behind the system that may affect the substrate or the attachment of the insulation board to the substrate.



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3. Base Coats and Finishes shall not be installed when ambient air temperature is below 40°F (4°C). The temperature shall remain at or above 40°F (4°C) during mixing, application and until materials have cured.
4. Sufficient scaffolding, manpower and tools shall be provided to prevent cold joints.
5. Flashings, water barriers and drainage spacers (if used) shall be installed as required by construction documents and Master Wall Inc.® details in a manner to prevent the intrusion of water behind the insulation board and wall system. All flashing materials should direct the water to the exterior face of the finished system.

### D. Installation, General

1. Reference architectural details for full wall system requirements.
2. Comply with the manufacturers' current published instructions, (specifications, details, data sheets and technical bulletins) for the installation of the QRW1 Drainage EIF System.
3. Comply with local building codes.
4. Verify that all flashings and other items are in place.

### E. Drainage Track or Termination Option

1. Install the stucco weep screed or alternate termination method such as a drainage track where the system ends at the foundation. Install track at least 6" (152 mm) above grade, at least ¾" (19 mm) above structurally supported paving/patios, or at least 2" (51 mm) above unsupported patios
2. Place water barrier over weep screed flange or drainage track.
3. Backwrap details are used in accordance with Master Wall Inc.® details.
4. Alternatively, casing beads can be installed at other areas such as around window and door openings. Use drainage type casings at window/door heads following the techniques outlined above.

### F. Backwrapping

1. Adhesively secure reinforcing detail or standard mesh to the substrate positioned so that a minimum of 2 ½" (63.5 mm) of the mesh is onto the substrate. (The reinforcing mesh shall be wide enough to encapsulate the edge of the insulation board and cover both the substrate and the face of the insulation board a minimum of 2 ½".)
2. After the insulation board is applied, complete the backwrapping procedure by applying the base coat, embedding the remaining mesh and returning it onto the face of the insulation board.
3. Where sealants are applied the reinforcing mesh color shall not be visible and the texture of the base coat shall be smooth so that the pattern of the mesh is covered.
4. Apply finish in accordance with manufacturer's details. (Finish shall not be applied to areas where the design professional has anticipated dynamic movement or at an EIFS to EIFS joint.).

## 3.05 FIELD QUALITY CONTROL

- A. The contractor shall be responsible for the proper application of the QRW1 Drainage materials.
- B. Master Wall Inc.® assumes no responsibility for on-site inspections or application of its products.
- C. If required, the contractor shall certify in writing the quality of work performed relative to the substrate system, details, installation procedures, workmanship and as to the specific products used.
- D. If required, the Polyisocyanurate supplier shall certify in writing that the Polyisocyanurate meets Master Wall Inc.® specifications.
- E. If required, the sealant contractor shall certify in writing that the sealant application is in accordance with the sealant manufacturer's and Master Wall Inc.® recommendations.
- F. Acceptable weather resistive barriers for the QRW1 Drainage System shall be:
  1. Code approved weather resistive barrier or a code-recognized equivalent such as Tyvek® StuccoWrap® shall be installed over substrate on all exterior walls before application of system begins in accordance with the manufacturer's recommendations.
  2. Weather resistive barrier shall be installed horizontally with upper layers overlapping lower layers a minimum of 2". Vertical joints shall overlap a minimum of 6"
  3. Wrap weather resistive barrier into rough openings at windows, doors, mechanical equipment, and any other openings through the system. Overlap sill flashing tape at jambs at least 2". Reference Master Wall Inc. details and technical bulletins for additional information.
  4. Lap weather resistive barrier over attachment flange of drainage track a minimum of 2".
- G. Acceptable optional drainage mat materials for the QRW1 Drainage System shall be:
  1. Advanced Building Products Inc. Mortairvent: Rainscreen Mat with Backer Fabric, 6 mm & 10 mm



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2. Benjamin Obdyke Home Slicker: Rainscreen Mat, Home Slicker Plus Tyvar: Rainscreen Mat with water barrier, Home Slicker Stone & Stucco: Rainscreen Mat with mortar fabric
  3. Keene Building Products Driwall Rainscreen 020-1: Rainscreen Mat with mortar fabric, Driwall Rainscreen 10mm: Rainscreen Mat with mortar fabric, Driwall Rainscreen 075: Wide Spaced Rainscreen Mat, Driwall Rainscreen 075-1: Wide Spaced Rainscreen Mat with mortar fabric.
  4. Plastic Components: Ultra-Lath - Plastic Lath in sheets or rolls, Ultra Drain Mat in rolls.
  5. Install drainage mat materials in accordance with manufacturer's details and/or accepted industry practices.
- H. Master Wall Inc.'s current published details, specifications, data sheets, technical bulletins and other literature/information are minimum standards and guidelines that shall be followed when designing and detailing a project with the QRW1 Drainage EIF System.
- I. Details shall conform to Master Wall Inc.'s details and shall be consistent with the project requirements.
- J. Master Wall Inc. must approve deviations from the standard published details in writing.
- K. The architect, engineer or the designer of the project should determine where the dew point would occur in relationship to the wall assembly and the project location during summer and winter conditions.
- L. Drip details shall be specified in accordance with Master Wall Inc.'s published details.
- M. At all locations the reinforced base coat, trim accessories or the substrate shall encapsulate the approved insulation board.

### 3.06 INSULATION APPLICATION

- A. Mechanically fasten the insulation board using Wind-lock ULP 302/402 or approved washer and appropriate corrosion-resistant fastener. Master Wall Inc. must approve other mechanical fastening systems in writing prior to use with the QRW1 Drainage System.
- B. Fastening patterns shall be determined by the requirements of the geographical conditions of the area, local code requirements and the performance of the fasteners, washers and their test results in conjunction with the specified substrate and the thickness of insulation specified for use.
- C. Wood screws shall be corrosion resistant and long enough to penetrate stud or structural members 3/4" (19 mm).
- D. For light gauge metal framing, screws shall be corrosion resistant and long enough to penetrate metal framing members 3/8" (9.5 mm).
- E. When fastening through sheathing to stud framing fasteners shall be installed a minimum of 12" (305 mm) o.c. vertically and 16" or 24" (406 or 610 mm) o.c. horizontally depending on the stud spacing.
- F. When fastening to masonry walls fasteners shall be installed a minimum of 24" (610 mm) o.c. vertically and 16" (406 mm) o.c. horizontally.
- G. Installation
  1. Approved substrates for application:  
Exterior Grade Gypsum Sheathing ASTM C-1396\*, Dens Glass Gold ASTM C-1177\*, Fiber Bond\*, Durock\*, PermaBase\*, painted/unpainted Masonry, Concrete, Brick, 1/2" CDX Exterior Grade Plywood, 1/2" OSB Exterior Grade Sheathing.  
\* Mechanical fasteners must be secured to framing.
  2. Make sure weather resistive barrier is lapped over and into drainage track or termination.
  3. Attach Insulation Board using appropriate fastener combined with fastener plate.
  4. See Master Wall Inc.'s details for suggested fastener pattern.
  5. Install fasteners so that the face of the fastener plate is flush or slightly recessed into the surface of the insulation board. Do not puncture the surface of the insulation board with the fastener plate.
  6. The application of the insulation board shall commence at the base of the wall in the drainage track from a level line of support.
  7. The insulation board shall be installed vertically.
  8. Insulation boards shall be interlocked at the inside and outside corners.
  9. Insulation board joints shall be offset from the sheathing joints a minimum of 6".
  10. Insulation board joints shall be offset from the corners of openings.
  11. Allow for proper spacing at windows, doors, penetrations and other openings so that sealant systems can be installed in accordance with Master Wall Inc.'s specification, details and the construction documents.



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12. Provide a proper joint through insulation board where expansion joints occur in substrates and where required in the system.
13. The insulation board shall be butted tightly. Any gaps greater than 1/16" (1.6 mm) between insulation boards shall be filled with slivers of insulation board or approved minimal expanding foam. Adhesive shall not be used to adhere foam when filling gaps.
14. Gaps between insulation boards shall not be filled with adhesive or base coat materials.
15. Locate expansion joints a maximum of every 30 lineal feet (9 m) as noted in construction documents.

### 3.07 BASE COAT APPLICATION

#### A. Base Coat Preparation

1. Inspect adhered insulation board to ensure the installation meets the requirements set forth in Master Wall Inc.® specification, details, data sheets, technical bulletins and the construction documents. Make necessary repairs to ensure the installation meets the requirements prior to commencement of the base coat application.
2. Fill any gaps in the insulation board with slivers of insulation or approved minimal expanding foam sealant.
3. Complete the backwrapping at all system terminations by embedding the reinforcing mesh as described in this specification.
4. Install minimum 9 ½" x 12" (229x309 mm) diagonal reinforcement at all windows, doors, louvers, or other penetration corners. Apply field mesh as soon as possible after diagonal mesh application.
5. Reference architectural documents for locations of designed impact classifications.

#### B. Base Coat Application

1. Apply the base coat to the entire surface of the insulation board to the thickness required for the specified reinforcing mesh to be applied in a given area.
  - a. Standard, Detail and Hi-Tech Mesh require a nominal 1/16" (1.6 mm).
  - b. Medium, Strong and Ultra Mesh requires a nominal 3/32" (2.4 mm).
2. Immediately embed Master Wall Inc.® reinforcing mesh into wet base coat with a trowel, working from the center toward the edges, until the mesh is fully covered and a smooth surface is achieved. The color of the mesh shall not be visible but a slight mesh pattern may be visible.
3. Lap mesh 2 ½" (64 mm) minimum on all sides. (Do not lap Strong or Ultra mesh.)
4. Reinforcing Mesh shall be continuous through all interior and exterior corners extending beyond the corner a minimum of 12" from both directions creating a minimum of two layers of standard reinforcing mesh on all interior and exterior corners.
5. Standard and Hi-Tech reinforcing mesh can be applied in a single layer.
6. Medium Mesh can be applied in one layer yet it may require an additional coat of base coat mixture to properly embed the mesh after the first coat has dried.
7. Strong and Ultra Mesh require a second layer of base coat reinforced with Standard or Hi-Tech Mesh.
8. Polyisocyanurate or foam shapes shall have reinforcing mesh embedded into the base coat.
9. Allow the base coat to cure a minimum of 12 hours prior to additional base coat or finish coat applications.

### 3.08 FINISH COAT APPLICATION

#### A. Superior Finish Coat Application

1. Surface irregularities in the base coat, such as trowel marks, insulation board lines and reinforcing mesh laps shall be corrected prior to the finish application.
2. Apply the Master Wall Inc.® Superior Finish in the color and texture as approved by the project owner or the project architect with sufficient manpower and equipment to insure a continuous operation without cold joints, scaffolding lines etc. Texture finish shall match approved jobsite samples. Thickness and coverage will vary depending on the specified final appearance.
3. Trowel Application – (Perfect 2.0, Fine Sand 1.0, Medium Sand 1.5, Versatex 0.5)
  - a. Apply the Superior Finish to the clean, dry and cured base coat with a stainless steel trowel.
  - b. Level the surface to a uniform thickness of 3/32" to 1/8" (2.4-3.2 mm).
  - c. Float the Finish with a plastic float in a uniform motion to achieve the desired texture. (Versatex 0.5 cannot be floated easily. A second application of the Versatex 0.5 may be applied to create the desired texture.)
4. Spray Application – (Perfect 2.0, Fine Sand 1.0, Medium Sand 1.5, Versatex 0.5)



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- a. Prime surface with Master Wall Inc.® Primecoat or Sanded Primecoat tinted to match the selected finish color. Allow Primecoat or Roller-Flex to cure a minimum of 12 hours prior to finish coat application.
  - b. Using a conventional plaster hopper gun or a proven pump, spray finish over the primed base coat to achieve desired texture using a circular overlapping pattern keeping the spray gun at a 90° angle to the surface and maintaining the same distance to the wall at all times.
  - c. Be cautious of flooding an area with too much finish because it may appear shinier when it dries.
5. Specialty Finishes: Follow individual product data sheet application instructions.

### 3.09 JOB SITE CLEANUP

- A. Clean work area in accordance with contract documents removing all excess materials, droppings and debris. Clean adjacent surfaces.
- B. Other trades may now install their work – Sheet Metal (Section 07620), Sealants (Section 07900), Mechanical (Section 15000), Electrical (Section 16000).

### 3.10 PROTECTION

- A. QRW1 Drainage System shall be protected from inclement weather and other sources of damage until dry and permanent protection in the form of flashings, sealants, etc. are installed.

#### Disclaimer

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