

A/D FIREFILM III Listed Designs

Construction Type		Ratings, hours					Minimum W/D (M/D)	Design No.	
		4-Mar	1	1.5	2	3		ULI	ULC
Columns - W Shapes		X	X	-	-	-	0.84 (49)	X669	Z626
Columns - W Shapes		-	-	-	-	X	1.28 (74)	X670	Z627
Columns - HSS Shapes		-	-	X	X	-	A/P≥0.30 (59)	X671	Z628
Columns - HSS Shapes		X	X	X	X	X	A/P≥0.46 (90)	X672	Z629
Columns - HSS Shapes		X	X	-	-	-	A/P≥0.22 (44)	X673	Z630
Columns - W Shapes		-	-	-	-	X	2.26 (130)		Z608
Columns - W Shapes		X	X	X	X	-	refer to design		Z610
Columns - W Shapes		-	-	X	X	-	0.66 (38) 1.64 (95.2)		Z612
Columns - HSS Shapes		X	X	X	X	-	refer to design		Z611
Columns	HSS Shapes	-	-	-	X	-	A/P≥0.57 (113.9)		Z617
	W Shapes	-	-	-	X	-	1.28 (74)		
Beams / Floors		B	B	R	R	-	0.51 (30)	-	F906
Beams / Floors		-	B	U	R	-	0.80 (46) 0.84 (48)		F910

R = Restrained Assembly

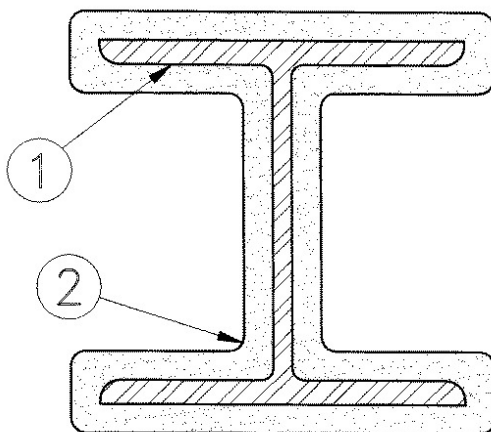
U = Unrestrained Beam + Unrestrained Assembly Rating

B = Restrained Assembly +Unrestrained Assembly and Beam

**UL Design No. X669**

December 15, 2005

**Ratings - ¾ and 1 Hr (See Item 2)**



1. **Steel Column** — Wide flange steel columns with the minimum sizes shown in the table below. Columns shall be free of dirt, loose scale and oil.

2. **Mastic Coating\*** — Coating applied in accordance with manufacturer's instructions to the minimum dry film thicknesses shown below:

**A/D FIRE PROTECTION SYSTEMS INC** — Type "A/D FIREFILM III" investigated for Interior Conditioned Space Purpose and Interior General Purpose.

Ratings, hr	Steel Column Size	W-shaped only Min Column W/D	Required Min Film Thickness, In.
¾	W10x49	0.84	0.042
1	W10x49	0.84	0.045

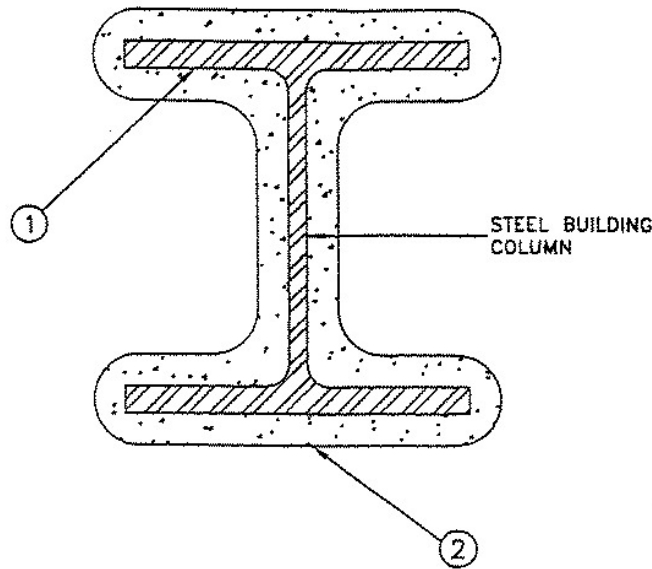
3. **Top Coat** — (Not shown) — Finishing topcoat, Type "A/D COLORCOAT", silicone alkyd paint applied at an approximate 0.002 in. dry film thickness.

\*Bearing the UL Classification Mark

**UL Design No. X670**

December 15, 2005

**Ratings- 3 Hr (See Item 2)**



1. **Steel Column** — Wide flange steel columns with the minimum sizes shown in the table below. Columns shall be free of dirt, loose scale and oil.

2. **Mastic Coating\*** — Coating applied in accordance with manufacturer's instructions to the minimum dry film thickness shown below:

Rating, hr	Column Description, In.	Column W/D	Required Min Thickness, In.
3	W10x77	1.28	0.269

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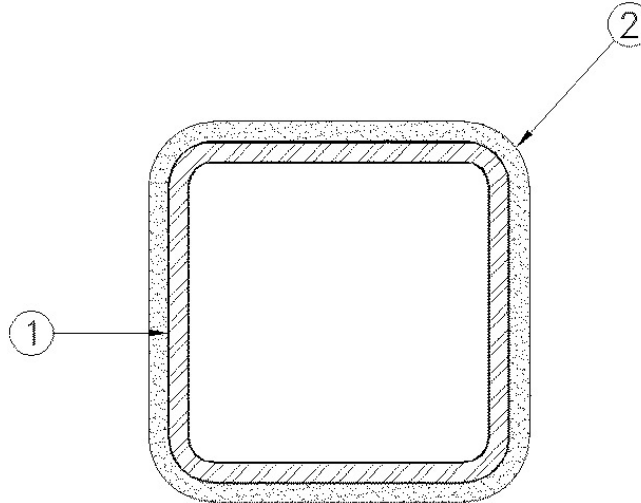
3. **Top Coat** — (Not shown) — Finishing topcoat, Type "A/D COLORCOAT" silicone alkyd paint applied at an approximate 0.002 in. dry film thickness.

\*Bearing the UL Classification Mark

**UL Design No. X671**

February 03, 2006

**Ratings - 1-1/2 and 2 Hr (See Item 2)**



1. **Steel Column** — Square steel tube columns with the minimum sizes shown in the table below. Columns shall be free of dirt, loose scale and oil.

2. **Mastic Coating\*** — Coating applied in accordance with manufacturers instructions to the minimum dry film thickness shown below:

			<b>Required Min</b>
<b>Rating, hr</b>	<b>Column Size</b>	<b>Column, A/P</b>	<b>Thickness, In.</b>
1-1/2	ST 10 x 10 x 5/16 in.	0.30	0.188
2	ST 10 x 10 x 5/16 in	0.30	0.257

**A/D FIRE PROTECTION SYSTEMS INC** — Type "A/D FIREFILM III" investigated for Interior Conditioned Space Purpose and Interior General Purpose.

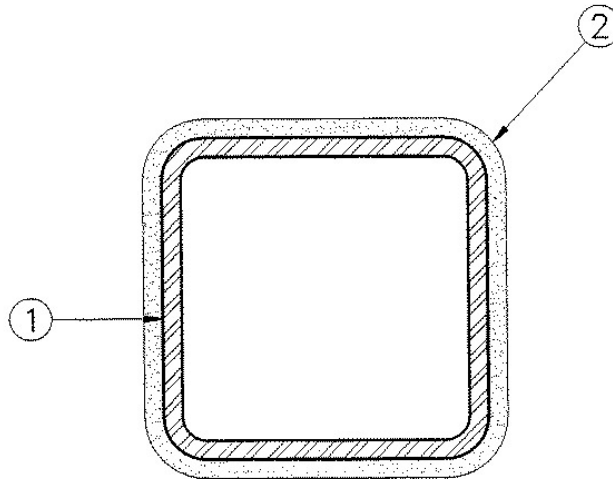
3. **Top Coat** — (Not shown) — Finishing topcoat, Type "A/D COLORCOAT" silicone alkyd paint applied at an approximate 0.002 in. dry film thickness.

\*Bearing the UL Classification Mark

**UL Design No. X672**

December 15, 2005

**Rating – ¾, 1, 1-1/2, 2 and 3 Hr (see Item 2)**



1. **Steel Column** — Square steel tube columns with the minimum sizes shown in the table below. Columns shall be free of dirt, loose scale and oil.

2 **Mastic Coating\*** — Coating applied in accordance with manufacturers instructions to the minimum dry film thickness shown below:

		<b>¾ Hr Min Thickness</b>	<b>1Hr Min Thickness</b>	<b>1-1/2 Hr Min Thickness</b>	<b>2 Hr Min Thickness</b>	<b>3 Hr Min Thickness</b>
<b>Column Size</b>	<b>Column A/P</b>	<b>In.</b>	<b>In.</b>	<b>In.</b>	<b>In.</b>	<b>In.</b>
ST 10 x 10 x 1/2 in.	0.46	0.035	0.045	0.094	0.186	0.324

**A/D FIRE PROTECTION SYSTEMS INC** — Type "A/D FIREFILM III" investigated for Interior Conditioned Space Purpose and Interior General Purpose.

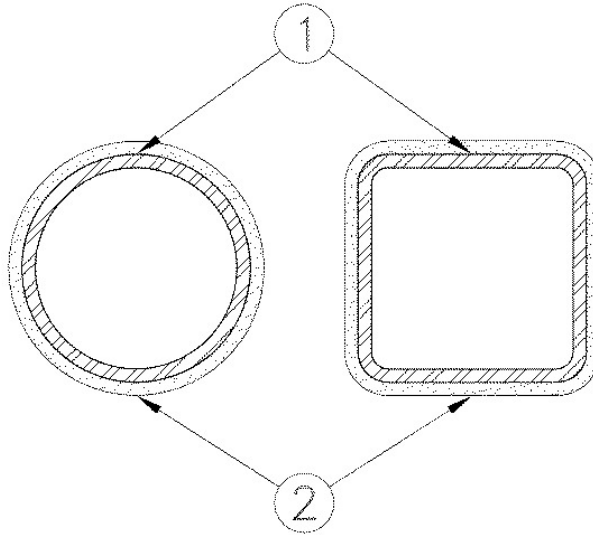
4. **Top Coat** — (Not shown) — Finishing topcoat, Type "A/D COLORCOAT" silicone alkyd paint applied at an approximate 0.002 in. dry film thickness.

\*Bearing the UL Classification Mark

**UL Design No. X673**

December 15, 2005

**Ratings - 3/4, and 1 Hr (See Item 2)**



1. **Steel Column** — Square, rectangular or circular tubular steel columns with the minimum sizes shown in the table below. Steel columns shall be free of dirt, loose scale and oil.

2. **Mastic Coating\*** — Coating applied in accordance with manufacturer's instructions to the minimum dry film thickness shown below:

Rating, hr	Steel Column Size	Column A/P	Required Min Thickness, In.
3/4	ST 5 x 3 x 1/4 in.	0.22	0.130
3/4	SP 8.625 in. diam x 1/4 in..	0.24	0.102
1	ST 5 x 3 x 1/4 in.	0.22	0.134
1	SP 8.625 in. diam x 1/4 in.	0.24	0.148

**A/D FIRE PROTECTION SYSTEMS INC** — Type "A/D FIREFILM III" investigated for Interior Conditioned Space Purpose and Interior General Purpose.

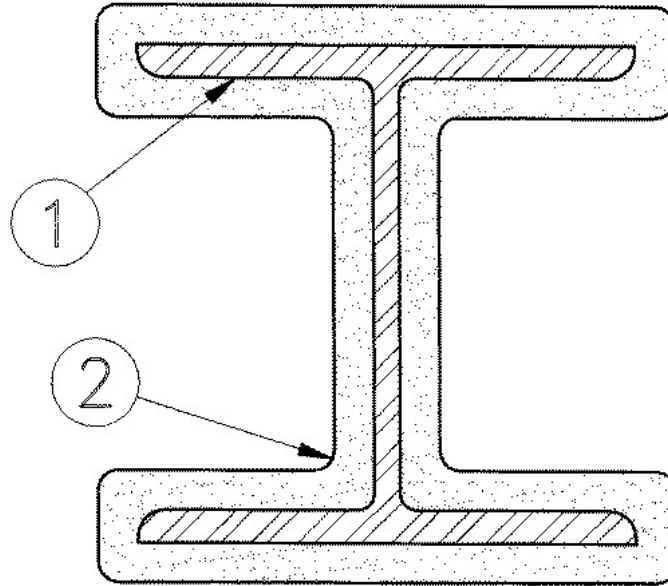
3. **Top Coat** — (Not shown) — Finishing topcoat, Type "A/D COLORCOAT" applied at an approximate 0.002 in. dry film thickness.

\*Bearing the UL Classification Mark

**ULC Design No. Z626**

November 25, 2005

**Ratings –3/4 & 1 h (See Item 2)**



1. **Steel Column** — W-Shaped column with M/D as specified in Item 2
2. All columns should be free of dirt, loose scale and oily deposits.

**2. Thin-Film Intumescent Coatings** — CAVCC (Guide No. 40 U18.12.9). Intumescent coating designated "A/D FIREFILM-III" Thin-Film Coating, applied in accordance with manufacturer's instructions to the minimum dry film thicknesses shown below. Column surfaces should be primed as per manufacturer's instructions.

Ratings, h	Min Column Size, mm	Min M/D	Required Min DryFilm Thickness, mm
3/4	W250 x 73	49.0	1.07
1	W250 x 73	49.0	1.14

M = Mass of column section, kg/m.

D = Heated perimeter of column section, m.

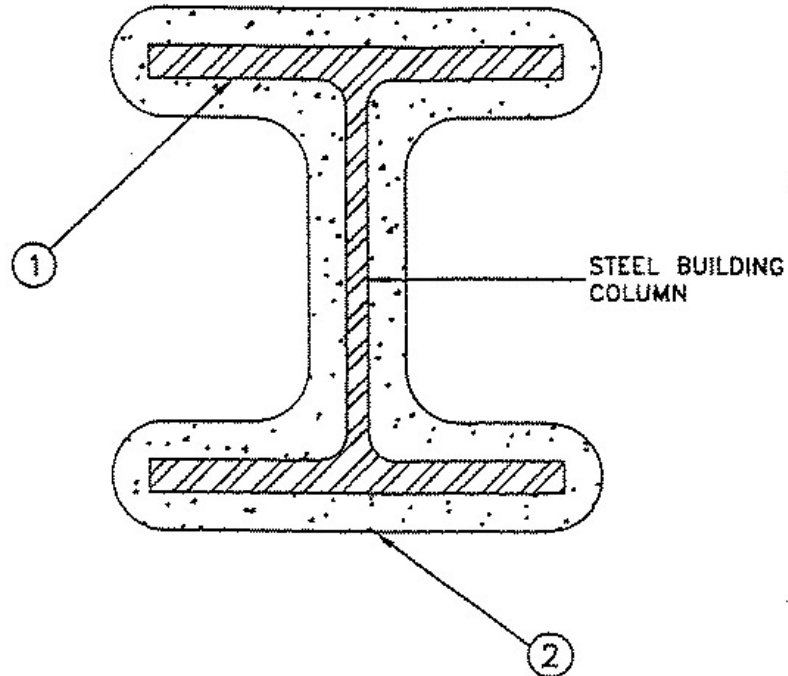
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**3. Finish Coating – (not shown) Silicone alkyd paint designated "A/D COLORCOAT".**

**ULC Design No. Z627**

November 25, 2005

**Rating - 3 h**



1. **Steel Column** — Minimum size W250X115 W-shaped column with M/D  $\geq 74$ .

2. **Thin-Film Intumescent Coatings** — CAVCC (Guide No. 40 U18.12.9). Intumescent coating designated "A/D FIREFILM III" applied in accordance with manufacturer's instructions to the minimum dry film thickness of 6.83 mm.

**A/D FIRE PROTECTION SYSTEMS INC**

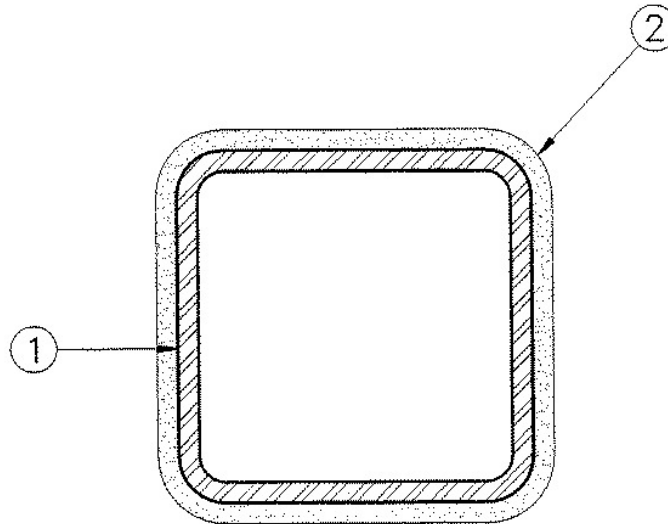
3. **Finish Coating** — (not shown) - Silicone alkyd paint designated "A/D COLORCOAT".



**ULC Design No. Z628**

November 25, 2005

**Ratings – 1-1/2 and 2 h (See Item 2)**



1. **Steel Column** — Square, hollow structural section (HSS) with M/D as specified in Item 2. All columns should be free of dirt, loose scale and oily deposits.

2. **Thin-Film Intumescent Coatings** — CAVCC (Guide No. 40 U18.12.9). Intumescent coating designated "A/D FIREFILM III", applied in accordance with manufacturer's instructions to the minimum dry film thicknesses shown below. Column surfaces should be primed as per manufacturer's instructions.

Ratings, h	Min Column Size, mm	Min M/D	Required Min Dry Film Thickness, mm
1-1/2	HSS 254 x 254 x 8	59	4.78
2	HSS 254 x 254 x 8	59	6.54

M = Mass of column section, kg/m.

D = Heated perimeter of column section, m.

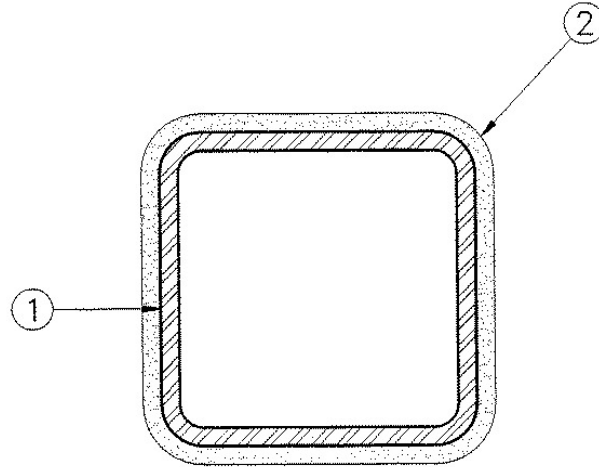
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3. **Finish Coating** – (not shown) – Silicone alkyd paint designated "A/D COLORCOAT".

**ULC Design No. Z629**

November 25, 2005

**Ratings – 3/4, 1, 1-1/2, 2 and 3 h (See Item 2)**



1. **Steel Column** — Square, hollow structural section (HSS) with M/D as specified in Item 2. All columns should be free of dirt, loose scale and oily deposits.

2. **Thin-Film Intumescent Coatings** — CAVCC (Guide No. 40 U18.12.9). Intumescent coating designated "A/D FIREFILM III", applied in accordance with manufacturer's instructions to the minimum dry film thicknesses shown below. Column surfaces should be primed as per manufacturer's instructions.

Ratings, h	Min Column Size, mm	Min M/D	Required Min Dry Film Thickness, mm
3/4	HSS 203 x 203 x 13 mm	90	0.89
1	HSS 203 x 203 x 13 mm	90	1.14
1-1/2	HSS 203 x 203 x 13 mm	90	2.40
2	HSS 203 x 203 x 13 mm	90	4.72
3	HSS 203 x 203 x 13 mm	90	8.22

M = Mass of column section, kg/m.

D = Heated perimeter of column section, m.

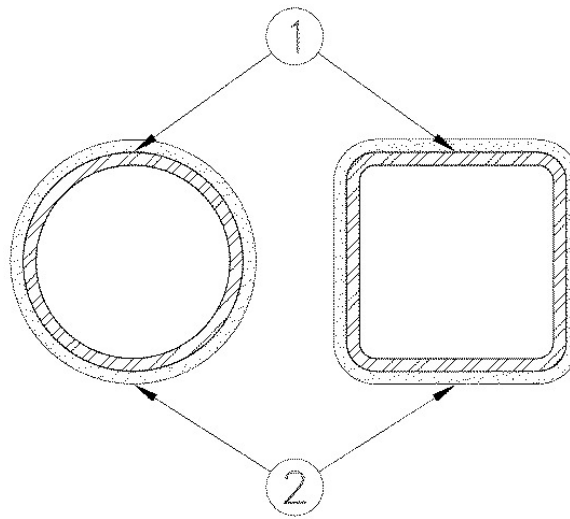
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3. **Finish Coating** – (not shown) – Silicone alkyd paint designated "A/D COLORCOAT".

**ULC Design No. Z630**

November 25, 2005

**Ratings – 3/4 and 1 h**



1. **Steel Column** — Square, rectangular or circular HSS columns with minimum M/D as specified in Item 2. All columns should be free of dirt, loose scale and oily deposits.

2. **Thin-Film Intumescent Coatings** — CAVCC (Guide No. 40 U18.12.9). Intumescent coating designated "A/D FIREFILM-III", applied in accordance with manufacturer's instructions to the minimum dry film thicknesses shown below. Columns surfaces should be primed as per manufacturer's instructions.

**A/D FIRE PROTECTION SYSTEMS INC**

**FOR SQUARE AND RECTANGULAR HSS COLUMNS**

Column	Min Column,	Required Min DryFilm Thickness, mm	
Size	M/D	3/4 h Rating	1 h Rating
HSS127 x 76 x 6.4	44	3.30	3.40

**FOR CIRCULAR HSS COLUMNS**

Column	Min Column,	Required Min DryFilm Thickness, mm	
Size	M/D	3/4 h Rating	1 h Rating
HSS 219 dia x 6.4	48	2.60	3.76

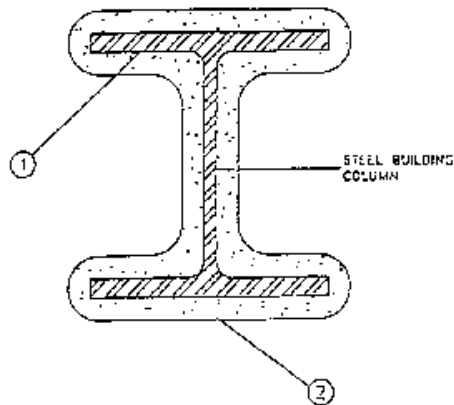
M = Mass of column section, kg/m.

D = Heated perimeter of column section, m.

**A/D FIRE PROTECTION SYSTEMS INC**

3. **Finish Coating** – (not shown) – Silicone alkyd paint designated "A/D COLORCOAT".

**ULC DESIGN No. Z608**  
**Rating -- 3 h**



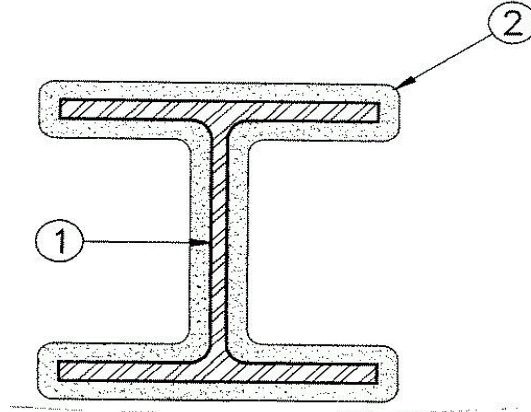
1. **Steel Column**- Minimum Size W310 x 253 W-shaped column with  $M/D \geq 130$ .
- 2. **Thin-Film Intumescent Coating** - (Guide No. 40 U18.12.9). Intumescent coating designated "A/D FIREFILM II" or "A/D FIREFILM III" applied in accordance with manufacturer's instructions to the minimum dry film thickness of 3.30 mm.

**A/D FIRE PROTECTION SYSTEMS**

3. **Finish Coating** silicone alkyd paint designated "A/D COLORCOAT".

**ULC DESIGN No. Z610**

**Ratings - 3/4, 1, 1-1/2, 2 h (see Item 2)**



1. **Steel column - W Shaped** (see equation below).

2. **Thin-Film Intumescent Coatings** - (Guide No. 40 U18.12.9) Intumescent coating designated "A/D FIREFILM II" or "A/D FIREFILM III" applied in accordance with manufacturer's instructions to the minimum dry film thicknesses shown below:

RATINGS, h	W-Shaped only Min Columns, M/D	Required Min Film Thickness, mm
3/4	24.4	1.94
3/4	41.0	1.27
3/4	48.7	1.07
3/4	94.3	0.67
3/4	174.0	0.40
1	24.4	3.00
1	38.0	2.30
1	48.7	1.40
1	95.2	0.76
1	174.0	0.40
1-1/2	53.3	3.00
1-1/2	78.7	1.85
1-1/2	174.0	1.00
2	94.3	3.00
2	174.0	1.40

Alternatively, the required dry film thickness "t" may be determined by the following equation:

Z610 Continued...

**W- Shaped:**

$$45 \text{ min} \leq T \leq 120 \text{ max}$$

$$24.4 \text{ min} \leq M/D \leq 174 \text{ max}$$

$$0.4 \text{ mm} \leq t \leq 3.0 \text{ mm}$$

$$t = \frac{2.984T - 71.616}{M/D}$$

**t** = minimum dry film thickness, mm ( 0.4 mm min, 3.0 mm max )

**T** = rating period in minutes up to a maximum of 120 minutes (2h) (see equation above)

**M** = mass of column section, kg/m

**D** = heated perimeter of column section, m

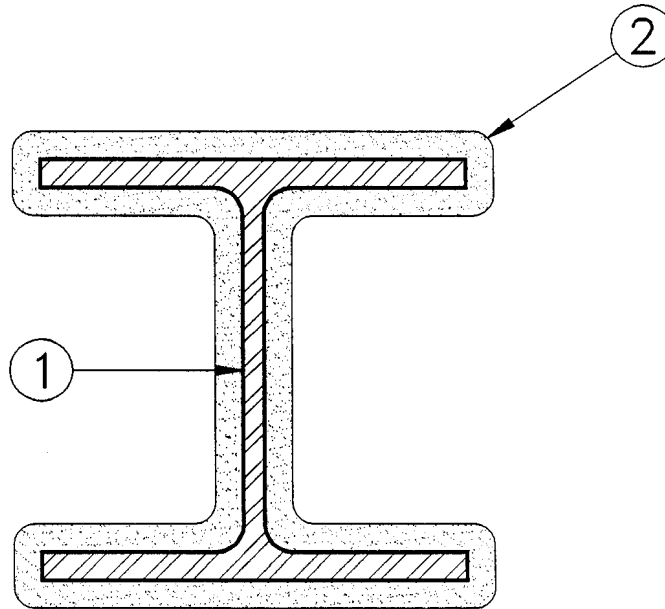
**A/D FIRE PROTECTIONS SYSTEMS INC.**

3. **Finish Coating** - Silicone alkyd paint designated " A/D COLORCOAT "

April 28, 2003

**ULC DESIGN No. Z612**

**Ratings – 1-1/2, 2 h (See Item 2)**



**1. Steel Column** – W-shaped as indicated below.

- **2. Thin-Film Intumescent Coatings** – (Guide No. 40 U18.12.9). Intumescent coating designated "A/D FIREFILM II" or "A/D FIREFILM III" applied in accordance with manufacturer's instructions to the minimum dry film thickness shown below.

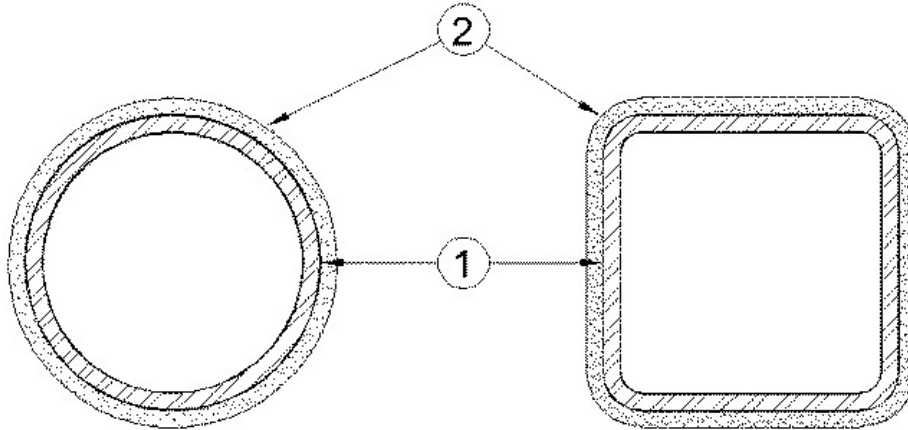
Rating, h	Column Description, mm	Column M/D	Required Min Thickness, mm
1-1/2	W 200 x 46, W 250 x 49	38	5.4
2	W 310 x 179	95.2	2.4

A/D FIRE PROTECTION SYSTEMS INC.

- 3. Finish Coating** (not shown) - Silicone alkyd paint designated "A/D COLORCOAT".

ULC Design No. Z611

Ratings - 3/4, 1, 1-1/2 & 2 h (See Item 2)



1. **Steel Column** — Square, rectangular or circular HSS columns as indicated below.
2. **Thin-Film Intumescent Coatings** — (Guide No. 40 U18.12.9). Intumescent coating designated "A/D FIREFILM II" or "A/D FIREFILM III" applied in accordance with manufacturer's instructions to the minimum dry film thickness shown below.

Rating, h	Column Description, mm	Column M/D	Required Min Thickness, mm
3/4	101.6 dia x 4.78	35.7	2.60
3/4	127 x 76.2 x 6.4	44.8	3.30
3/4	203.2 x 152.4 x 7.95	57.0	1.65
3/4	254 x 254 x 12.7	93.0	0.89
1	127 x 76.2 x 7.95	54.4	3.30
1	304.8 x 304.8 x 12.7	93.0	1.14
1	237 dia x 7.95	60.4	2.81
1-1/2	273 dia x 7.95	60.4	3.30
1-1/2	304.8 x 304.8 x 12.7	93.0	2.40
2	215.9 dia x 12.7	93.0	4.85
2	203.2 x 203.2 x 12.7	89.0	4.72

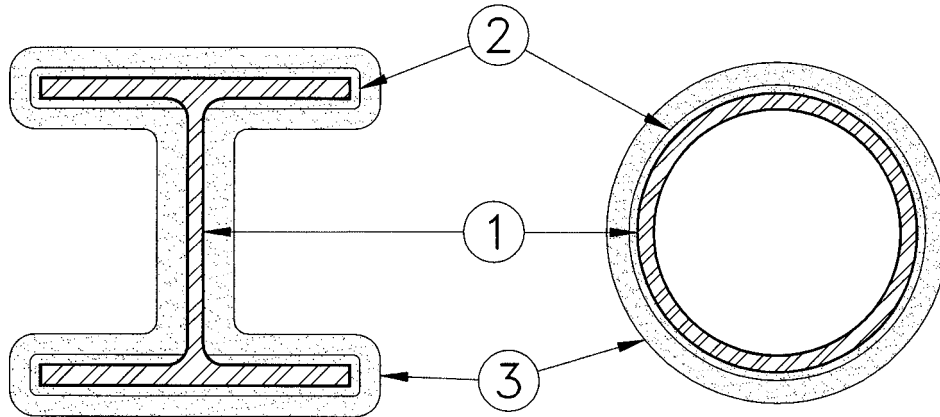
**A/D FIRE PROTECTION SYSTEMS INC**

3. **Finish Coating** — (not shown) - Silicone alkyd paint designated "A/D COLORCOAT".



ULC DESIGN No. Z617

Rating – 2 h



1. **Steel Column** – W-shaped and HSS tubular pipe column as indicated below.

2. **Glass Cloth Mesh Reinforcement** – Self adhesive, alkali resistant glass mesh cloth, 152 g/m<sup>2</sup> applied over the first coat of "A/D Firefilm II" around W-shaped column flanges or wrapped around HSS tubular pipe column.

• 3. **Thin-Film Intumescent Coating** – (Guide No. 40 U18.12.9). Coating designated "A/D FIREFILM II" " A/D FIREFILM III" applied in accordance with manufacturer's instructions to the minimum dry film thickness shown below.

Rating, h	Column Size	Column, M/D	Required Min "A/D FIREFILM II or III" Thickness, mm
2	W250x115	74.0	3.50
2	HSS tubular pipe 114 mm dia XXS (17.1 mm wall thickness)	113.9	4.42

A/D FIRE PROTECTION SYSTEMS INC.

4. **Finish Coating** (not shown) – Silicone alkyd paint designated "A/D COLORCOAT".

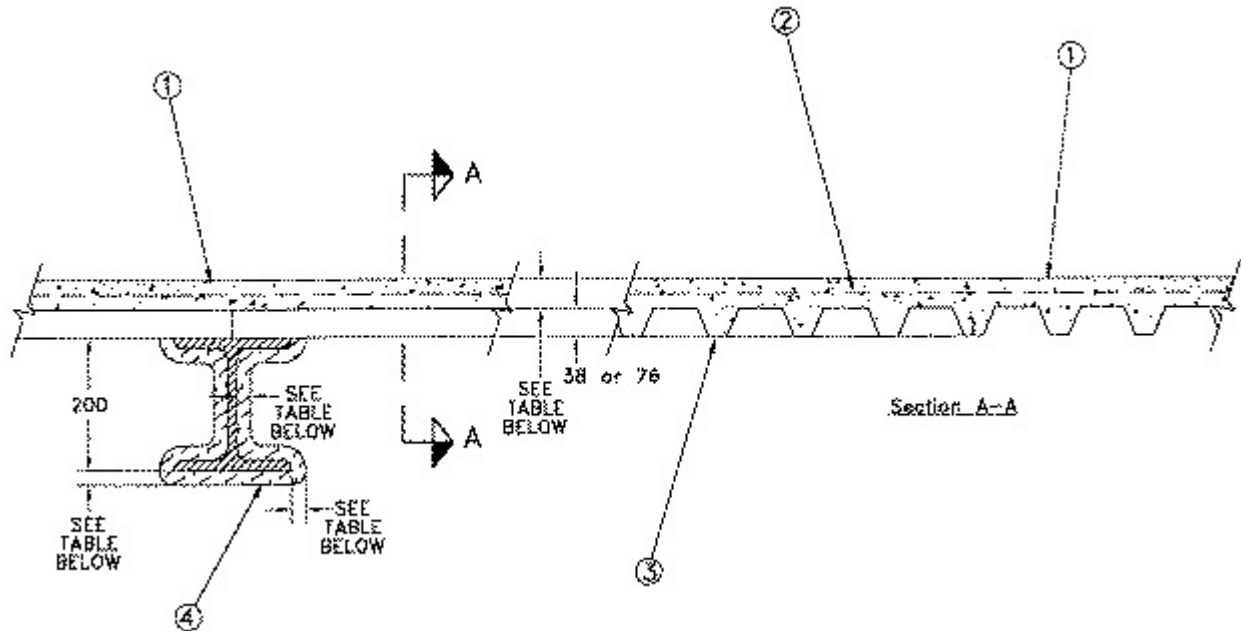
**ULC Design No. F906**

December 06, 2005

**Restrained Assembly Rating - 3, 2, 1-1/2 & 1 h (See Item 4)**

**Unrestrained Assembly Rating - 0 h (See Item 3)**

**Unrestrained Beam Rating - 3/4, 1 & 1-1/2 h (See Item 4)**



**Beam** — W200x42, min size. (For Spray-Applied Fire-Resistive Material, see Item 4a or b);

**Beam** — W150x18 and W150x37, min size. (For Thin-Film Intumescent Coating, see Item 4c).

**1. Normal-Density or Low-Density Concrete** — Normal-density concrete, carbonate or siliceous aggregate,  $2400 \pm 50 \text{ kg/m}^3$  density, 24 MPa nom compressive strength. Low-density concrete, expanded shale, clay or slate aggregate by rotary kiln method,  $1760 \pm 50 \text{ kg/m}^3$  density, 24 MPa nom compressive strength, or, expanded blast furnace slag aggregate,  $1955 \pm 50 \text{ kg/m}^3$  density, 24 MPa nom compressive strength.

**2. Wire Fabric** — 152 by 152 MW9.1xMW9.1 wire mesh.

**3. Steel Floor Units** — (Guide No. 40 U18.19). Composite or noncomposite floor units. Any combination of 0.76 mm thick fluted sections or 0.91/0.91 mm thick cellular sections, welded to supports with 19 mm puddle welds spaced 300 mm OC. Adjacent units button punched or welded 915 mm OC along side joints. When the max clear span of the steel floor units is less than or equal to the tested span of 2900 mm, the unrestrained assembly rating is increased to 3/4 h, 1 h or 1-1/2 h to match the unrestrained beam rating.

See individual manufacturer's listing for those profiles that may be used in this Design.

**CMRM, DIV OF ROLL FORM GROUP OF**

**SAMUEL MANU-TECH INC**

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**CANAM MANAC INC**

**VICWEST CORP**

· 4(a). **Spray-Applied Fire-Resistive Material** — (Guide No. 40 U18.6). Fibre material applied to min W200x42 steel beam surfaces that are clean and free of dirt, loose scale or oily deposits. Applied to the thickness indicated below. When fluted steel floor units are used, the space between the units and top flange of the beam shall be filled. Fibre to have a min average dry density of 165 kg/m<sup>3</sup> with no individual value less than 145 kg/m<sup>3</sup>. For method of density determination, refer to General Information Section under heading "Fire Resistance Ratings".

**A/D FIRE PROTECTION SYSTEMS INC**

Restrained Assembly Rating, h	Unrestrained Assembly Rating, h	Unrestrained Beam Rating, h	Min Concrete Cover Thickness, mm		Min Thickness of Spray-Applied Fire-Resistive Material on Beam, mm
			Normal-Density	Low-Density	
3	0 (see Item 3)	1-1/2	140	110	22
2	0 (see Item 3)	1	114	85	13
1-1/2	0 (see Item 3)	1	100	71	13
1	0 (see Item 3)	1	83	64	13

**OR**

4(b). **Spray-Applied Fire-Resistive Material** — (see table below) — (Guide No. 40 U18.6). "A/D Type 5" spray-applied fire-resistive material for application with or without adhesive to steel surfaces in thicknesses indicated above and in the following table (fluted units only). Mixture to have a min average dry density of 272 kg/m<sup>3</sup> with a min individual value of 248 kg/m<sup>3</sup>. Area between fluted and top flange of beam to be filled. For method of density determination, refer to General Information Section under heading "Fire Resistance Ratings". Steel surfaces must be clean and free of dirt, loose scale and oily deposits.

**A/D FIRE PROTECTION SYSTEMS INC**

Restrained Assembly Rating, h	Unrestrained Assembly Rating, h	Unrestrained Beam Rating, h	Min Concrete Cover Thickness, mm		Min Thickness of Spray-Applied Fire-Resistive Material on Beam, mm
			Normal-Density	Low-Density	
3	0 (see Item 3)	1-1/2	140	110	22
2	0 (see Item 3)	1	114	85	13
1-1/2	0 (see Item 3)	1	100	71	13
1	0 (see Item 3)	1	83	64	13

OR

4(c). **Thin-Film Intumescent Coatings** — (Guide No. 40 U18.12.9). Intumescent coating designated "A/D FIREFILM II" or "A/D FIREFILM III" applied to steel beams in accordance with manufacturer's instructions to the min dry film thicknesses shown below:

**A/D FIRE PROTECTION SYSTEMS INC**

For W150x18

Restrained Assembly Rating, h	Unrestrained Assembly Rating, h	Unrestrained Beam Rating, h	Min Concrete Cover Thickness, mm		Min Dry Thickness of A/D FIREFILM II or III on Beam, mm
			Normal-Density	Low-Density	
2	0 (see Item 3)	1	114	85	1.65
1-1/2	0 (see Item 3)	1	100	71	1.65
1	0 (see Item 3)	1	83	64	1.65
3/4	0 (see Item 3)	3/4	83	64	1.14

For W150x37

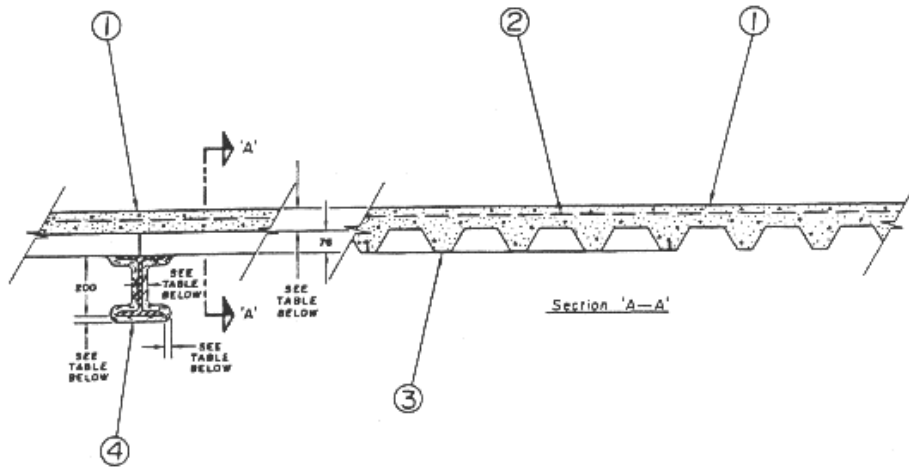
Restrained Assembly Rating, h	Unrestrained Assembly Rating, h	Unrestrained Beam Rating, h	Min Concrete Cover Thickness, mm		Min Dry Thickness of A/D FIREFILM II or III on Beam, mm
			Normal-Density	Low-Density	
1-1/2	0 (see Item 3)	1	114	85	1.14
1	0 (see Item 3)	1	83	64	1.14

5. **Shear Connectors** — (optional) (not shown) — Studs 13 mm diam by 100 mm long, headed type. Welded to top flange of beam through steel floor units.

6. **Finish Coating** — (not shown) — Silicon alkyd designated "A/D COLORCOAT" topcoat applied over intumescent coating (Item 4c) to max thickness of 0.05 mm.

**ULC DESIGN NO. F 910**

**Restrained Assembly Rating** --2, 1-1/2 & 1 hr (See Item 4)  
**Unrestrained Assembly Rating** -- 0 h, ( See Item 3)  
**Unrestrained Beam Rating** -- 1 h ( See Item 4)



**Beam -- W150x37**

1. **Normal-Density or Low-Density Concrete** -- Normal-density concrete, carbonate or siliceous aggregate, 2400 +/- 50 kg/m<sup>3</sup> density, 24 MPa nominal compressive strength. Low-density concrete, expanded shale, clay or slate aggregate by rotary kiln method, 1760 +/-50 kg/m<sup>3</sup> density, 24 MPa nominal compressive strength.

2. **Wire Fabric** -- 152 by 152 MW9.1 x MW9.1 wire mesh.

• 3. **Steel Floor Units** -- (Guide No. 40 U18.19). Composite or noncomposite floor units. Any combination of 0.76mm thick fluted sections or 0.91/0.91mm thick cellular sections, welded to supports with 19mm puddle welds spaced 300 mm OC. Adjacent units button punched or welded 915mm OC along side joints. When the maximum clear span of the steel floor unit is less than or equal to the tested span of 2900 mm, the unrestrained assembly ratings is increased to 1h to match the unrestrained beam rating. See individual manufacturer's listing for those profiles that may be used in this Design. .

**CANADIAN METAL ROLLING MILLS LTD**

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• 4. **Thin-Film Intumescent Coatings** -- (Guide No. 40 U18.12.9). Intumescent coating designated "A/D FIREFILM II" applied to steel beams in accordance with manufacturer's instructions to the minimum dry film thicknesses shown below:

**A/D FIRE PROTECTION SYSTEMS INC.**

**For W150 x 37**

Restrained Assembly Rating, h	Unrestrained Assembly Rating, h	Unrestrained Beam Rating, h	Min Concrete Cover Thickness, mm		Min Dry Thickness of A/D FIREFILM II on Beam, mm
			Normal-Density	Low Density	
2	0 (see Item 3)	1	114	83	1.14
1-1/2	0 (see Item 3)	1	100	71	1.14
1	0 (see Item 3)	1	83	64	1.14

5. **Shear connectors ( optional )** ( not shown)-- Studs 13mm diameter by 100mm long, headed type. Welded to top flange of beam through steel floor units.

6. **Finish Coating** ( not shown) -- silicone alkyd designated " A/D COLORCOAT" topcoat applied over intumescent coating (item 4) to maximum thickness of 0.05mm.