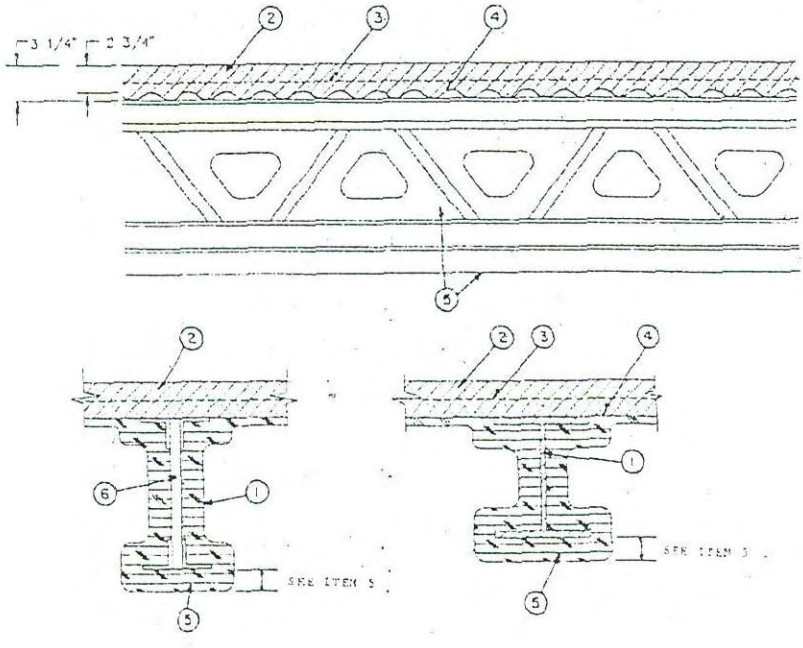
CITY OF NEW YORK
DEPARTMENT OF BUILDINGS

Pursuant to Administrative Code Section 27-131, the following equipment or material has been found acceptable for use in accordance with the Report of Materials and Equipment Acceptance (MEA) Division.

Patricia J. Lancaster, F.A.I.A., Commissioner
MEA 32-04-M
Report of Material and Equipment Acceptance Division

Manufacturer – Isolatek International, 41 Furnace Street, Stanhope, NJ 07874.
Trade Name(s) – CAFCO BLAZE-SHIELD II and HP.
Product - Spray-applied material for fire protection of beams and joist supporting floor/ceiling assembly.
Pertinent Code Section(s) - 27-323, 27-324.
Prescribed Test(s) - RS 5-2 (ASTM 119).
Laboratory – Underwriters Laboratories, Inc.
Test Report(s) – UL File R3749, dated September 23, 1992, January 30, 1992, May 3, 1990, April 30, 1986, December 10, 1984, March 12, 1981, July 29, 1976, and January 9, 1997 and 2003 UL Directory, Design No. G801.
Description - Fire protection of beams and joist supporting floor/ceiling assemblies, as per sketch below utilizing the CAFCO BLAZE-SHIELD II and HP fire protection material, spray-applied to the required thicknesses in achieving the fire resistance ratings listed below and in accordance with Underwriters Laboratories Inc. Designs listed.

Design No. G801
Restrained Assembly Rating — 1, 1-1/2, 2 or 3 h (See Items 2, 5)
Unrestrained Assembly Ratings — 1, 1-1/2 or 2 h (See Items 2, 5)
Unrestrained Beam Ratings — 1, 1-1/2 or 2 h (See Item 5)



1. Beam — W8x24 min size. As an alternate to steel beams, Joist girders — (Not shown) — 20 in. min depth and 20 lb/lin ft min weight.

1A. Steel Joists — Min 16K6 or heavier, with min 3/4 in. diam or larger cross sectional area web members. As an alternate, any LH Series steel joists spanning no greater than 60 ft may be used. For spans greater than 60 ft, LS Series joists may be used provided that the deflection under their published total load shall not be greater than 1/277 of the joist span.

1B. Horizontal Bridging — (Not shown) — Min 1-1/4 by 1-1/4 by 1/8 in. thick steel angles for use with noncomposite joists (Items 1A and 1D). Number and spacing per Steel Joist Institute specifications. Welded to top and bottom chord of the joists.

1C. Structural Steel Members — (Not Shown) — As alternate to Items 1A and 1B - Steel Joists, designed for full composite action with the concrete slab. Min area of joist members shall be 0.708 sq in. for top and bottom chord steel sections, 0.442 sq in. for web section. Designed in accordance with SJI specifications for K-Series joists as revised to November 15, 1989.

VESCOM STRUCTURAL SYSTEMS INC —Type V.

1D. Steel Joists — May be either uncoated or provided with a shop coat of paint. Composite or noncomposite. Welded or bolted to end supports. Designed per S.J.I. specifications for a max design stress of 30 ksi. 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. The min depth and weight shall be 8 in. and 4.9 lb/ft, respectively.

2. Normal Weight or Lightweight Aggregate Concrete — Normal weight, carbonate or siliceous aggregate concrete, 150 pcf unit weight, 3500 psi compressive strength, vibrated. Lightweight concrete (expanded shale, clay or slate aggregate by rotary-kiln method), 120 pcf unit weight, 3500 psi min compressive strength, vibrated, and an air content of 6 plus or minus percent. For 1-1/2 and 2 h assembly ratings, the 2-3/4 in. concrete topping thickness may be reduced to 2-1/2 in. when noncomposite joists are used. The Unrestrained Assembly Rating depends on the type of concrete aggregate and supporting element spacing as shown below.

	Unrestrained Assembly Rating	
	Max Spacing 3 ft, 6 in.	Spacing Greater than 3 ft. 6 in. OC
Lightweight aggregate	1-1/2 h	1-1/2 h
Normal weight aggregate	2 h	1-1/2 h

3. Welded Wire Fabric — 6 by 6 in. — W2.0 by W2.0.

4. Steel Floor and Form Units* — No. 28 MSG min galv corrugated steel, 2-1/2 in. pitch and 1/2 in. depth of corrugations. Units welded to each beam or joist, 36 welds per 100 sq/ft of units, with at least one weld at each joint, or

Classified Steel Floor and Form Units* — min 9/16 in. deep, 28 MSG galv or ptd/ptd corrugated deck. Units welded to each beam or joist with 36 welds per 100 sq ft of units, with min one weld at each side joint of units.

VULCRAFT, DIV OF

NUCOR CORP —Types 0.6 C, 1.0 C or 1.3 C.

4A. Steel Floor and Form Units* — (Not shown) As an alternate to Item 4, Composite 1-1/2 in. deep, 30, 35 or 36 in. wide, galv steel units. Min gauge is 22 MSG. Welded to supports 12 in. OC. Adjacent units button-punched, welded or screwed together 36 in. OC max along side joints. The concrete thickness shall be measured to the top plane of the steel deck.

VULCRAFT, DIV OF

NUCOR CORP —Types 1.5VL, 1.5VLI.

5. Spray-Applied Fire Resistive Materials — Applied by spraying with water, in one untamped coat at the thickness shown in the table below, to steel surfaces which are free of dirt, oil or scale. Use of adhesive is optional. Min avg untamped density is 13 pcf with min ind untamped density of 11 pcf for D-C/F or Type II. Min avg and min ind densities of 22 and 19 pcf, respectively, for Type HP. Tamping is optional. For method of density determination refer to Design Information Section.

Restrained Assembly Rating Hr	Unrestrained Assembly & Unrestrained Beam Rating	Deck	Beam	Min Thkns In. Item 1A, 1B, 1C	Item 1D Normal Weight Concrete	Item 1D Lightweight Concrete
1	1	1/2	7/16	1-1/8–	1	1-1/8
1-1/2	1	1/2-	7/16	1-1/2	1-9/16	1-3/4
2	1	1/2	7/16	1-1/2	2-1/16	2-1/4
2	1-1/2	1/2	3/4	1-1/2	2-1/16	2-1/4
3	2	1/2	1-1/8	1-1/2	—	—

- May be reduced to 1 in. when normal weight concrete is used.

CIL GROUP LTD —Type D-C/F or Type II. Type EBS or Type X adhesive/sealer optional.

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

6. Metal Lath — (Optional) — Diamond mesh, 3/8 in. expanded steel lath, 1.7 to 3.4 lb/sq yd. Lath secured to one side of each steel joist with No. 18 SWG galv steel wire at joist web and bottom chord members, spaced 15 in. OC max.

7. Glass Fiber Mesh — (Optional) — Square mesh, 3/32 in. to 3/16 in. fiberglass scrim fabric, weighing approx 1.9 to 2.5 oz./sq yd shall be attached to one side of each joist web member. The method of attaching the mesh must be sufficient to hold the mesh and spray-applied fiber fire protection material in place during application of the fiber material and until it has cured. An acceptable method to attach 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 min 12 in. OC along the top chord of the bar joists.

*Bearing the UL Classification Mark

Recommendation - That the above described roof/ceiling assemblies be accepted as having the fire resistance ratings indicated, provided the following requirements for application and protection of the sprayed-on fireproofing be adhered to:

1. Surfaces to received sprayed-on fireproofing shall be cleaned of dirt, grease, oil, loose scale, paint, and any extraneous material immediately prior to the application of the fireproofing.

2. The finished fireproofing shall be sprayed to a uniform thickness, which shall not be less than the minimum thickness specified. Fireproofing may be finish troweled to required thicknesses and densities.

3. Density of the sprayed-on fireproofing shall be verified by removing a minimum of three 6-inch square sections, randomly selected from the buildings, subjecting them to 120 degrees Fahrenheit in an oven to constant weight, usually 24 to 48 hours at a laboratory, followed by accurate weighing, measuring and calculation of the density in pounds per cubic foot.

4. The general contractor and the owner shall provide qualified personnel to supervise the application of the sprayed-on fireproofing. They shall certifying to the Department of Buildings that the finished fireproofing of the completed building is in full compliance with the accepted requirements and drawings approved by the Department of Buildings.

5. The material used for the protection of spray-on fireproofing shall be adequate for its purpose and shall be approved by the Department of Buildings.

6. The installation of the sprayed-on fire protection shall be subject to the controlled inspection requirements of Section 27-132.

7. The use of the material shall be subject to all pertinent regulations of the Department of Air Resources and the Department of Health.

8. All shipments and deliveries of the materials comprising this assembly shall be accompanied by a certificate or label certifying that the materials shipped or delivered are equivalent to those tested and acceptable for use, as provided for in Section 27-131 of the Building Code.

Final Acceptance March 25 / 04

Examined By S Derfflinger