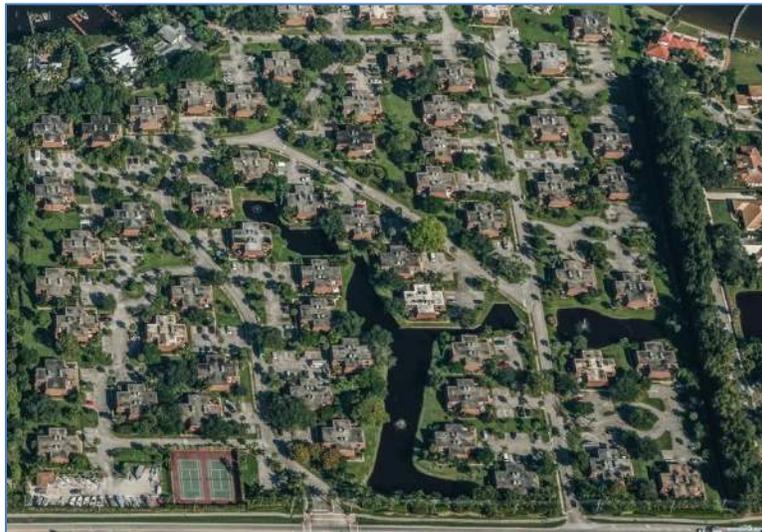




## ReRoof Guidelines and Requirements

Jupiter Plantation  
825 Center Street  
Jupiter, FL 33458



Specified and Compiled by Wayne Ogden of Roof Associates, Inc.  
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## General Requirements and Procedures

1. Contractor to obtain all necessary permits and provide a schedule before commencing work
2. Mobilize on-site
3. Tear off and dispose existing roof system (flashings, insulation, boards) to expose original structural deck (elevated concrete deck) and perimeter curb.
4. Each 4-plex to be reroofed, monolithically.
5. Install new CertainTeed 15 year material SBS modified roof system (zero inch per foot/ponding water system), in hot asphalt for detailed procedures see specification 07 5216-12, 3.6 FIELD INSTALLATION, Detail SBS-1-4-A, and in accordance with Florida Product Approval FL2533-R28 system C-46:
  - a. Clean, prep, and prime existing concrete structural deck per manufacturer's guidelines
  - b. Install 1-1/2" Iso board
  - c. Install 1/2" Coverboard
  - d. Install Tapered panel
  - e. Install CertainTeed SBS Modified Ultra Poly SMS
  - f. Install 2 plies of ply 4 fiberglass interply sheet
  - g. Install Flintlastic FR-P SBS modified white granulated cap sheet
  - h. Install perimeter flashing, vents, stacks, penetrations, etc. per attached specification 07 5216
  - i. Any existing deteriorated wood nailers to be replaced in kind
  - j. Detach HVAC units, lift in place to reflash HVAC curbs, and re-attach HVAC units
  - k. HVAC flashings to be flashed per detail, CTL-SF-01 (Smartflash One) to meet CertainTeed minimum height requirements of 5".
  - l. HVAC flashing to be flashed per detail, CT-04 (Hot Asphalt) when curb meets the minimum height of 8". Contractor may need to extend curb with an adapter.
  - m. PLEASE NOTE: Buildings #19 and #21 have existing skylights. At these locations, skylight will need to be removed, replaced, or eliminated.
  - n. PLEASE NOTE: Existing Mansard to remain.
  - o. Edge metal flashing: To be per detail CT-01 with a minimum of 3" on the deck and 3 3/4" on the face, covering metal mansard.
  - p. Option: Cleat may be installed but face to be no more than 4 1/2".

SPECIFICATION SECTION 07 5216 - STYRENE-BUTADIENE-STYRENE (SBS) MODIFIED BITUMINOUS MEMBRANE ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
  - 1. Substrate preparation: field and flashings.
  - 2. Styrene-butadiene-styrene (SBS)- modified bitumen base sheets (hot-applied).
  - 3. Styrene-butadiene-styrene (SBS)- modified bitumen cap sheets (hot-applied).
  - 4. Roof insulation and coverboards.
  - 5. Hot-Applied, flashings.
  - 6. Liquid-applied, reinforced flashings.

1.3 DEFINITIONS

- A. Roofing Terminology: Definitions in ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" apply to work of this Section.

1.4 REFERENCES

- A. AMERICAN SOCIETY OF CIVIL ENGINEERS - Reference Document ASCE 7, Minimum Design Loads for Buildings and Other Structures.
- B. AMERICAN STANDARD OF TESTING METHODS (ASTM):
  - 1. ASTM D 41 - Standard Specification for Asphalt Primer Used in Roofing, Damp proofing, and Waterproofing.
  - 2. ASTM D 312- Standard Specification for Asphalt Used in Roofing.
  - 3. ASTM D 2178 - Standard Specification for Asphalt Glass Felt Used in Roofing and Waterproofing.
  - 4. ASTM D 5147 - Standard Test Methods for Sampling and Testing Modified Bituminous Sheet Material.
  - 5. ASTM D 6164 - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements.
- C. FLORIDA BUILDING CODE (FBC):
  - 1. 2020 Florida Building Code, 7<sup>th</sup> Edition (FBC).
- D. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA).

## 1.5 PREINSTALLATION MEETINGS

- A. Preliminary Roofing Conference: Before starting roof deck construction, conduct conference at Jupiter Plantation Clubhouse, 825 Center Street, Jupiter, FL 33458.
1. Meet with Owner, Property Manager, Owner's Roofing Consultant, Owner's insurer if applicable, testing and inspecting agency representative, roofing installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
  2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
  3. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  4. Review deck substrate requirements for conditions and finishes, including flatness and fastening.
  5. Review structural loading limitations of roof deck during and after roofing.
  6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing system.
  7. Review governing regulations and requirements for insurance and certificates if applicable.
  8. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
  9. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  10. Review deck substrate requirements for conditions and finishes, including flatness and fastening.
  11. Review structural loading limitations of roof deck during and after roofing.
  12. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing system.
  13. Review governing regulations and requirements for insurance and certificates if applicable.
  14. Review temporary protection requirements for roofing system during and after installation.
  15. Review roof observation and repair procedures after roofing installation.

## 1.6 ACTION SUBMITTALS

- A. Product Data:
1. Technical Data Sheets (TDS) for each product in specified system.
  2. Safety Data Sheets (SDS) for each product in specified system.
- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work, including:
1. Base flashings and membrane terminations.
  2. Tapered insulation, including slopes.
  3. Crickets, saddles, and tapered edge strips, including slopes.

4. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.
- C. Samples for Verification:
1. Base sheet(s) as specified.
  2. Cap sheet, of color required.
  3. Flashing sheet, of color required.
  4. Walkway pads or rolls, of color required.
  5. Insulation with specified facer.
  6. Coverboard.
  7. Metal edging, of type and color required.
  8. Other items as required.
- D. Sample Warranties:
1. For manufacturer's standard system warranty as specified.
  2. For any required manufacturer's endorsements for project.
- E. Other:
1. Other items as required by specifier.

#### 1.7 INFORMATIONAL SUBMITTALS

- A. Installer Qualification Data:
1. A qualified firm that is a Florida state certified licensed roofing contractor.
  2. A qualified firm that is certified by the Roofing Material Manufacturer

#### 1.8 CLOSEOUT SUBMITTALS

- A. Release of Liens: Any entity that has recorded a notice of commencement to property.
- B. Maintenance Data: For roofing system specified to include in maintenance manuals.
- C. Permit: Passed final inspection and provided permit closeout documentation.
- D. Warranties: Provide all warranty documents as required per section 1.12 of this specification.

#### 1.9 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer that is UL listed and FM Global approved for membrane roofing system identical to that used for this Project.
- B. Modified bitumen production facility that is ISO:14001 and 9001 Certified.

## 1.10 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
  - 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials, and place equipment in a manner to avoid permanent deflection of deck.
- E. Dispose of all waste, debris, wrapping, etc properly. Remove all damaged materials and replace with new in good condition.

## 1.11 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.
- B. Monitor weather conditions to ensure the project environment is dry and will remain such, during the application of roofing. All roofing materials and substrates should remain above the dew point temperature as required to prevent condensation and maintain dry conditions.
- C. Do not apply roofing materials to wet, frozen, or unprepared surfaces. Apply primers as required making sure that they are fully dry before applying material over top.
- D. Temperature: adhesives, primers, and coatings should be applied at no less than 40°F (4.4°C)- 100°F (38°C). For self-adhered membranes application follow manufacturer's printed guidelines. Make sure conditions remain satisfactory to achieve membrane adhesion. The temperature of asphalt should be no less than 400°F (204°C) for Type III asphalt and 425°F (218°C) for Type IV asphalt at the point of contact. Ensure that kettle temperatures are monitored and asphalt is not overheated above manufacturer's requirements.

## 1.12 WARRANTIES

- A. Standard Limited Warranty on Systems: Manufacturer agrees to repair or replace components of roofing system that fail in materials that cause leaks within specified warranty period.
  - 1. Special warranty includes membrane roofing, base flashings, and liquid applied flashing.
  - 2. Warranty Period: 15 years from date of Substantial Completion.
  - 3. <https://www.ctndl.com/sf/warranty.asp>
  - 4. Roofing Contractor 2 year leak warranty.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Basis-of-Design: Subject to compliance with requirements, provide roofing system from:
  - 1. CertainTeed LLC  
20 Moores Road  
Malvern, PA 19355  
Telephone: 800-233-8990  
Website: [www.CertainTeed.com](http://www.CertainTeed.com)
- B. Source Limitations: Obtain components including roof insulation and coverboard for roofing system from same manufacturer as membrane roofing or approved by membrane roofing manufacturer and/or Florida Building Code.

### 2.2 ROOFING SYSTEM BASIS OF DESIGN

- A. Install roofing system according to roofing system manufacturer's written instructions and applicable recommendations in ARMA/NRCA's "Quality Control Guidelines for the Application of Polymer Modified Bitumen Roofing" and as follows:
  - 1. Deck Type: C (concrete or non-nailable).
  - 2. Adhering Method(s): HA (Hot-applied).
  - 3. Base Ply: One.
  - 4. Number of BUR Interply Sheets: Two.
  - 5. Surfacing Type: M (mineral/granule-surfaced cap sheet).
- B. Subject to compliance with requirements provide multi-ply, prefabricated, reinforced modified bitumen roofing system:
  - 1. CertainTeed LLC Specification: **SBS-I-4-A**

## 2.3 PERFORMANCE REQUIREMENTS

- A. General Performance: Installed roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roofing and base flashings shall remain watertight.
  - 1. Accelerated Weathering: Roofing system shall withstand 2000 hours of exposure when tested according to ASTM G 152, ASTM G 154, or ASTM G 155.
- B. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.
- C. Roofing System Design: Tested by a qualified testing agency to resist the following uplift pressures:
  - 1. Corner Uplift Pressure: 51.8 lbf/sq. ft.
  - 2. Perimeter Uplift Pressure: 86.85 lbf/sq. ft.
  - 3. Field-of-Roof Uplift Pressure: 130.77 lbf/sq. ft.
- D. Exterior Fire-Test Exposure: UL 790, Class A for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

## 2.4 FIELD SHEET MATERIALS

- 1. **Flintlastic Ultra Poly SMS:** SBS-modified polyester reinforced base//interply membrane used with a torch-applied cap or cap set in hot asphalt; meeting or exceeding ASTM D6164, Type I and D5147:
  - a. Thickness: 146 mils (3.7mm)
  - b. Roll Dimensions: 39 3/8" x 32' 10"
  - c. Coverage: 100 sq ft.
  - d. Roll Weight: 89 lb
  - e. Tensile Strength @ 73°F MD/XD: 85/60 lbs./in.
  - f. Tensile Strength @ 0°F MD/XD: 100/90 lbs./in.
  - g. Tear Strength MD/XD: 110/90 lbs./in
  - h. Elongation @ 73°F MD/XD: 40%/55%
  - i. Elongation @ 0°F MD/XD: 30%/40%
  - j. Dimensional Stability MD/XD: 0.2%/0.1%
  - k. Compound Stability: 250°F
  - l. Softening Point: 260°F
  - m. Low Temperature Flexibility: Pass @ -15°F
  - n. Water Vapor Transmission: .01 perms
  - o. Top and Bottom Surfacing: Fine sand
  - p. Attachment Method: HA

2. **Flintglas Type 4 Ply Sheet:** Non-Modified Type 4 Fiberglass Base and Inter Ply used as an interply for hot applied, modified bitumen roofing systems; meeting or exceeding ASTM D2178, Type IV:
  - a. Roll Dimensions: 39 3/8" x 164' 7"
  - b. Coverage: 500 sq ft.
  - c. Roll Weight: 36 lb
  - d. Tensile Strength MD/XD: 50/46 lb./in.
  - e. Top and Bottom Surfacing: Fine mineral
  - f. Attachment Method: HA
  
3. **Flintlastic FR-P:** SBS-modified; fire rated; polyester reinforced; hot applied; meeting or exceeding ASTM D6164, Grade G, Type I and D5147:
  - a. Thickness: 165 mils (4.2mm)
  - b. Roll Dimensions: 39 3/8" x 32' 10"
  - c. Coverage: 100 sq ft.
  - d. Roll Weight: 100 lb
  - e. Tensile Strength @ 73°F MD/XD: 105/65 lbs./in.
  - f. Tensile Strength @ 0°F MD/XD: 145/85 lbs./in.
  - g. Tear Strength MD/XD: 130/90 lbs./in
  - h. Elongation @ 73°F MD/XD: 65%/75%
  - i. Elongation @ 0°F MD/XD: 45%/50%
  - j. Dimensional Stability MD/XD: 0.4%/0.6%
  - k. Low Temperature Flexibility: Pass @ -20°F
  - l. Bottom Surfacing: Fine sand
  - m. Attachment Method: HA/CA
  - n. Granule Color: White

## 2.5 AUXILIARY ROOFING MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing.
  1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.
  2. Adhesives and sealants that are not on the exterior side of weather barrier shall comply with the following limits for VOC content:
    - a. Plastic Foam Adhesives: 50 g/L.
    - b. Gypsum Board and Panel Adhesives: 50 g/L.
    - c. Multipurpose Construction Adhesives: 70 g/L.
    - d. Fiberglass Adhesives: 80 g/L.
    - e. Contact Adhesives: 80 g/L.
    - f. Other Adhesives: 250 g/L.
    - g. Non-membrane Roof Sealants: 300 g/L.
    - h. Sealant Primers for Nonporous Substrates: 250 g/L.
    - i. Sealant Primers for Porous Substrates: 775 g/L.

- B. Asphalt Primer: ASTM D 41/D 41M.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide CertainTeed LLC; **FlintPrime QD** or comparable product.
- C. Roofing Asphalt: ASTM D 312, Type III or IV as recommended by roofing system manufacturer for application.
- D. Asphalt Roofing Cement: ASTM D 4586 and D 3409, asbestos free, of consistency required by roofing system manufacturer for application.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide CertainTeed LLC; **FlintSeal** or comparable product.
- E. Adhesives:
  - 1. Mastic Sealant: SBS-modified mastic; all weather, high-heat resistant, non-slip or sag for use on control joints and sealing term bars.
    - a. Basis-of-Design Product: Subject to compliance with requirements, provide CertainTeed LLC; **FlintBond Caulk** or comparable product
- F. One-part liquid-applied polyurethane bituminous flashing resin combined with a polyester reinforcement: UV stable, self-terminating; for use in waterproofing irregular penetrations and flashings as well as repairs.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide CertainTeed LLC; **SmartFlash One** or comparable product.
  - 2. Basis-of-Design Product: Subject to compliance with requirements, provide CertainTeed LLC; **SMARTFAB Polyester Reinforcement** or comparable product.
- G. Fasteners: Factory-coated steel fasteners, screws, termination bars, nails, washers and other items complying with corrosion-resistance provisions in FM Global 4470, designed for fastening roofing components; tested by manufacturer for required pullout strength, and acceptable to roofing system manufacturer.
- H. Roofing Granules: Ceramic-coated roofing granules, #11 grade with 100 percent passing No. 8 (2.36-mm) sieve and 98 percent of mass retained. Color to match roofing. For all asphalt bleed out, hand broadcast white granules while the asphalt is hot.
- I. Metal Flashings: edge metal, Curbs, Metal Vents, and other shall be:
  - 1. Stainless Steel 26 ga. or 24 ga. 300 series.
  - 2. Copper Metal cold rolled 16 ounce copper
  - 3. Aluminum .025, .032, or .040 ga. (coastal resistant coating required, color to match existing)
  - 4. Lead stacks
- J. Miscellaneous Accessories: Provide those recommended by roofing system manufacturer.

## 2.6 ROOF INSULATION

- A. General: Preformed roof insulation boards manufactured or approved by roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated.
- B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 1, Grade 2 (20 psi) Type II, Class 1, Grade 3 (25 psi), felt mat facer on both major surfaces.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide CertainTeed LLC; **FlintBoard ISO** or comparable product by one of the following:
    - a. Atlas Roofing Corporation.
    - b. Hunter Panels.
  - 2. 1-1/2"; 2'x4' or 4'x4' boards, fully adhered.
- C. Coverboards
  - 1. Blue Ridge Fiberboard Structodeck High Density Fiberboard Roof Insulation Cover Board or acceptable alternate (Securerock or DensDeck) installed per Florida Product Approval or Miami-Dade Notice of Approval
  - 2. 1/2"; 2'x4' or 4'x4' boards, fully adhered.
  - 3. At perimeters use tapered 1" to 0" 2'x4' or 4'x4' fiberboard, perlite, high density fully adhered to coverboard.

## 2.7 INSULATION ACCESSORIES

- A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with roofing.
- B. Insulation Cant / Nailer Strips:
  - 1. Insulation Cant Strips: ASTM C 728, perlite insulation board.
  - 2. Insulation Cant Strips: ASTM C 208, Type II, Grade 1, cellulosic-fiber insulation board.
  - 3. Wood Cant Strip: Comply with requirements in [Section 061000 "Rough Carpentry."] [Section 061053 "Miscellaneous Rough Carpentry."]
  - 4. Wood Nailer Strips: Comply with requirements in [Section 061000 "Rough Carpentry."] [Section 061053 "Miscellaneous Rough Carpentry."]
- C. Tapered Edge Strips:
  - 1. Insulation Tapered Edge: ASTM C 728, perlite insulation board.
  - 2. Insulation Tapered Edge: ASTM C 208, Type II, Grade 1, cellulosic-fiber insulation board.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work:
  - 1. Verify that roof openings and penetrations are in place, curbs are set and braced, and roof-drain bodies are securely clamped in place.
  - 2. Verify that wood cants, blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
  - 3. Verify that minimum concrete drying period recommended by roofing system manufacturer has passed.
  - 4. Verify that concrete substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263.
  - 5. Verify that concrete-curing compounds that impair adhesion of roofing components to roof deck have been removed.
  - 6. Notify specifier or owner of unsatisfactory conditions.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
- C. Prime surface of concrete deck with asphalt primer at a rate of 3/4 gal./100 sq. ft. (0.3 L/sq. m), and allow primer to dry.
- D. If required: Install insulation strips in ribs of acoustical roof deck according to acoustical roof deck manufacturer's written instructions.

### 3.3 INSTALLATION, GENERAL

- A. Comply with roofing system manufacturer's written instructions.
- B. Asphalt Heating: Heat asphalt to its equiviscous temperature, measured at the mop cart or mechanical spreader immediately before application. Circulate asphalt during heating. Do not raise asphalt temperature above equiviscous temperature range more than one hour before time of application. Do not exceed asphalt manufacturer's

recommended temperature limits during asphalt heating. Do not heat asphalt within 25F (14C) of flash point. Discard asphalt maintained at a temperature exceeding finished blowing temperature for more than four hours.

1. Apply hot roofing asphalt within plus or minus 25F (14C) of equiviscous temperature.

### 3.4 INSULATION INSTALLATION

- A. Nailer Strips: Mechanically fasten 4-inch nominal (100 mm actual) width wood nailer strips of same thickness as insulation perpendicular to sloped roof deck at the following spacing:
  1. 16 feet (4.88 m) apart for roof slopes greater than 2 inches per 12 inches (2:12) but less than 3 inches per 12 inches (3:12).
  2. 8 feet (2.44 m) apart for roof slopes greater than 3 inches per 12 inches (3:12).
- B. Insulation Cant Strips: Install and secure preformed 45-degree insulation cant strips at junctures of roofing system with vertical surfaces or angle changes greater than 45 degrees.
  1. Cant strips may be mechanically fastened or set in hot asphalt or cold adhesive, depending on substrate and manufacturer's written instructions.
- C. Install insulation with long joints of insulation in a continuous straight line, with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6 mm) with insulation.
  1. Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.
- D. Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2.7 inches (68 mm) or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches (152 mm) in each direction.
- E. Install tapered insulation under area of roofing to conform to slopes indicated.
- F. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.
- G. Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.
- H. Adhered Insulation: Install each layer of insulation and adhere to substrate according to roofing system manufacturer's instruction as follows:
  1. Hot roofing asphalt
  2. Cold process
- I. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6

inches (150 mm) in each direction. Butt cover boards together unless not recommended by coverboard manufacturer. Tape joints if required and adhere according to manufacturer's instruction as follows:

1. Hot roofing asphalt
2. Cold process

### 3.5 ROOFING INSTALLATION, GENERAL

- A. Install roofing system according to roofing system manufacturer's written instructions and applicable recommendations in ARMA/NRCA's "Quality Control Guidelines for the Application of Polymer Modified Bitumen Roofing."
- B. If required by manufacturer, start installation of roofing in presence of manufacturer's technical personnel.
- C. Roof Slope Attachment:
  1. SBS roofing sheets: install parallel with slope where slope exceeds 1 inch per 12 inches (2:12).
  2. Backnail roofing sheets to nailer strips according to roofing system manufacturer's written instructions.
- D. Coordinate installation of roofing system so insulation and other components of the roofing system under waterproofing membrane(s) are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.
  1. Provide tie-offs at end of day's work to cover exposed roofing sheets and insulation with a course of coated felt set in roofing cement or hot roofing asphalt, with joints and edges sealed.
  2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.
  3. Remove and discard temporary seals before beginning work on adjoining roofing.

### 3.6 FIELD INSTALLATION

- A. Field Base Ply: Install one smooth surfaced SBS modified base ply according to roofing manufacturer's written instructions, starting at low point of roofing system. Extend roofing sheets over and terminate beyond cants, installing as follows:
  1. Unroll roofing sheets and allow to relax for minimum time period required by manufacturer.
  2. Hot asphalt apply to substrate.
  3. Accurately align roofing sheets, without stretching, and maintain uniform 2-4 inch (50 - 100 mm) side laps and 6 inch (150 mm) end laps. Stagger end laps. Completely bond and seal laps, leaving no voids.
  4. Install roofing sheets so side and end laps shed water.
  5. Ensure all laps have a minimum ¼"-½" bleed-out of hot asphalt.
  6. Repair tears and voids in laps and seams not completely sealed.

- B. Field Interply: Install **two** Type 4 Fiberglass interplies according to roofing manufacturer's written instructions, starting at low point of roofing system. Extend roofing sheets over and terminate beyond cants, installing as follows:
1. Unroll roofing sheets and allow to relax for minimum time period required by manufacturer.
  2. Hot asphalt apply to substrate.
  3. Accurately align roofing sheets, without stretching, and maintain uniform 4 inch end laps. Stagger end laps. Completely bond and seal laps, leaving no voids.
  4. Install roofing sheets so side and end laps shed water.
  5. Ensure all laps have a minimum ¼"-½" bleed-out of hot asphalt.
  6. Repair tears and voids in laps and seams not completely sealed.
- C. Field Cap Ply: Install either a smooth surfaced or granule-surfaced modified cap sheet according to roofing manufacturer's written instructions, starting at low point of roofing system. Extend cap sheets over and terminate beyond cants, installing as follows:
1. Unroll roofing sheets and allow to relax for minimum time period required by manufacturer.
  2. Hot asphalt apply to substrate.
  3. Accurately align roofing sheets, without stretching, and maintain uniform 2-4 inch (50 - 100 mm) side laps and 6 inch (150 mm) end laps. Completely bond and seal laps, leaving no voids.
  4. Ensure side and end laps do not line up with the base sheet or ply sheet side laps below. Stagger end laps.
  5. Install roofing sheets so side and end laps shed water.
  6. Ensure all laps have a ¼"-½" bleed out of modified asphalt.
  7. Repair tears and voids in laps and seams not completely sealed.
  8. Optional: When applying granulated cap sheet, apply roofing granules to cover bleed out at laps while bleed-out is uncured.

### 3.7 LIQUID-APPLIED FLASHING

- A. Install liquid-applied flashings for pipes, drains, and irregular shaped penetrations as required. Use eliminates the need for pitch boxes and other types of metal flashings.
1. Install to manufacturer's written instructions in a three course application.
  2. Prepare all surfaces to receive the liquid-applied materials including, but not limited to, sanding, abrading, cleaning, and/or sweeping.
  3. Reinforce all flashings with polyester reinforcement.
  4. Optional: Apply granules, matching roof color, to excess into the top layer wet material.
  5. Remove excess granules after top layer has cure.

### 3.8 FIELD QUALITY CONTROL

- A. Optional. Testing Agency: If required by the owner, a qualified testing agency may inspect substrate conditions, surface preparation, membrane application, flashings, protection, and drainage components, and to furnish reports to Architect.
  - 1. Electric Field Vector Mapping (EFVM): Testing agency shall survey entire roof area for potential leaks using electric field vector mapping (EFVM).
- B. Optional. Test Cuts: Remove test specimens to evaluate problems observed during quality-assurance inspections of roofing membrane as follows:
  - 1. Determine approximate quantities of components within roofing membrane according to ASTM D 3617.
  - 2. Examine test specimens for interply voids according to ASTM D 3617 and to comply with criteria established in Appendix 3 in ARMA/NRCA's "Quality Control Guidelines for the Application of Polymer Modified Bitumen Roofing."
  - 3. Repair areas where test cuts were made according to roofing system manufacturer's written instructions.

### 3.9 PROTECTING AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction does not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Remove all debris, trash, etc from project and dispose of properly. Recycle materials as possible.
- D. Clean any coating or adhesive overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 07 5216

## FLINTLASTIC® ULTRA POLY SMS BASE SHEET

### PREMIUM, VERSATILE SBS MODIFIED BITUMEN POLYESTER BASE SHEET

#### Product Information



**Product Use:** Flintlastic® Ultra Poly SMS Base Sheet is designed for use as a base ply for both hot and cold applied SBS modified bitumen or built-up roofing systems. It is suitable for use in the construction of various types of roof membrane assemblies for both new construction and reroofing over a variety of substrates. Flintlastic Ultra Poly SMS Base Sheet will provide additional strength when used as an anchor sheet over nailable or the first ply over non-nailable and insulated substrates. In addition, it will perform as a venting base sheet when spot mopped over approved insulations. Also suitable as a midply in multi-layer systems or as a torched-down base sheet over a gypsum coverboard.

**Precautions:** Flintlastic Ultra Poly SMS Base Sheet may be mechanically attached or applied in either hot asphalt or approved cold adhesive such as FlintBond® or torched over approved substrates, depending on system design and selection. Rolls should be stored upright off the ground and completely protected from the weather. Roof decks must be structurally sound, dry, smooth and meet or exceed minimum requirements of the deck manufacturer, local code and CertainTeed. Additional specifications and precautions are contained in the CertainTeed Commercial Roof Systems Specifications.

**Product Composition and Features:** Flintlastic Ultra Poly SMS Base Sheet is manufactured using a high performance, stress-resistant polyester mat that is impregnated and coated with a superior grade modified bitumen compound. It is lightly surfaced with a mineral release agent. The polyester base mat provides excellent strength and tear and puncture resistance. Flintlastic Ultra Poly SMS Base Sheet is pliable and will conform to most surfaces for ease of application.

**Roll Dimensions:** 39<sup>3</sup>/<sub>8</sub>" x 32' 10"  
**Nominal Coverage:** One square  
**Approximate Weight:** 89 lbs. per roll  
**Top and Back Surface:** Fine sand, release agent

**Applicable Standards:** Meets or exceeds ASTM D6164, Grade S, Type I. Flintlastic Ultra Poly SMS is listed by Underwriters Laboratories for use in various Class A, B and C roof assemblies, Factory Mutual, Miami-Dade, Florida Building Code Statewide Approval (FL 2533 and FL 16709) and Texas Department of Insurance (RC-47).

#### Technical Data

**Modified Bitumen Coating:** Non-oxidized (flux) asphalt, blended with an elastomeric, thermoplastic styrene-butadiene-styrene (SBS) polymer.

**Support Mat:** High performance, stress-resistant polyester mat.

<u>Test Description</u>	<u>Test Method</u>	<u>Results*</u>
<b>Softening Point:</b>	ASTM D36	260°F
<b>Tensile Strength:</b>	ASTM D5147 @ 73.4 +/- 3.60F MD/XD @ 0 +/- 3.60F MD/XD	85/60 lbs./in. 100/90 lbs./in.
<b>Elongation:</b>	ASTM D5147 @ 73.4 +/- 3.60F MD/XD @ 0 +/- 3.60F MD/XD	40%/55% 30%/40%
<b>Dimensional Stability:</b>	ASTM D5147 MD/XD	0.2%/0.1%
<b>Low Temperature Flex:</b>	ASTM D5147	Pass @ -15°F
<b>Compound Stability:</b>	ASTM D5147	Min. 250°F
<b>Tear Strength:</b>	ASTM D5147 @ 73.4 +/- 3.6°F MD/XD	110/90 lbs.
<b>Thickness:</b>	ASTM D5147	3.7 mm (148 mils)

\*NOTE: Published results are nominal production values confirmed by independent laboratory testing.



## Product Application

Roof systems constructed with Flintlastic Ultra Poly SMS Base Sheet as the base ply or midply must be applied in accordance with installation procedures listed in the CertainTeed Commercial Roof Systems Specifications. The following information is intended for general information purposes only and is not all-inclusive. Also refer to the product labels and Material Safety Data Sheets prior to product use.

**Preparation:** Substrates to receive a roof system must be firmly attached, smooth, dry, clean and free of sharp projections and depressions. Flashing details must be in place, ready to receive roofing with roof accessories available prior to application of materials. Substrates requiring priming must be primed with suitable asphalt primer such as FlintPrime® and be allowed to completely dry. Substrates must provide positive drainage. Roof insulation must be tapered to drains.

**Installation:** Flintlastic Ultra Poly SMS Base Sheet must be installed with 2" side laps and 4" end laps, with end laps diagonally staggered not less than 3' apart. For nailable substrates, mechanically fasten Flintlastic Ultra Poly SMS Base Sheet 9" o.c. at side laps and 18" o.c. in two rows, 12" in from each edge with approved fasteners. For non-nailable or insulated substrates, Flintlastic Ultra Poly SMS Base Sheet must be set in either spot or solid mopping of bitumen as required by the CertainTeed Commercial Roof Systems Specifications. Spot mopping, when specified, must be applied in 9" diameter circles, 24" o.c. in all directions. Solid moppings must be applied at the rate of 25 lbs. per 100 square feet. Bitumen must be heated and applied within temperature guidelines as set forth by CertainTeed according to type and grade. For mop applications, overlap side laps 3".

**Precautions:** Cold weather applications require special handling to prevent damage to the rolls and ensure satisfactory installation. Do not apply roofing systems over improperly prepared substrates or substrates that contain moisture.

**Maintenance:** CertainTeed's Commercial Roofing Systems do not require any additional special maintenance beyond normal roof maintenance procedures. CertainTeed recommends regular roof maintenance and inspection to determine the condition of drains, flashings and other similar items, and to prolong the life expectancy of the roof system.

## Warranties

CertainTeed offers Limited (product only) and No Dollar Limit (NDL, product and workmanship) warranties. Warranty type and duration is dependent on roof system configuration and contractor selection. Only CertainTeed Gold and Silver Star Contractors are eligible to apply for NDL warranties on specific roof projects. For more information, see CertainTeed Commercial Roof Systems Specifications or contact Commercial Roofing Technical Services.

## Technical Assistance and Services

CertainTeed provides technical assistance in the design, selection, specification and application techniques for all CertainTeed Commercial Roof Systems. Architectural and field representatives are available for consultation within each region. For more information, contact CertainTeed Commercial Roofing Technical Services at 800-396-8134 x2.

## Caution: Fire Hazard

Torch-down application of this product may create a risk of fire including smoldering fires. The roofing applicator is solely responsible for ensuring and enforcing safe and proper application of CertainTeed products by competent and qualified personnel. Only properly trained roofing professionals are authorized to install this product.

Never apply flame directly to combustible materials or allow the flame to enter into hidden or protected areas that may contain combustible materials. Follow all local code requirements. Have a Class A-B-C fire extinguisher available to each applicator. Thoroughly inspect the job site whenever torching equipment has been used. Be certain that all chances of a fire have been eliminated.

Refer to the CertainTeed Commercial Roof Systems Specifications, Midwestern Roofing Contractors Association (MRCA) CERTA program, National LP Gas Association, National Roofing Contractors Association (NRCA), National Fire Protection Association (NFPA), and Asphalt Roofing Manufacturers Association (ARMA) for further information and safety recommendations.

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## **FLINTGLAS® PLY 4** **NON-MODIFIED TYPE 4 FIBERGLASS BASE AND INTER PLY**

### **Product Information**



**Product Use:** Flintglas® Ply 4 is designed for use as a base and/or an inter ply for hot applied, built-up roofing systems and hybrid modified bitumen systems. It is suitable for use in the construction of various types of membranes for both new construction and reroofing over a variety of substrates. It is specially constructed to provide uniform strength and promote improved asphalt uniformity and adhesion between plies.

**Limitations:** Flintglas Ply 4 is applied in hot asphalt, depending on system design and selection. Rolls should be stored upright, off the ground and completely protected from the weather. Roof decks must be structurally sound, dry, smooth and meet or exceed minimum requirements of the deck manufacturer, local code and CertainTeed. Roof decks must provide positive drainage. Additional specifications and precautions are listed in the CertainTeed Commercial Roof Systems Specifications.

**Product Composition and Features:** Flintglas Ply 4 is manufactured on an extra strength fiberglass reinforced mat that receives a coating of asphalt and is lightly surfaced with a release liquid agent. The fiberglass mat provides excellent strength and moisture resistance with uniform porosity to allow complete bitumen embedment without excessive bleed-through. Flintglas Ply 4 is pliable and will conform to most surfaces for ease of application.

<b>Roll Dimensions:</b>	39 <sup>3</sup> / <sub>8</sub> " x 164' 7"
<b>Nominal Coverage:</b>	Five squares
<b>Approximate Weight:</b>	36 lbs. per roll
<b>Top &amp; Bottom Surfacing:</b>	Release agent

**Applicable Standards:** Meets ASTM D2178, Type IV and CAN/CSA A123.17. Flintglas Ply 4 is approved by Underwriters Laboratories for use in various Class A, B and C roof assemblies, Factory Mutual, Miami-Dade, Florida Building Code Statewide Approval (FL 477, FL 2533 and FL 16709) and Texas Department of Insurance (RC-47).

### **Technical Data**

The following information represents typical average properties of Flintglas Ply 4.

<b>Support Mat:</b>	Extra strength fiberglass reinforced mat
<b>Tensile:</b>	MD/XD 50/46

## **Product Application**

Roof systems constructed with Flintglas Ply 4 must be applied in accordance with installation procedures contained in the CertainTeed Commercial Roof Systems Specifications. The following information is intended for general information purposes only and is not all-inclusive.

**Preparation:** Substrates to receive a roof system must be firmly attached, smooth, dry, clean and free of sharp projections and depressions. Flashing details must be in place and ready to receive roofing, with roof accessories available prior to application of materials. Substrates requiring priming must be primed with asphalt primer such as FlintPrime® and be allowed to completely dry. Substrates must provide positive drainage. Roof insulation must be tapered to drains.

**Installation:** Flintglas Ply 4 must be installed shingle method, with side laps determined by the number of plies to be installed. End laps must be 4" and diagonally staggered not less than 3' apart. Flintglas Ply 4 must be set in a solid mopping of bitumen. It is generally applied in multiple layers directly over a base ply of Glasbase™ or All Weather/Empire® Base Sheet, or approved types of roof insulation. CertainTeed does not recommend use of Flintglas Ply 4 as the first ply over nailable decks or plastic foam type insulations. Refer to the CertainTeed Commercial Roof Systems Specifications for additional information on product usage.

**Precautions:** Cold weather applications require special handling to prevent damage to the rolls and ensure satisfactory installation. Do not apply roofing systems over improperly prepared substrates or substrates that contain moisture.

**Maintenance:** CertainTeed Commercial Roof Systems generally do not require any additional maintenance beyond normal yearly roof maintenance procedures. CertainTeed recommends regular roof maintenance and inspection to determine the condition of drains, flashings and other similar items, and to prolong the life expectancy of the roof system.

## **Warranties**

CertainTeed offers Limited (product only) and No Dollar Limit (NDL, product and workmanship) warranties. Warranty type and duration is dependent on roof system configuration and contractor selection. Only CertainTeed Gold and Silver Star Contractors are eligible to apply for NDL warranties on specific roof projects. For more information, see CertainTeed Commercial Roof Systems Specifications or contact Commercial Roofing Technical Services.

## **Technical Assistance and Services**

CertainTeed provides technical assistance in the design, selection, specification and application techniques for all CertainTeed Commercial Roof Systems. Architectural and field representatives are available for consultation within each region.

For more information, contact CertainTeed Commercial Roofing Technical Services at 800-396-8134 x2.



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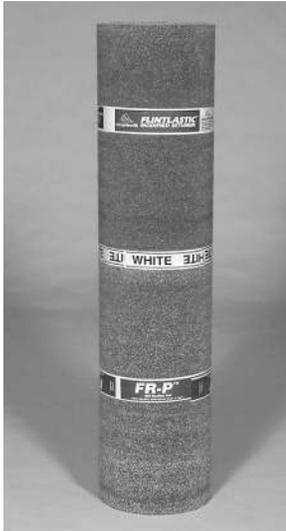
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## FLINTLASTIC® FR-P

**FIRE-RESISTANT, SBS MODIFIED BITUMEN POLYESTER  
CAP SHEET WITH MINERAL SURFACE**



### Product Information



**Product Use:** Flintlastic® FR-P is designed for use as a cap membrane in SBS modified bitumen roof system assemblies over various types of substrates for both new construction and reroofing installations. It is suitable for most low slope roofing applications and may be used for roof system flashings including wall treatments, base flashings and field flashings.

**Limitations:** Flintlastic FR-P is intended for hot asphalt application or approved cold process adhesives such as CertainTeed's FlintBond®. Rolls should be stored upright off the ground and completely protected from the weather. Roof decks must be structurally sound, dry, smooth and meet or exceed minimum requirements of the deck manufacturer, local code and CertainTeed. Additional specifications and precautions are listed in the CertainTeed Commercial Roof Systems Specifications.

**Product Composition and Features:** Flintlastic FR-P products are manufactured on state-of-the-art, dedicated roofing lines that were exclusively designed for the production of modified bitumen roofing membrane. Flintlastic FR-P is produced with a high performance, stress-resistant polyester mat and a superior grade fire-retardant modified bitumen compound.

**Roll Dimensions:** 39<sup>3</sup>/<sub>8</sub>" X 32' 10"  
**Nominal Coverage:** One square  
**Approximate Weight:** 100 lbs. per roll  
**Top Surface:** Mineral granules  
**Back Surface:** Fine sand, release agent

**Applicable Standards:** Meets ASTM D6164, Grade G, Type I. Flintlastic FR-P is approved by Underwriters Laboratories for use in various Class A, B and C roof assemblies, ICC-ES (ESR-1388), Factory Mutual, Miami-Dade Florida Building Code Statewide Approval (FL 2533 and FL 16709), and Texas Department of Insurance (RC-47). Flintlastic FR-P White is an approved ENERGY STAR® product for slopes greater than 2"/12". Flintlastic FR-P White also is listed by the Cool Roof Rating Council (CRRC). The CRRC product ID is 0668-0001. Initial Solar Reflectance: 0.27; Aged Solar Reflectance: 0.28; Thermal Emittance: 0.88.



### Technical Data

**Modified Bitumen Coating:** Non-oxidized (flux) asphalt, blended with an elastomeric thermoplastic styrene-butadiene-styrene polymer.

**Support Mat:** High performance, stress-resistant polyester mat.

<u>Test Description</u>	<u>Test Method</u>	<u>Results*</u>
<b>Solar Reflectance Index (SRI) Initial/Aged:</b>	ASTM E1980	27/29
<b>Softening Point:</b>	ASTM D36	260°F
<b>Tensile Strength:</b>	ASTM D5147	
	@ 73.4 +/- 3.6°F MD/XD	105/65 lbs./in.
	@ 0 +/- 3.6°F MD/XD	145/85 lbs./in.
<b>Elongation:</b>	ASTM D5147	
	@ 73.4 +/- 3.6°F MD/XD	65%/75%
	@ 0 +/- 3.6°F MD/XD	45%/50%
<b>Dimensional Stability:</b>	ASTM D5147 MD/XD	0.4%/0.6%
<b>Low Temperature Flex:</b>	ASTM D5147	Pass @ -20°F
<b>Compound Stability:</b>	ASTM D5147	250°F
<b>Thickness:</b>	ASTM D5147	4.2 mm (168 mils)
<b>Tear Strength:</b>	ASTM D5147	
	@ 73.4 +/- 3.6°F MD/XD	130/90 lbs.

\*NOTE: Published results are nominal production values confirmed by independent laboratory testing.



## **Product Application**

Flintlastic modified bitumen roofing systems must be applied in accordance with installation procedures listed in the CertainTeed Commercial Roof Systems Specifications. The following information is intended for general information purposes only and is not all-inclusive.

**Preparation:** Substrates to receive a roof system must be firmly attached, smooth, dry, clean and free of sharp projections and depressions. Flashing must be in place and roof accessories available prior to application of materials. Substrates requiring priming must be primed with asphalt primer such as FlintPrime® and be allowed to completely dry. Substrates must provide positive drainage. Roof must be tapered to drains.

**Installation:** Unless otherwise specified by CertainTeed, install one ply of Glasbase™ or other CertainTeed approved alternate base sheet lapping 2" on sides and 4" on ends. Base sheet must be mechanically fastened to nailable substrates and either solid or spot mopped in hot asphalt to non-nailable or insulated substrates as specified in the CertainTeed Commercial Roof Systems Specifications. Apply base sheet in such a manner as to provide and maintain a minimum 6" offset between sides and end laps of base ply and Flintlastic inter ply layers or FR-P. If specified, install appropriate Flintlastic interply layers in accordance with CertainTeed specifications over the base sheet. Finally, install one ply of Flintlastic FR-P lapping 3" on sides and 6" on ends, with end laps diagonally staggered not less than 3' apart. Sides and end laps must be fully adhered in a complete mopping of hot asphalt with asphalt extending approximately 3/8" beyond lap edge.

**Precautions:** Cold weather applications require special handling to prevent damage to the rolls and ensure satisfactory installation. Do not apply roofing systems over improperly prepared substrates or substrates that contain moisture. Asphalt temperature at point of application must not fall below 425°F to ensure maximum adhesion between Flintlastic finishing membrane and base ply.

**Maintenance:** Flintlastic roof systems do not require any additional maintenance beyond normal, routine roof maintenance procedures. CertainTeed recommends regular roof maintenance and inspection to determine the condition of drains, flashings and other similar items, and to prolong the life expectancy of the roofing system.

## **Warranties**

CertainTeed offers Limited (product only) and No Dollar Limit (NDL, product and workmanship) warranties. Warranty type and duration is dependent on roof system configuration and contractor selection. Only CertainTeed Gold and Silver Star Contractors are eligible to apply for NDL warranties on specific roof projects. For more information, see CertainTeed Commercial Roof Systems Specifications or contact Commercial Roofing Technical Services.

## **Technical Assistance and Services**

CertainTeed provides technical assistance in the design, selection, specification and application guidelines for Flintlastic roof systems. Architectural and field representatives are available for consultation within each region.

For more information, contact CertainTeed Commercial Roofing Technical Services at 800-396-8134 x2.

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## SMARTFLASH® ONE

ONE-PART LIQUID APPLIED FLASHING & REPAIR RESIN

### Product Information



**Product Use:** SmartFlash® ONE is a one-part seamless, durable, liquid-applied polyurethane bitumen waterproofing resin. It is designed for flashing new or existing penetrations and construction details within low-slope modified bitumen and/or built-up-roofing (BUR) roof systems. SmartFlash ONE is also a durable, long-term repair solution for flashings or cracks within a steep slope asphalt shingle roof. SmartFlash ONE is engineered for an excellent bond to a variety of roofing substrates including bituminous membranes, concrete, wood, sanded/abraded rigid PVC pipe and metal. When adhering to metal a small scale (2" x 2") adhesion test is recommended. Some metal is manufactured with an oily release agent on the surface; this shall be removed with a solvent-based cleaner prior to an adhesion test. A minimum 2 lbs. per lineal foot of force shall be required to peel SmartFlash ONE/polyester reinforcement from the metal surface. For guidance, please contact CertainTeed Technical Services Department. SmartFlash ONE is not approved for use on substrates not listed here.

**Precautions:** SmartFlash ONE may be applied when the ambient temperature is 40°F-95°F (5°C - 35°C).

**Product Composition and Features:** A seamless, monolithic flashing is created in the field by combining the SmartFlash ONE polyurethane bitumen resin with SmartFlash polyester reinforcement fabric. Unused resin may be stored for future use.

	Flash Pack	1 Gallon	5 Gallon
<b>Weight (lb.)</b>	16 (7.3 kg)	9 (4 kg)	44 (19.9 kg)
<b>Nominal Yield/Coverage</b>	17 sq. ft. <sup>1</sup>	17 sq. ft. (2 m <sup>2</sup> ) <sup>1</sup>	83 sq.ft. (8 m <sup>2</sup> ) <sup>1</sup>
<b>Thickness (Dry)</b>	78 - 88 mils <sup>1</sup>		
<b>Pot Life</b>	>2 hours at 68°F (20°C)		
<b>Dry Time (Wait Time to Top Coat)</b>	2 hours at 68°F (20°C)		
<b>Dry Time (Rainproof)</b>	2-12 hours at 68°F (20°C)		
<b>Cure Time</b>	3 days at 68°F (20°C)		

<sup>1</sup>Assumes three layers, 30 wet mils per layer

**Storage:** Store containers in a cool, well-ventilated area, out of direct sunlight and away from humidity, heat and ignition sources. Store in temperature range of 32-95 F° (0 to 35C°). Keep storage areas clear of combustible materials. No smoking near storage area. Tightly seal all partially used containers. Product shelf life is one year.

### Technical Data

Test Description	Test Method	Results*
<b>Peak Load, psi (mPa)</b>	ASTM D412	368 (2.5)
<b>Elongation at Peak Load, %</b>	ASTM D412	67.2
<b>Tear Resistance, lbf</b>	ASTM D903	23.0
<b>Water Vapor Transmission, perms</b>	ASTM D1653	11
<b>Shore A Hardness</b>	ASTM D2240	74
<b>Low Temperature Flexibility, °F (°C)</b>	ASTM D5147	-15 (-26)

\*Data is represented by average values, unless noted otherwise.

### Product Application

#### Application:

- Wear protective latex gloves during application. Resin adheres to skin and is difficult to remove.
- Apply when the ambient temperature is 40°F and rising
- Apply with a brush, roller or squeegee
- Do not dilute or thin.

Prepare substrate to ensure the surface is free of debris, moisture or contaminants. Apply resin at a rate of two (2) gallons per 100 ft<sup>2</sup> or 30 wet mils thick. Primer is not required. Immediately embed polyester reinforcement into wet resin. NOTE: For repair applications, center polyester over crack and exceeding the crack or hole by 3" on all sides. Saturate polyester reinforcement at a rate of two (2) gallons per 100 ft<sup>2</sup>, or 30 wet mils, ensuring



**Product Application  
(cont'd)**

that the polyester reinforcement is completely embedded and covered. Allow to dry. Apply a finish application of resin at a rate of two (2) gallons per 100 ft<sup>2</sup> or 30 wet mils. If granular aesthetic is desired, broadcast granules into the finish coat before the surface forms a skin.

**Technical Assistance  
and Services**

**Clean-Up:** Clean tools using petroleum solvents such as mineral spirits. Cured resin may be disposed of in standard landfills.

CertainTeed provides technical assistance in the product selection, specification and application guidelines for all CertainTeed commercial roof systems. Field representatives are available for consultation in each region.

For more information, contact CertainTeed Commercial Roofing Technical Services at 800-396-8134 ext. 2 or [rpg@saint-gobain.com](mailto:rpg@saint-gobain.com)



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## SYSTEM DESCRIPTION:

Insulated substrates: base sheet, two interply sheets and an SBS modified cap sheet.

## SUBSTRATE:

- Steel & nailable (mechanically attached, Sec. 15.4)
- Non-nailable (adhered, Sec. 4.0)
- Re-cover (Sec. 5.0)

**MINIMUM SLOPE:** 0" : 12" (Sec. 15.3)

## ROOF ASSEMBLY:

One or more layers of approved insulation and coverboard:

- Base layer mechanically attached and additional layers mechanically attached or adhered in hot asphalt or approved adhesive.
- Base layer and additional layers adhered in hot asphalt or approved adhesive.
- Vapor Retarder / Anchor Sheets (Sec. 4.7)

Base sheet set in hot asphalt (Sec. 7.0).

Interply sheets set in hot asphalt (Sec. 7.0).

Flintlastic SBS modified cap sheet mopped in hot asphalt (Sec. 7.0).

## FINAL SURFACING:

For optional surfacing, see Section 14.0.

## FLASHING ASSEMBLY:

- **Standard.** Over a base sheet or bonded to a primed substrate. One ply Flintlastic modified cap sheet, per CT detail.
- **Premium.** Over a base sheet or bonded to a primed substrate, one smooth and one granulated modified membrane flashing, per CT detail.
- **Premium Alternate.** Over a base sheet or bonded to a primed substrate. One smooth modified membrane and CT liquid flashing, per CT detail.

## SUMMARY OF MATERIALS:

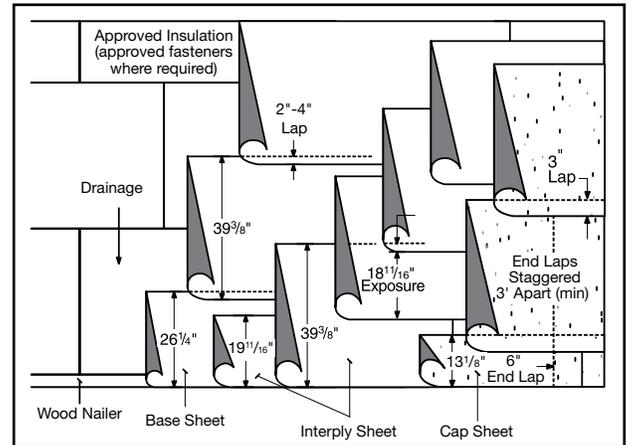
One or more layers of insulation & coverboard

Base sheet (1 ply)

Interply sheets (2 plies)

Cap sheet (1 ply)

ASTM D 312 asphalt (four moppings)



SEE WARRANTY SELECTION CHART

## BASE SHEETS:

(one of the following)

- Ultra Poly SMS

## INTERPLY SHEETS:

two of the following)

- Flintglas Ply 4
- Flintglas Ply 6

## CAP SHEETS:

(one of the following)

- Flintlastic FR-P\*
- Flintlastic GMS\*
- Flintlastic Premium FR-P\*

\*Available with CoolStar reflective granules

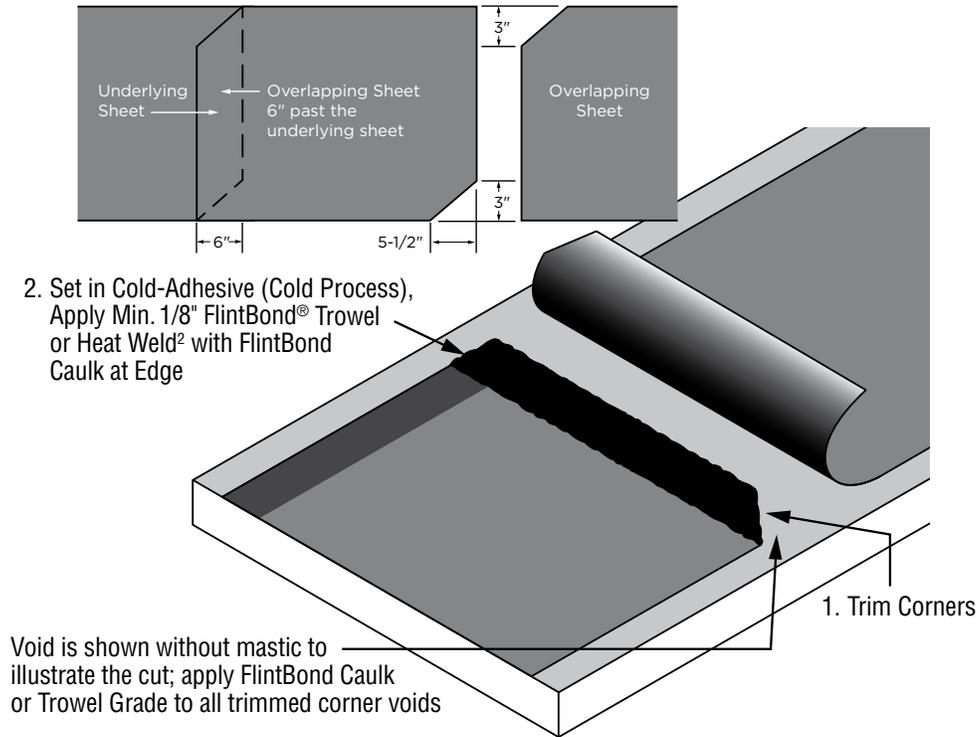
**Asphalt:** Type III or Type IV (Sec. 7.0).

**Cants:** In angles of roof deck and vertical surfaces, the roofing contractor shall furnish and install an approved cant strip with a minimum 3" face.

**Base Ply, Interply, Cap Corner Treatment**

For fully adhered Base Plies, Interplies and Cap Sheets, trim the underlying sheet's lower outside corner at the end of the roll as shown; follow with the overlapping sheet trimming the upper outside corner as shown.

**If self-adhered or using cold-adhesive** apply FlintBond® Trowel to entire lapped surface with 1/4" bleed out or (in cold weather<sup>1</sup>) hot air weld<sup>2</sup> with bead of FlintBond Caulk at edge; **If torch-welded** heat sink/scrape the granules with heated trowel or granular embedment tool and ensure 1/4" bleed out; **if using hot asphalt** apply to entire lapped surface with 1/4" bleed out.



NOT DRAWN TO SCALE

<sup>1</sup>20°F-49°F (-6.6°C-4.4°C)

<sup>2</sup>Apply heat from a hot-air welder with a 2" tip to the overlapped granular surface while applying rolling pressure from a silicone roller to the overlapping Cap. With the hot air welder set between 900°F-1,100°F (setting 8-10), apply heat to the overlap interface while bonding Cap with rolling pressure on the granulated surface. Roll the overlapping Cap in place, moving the hot air welder to allow for forward progress. Avoid applying so much heat or moving at a pace that results in smoke. Apply a bead of FlintBond Caulk along the edge. Continue overlap application, 2"-3" per pass.

**Anchor Sheet**

Attach with appropriate fasteners spaced a minimum 9" o.c. in the laps with two additional rows spaced 18" o.c. in the field, staggered OR as required by code.

Fasten starting fasteners 6" in from the edge of the roof to avoid edge metal fastener overlap.

**Flashing Collar**

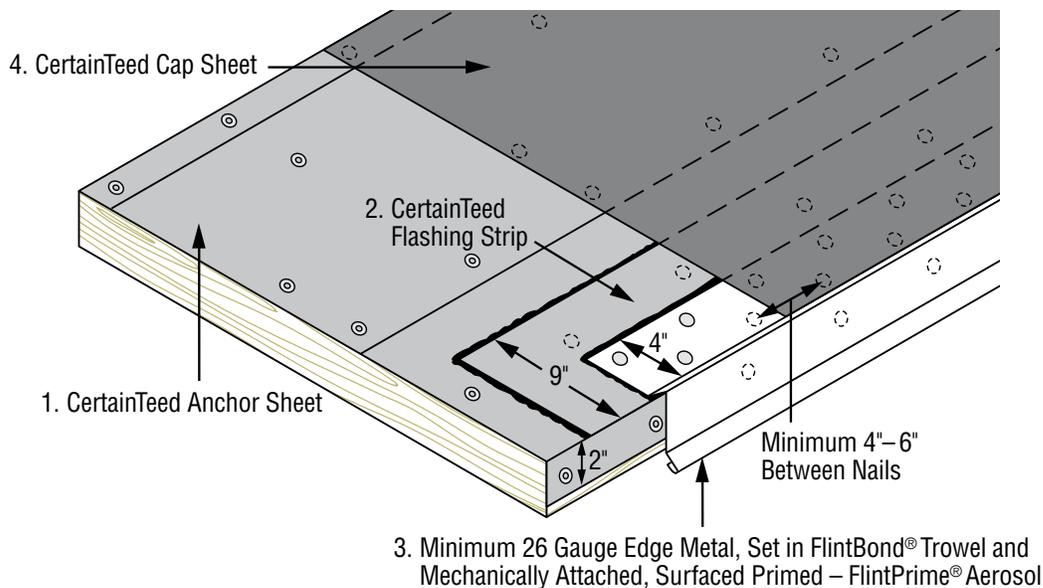
Fully adhere (self-adhered, torch, cold process or hot asphalt). **If self-adhered** apply FlintBond® Caulk to edge; **If torch-welded** ensure 1/4" bleed out at edge; **If using cold process** set in FlintBond Trowel with 1/4" bleed out at edge; **if using hot asphalt** ensure 1/4" bleed out at edge.

**Edge Metal**

Mechanically attach a minimum two staggered rows, 6" o.c. or as required by building code; endlaps should receive two nails. Edge Metal shall have a minimum 3/4" rise for gravel surfaced membranes and a 3/8" rise for smooth or mineral surfaced membranes.

**Cap Sheet**

Fully adhere (self-adhered, torch, cold process or hot asphalt). **If self-adhered**, in cold weather<sup>1</sup> where Flintlastic® SA Cap (FR) Sheet overlaps Edge Metal surface, hot air weld<sup>2</sup> with bead of FlintBond Caulk at edge.



NOT DRAWN TO SCALE

<sup>1</sup>20°F-49°F (-6.6°C-4.4°C)

<sup>2</sup>Apply heat from a hot-air welder with a 2" tip to the overlapped granular surface while applying rolling pressure from a silicone roller to the overlapping Cap. With the hot air welder set between 900°F-1,100°F (setting 8-10), apply heat to the overlap interface while bonding Cap with rolling pressure on the granulated surface. Roll the overlapping Cap in place, moving the hot air welder to allow for forward progress. Avoid applying so much heat or moving at a pace that results in smoke. Apply a bead of FlintBond Caulk along the edge. Continue overlap application, 2" per pass.

**Anchor Sheet or Base Ply**

Mechanically attach or fully adhere (self-adhered, torch, cold process or hot asphalt). Proper attachment is defined by specified system, product selection and deck type.

**If applying by cold process or hot asphalt** extend compound onto drain flange; **If the base layer is mechanically attached in the field**, base layer must be fully adhered beginning 9" from the drain flange edge.

**Lead or Copper Flashing**

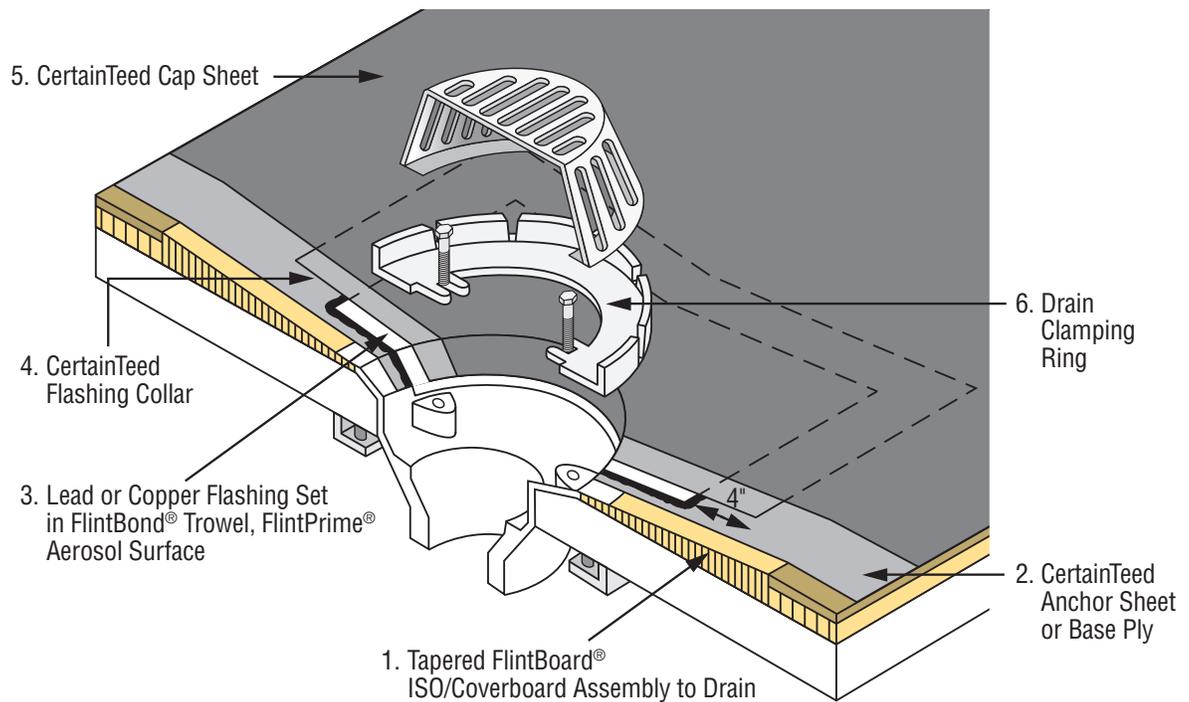
Flashing should be a minimum 30" x 30", 2.5 lb. lead or 16 oz. soft copper, turned down into the drain bow.

**Flashing Collar**

Fully adhere (self-adhered, torch, cold process or hot asphalt) a minimum 38" x 38" flashing collar. Proper attachment is defined by product selection.

**Cap Sheet**

Fully adhere in accordance with the approved, published product application method.



NOT DRAWN TO SCALE

**Three-Ply Application**

Replace the Flashing Collar with a CertainTeed Modified Bitumen Interply, extending the full dimension of the field.

NOTE: This detail is not intended for use on hot pipes, see CTL-SF-09 Hot Pipe Flashing, SmartFlash ONE.

**Anchor, Base Ply and Cap Sheet**

Mechanically attach or fully adhere (self-adhered, torch, cold process or hot asphalt) to base of penetration. Proper attachment is defined by specific system, product selection and deck type.

**Pipe**

If pipe is manufactured with PVC, abrade the surface with sand paper prior to resin application. This is also recommended for surfaces with rust or paint. All other surface should be clean and free of moisture, oil or debris.

**Tape (Recommended)**

Tape off desired edges for clean detail aesthetic.

**Polyester Reinforcement Preparation (Recommended)**

Prepare SmartFlash ONE Reinforcements prior to applying any resin.

**FINGER FLASHING:** For pipe or round penetrations, it is necessary to cut “fingers” into one side of the polyester to allow the material to radiate onto the field of the roof without creases.

**FLASHING STRIPS:** Additionally, prepare two 6” strips cut to 10” in length with half-circles removed to allow for the strips to overlap when placed on opposite sides of the pipe.

**First Waterproofing Coat**

Using a paint brush, roller or trowel for resin application, apply approximately 30 mils of wet resin to the Cap Sheet approximately 4” (100 mm) horizontally surrounding the penetration and 4” vertically up the penetration.

Immediately lightly press “finger” Reinforcement into wet resin onto field and wrapping pipe; saturate and coat field and vertical Reinforcement with resin such that no reinforcement is visible. Extend resin out to pre-defined detail edges (tape), approximately 10” x 10”, at approximately 30 wet mils.

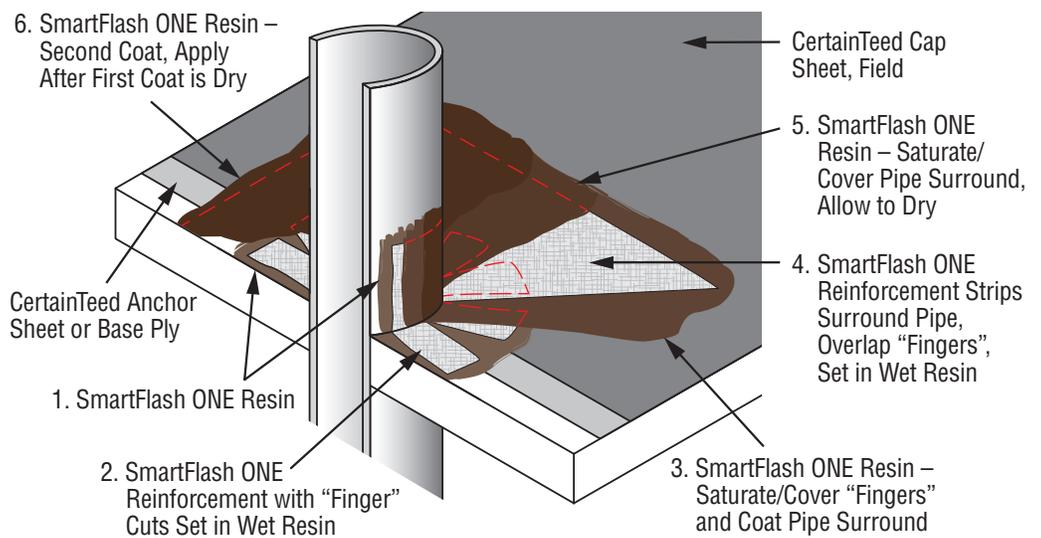
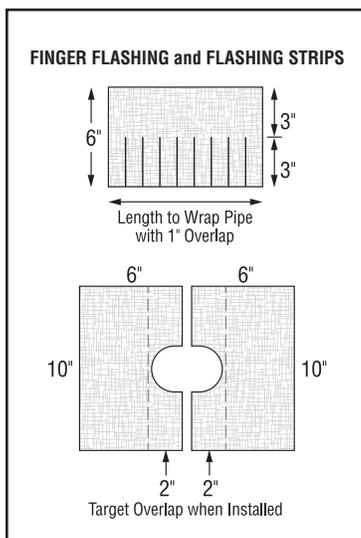
Immediately lightly press field Reinforcement strips into wet resin. Reinforcement strips must overlap each other by a minimum of 2” (50 mm); saturate and coat Reinforcement strips, including overlapped surfaces, with resin such that no Reinforcement is visible. Allow to dry 2-3 hours (assumes 70°F or 20°C).

**Second Waterproofing Coat**

Apply approximately 30 mils of wet resin to entire surface covered by first coat.

**Granules (Optional)**

If desired, broadcast granules into the second waterproofing coat before it forms a skin.



NOT DRAWN TO SCALE

**Anchor Sheet or Base Ply, Field**

Mechanically attach or fully adhere (self-adhered, torch, cold process or hot asphalt). Proper attachment of the base layer is defined by specified system, product selection and deck type.

**Cap Sheet, Field**

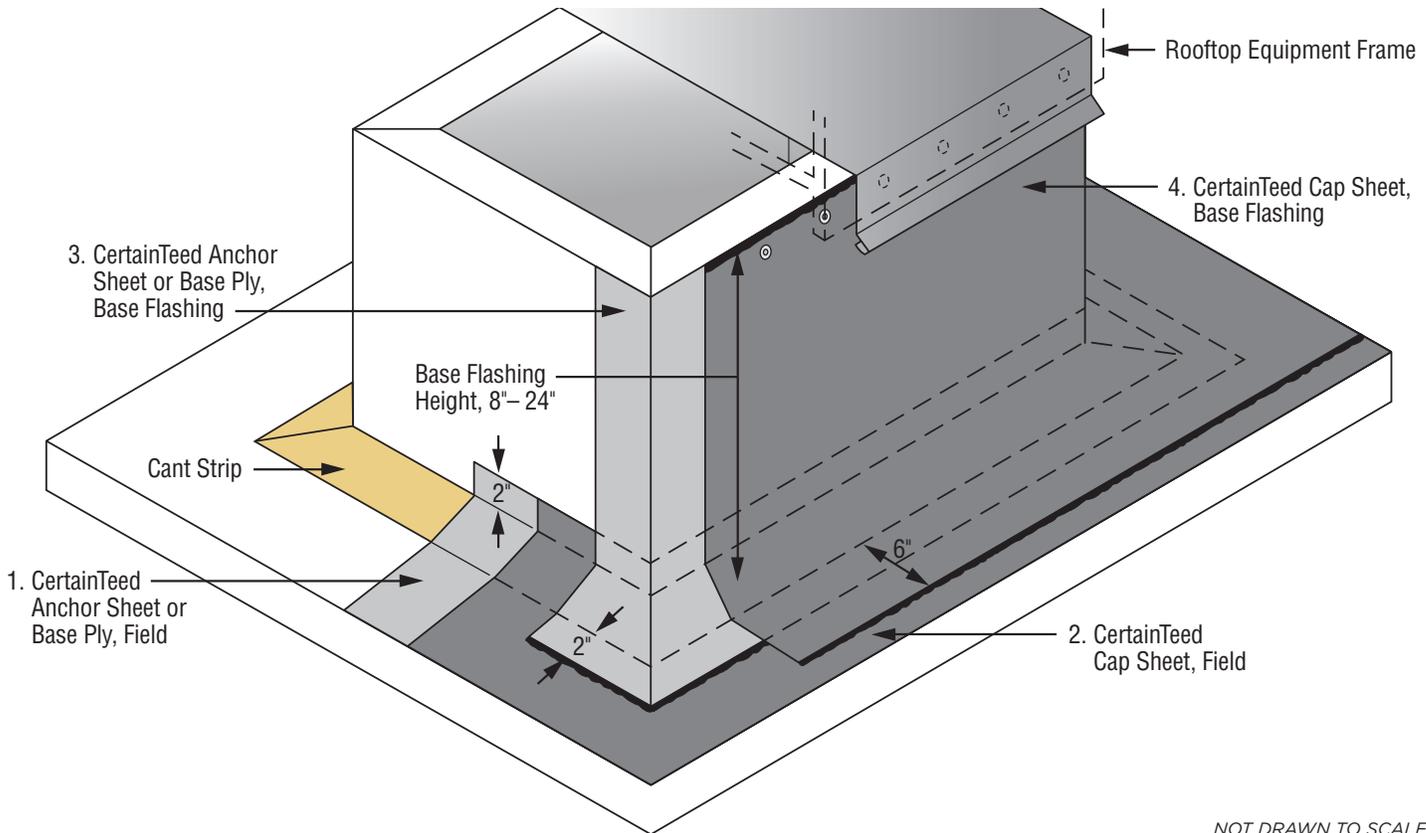
Fully adhere (self-adhered, torch, cold process or hot asphalt). Proper attachment is defined by product selection. Extend base ply and cap sheet 2" above cant strip; adhere to cant strip only.

**Base Flashing**

VERTICAL ATTACHMENT: Mechanically attach Anchor 12" o.c. or self-adhere Base Ply; Fully adhere Cap (self-adhered,

torch-weld, cold process or hot asphalt; Gang fasten Base and Cap at top edge 9" o.c. with tin discs; Ensure 1/4" bleed out on top edge or apply FlintBond® Caulk.

FIELD ATTACHMENT: Treat the granulated surface of Cap Sheet, Field, where the Base Flashing overlap occurs: **If self-adhered or using cold process** apply FlintBond Trowel to entire lapped surface with 1/4" bleed out or (in cold weather) hot air weld<sup>2</sup> with bead of FlintBond Caulk at edge; **If torch-welded** heat sink/scrape the granules with heated trowel or granular embedment tool and ensure 1/4" bleed out; **if using hot asphalt** apply to entire lapped surface with 1/4" bleed out.



NOT DRAWN TO SCALE

**Premium Application**

Add a CertainTeed Modified Bitumen Base Ply behind the Cap Sheet, Counterflashing. Extend it a minimum of 4" out onto the Cap Sheet, Field. Extend the Cap Sheet, Counterflashing out onto the Cap Sheet, Field a minimum of 4" beyond the underlying additional ply.

**Anchor, Base Ply and Cap Sheet**

Mechanically attach or fully adhere (self-adhered, torch, cold process or hot asphalt) to intersection of horizontal roof plane and curb. Proper attachment is defined by specific system, product selection and deck type.

**Tape (Recommended)**

Tape off desired edges for clean detail aesthetic.

**Polyester Reinforcement Preparation (Recommended)**

Prepare SmartFlash ONE Reinforcements prior to applying any resin. Cut 6" width SmartFlash ONE Reinforcement to appropriate lengths. Reinforcement shall be applied wherever a change in angle occurs and across any seams in the substrate. Reinforcement shall overlap 2" anywhere an overlap occurs. NOTE: To accommodate inside or outside corners, make a 3" long cut halfway through the width of the strip end.

**OUTSIDE CORNERS:** The cut allows the strip to round the corner and extend onto the field; a second strip cut the same way shall overlap the first strip.

**INSIDE CORNERS:** The cut allows the strip to round the corner and overlap itself on the vertical surface; a second strip cut the same way shall overlap the first strip.

**First Waterproofing Coat**

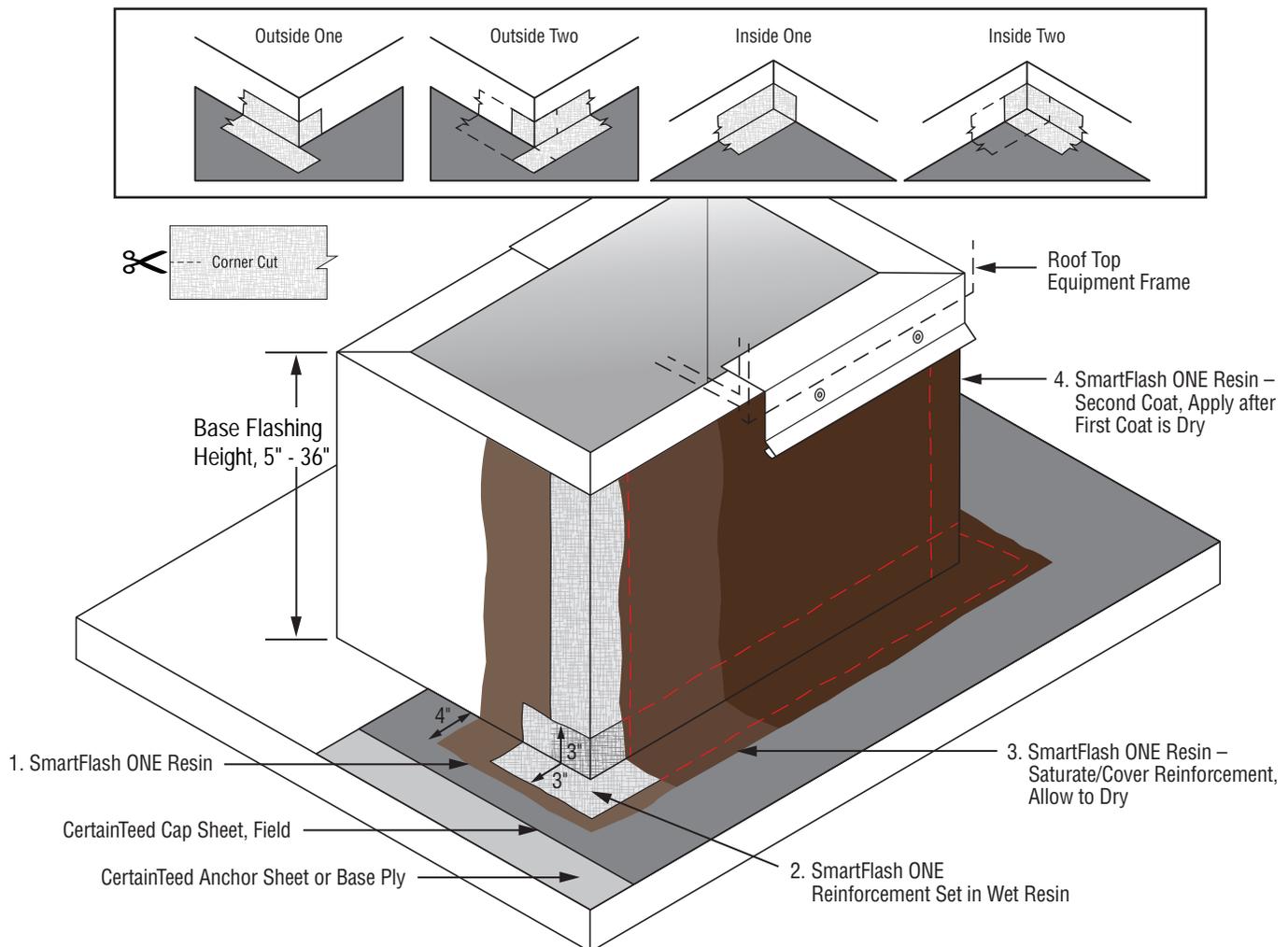
Using a paint brush, roller or trowel for resin application, apply approximately 30 mils of wet resin to the Cap Sheet approximately 4" (100 mm) horizontally onto the field and vertically to the top edge of the curb. Immediately lightly press SmartFlash ONE Reinforcement into wet resin where field of roof meets base of vertical surface, up/across vertical edges of the curb and across any seams/breaks in material in the curb; saturate and coat Reinforcement with resin such that no Reinforcement is visible. Allow to dry 2-3 hours (assumes 70°F or 20°C).

**Second Waterproofing Coat**

Apply approximately 30 mils of wet resin to entire surface covered by first coat.

**Granules (Optional)**

If desired, broadcast granules into the second waterproofing coat before it forms a skin.



**Anchor Sheet or Base Ply, Field**

Mechanically attach or fully adhere (self-adhered, torch, cold process or hot asphalt). Proper attachment of the base layer is defined by specified system, product selection and deck type.

**Cap Sheet, Field**

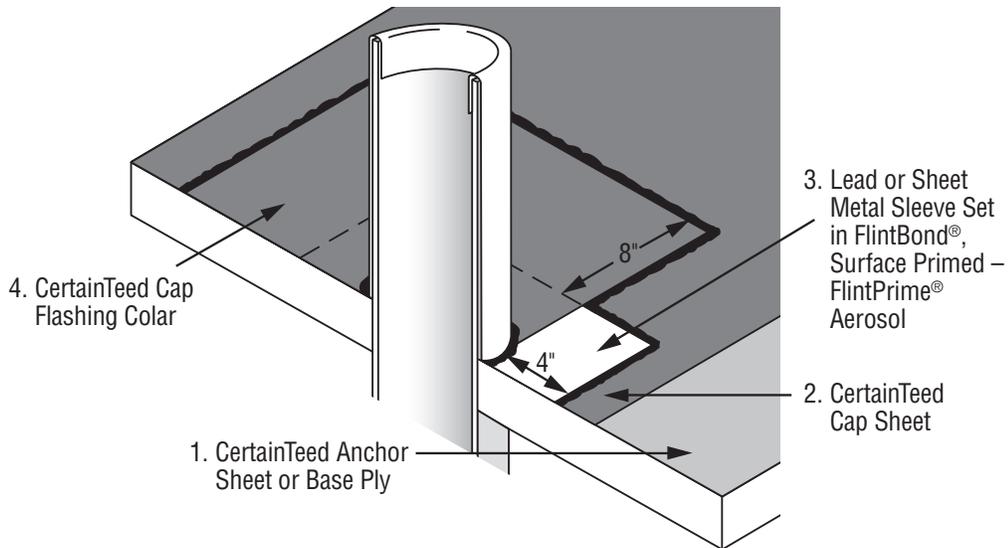
Fully adhere (self-adhered, torch, cold process or hot asphalt). Proper attachment is defined by product selection. Extend base ply and cap sheet 2" above cant strip; adhere to cant strip only.

**Metal Flashing**

Shall have a 4" wide primed continuous flange. Set in FlintBond® Trowel or hot asphalt.

**Cap Flashing Collar**

Fully adhere (self-adhered, torch, cold process or hot asphalt), extending a minimum 8" beyond the metal flange. Treat the granulated surface of Cap Sheet where the Cap Flashing Collar overlap occurs: **If self-adhered or using cold process** apply FlintBond Trowel to entire lapped surface with 1/4" bleed out or (in cold weather<sup>1</sup>) hot air weld<sup>2</sup> with bead of FlintBond Caulk at edge; **If torch-welded** heat sink/scrape the granules with heated trowel or granular embedment tool and ensure 1/4" bleed out; **if using hot asphalt** apply to entire lapped surface with 1/4" bleed out.



NOT DRAWN TO SCALE

<sup>1</sup>20°F-49°F (-6.6°C-4.4°C)

<sup>2</sup>Apply heat from a hot-air welder with a 2" tip to the metal surface while applying rolling pressure from a silicone roller to the overlapping Collar. With the hot air welder set between 300°F-500°F (setting 2-3), apply heat to the overlap interface while bonding Collar with rolling pressure onto the Metal. Roll the overlapping Collar in place, moving the hot air welder to allow for forward progress. Avoid applying so much heat or moving at a pace that results in smoke. Continue overlap application, 2" per pass.



**NEMO|etc.**

Certificate of Authorization #32455  
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Oxford, CT 06478  
(203) 262-9245

ENGINEER

EVALUATE

TEST

CONSULT

**EVALUATION REPORT BY FLORIDA P.E.**

**CertainTeed, LLC**  
20 Moores Road  
Malvern, PA 19355  
**(610) 893-5400**

**Evaluation Report 3520.03.04-R29**  
**FL2533-R28**  
**Date of Issuance: 09/19/2005**  
**Revision 29: 04/14/2022**

**SCOPE:**

This Evaluation Report is issued under **Rule 61G20-3** and the applicable rules and regulations governing the use of construction materials in the State of Florida. The documentation submitted has been reviewed by Robert Nieminen, P.E. for use of the product under the Florida Building Code. The product described herein has been evaluated for compliance with the **7<sup>th</sup> Edition (2020) Florida Building Code** sections noted herein.

**DESCRIPTION: Flintlastic® Modified Bitumen Roof Systems for use in FBC non-HVHZ jurisdictions**

**LABELING:** Labeling shall be in accordance with the requirements of the Accredited Quality Assurance Agency noted herein.

**CONTINUED COMPLIANCE:** This Evaluation Report is valid until such time as the named product(s) changes, the referenced Quality Assurance or production facility location(s) changes, or Code provisions that relate to the product(s) change. Acceptance of our Evaluation Reports by the named client constitutes agreement to notify NEMO ETC, LLC of any changes to the product(s), the Quality Assurance or the production facility location(s). NEMO ETC, LLC requires a complete review of its Evaluation Report relative to updated Code requirements with each Code Cycle.

**ADVERTISEMENT:** The Florida Product Approval Number (FL#) preceded by the words "NEMO P.E. Evaluated" may be displayed in advertising literature. If any portion of the Evaluation Report is displayed, then it shall be done in its entirety.

**INSPECTION:** Upon request, a copy of this entire Evaluation Report shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This Evaluation Report consists of pages 1 through 5, plus a 70-page Appendix.

**Prepared by:**



The facsimile seal appearing was authorized by Robert Nieminen, P.E. on 04/14/2022. This does not serve as an electronically signed document.

**Robert J.M. Nieminen, P.E.**

*Florida Registration No. 59166, Florida DCA ANE1983*

**CERTIFICATION OF INDEPENDENCE:**

1. NEMO ETC, LLC does not have, nor does it intend to acquire or will it acquire, a financial interest in any company manufacturing or distributing products it evaluates.
2. NEMO ETC, LLC is not owned, operated or controlled by any company manufacturing or distributing products it evaluates.
3. Robert Nieminen, P.E. does not have nor will acquire, a financial interest in any company manufacturing or distributing products for which the evaluation reports are being issued.
4. Robert Nieminen, P.E. does not have, nor will acquire, a financial interest in any other entity involved in the approval process of the product.
5. This is a building code evaluation. Neither NEMO ETC, LLC nor Robert Nieminen, P.E. are, in any way, the Designer of Record for any project on which this Evaluation Report, or previous versions thereof, is/was used for permitting or design guidance unless retained specifically for that purpose.

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**ROOFING SYSTEMS EVALUATION:**
**1. SCOPE:**

**Product Category:** Roofing  
**Sub-Category:** Modified Bitumen Roof Systems  
**Product Approval Method:** Method 1, Option D – Codified Material, Evaluation by Engineer  
**Compliance Statement:** Flintlastic® Modified Bitumen Roof Systems, as produced by CertainTeed, LLC, have demonstrated compliance with the following sections of the 7<sup>th</sup> Edition (2020) Florida Building Code through testing in accordance with the following Standards. Compliance is subject to the Installation Requirements and Limitations / Conditions of Use set forth herein.

**2. STANDARDS:**

SECTION	PROPERTY	STANDARD	YEAR
1504.3.1	Wind resistance	FM 4474	2011
1504.6	Accelerated weathering	ASTM G155	2013
1504.7	Impact resistance	FM 4470	2016
1507.1.1	Material standard	ASTM D1970	2015
1507.10.2	Material standard	ASTM D41	2011
1507.10.2	Material standard	ASTM D2178	2015
1507.10.2	Material standard	ASTM D4601	2012
1507.10.2	Material standard	ASTM D4897	2009
1507.11.2	Material standard	ASTM D6163	2015
1507.11.2	Material standard	ASTM D6164	2011
1507.11.2	Material standard	ASTM D6222	2011
1507.11.2	Material standard	ASTM D6509	2015

**3. REFERENCES:**

ENTITY	EXAMINATION	REFERENCE	DATE	ENTITY	EXAMINATION	REFERENCE	DATE
ERD (TST6049)	ASTM G155	C31410.06.10-2-R1	01-10-11	FM (TST1867)	FM 4470	0E3A2.AM	03-30-82
ERD (TST6049)	ASTM G155	C31410.12.13	12-05-13	FM (TST1867)	FM 4470	3W0A4.AM	03-16-93
ERD (TST6049)	ASTM D6222	CTR-SC11145.09.16-7A	09-19-16	FM (TST1867)	FM 4470	3W0A2.AM	03-17-93
ERD (TST6049)	ASTM D1970	CTR-SC11145.10.16	10-31-16	FM (TST1867)	FM 4470	3W0A3.AM	03-17-93
NEMO (TST6049)	ASTM D4601	4q-CTR-20-SSMBB-03.A	02-10-21	FM (TST1867)	FM 4470	1Z4A6.AM	09-11-96
NEMO (TST6049)	ASTM D4897	4q-CTR-21-SSMBB-03.A	10-05-21	FM (TST1867)	FM 4470	3Y8A1.AM	09-30-96
NEMO (TST6049)	ASTM D6222, G155	4q-CTR-21-SSMBB-04.E	03-08-22	FM (TST1867)	FM 4470	2D5A9.AM	06-22-99
NEMO CERT (CER13842)	Various	Various	04-15-22	FM (TST1867)	FM 4470	3009502	12-12-00
PRI (TST5878)	ASTM D6164, G155	CTC-093-02-01	08-08-11	FM (TST1867)	FM 4470	3008869	03-19-01
PRI (TST5878)	ASTM D6222, G155	CTC-071-02-01	08-08-11	FM (TST1867)	FM 4470	3009610	10-15-01
PRI (TST5878)	ASTM D4601	CTC-124-02-01	03-12-12	FM (TST1867)	FM 4470	3006025	12-28-01
PRI (TST5878)	ASTM D6509	CTC-116-02-01	04-04-12	FM (TST1867)	FM 4470	3012321	07-29-02
PRI (TST5878)	ASTM D6164	CTC-131-02-01	06-08-12	FM (TST1867)	FM 4470	3009814	09-06-02
PRI (TST5878)	ASTM D6164, G155	CTC-161-02-01	05-09-13	FM (TST1867)	FM 4470	3014502	04-04-03
PRI (TST5878)	ASTM D6164	CTC-190-02-01	11-27-13	FM (TST1867)	FM 4470	3015444	07-11-03
PRI (TST5878)	ASTM D6164	CTC-354-02-01	05-11-18	FM (TST1867)	FM 4470	3014692	08-05-03
PRI (TST5878)	ASTM D41	256T0074	11-11-21	FM (TST1867)	FM 4470	3014751	08-27-03
ERD (TST6049)	FM 4470	3504.06.01-1	06-05-01	FM (TST1867)	FM 4470	3018579	10-09-03
ERD (TST6049)	FM 4470	3513.08.02	08-15-02	FM (TST1867)	FM 4470/4474	3020703	07-30-04
ERD (TST6049)	FM 4470	03515.07.03	07-22-03	FM (TST1867)	FM 4470/4474	3021759	06-03-05
ERD (TST6049)	FM 4470	3519.12.03	12-22-03	FM (TST1867)	FM 4470/4474	3022038	04-05-06
ERD (TST6049)	FM 4470/4474	3522.07.04	07-28-04	FM (TST1867)	FM 4470/4474	3023458	07-18-06
ERD (TST6049)	FM 4470/4474	02843.02.05-11	02-10-05	FM (TST1867)	FM 4470/4474	3026128	08-04-06
ERD (TST6049)	FM 4470/4474	3533.01.06	01-06-06	FM (TST1867)	FM 4470/4474	3024311	11-01-06
ERD (TST6049)	FM 4470/4474	4674.11.01-1	03-21-06	FM (TST1867)	FM 4470/4474	3025766	11-13-06
ERD (TST6049)	FM 4470/4474	3521.07.04-R1	10-26-07	FM (TST1867)	FM 4470/4474	3028410	02-19-07
ERD (TST6049)	FM 4470/4474	02762.03.05-R1	12-10-07	FM (TST1867)	FM 4470/4474	3026964	07-25-07
ERD (TST6049)	FM 4470/4474	02764.09.05-R1	12-10-07	FM (TST1867)	FM 4470/4474	3031262	11-30-07
ERD (TST6049)	FM 4470/4474	P6860.06.07-R1	09-10-09	FM (TST1867)	FM 4470/4474	3031199	12-23-08
ERD (TST6049)	FM 4470/4474	C8370.08.08-R1	10-05-09	FM (TST1867)	FM 4470/4474	3032172	06-12-09
ERD (TST6049)	FM 4470/4474	C30310.12.09	12-17-09	FM (TST1867)	FM 4470/4474	3037127	01-11-10
ERD (TST6049)	FM 4470/4474	C30560.03.10	03-18-10	FM (TST1867)	FM 4470/4474	3039848	12-02-11
ERD (TST6049)	FM 4470/4474	C31420.08.10	09-21-10	FM (TST1867)	FM 4470/4474	3046104	08-13-13
ERD (TST6049)	FM 4470/4474	C33980.12.10	12-22-10	FM (TST1867)	FM 4470/4474	3048520	09-19-13

ENTITY	EXAMINATION	REFERENCE	DATE	ENTITY	EXAMINATION	REFERENCE	DATE
ERD (TST6049)	FM 4470/4474	C33830.02.11	02-08-11	FM (TST1867)	FM 4470/4474	3055491	12-05-16
ERD (TST6049)	Criticality	C35500.02.11	02-09-11	FM (TST1867)	FM 4470/4474	3063970	09-14-18
ERD (TST6049)	FM 4470/4474	C37820.07.12	07-24-12	FM (TST1867)	FM 4470/4474	3061328	04-13-20
ERD (TST6049)	FM 4470/4474	C37830.07.12	07-26-12	FM (TST1867)	FM 4470/4474	PR458318	04-12-21
ERD (TST6049)	Criticality	C42110.08.12	08-13-12	FM (TST1867)	FM 4470	RR228436	06-01-21
ERD (TST6049)	FM 4470/4474	C39670.08.12	08-20-12	NEMO	Traceability	FBC Cross-Listing	07-02-21
ERD (TST6049)	FM 4470/4474	C42280.08.12	08-20-12	NEMO (TST11294)	FM 4474	2L-CTR-18-001.04.19.A	06-24-19
ERD (TST6049)	Criticality	A35880.04.12-R1	10-26-12	NEMO (TST6049)	FM 4474	4L-CTR-18-002.09.18-1	09-21-18
ERD (TST6049)	FM 4470/4474	C44580.07.13	07-25-13	NEMO (TST6049)	FM 4474	4L-CTR-18-002.09.18-2	09-21-18
ERD (TST6049)	FM 4470/4474	C46090.11.13-A	11-20-13	NEMO (TST6049)	FM 4474	4L-CTR-18-002.10.18	10-22-18
ERD (TST6049)	FM 4470/4474	C45620.03.14	03-27-14	NEMO (TST6049)	FM 4474	4L-CTR-18-002.03.19A	03-07-19
ERD (TST6049)	FM 4470/4474	C46760.06.14	06-19-14	NEMO (TST6049)	FM 4474	4L-CTR-18-002.04.19B	04-12-19
ERD (TST6049)	FM 4470/4474	C47320.03.14-R1	04-01-15	NEMO (TST6049)	FM 4474	4a-CTR-19-LSWUS-04.A	08-05-19
ERD (TST6049)	FM 4470/4474	CTR-SC8995.10.15	10-14-15	NEMO (TST6049)	FM 4474	4a-CTR-19-LSWUS-03.B	01-27-20
ERD (TST6049)	FM 4470/4474	CTR-SC9935.01.16	01-14-16	NEMO (TST6049)	FM 4474	4a-CTR-19-LSWUS-05.A	02-05-20
ERD (TST6049)	FM 4470	CTR-SC9920.01.16	01-20-16	NEMO (TST6049)	FM 4474	4a-CTR-19-LSWUS-02.A	02-28-20
ERD (TST6049)	FM 4470/4474	CTR-SC10420.01.16	01-25-16	NEMO (TST6049)	Criticality	4p-ICP-19-SSCAP-04.A	05-28-20
ERD (TST6049)	FM 4470/4474	CTR-SC11590.08.16	09-06-16	NEMO (TST6049)	FM 4474	4a-CTR-20-LSWUS-01.B	06-26-20
ERD (TST6049)	FM 4470/4474	CTR-SC9175.09.16-1	09-06-16	NEMO (TST6049)	Criticality	4i-CTR-20-SSCRT-04.A	06-16-21
ERD (TST6049)	FM 4470/4474	CTR-SC9175.09.16-1	09-06-16	NEMO (TST6049)	Criticality	4i-CTR-21-SSCRT-02.A	06-21-21
ERD (TST6049)	FM 4470/4474	CTR-SC12255.12.16	12-27-16	NEMO (TST6049)	Criticality	4i-CTR-21-SSCRT-03.A	07-06-21
ERD (TST6049)	Criticality	ICP-SC15630.09.17	09-06-17	NEMO (TST6049)	Criticality	4i-CTR-21-SSCRT-01.A	07-12-21
ERD (TST6049)	Criticality	ICP-SC16225.09.17	09-06-17	NEMO (TST6049)	FM 4474	4a-CTR-21-LSWUS-01	11-29-21
ERD (TST6049)	FM 4474	CTR-SC15775.17	09-13-17	NEMO (TST6049)	Criticality	4i-CRT-21-SSCRT-04.A	01-04-22
				PRI (TST5878)	FM 4474	2111T0009	05-13-21

#### 4. PRODUCT DESCRIPTION:

This Evaluation Report covers **Flintlastic® Modified Bitumen Roof Systems** installed in accordance with **CertainTeed, LLC** published installation instructions and the Limitations / Conditions of Use herein.

TABLE 1: EVALUATED MEMBRANES					
TYPE	PRODUCT	MATERIAL STANDARD			PLANT(S)
		REFERENCE	TYPE	GRADE	
Base Sheets	Flintlastic® SA NailBase	ASTM D4601	II	N/A	Little Rock, AR <sup>1</sup>
	Glasbase™ Base Sheet	ASTM D4601	II	N/A	Pryor, OK Little Rock, AR
	All Weather/Empire™ Base Sheet	ASTM D4601	II	N/A	Little Rock, AR <sup>1</sup>
	Flintlastic® Base 20	ASTM D4601	II	N/A	Little Rock, AR <sup>1</sup>
	Flintlastic® Poly SMS Base Sheet	ASTM D4601 <i>(except glass mat is N/A)</i>	II	N/A	Little Rock, AR <sup>1</sup>
	Flintglas® MS Cap (inverted)	ASTM D4897	II	N/A	Little Rock, AR
Ply Sheets	Flintglas® Ply 4	ASTM D2178	IV	N/A	Pryor, OK <sup>1</sup>
Base/Ply Membranes (APP)	Flintlastic® APP Base T	ASTM D6509	N/A	N/A	Little Rock, AR
	Flintlastic® STA	ASTM D6222	I	S	Little Rock, AR
	Flintlastic® STA Plus	ASTM D6222	I	S	Little Rock, AR
Cap Membranes (APP)	Flintlastic® STA	ASTM D6222	I	S	Little Rock, AR
	Flintlastic® STA Plus	ASTM D6222	I	S	Little Rock, AR
	Flintlastic® GTA	ASTM D6222	I	G	Little Rock, AR <sup>1</sup>
	Flintlastic® GTA CoolStar®	ASTM D6222	I	G	Little Rock, AR
	Flintlastic® GTA-FR	ASTM D6222	I	G	Little Rock, AR <sup>1</sup>
	Flintlastic® GTA-FR CoolStar®	ASTM D6222	I	G	Little Rock, AR

TABLE 1 (CONTINUED): EVALUATED MEMBRANES					
TYPE	PRODUCT	MATERIAL STANDARD			PLANT(S)
		REFERENCE	TYPE	GRADE	
Base/Ply Membranes (SBS)	Black Diamond® Base Sheet	ASTM D1970	N/A	N/A	Shakopee, MN
	Flintlastic® SA PlyBase	ASTM D1970	N/A	N/A	Little Rock, AR
	Flintlastic® SA Mid Ply	ASTM D6163	I	S	Little Rock, AR <sup>1</sup>
	Flintlastic® Ultra Glass SA	ASTM D6163	I	S	Little Rock, AR <sup>1</sup>
	Flintlastic® Base 20	ASTM D6163	I	S	Little Rock, AR <sup>1</sup>
	Flintlastic® Base 20 T	ASTM D6163	I	S	Little Rock, AR <sup>1</sup>
	Flintlastic® Ultra Poly SMS Base Sheet	ASTM D6164	I	S	Little Rock, AR
Cap Membranes (SBS)	Flintlastic® SA Cap FR	ASTM D6163	I	G	Little Rock, AR <sup>1</sup>
	Flintlastic® SA Cap FR CoolStar®	ASTM D6163	I	G	Little Rock, AR
	Flintlastic® SA Cap	ASTM D6164	I	G	Little Rock, AR
	Flintlastic® SA Cap CoolStar®	ASTM D6164	I	G	Little Rock, AR
	Flintlastic® FR-P	ASTM D6164	I	G	Little Rock, AR
	Flintlastic® FR-P CoolStar®	ASTM D6164	I	G	Little Rock, AR
	Flintlastic® GMS	ASTM D6164	I	G	Little Rock, AR
	Flintlastic® Premium FR-P	ASTM D6164	II	G	Little Rock, AR
	Flintlastic® Premium FR-P CoolStar®	ASTM D6164	II	G	Little Rock, AR

<sup>1</sup> Indicates membrane/plant combination is Certified by ISO/IEC 17065 Certification Entity; NEMO|cert. to the noted standard. Refer to [www.nemocert.com](http://www.nemocert.com) for details.

## 5. LIMITATIONS:

- 5.1 This is a Building Code Evaluation. Neither NEMO ETC, LLC nor Robert Nieminen, P.E. are, in any way, the Designer of Record for any project on which this Evaluation Report, or previous versions thereof, is/was used for permitting or design guidance unless retained specifically for that purpose.
- 5.2 This Evaluation Report is not for use in FBC High Velocity Hurricane Zone jurisdictions (i.e., Broward and Miami-Dade Counties).
- 5.3 This Evaluation Report pertains to above-deck roof components. Roof decks and structural members shall be in accordance with FBC requirements to the satisfaction of the Authority Having Jurisdiction.
- 5.4 This Evaluation Report does not include evaluation of fire classification. Refer to **FBC 1505** for requirements and limitations regarding roof assembly fire classification. Refer to **FBC 2603** for requirements and limitations concerning the use of foam plastic insulation.
- 5.5 This Evaluation Report does not include evaluation of roof edge termination. Refer to **FBC 1504.5** for requirements and limitations regarding edge securement for low-slope roofs.
- 5.6 Refer to **FBC 1511** for requirements and limitations regarding recover installations.
- 5.6.1 For mechanically attached components over existing roof decks, fasteners shall be tested in the existing deck for withdrawal resistance. A qualified design professional shall review the data for comparison to the minimum requirements for the system. Testing shall be in accordance with **ANSI/SPRI FX-1** or **Testing Application Standard TAS 105**.
- 5.6.2 For bonded insulation or membrane over existing substrates in a re-roof (tear off) or recover installation, the existing deck or existing roof surface shall be examined for compatibility with the adhesive to be installed. If any surface conditions exist that bring system performance into question, field uplift testing in accordance with **ANSI/SPRI IA-1**, **ASTM E907**, **FM Loss Prevention Data Sheet 1-52** or **Testing Application Standard TAS 124** shall be conducted on mock-ups of the proposed new roof assembly.
- 5.6.3 For bonded insulation or membrane over existing substrates in a recover installation, the existing roof system shall be capable of resisting project design pressures on its own merit to the satisfaction of the Authority Having Jurisdiction, as documented through field uplift testing in accordance with **ASTM E907**, **FM Loss Prevention Data Sheet 1-52** or **Testing Application Standard TAS 124**.

- 5.7 Refer to Appendix 1 for system attachment requirements for wind load resistance.
- 5.7.1 “MDP” = Maximum Design Pressure is the result of testing for wind load resistance based on allowable wind loads, and reflects the ultimate passing pressure divided by 2 (the 2 to 1 margin of safety per **FBC 1504.9** has already been applied). Refer to **FBC 1609** for determination of design wind loads.
- 5.7.2 For mechanically attached components or partially-bonded insulation, the maximum design pressure for the selected assembly shall meet or exceed at least the Zone 1 PRIME design pressure determined in accordance with **FBC Chapter 16**. Elevated pressure zones shall employ an attachment density designed by a qualified design professional to resist the elevated pressure criteria. Commonly used methods are **ANSI/SPRI WD1**, **FM Loss Prevention Data Sheet 1-29**, **Roofing Application Standard RAS 117** and **Roofing Application Standard RAS 137**. Assemblies marked with an asterisk\* carry the limitations set forth in **Section 2.2.10.1 of FM Loss Prevention Data Sheet 1-29 (February 2020)** for Zone 2/3 enhancements.
- 5.7.3 For assemblies with all components fully bonded in place, the maximum design pressure for the selected assembly shall meet or exceed critical design pressure determined in accordance with **FBC Chapter 16**. No rational analysis is permitted for these systems.
- 5.8 All components in the roof assembly shall have quality assurance audit in accordance with **F.A.C. Rule 61G20-3**. Refer to the Product Approval of the component manufacturer for components listed in Appendix 1 that are produced by a Product Manufacturer other than the report holder on Page 1 of this Evaluation Report.

## 6. INSTALLATION:

**Flintlastic® Modified Bitumen Roof Systems** shall be installed in accordance with **CertainTeed, LLC** published installation instructions, subject to the Limitations / Conditions of Use herein.

## 7. BUILDING PERMIT REQUIREMENTS:

As required by the Building Official or Authority Having Jurisdiction to properly evaluate the installation of this product.

## 8. MANUFACTURING PLANTS:

Contact the named QA entity for manufacturing facilities covered by **F.A.C. Rule 61G20-3** QA requirements. Refer to Section 4 herein for products and production locations having met codified material standards.

## 9. QUALITY ASSURANCE ENTITY:

UL, LLC – QUA9625: (360) 817-5512; [bsai.inspections@ul.com](mailto:bsai.inspections@ul.com)

**- THE 70-PAGES THAT FOLLOW FORM PART OF THIS EVALUATION REPORT -**

**APPENDIX 1: ATTACHMENT REQUIREMENTS FOR WIND UPLIFT RESISTANCE**

TABLE	DECK	APPLICATION	TYPE	DESCRIPTION	PAGE
1A	Wood	New or Reroof (Tear-Off)	A-1	Bonded Insulation, Bonded Roof Cover	6
1B	Wood	New or Reroof (Tear-Off)	A-2	Mechanically Attached Anchor Sheet, Bonded Insulation, Bonded Roof Cover	7-8
1C	Wood	New, Reroof (Tear-Off) or Recover	B-1	Mechanically Attached Base Insulation, Bonded Top Insulation, Bonded Roof Cover	9
1D	Wood	New, Reroof (Tear-Off) or Recover	C-1	Mechanically Attached Insulation, Bonded Roof Cover	9-11
1E	Wood	New, Reroof (Tear-Off) or Recover	D-2	Insulated, Mechanically Attached Base Sheet, Bonded Roof Cover	11-13
1F	Wood	New, Reroof (Tear-Off)	E-2	Non-Insulated, Mechanically Attached Base Sheet, Bonded Roof Cover	13-16
1G	Wood	New, Reroof (Tear-Off) or Recover	E-2	Non-Insulated, Mechanically Attached Base Sheet, Bonded Roof Cover	16-18
1H	Wood	New or Reroof (Tear-Off)	F	Non-Insulated, Bonded Roof Cover	18
2A	Steel or Structural concrete	New, Reroof (Tear-Off) or Recover	B-1	Mechanically Attached Base Insulation, Bonded Top Insulation, Bonded Roof Cover	19-21
2B	Steel or Structural concrete	New, Reroof (Tear-Off) or Recover	C-1	Mechanically Attached Insulation, Bonded Roof Cover	22-25
2C	Steel or Structural concrete	New, Reroof (Tear-Off) or Recover	D-2	Insulated, Mechanically Attached Base Sheet, Bonded Roof Cover	26-28
3A	Structural concrete	New or Reroof (Tear-Off)	A-1	Bonded Insulation, Bonded Roof Cover	29-37
3B	Structural concrete	New or Reroof (Tear-Off)	A-3	Bonded Temp Roof/Vapor Barrier, Bonded Insulation, Bonded Roof Cover	37
3C	Structural concrete	New or Reroof (Tear-Off)	F	Non-Insulated, Bonded Roof Cover	38
4A	LWIC / steel	New or Reroof (Tear-Off)	A-1	Bonded Insulation, Bonded Roof Cover	39-40
4B	LWIC / structural concrete	New or Reroof (Tear-Off)	A-1	Bonded Insulation, Bonded Roof Cover	41-45
4C	LWIC / structural concrete	New, Reroof (Tear-Off)	A-1	Bonded Vapor Barrier, Bonded Insulation, Bonded Roof Cover	46-47
4D	LWIC / steel	New or Reroof (Tear-Off)	A-2	Mechanically Attached Anchor Sheet, Bonded Insulation, Bonded Roof Cover	48-50
4E	LWIC / steel or struct. conc.	New or Reroof (Tear-Off)	E-2	Non-Insulated, Mechanically Attached Base Sheet, Bonded Roof Cover	51-55
4F	LWIC / steel	Reroof (Tear-Off) or Recover	E-2	Non-Insulated, Mechanically Attached Base Sheet, Bonded Roof Cover	56
4G	LWIC / steel	Reroof (Tear-Off)	F	Non-Insulated, Bonded Roof Cover	56
5A	Cementitious wood fiber	New or Reroof (Tear-Off)	A-1	Bonded Insulation, Bonded Roof Cover	57-58
5B	Cementitious wood fiber	New or Reroof (Tear-Off) or Recover	A-2	Mechanically Attached Anchor Sheet, Bonded Insulation, Bonded Roof Cover	59
5C	Cementitious wood fiber	Reroof (Tear-Off) or Recover	C-1	Mechanically Attached Insulation, Bonded Roof Cover	60
5D	Cementitious wood fiber	New, Reroof (Tear-Off) or Recover	E-2	Non-Insulated, Mechanically Attached Base Sheet, Bonded Roof Cover	60
6A	Existing gypsum	Reroof (Tear-Off)	A-1	Bonded Insulation, Bonded Roof Cover	61-62
6B	Existing gypsum	Reroof (Tear-Off)	A-2	Mechanically Attached Anchor Sheet, Bonded Insulation, Bonded Roof Cover	63
6C	Existing gypsum	Reroof (Tear-Off)	C-1	Mechanically Attached Insulation, Bonded Roof Cover	64
6D	Existing gypsum	Reroof (Tear-Off)	E-2	Non-Insulated, Mechanically Attached Base Sheet, Bonded Roof Cover	64
7A	Various	Recover	A-1	Bonded Insulation, Bonded Roof Cover	65-70
7B	Various	Recover	F	Non-Insulated, Bonded Roof Cover	70

The following notes apply to the systems outlined herein:

- The roof system evaluation herein pertains to above-deck roof components. Roof decks and structural members shall be in accordance with FBC requirements to the satisfaction of the Authority Having Jurisdiction.
- Unless otherwise noted, fasteners and stress plates shall be as follows. Fasteners shall be of sufficient length for the following engagements:

FASTENER/PLATE OPTIONS				
DECK TYPE	BY	FBC FILE	PARTS	MINIMUM ENGAGEMENT
Wood	Altenloh, Brinck and Co. U.S., Inc.	FL4500	Trufast #14 HD with Trufast 3" Metal Insulation Plates	Minimum ¾-inch plywood penetration or minimum 1-inch wood plank embedment
	OMG, Inc.	FL699	OMG #14 Roofgrip with AccuTrac Plates or OMG #14 Heavy Duty with OMG 3 in. Galvalume Steel Plate	
	SFS Group USA, Inc.	FL20311	Dekfast DF-#14-PH3 with Dekfast PLT-H-2-7/8 or Dekfast PLT-R-3.	
Steel	Altenloh, Brinck and Co. U.S., Inc.	FL4500	Trufast #12 DP or Trufast #14 HD with Trufast 3" Metal Insulation Plates	Minimum ¾-inch steel penetration and engage the top flute of the steel deck
	OMG, Inc.	FL699	OMG #12 or #14 Roofgrip with AccuTrac Plates or OMG #12 Standard or OMG #14 Heavy Duty with OMG 3 in. Galvalume Steel Plate	
	SFS Group USA, Inc.	FL20311	Dekfast DF-#12-PH3 or DF-#14-PH3 with Dekfast PLT-H-2-7/8 or Dekfast PLT-R-3.	
Structural Concrete	Altenloh, Brinck and Co. U.S., Inc.	FL4500	Trufast #14 HD or Trufast Fluted Concrete Nail with Trufast 3" Metal Insulation Plates	Minimum 1-inch embedment. Fasteners installed with a pilot hole in accordance with the fastener manufacturer's published installation instructions
	OMG, Inc.	FL699	OMG #14 Roofgrip with AccuTrac Plates or OMG #14 Heavy Duty or CD-10 with OMG 3 in. Galvalume Steel Plate	
	SFS Group USA, Inc.	FL20311	Dekfast DF-#14-PH3 with Dekfast PLT-H-2-7/8 or Dekfast PLT-R-3.	

- Unless otherwise noted, insulation may be any one layer or combination of FBC Approved (Local or Statewide) board(s) that meet FBC 1505 and, for foam plastic, FBC Chapter 26, when installed with the roof cover.
- Minimum 200 psi, minimum 2-inch FBC Approved lightweight insulating concrete may be substituted for, or installed below, rigid insulation board for System Types B-1, C-1, C-2, D-1 or D-2, whereby fasteners are installed through the lightweight insulating concrete to engage the structural deck. The structural deck shall be of equal or greater type, thickness and strength to the steel and structural concrete deck listings. Roof decks and structural members shall be in accordance with FBC requirements to the satisfaction of the Authority Having Jurisdiction. This is a wind uplift resistance allowance and does not purport to address non-wind-uplift-related issues, such as deck venting or moisture levels within the Lightweight Concrete and the potential effect on overlying components.
- Preliminary insulation attachment for System Type D: Unless otherwise noted, refer to Section 2.2.10.1.3 of FM Loss Prevention Data Sheet 1-29 (February 2020).
- Unless otherwise noted, insulation adhesive application rates are as follows.  
Ribbon or bead width is at the time of application; the ribbons/beads shall expand as noted in the manufacturer's published instructions.  
When multiple layers(s) of insulation and/or coverboard are installed in ribbon-applied adhesive, board joints shall be staggered.  
The maximum edge distance from the adhesive ribbon to the edge of the insulation board shall be not less than one-half the specified ribbons spacing.

INSULATION ADHESIVE REFERENCES					
BY	FBC FILE	ADHESIVE	REFERENCE	MINIMUM RATE	NOTE
DuPont de Nemours, Inc.	FL720	Insta Stik Quik Set	Insta Stick	Continuous 0.75 to 1 inch wide ribbons, 12-inch o.c	
H.B. Fuller Company	FL1800	Millennium One Step Foamable Adhesive	M-OSFA	Continuous 0.25 to 0.5-inch wide ribbons, 12-inch o.c.	
H.B. Fuller Company	FL1800	Millennium PG-1 Pump Grade Adhesive	M-PG1	Continuous 0.5 to 0.75-inch wide ribbons, 12-inch o.c.	
ICP Construction, Inc.	FL22256	Polyset Board-Max	Polyset BM	Continuous 3-inch wide ribbons, 12-inch o.c.	
ICP Construction, Inc.	FL1365	Polyset Commercial Roofing Adhesive	Polyset CRA	Continuous 2.5 to 3-inch wide ribbons, 12-inch o.c.	Formerly Polyset CR-20
OMG, Inc.	FL1608	OlyBond 500 Adhesive Fastener	OB500	Continuous 0.75-inch wide ribbons, 12-inch o.c.	PaceCart, SpotShot or Canister dispensing
Generic, ASTM D312, Type IV	N/A	hot asphalt	N/A	Full coverage at 25-30 lbs/square	If applying hot asphalt to concrete deck, deck shall be primed with ASTM D41 primer

- 7 Unless otherwise noted, all insulations are flat-stock or taper board of the minimum thickness noted. Tapered polyisocyanurate at the following thickness limitations may be substituted with the following Maximum Design Pressure (MDP) limitations. In no case shall these values be used to ‘increase’ the MDP listings in the tables; rather if MDP listing below meets or exceeds that listed for a particular system in the tables, then the thinner board listed below may be used as a drop-in for the equivalent thicker material listed in the table.

MDP LIMITATIONS FOR TAPERED POLYISOCYANURATE INSULATIONS				
ADHESIVE	INSULATION		MIN. TAPERED THICKNESS (IN)	MDP (psf)
	LISTED PRODUCT	FBC FILE		
Insta Stik	Any polyisocyanurate listed with adhesive herein	Various	1.0	-120.0
M-OSFA	Any polyisocyanurate listed with adhesive herein	Various	1.0	-157.5
M-PG1	Any polyisocyanurate listed with adhesive herein	Various	1.0	-157.5
Polyset CRA	Any polyisocyanurate listed with adhesive herein	Various	1.0	-117.5
OB500	Rmax Multi-Max FA3	FL11207	0.5	-45.0
OB500	Hunter H-Shield	FL5968	0.5	-315.0
OB500	Johns Manville ENRGY 3	FL4205	0.5	-315.0
OB500	Atlas Roofing ACFoam II	FL17989	0.5	-487.5

- 8 For adhered roof insulation and board-size: Unless otherwise noted, refer to Section 2.2.10.6.2 of FM Loss Prevention Data Sheet 1-29 (February 2020).
- 9 For mechanically attached components or partially-bonded insulation, the maximum design pressure for the selected assembly shall meet or exceed at least the Zone 1 PRIME design pressure determined in accordance with FBC Chapter 16. Elevated pressure zones shall employ an attachment density designed by a qualified design professional to resist the elevated pressure criteria. Commonly used methods are ANSI/SPRI WD1, FM Loss Prevention Data Sheet 1-29, Roofing Application Standard RAS 117 and Roofing Application Standard RAS 137. Assemblies marked with an asterisk\* carry the limitations set forth in Section 2.2.10.1 of FM Loss Prevention Data Sheet 1-29 (February 2020) for Zone 2/3 enhancements.
- 10 For assemblies with all components fully bonded, the maximum design pressure for the selected assembly shall meet or exceed critical design pressure determined in accordance with FBC Chapter 16. No rational analysis is permitted for these systems.
- 11 For mechanically attached components over existing decks, fasteners shall be tested in the existing deck for withdrawal resistance. A qualified design professional shall review the data for comparison to the minimum requirements for the system. Testing and analysis shall be in accordance with ANSI/SPRI FX-1 or Testing Application Standard TAS 105.
- 12 For bonded insulation or membrane over existing substrates in a re-roof (tear off) or recover installation, the existing deck or existing roof surface shall be examined for compatibility with the adhesive to be installed. If any surface conditions exist that bring system performance into question, field uplift testing shall be conducted on mock-ups of the proposed new roof assembly. For bonded insulation or membrane over existing substrates in a recover installation, the existing roof system shall be capable of resisting project design pressures on its own merit to the satisfaction of the Authority Having Jurisdiction, as documented through field uplift testing. Field uplift testing shall be in accordance with ASTM E907, FM Loss Prevention Data Sheet 1-52 or Testing Application Standard TAS 124.
- 13 Refer to FBC 1511 for requirements and limitations regarding recover installations. For Structural Concrete Deck or Recover Applications using System Type C-1 the base insulation layer is optional and for System Type C-2, D-1 or D-2, the insulation is optional. Alternatively, an FBC Approved insulation board or coverboard may be used as a separation layer. Board products shall be preliminarily attached prior to roof cover installation (Note 5 herein). The separator component shall be documented as meeting FBC 1505 and, for foam plastic, FBC Chapter 26, when installed with the roof cover in Recover applications.
- 14 Lightweight insulating concrete (LWIC) shall be cast in accordance with FBC Section 1917 to the satisfaction of the Authority Having Jurisdiction. For systems where specific LWIC is referenced, refer to current LWIC Product Approval for specific deck construction and limitations. Unless otherwise noted, for systems where specific LWIC is not referenced, the minimum design mix shall be 300 psi. In all cases, the minimum top-coat thickness is 2-inches. For LWIC over structural concrete, reference is made to FBC Section 1917.4.1, Point 1. For “pre-existent” LWIC references, listings were established through testing over lightweight concrete cast using only foaming agent (ASTM C896), water and Portland cement (ASTM C150), with no proprietary additives, in accordance with procedures adopted by Miami-Dade BCCO (FBC CER1592). Use of these listings in new construction or re-roof (tear-off) applications is at the discretion of the Designer or Record and Authority Having Jurisdiction.

15 For bonded membrane applications, unless otherwise noted, refer to the following.

MEMBRANE / ADHESIVE COMBINATIONS			
REFERENCE	LAYER	MATERIAL	APPLICATION
SBS-CA1	Base Ply:	Flintlastic Base 20, Flintlastic Poly SMS Base Sheet, Flintlastic Ultra Poly SMS Base	Karnak No. 81 Cold Process Modified Bitumen Adhesive Brush Grade at 1 gal/square
	Note:	Base ply cures overnight prior to application of the ply or cap ply.	
	Ply:	Flintlastic Base 20, Flintlastic Poly SMS Base Sheet, Flintlastic Ultra Poly SMS Base	
	Cap Ply:	Flintlastic FR-P, Flintlastic FR-P CoolStar, Flintlastic Premium FR-P, Flintlastic Premium FR-P CoolStar, Flintlastic GMS	
BP-CA2	Base Ply:	Glasbase Base Sheet, All Weather/Empire Base Sheet, Flintlastic Base 20	
SBS-CA2	Base Ply:	Flintlastic Base 20, Flintlastic Poly SMS Base Sheet, Flintlastic Ultra Poly SMS Base	Henry #903 Adhesive at 1.5 gal/square.
	Ply:	Flintlastic Base 20, Flintlastic Poly SMS Base Sheet, Flintlastic Ultra Poly SMS Base	
	Cap Ply:	Flintlastic FR-P, Flintlastic FR-P CoolStar, Flintlastic Premium FR-P, Flintlastic Premium FR-P CoolStar, Flintlastic GMS	
BP-CA3	Base Ply:	Glasbase Base Sheet, All Weather/Empire Base Sheet, Flintlastic Base 20	
SBS-CA3	Base Ply:	Flintlastic Base 20, Flintlastic Poly SMS Base Sheet, Flintlastic Ultra Poly SMS Base	HB Fuller "Millennium Hurricane Force Membrane Adhesive", beads spaced 6-inch o.c.
	Ply:	Flintlastic Base 20, Flintlastic Poly SMS Base Sheet, Flintlastic Ultra Poly SMS Base	
	Cap Ply:	Flintlastic FR-P, Flintlastic FR-P CoolStar, Flintlastic Premium FR-P, Flintlastic Premium FR-P CoolStar, Flintlastic GMS	
SBS-CA4	Base Ply:	Flintlastic Base 20, Flintlastic Poly SMS Base Sheet, Flintlastic Ultra Poly SMS Base	FlintBond Brush or Tropical Roofing Products #216 Modified Bitumen Adhesive at 1 to 1.5 gal/square.
	Note:	Base ply cures overnight prior to application of the ply or cap ply.	
	Ply:	Flintlastic Base 20, Flintlastic Poly SMS Base Sheet, Flintlastic Ultra Poly SMS Base	
	Cap Ply:	Flintlastic FR-P, Flintlastic FR-P CoolStar, Flintlastic Premium FR-P, Flintlastic Premium FR-P CoolStar, Flintlastic GMS	
BP-AA	Base Ply:	Glasbase Base Sheet, All Weather/Empire Base Sheet, Flintlastic Base 20	hot asphalt at 20-40 lbs/square
	Ply:	One or more Flintglas Ply 4	
BP-AA2	Base Ply:	Flintglas MS Cap (inverted)	hot asphalt in 24-inch diameter spots in 30-inch grid pattern
BP-AA3	Base Ply:	Flintglas MS Cap (inverted)	hot asphalt in 9-inch diameter spots in grid pattern noted herein.
BP-AA4	Base Ply:	Flintglas MS Cap (inverted)	hot asphalt in 9-inch wide ribbons spaced as noted herein.
SBS-AA	Base Ply:	<del>Flintlastic Base 20, Flintlastic Poly SMS Base Sheet, Flintlastic Ultra Poly SMS Base</del>	hot asphalt at 20-40 lbs/square
	Ply:	One or more Flintlastic Base 20, Flintlastic Poly SMS Base Sheet, Flintlastic Ultra Poly SMS Base	
	Cap Ply:	<del>Flintlastic FR-P, Flintlastic FR-P CoolStar, Flintlastic Premium FR-P, Flintlastic Premium FR-P CoolStar, Flintlastic GMS</del>	
SBS-TA	Base Ply:	Flintlastic Ultra Poly SMS Base Sheet, Flintlastic Base 20 T	torch-applied
	Ply:	One or more Flintlastic Ultra Poly SMS Base Sheet, Flintlastic Base 20 T	
APP-TA	Base Ply:	One or more Flintlastic APP Base T, Flintlastic STA, Flintlastic STA Plus	torch-applied
	Cap Ply:	Flintlastic STA, Flintlastic STA Plus, Flintlastic GTA, Flintlastic GTA CoolStar, Flintlastic GTA-FR, Flintlastic GTA-FR CoolStar	
SBS-SA-H	Base Ply:	Black Diamond Base Sheet, Flintlastic Ultra Glass SA	self-adhering (activated by overlying membrane)
SBS-SA	Base Ply:	Flintlastic SA PlyBase, Flintlastic SA Mid Ply	self-adhering
	Ply:	Flintlastic SA PlyBase, Flintlastic SA Mid Ply	
	Cap Ply:	Flintlastic SA Cap, Flintlastic SA Cap CoolStar, Flintlastic SA Cap FR, Flintlastic SA Cap FR CoolStar	

- 16 Vapor barrier options for use over **structural concrete deck** followed by bonded insulation carry the following MDP limitations. The lesser of the MDP listings below vs. that for the selected assembly from **TABLE 3A** applies.

VAPOR BARRIER OPTIONS, STRUCTURAL CONCRETE DECK, ADHERED INSULATION					
OPTION #	PRIMER	VAPOR BARRIER		INSULATION ADHESIVE PER TABLE 3A	MDP (psf)
		TYPE	ATTACH		
C-VB-1.	FlintPrime QD	Flintlastic SA PlyBase		Self-adhering	OB500, 12-inch o.c.
C-VB-2.	None	All Weather/Empire Base Sheet, 3-inch wide side laps and 6-inch wide end laps are sealed with HB Fuller "HB Fuller "Millennium Hurricane Force Lap and Flashing Adhesive"		HB Fuller "Millennium Hurricane Force Membrane Adhesive HS", max. 6-inch o.c.	M-OSFA or M-PG1, 12-inch o.c.
C-VB-3.	None	Flintlastic Ultra Poly SMS Base Sheet, 3-inch wide side laps and 6-inch wide end laps are hot-air-welded, torch-welded or sealed with HB Fuller "HB Fuller "Millennium Hurricane Force Lap and Flashing Adhesive"		HB Fuller "Millennium Hurricane Force Membrane Adhesive HS", max. 6-inch o.c.	M-OSFA or M-PG1, 12-inch o.c.
C-VB-4.	FlintPrime QD	Black Diamond Base Sheet, Flintlastic Ultra Glass SA or Flintlastic SA Cap		Self-adhering	M-OSFA or M-PG1, 12-inch o.c.
C-VB-5.	FlintPrime QD	Black Diamond Base Sheet, Flintlastic Ultra Glass SA or Flintlastic SA Cap		Self-adhering	M-OSFA or M-PG1, 6-inch o.c.
C-VB-6.	FlintPrime QD	Flintlastic GTA		Torch-applied	M-OSFA or M-PG1, 12-inch o.c.
C-VB-7.	FlintPrime QD	Flintlastic Base 20 T		Torch-applied	M-OSFA or M-PG1, 12-inch o.c.

- 17 The following products are interchangeable within the scope of this Evaluation Report.

ACCEPTABLE ALTERNATES				
SUB-CATEGORY	MANUFACTURER	FBC FILE	LISTED PRODUCT HEREIN	ALTERNATE
Adhesives	H.B. Fuller Company	FL1800	M-OSFA	FlintFast QS Insulation Adhesive
			M-PG1	FlintFast LV Insulation Adhesive
Roofing Fasteners	Altenloh, Brinck and Co. U.S., Inc.	FL4500	Trufast #12 DP	FlintFast #12 Fastener
			Trufast #14 HD	FlintFast #14 Fastener
			Trufast #15 EHD	FlintFast #15 EHD Fastener
			Trufast 2" Barbed Metal Seam Plate	FlintFast 2" Barbed Seam Plate
			Trufast 2.4" Barbed Metal Seam Plate	FlintFast 2.4" Barbed Seam Plate
			Trufast 3" Metal Insulation Plate	FlintFast 3" Insulation Plate
Roofing Insulation	Atlas Roofing	FL17989	ACFoam II	FlintBoard ISO
			ACFoam III	FlintBoard ISO Cold
	Hunter Panels	FL5968	H-Shield	FlintBoard <sub>H</sub> ISO
			H-Shield CG	FlintBoard <sub>H</sub> ISO Cold
	Georgia-Pacific Gypsum, LLC	FL1250	DensDeck Prime	DensDeck StormX Prime Roof Board

- 18 "MDP" = Maximum Design Pressure is the result of testing for wind load resistance based on allowable wind loads. Refer to FBC 1609 for determination of design wind loads.

**TABLE 3A: STRUCTURAL CONCRETE DECKS – NEW CONSTRUCTION OR REROOF (TEAR-OFF)**  
**SYSTEM TYPE A-1: BONDED INSULATION, BONDED ROOF COVER**  
 SEE NOTE 16 FOR VAPOR BARRIER OPTIONS

Sys. No.	Deck (Note 1)	Primer	Base Insulation Layer		Top Insulation Layer		Primer	Roof Cover (Note 15)			MDP (psf)
			Type	Attach (Notes 6,7,8)	Type	Attach (Notes 6,7,8)		Base Ply	Ply	Cap Ply	
C-38.	Structural concrete	None	Min. 1.5-inch, min. 1.5 pcf Insulfoam II Roofing EPS	Polyset CRA	Min. 0.25-inch SECUROCK Gypsum-Fiber Roof Board	Polyset CRA	None	SBS-SA-H	(Optional) SBS-AA, SBS-TA, APP-TA	SBS-AA, APP-TA	-180.0
C-39.	Structural concrete	None	Min. 1.5-inch, min. 2.0 pcf Insulfoam IX Roofing EPS	Polyset CRA	Min. 0.25-inch SECUROCK Gypsum-Fiber Roof Board	Polyset CRA	None	SBS-SA-H	(Optional) SBS-AA, SBS-TA, APP-TA	SBS-AA, APP-TA	-217.5
C-40.	Structural concrete	None	Min. 1.5-inch Styrofoam Brand Roofmate	Polyset CRA	Min. 0.25-inch SECUROCK Gypsum-Fiber Roof Board	Polyset CRA	None	SBS-SA-H	(Optional) SBS-AA, SBS-TA, APP-TA	SBS-AA, APP-TA	-217.5
C-41.	Structural concrete	None	Min. 0.25-inch SECUROCK Gypsum-Fiber Roof Board	Polyset BM or Polyset CRA	None	N/A	None	SBS-SA-H	(Optional) SBS-AA, SBS-TA, APP-TA	SBS-AA, APP-TA	-195.0
<b>CONVENTIONAL SYSTEMS:</b>											
C-42.	Structural concrete	FlintPrime QD	Min. 1.5-inch ACFoam II	hot asphalt	Min. 0.25-inch DensDeck, DensDeck Prime	hot asphalt	None	SBS-TA	(Optional) SBS-TA	SBS-TA	-180.0
C-43.	Structural concrete	FlintPrime QD	(Optional) Min. 1.5-inch ACFoam II	hot asphalt	Min. 0.25-inch SECUROCK Gypsum-Fiber Roof Board	hot asphalt	None	BP-AA, SBS-AA, SBS-TA or APP-TA	(Optional) BP-AA, SBS-AA, SBS-TA or APP-TA	SBS-AA or APP-TA	-180.0
C-44.	Structural concrete	FlintPrime QD	(Optional) Min. 2-inch ACFoam II, ENRGY 3 or H-Shield	hot asphalt	Min. 0.25-inch SECUROCK Gypsum-Fiber Roof Board	hot asphalt	None	BP-AA or SBS-AA	(Optional) BP-AA, SBS-AA, SBS-TA or APP-TA	SBS-AA or APP-TA	-225.0
C-45.	Structural concrete	FlintPrime QD	(Optional) Min. 1.5-inch ACFoam II or H-Shield	hot asphalt	Min. 0.25-inch SECUROCK Gypsum-Fiber Roof Board	hot asphalt	None	APP-TA	(Optional) APP-TA	APP-TA	-252.5
C-46.	Structural concrete	FlintPrime QD	Min. 1.5-inch ACFoam II, ENRGY 3 or H-Shield	hot asphalt	Min. 0.5-inch Structodek High Density Fiberboard	hot asphalt	None	BP-AA or SBS-AA	(Optional) BP-AA, SBS-AA, SBS-TA or APP-TA	SBS-AA or APP-TA	-227.0
C-47.	Structural concrete	FlintPrime QD	(Optional) Min. 2-inch ACFoam II, ENRGY 3 or H-Shield	hot asphalt	Min. 0.25-inch SECUROCK Gypsum-Fiber Roof Board	hot asphalt	None	SBS-TA or APP-TA	(Optional) SBS-TA or APP-TA	APP-TA	-232.5
C-48.	Structural concrete	FlintPrime QD	Min. 1.5-inch ACFoam II, ENRGY 3 or H-Shield	hot asphalt	Min. 0.25-inch DensDeck	hot asphalt	None	BP-AA or SBS-AA	(Optional) BP-AA, SBS-AA, SBS-TA or APP-TA	SBS-AA or APP-TA	-240.0
C-49.	Structural concrete	FlintPrime QD	Min. 1.5-inch ACFoam II	hot asphalt	Min. 0.75-inch FescoBoard (homogeneous)	hot asphalt	None	BP-AA or SBS-AA	(Optional) BP-AA, SBS-AA, SBS-TA or APP-TA	SBS-AA or APP-TA	-412.0