CSI MASTERFORMAT SPECIFICATION

HULK COMPOSITE WATERPROOFING SYSTEM®

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07 14 16 – COLD-FLUID APPLIED WATERPROOFING

PART 1 – GENERAL

1.1 SECTION INCLUDES

1. Surface preparation.
2. Application of single-component, water-activated, liquid waterproofing membrane.

1.2 RELATED SECTIONS

- Section 03 20 00 – Concrete Reinforcing
- Section 03 30 00 – Cast-in-Place Concrete
- Section 03 41 00 – Precast Structural Concrete
- Section 04 20 00 – Unit Masonry
- Section 07 13 53 – Elastomeric Sheet Waterproofing
- Section 07 21 00 – Thermal Insulation
- Section 07 27 00 – Air Barriers
- Section 07 60 00 – Flashing and Sheet Metal
- Section 07 81 00 – Applied Fireproofing
- Section 07 92 00 – Joint Sealants
- Section 09 96 53 – Elastomeric Coatings
- Section 13 34 23 – Fabricated Structures
- Section 33 46 13 – Foundation Drainage
- Section 09 96 56 – Epoxy Coatings
- Section 09 96 00 – High Performance Coatings

1.3 REFERENCES

- ASTM C836 – Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course
- ASTM D2369 – Standard Test Method for Volatile Content of Coatings

- ASTM D412 – Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers - Tension
- ASTM D4300 – Standard Test Methods for Ability of Adhesive Films to Support or Resist the Growth of Fungi
- ASTM D63823 – Standard Test Method to Determine the Textile Properties After Accelerated Weathering
- ASTM D903 – Standard Test Method for Peel or Stripping Strength of Adhesive Bonds
- ASTM E84-01 – Standard Test Method for Surface Burning Characteristics of Building Materials
- ASTM E96 – Standard Test Methods for Water Vapor Transmission of Materials
- CAN/CGSB 37-GP-56M – Standard Test Method for Static and Dynamic Impact Testing on Single or Multi-Ply Materials
- CAN/CGSB 37.5-89M – Standard Test Method for Detection of Pin Hole Presence in a Film Sample of Single or Multi-Ply Materials
- ISO 16929 – Standard Test Method for Determining of the degree of disintegration of plastic materials under defined composting conditions in a pilot-scale test

1.4 SUBMITTALS

- Comply with Section 01 33 00 – Submittal Procedures
- Submit manufacturer's product data and application instructions
- Submit manufacturer's LEED Product Sheet

1.5 QUALITY ASSURANCE

- Installer Qualifications: Use an experienced installer and adequate number of skilled personnel who are thoroughly trained and experienced in the application of fluid-applied waterproofing membranes
- Obtain waterproofing materials from a single manufacturer regularly engaged in manufacturing the product
- Provide products which comply with all State or Provincial and local regulations controlling the use of volatile organic compounds (VOCs)

1.6 PRECONSTRUCTION MEETING

- Convene one week prior to commencing work of this section, in accordance with Section 01 31 19 – Project Meetings

1.7 MOCK-UPS

- Prior to installation of waterproofing membrane, apply waterproofing membrane to 100 ft^2 (9.3 m^2) of deck or wall to demonstrate surface preparation, crack and joint treatment, corner treatment,

thickness, and to demonstrate tie-ins with adjoining construction, and other termination conditions, as well as qualities of materials and execution

- Cooperate and coordinate with the owner's inspection and testing agency. Do not cover any installed waterproofing membrane unless it has been inspected, tested, and approved

1.8 DELIVERY, STORAGE, AND HANDLING

- Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer
- Deliver using heated transport if temperatures are expected to drop below freezing during transport
- Store materials in a clean, dry area in accordance with manufacturer's instructions
- Store at temperatures between 40°-70°F (4°-21°C). Do not allow product to freeze
- Protect materials during handling and application to prevent damage or contamination

1.9 ENVIRONMENTAL REQUIREMENTS

- When applying in temperatures ranging from 32°F (0°C) to 25°F (-4°C), applicators must ensure that they never allow material to freeze in container or pump during application. Keep stored material and equipment properly heated and always insulated when working in below freezing conditions. It's recommended by the manufacturer, that when performing cold weather applications, condition all material to 60°-85°F (16°-29°C) for 24 hours prior to use
- When applying in temperatures ranging from 25°F (-4°C) to 10°F (-12°C) applicator must use a material heat exchanger and heated insulated equipment lines. See Hulk Systems Application Guide online for further instructions on cold weather application
- Never apply material below 10°F (-12°C)
- Do not apply membrane if rainfall or heavy snowfall is forecast or imminent within 12 hours
- Do not apply waterproofing membrane to any surfaces containing frost
- Consult manufacturer for applications to green concrete

1.10 SUSTAINABILITY NOTES

Product may contribute to LEED credits for low-emitting materials, thermal comfort, energy performance, waste management, and recycled content. Manufacturer offers packaging recycling program for containers ≥5 gallons.

PART 2 – PRODUCTS

2.1 MANUFACTURER

- Hulk Systems Inc., Unit K8 - 64115 393 Ave E, Aldersyde, Alberta, CANADA T0L 0A0; www.hulksystem.com; Phone: 403-764-6849

2.2 MATERIALS

1. Waterproofing Membrane: Cold-applied, solvent-free, liquid waterproofing membrane.
2. Performance-Based Spec: Waterproofing membrane shall have the following properties as determined by laboratory testing:

1. Tensile Strength, ASTM D412: 395 psi
2. Elongation at break, ASTM D412: 310%
3. Water Vapor Transmission, ASTM E96 (Method BW): 0.1 perm
4. Concrete Adhesion, ASTM C-836: Exceeds
5. VOC, ASTM D2369: >30 g/L
6. Magnesium Board Adhesion, ASTM D903: Pass
7. Fire Rating, ASTM E84-01: Class "A"
8. Static & Dynamic Impact Puncture, CAN/CGSB 37-GP-56M: Pass
9. Pin Holing, CAN/CGSB 37.5-89M: No pinholes detected
10. Tensile Properties After Accelerated Weathering, ASTM D63823: Pass
11. Compost Degradation, ISO 16929: Zero degree of degradation
12. Fungi & Mold Growth ASTM D-4300 & ISO 16929: No growth detected

3. Proprietary-Based Spec: Hulk System® by Hulk Systems Inc.

2.3 ACCESSORIES

1. Joint Tape: Adhesive-backed tape for corners, cracks, sills, plates, and joint treatment.
    1. 4"-16” WIDE - WATERPROOF ADHESIVE THROUGH WALL TAPE by 3M CANADA™
2. Reinforcement Material for High Build Applications, for Rigid Foams / ICF block and use for Panelized Substrates: E-Glass, quartz resin infused, fiber glass reinforcing synthetic textile.
    1. HULK SRT® (STRUCTURALLY REINFORCING TEXTILE) by HULK SYSTEMS INC
3. Detailing Repair Mastic: For coves, ties, joints, and penetrations.
    1. HULK SEMI-FLEXIBLE MASTIC® (2-Part (A+B) 1 to 1 (1:1) Epoxy Based Mastic) by HULK SYSTEMS INC
4. Epoxy-Based Primer: For magnesium board and low water table uses.
    1. HULK EPOXY MEMBRANE PRIMER® (2-Part (A+B) 2 to 1 (2:1) 100% Solids Epoxy) by HULK SYSTEMS INC

5. Hydrostatic Pressure and Radon Barrier; Concrete Repair Materials: For vertical, horizontal, and overhead surface preparation repairs.
    1. HULK MGVSS® (3-Part (A+B+C) 1 to 1 to 1 (1:1:1) MOISTURE & GAS VAPOR SUPPRESSION SYSTEMS) by HULK SYSTEMS INC

PART 3 – EXECUTION

3.1 EXAMINATION

- Examine surfaces to receive membrane. Notify architect if surfaces are not acceptable. Do not begin surface preparation or application until unacceptable conditions have been corrected

3.2 SURFACE PREPARATION

- Protect adjacent surfaces not designated to receive waterproofing
- Clean and prepare surfaces to receive waterproofing in accordance with manufacturer's instructions
- Power wash or use oil-free compressed air to remove any contaminants that may interfere with the bond of the membrane
- Patch all holes and voids and smooth out any surface misalignments
- Do not apply waterproofing to surfaces unacceptable to the manufacturer

3.3 PRIMING/SEALING

- (Specifier Note: Edit or delete if not required) For all magnesium board surfaces, sealing the substrate with HULK EPOXY MEMBRANE PRIMER® is a requirement where air and/or moisture release may cause pinhole or blister problems to occur in the applied membrane. HULK EPOXY MEMBRANE PRIMER® on magnesium surfaces is required to stabilize the boards, remove trapped air/vapor from the substrate, and promote a better bond with the substrate. HULK EPOXY MEMBRANE PRIMER® can also be applied to concrete and foam substrates if deemed necessary, when water-table level is a concern, and will be ready to coat over between 8-12 hours on a vertical plane, depending on the atmospheric conditions. If a primer is not deemed necessary, then delete this section. The mock-up will determine whether a primer is necessary for the installation
- Consult technical documents, including Technical Data Sheet (TDS) and Safety Data Sheet (SDS) for HULK EPOXY MEMBRANE PRIMER® prior to use of all products and ensure all safety, health, environmental, and personal protection equipment requirements are understood. Technical Documents are readily available upon request or online at www.hulksystem.com
- Condition all components to 60°-70°F (16°-21°C) for 24 hours prior to use. DO NOT expose Part B (HARDENER) to temperatures exceeding 104°F (40°C) as it is flammable at high temperatures
- DO NOT use HULK EPOXY MEMBRANE PRIMER® around sources of flame, spark, or ignition

- No mixing is necessary. Apply HULK EPOXY MEMBRANE PRIMER® with a short nap, lint-free roller, or a solvent-resistant low-pressure sprayer at an approximate thickness of 7 mils WFT (wet film thickness) and coverage rate of 250 ft^2 (23.2 m^2) per gallon (6.1 m^2/L), providing a uniform coverage over the substrate. Recommended tip size for spray applications is a 0.017"-0.021" orifice with a 10-inch or greater fan size to prevent fingering. Example: 517 tip size or greater. WARNING - Ensure that the machine is flushed with Xylene between each pail use, or before the setup time of the material. IF NOT, EQUIPMENT DAMAGES WILL OCCUR
- DO NOT attempt to back-roll
- Allow HULK EPOXY MEMBRANE PRIMER® to become tack-free prior to the application of the fluid-applied waterproofing membrane, which should take no longer than 30-120 minutes, dependent on environmental conditions

3.4 MIXING

- Ensure material has been stored between 50°-70°F (10°-21°C) and has not been allowed to freeze
- Mix thoroughly for a minimum of 1 minute using a mechanical mixer at slow speed to ensure a homogeneous material. If air bubbles occur due to excessive mixing speeds, allow product to settle for a minimum of 10 minutes before use

3.5 APPLICATION

- (Specifier Note: Hulk Acrylic WP® is ideally tailored for vertical waterproofing applications below grade, and above grade, and as a liquid-applied vapor barrier if required. Typical installation for vertical applications on concrete is 70 mil WFT. For magnesium or foam surfaces, recommended combined thickness is 85 mil WFT with HULK SRT® immersed throughout. Always contact your local HULK SYSTEMS INC. representative to discuss specific project requirements. To promote proper permeability and performance, when applying vertically, Hulk Acrylic WP® needs to be applied in 35-40 mil coats to build up to your required thickness, with a minimum recommended dry time of 2 hours between coats.
- Apply waterproofing membrane system in accordance with the manufacturer's instructions

Vertical Application

- Treatment of Through-Wall Joints & Penetrations: Thoroughly pack all through-wall openings and penetrations like exposed shoring piles, tie-backs, and other anchors with detailing mastic HULK SEMI-FLEXIBLE MASTIC®.
- Treatment of Existing Cracks and All Non-Structural Joints: Identify and install HULK SEMI-FLEXIBLE MASTIC® in all cracks and all non-structural joints prior to first coat
- Treatment of Inside & Outside Corners: Install HULK SEMI-FLEXIBLE MASTIC® to create a minimum ¾" (25.4 mm) fillet in all inside corners prior to first coat
- Apply Hulk Acrylic WP® membrane by sprayer or roller, at a minimum coverage rate of 66 ft^2/U.S. gal (1.62 m^2/L), providing a thickness of 40 wet mils.

Specifier Notes: Hulk WP® ROLLER APPLICATION RECOMMENDATIONS: Using a heavy nap roller will allow for better coverage and an overall thicker coat. 1.25"-1.5" nap size or greater is recommended to achieve the proper mil thickness with fewer coats.

SPRAY APPLICATION RECOMMENDATIONS: For airless sprayer applications, Hulk Systems® recommends applicators use a tip orifice size of no less than 0.021" with a 10"-12" fan spread. Example: 521 tips or greater. A minimum requirement of the pump or equipment would be a maximum working pressure of no less than 3300 psi, as well as an equipment specification that allows for materials to be sprayed with a viscosity of 20,000 PS @ 6RPM. Hulk Systems recommends both Graco and Titan airless equipment. For recommendations on specific brands, models, or larger commercial pumps, please contact Hulk Systems®.

2 OPTIONAL STEP: For Concrete Surfaces | MANDATORY STEP: For ICF, Wood, and Magnesium Board Surfaces if no extruded protection board or drainage screen is specified.

- Fully embed the reinforcing fabric into this first coat.
- On applications where textile has been embedded into coating, apply the second coat of Hulk Acrylic WP® membrane by sprayer or roller, at a minimum coverage rate of 75 ft^2/U.S. gal (1.84 m^2/L), providing a thickness of 30 wet mils. This coat can be applied as early as immediately after the textile is embedded to as late as the following day.

Horizontal Application

- Apply the waterproofing membrane system in accordance with the manufacturer's instructions
- Treatment of Existing Cracks and All Non-Structural Joints: Identify and install detailing mastic in all cracks and all non-structural joints prior to the first coat
- Treatment of Inside & Outside Corners: Install detailing mastic to create a minimum ¾" (25.4 mm) fillet in all inside corners prior to first coat
- Apply membrane by trowel, or a mil-adjustable toothed squeegee at a minimum coverage rate of 107 ft^2/U.S. gal (2.62 m^2/L), providing a thickness of 15 wet mils
- Fully embed the reinforcing fabric into this first coat if deemed necessary
- Immediately apply the second coat of membrane by trowel, or a mil-adjustable toothed squeegee at a minimum coverage rate of 107 ft^2/U.S. gal (2.62 m^2/L), providing a thickness of 15 wet mils

Specifier Notes: Complete saturation of the HULK SRT® textile must be achieved, and therefore, no more than 4 hours should pass between the first and second coats.

- Ensure minimum cured membrane thickness of 15 mils dry (DFT) is achieved

3.6 PROTECTION

Vertical Applications - If HULK WP® has been installed without HULK SRT® throughout, it is recommended to use a protective or drainage screen or other approved extruded material to protect the membrane from impact during backfilling.

END OF SECTION