

TO: CAFCO® SALES TEAM

FROM: Phil Mancuso

DATE: October 16, 2006

SUBJECT: Revision to Design P826

There has recently been a revision to Underwriters Laboratories, Inc. (UL) Roof Assembly Design No. P826. The thicknesses for CAFCO® 300 / 400 Spray-Applied Fire Resistive Materials (SFRMs) have been reduced. The CAFCO® BLAZE-SHIELD® II / HP and FENDOLITE® M-II / TG thicknesses have not been revised at this time. The revised thicknesses for CAFCO 300 / 400 are noted under Item 6A.

UL Design P826 is our sole gypsum wallboard and polyurethane foam plastic roof assembly for CAFCO 300 / 400, BLAZE-SHIELD II / HP and FENDOLITE M-II / TG SFRMs.

This is also a reminder that UL Design P826, as well as all polyurethane foam plastic roof assemblies listed by UL require the use of 5/8 inch gypsum wallboard above the deck.

Should you have any questions, please contact the Technical Department at 1-800-631-9600.

UL Online Certifications Directory

BXUV.P826 Fire Resistance Ratings - ANSI/UL 263

Page Bottom

Fire Resistance Ratings - ANSI/UL 263

[See General Information for Fire Resistance Ratings - ANSI/UL 263](#)

Design No. P826

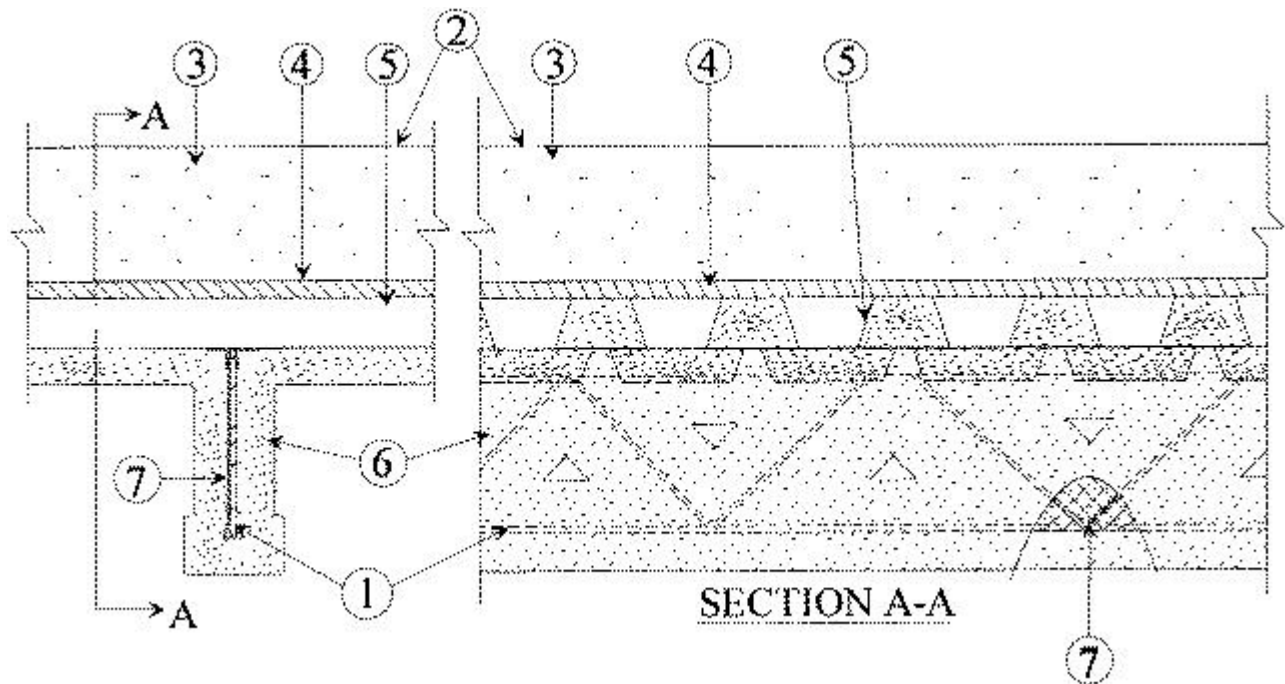
September 13, 2006

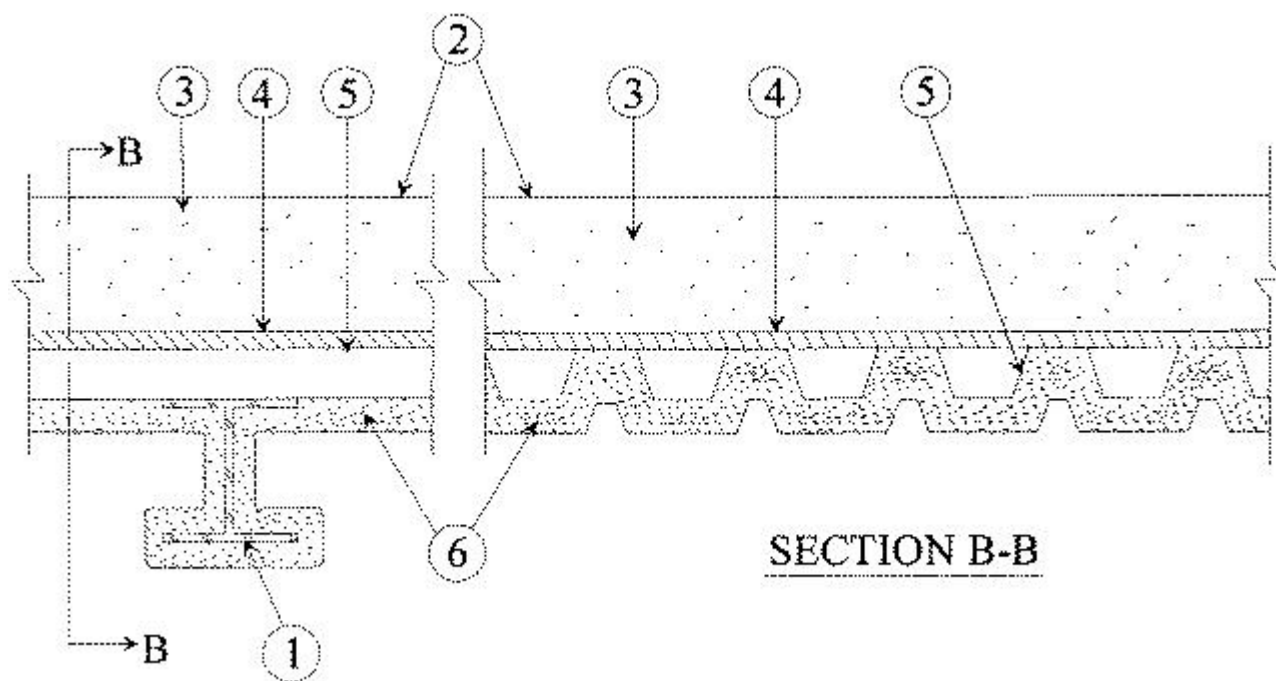
Restrained Assembly Rating — 1, 1-1/2 & 2 Hr

Unrestrained Assembly Rating — 1, 1-1/2 & 2 Hr

Unrestrained Beam Rating — 1, 1-1/2 & 2 Hr

Load Restricted for Canadian Applications — See Guide [BXUV7](#)





1. **Steel Supports** — W6x16 steel beam (min size) or 10K1 steel joist, (min size) having the following properties: Top chords consisting of two 1-1/4 by 1-1/4 by 0.135 in. thick steel angles; Lower chord consisting of two 1 by 1 by 0.113 in. thick steel angles; Bearing plates consisting of two 1-1/4 by 1-1/4 by 0.134 in. thick steel angles, 8 in. in length; Diagonal web members consisting of 0.561 in. diam steel rods.

1A. **Bridging** — (Not shown) — Min 1-1/4 by 1-1/4 by 1/8 in. thick steel angles welded to top and bottom chords of each joist. Number and spacing of bridging angles per Steel Joist Institute specification. Bridging coated with the same thickness of Spray-Applied Fire Resistive Materials as the joist(s)-See Item 6.

2. **Roof Covering*** — Consists of hot mopped or cold application, fluid applied roof coating materials compatible with insulation(s) described herein which provide Class A, B or C coverings. See Roofing Materials and Systems Directory-Roof Covering Materials (TEVT).

3. **Roof Insulation — Foamed Plastic*** — Polyurethane foamed plastic roof insulation. Formed by the simultaneous spraying of two liquid components applied over the gypsum wallboard at a nom thickness of 1 to 5 in. in accordance with the manufacturer's instructions, unless stated otherwise below.

BASF CORP — Elastospray 5100-2.0, Elastospray 5100-2.5, Elastospray 81302, Elastospray 81272, Elastospray Alpha System, Elastospray 81252 .

BASF POLYURETHANE FOAM ENTERPRISES INC — Types 303 2.7, FE-348. The Type FE-348 may be applied at a nom thickness of 1 to 10 in.

BAYSYSTEMS NORTH AMERICA L L C — Type SW-200

NCFI POLYURETHANES — Type 591, 692, 10-001

RESIN TECHNOLOGY CO, DIV OF HENRY CO — Type RT-2031, RT-2035

SWD URETHANE CO — Type 525b.

UCSC LTD — SFC II, may be applied at a nom thickness of 1 to 10 in.

3A. **As an alternate to Item 3 — (Not Shown) — Foamed Plastic*** — 36 by 48 in. (min size) polyisocyanurate foamed plastic insulation boards applied in one or more layers. Min thickness of 1 in. with a max thickness of 5 in. Boards to be installed with end joints staggered a min of 6 in. in adjacent rows. When applied in more than one layer, each layer to be offset in both directions from the layer below a min of 6 in. in order to lap all joints.

JOHNS MANVILLE INTERNATIONAL INC — ENRGY 2, ENRGY 3, ISO-1, PSI 25.

3B. **Building Units*** — Not Shown — As an alternate to Items 3 and 3A, composite polyisocyanurate foamed plastic insulation board with an adhered nailing surface, nom 48 by 48 or 96 in. may be used with the following limitations. These composite building units have ventilation slots internal to the panels. The thickness of the panel depends upon the thinnest portion of the polyisocyanurate insulation. The following dimensions apply to the polyisocyanurate insulation, min 1 in. thick with a max thickness of 5 in.

GAF MATERIALS CORP — Type INSUL-AIR.

JOHNS MANVILLE INTERNATIONAL INC — Type ISO-VENT.

4. **Gypsum Board*** — 5/8 in. thick, supplied in 4 ft wide sheets. Min weight 2.2 psf. Installed perpendicular to steel roof deck with all joints tightly butted and end joint staggered and offset from steel roof deck side lap lints. See Gypsum Board (CKNX) category for names of manufacturers.

5. **Steel Roof Deck — Unclassified** — Min 36 in. wide, 1-1/2 in. deep, galv or painted, fluted steel deck. When unclassified painted deck is used, Item 5A must be used. Min gauge is 22 MSG. Flutes approx 6 in. OC, crests approx 3-1/2 in. wide, valleys approx 1-1/2 in. wide. Welded to supports 12 in. OC. Adjacent units welded 18 in. OC along side lap joints or mechanically fastened with Type S-10 1/2 in. long steel screws 18 in. OC. **Classified Steel Floor and Form Units*** — Noncomposite, 1-1/2 in. deep, galv units, min gauge is 22 MSG. Welded to supports with welding washers 12 in. OC. Side lap joints of adjacent units welded or secured together with No. 12 by 1/2 in. Self-drilling, Self-tapping steel screws midway between steel joists.

CANAM STEEL CORP — Type P-3606 or P-3615

5A. **Metal Lath** — Not shown — Required on unclassified painted steel roof deck or on roof deck when Types MII or TG are used. Rib lath, galv or painted, min 2.5 lb/sq yd, with ribs facing down, fastened to deck using No. 8 by 1/2 in. wafer head self-drilling, self-tapping coated steel screws spaced max 15 in. OC in both directions with lath edges overlapped approx 3 in. The thickness of the spray-applied fire resistive material shall be measured from the face of the lath.

6. **Spray-Applied Fire Resistive Materials*** — Applied by mixing with water and spraying in more than one coat to a final thickness as shown above and on the table below, to steel surfaces which must be clean and free of dirt, loose scale and oil. Min average and min individual density of 15/14 pcf, respectively for Type DC/F or II. Min average and min individual densities of 22 and 19 pcf, respectively for Type HP. For method of density determination, refer to Design Information Section.

Restrained Assembly Rating Hr	Unrestrained Assembly Rating Hr	Unrestrained Beam Rating Hr	Mtl Thkns In.		
			on	on	on
			Deck	Joist	Beam
1	1	1	1-1/2	1-5/16	3/4
1-1/2	1-1/2	1-1/2	1-11/16	2	7/8
2	2	2	2-1/2	2-7/16	1-1/8

ISOLATEK INTERNATIONAL — Type DC/F, HP or II, Type EBS or Type X adhesive/sealer optional.

6A. **Spray-Applied Fire Resistive Materials*** — (Not Shown — As an alternate to Item 6) Applied by mixing with water and spraying in one or more coats to the thickness shown below, to steel surfaces which are clean and free of dirt, loose scale and oil. Min average and min individual density of 17.5 and 16 pcf,

respectively for Types 300, 300ES, 300N, SB. Min average and min individual density of 22 and 19 pcf, respectively for Type 400. For method of density determination, see Design Information Section, Sprayed Material. Spray-Applied Fire Resistive Materials on steel deck shall cover screw tips by minimum 1/2 in. The min thickness of Spray-Applied Fire Resistive Materials required for various fire resistance ratings are shown in the table below:

Restrained Assembly	Unrestrained Assembly	Unrestrained Beam	Min Insulation Thkns In.	Mtl Thkns In.		
				on Deck	on Joist	on Beam
Rating Hr	Rating Hr	Rating Hr				
1	1	1	1	1/2	1	7/16
1-1/2	1-1/2	1-1/2	1	3/4	1-3/16	9/16
2	2	2	1	1-1/16	1-3/16	13/16
2	2	2	2	15/16	1-3/16	13/16

ISOLATEK INTERNATIONAL — Type 300, 300ES, 300N, 400 or SB.

6B. Spray-Applied Fire Resistive Materials* — (Not Shown — As an alternate to Items 6 and 6A). Applied by mixing with water according to instructions on each bag of material. Mixture can be spray or trowel applied in one or more coats. The steel surfaces must be clean and free of dirt, loose scale, and oil. Min avg density of 44 pcf with min ind value of 40 pcf for Type M-II. Min avg density of 44 pcf with min ind value of 42 pcf for Type TG. For method of density determination, refer to Design Information Section, Sprayed Material.

Restrained Assembly	Unrestrained Assembly	Unrestrained Beam	Mtl Thkns In.		
			on Deck +	on Joist	on Beam
Rating Hr	Rating Hr	Rating Hr			
1	1	1	1-1/2	1-5/16	13/16
1-1/2	1-1/2	1-1/2	1-11/16	2	7/8
2	2	2	2-1/2	2-7/16	1-1/8

+ - Requires the use of metal lath, Item 5A.

ISOLATEK INTERNATIONAL — Types M-II, or TG. Types M-II and TG Investigated for exterior use.

7. Metal Lath — (Optional) — Metal lath used to facilitate the spray application of the Spray-Applied Fire Resistive Material to the steel joists. Diamond mesh, 3/8 in. expanded steel, min 1.7 lb/sq yd fastened to one side of joists using No. 18 SWG steel wire, located at midheight of every other member or 18 in. OC whichever is less. Both sides of lath must be completely coated with Spray-Applied Fire Resistive Material, but with no min thickness requirements.

7A. Glassfiber Mesh — (Optional) — Not Shown — As an alternate to metal lath (Item 7), min 3/32 in. square mesh coated fiberglass scrim fabric, weighing a min of 1.9 oz/sq yd shall be attached to one side of each joist web member. The method of attachment must be sufficient to hold the mesh and the protection material in contact with the joist during its application and curing. An acceptable method of attaching the mesh is by embedding the mesh in min 1/4 in. long beads of hot-melted glue. The beads of glue shall be spaced a max 12 in. OC along the top chord of the bar joists. Another method of attachment is by use of 1-1/4 in. long, 1/2 in. wide hairpin clips formed from 0.064 in. diam steel wire, alternating from top to bottom of the joist web member.

8. Adhesive* — Applied to steel roof deck in accordance with manufacturer's instructions.

ISOLATEK INTERNATIONAL — Type EBS or Type X

*Bearing the UL Classification Mark

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[Page Top](#)

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