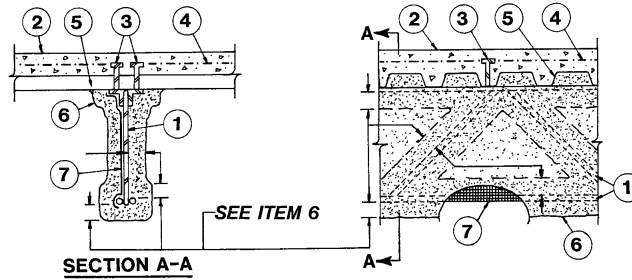


Design No. N761

Restrained Beam Ratings — 1, 1-1/2, 2 and 3 Hr.

Unrestrained Beam Ratings — 1, 1-1/2, 2 and 3 Hr.

Load Restricted for Canadian Applications — See Guide BXUV7



1. **Steel Joist** — Composite or noncomposite min 12k5 or min depth and weight shall be 12 in. and 7.1 lb/ft respectively. May be uncoated or provided with a shop coat of paint. Designed per S.J.I. specifications for a max design stress of 30,000 psi (30 ksi). Welded or bolted to end supports. Top chords shall consist of two angles measuring 1-1/2 by 1-1/2 by 0.156 in. thick. Bottom chord shall consist of two round bars measuring 0.675 in. in diam. or two angles measuring 1 by 1 by 0.125 in. thick. The second web member at each end shall consist of a 0.654 in. diam round bar. All remaining web members, including the end web members, shall consist of 0.774 in. diam round bars. Bridging per S.J.I. specifications is required when noncomposite joists are used.
- 1A. **Steel Joists** — (Not shown) — As an alternate to Item 1 — Composite or noncomposite min 8k1 or min depth and weight shall be 8 in. and 4.9 lb/ft respectively. May be uncoated or provided with a shop coat of paint. Designed per S.J.I. specifications for a max design stress of 30,000 psi (30 ksi). Welded or bolted to end supports. The top chords shall consist of two angles measuring 1-1/4 by 1-1/4 by 0.127 in. thick. Bottom chords shall consist of two round bars measuring 0.566 in. in diam. Bearing plates shall consist of two angles measuring 1-1/2 by 2 by 0.188 in. thick and 5-1/16 in. long. Web members shall consist of 0.565 in. diam bars.
- 1B. **Steel Joists** — (Not shown) — As an alternate to Item 1 — Composite or noncomposite min 10k1 or min depth and weight shall be 10 in. and 5.1 lb/ft respectively. May be uncoated or provided with a shop coat of paint. Designed per S.J.I. specifications for a max design stress of 30,000 psi (30 ksi). Welded or bolted to end supports. The top chords shall consist of two angles measuring min 1-1/2 by 1-1/2 by 0.128 in. thick. Bottom chords shall consist of two angles measuring min 1 by 1 by 0.110 in. thick. Bearing plates shall consist of two angles measuring min 1-1/2 by 1-1/2 by 0.153 in. thick and shall be min 5 in. long. All web members, including the end web members shall consist of min 0.564 round bars. Bridging per S.J.I. specifications is required when noncomposite joists are used.
2. **Normal Weight or Lightweight Concrete** — 2-1/2 in. thick, min compressive strength of 3000 psi. For normal weight concrete, either carbonate or siliceous aggregate may be used. Unit weight, 145 +/- 3 pcf. For lightweight concrete, unit weight may range from 104 to 120 pcf.
3. **Shear Connector** — (Optional) — Studs, min 1/2 in. diam headed type or equivalent per A.I.S.C. specifications. Welded to the top flange of joists through the steel floor units. Stud welding, as recommended by the stud manufacturer, should be followed.
4. **Welded Wire Fabric** — Min 6x6-W1.4xW1.4.
5. **Steel Floor and Form Units** — 1-1/2 to 3 in. deep corrugated, fluted or cellular units welded to joists. Max usage of cellular units shall consist of a 1:1 blend with fluted units.
6. **Spray-Applied Fire Resistive Materials*** — Prepared by mixing with water. Spray-applied in one or more coats to joist surfaces to a min final thickness as shown in the table below. Joist surfaces must be clean and free of dirt, loose scale and oil. Crest areas of deck above the joist shall be filled with Spray-Applied Fire Resistive Materials. When metal lath (Item 7) is used on joist, Spray-Applied Fire Resistive Materials is to be applied over lath with no min thickness requirement.
Min avg density of 15 pcf with min ind density of 14 pcf, respectively. For method of density determination, see Design Information Section, Sprayed Material.

Normal Weight Concrete

Rating Hr	Unrestrained Steel Joist Rating			Min Thkns of Spray Applied Fire Resistive Mtl In.			
	Item 1	Item 1A	Item 1B	Item 1	Item 1A	Item 1B	Item 1B
1	9/16+	1	1	9/16+	1	1	1
1-1/2	1	1-9/16	1-1/2	1	1	1-1/2	1-1/2
2	1-3/8	2-1/16	1-13/16	1-3/8	1-5/8	1-13/16	1-13/16
3	2-1/4	NR	2-7/8	2-1/4	NR	2-7/8	2-7/8

NR=No Rating

+ = When bottom chords consist of 1 by 1 by 0.125 in. thick steel angles, the thickness of spray-applied fire resistive material shall be increased to 13/16 in. on the bottom chord only.

Lightweight Concrete

Rating Hr	Unrestrained Steel Joist Rating			Min Thkns of Spray Applied Fire Resistive Mtl In.			
	Item 1	Item 1A	Item 1B	Item 1	Item 1A	Item 1B	Item 1B
1	9/16+	1-1/8	1-1/16	9/16+	1-1/8	1-1/16	1-1/16
1-1/2	1	1-3/4	1-1/2	1	1-5/16	1-1/2	1-1/2
2	1-3/8	2-1/4	1-13/16	1-3/8	2-1/16	1-13/16	1-13/16
3	2-1/4	NR	2-7/8	2-1/4	NR	2-7/8	2-7/8

NR=No Rating.

+ = When bottom chords consist of 1 by 1 by 0.125 in. thick steel angles, the thickness of spray-applied fire resistive material shall be increased to 13/16 in. on the bottom chord only.

BERLIN CO LTD — Types 300, 300ES, 300N or SB.

ISOLATEK INTERNATIONAL — Types 300, 300AC, 300ES, 300HS, 300N or SB.

LUCKY CORE INSULATING MATERIALS

MANUFACTURING L L C — Types 300, 300ES, 300N, or SB.

NEWKEM PRODUCTS CORP — Types 300, 300ES, 300N or SB.

- 6A. (As an alternate to Item 6) **Spray-Applied Fire Resistive Materials*** — Prepared by mixing with water. Spray-applied in one or more coats to joist surfaces to a min final thickness as shown in the table below. Joist surfaces must be clean and free of dirt, loose scale and oil. Crest areas of deck above the joist shall be filled with Spray-Applied Fire Resistive Materials. When metal lath (Item 7) is used on joist, Spray-Applied Fire Resistive Materials is to be applied over lath with no min thickness requirement.

Min avg density of 17.5 pcf with min ind density of 16 pcf for Type 300TW. Min avg density of 22 pcf and min ind density of 19 pcf for Type 400. Min avg density of 18 pcf and min ind density of 17 pcf for Type 280. For method of density determination, see Design Information Section, Sprayed Material.

Normal Weight Concrete

Rating Hr	Unrestrained Steel Joist Rating		Min Thkns of Spray Applied Fire Resistive Mtl In.			
			Unrestrained Steel Joist Rating		Restrained Steel Joist Rating	
	Item 1	Item 1A	Item 1	Item 1A	Item 1	Item 1A
1	9/16+	1	9/16+	1	9/16+	1
1-1/2	1	1-9/16	1	1	1	1
2	1-3/8	2-1/16	1-3/8	1-3/8	1-3/8	1-5/8
3	2-1/4	NR	2-1/4	NR	2-1/4	NR

+ = When bottom chords consist of 1 by 1 by 0.125 in. thick steel angles, the thickness of spray-applied fire resistive material shall be increased to 13/16 in. on the bottom chord only.

Lightweight Concrete

Rating Hr	Unrestrained Steel Joist Rating		Min Thkns of Spray Applied Fire Resistive Mtl In.			
			Unrestrained Steel Joist Rating		Restrained Steel Joist Rating	
	Item 1	Item 1A	Item 1	Item 1A	Item 1	Item 1A
1	9/16+	1-1/8	9/16+	1-1/8	9/16+	1-1/8
1-1/2	1	1-3/4	1	1-5/16	1	1-5/16
2	1-3/8	2-1/4	1-3/8	2-1/16	1-3/8	2-1/16
3	2-1/4	NR	2-1/4	NR	2-1/4	NR

NR=No Rating.

+ = When bottom chords consist of 1 by 1 by 0.125 in. thick steel angles, the thickness of spray-applied fire resistive material shall be increased to 13/16 in. on the bottom chord only.

ISOLATEK INTERNATIONAL —Types 280, 300TW or 400.

LUCKY CORE INSULATING MATERIALS

MANUFACTURING L L C —Type 400.

NEWKEM PRODUCTS CORP —Type 400.

- 7. **Metal Lath** — (Optional) — 3/8 in. diamond mesh, expanded steel weighing min 2.5 lb/sq yd, secured to one side of joist using No. 16 SWG steel tie wire located at mid-height of every other web. Both sides of lath must be completely coated with Spray-Applied Fire Resistive Materials with no min thickness requirements.
- 7A. **Glass Fiber Mesh** — (Optional) - As an alternate to metal lath (Item 7). Min 3/32 in. sq mesh, coated fiberglass scrim fabric, weighing a min of 1.9 oz per sq yd, polypropylene fabric mesh, weighing approximately 1.25 oz per sq yd or equivalent may be used to facilitate spray application. The mesh shall be attached to one side of each joist web member. The method of attachment must be sufficient to hold the mesh and fire protection material during application and curing of the material. Suitable methods of attachment include hairpins, 18 SWG galv steel tie wire or hot melted glue. Hairpin clips are nom 1-1/4 in. long by 1/2 in. wide made of 0.064 in. diam steel wire. Hairpin clips or tie wire located near top and bottom and at intermediate points along each web member to firmly secure the fabric to the joist.

*Bearing the UL Classification Mark