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RESEARCH REPORT: RR 26182
(CSI # 07 51 13, 17 52 13)

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Code: 2020 LABC

GENERAL APPROVAL – Renewal and Clerical Modification - Derbigum APP Modified Bitumen Membranes

DETAILS

The atactic polypropylene (PP) modified bitumen membranes, built-up roofing felts and base sheets described in this report are used as roof coverings in mechanically fastened or fully adhered Class A roof deck assemblies installed on combustible or non-combustible roof decks.

The modified bitumen roofing systems described in this general approval consist of modified bituminous roofing membranes, base sheets and ply sheets, insulation where used, barrier board where used, flashing, mechanical fasteners and adhesives that are installed on a combustible or non-combustible roof deck.

The roofing assemblies incorporating the membranes comply with the following properties when installed as described in this general approval.

Fire Classification: Roofing assemblies covered under this report have been tested for Class A fire certification in accordance with ANSI/UL790 or ASTM E108, as required by Section 1505.1 of the 2020 Los Angeles Building Code (LABC).

Wind Resistance: Roofing assemblies covered under this report have been tested for wind uplift resistance in accordance with FM 4474, and therefore qualify for use under roofing membranes per Section 1504.3.1 of the 2020 LABC.

The roofing assemblies shall be designed to resist the design wind load pressures for components and claddings in accordance with Section 1609 of the 2020 LABC and Section R905.1 of the 2020 Los Angeles Residential Code (LARC).

Physical Properties: The roofing membranes covered under this general approval have been tested for physical properties in accordance with ASTM D2178, ASTM D3909, ASTM D4601, ASTM D4897, ASTM D6162, ASTM D6163, ASTM D6164 and ASTM G155, and therefore qualify for use under Section 1507.6, 1507.11 and Section 1504.6 of the 2020 LABC and Section R905.11.2 of the 2020 LARC.

Impact Test: The single-ply roofing membranes covered under this Report have been tested for impact resistance in accordance with "Resistance to Foot Traffic Test" in Section 5.5 of FM 4470 and therefore qualify for use under Section 1504.7 of the 2020 LABC.

APP Modified Bitumen Membranes:

1. **BITUTAK COLD MINERAL** is an ASTM D6222, Type I, Grade G compliant polyester-reinforced, mineral surfaced APP cap sheet. The cap sheet is supplied in rolls 39.2 inches (1 m) wide by 33.5 feet (10.1 m) long having a net coverage area of 100-ft² (9.2-m²), and weighing 88 lbs. (39.9 kg).

2. **BITUTAK MB** is an ASTM D6222, Type I, Grade G compliant polyester-reinforced, smooth surfaced APP cap or base/ply sheet. The cap sheet is supplied in rolls 39.2 inches (1 m) wide by 33.6 feet (10.2 m) long having a net coverage area of 100-ft² (9.2-m²), and weighing 110 lbs. (39.9 kg).

3. **BITUTAK MB MINERAL** is an ASTM D6222, Type I, Grade G compliant polyester-reinforced, mineral surfaced APP cap or base/ply sheet. The cap sheet is supplied in rolls 39.25 inches (1 m) wide by 33.6 feet (10.2 m) long having a net coverage area of 100-ft² (9.29-m²), and weighing 110 lbs. (49 kg).

4. **DERBIBRITE** is an ASTM D6223, Type I and Type II compliant polyester-reinforced, surfaced APP cap sheet. The cap sheet is supplied in rolls 39.4 inches (1 m) wide by 33.5 feet (10.2 m) long having a net coverage area of 100-ft² (9.29-m²), and weighing 89 lbs. (40.4 kg).

5. **DERBICOLOR GP** is an ASTM D6223, Type I Grade G compliant combination fiberglass and polyester scrim-reinforced mineral surfaced APP cap sheet. The cap sheet is supplied in rolls 39.4 inches (1 m) wide by 33.5 feet (10.2 m) long having a net coverage area of 100-ft² (9.2-m²), and weighing 110 lbs. (49.8 kg).

6. **DERBICOLOR GP-FR** is an ASTM D6223, Type I Grade G compliant combination fiberglass and polyester scrim-reinforced mineral surfaced APP cap sheet. The cap sheet is supplied in rolls 39.4 inches (1 m) wide by 33.5 feet (10.2 m) long having a net coverage area of 100-ft² (9.2-m²), and weighing 110 lbs. (49.8 kg).
7. **DERBICLOLOR P** is an ASTM D6222, Type I, Grade G compliant polyester reinforced, mineral surfaced APP cap sheet. The cap sheet is supplied in rolls 39.2 inches (1 m) wide by

33.5 feet (10.2 m) long having a net coverage area of 100-ft² (9.2-m²), and weighing 110 lbs. (49 kg).

8. **DERBICOLOR XPS** is an ASTM D6223, Type II Grade G compliant combination fiberglass and polyester scrim-reinforced mineral surfaced APP cap sheet. The cap sheet is supplied in rolls 39.4 inches (1 m) wide by 33.5 feet (10.2 m) long having a net coverage area of 100-ft² (9.2-m²), and weighing 110 lbs. (49.8 kg).

9. **DERBICOLOR XPS-FR** is an ASTM D6223, Type II Grade G compliant combination fiberglass and polyester scrim-reinforced mineral surfaced APP cap sheet. The cap sheet is supplied in rolls 39.4 inches (1 m) wide by 33.5 feet (10.2 m) long having a net coverage area of 100-ft² (9.2-m²), and weighing 110 lbs. (49.8 kg).

10. **DERBIGUM GP** is an ASTM D6223, Type I Grade S compliant combination fiberglass and polyester scrim-reinforced sand surfaced APP cap sheet. The cap sheet is supplied in rolls 39.4 inches (1 m) wide by 33.5 feet (10.2 m) long having a net coverage area of 100-ft² (9.2-m²), and weighing 94 lbs. (49.8 kg).

11. **DERBIGUM GP-FR** is an ASTM D6223, Type I Grade G compliant combination fiberglass and polyester scrim-reinforced mineral surfaced APP cap sheet. The cap sheet is supplied in rolls 39.4 inches (1 m) wide by 33.5 feet (10.2 m) long having a net coverage area of 100-ft² (9.2-m²), and weighing 110 lbs. (49.8 kg).

12. **DERBIGUM P** is an ASTM D6222, Type I and Type II compliant polyester scrim-reinforced smooth surfaced APP cap sheet. The cap sheet is supplied in rolls 39.4 inches (1 m) wide by 33.5 feet (10.2 m) long having a net coverage area of 100-ft² (9.2-m²), and weighing 88 lbs. (49.8 kg).

13. **DERBIGUM XPS** is an ASTM D6223, Type I Grade S compliant combination fiberglass and polyester scrim-reinforced sand surfaced APP cap sheet. The cap sheet is supplied in rolls 39.4 inches (1 m) wide by 33.5 feet (10.2 m) long having a net coverage area of 100-ft² (9.2-m²), and weighing 97 lbs. (43.9 kg).

14. **DERBIGUM XPS-FR** is an ASTM D6223, Type II Grade G compliant combination fiberglass and polyester scrim-reinforced mineral surfaced APP cap sheet. The cap sheet is supplied in rolls 39.4 inches (1 m) wide by 33.5 feet (10.2 m) long having a net coverage area of 100-ft² (9.2-m²), and weighing 110 lbs. (49.8 kg).

15. **BITUTAK COLD** is an ASTM D6222, Type I and Type II compliant polyester reinforced mineral surfaced APP base sheet. The base sheet is supplied in rolls 39.4 inches (1 m) wide by 33.5 feet (10.2 m) long having a net coverage area of 100-ft² (9.2-m²), and weighing 88 lbs. (49.8 kg).

16. **DERBIBASE** is an ASTM D6509 compliant fiberglass reinforced surfaced APP base sheet. The base sheet is supplied in rolls 39.4 inches (1 m) wide by 66.5 feet (20.1 m) long having a net coverage area of 200-ft² (18.6-m²), and weighing 94 lbs. (42.6 kg).

17. **DERBIBASE ULTRA** is an ASTM D6509 compliant fiberglass reinforced surfaced APP base sheet. The base sheet is supplied in rolls 39.4 inches (1 m) wide by 49.5 feet (15 m) long having a net coverage area of 150-ft² (13.9-m²), and weighing 108 lbs. (48.9 kg).

18. **PRS GLASS BASE** is an ASTM D4601 Type 2 compliant fiberglass reinforced G2 asphalt base sheet. The base sheet is supplied in rolls 36 inches (0.9 m) wide by 108 feet (32.9 m) long having a net coverage area of 291.7-ft² (27-m²), and weighing 78.5 lbs. (35.6 kg).

19. **PRS GLASS PLY IV** is an ASTM D2178 Type IV compliant fiberglass reinforced asphalt coated G1 ply sheet supplied in rolls 36 inches (0.9 m) wide by 180 feet (54.9 m) long having a net coverage area of 487-ft² (45.2-m²), and weighing 45 lbs. (20.4 kg).

20. **PRS GLASS PLY VI** is an ASTM D2178 Type VI compliant fiberglass reinforced asphalt coated G2 ply sheet supplied in rolls 36 inches (0.9 m) wide by 180 feet (54.9 m) long having a net coverage area of 487-ft² (45.2-m²), and weighing 49.5 lbs. (22.2 kg).

21. **PRS MODIFIED BASE** is an ASTM D4601 compliant fiberglass reinforced SBS base sheet. The base sheet is supplied in rolls 36 inches (0.9 m) wide by 108 feet (32.9 m) long having a net coverage area of 291.7-ft² (27-m²), and weighing 93 lbs. (48.9 kg).

Insulation: Foam plastic insulation when used shall have a flame spread index of not more than 75 when tested at the maximum thickness intended for the use in accordance with ANSI/UL 723 or ASTM E 84 to qualify for use under Section 2603.3 and Exception 3 of the 2020 LABC. To qualify for use under Section 2603.4.1.5 of the 2020 LABC, a thermal barrier is not required for foam plastic insulation that is part of a Class A, B or C roof-covering assembly, provided the assembly with foam plastic insulation complies with FM 4450 or UL 1256.

Fasteners: Fasteners used to mechanically fasten insulation and membranes to the roof deck shall be corrosion resistant.

Adhesive: The adhesive used for adhering Derbigum APP and SBS membranes to the insulation or roofing substrate shall be as noted in Tables 1-5 of this general approval.

Asphalt: Hot roofing asphalt, when specified in the roofing assemblies shall conform to ASTM D312, Type IV.

Installation: Derbigum modified bituminous membranes shall be installed in accordance with the Los Angeles Building Code, this general approval and the manufacturer's published installation instructions. The membranes shall be installed in accordance with Section 1507.13 of the 2020 LABC or Section R905.13 of the 2020 LARC as applicable, except as noted in this general approval.

The manufacturer's published installation instructions shall be available at all times on the jobsite during installation.

The slope of the roof on which the membranes are installed shall be a minimum of ¼:12 (2% slope) and shall not be more than the maximum slope indicated in Tables 1-5 of this general approval.

Penetrations and terminations of the roof covering shall be flashed and made watertight in accordance with the requirements of the membrane manufacturer, Section 1503.2 of the 2020 LABC or Section R903.2 of the 2020 LARC as applicable.

Fire Classification:

New Construction: Roof assemblies utilizing Derbigum roof coverings are described in Table 1 through Table 5 of this general approval.

Reroofing: The existing roof shall be inspected in accordance with the provisions and limitations of Section 1510 of the 2020 LABC or Section R907 of the 2020 LARC, as applicable. The existing deck shall be inspected to verify that the structure to be reroofed is structurally sound and adequate to support and secure the roofing membrane. Prior to installation of new roof coverings, inspection by and approval from the Department is required.

Derbigum membranes may be installed over existing Classified Class A, B or C roofing systems as described of Tables 1-5 of this general approval.

Class A, B or C roof coverings may be installed over existing classified roof assemblies under the following conditions without additional roof classification tests, provided the resulting classification is the lower of the new and existing roof classifications under the following condition:

New uninsulated or insulated roof coverings may only be installed over existing uninsulated assemblies.

Wind Resistance:

New Construction: The allowable wind uplift pressures for the roof assemblies are noted in Tables 1-5 of this general approval. Metal edge securement for all systems shall be designed in accordance with ANSI/SPRI ES-1, complying with Section 1504.5 of the 2020 LABC.

Reroofing: Roof covering systems employing mechanical fasteners shall be qualified, to the satisfaction of the Department, as to the adequacy of fasteners penetrating through existing roof coverings into structural substrates. Since the composition and/or condition of any particular unexposed existing roofing materials may vary and reroofing material may vary, reroofing with adhered systems must be approved by the Department.

The approval is subject to the following conditions:

1. Materials and methods of installation shall comply with this general approval and the manufacturer's published installation instructions. In the event of a conflict between the installation instructions and this general approval, this general approval shall govern.

2. Derbigum roof covering materials systems shall be installed by professional roofing contractors trained and approved by the manufacturer.

3. Above-deck thermal insulation board shall comply with the applicable standards listed in Table 1508.2 in Section 1508.2 of the 2020LABC.

4. Wind uplift pressures on any roof area, including edges and corner zones shall not exceed the allowable wind pressure for the roof covering installed in that particular area. Refer to Tables 1-5 in this general approval.

5. For assemblies containing mechanical attachment for the perimeter and corner roof zones 1, 2, and 3, the attachment density may be increased by a qualified design professional, as necessary, to meet the design pressure requirements in these areas.

6. The allowable wind uplift pressures listed in Tables 1-5 of this general approval are for the roof systems only. The deck and framing to which the roofing system is attached shall be designed for the applicable components and cladding, wind loads in accordance with the Los Angeles Building and Residential Codes.

7. When application is over an existing roof, documentation of the wind uplift resistance of the composite roof construction shall be submitted to the Department.

8. The metal edge securement shall be designed and installed for wind loads in accordance with Chapter 16 of the 2020 Los Angeles Building Code and test for resistance in accordance with Test Methods RE-1, RE-2 and RE-3 of ANSI/SPRI ES-1, except V_{ult} wind speed shall be determined from Figure 1609.3(1), 1609.3(2), or 1609.3(3) of the 2020 LABC.

9. The Derbigum base sheets, membranes and cap sheets covered under this general approval are produced under the UL LLC Classification and Follow-Up Service Program, which includes audits in accordance with quality elements of ICC-ES Acceptance Criteria for Quality Documentation, AC 10. The Derbigum manufacturing facility is located at 4821 Chelsea Avenue, Kansas City, Missouri 64130.

10. The Derbigum base sheets, membranes and cap sheets described in this general approval are identified by a marking bearing the report holder's name (Derbigum), the plant identification, the product designation, LARR No. 26182.

DISCUSSION

The clerical modification is to update the report to the 2020 City of Los Angeles Building Code.

The report is in compliance with the 2020 City of Los Angeles Building Code.

The approval is based on data in accordance with ICC-ES Acceptance Criteria for Membrane Roof-Covering Systems, AC75, FM 4470, FM 4474, ASTM D2178, ASTM D3909, ASTM D4601, ASTM D4897, ASTM D6162, ASTM D6163, ASTM D6164 and ASTM G155.

This general approval of an equivalent alternate to the Code is only valid where an engineer and/or inspector of this Department has determined that all conditions of this Approval have been met in the project in which it is to be used.

Addressee to whom this Research Report is issued is responsible for providing copies of it, complete with any attachments indicated, to architects, engineers and builders using items approved herein in design or construction which must be approved by Department of Building and Safety Engineers and Inspectors.

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Attachment : Roofing Membrane Assembly Tables (5 pages)