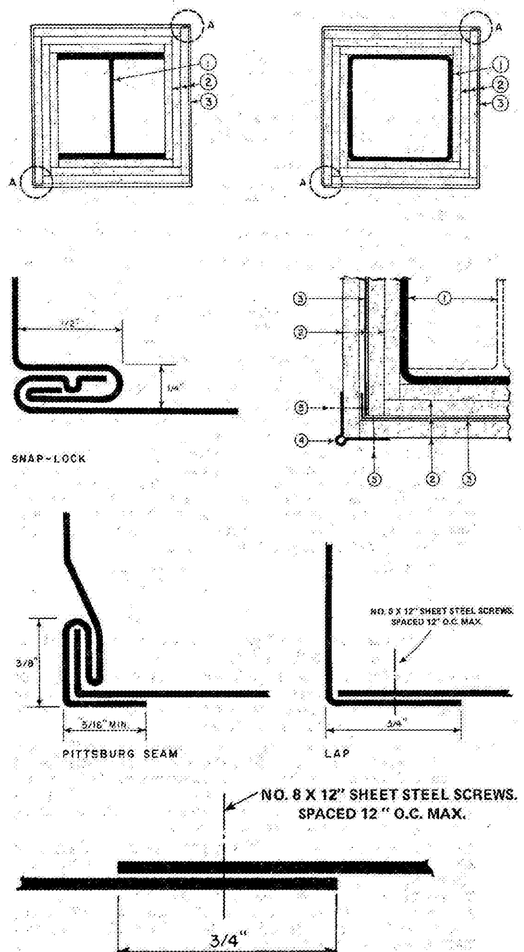
Design No. X526

Ratings—1, 2, 3 and 4 Hr.



1. **Steel Column**—Min sizes of W shape and tubular steel columns in the AISC Steel Construction Manual as shown under Item 2.
2. **Wallboard, Gypsum**—Any 5/8 in. thick or 1/2 in. thick wallboard bearing the Underwriters Laboratories Inc. Fire Resistance Classification Marking. Min total thicknesses of layers in inches for the various ratings and min column sizes are as follows:

W Shape Columns

Designation	Outside Dimensions (In.)	Min Column Size: Flange Thickness (In.)	Web Thickness (In.)	Area (In.^{2})	Rating (Hr) 1 — Total Thickness Of Layers Of Wallboard (In.)	2	3	4
W4x13	4-1/8x4	0.345	0.280	3.82	1	1-1/2	2-1/4	—
W6x15.5	6x6	0.269	0.235	4.56	1	1-1/2	2-1/4	3-1/8
W10x49	10x10	0.558	0.340	14.4	1/2	1-1/8	1-7/8	2-1/2

Tubular Shape Columns

Designation	Outside Dimensions (In.)	Min Column Size: Wall Thickness (In.)	Area (In.^{2})	Rating (Hr) 1 — Total Thickness Of Layers Of Wallboard (In.)	2	3	4
TS4×4×0.188	4×4	0.188	2.74	1	1-5/8	2-1/2	—
TS8×8×0.250	8×8	0.250	7.48	5/8	—	—	—

Applied in layers as shown in above illustration. Each layer held together with paper masking adhesive tape during erection to allow placement of succeeding layers.

For column ratings of 2 hr or less, one layer of wallboard may be applied to the outer surface of steel cover. Boards applied vertically, without horizontal joints, attached to cover with screws located 1 in. from the board edge and 8 in. OC.

See **Wallboard, Gypsum (CKNX)** category for names of manufacturers.

2A. **Wallboard, Gypsum***—As an alternate to Item 2, 3/4 in. thick applied as described in Item 2.
- **Canadian Gypsum Company**—ULTRACODE or Type AP-X3.
- **United States Gypsum Co.**—ULTRACODE or Type IP-X3.
- **Yeso Panamericano SA de CV**—ULTRACODE or Type IP-X3.

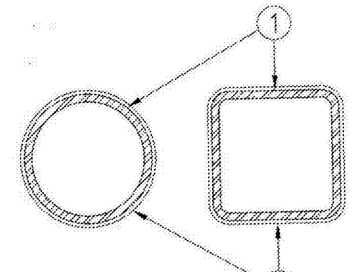
3. **Steel Covers—For seamed joints**—0.024 in. min thickness (No. 24 MSG) uncoated, galv, or stainless steel for column ratings of 3 hr or less. For 4 hr ratings, only stainless steel cover to be used. Covers consist of two L-shaped sections with Snap-Lock or Pittsburgh sheet steel joints. Width to be determined on the basis of protection thickness and column size. Length of sections to provide 1/8 in. clearance per lineal foot of column length between floor and any restraint.
For lapped joints—(Max ratings 2 hr)—No. 22 MSG (0.027 in. thick) uncoated or galv steel. Fasteners used at laps to be No. 8 by 1/2 in. steel sheet metal screws spaced a max of 12 in. O.C. Other details to be the same as those stated for seamed joints as shown above.
4. **Corner Bead**—For columns with outer layer of wallboard attached to outside surface of metal cover, No. 28 MSG galv steel, 1-1/2 in. legs corner beads attached to wallboard with screws spaced 12 in. O.C.
5. **Screws**—For columns with outer layer of wallboard attached to outside surface of metal cover, self-drilling Phillips bugle head, 1 in. long screws for 1/2 or 5/8 in. thick wallboard (1-1/4 in. long screws for 3/4 in. thick wallboard) are used to attach wallboard to steel cover, and corner bead to wallboard.
6. **Sodium Silicate Solution**—(Not shown, optional)—Used to adhere one layer of wallboard to inside of steel cover prior to assembly.
7. **Finishing System**—(Not shown)—Joint compound applied over corner beads to a thickness of 1/16in.

*Bearing the UL Classification Marking

Fire Resistance Ratings - ANSI/UL 263

Design No. X650

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



[illegible]

FOR STEEL PIPE

[illegible]

FOR SQUARE AND RECTANGULAR STEEL TUBE

[illegible]

ISOLATEK

X650-Y814

Structural Steel Square Tube Columns

CAFCO® SprayFilm® WB 3 and WB 4 & ISOLATEK® Type WB 3 and WB 4

ASTM Desig.	Wall Thk	A/P	Metric Desig.	M/D	Hp/A	1-Hour	1-1/2 Hour	2-Hour	3-Hour
30 x 30	5/8	0.61	762 x 762 x 15.9	115.9	66.2	0.074	0.085	0.164	0.327
28 x 28	5/8	0.61	711 x 711 x 15.9	115.9	66.2	0.074	0.085	0.164	0.327
26 x 26	5/8	0.61	660 x 660 x 15.9	115.9	66.2	0.074	0.085	[illegible]	[illegible]
24 x 24	5/8	0.61	610 x 610 x 15.9	115.9	66.2	0.074	0.085	0.164	0.327
	1/2	0.49	x 12.7	93.1	84.9	0.074	0.085	0.164	0.327
	3/8	0.37	x 9.5	70.3	112.4	0.074	0.173	[illegible]	[illegible]
22 x 22	5/8	0.61	559 x 559 x 15.9	115.9	66.2	0.074	[illegible]	[illegible]	[illegible]
	1/2	0.49	x 12.7	93.1	84.9	0.074	[illegible]	[illegible]	[illegible]
	3/8	0.37	x 9.5	70.3	112.4	0.074	[illegible]	[illegible]	[illegible]
20 x 20	5/8	0.61	508 x 508 x 15.9	115.9	66.2	0.074	0.085	0.164	0.327
	1/2	0.49	x 12.7	93.1	84.9	0.074	0.085	0.164	0.327
	3/8	0.37	x 9.5	70.3	112.4	0.074	0.173	0.280	NR
18 x 18	5/8	0.60	457 x 457 x 15.9	114	[illegible]	[illegible]	0.085	0.164	0.327
	1/2	0.48	x 12.7	[illegible]	[illegible]	0.074	0.085	0.164	0.327
	3/8	0.37	x 9.5	[illegible]	[illegible]	0.074	0.173	0.280	NR
16 x 16	5/8	0.60	406 x 406 x 15.9	[illegible]	[illegible]	[illegible]	0.085	0.164	0.327
	1/2	[illegible]	[illegible]	[illegible]	[illegible]	0.074	0.085	0.164	0.327
	3/8	[illegible]	[illegible]	[illegible]	[illegible]	0.074	0.173	0.280	NR
	5/16	[illegible]	[illegible]	58.9	134.2	0.084	0.218	0.355	NR
14 x 14	[illegible]	0.60	356 x 356 x 15.9	[illegible]	66.2	0.074	0.085	0.164	0.327
	1/2	0.48	[illegible]	91.2	86.7	0.074	0.085	0.164	0.327
	3/8	0.36	[illegible]	68.4	115.6	0.074	0.173	0.280	NR
	5/16	0.31	x 7.9	58.9	134.2	0.084	0.218	0.355	NR
12 x 12	[illegible]	0.58	305 x 305 x 15.9	112.1	70.5	0.074	0.085	0.164	0.327
	[illegible]	0.48	x 12.7	91.2	86.7	0.074	0.085	0.164	0.327
	[illegible]	0.36	x 9.5	68.4	115.6	0.074	0.173	0.280	NR
	[illegible]	0.30	x 7.9	57	138.7	0.084	0.218	0.355	NR
	1/4	0.24	x 6.4	45.9	173.4	0.104	0.252	0.400	NR
10 x 10	5/8	0.58	254 x 254 x 15.9	112.1	70.5	0.074	0.085	0.164	0.327
	1/2	0.48	x 12.7	91.2	86.7	0.074	0.085	0.164	0.327
	3/8	0.36	x 9.5	68.4	115.6	0.074	0.173	0.280	NR
	5/16	0.30	x 7.9	57	138.7	0.084	0.218	0.355	NR
	1/4	0.24	x 6.4	45.9	173.4	0.104	0.252	0.400	NR
	3/16	0.18	x 4.8	34.3	231.1	0.165	0.307+	0.538+	NR
8 x 8	5/8	0.58	203 x 203 x 15.9	110.2	71.7	0.074	0.085	0.164	0.327
	1/2	0.47	x 12.7	88.3	88.5	0.074	0.085	0.164	0.327
	3/8	0.36	x 9.5	66.4	118.6	0.074	0.173	0.280	NR
	5/16	0.30	x 7.9	57	138.7	0.084	0.218	0.355	NR
	1/4	0.24	x 6.4	45.9	173.4	0.104	0.252	0.400	NR
	3/16	0.18	x 4.8	34.2	231.1	0.165	0.307+	0.538+	NR
7 x 7	1/2	0.46	178 x 178 x 12.7	87.4	90.4	0.074	0.127	0.207	NR
	3/8	0.35	x 9.5	66.5	118.8	0.074	0.173	0.280	NR
	5/16	0.30	x 7.9	57	138.7	0.084	0.218	0.355	NR
	1/4	0.24	x 6.4	45.6	173.4	0.104	0.252	0.400	NR
	3/16	0.18	x 4.8	34.2	231.1	0.165	0.307+	0.538+	NR
6 x 6	1/2	0.46	152 x 152 x 12.7	87.4	90.4	0.074	0.127	0.207	NR
	3/8	0.35	x 9.5	66.5	118.8	0.074	0.173	0.280	NR
	5/16	0.30	x 7.9	57	138.7	0.084	0.218	0.353	NR
	1/4	0.24	x 6.4	45.6	173.4	0.104	0.252	0.400	NR
	3/16	0.18	x 4.8	34.2	231.1	0.165	0.307+	0.538+	NR
5 x 5	1/2	0.45	127 x 127 x 12.7	85.5	92.5	0.074	0.127	0.207	NR
	3/8	0.35	x 9.5	66.5	118.9	0.074	0.173	0.280	NR
	5/16	0.28	x 7.9	55.1	143.5	0.084	0.236	0.353	NR
	1/4	0.24	x 6.4	45.6	173.4	0.104	0.252	0.420	NR
	3/16	0.18	x 4.8	34.2	231.1	0.165	0.307+	0.538+	NR
4 x 4	1/2	0.44	102 x 102 x 12.7	83.8	94.6	0.074	0.127	0.207	NR
	3/8	0.34	x 9.5	64.6	122.4	0.084	0.218	0.353	NR
	5/16	0.28	x 7.9	55.1	143.5	0.084	0.218	0.363	NR
	1/4	0.23	x 6.4	43.7	180.8	0.104	0.252	0.430	NR
	3/16	0.18	x 4.8	34.2	231.3	0.165	0.307+	0.538+	NR

Note: A/P, M/D & Hp/A ratios based on design formula. Note: + = Thickness derived from UL Design Y814

Note: All thicknesses are expressed in inches. To convert to Mils, multiply by 1000. To convert to mm, multiply by 25.4

ONLINE CERTIFICATIONS DIRECTORY

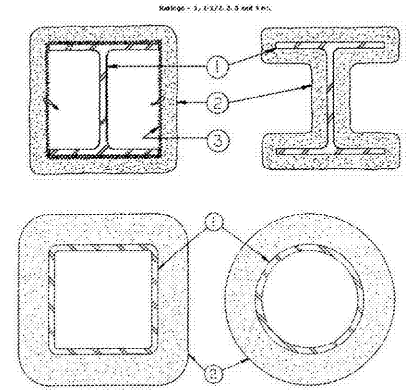
BXUV.X790
Fire Resistance Ratings - ANSI/UL 263

Design/System/Construction/Assembly Usage Disclaimer

[illegible]

Fire Resistance Ratings - ANSI/UL 263

Design No. X790



[illegible]

Column Size In.	Min Thkns In. 1 Hr	1-1/2 Hr	2 Hr	3 Hr	4 Hr
W6x9	1	1-3/8	1-3/4	2-7/16	3-1/8
W6x12	7/8	1-1/4	1-5/8	2-5/16	3-1/16
W8x16	3/4	1-1/8	1-7/16	2-1/16	2-11/16
W8x28	11/16	1	1-5/16	1-15/16	2-1/2
W10x49	5/8	15/16	1-3/16	1-3/4	2-3/8
W12x106	3/8	5/8	7/8	1-3/8	1-13/16
W14x233	5/16	3/8	9/16	15/16	1-5/16
W14x730	5/16	5/16	5/16	7/16	5/8

The min thickness of Spray-Applied Fire Resistive Materials required for various fire resistance ratings of contour sprayed steel pipes or tubes are shown on the table below:

Min Column Size In.	A/P	1 Hr	1-1/2 Hr	Min Thkns In. 2 Hr	3 Hr	4 Hr
SP 4x0.237	0.22	11/16	1	1-3/8	2-1/16	2-3/4
ST 4x4x0.1875	0.18	3/4	1-1/16	1-7/16	2-1/16	2-11/16
ST 4x4x0.3125	0.29	1/2	13/16	1-1/8	1-3/4	2-3/8
ST 4x4x0.375	0.34	7/16	3/4	1	1-9/16	2-1/8
ST 4x4x0.5	0.44	3/8	9/16	7/8	1-3/8	1-7/8
ST 16x16x0.5	0.49	3/16	7/16	11/16	1-1/8	1-9/16

[illegible]

ISOLATEK INTERNATIONAL — Type 300, Type 300ES, Type 300N or Type SS.

2A. **(As an alternate to Item 2) Spray-Applied Fire Resistive Materials*** — [illegible]

ISOLATEK INTERNATIONAL — Type 300TW or Type 400

2B. **(As an alternate to Item 2 and 2A) — Spray-Applied Fire Resistive Materials*** — [illegible]

ISOLATEK INTERNATIONAL — Type 280.

3. **Metal Lath** — [illegible]

*Bearing the UL Classification Mark

ISOLATEK® Corporate Headquarters

Isolatek International
41 Furnace Street
Stanhope, NJ 07874
Telephone: 973.347.1200

March 18, 2019

Mr. Yi "Tom" He
Phillips Partnership
5901 Peachtree Dunwoody Road
Atlanta, GA 30328

Re: Fairfield Inn – Cape Coral, FL 33909

Dear Mr. He:

This is regarding the application of CAFCO® SprayFilm® Intumescent Coatings for the above referenced project.

It is our understanding that wood nailers are running directly above structural steel beams that support floor-ceiling assembly. The assembly is as shown in *Figure 1* shown below. The structural steel beams require a fire resistive rating that is in accordance with ANSI/ UL 263, ASTM E119. You have inquired as to a fire protection method that would achieve the desired fire resistive rating for the structural steel beams since there are no UL Designs that conform to above described assembly.

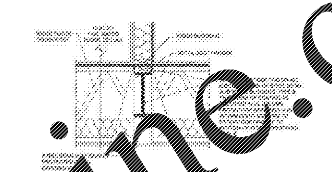


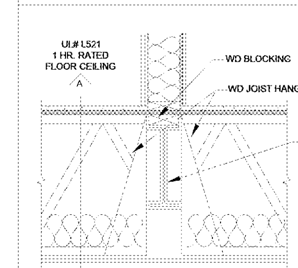
Figure 1 – Beam supporting wood nailer.

Figure 1 – Beam supporting wood nailer.

Based on the information described above, we propose that the structural steel beams support ceiling assembly be treated using column thicknesses to achieve the desired fire resistive rating.

www.isolatek.com ISOLATEK® Brand

BEAMS- INDIVIDUAL FIRE PROTECTION



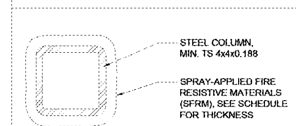
B1 1 HR. PROTECTION - INTUMESCENT PAINT

NOTES: FIRE-RESISTANCE RATING OF STRUCTURAL MEMBERS

A. COLUMN PROTECTION (S 704.2 FBC 2017)
WHERE COLUMNS ARE REQUIRED TO BE FIRE RESISTANCE RATED, THE ENTIRE COLUMN SHALL BE PROVIDED INDIVIDUAL ENCASEMENT PROTECTION BY PROTECTING IT ON ALL SIDES FOR THE FULL COLUMN LENGTH, INCLUDING CONNECTIONS TO OTHER STRUCTURAL MEMBERS, WITH MATERIALS HAVING THE REQUIRED FIRE-RESISTANCE RATING. WHERE THE COLUMNS EXTENDS THROUGH A CEILING, THE ENCASEMENT PROTECTION SHALL BE CONTINUOUS FROM THE TOP OF THE FOUNDATION OR FLOOR/CEILING ASSEMBLY BELOW THROUGH THE CEILING SPACE TO THE TOP OF THE COLUMN.

B. PROTECTION OF THE PRIMARY STRUCTURAL FRAME OTHER THAN COLUMNS (S 704.3 FBC 2017)
MEMBERS OF THE PRIMARY STRUCTURAL FRAME OTHER THAN COLUMNS THAT ARE REQUIRED TO HAVE A FIRE-RESISTANCE AND SUPPORT MORE THAN TWO FLOORS OR ONE FLOOR AND ROOF, OR SUPPORT A LOAD-BEARING WALL OR A NONLOAD-BEARING WALL MORE THAN TWO STORIES HIGH, SHALL BE PROVIDED INDIVIDUAL ENCASEMENT PROTECTION BY PROTECTING THEM ON ALL SIDES FOR THEIR FULL LENGTH, INCLUDING CONNECTIONS TO OTHER STRUCTURAL MEMBERS, WITH MATERIALS HAVING THE REQUIRED FIRE RESISTANCE RATING.
EXCEPTION: INDIVIDUAL ENCASEMENT PROTECTION ON ALL SIDES SHALL BE PERMITTED ON ALL EXPOSED SIDES PROVIDED THE EXTENT OF PROTECTION IS IN ACCORDANCE WITH THE REQUIRED FIRE RESISTANCE RATING, AS DETERMINED IN SECTION 703

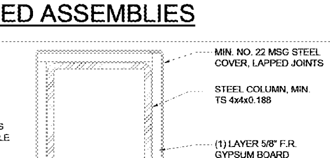
COLUMNS- FIRE RATED ASSEMBLIES



NOTE: ALL EXPOSED STL/TS COLUMNS AND BEAMS TO BE 1HR PROTECTED BY SFRM.

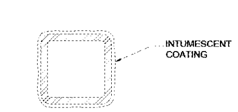
1 HR. FIRE RATED COLUMN ASSEMBLY	UL DESIGN #X790

C1 1 HR. COLUMN PROTECTION- SFRM



1 HR. FIRE RATED COLUMN ASSEMBLY	UL DESIGN #X526

C2 1 HR. COLUMN PROTECTION- GYP. BD.



1 HR. FIRE RATED STEEL TUBE ASSEMBLY	UL DESIGN #X650

C3 EXPOSED TS COLUMNS & BEAMS @ DRIVE UNDER CANOPY

PHILLIPS

KEYPLAN

CONSULTANT

SEAL

ISSUE & REVISION RECORD

#	DATE	DESCRIPTION

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PROJECT

Fairfield BY MARRIOTT INN & SUITES

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REV 7 12-21-18

4 STORY, 92 UNITS
w/ INDOOR POOL

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DAWSONVILLE, GA
30534

CLIENT

RIMROCK COMPANIES
10000 RIVERSIDE AVE
SUITE 32201
JACKSONVILLE, FL 32204

PHILLIPS JOB NUMBER 1972101

ISSUE DATE 08/23/2019

DRAWN BY/CHECKED BY ZS / JU

DRAWING TITLE

FIRE RATED ASSEMBLIES - INDIVIDUAL ENCASEMENT

SHEET NUMBER

A-0.4

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