

**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.

**Richard C. Visconti, R.A., Acting Commissioner
MEA 176-00-M**

Report of Material and Equipment Acceptance Division

Manufacturer - Star Maling Og Lakkfabrikk A/S, P.O. Box 593, Lierstranda, Norway.

Trade Name(s) - Carboline Nullifire S607.

Product - Mastic coating for fire protection, for Class II Buildings.

Pertinent Code Section(s) - 27-323, 27-324.

Prescribed Test(s) - RS 5-2 (ASTM E119).

Laboratory - Underwriters Laboratories, Inc.

Test Report - UL File R11193.

Description - Type Nullifire S607 mastic coating with type Carboline Sanitile 250 or Carboline 3359 top coat per requirement of Underwriters Laboratories Inc. is designed to fire-proof interior steelwork of steel beams, columns, tubes, and pipes in Design Nos. D786 and D937.

Fire Resistance Ratings - ANSI/UL 263

Guide Information

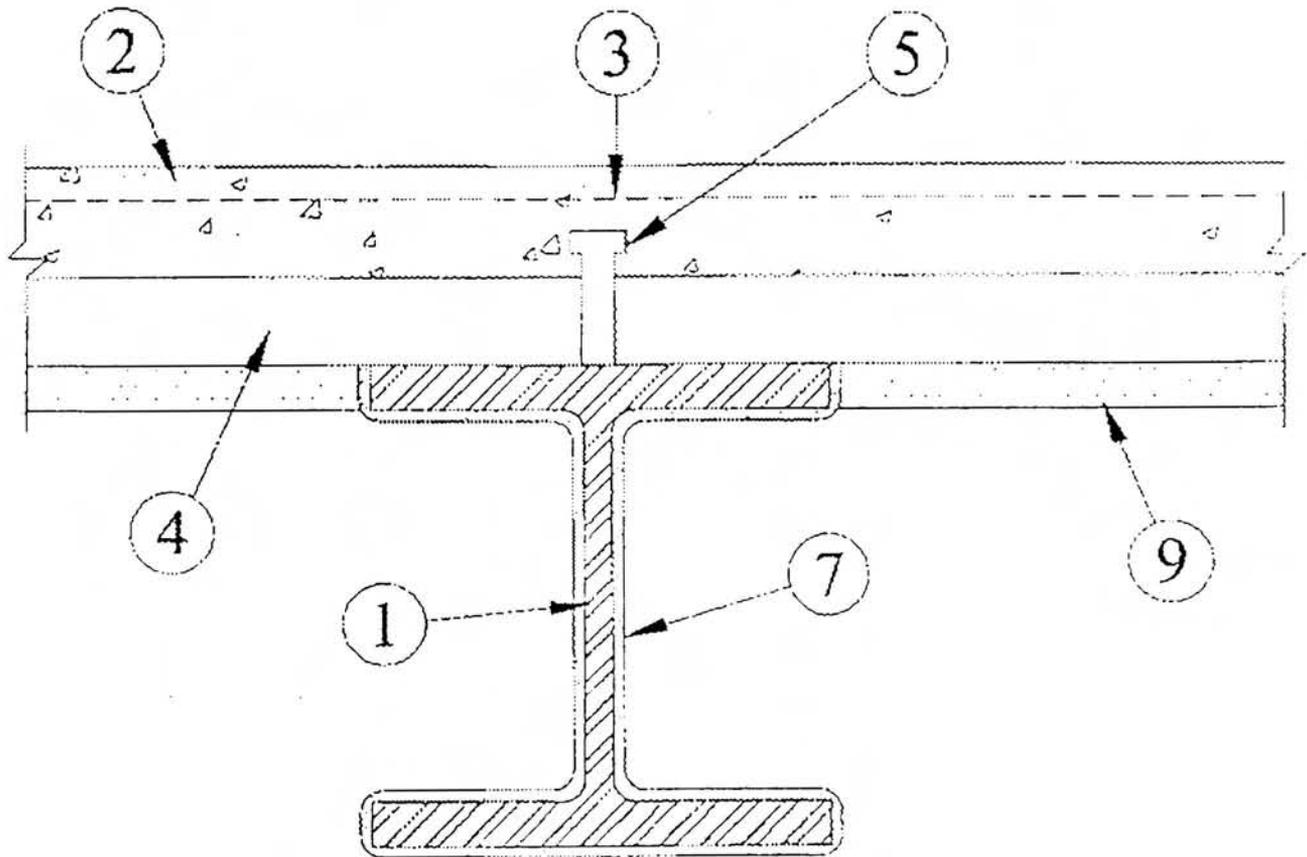
Design No. D786

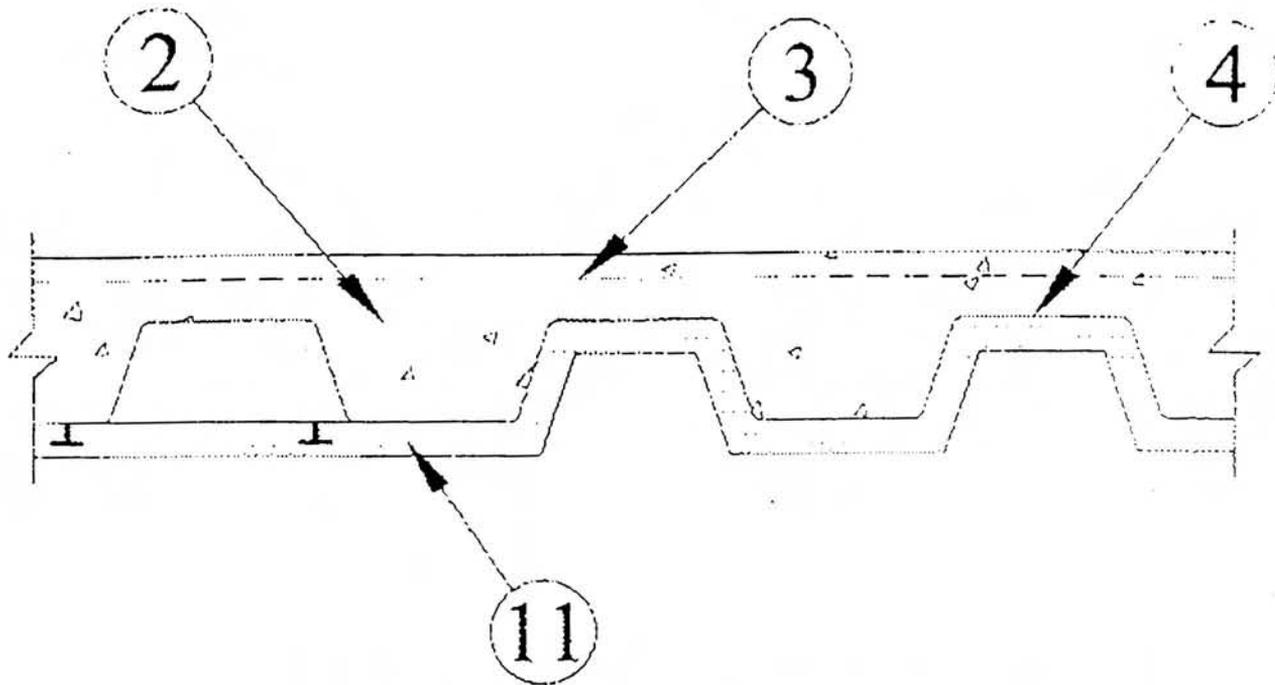
December 04, 1999

Restrained Assembly Ratings-2 Hr. (See Items 7 and 9)

Unrestrained Assembly Ratings-1 and 1-1/2 Hr. (See Items 7 and 9)

Unrestrained Beam Ratings-1 and 1-1/2 Hr. (See Items 7 and 9)





1. **Steel Beams** Any wide flange steel size shown in the table in Item 7. Beams shall be primed with a red oxide, zinc phosphate primer.

2. **Normal Weight or Lightweight Concrete** Min thickness above the crest 2-1/2 in. Normal weight concrete, carbonate or siliceous aggregate, 145 lb/ft³ plus or minus 3 lb/ft³ unit weight, 3000 psi compressive strength, vibrated. Lightweight concrete, expanded shale, clay or slate aggregate by rotary-kiln method, 102-120 lb/ft³ unit weight, 3000 psi compressive strength, vibrated, 4 to 7 percent entrained air

3. **Welded Wire Fabric** 6x6 — W1.4xW1.4

4. **Steel Floor and Form Units*** Composite 1-1/2, 2, or 3 in. deep galv Units. Fluted units may be uncoated. Min gauges 22 MSG for fluted and 20/20 MSG for cellular. Any combination of fluted and cellular units may be used. Spacing of welds attaching units to supports shall be 12 in. OC max unless specified otherwise. adjacent units button-punched or welded together at side joints and, unless specified otherwise for specific unit types, spacing of all side joint fastening systems shall not exceed 36 in. OC.

CONSOLIDATED SYSTEMS INC — 24 in. wide Types CFD-2, -3, 24, 30 or 36 in. wide Type CFD-1 5, 12, 24 or 36 in. wide Types Mac-Lok 2, Mac-Lok 3; 12 in. wide Mac-Way Cellular Types 2-633MTWA, 3-633MTWA, 2-633MTWV, 3-633MTWV For the 1, 1-1/2, 2h Restrained Assembly Ratings and the 1h Unrestrained Assembly and Beam Rating. 12 in. wide Type 1 5-633 MTWA may be used. Types CFD-1 5, CFD-2, CFD-3, Mac-Lok 2, Mac-Lok 3 may be phos/ptd. Two rows of steel studs with discs (Item 7) shall be welded along the sides of the Types 2-633MTWV, 3-633MTWV cellular units a max of 22 in OC.

VULCRAFT, DIV OF — 24, 30 or 36 in. wide Type 1 5VLI, 1 5VLP, 24 or 36 in. wide Types 2VLI, 3VLI, 2VLP, 3VLP Types 1 5VLI, 2VLI, 3VLI units may be phos/ptd, 24 or 36 in. wide Types 2VLJ, 3VLJ units (+) may be used for max 2 hr Restrained Assembly

(+)Side joints of Type 2VLJ or 3VLJ units may be fastened together with No. 8-3/4 in. long self-drilling Tek screws driven diagonally from the top side through the joint of the units at 36 in. OC max

5. **Shear Connectors (Optional)** Studs, 3/4 in. diam (min 1/2 diam for use with steel joists) by 4-1/2 in. long headed type or equivalent per AISC specification. Welded to the top flange of the beam, through the deck.

6. **Joint Cover** 2 in. wide pressure sensitive cloth tape

7. **Mastic Coating*** Coating spray, brush or towel applied directly from containers to desired thickness. See table below for appropriate final dry thickness. After each coat, the surface shall be lightly rolled with a paint roller. Flutes above beam to be completely filled with mineral wool insulation having a minimum density of 6 lb/ft³ or the top flange of the beam shall be protected with the same thickness of coating as required on the beam.

Restrained Assembly Rating (Hr)	2
Unrestrained	

Beam Rating (Hr)		1	1-1/2
Steel Size	W/D	Thickness (In.)	
W12x106	1.76	0.022	0.022
W12x120	1.98	0.022	0.022
W12x136	2.21	0.022	0.022
W12x152	2.45	0.022	0.022
W12x170	2.71	0.022	0.022
W12x190	2.99	0.022	0.022
W12x210	3.26	0.022	0.022
W12x230	3.53	0.022	0.022
W12x252	3.82	0.022	0.022
W12x279	4.16	0.022	0.022
W12x305	4.48	0.022	0.022
W12x336	4.85	0.022	0.022
W14x132	1.85	0.022	0.022
W14x145	1.97	0.022	0.022
W14x159	2.14	0.022	0.022
W14x176	2.36	0.022	0.022
W14x193	2.57	0.022	0.022
W14x211	2.78	0.022	0.022
W14x233	3.04	0.022	0.022
W14x257	3.32	0.022	0.022
W14x283	3.62	0.022	0.022
W14x311	3.93	0.022	0.022
W14x342	4.27	0.022	0.022
W14x370	4.57	0.022	0.022
W14x398	4.87	0.022	0.022
W14x426	5.15	0.022	0.022
W14x455	5.45	0.022	0.022
W14x500	5.89	0.022	0.022
W14x550	6.37	0.022	0.022
W14x605	6.89	0.022	0.022

W14x665	7.43	0.022	0.022
W14x730	7.99	0.022	0.022
W21x147	1.85	0.022	0.022
W24x162	1.87	0.022	0.022
W27x178	1.87	0.022	0.022
W30x191	1.84	0.022	0.022
W30x211	2.02	0.022	0.022
W33x201	1.80	0.022	0.022
W33x221	1.96	0.022	0.022
W33x241	2.13	0.022	0.022
W36x194	1.82	0.022	0.022
W36x210	1.96	0.022	0.022
W36x230	1.95	0.022	0.022
W36x245	2.07	0.022	0.022
W36x260	2.19	0.022	0.022
W36x280	2.35	0.022	0.022
W36x300	2.50	0.022	0.022

NR - Not Rated

CARBOLINE CO — Type Nullfire S607. Investigated for Interior Conditioned Space Purpose and Interior General Purpose.

8 Topcoat Required for Interior General Purpose. See Classification information in the Mastic Coating (CDWZ) category for a list of top-coats. Optional for Interior Conditioned Space Purpose. Top-coat to be applied at a min. 0.003 in. thickness

9 Spray-Applied Fire Resistive Materials* Applied to steel floor units (Item 4) by mixing with water and spraying to steel surfaces which must be clean and free of dirt, loose scale and oil. Min avg and min ind density of 15/14 pcf respectively for the Type 15 and 15-High Yield, 22/18 pcf, respectively for the Type 22, 40/37 pcf respectively for the Type 40, 28/25 pcf respectively for the Type 239, 44.5/42 respectively for the 240 High Yield, and 55/50 respectively for the Type 241. For method of density determination, refer to Design Information Section. May be used only in general floor areas without concrete penetrations with all fluted steel floor units or blends consisting of one or more fluted units to one 24 in. wide max cellular unit, 1-1/2 or 3 in. deep, with cells spaced approx 6 and 8 in. respectively. Use of steel studs with discs (Item 11) is required on all cellular units with flat plate on the bottom, optional on other steel surfaces

The following thickness of material is required on the steel floor units for the various Restrained and Unrestrained Assembly Ratings

Restrained Assembly Rating Hr.**	Unrestrained Assembly Rating Hr.***	Min Thk of Spray Applied Fire Resistive Mtl (In.)*		
		Crests	Valey	Flat Plate
2	1 or 1-1/2	3/8	3/8	3/8

* Where metal lath (Item 9) is required thickness of material shall be measured to the face of the lath

** Min thickness of 1/2 in. is required in crests of 1-1/2 in. deep fluted units for a 2 Hr. Restrained Assembly Rating

*** Unrestrained Beam Rating shall be equal to the Unrestrained Assembly Rating.

CARBOLINE CO — Types 15, 15-High Yield, 22, 40, 239, 240-High Yield, 241

CARBOLINE KOREA LTD — Types 15, 15-High Yield, 22, 40, 239, 240-High Yield, 241

CARBOLINE MIDDLE EAST L L C — Types 15, 15-High Yield, 22, 40, 239, 240-High Yield, 241

CARBOLINE SOUTHEAST ASIA PTE LTD — Types 15, 15-High Yield, 22, 40, 239, 240-High Yield, 241

CDC CARBOLINE (INDIA) PVT LTD — Types 15, 15-High Yield, 22, 40, 239, 240-High Yield, 241, CDC Crete 15, CDC Crete 15-High Yield, CDC Crete 22, CDC Crete 40, CDC Crete 239, CDC Crete 240-High Yield, CDC Crete 241

CENTRAL PAINTS IND INC LTD — Types 15, 15-High Yield, 22, 40, 239, 240-High Yield, 241

10. **Metal Lath (not shown)** Where Types 40, 239, 240 High-Yield and 241 are applied to steel deck, fluted or cellular, 3/8 in metal ribbed lath weighing 3.4 lb/yd² shall be secured to the underside of the steel deck (ribs upward) with S-12 by 3/8 in long panhead, self-tapping steel screws spaced 12 in. OC in all directions. Steel screws shall be fitted with 1/2 in diameter steel washers. Adjacent pieces of lath shall be overlapped 1 in. minimum. Entire surface of deck shall be lathed.

11. **Steel Studs With Discs** For use with Types 15, 15-High Yield and 22, studs consist of No. 12 SWG galvanized steel wire welded to 1-3/16 in. diameter No. 28 MSG galvanized steel disc. The ends of the studs opposite the disc shall be welded to the cellular floor units. The spacing of the rows shall not exceed 22 in. Spacing between studs along the rows shall not exceed 24 in. The total number of studs shall average not less than one stud per 236 in.² of cellular floor units.

*Bearing the UL Classification Marking

Fire Resistance Ratings - ANSI/UL 263

Guide Information

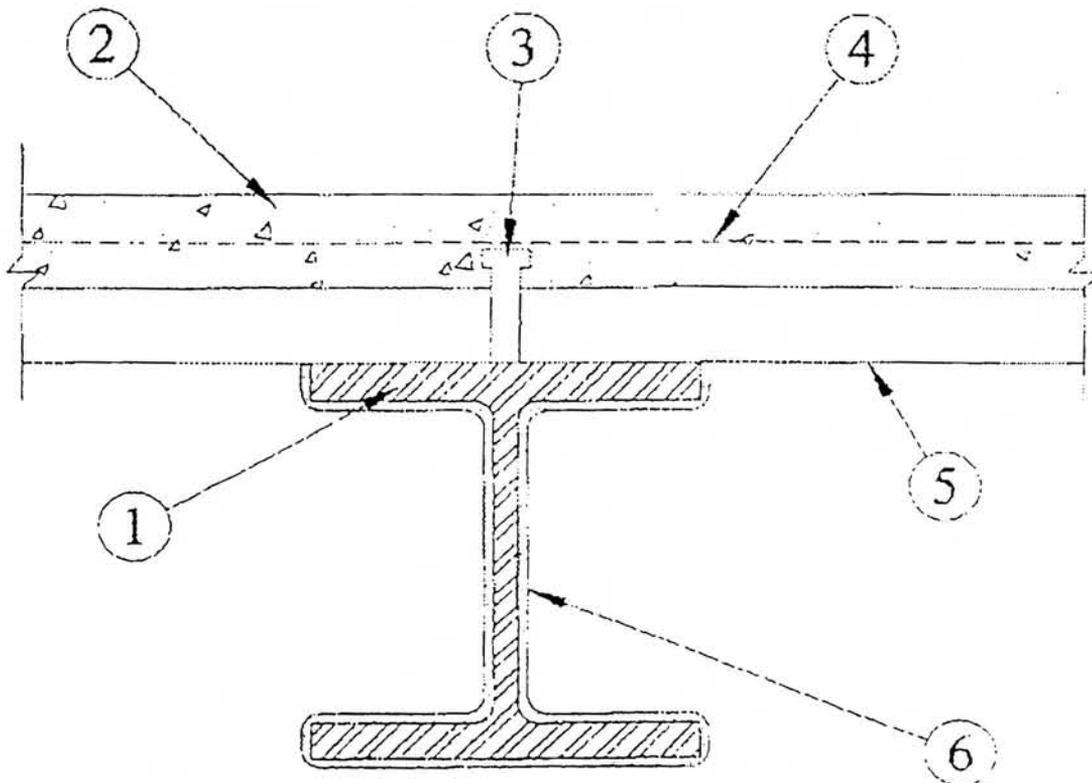
Design No. D937

December 04, 1999

Restrained Assembly Ratings- 2 Hr. (See Items 2, 5 and 7)

Unrestrained Assembly Ratings-1 and 1-1/2 Hr. (See Items 2, 5 and 7)

Unrestrained Beam Ratings-1 and 1-1/2 Hr. (See Items 2, 5 and 7)



1. **Steel Beams** Any wide flange steel size shown in the table in Item 7. Beams shall

be primed with a red oxide, zinc phosphate primer.

2. Normal Weight or Lightweight Concrete Normal weight concrete, carbonate or siliceous aggregate, 145 lb/ft³ plus or minus 3 lb/ft³ unit weight, 3000 psi compressive strength, vibrated
 Lightweight concrete, expanded shale, clay or slate aggregate by rotary-kiln method, 102-120 lb/ft³ unit weight, 3000 psi compressive strength, vibrated, 4 to 7 percent entrained air.

Restrained Assembly Rating Hr	Concrete (Type)	Concrete Unit Weight pcf	Concrete Thkns In.
1	Normal Weight	147-153	3-1/2
1-1/2	Normal Weight	147-153	4
2	Normal Weight	147-153	4-1/2
1	Lightweight	107-120	2-5/8
1-1/2	Lightweight	107-113	3
2	Lightweight	107-113	3-1/4
2	Lightweight	107-116	3-1/4*
2	Lightweight	114-120	3-1/2

*For use with 2 or 3 in. steel floor and form units only.

3. **Shear Connectors (Optional)** Studs, 3/4 in. diam (min 1/2 diam for use with steel joists) by 4-1/2 in. long, headed type or equivalent per AISC specification. Welded to the top flange of the beam, through the deck

4. **Welded Wire Fabric** 6x6 — W1.4xW1.4.

5. **Steel Floor and Form Units*** Composite 1-1/2, 2, or 3 in. deep galv units. Fluted units may be uncoated. Min gauges 22 MSG for fluted and 20/20 MSG for cellular. Any combination of fluted and cellular units may be used. Spacing of welds attaching units to supports shall be 12 in. OC max unless specified otherwise, adjacent units button-punched or welded together at side joints and, unless specified otherwise for specific unit types, spacing of all side joint fastening systems shall not exceed 36 in. OC.

CONSOLIDATED SYSTEMS INC — 24 in. wide Types CFD-2, -3; 24, 30 or 36 in. wide Type CFD-1.5; 12, 24 or 36 in. wide Types Mac-Lok 2, Mac-Lok 3; 12 in. wide Mac-Way Cellular Types 2-633MTWA, 3-633MTWA, 2-633MTWV, 3-633MTWV For the 1, 1-1/2, 2h Restrained Assembly Ratings and the 1h Unrestrained Assembly and Beam Rating, 12 in. wide, Type 1.5-633 MTWA may be used. Types CFD-1.5, CFD-2, CFD-3, Mac-Lok 2, Mac-Lok 3 may be phos/ptd. Two rows of steel studs with discs (Item 7) shall be welded along the sides of the Types 2-633MTWV, 3-633MTWV cellular units a max of 22 in OC

VULCRAFT, DIV OF — 24, 30 or 36 in. wide Type 1.5VLI, 1.5VLP; 24 or 36 in. wide Types 2VLI, 3VLI, 2VLP, 3VLP Types 1.5VLI, 2VLI, 3VLI units may be phos/ptd, 24 or 36 in. wide Types 2VLJ, 3VLJ units (+) may be used for max 2 hr Restrained Assembly.

(+) Side joints of Type 2VLJ or 3VLJ units may be fastened together with No. 8-3/4 in. long self-drilling Tek screws driven diagonally from the top side through the joint of the units at 36 in. OC max

The Unrestrained Assembly Rating is equal to the Unrestrained Beam Rating for a max of 1-1/2 Hrs. and is limited to the following units and limitations

- (a) 1-1/2 in. deep, 24 in. wide, 22 MSG or thicker fluted with clear spans not more than 7 ft 8 in.
- (b) 1-1/2 in. deep, 24 in. wide, 20 MSG or thicker fluted with clear spans not more than 8 ft 8 in.
- (c) 1-1/2 in. deep, 24 in. wide, 16 MSG or thicker fluted and 18-18 MDG or thicker cellular with clear spans not more than 9 ft 11 in.
- (d) 3 in. deep, 36 in. wide, 18 MSG or thicker fluted and 24 in. wide, 20-18 MSG or thicker cellular with clear spans not more than 13 ft 2 in.

6. **Joint Cover** 2 in. wide pressure sensitive cloth tape

7. **Mastic Coating*** Coating spray, brush or towel applied directly from containers to desired thickness. See table below for appropriate final dry thickness. After each coat, the surface shall be lightly rolled with a paint roller. Flutes above beam to be completely filled with mineral wool insulation having a minimum density of 6 lb/ft³ or the top flange of the beam shall be protected with the same thickness of coating as required on the beam

Restrained

Assembly Rating (Hr)		2	
Unrestrained Beam Rating (Hr)		1	1-1/2
Steel Size	W/D	Thickness (In.)	
W12x106	1.76	0.022	0.022
W12x120	1.98	0.022	0.022
W12x136	2.21	0.022	0.022
W12x152	2.45	0.022	0.022
W12x170	2.71	0.022	0.022
W12x190	2.99	0.022	0.022
W12x210	3.26	0.022	0.022
W12x230	3.53	0.022	0.022
W12x252	3.82	0.022	0.022
W12x279	4.16	0.022	0.022
W12x305	4.48	0.022	0.022
W12x336	4.85	0.022	0.022
W14x132	1.85	0.022	0.022
W14x145	1.97	0.022	0.022
W14x159	2.14	0.022	0.022
W14x176	2.36	0.022	0.022
W14x193	2.57	0.022	0.022
W14x211	2.78	0.022	0.022
W14x233	3.04	0.022	0.022
W14x257	3.32	0.022	0.022
W14x283	3.62	0.022	0.022
W14x311	3.93	0.022	0.022
W14x342	4.27	0.022	0.022
W14x370	4.57	0.022	0.022
W14x398	4.87	0.022	0.022
W14x426	5.15	0.022	0.022
W14x455	5.45	0.022	0.022
W14x500	5.89	0.022	0.022
W14x550	6.37	0.022	0.022

W14x605	6.89	0.022	0.022
W14x665	7.43	0.022	0.022
W14x730	7.99	0.022	0.022
W21x147	1.85	0.022	0.022
W24x162	1.87	0.022	0.022
W27x178	1.87	0.022	0.022
W30x191	1.84	0.022	0.022
W30x211	2.02	0.022	0.022
W33x201	1.80	0.022	0.022
W33x221	1.96	0.022	0.022
W33x241	2.13	0.022	0.022
W36x194	1.82	0.022	0.022
W36x210	1.96	0.022	0.022
W36x230	1.95	0.022	0.022
W36x245	2.07	0.022	0.022
W36x260	2.19	0.022	0.022
W36x280	2.35	0.022	0.022
W36x300	2.50	0.022	0.022

NR - Not Rated

CARBOLINE CO — Type Nullifire S607 Investigated for Interior Conditioned Space Purpose and Interior General Purpose.

8. Topcoat Required for Interior General Purpose. See Classification information in the Mastic Coating (CDWZ) category for a list of top-coats. Optional for Interior Conditioned Space Purpose. Top-coat to be applied at a min 0.003 in. thickness.

•Bearing the UL Classification Marking

Recommendation - That the above described assemblies be accepted for Class II Buildings only, as having the fire resistance ratings given above, when members framing into the columns have at least the same fire resistance rating, provided that following requirements for application and protection of the mastic coating fireproofing be adhered to:

1. Where used for protection of floor ceiling and/or assemblies in roof/ceiling in fireproof buildings each such assembly shall bear an identifying tag installed at each beam. Subject tag shall be of metal construction mechanically attached to such beams and shall state the following: "this beam has been fireproofed with MEA approved Nullifire S607 coating with type Carbolite Sanitile 250 or Carbolite 3359 top coat finish and such finish shall not be removed" nor any subsequent coating shall be applied other than Nullifire S607 coating with type Carbolite Sanitile 250 or Carbolite 3359 top coat.
2. The general contractor and the owner shall provide qualified personnel to supervise the application of the sprayed-on fireproofing. They shall certify to the Department of Buildings that the finished fireproofing of the completed building is in full compliance with the acceptance requirements and drawings approved by the Department of Buildings.
3. The installation of the sprayed on fire protection shall be subject to the controlled inspection requirements of Section 27-132.
4. The use of this material shall be subject to all pertinent regulations of the Department of Air Resources and the Department of Health.
5. All installations shall comply with 118-68 GR, the New York City Building Code, the Fire Department Directives, the manufacturer's instructions and laboratory recommendation.
6. 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 JUL 27 2000
Examined by S. Derkhdam