

BXUVC.R705
Fire-resistance Ratings

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BXUVC - Fire-resistance Ratings

[See General Information for Fire-resistance Ratings](#)

Design No. R705

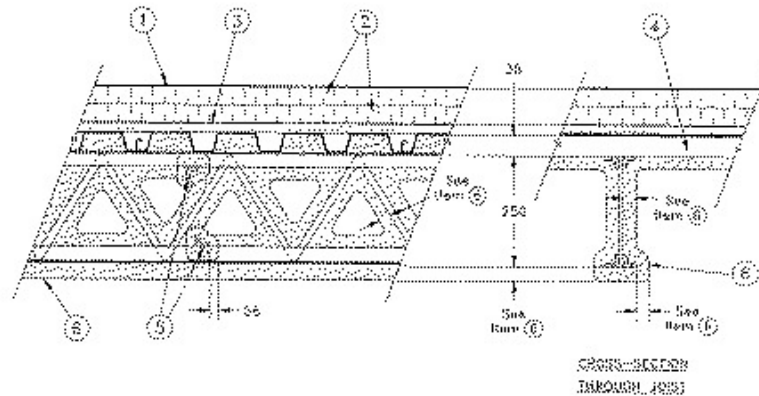
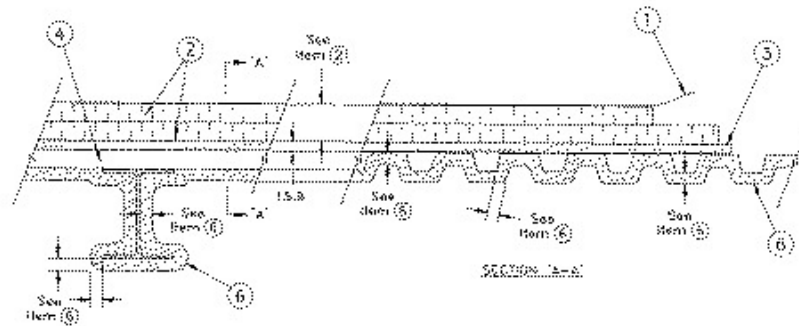
February 29, 2016

Restrained Assembly Rating - 2 h, 1-1/2 h, 1 h See Item (6)

Unrestrained Assembly Rating - 2 h, 1-1/2 h, 1 h See Item (6)

Unrestrained Beam Rating - 2 h, 1-1/2 h, 1 h See Item (6)

Load Restricted — Assembly evaluated in accordance with Working Stress Design methods, for use under Limit States Design methods; refer to information under Guide BXUVC.



Beam — WW150 x 24, minimum size or 250 mm deep, open-web steel joist, 7.3 kg/m minimum size designed in accordance with the relevant provisions of the National Building Code of Canada, 1995.

- 1(i). **Roof Covering** — (TGFUC). Class A, B or C built-up roof covering, consisting only of felt and asphalt in alternate layers, as specified in the General Information Section under (TGFUC).

OR

- 1(ii). **Roof Covering** — (TGFUC). Class A built-up roof covering consisting of Sarnafil G442-12 roofing membrane loosely laid and surfaced with washed rounded stone of 13 mm to 38 mm diameter, applied at a rate of not less than 560 kg/10 m².

SIKA SARNAFIL

OR

1(iii). **Roof Covering** — (TGFUC). Class A built-up roof covering, consisting of one ply of IKO "Glass Type IV, IKO "Glass Type 6", or "IKO No. 25 Glass Base Sheet", hot-mopped with Type 2 or 3 hot-mopping asphalt at a rate of 1.2 kg/m² maximum or mechanically fastened with the manufacturer's accepted steel plate and screw fasteners to polyisocyanurate, perlite, fibreglass, wood fibre or polystyrene (covered with wood fibre or perlite) insulation. One ply of "Modiflex MP-180-SS-Base", "Modiflex MP-180-FS-Base", "Modiflex MF-95-SS-Base", "Modiflex MF-95-FS-Base", hot-mopped with Type 2 or 3 hot-mopping asphalt at a rate of 1.2 kg/m² maximum, or "Torchflex TF-95-FF-Base", "Torchflex TF-95-FF 2.2", "Torchflex TP-180-FF-Base", torched to the base or ply sheet (optional). One ply of "Modiflex MP-180-CAP FR" or "Modiflex MF-95-CAP FR" hot-mopped with Type 2 or 3 hot-mopping asphalt at a rate of 1.2 kg/m² maximum or "Torchflex TP-180-CAP FR" or "Torchflex TF-95-CAP FR" torched to the base or ply sheet.

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Class C built-up roof covering, consisting of a minimum 11 mm wood fiber, or 3.2 mm or 4.5 mm "Protectoboard" or "PERMABOARD" mechanically attached, urethane adhesive adhered, or adhered with Type 2 or 3 hot-mopping asphalt at a rate of 1.2 kg/m² maximum (optional) to wood fibreboard, glass fibre, mineral fibre, polyurethane, perlite, polyisocyanurate, phenolic, or resol foam roof insulation. One or more plies IKO "Modiflex MF-95-FS Base", IKO "Modiflex MF-95-SS-Base", IKO "Glass Type IV", IKO "Glass Type 6", or "IKO No. 25 Glass Base Sheet" cold adhesive applied with Karnak 81AF SBS Cold Adhesive, Monsey-Bakor MBA Gold Adhesive, Henry Company #403 Cold-Ap Spray Grade Adhesive, or Henry Company #902 Permanent Bond Adhesive at a full coverage rate of 5.68 L /0.61 m² or spot attached at a rate of sixty spots per 9.3 m², with spots being 102 mm to 152 mm in diameter, for the first layer and either cold adhesive or heat fused for successive layers. One or more plies of "IKO No. 25 Glass Base Sheet" cold adhesive applied or heat fused (optional). One ply of "Modiflex MP-180-Cap", "Modiflex MP-250-Cap", Modiflex MP-180-Cap FR", "Modiflex MP-180-Cap FR Premium", "Modiflex MF-95-Cap", "Modiflex MF-95-Cap FR", or "Modiflex MF-95-Cap FR Premium", cold adhesive applied or "Torchflex TP-180-Cap", "Torchflex TP-250-Cap", "Torchflex TF-95- Cap", "Torchflex TP-180-Cap FR", "Torchflex TP-180-Cap FR Premium", Torchflex TF-95-Cap FR", or "Torchflex TF-95-Cap FR Premium" heat fused.

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- 2(a). **Rigid Roof Insulation** — (CDETC). Polyisocyanurate foamed plastic insulation boards nominal 1220 mm by 2440 mm or 1220 mm by 1220 mm, to be applied in one or more 25.4 mm thick layer. See Table 1 under Item 6 for minimum overall thicknesses. Boards to be installed with end joints staggered a minimum of 300 mm.

ATLAS ROOFING CORP

CARLISLE SYNTEC INCORPORATED

IKO INDUSTRIES LTD

JOHNS MANVILLE

OR

2(b). **Rigid Roof Insulation** — (CDETC). Polyisocyanurate insulation boards, RxIso, nominal 1200 mm by 2400 mm or 1200 mm by 1220 mm for 2 h (maximum) rating. When this system is used, one layer of Duro Perm vapor barrier adhered to the steel deck with Duro Perm VR adhesive at a rate of 0.19 kg/m², followed by four layers, each 25 mm thick, of insulation board with the same adhesive adhered on the vapor barrier and between insulation layers at a rate of 0.15 kg/m². Insulation boards to be protected by a layer of 1.2 mm thick Sarnafil G442-1.2 PVC membranes loosely laid and without adhesive.

3. **Gypsum Wallboard** — (optional) - 1200 mm by 2400 mm by 15.9 mm thick gypsum board 11.2 kg/m² minimum density, applied perpendicular to steel roof deck direction with end joints staggered 600 mm in adjacent rows. End joints to be located over crests of steel roof units. When gypsum wallboard is used, the thickness of spray-applied fire-resistive material applied to the underside of the steel deck is reduced - See Table 1.

- 4. **Steel Roof Deck** — (CHWXC). Minimum 0.76 mm galvanized steel, nominally 38 mm deep. Minimum overall width 900 mm. Ends overlapped at supports a minimum 51 mm and welded to supports 150 mm OC. Adjacent units button-punched at side joints every 600 mm OC and at midspan of each span.

VICWEST INC

5. **Bridging** — Designed in accordance with the relevant provisions of the National Building Code of Canada, protected with 56 mm minimum of "A/D Type 5" spray-applied fire-resistive material. Minimum thickness shall be equal to that specified in Table 1 for deck protection without gypsum. Minimum average dry density 272 kg/mm³ with individual density measurements no less than 248 kg/m³ with individual density measurements no less than 248 kg/m³.

- 6. **Spray Applied Fire-Resistive Material** — (CHPXC). Applied by mixing with water and spraying in more than one coat to final thicknesses shown in Table 1 below steel surfaces. Surface must be clean, free of dirt and oil. Steel deck to have an application of "A/D Primecoat" prior to application of spray-applied fire-resistive material. "A/D Type 5" spray-applied fire-resistive material applied in accordance with the manufacturers application instructions. Minimum average dry density 272 kg/m³ with individual density measurements no less than 248 kg/m³. The area between the steel deck and the beam or joist top flange shall be filled. For method of density determination, refer to General Information section under heading "Fire Resistance Rating".

A/D FIRE PROTECTION SYSTEMS INC

Table 1

				Min Spray-Applied Fire-Resistive Material Required
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Restrained Assembly	Unrestrained Assembly	Unrestrained Beam	Min Insulation	Thickness, mm			On Beam
				On Deck Without	On Joist (Size)		
Rating, h	Rating, h	Rating, h	Thickness, mm	Gypsum Wallboard	7.3 kg/m	8.9 kg/m	
2	2	2	51	59	54	52	38**
2	2	2	76	56	54	52	38**
1-1/2	1-1/2	1-1/2	51	50	46	44	30
1-1/2	1-1/2	1-1/2	76	47	46	44	30
1	1	1	76	35	33	33	19
1	1 ⁽¹⁾	1	76	32	33	33	19

**Beam protection thickness may be reduced to 29 mm, with beam loading restricted to 61% of design load for 2 h rating only.

⁽¹⁾ Roof deck span limited to 1760 mm maximum.

Restrained Assembly	Unrestrained Assembly	Unrestrained Beam	Min Insulation	Min Spray-Applied Fire-Resistive Material Required			On Beam
				On Deck With	On Joist (Size)		
Rating, h	Rating, h	Rating, h	Thickness, mm	Gypsum Wallboard	7.3 kg/m	8.9 kg/m	
2	2	2	25.4	48	54	52	38**
2	2	2	51.0	45	54	52	38**
1-1/2	1-1/2	1-1/2	25.4	38	46	44	30
1-1/2	1-1/2	1-1/2	51.0	33	46	44	30
1	1	1	25.4	25	33	33	19
1	1	1	51.0	22	33	33	19

** Beam protection thickness may be reduced to 29 mm, with beam loading restricted to 61% of design load for 2 h rating only.

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