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RESEARCH REPORT: RR 25309  
(CSI #07 81 23)

Expires: May 1, 2019  
Issued Date: May 1, 2017  
Code: 2017 LABC

**GENERAL APPROVAL** – Technical Modification and Renewal - Albi Clad TF and Albi Clad FP Mastic Fire-Resistive Material for Use on Steel Wide Flange Shapes, Steel Pipe and TS Columns and Wide Flange Steel Beams.

**DETAILS**

Albi Clad TF and Albi Clad FP are an intumescent fire-resistive material which expands when subject to intense heat providing up to 3 hours of fire protection.

**The approval is subject to the following conditions:**

1. The use of the material is limited to interior steel columns and beams specified in the Research Report.
2. Fire-resistive materials shall be delivered to the jobsite in sealed containers identified by the products name and by the Underwriters Laboratories classification marking.
3. All surfaces to which the product will be applied shall be free of dust, dirt, oil, scale, grease or paint.
4. Special inspection is required in accordance with Section 1705.15 of the 2017 LABC.
5. The applied thickness of the fire-resistive material shall be verified as outlined in the manufacturer's "Application Guide".

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6. Before application of Albi Clad TF and Albi Clad FP, the column surface shall be coated with red oxide primer at an approximate thickness of 1.5 mil.
7. Fire-resistive material thickness listed in Table B and the 2 hour fire rated columns listed in Table C requires the use of glass fiber reinforcing mesh. Glass fiber reinforcing mesh, 3/16" x 3/16" square pattern, weighing 147 g/square meter shall be applied at mid depth of the mastic fire resistive material. The mesh shall be lapped a minimum of 1-inch.
7. Application of the fire-resistive material shall be in accordance with the manufacturer's instructions, a copy of which shall be available at the jobsite.
8. Required minimum thicknesses for Albi Clad TF and Albi Clad FP applied to steel Wide Flange Columns are as specified in the following Table A.

**TABLE A**

<b>Fire Rating</b>	<b>Column Size</b>	<b>Minimum Thickness<sup>1</sup></b>	<b>UL Design</b>
2 Hour	W8 x 24	0.313 inch	X625
2 Hour	W10 x 49	0.310 inch	X625
1 Hour	W10 x 49	0.055 inch	X625
1 Hour	W12 x 120	0.108 inch	X625

Note 1: Thickness is applicable when reinforcing mesh is not used.

9. Required minimum thicknesses for Albi Clad TF and Albi Clad FP applied to steel Wide Flange Columns and Steel Pipe columns are as specified in the following Table B.

**TABLE B**

<b>Fire Rating</b>	<b>Column Size</b>	<b>Minimum Thickness<sup>1</sup></b>	<b>UL Design</b>
3 Hour	W10 x 49	0.550 inch	X625
3 Hour	8" pipe schedule 100	0.625 inch	X628
1 Hour	8" pipe schedule 60	0.120 inch	X628
2 Hour	8" pipe schedule 60	0.370 inch	X628
3 Hour	8" pipe schedule 60	0.660 inch	X628

Note 1: Glass Fiber Reinforcing Mesh is required for the Columns Specified in Table B.

10. The schedule 60 steel pipe shall have a minimum wall thickness of 0.406-inches and the schedule 100 steel pipe shall have a minimum wall thickness of 0.593-inches.

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11. Required minimum thicknesses for Albi Clad TF and Albi Clad FP applied to steel TS columns are as specified in the following Table C. Reinforcing mesh shall be used where indicated in the Table.

**TABLE C**

<b>Fire Rating</b>	<b>Column Size<sup>2</sup></b>	<b>A/P Ratio</b>	<b>Minimum Fire Resistive Material Thickness<sup>1</sup></b>	<b>Reinforcing Mesh</b>	<b>UL Design</b>
1 Hour	TS 8 x 8 x 3/8	0.36	0.119 inch	No	X638
1 Hour	TS 10 x 10 x 5/8	0.60	0.065 inch	No	X638
1 Hour	TS 16 x 16 x 1/2	0.48	0.065 inch	No	X638
1 Hour	TS 16 x 16 x 5/8	0.60	0.065 inch	No	X638
2 Hour	TS 4 x 4 x 3/8	0.34	0.431 inch	Yes	X638
2 Hour	TS 8 x 8 x 1/2	0.47	0.334 inch	Yes	X638
2 Hour	TS 10 x 10 x 5/8	0.60	0.265 inch	Yes	X638
2 Hour	TS16 x 16 x 1/2	0.48	0.334 inch	Yes	X638
2 Hour	TS16 x 16 x 5/8	0.60	0.265 inch	Yes	X638

Note 1: Glass Fiber Reinforcing Mesh is required for the Columns Specified in Table C with 2 hour fire rating.

Note 2: A/P ratios specified in Table C are for TS shapes specified in the 9<sup>th</sup> edition of the AISC Steel Manual. Table C is not approved for square HSS shapes specified in the 13<sup>th</sup> edition of the AISC Manual due to the reduced thickness and corresponding A/P ratio of the HSS shape.

12. W8 x 31 and W10 x 88 steel beams protected with Albi Clad TF and Albi Clad FP when supporting 2-inch, 20-gage metal deck with 2-5/8-inch concrete fill (measured above the top flutes) are approved when constructed in accordance with the attached detail. Flute above the beam shall be completely filled with minimum 3-inch mineral wool insulation with density of 6 pcf. The approval is for the beam only. The fire resistive rating for the metal deck with concrete fill is not included in this approval.

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## DISCUSSION

The technical modification is to add Albi Clad FP, and the X638: 1-Hour TS 10 x 10 x 5/8; 2-Hour TS 10 x 10 x 5/8; and TS16 x 16 x 1/2 to the approval. Albi Clad FP has also been tested for use in FR-coated gypsum wallboard / wood stud wall construction, open wood floor joist assemblies, and wood floor joist / tin ceiling panel assemblies.

The report is in compliance with 2017 Los Angeles Building Code.

The approval is based on tests per ASTM E119/ UL263 and ASTM E1623.

Test reports provided show increased thickness of fire-resistive material is required when glass fiber reinforcing mesh is 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.

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.

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