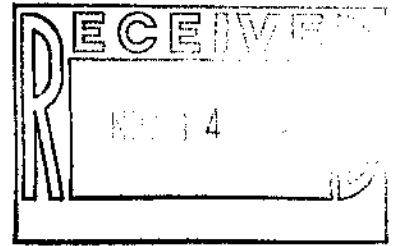


3M

Fire Protection Products



November 7, 1996

Mr. Randy Brown
Peak Seals, Inc.
15926 Cypress North Houston, Ste. 100
P. O. Box 99
Cypress, TX 77429
Fax: (713) 256-2694

Dear Randy:

As I understand, you have some questions regarding the replacement of CP 25N/S Caulk with CP 25WB+ Caulk for nuclear applications with the Interam™ mat and penetration seals.

I have attached information on shelf life, radiation data, and Certificate of Conformance. Based on the above information and the latest testing at Omega Point Laboratories, the CP 25WB+ Caulk is a replacement for CP 25N/S Caulk.

Regards,

Tom

Tom Thoreson
Technical Service

Reviewed by: *DMA* A1581

TT/ks
Attachments

3M Fire Protection Products

3M Center, Building 207-1S-02
St. Paul, MN 55144-1000

98-0701-2645-7(1082)R2



Fire Protection Products



TECHNICAL BULLETIN

Shelf Life Requirements for the following 3M Products

3M Interam™ Sheet and Fire Barrier

These 3M products do not have a shelf life requirement when stored indoors.

- Fire Barrier CS-195+ Composite Sheet
- Fire Barrier FS-195+ Wrap/Strip
- Fire Barrier Moldable Putty+
- Fire Barrier Plastic Pipe Devices

- Interam™ E-50/E-5 Series Mat
- Interam™ T-49 Tape
- Interam™ T-65 Tape

3M Fire Barrier and Interam™ Caulks

3M Fire Barrier CP 25N/S (No Sag) Caulk has a shelf life of one (1) year from the date of packaging when stored below 27°C (80°F).

3M Fire Barrier CP 25S/L (Self Leveling) Caulk has a shelf life of one (1) year from the date of packaging when stored below 27°C (80°F).

3M Fire Barrier CP 25WB+ (Water Based) Caulk has a shelf life of one (1) year from the date of packaging when stored above 4°C (40°F) and below 27°C (80°F).

3M Interam™ FireDam™ 150 Caulk has a shelf life of one (1) year from the date of packaging when stored above 4°C (40°F) and below 27°C (80°F).

The shelf life on the caulks affects ease of application and not fire protection properties. Useful life after application is forty (40) years.

The code to determine the packaging date is:

CS-195+ Composite Sheet

Example: 3011 R

3 = 1993 (Last Digit of Year)

011 = Cumulative Lot Number

R = Manufacturing Plant

Nuclear Reactor Laboratory
The University of Michigan

Ford Nuclear Reactor
Phoenix Memorial Laboratory
2301 Bonisteel Boulevard
Ann Arbor, Michigan 48109-2100
(313) 764-6220

CERTIFICATE OF COMPLIANCE

This is to certify that 3M Company samples designated FS-195+, CP25WB+, and MPP-1 (moldable putty) were irradiated at the Ford Nuclear Reactor, University of Michigan, in the facility's 18,000 curie cobalt-60 gamma irradiator to the following average exposures.

<u>FS-195+ Sample Number</u>	<u>CP25WB+ Sample Number</u>	<u>MPP-1 Sample Number</u>	<u>Dose Rate (rad/hr)</u>	<u>Irradiation Time (hr)</u>	<u>Cumulative Dose (rad)</u>
1-3	1-3	1-3	13,934	75	1.05x10 ⁶
4-6	4-6	4-6	73,916	75	5.54x10 ⁶
7-9	7-9	7-9	145,934	75	1.09x10 ⁷
10-12	10-12	10-12	670,917	75	5.03x10 ⁷
13-15	13-15	13-15	273,270	368	1.01x10 ⁸
16-18	16-18	16-18	2715360	740	2.01x10 ⁸
19-21	19-21	Unirradiated			

Gamma dose rates were measured with a Reuter Stokes ion chamber, model C4-1606-207, serial number 28943, that was calibrated against an NIST source on May 8, 1989.

The samples showed no visible indication of physical deterioration. They increased considerably in stiffness and rigidity and showed some discoloration.

June 22, 1993
Date

Reed R Burn
Reed R. Burn, Manager
Ford Nuclear Reactor



* * * * *
*** CERTIFICATE OF CONFORMANCE ***
* * * * *

DESCRIPTION: **3M Brand Fire Barrier CP25 WB+ Caulk**

This product was tested to ASTM standards:

- ASTM E119 Fire Tests Of Building Construction and Materials.
- ASTM E814 Fire Tests Of Through-Penetration Fire Stops.
- ASTM E84 Surface Burning Characteristics Of Building Materials.

This material is classified and tested by Underwriters Laboratories Inc. in the following categories: U.L. 1479 and U.L. 263

Fill, Void or Cavity Material for use in Through-Penetration Firestop Systems for a 1-4 hour fire rating. Refer to **U.L. Fire Resistance Directory** for systems classified.

The surface burning characteristics are (1/4" beads, 2" on center):

Flame Spread	5
Smoke Development	0

This product is tested according to 3M Standard Number GP-54 and meets product requirements and complies with NFPA 101 and NFPA 70. This product contains no asbestos or PCB's.

This product conforms to the requirements of Environmental Protective Agency (EPA) Regulation No. 40 C.F.R. Part 61, Subpart M, Section 61.148.

Pallet Serial No. _____

Customer P.O. No. _____

Invoice No. _____

Lot No. _____

3M Part No. _____

Quantity _____

Shelf Life _____

JM Hackney
Quality Manager
or designee

11-7-96
Date



Fire Protection Products



March 6, 1997

To: Users of 3M Fire Barrier Caulk CP 25N/S

3M Fire Barrier CP 25N/S Caulk was developed as a fire protective sealant for the Penetration Seal System, the Joint Treatment System, and Electrical Raceway System markets for the commercial and nuclear industry. 3M Fire Barrier CP 25N/S Caulk was used as a cold and fire seal for penetrations through fire rated assemblies for Electrical Protective System. It was used to provide a heat seal where straight line seams and termination occurred in the Protective Envelope System for electrical raceway protection.

3M Fire Barrier CP 25N/S Caulk was replaced with an improved version of caulk called 3M Fire Barrier CP 25WB Caulk, which was a water base version of the CP 25N/S caulk. CP 25WB+ Caulk has replaced the original version of CP 25WB Caulk and is now used to supplement the 3M Interam™ Electrical Raceway System as a cold and hot smoke seal for all penetrations or termination of the Interam™ E 50 Series Mat.

3M modified the CP 25WB Caulk to CP 25WB+ as an improved version of caulk for the commercial penetration sealing market. Underwriters Laboratories, Inc., has given 3M coverage of the CP 25WB+ as a replacement for CP 25WB Caulk (test reports and information attached).

Additionally the 3M Electrical Raceway Protection System was modified, fire tested, and qualified with a new caulk called FireDam™ 150. 3M's FireDam™ 150 Caulk has been qualified through the nuclear program with full-scale fire testing to the latest NRC standards as well as the original NRC standards. The FireDam™ 150 is a water base version of the Interam™ E 50 Series Mat product and is used to seal the mat system wherever straight line seams or openings occur in the mat system.

Electrical Raceway Systems manufactured and specified by 3M incorporate both the FireDam™ 150 Caulk and the CP25WB+ Caulk in conjunction with 3M's Interam™ Mat products. Fire testing for qualification to the NRC's current requirements does not incorporate the method for sealing penetrations as part of the fire test. The Electrical Raceway System is fire tested and qualified as a stand-alone item, and all penetration seals are based on fire testing of the seal itself.

CP 25WB+ Caulk would be used to seal around 3M's Composite Sheet System (CS-195+) as a smoke and heat seal only, and qualification would be based on 3M's listed performance as fire tested at U.L. (See attached comparison of CP 25N/S versus CP 25WB+.) Additional data is attached for other testing of the CP 25WB+ Caulk.

FPDCC	ALS92
INITIAL	RRL

3M

Fire Barrier CP 25WB+ Caulk

Product Data



FILL, VOID OR CAVITY MATERIALS
CLASSIFIED BY
UNDERWRITERS LABORATORIES, INC. ®
FOR USE IN THROUGH-PENETRATION FIRESTOP
SYSTEMS (XHEZ).
SEE CURRENT UL FIRE RESISTANCE DIRECTORY.

1. Product Description

3M Brand Fire Barrier CP 25WB+ Caulk is a premium elastomeric latex caulk designed for use as a one-part fire, smoke, noxious gas and water sealant. In addition, the unique intumescent property of this material (expands when heated) means that as cable or pipe insulation is consumed by fire, CP 25WB+ Caulk expands to maintain the penetration seal.

CP 25WB+ Caulk features superior adhesion strength, caulk rate and no-sag application with expanded UL Classified fire protection systems plus a halogen-free formula.

3M Fire Barrier CP 25WB+ Caulk can be installed with a standard caulking gun, pneumatic pumping equipment or it can be easily applied with a putty knife or trowel. CP 25WB+ Caulk will bond to concrete, metals, wood, plastic and cable jacketing. No mixing is required.

CP 25WB+ Caulk Features

- Water Base: Easy clean up, no special handling, routine disposal.
- Intumescent: Expands when heated to seal around items consumed by fire.
- Endothermic: Absorbs heat energy, releases chemically bound water.
- Thixotropic: Will not sag or run in overhead or vertical applications.
- Halogen-free.
- Fast dry: Tack-free in approximately 10-15 minutes.
- Paintable. (Best results obtained after 72 hour cure.)
- Minimal shrinkage.

- Brown color.
- Water seal: Seals against inadvertent water spills in the unexpanded state.
- High caulk rate: 1000 g/min. with 1/4 in. nozzle.
- Point contact allowed.
- Continuous Operating Temperature not to exceed 120°F (48°C).

2. Applications

Use to seal construction openings, blank openings and penetrating items against the passage of flame, noxious gas, smoke and water. Restores fire rated construction to original integrity. Also for use with 3M Brand Fire Barrier Penetrating Sealing Systems 7902 and 7904, FS-195+ Wrap/Strip and CS-195+ Composite Sheet.

3. Physical Properties

Product	Unit	Volume	Units/Ctn.	Wt/Ctn. Lbs. (Kg)
CP 25WB+ Caulk	10.5 fl. oz. cartridge	19 cu. in.	12	12 (5.44)
	1-gallon can (128 fl. oz.)	217 cu. in.	4	46 (20.8)
	5-gallon pail (640 fl. oz.)	1150 cu. in.	1	58 (26.3)

B. Volume Fill Guide for Core Drilled Holes

Application guide for filling holes with CP 25WB+ Caulk					
Metallic Pipe Size	Actual Pipe O.D.	Common Hole or Sleeve I.D.	Volume of Caulk Req'd 1/2 in. Depth (in. ³)	Cartridges of Caulk	Gallons of Caulk
1 in. (35.4 mm)	1.32 in. (33.5 mm)	2 in. (50.8 mm)	0.89	.05	.004
2 in. (50.8 mm)	2.38 in. (60.4 mm)	3 in. (76.2 mm)	1.31	.07	.006
3 in. (76.2 mm)	3.50 in. (88.9 mm)	4 in. (101.6 mm)	1.47	.08	.007
4 in. (101.6 mm)	4.50 in. (114.3 mm)	5 in. (127.0 mm)	1.87	.10	.009
5 in. (127.0 mm)	5.56 in. (141.2 mm)	6 in. (152.4 mm)	2.00	.11	.009
6 in. (152.4 mm)	6.63 in. (168.4 mm)	8 in. (203.2 mm)	7.87	.41	.04
8 in. (203.2 mm)	8.63 in. (219.2 mm)	10 in. (254.0 mm)	10.02	.53	.05
10 in. (254.0 mm)	10.75 in. (273.0 mm)	12 in. (304.8 mm)	11.16	.59	.05
12 in. (304.8 mm)	12.75 in. (323.8 mm)	14 in. (355.6 mm)	13.05	.69	.06

Notes:

1. Final caulk requirements may vary if criteria is different than stated in the application guide.
2. When the maximum annular space is 1-1/4 in. (31.8 mm) or less, a 1/2 in. (12.7 mm) minimum depth of CP 25WB+ Caulk is required.
3. When the maximum annular space is larger than 1 in. (25.4 mm) or the pipe O.D. is greater than 12 in. (304.8 mm), a 1 in. (25.4 mm) minimum depth of CP 25WB+ Caulk is required.
4. Damming materials, such as fiberglass, mineral wool or backer rod, may be used to support the CP 25WB+ Caulk.

4. Specifications

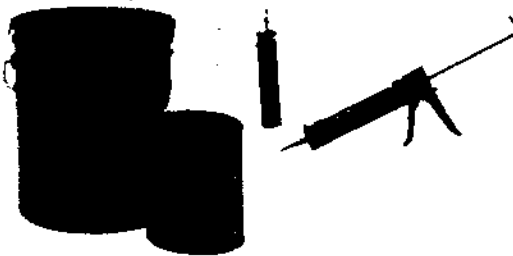
Product

The firestopping caulk shall be a one-part, intumescent, latex elastomer. The caulk shall be capable of expanding a minimum of 3 times at 1000°F. The material shall be thixotropic and be applicable to overhead, vertical and horizontal firestops. The caulk shall be listed by independent test agencies such as UL or FM and be tested to, and pass the criteria of, ASTM E 814 Fire Test, tested under positive pressure. It shall comply with the requirements of the NEC (NFPA-70), BOCAI, ICBO, SSBCCI and NFPA Code #101.

Typically Specified Divisions

Division 7 07270	Thermal and Moisture Protection Firestopping
Division 13 13900	Special Construction Fire Suppression and Supervisory Systems
Division 15 15250 15300	Mechanical Mechanical Insulation Fire Protection
Division 16 16050	Electrical Basic Electrical Materials and Methods

Product Data



3M

3M Brand Fire Barrier
 CP 25N/S No-Sag
 CP 25S/L Self-Leveling Caulk



FILL, VOID OR CAVITY MATERIALS
 CLASSIFIED BY
 UNDERWRITERS LABORATORIES INC.[®]
 FOR USE IN THROUGH-PENETRATION
 FIRESTOP SYSTEM NOS. 33, 49, 61, 62, 63, 64,
 65, 66, 90, 91, 92, 93, 94, 95, 97, 99, 102, 104, 105,
 136, 137, 138, 139, 140, 147, 148, 149, 152, 159,
 160, 167, 168, 169, 211,
 212, and 233
 90G9

SEE UL BUILDING MATERIALS DIRECTORY
 3M PRODUCT NO. CP 25



Approved

1. Product Description

3M Brand Fire Barrier CP 25 Caulk is a synthetic elastomer designed for use as one-part fire, cold smoke, noxious gas or water sealants. In addition, the unique intumescent property of these materials (expanding when heated) means that as cable or pipe insulation is consumed by fire, 3M Fire Barrier expands to tightly seal the penetration.

CP 25 can be installed with a standard caulking gun, pneumatic pumping equipment, or can be applied with a putty knife. 3M Fire Barrier CP 25 Caulk will bond to concrete, metals, wood and plastic cable jacketing. No mixing is required, and only the amount necessary to fill the void need be used. No special training or skills are needed to obtain excellent results.

- One-part system; no mixing, no measuring, no mistakes during application.
- Fast drying; becomes tack-free in approximately thirty minutes.
- No waste; unused part of tube or can may be stored and saved for later application without special requirements.
- Seals against water penetration in unexpanded state.

Fire Barrier Features

- Intumescent; expands when heated to seal around insulation consumed by fire for superior smoke and flame containment.
- CP 25N/S No-Sag will not sag or run in ceiling or vertical (wall) applications.
- CP 25S/L Self-Leveling will flow to fill around penetrations in floor applications and level for a uniform fill.

2. Applications

Use to seal cracks, voids, or holes against flame, smoke and water penetration. Seal around conduit, cables, metal pipe, and insulated metal pipe penetrating fire walls or floors to prevent spread of fire. Use CP 25 Caulk in conjunction with 3M Brand Fire Barrier Penetration Sealing Systems 7902 and 7904, FS-195 Wrap/Strip or CS-195 Composite Sheet.

3. Physical Properties

A. Volume	Unit	Volume
CP 25	10.5 fl. oz. tube	19 cu. inches
	Gallon (128 fl. oz.)*	217 cu. inches*
	5-gallon (640 fl. oz.)	1150 cu. inches

*Available in CP 25N/S only.

B. Volume Fill Guide for Core Drilled Holes

APPLICATION GUIDE FOR FILLING HOLES WITH 3M BRAND CP 25 CAULK

Metallic Pipe Size	Actual Pipe O.D.	Common Hole or Sleeve I.D.	Volume of		
			CP 25 Caulk Req'd 1/2" Depth (in ³)	Cartridges of CP 25 Caulk	Gallons of CP 25 Caulk
1" (25.4 mm)	1.32" (33.5 mm)	2" (50.8 mm)	.89	.05	.004
2" (50.8 mm)	2.38" (60.5 mm)	3" (76.2 mm)	1.31	.07	.006
3" (76.2 mm)	3.50" (88.9 mm)	4" (101.6 mm)	1.47	.08	.007
4" (101.6 mm)	4.50" (114.3 mm)	5" (127.0 mm)	1.87	.10	.009
5" (127.0 mm)	5.56" (141.2 mm)	6" (152.4 mm)	2.00	.11	.009
6" (152.4 mm)	6.63" (168.4 mm)	8" (203.2 mm)	7.87	.41	.04
8" (203.2 mm)	8.63" (219.2 mm)	10" (273.1 mm)	10.02	.53	.05
10" (254.0 mm)	10.75" (273.1 mm)	12" (304.8 mm)	11.16	.59	.05

Notes:

1. Final criteria for installation are dependent on penetrating item, opening size and annular space.
2. When the maximum annular space is 1" (25mm) or less, a 1/2" (13mm) minimum depth of CP 25 Caulk is required.
3. When the maximum annular space is greater than 1" (25mm), a 1" (25mm) minimum depth of CP 25 Caulk is required.
4. When the maximum annular space is greater than 2-1/2" (64mm), a 28 gauge minimum cover plate is required.
5. Damming material, such as, fiberglass, mineral wool batt or polyethylene backer rod can be used to support the caulk.

UL System
CAJ-1044
old
319

333 Pfingsten Road
Northbrook, Illinois 60062-2000
(708) 272-8800
FAX No. (708) 272-8129
MCI Mail No. 254-3343
Cable ULINC NORTHBROOK
Telex No. 6502543343



November 6, 1992

Minnesota Mining and Manufacturing Co.
Mr. Richard R. Licht
207-1S 3M Center
St. Paul, MN 55144-1000

Our Reference: 92NK13354, R9700

Subject: Fire Test Investigation Of Through-Penetration
Firestop Systems For Nominal 12 in. Diameter
Steel Pipes In A Nominal 2-1/2 In. Thick Concrete
Slab Floor Assemblies

Dear Mr. Licht:

The following is a Summary Letter Report of the fire exposure and hose stream tests conducted on September 3, 1992 at your fire test facility in Cottage Grove, MN (3M FT #92-151). The fire exposure and hose stream tests were conducted in accordance with the Standard, Fire Tests of Through-Penetration Firestops, ANSI/UL 1479 (ASTM E814).

The floor assembly consisted of a nominal 56 by 70 by 2-1/2 in. thick steel-reinforced lightweight concrete slab containing nominal 13-1/4 in. and 13-1/2 in. diameter through openings to accommodate the through-penetrating items, as shown in ILL. 1. A nominal 12 in. diameter seam-welded steel pipe (0.145 in. wall thickness) was installed in each of the through openings. Each pipe was capped on the exposed side of the assembly with a welded steel plate. Each pipe was 4 ft, 2-1/2 in. long and was installed to project 12 in. below and 36 in. above the exposed and unexposed surfaces of the assembly. The nominal 12 in. diameter steel pipe in each opening was offset such that it was in point contact with one edge of the opening and such that a nominal 1-1/4 in. or 1-1/2 in. annular space was present on the opposite side.

The firestop system for each through opening consisted of a nominal 1/2 in. depth of Type CP-25 W/B+ caulk fill material installed flush with the top surface of the floor. The friction-fitted form for the fill material consisted of firmly-packed 4 pcf density mineral-wool batt insulation. A nominal 2 in. depth of packing material was installed in Opening A and a nominal 1 in. depth of packing material was installed in Opening B.

UL System Nos.
CAJ-1044
319 old

333 Pfingsten Road
Northbrook, Illinois 60062-2094
(708) 272-8800
FAX No. (708) 272-8129
MCI Mail No. 254-3343
Cable ULINC NORTHBROOK
Telex No. 6502543343



November 6, 1992

Minnesota Mining and Manufacturing Co.
Mr. Richard R. Licht
207-1S 3M Center
St. Paul, MN 55144-1000

Our Reference: 92NK13354, R9700

Subject: Fire Test Investigation Of Through-Penetration
Firestop Systems For Steel Pipes In A Nominal
4-1/2 in. Thick Concrete Slab Floor Assembly

Dear Mr. Licht:

The following is a Summary Letter Report of the fire exposure and hose stream tests conducted on September 2, 1992 at your fire test facility in Cottage Grove, MN (3M FT #92-149). The fire exposure and hose stream tests were conducted in accordance with the Standard, Fire Tests of Through-Penetration Firestops, ANSI/UL 1479 (ASTM E814).

The floor assembly consisted of a nominal 56 by 70 by 4-1/2 in. thick steel-reinforced lightweight concrete slab containing nominal 6, 8, 10 and 12 in. diameter core-drilled openings to accommodate the through-penetrating items, as shown in ILL. 1. A nominal 4 in. diameter steel EMT was installed in the 6 in. diameter through opening. Nominal 6, 8 and 10 in. diameter seam-welded steel pipes with wall thicknesses corresponding to Schedule 10 steel pipe were installed in the 8, 10 and 12 in. diameter through openings, respectively. Each penetrating item was 4 ft, 4-1/2 in. long and was installed to project 12 in. below and 36 in. above the exposed and unexposed surfaces of the assembly. Each pipe or EMT was offset in the through opening such that it was in point contact with the edge of the opening on one side and such that a nominal 1-1/2 to 1-3/4 in. annular space was present on the opposite side.

The firestop system for each pipe and EMT consisted of a nominal 1/2 in. thickness of Type CP-25 WB+ caulk fill material installed flush with the top surface of the floor. The friction-fitted form for the fill material consisted of a cellular polyethylene backer rod. Prior to the fire test, each pipe was capped on the exposed side of the assembly with a welded steel plate.

CP25WB+
Slot Study

333 Pfingsten Road
Northbrook, Illinois 60062-2009-
(708) 272-8800
FAX No. (708) 272-8129
MCI Mail No. 254-3343
Cable ULINC NORTHBROOK, IL
Telex No. 6502543343



November 6, 1992

Minnesota Mining and Manufacturing Co.
Mr. Richard R. Licht
207-1S 3M Center
St. Paul, MN 55144-1000

Our Reference: 92NK13354, R9700

Subject: Preliminary Fire Test Investigation Of Joint
Treatment Systems For Nominal 2 in., 4 in. And
6 in. Wide Construction Gaps In Nominal 4-1/2 in.
Thick Concrete Slab Floor Assemblies

Dear Mr. Licht:

The following is a Summary Letter Report of the fire exposure and hose stream tests conducted on September 1, 2 and 3, 1992 at your fire test facility in Cottage Grove, MN (3M FT #92-144, -147 and -150, respectively.). The fire exposure and hose stream tests were conducted in general accordance with the Standard, Fire Tests of Through-Penetration Firestops, ANSI/UL 1479 (ASTM E814).

The nominal 56 by 70 in. floor assembly for each test consisted of either two or three nominal 56 in. long by 4-1/2 in. thick steel-reinforced lightweight concrete slabs installed to provide nominal 2 in., 4 in. or 6 in. wide construction gaps.

The joint treatment system for the construction gap(s) in each test assembly consisted of a nominal 3 in. depth of tightly-packed mineral-wool batt insulation covered with a nominal 1/4 in., 1/2 in. or 1 in. depth of Type CP-25 WB+ caulk, flush with the top surface of the concrete slabs. The details of Test Assembly Nos. 1, 2 and 3 are shown in ILLS. 1, 2 and 3, respectively, and are summarized in the following table:

<u>Test Assembly No.</u>	<u>Joint Opening Width</u>	<u>Type CP-25 WB+ Caulk Depth</u>
1 (3M FT #92-144)	6 in.	1 in.
2 (3M FT #92-147)	4 in. 4 in.	1/2 in. 1 in.
3 (3M FT #92-150)	2 in. 2 in.	1/4 in. 1/2 in.

Prior to each fire test, the humidity of the concrete slabs was measured and recorded. For each of the three fire tests, the measured humidity of the concrete was in excess of 90 percent.

Each floor assembly was subjected to a 180 min fire exposure with the furnace temperatures controlled in accordance with the Standard, ANSI/UL 1479 (ASTM E814). The average furnace temperature at each 10 min time interval during each fire exposure test is shown in the following table:

Test Time, min	Temperature, °F (ANSI/UL 1479 Time-Temp Curve)	Average Furnace Temperature, °F		
		T.A. No. 1	T.A. No. 2	T.A. No. 3
10	1300	1150	1188	1153
20	1462	1323	1335	1297
30	1550	1421	1426	1389
40	1613	1517	1510	1464
50	1661	1574	1566	1535
60	1700	1621	1621	1626
70	1735	1663	1667	1662
80	1765	1708	1700	1692
90	1792	1739	1727	1717
100	1815	1772	1752	1737
110	1835	1800	1777	1755
120	1850	1824	1795	1767
130	1862	1846	1813	1783
140	1875	1857	1828	1795
150	1888	1876	1846	1807
160	1900	1889	1860	1820
170	1912	1897	1873	1829
180	1925	1907	1884	1838

Within 30 seconds after initiation of each fire exposure test, the furnace pressure with respect to atmospheric pressure was positive. The furnace pressure remained positive at 0.015 to 0.035 in. of water, as measured 3/4 in. below the exposed surface of the concrete floor slabs, throughout each fire exposure test.

No flaming or through openings developed in the joint treatment systems during any of the three fire exposure tests.

The temperatures on the unexposed side of Test Assembly No. 1 were measured by 16 thermocouples located as shown in ILL. 1. The temperatures on the unexposed side of Test Assembly No. 2 were measured by 24 thermocouples located as shown in ILL. 2. The temperatures on the unexposed side of Test Assembly No. 3 were measured by 20 thermocouples located as shown in ILL. 3. The time at which the limiting temperature for the Assembly Rating (325°F rise above initial starting temperature at hottest point) was reached on each joint treatment system in the three test assemblies is shown in the following table:

<u>Test Assembly No.</u>	<u>Joint Width</u>	<u>Caulk Depth</u>	<u>Time To Limiting Temp, min</u>
1	6 in.	1 in.	154 (T.C. No. 12)
2	4 in. 2 in.	1/2 in. 1 in.	150 (T.C. No. 11) N.R.
3	2 in.	1/4 in. 1/2 in.	135 (T.C. No. 9) 157 (T.C. No. 16)

N.R. - Not Reached

The temperatures measured on the unexposed side of Test Assembly Nos. 1, 2 and 3 at each 10 min time interval during the fire exposure tests are shown in Appendix A, B and C, respectively.

Immediately following each fire exposure test, the sample was removed from the furnace and placed in a steel support rack which pivoted the sample approximately 90 degrees such that the exposed and unexposed surfaces of the sample, as fire tested, were oriented vertically like a wall assembly. The hose stream tests were each conducted in general accordance with the Standard, ANSI/UL 1479 (ASTM E814). Based on the 3 h fire exposure time, the joint treatment systems were subjected to the action of a 30

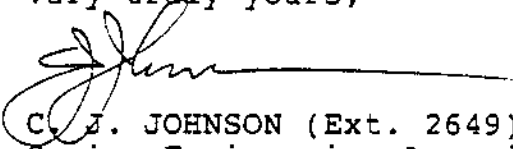
Page 4
November 6, 1992
per/15496/ltr/R9700.oct
L7935-/L8223-

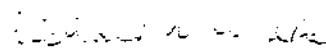
psi hose stream applied for a duration of 1.5 s/ft² of exposed area. The hose stream was applied with a 1-1/8 in. diameter nozzle at a perpendicular distance of 20 ft from the center of the test assembly. The water stream was applied to the 27 ft² sample for 41 s and traversed the floor assembly and joint treatment systems. The 4 in. wide construction gap with the nominal 1/2 in. depth of caulk in Test Assembly No. 2 and the 2 in. wide construction gap with the nominal 1/4 in. depth of caulk in Test Assembly No. 3 each developed through openings during the hose stream test. No through openings developed in the remaining three joint treatment systems during the hose stream test.

The tests described herein were developmental in nature and were not intended for Classification purposes.

Very truly yours,

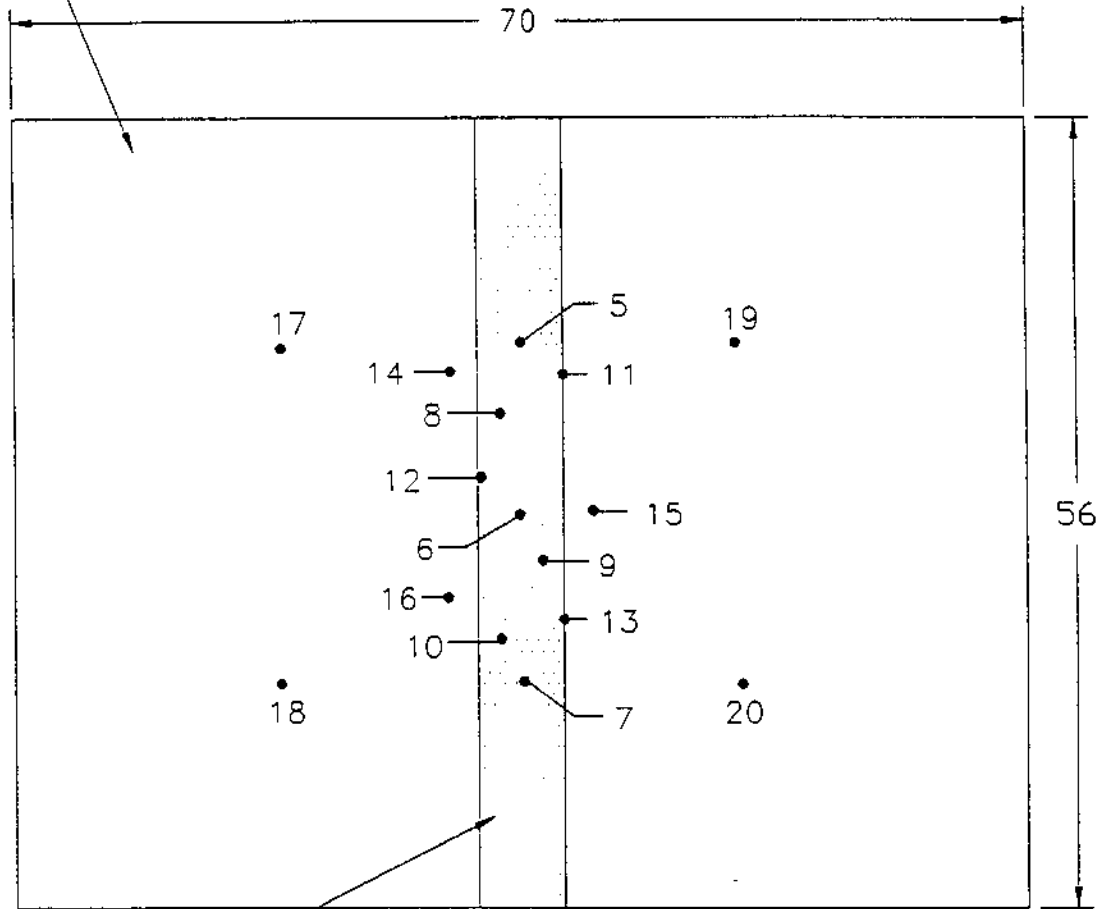
Reviewed by:


C. J. JOHNSON (Ext. 2649)
Senior Engineering Associate
Engineering Services


RICHARD N. WALKE (Ext. 3084)
Engineering Group Leader
Engineering Services

CJJ:per

NOM 4-1/2" THICK STEEL-REINFORCED LIGHTWEIGHT CONCRETE FLOOR SLAB (TYPICAL-TWO PLACES)

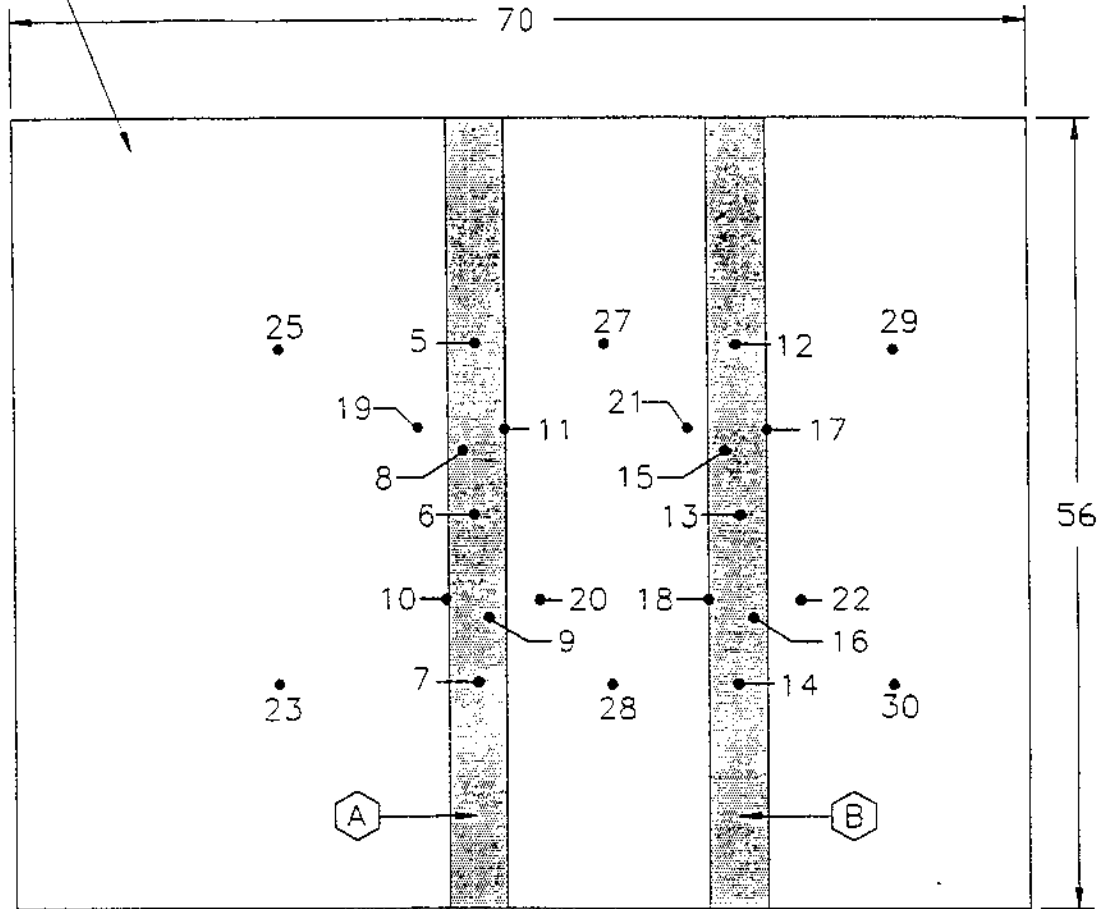


NCM 6" WIDE JOINT OPENING WITH JOINT TREATMENT SYSTEM CONSISTING OF NOM 1" DEPTH OF TYPE CP-25 WB+ CAULK, FLUSH WITH TOP OF SLABS, ATOP NOM 3" DEPTH OF 4 PCF MINERAL-WOOL BATT PACKING MATERIAL

T.C. NO.	LOCATION
5,6,7	ON CAULK AT CENTER OF JOINT WIDTH
8,9,10	ON CAULK AT QUARTERPOINT OF JOINT WIDTH
11,12,13	ON CAULK AT INTERFACE WITH CONCRETE
14,15,16	ON CONCRETE 2" FROM EDGE OF JOINT
17-20	ON CONCRETE AWAY FROM JOINT

CONSTRUCTION DETAILS AND THERMOCOUPLE LOCATIONS

NOM 4-1/2" THICK STEEL-REINFORCED LIGHTWEIGHT CONCRETE FLOOR SLAB (TYPICAL-THREE PLACES)

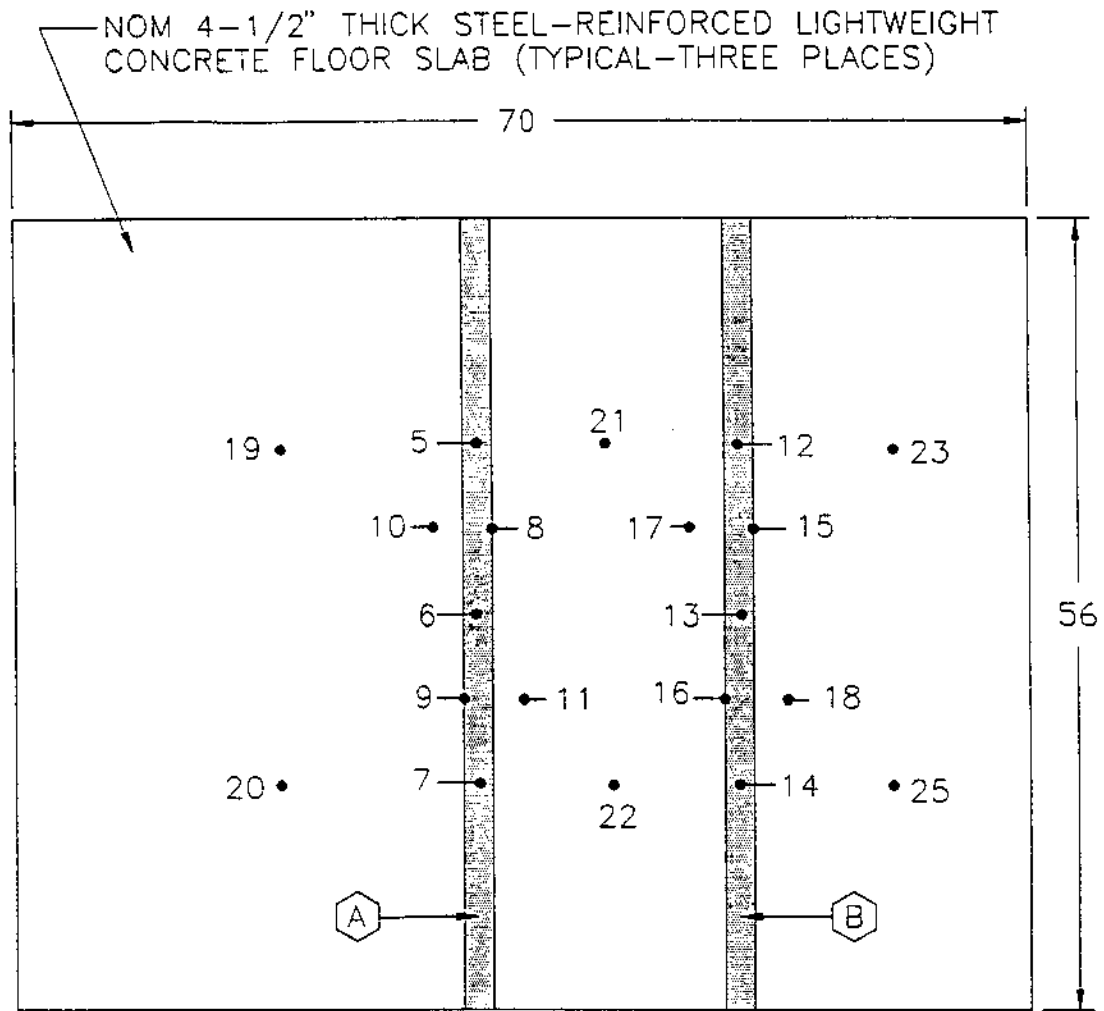


(A) NOM 4" WIDE JOINT OPENING WITH JOINT TREATMENT SYSTEM CONSISTING OF NOM 1/2" DEPTH OF TYPE CP-25 WB+ CAULK, FLUSH WITH TOP OF SLABS, ATOP NOM 3" DEPTH OF 4 PCF MINERAL-WOOL BATT PACKING MATERIAL

(B) NOM 4" WIDE JOINT OPENING WITH JOINT TREATMENT SYSTEM CONSISTING OF NOM 1" DEPTH OF TYPE CP-25 WB+ CAULK, FLUSH WITH TOP OF SLABS, ATOP NOM 3" DEPTH OF 4 PCF MINERAL-WOOL BATT PACKING MATERIAL

T.C. NO.	LOCATION
5,6,7,12,13,14	ON CAULK AT CENTER OF JOINT WIDTH
8,9,15,16	ON CAULK AT QUARTERPOINT OF JOINT WIDTH
10,11,17,18	ON CAULK AT INTERFACE WITH CONCRETE
19,20,21,22	ON CONCRETE 2" FROM EDGE OF JOINT
23,25,27-30	ON CONCRETE AWAY FROM JOINT

CONSTRUCTION DETAILS AND THERMOCOUPLE LOCATIONS



(A) NOM 2" WIDE JOINT OPENING WITH JOINT TREATMENT SYSTEM CONSISTING OF NOM 1/4" DEPTH OF TYPE CP-25 WB+ CAULK, FLUSH WITH TOP OF SLABS, ATOP NOM 3" DEPTH OF 4 PCF MINERAL-WOOL BATT PACKING MATERIAL

(B) NOM 2" WIDE JOINT OPENING WITH JOINT TREATMENT SYSTEM CONSISTING OF NOM 1/2" DEPTH OF TYPE CP-25 WB+ CAULK, FLUSH WITH TOP OF SLABS, ATOP NOM 3" DEPTH OF 4 PCF MINERAL-WOOL BATT PACKING MATERIAL

T.C. NO.	LOCATION
5,6,7,12,13,14	ON CAULK AT CENTER OF JOINT WIDTH
8,9,15,16	ON CAULK AT INTERFACE WITH CONCRETE
10,11,17,18	ON CONCRETE 2" FROM EDGE OF JOINT
19-23,25	ON CONCRETE AWAY FROM JOINT

CONSTRUCTION DETAILS AND THERMOCOUPLE LOCATIONS

A P P E N D I X A

T E S T A S S E M B L Y NO. 1

(3M FT #92-144)

Test Time, min	Temperature, °F							
	T.C. 5	T.C. 6	T.C. 7	T.C. 8	T.C. 9	T.C. 10	T.C. 11	T.C. 12
0	67	65	66	68	67	66	68	68
10	69	69	69	68	68	68	69	69
20	94	106	94	78	97	87	83	96
30	137	155	142	110	147	129	121	142
40	160	173	165	138	175	151	151	162
50	170	180	175	155	185	163	170	177
60	175	182	180	167	190	169	185	194
70	178	184	182	177	194	177	199	204
80	179	185	184	185	198	186	213	215
90	180	189	185	193	202	194	230	230
100	182	194	186	199	207	202	246	247
110	185	202	189	206	212	209	265	267
120	189	216	195	213	220	219	288	293
130	198	231	207	222	233	232	315	321
140	209	249	217	233	251	241	341	346
150	221	281	234	248	281	269	367	382
160	235	317	257	268	317	300	390	408
170	255	351	289	293	352	332	411	433
180	281	379	324	320	379	357	430	456

Test Time, min	Temperature, °F							
	T.C. 13	T.C. 14	T.C. 15	T.C. 16	T.C. 17	T.C. 18	T.C. 19	T.C. 20
0	65	66	67	67	68	67	68	68
10	68	68	69	68	69	68	69	69
20	81	77	89	86	81	81	86	84
30	105	97	130	128	116	113	116	122
40	125	110	166	163	139	144	143	157
50	134	117	187	186	145	168	161	184
60	142	128	222	204	154	190	174	203

Page 6
November 6, 1992
per/15496/ltr/R9700.oct
L7935-/L8223-

	<u>A</u>	<u>P</u>	<u>P</u>	<u>E</u>	<u>N</u>	<u>D</u>	<u>I</u>	<u>X</u>	<u>A</u>	(Cont.)			
70	151	142	222	217	171	203	184	214					
80	160	144	235	230	174	217	195	229					
90	169	147	244	247	183	223	219	238					
100	178	157	265	265	233	238	248	248					
110	186	163	291	286	259	262	281	267					
120	203	175	325	316	288	289	322	297					
130	287	191	359	351	320	320	364	323					
140	304	201	388	384	352	353	393	331					
150	343	217	418	420	381	389	425	357					
160	367	233	443	450	406	412	450	378					
170	387	251	467	479	430	435	472	401					
180	407	260	488	505	452	458	493	431					

A P P E N D I X B
T E S T A S S E M B L Y N O . 2
 (3M FT #92-147)

Test Time, min	Temperature, °F							
	T.C. 5	T.C. 6	T.C. 7	T.C. 8	T.C. 9	T.C. 10	T.C. 11	T.C. 12
0	73	73	73	73	73	73	73	73
10	78	77	75	76	74	75	75	73
20	120	105	95	100	90	94	91	80
30	155	130	116	148	114	122	122	103
40	155	132	145	153	138	151	145	122
50	175	157	144	154	140	157	161	131
60	191	162	146	105	143	145	175	147
70	202	167	151	158	149	149	192	152
80	211	171	162	162	155	158	212	158
90	222	176	175	179	161	166	231	163
100	234	185	187	193	168	175	252	166
110	252	200	199	206	178	184	273	170
120	280	217	211	217	187	194	298	173
130	315	243	223	235	195	207	331	177
140	353	281	240	267	205	226	366	183
150	391	325	270	315	220	252	399	192
160	424	362	309	360	240	284	427	200
170	453	393	345	394	258	391	454	206
180	477	410	373	419	280	453	477	216

Test Time, min	Temperature, °F							
	T.C. 13	T.C. 14	T.C. 15	T.C. 16	T.C. 17	T.C. 18	T.C. 19	T.C. 20
0	72	72	72	72	73	72	73	75
10	74	73	74	73	74	74	74	75
20	95	80	92	83	87	91	90	88
30	142	103	149	109	141	119	128	111
40	167	128	171	129	144	129	144	128
50	175	140	161	145	155	143	163	149
60	179	148	163	160	165	167	149	165

A P P E N D I X B (Cont.)

70	182	155	165	170	173	187	196	177
80	186	160	184	176	183	202	216	181
90	190	165	189	177	191	217	236	191
100	195	170	193	180	201	234	258	214
110	201	176	198	184	213	249	285	232
120	209	186	205	189	231	257	318	240
130	217	191	213	196	253	291	357	286
140	228	196	225	203	280	322	393	312
150	242	202	240	209	311	355	425	335
160	264	205	253	216	342	378	454	362
170	290	212	267	228	372	384	482	379
180	320	220	278	248	398	394	507	387

Test Time, min	Temperature, °F							
	<u>T.C.</u> <u>21</u>	<u>T.C.</u> <u>22</u>	<u>T.C.</u> <u>23</u>	<u>T.C.</u> <u>25</u>	<u>T.C.</u> <u>27</u>	<u>T.C.</u> <u>28</u>	<u>T.C.</u> <u>29</u>	<u>T.C.</u> <u>30</u>
0	75	74	74	73	73	74	74	73
10	76	75	74	73	74	74	74	74
20	95	87	88	82	82	80	87	89
30	133	123	131	111	102	102	135	130
40	159	161	165	139	119	127	177	160
50	173	180	180	170	134	152	189	178
60	178	193	185	152	153	173	212	178
70	191	201	205	175	162	186	212	207
80	198	207	212	188	173	199	212	208
90	209	208	213	195	183	209	213	210
100	230	213	213	194	188	219	213	210
110	264	229	213	202	198	231	217	212
120	297	252	213	217	205	247	222	213
130	335	278	216	248	222	266	228	214
140	375	308	231	286	219	290	237	218
150	411	340	243	323	233	318	245	222
160	443	371	261	356	259	345	273	225
170	474	401	281	387	274	369	398	326
180	501	430	326	412	296	391	440	438

A P P E N D I X C
T E S T A S S E M B L Y N O. 3
 (3M FT #92-150)

Test Time, min	Temperature, °F							
	T.C. 5	T.C. 6	T.C. 7	T.C. 8	T.C. 9	T.C. 10	T.C. 11	T.C. 12
0	70	69	69	70	70	72	70	70
10	73	73	73	74	74	73	74	72
20	97	97	97	101	98	92	101	85
30	127	159	153	162	159	127	145	129
40	137	185	176	186	186	162	177	168
50	140	190	178	192	192	187	189	180
60	142	192	183	196	204	207	206	185
70	148	196	182	202	218	224	222	190
80	150	198	184	214	238	244	243	194
90	152	207	189	227	257	266	265	199
100	154	218	194	243	278	294	293	205
110	158	232	200	263	307	326	332	212
120	159	250	209	285	342	361	366	222
130	161	275	227	315	376	397	398	236
140	166	307	260	344	412	431	430	256
150	173	338	299	369	437	463	455	285
160	181	366	336	394	461	492	480	320
170	189	392	369	418	486	520	503	352
180	200	415	385	440	507	546	522	377

Test Time, min	Temperature, °F							
	T.C. 13	T.C. 14	T.C. 15	T.C. 16	T.C. 17	T.C. 18	T.C. 19	T.C. 20
0	69	69	70	70	70	70	71	72
10	71	71	71	71	71	72	71	73
20	84	79	85	87	87	89	83	86
30	135	116	121	138	120	131	111	119
40	164	150	152	166	147	123	131	156
50	180	166	138	181	159	129	140	185
60	186	175	143	194	156	140	153	209

(Cont'd)

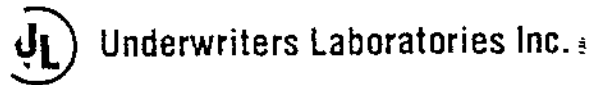
Page 10
 November 6, 1992
 per/15496/ltr/R9700.oct
 L7935-/L8223-

Test Time, min	Temperature, °F							
	T.C. 13	T.C. 14	T.C. 15	T.C. 16	T.C. 17	T.C. 18	T.C. 19	T.C. 20
70	192	184	152	207	165	165	170	227
80	197	192	167	222	198	190	176	241
90	203	201	183	238	228	212	183	258
100	209	209	201	255	256	231	189	277
110	216	218	216	276	284	252	195	299
120	222	228	234	301	317	268	200	326
130	231	240	254	327	349	289	210	354
140	242	254	280	353	381	306	298	384
150	256	270	309	379	410	332	356	413
160	277	290	342	402	436	355	399	438
170	307	315	376	424	460	375	434	462
180	339	342	406	446	483	397	462	484

Test Time, min	Temperature, °F			
	T.C. 21	T.C. 22	T.C. 23	T.C. 25
0	72	71	72	71
10	73	72	71	72
20	85	85	72	82
30	123	122	72	112
40	160	157	73	144
50	187	188	75	171
60	208	213	76	193
70	221	230	78	211
80	231	244	80	228
90	244	259	79	244
100	257	273	80	260
110	274	291	82	278
120	296	314	81	298
130	324	346	83	319
140	358	378	85	347
150	387	406	85	376
160	412	431	85	401
170	434	454	85	424
180	454	475	87	447

CP25WB+
Slot Study

333 Pfingsten Road
Northbrook, Illinois 60062-2090
(708) 272-8800
FAX No. (708) 272-8129
MCI Mail No. 254-3343
Cable ULINC NORTHBROOK, IL
Telex No. 6502543343



November 6, 1992

Minnesota Mining and Manufacturing Co.
Mr. Richard R. Licht
207-1S 3M Center
St. Paul, MN 55144-1000

Our Reference: 92NK13354, R9700

Subject: Preliminary Fire Test Investigation Of Joint
Treatment Systems For Nominal 2 in., 4 in. And
6 in. Wide Construction Gaps In Nominal 4-1/2 in.
Thick Concrete Slab Floor Assemblies

Dear Mr. Licht:

The following is a Summary Letter Report of the fire exposure and hose stream tests conducted on September 1, 2 and 3, 1992 at your fire test facility in Cottage Grove, MN (3M FT #92-144, -147 and -150, respectively.). The fire exposure and hose stream tests were conducted in general accordance with the Standard, Fire Tests of Through-Penetration Firestops, ANSI/UL 1479 (ASTM E814).

The nominal 56 by 70 in. floor assembly for each test consisted of either two or three nominal 56 in. long by 4-1/2 in. thick steel-reinforced lightweight concrete slabs installed to provide nominal 2 in., 4 in. or 6 in. wide construction gaps.

The joint treatment system for the construction gap(s) in each test assembly consisted of a nominal 3 in. depth of tightly-packed mineral-wool batt insulation covered with a nominal 1/4 in., 1/2 in. or 1 in. depth of Type CP-25 WB+ caulk, flush with the top surface of the concrete slabs. The details of Test Assembly Nos. 1, 2 and 3 are shown in ILLS. 1, 2 and 3, respectively, and are summarized in the following table:

<u>Test Assembly No.</u>	<u>Joint Opening Width</u>	<u>Type CP-25 WB+ Caulk Depth</u>
1 (3M FT #92-144)	6 in.	1 in.
2 (3M FT #92-147)	4 in. 4 in.	1/2 in. 1 in.
3 (3M FT #92-150)	2 in. 2 in.	1/4 in. 1/2 in.



Underwriters Laboratories Inc. ®

September 2, 1992

UL 560, CP25WB+
Cable Bundles, Slot 8x50
FT 92-76

Minnesota Mining and Manufacturing Co.
Mr. Richard R. Licht
207-1S 3M Center
St. Paul, MN 55144-1000

Our Reference: 92NK13354, R9700

Subject: Fire Test Investigation Of Through-Penetration Firestop System For Telecommunication Cable Bundles In Nominal 8 by 50 In. Opening In Nominal 2-1/2 In. Thick Concrete Slab Floor Assembly

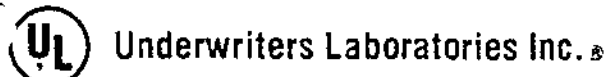
Dear Mr. Licht:

The following is a Summary Letter Report of the fire exposure and hose stream tests conducted on June 23, 1992 at your fire test facility in Cottage Grove, MN (3M FT #92-76). The fire exposure and hose stream tests were conducted in accordance with the Standard, Fire Tests of Through-Penetration Firestops, ANSI/UL 1479 (ASTM E814).

The floor assembly consisted of a nominal 56 by 70 by 2-1/2 in. thick steel-reinforced lightweight concrete slab containing a nominal 8 in. by 50 in. rectangular through opening at its center to accommodate the through-penetrating items. Six bundles of telecommunication cables were installed in the through opening, as shown in ILL. 1. Each cable bundle was 4 ft, 2-1/2 in. long and was installed to project 12 in. below and 36 in. above the exposed and unexposed surfaces of the assembly.

The firestop system for the through opening was installed as described in Through-Penetration Firestop System No. 560 except that, instead of Type CP-25 W/B caulk, a nominal 1 in. depth of Type CP-25 W/B+ caulk fill material was used atop the nominal 1 in. depth of 4 pcf density mineral-wool batt packing material and the hanger straps with support strips.

The concrete slab used in the test assembly was cast approximately 131 days before the fire test was conducted. Prior to installation of the firestop systems, the concrete slab was subjected to low-level fire exposure to drive the free moisture from the slab. The relative humidity of the concrete was less than 75 percent at the time of the fire test. The caulk fill material was installed 86 days before the fire test was conducted.



September 2, 1992

UL 318, CP25WB+
Blank Openings
FT 92-73, 74, 75

Minnesota Mining and Manufacturing Co.
Mr. Richard R. Licht
207-1S 3M Center
St. Paul, MN 55144-1000

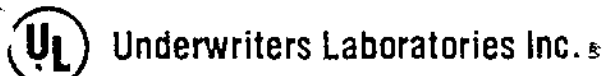
Our Reference: 92NK13354, R9700

Subject: Fire Test Investigation Of Through-Penetration
Firestop Systems For "Blank" (Unpenetrated)
Sleeved And Unsleeved Through Openings With
Type CP-25 W/B And Type CP-25 W/B+ Caulk Fill
Materials In Nominal 2-1/2 in. Thick Concrete Slab
Floor Assemblies

Dear Mr. Licht:

The following is a Summary Letter Report of the fire exposure and hose stream tests conducted on June 19, 1992 at your fire test facility in Cottage Grove, MN (3M FT #92-73, -74 and -75). The fire exposure and hose stream tests were conducted in accordance with the Standard, Fire Tests of Through-Penetration Firestops, ANSI/UL 1479 (ASTM E814).

The floor for each test assembly consisted of a nominal 56 by 70 by 2-1/2 in. thick steel-reinforced lightweight concrete slab containing a nominal 4 in. diameter by 2-3/4 in. high Schedule 40 steel pipe sleeve, a nominal 6 in. diameter by 3 in. high Schedule 40 steel pipe sleeve, a nominal 4 in. diameter core-drilled through opening and a nominal 6 in. diameter core-drilled through opening. The nominal 4 in. and 6 in. diameter Schedule 40 steel pipe sleeves were each installed flush with the bottom surface of the floor slab such that the top of each sleeve projected 1/4 or 1/2 in. above the top surface of the floor slab, respectively.



September 2, 1992

UL 320-CP25 WB+

FT #s 92-77, 79, 82, 83

Minnesota Mining and Manufacturing Co.
Mr. Richard R. Licht
207-1S 3M Center
St. Paul, MN 55144-1000

Our Reference: 92NK13354, R9700

Subject: Fire Test Investigation Of Through-Penetration
Firestop Systems For Cable Bundles In Sleeved And
Unsleeved Through Openings In Nominal 4-1/2 in.
Thick Concrete Slab Floor Assemblies

Dear Mr. Licht:

The following is a Summary Letter Report of the fire exposure and hose stream tests conducted on June 23, 24 and 25, 1992 at your fire test facility in Cottage Grove, MN (3M FT #92-77, -79, -82 and -83). The fire exposure and hose stream tests were conducted in accordance with the Standard, Fire Tests of Through-Penetration Firestops, ANSI/UL 1479 (ASTM E814). The floor for each test assembly consisted of a nominal 56 by 70 by 2-1/2 in. thick steel-reinforced lightweight concrete slab. The floor assemblies for Test Assembly Nos. 1 and 3. (3M FT #92-77 and -82, respectively) each contained two nominal 6 in. diameter and two nominal 8 in. diameter core-drilled openings, as shown in ILLS. 1 and 3. The floor assemblies for Test Assembly Nos. 2 and 4 (3M FT #92-79 and -83, respectively) each contained two nominal 6 in. diameter Schedule 40 PVC pipe sleeves and two nominal 8 in. diameter Schedule 40 steel pipe sleeves, as shown in ILL. 2. The PVC and steel sleeves in Test Assembly Nos. 2 and 4 were each installed to project approximately 1/4 in. above the top surface of the floor slab. The four through openings in each of the four test assemblies were filled with various quantities of various cable types, as shown in the following table:

UL 319, CP25WB+
20" Steel, FT# 92-8448E

 Underwriters Laboratories Inc. ®

September 2, 1992

Minnesota Mining and Manufacturing Co.
Mr. Richard R. Licht
207-1S 3M Center
St. Paul, MN 55144-1000

Our Reference: 92NK13354, R9700

Subject: Fire Test Investigation Of Through-Penetration
Firestop System For Nominal 20 in. Diameter
Steel Pipe In A Nominal 2-1/2 in. Thick Concrete
Slab Floor Assembly

Dear Mr. Licht:

The following is a Summary Letter Report of the fire exposure and hose stream tests conducted on June 25, 1992 at your fire test facility in Cottage Grove, MN (3M FT #92-84 and -85). The fire exposure and hose stream tests were conducted in accordance with the Standard, Fire Tests of Through-Penetration Firestops, ANSI/UL 1479 (ASTM E814).

The floor assembly consisted of a nominal 56 by 70 by 2-1/2 in. thick steel-reinforced lightweight concrete slab containing a nominal 22-1/2 in. diameter through opening at its center. A nominal 20 in. diameter Schedule 10 steel pipe was installed in the through opening as shown in ILL. 1. The pipe was capped on the exposed surface with a welded steel plate. The pipe was 4 ft, 2-1/2 in. long and was installed to project 12 in. below and 36 in. above the exposed and unexposed surfaces of the assembly. The nominal 20 in. diameter steel pipe was offset in the through opening such that it was in point contact with the edge of the opening on one side and such that a nominal 2-1/2 in. annular space was present on the opposite side.

The firestop system consisted of a nominal 1 in. thickness of Type CP-25 W/B+ caulk fill material installed flush with the top surface of the floor. The friction-fitted form for the fill material consisted of a cellular polyethylene backer rod.



March 22, 1994

3M Company
Mr. Tony Schommer
207-1W-02 3M Center
St. Paul, MN 55144-1000

Our Reference: R9700, 93NK14328

Subject: Classification Of Type CP-25 WB+ Caulk Fill
Material In Through-Penetration Firestop Systems

Dear Mr. Schommer:

This is pursuant to our telephone conversation on March 22, 1994 concerning the above subject.

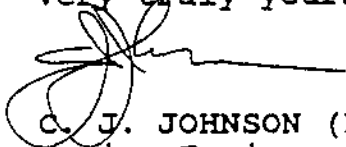
As discussed, based on the performance of the Type CP-25 WB+ caulk fill material in the series of fire exposure and hose stream tests conducted in June through November, 1993, it was determined that the Type CP-25 WB+ caulk fill material could be used in place of the Type CP-25 WB caulk in each of the 75 through-penetration firestop systems in which the Type CP-25 WB caulk was Classified. Accordingly, we revised each of the 75 firestop systems to include the Type CP-25 WB+ caulk as an alternate to the Type CP-25 WB caulk fill material. We also Classified the Type CP-25 WB+ caulk in 20 new firestop systems.

The 95 firestop systems in which the Type CP-25 WB+ caulk is presently Classified in the 1994 UL Fire Resistance Directory are System Nos. CAJ0004, CAJ0009, CAJ1006, CAJ1007, CAJ1044, CAJ1066, CAJ1092, CAJ1112, CAJ1175, CAJ1176, CAJ2001, CAJ2002, CAJ2003, CAJ2005, CAJ2006, CAJ2013, CAJ2027, CAJ2030, CAJ2040, CAJ2044, CAJ2090, CAJ3005, CAJ3030, CAJ3080, CAJ4003, CAJ5001, CAJ5002, CAJ5003, CAJ5017, CAJ5022, CAJ5024, CAJ5030, CAJ5060, CAJ6001, CAJ7003, CAJ8001, CAJ8013, CBJ1020, CBJ1021, CBJ3016, CBJ3017, CBJ5002, CBJ5003, CBJ5004, CBJ8004, CBJ8005, FA1002, FA2001, FA2002, FA3001, FA5001, FA8001, FC1006, FC2002, FC2007, FC2008, FC2009, FC3007, FC3008, FC5002, WJ1010, WJ2012, WL1001, WL1002, WL1003, WL1016, WL1017, WL1032, WL1037, WL1073, WL2002, WL2003, WL2004, WL2005, WL2006, WL2013, WL2031, WL2032, WL2033, WL2073, WL3001, WL3015, WL3030, WL3032, WL3062, WL4004, WL5001, WL5002, WL5009, WL5010, WL5011, WL5038, WL5039, WL5040 and WL8002.

R9700
Page 2
March 22, 1994

We have completed the chemical identification tests and have included the Type CP-25 WB+ caulk fill material in Follow-Up Service Procedure R9700, Volume 1.

Very truly yours,



C. J. JOHNSON (Ext. 42649)
Senior Engineering Associate
Engineering Services, 411B



Underwriters Laboratories Inc. ®

November 23, 1992

3M Company
Mr. Tony Schommer
207-1W-02 3M Center
St. Paul, MN 55144-1000

Our Reference: R9700, 92NK13354

Subject: Classification Of Type CP-25 WB+ Caulk In
Through-Penetration Firestop Systems

Dear Mr. Schommer:

This is pursuant to our telephone conversation on November 10,
1992 concerning the above subject.

As discussed, we have completed our work under Project 92NK13354,
File R9700 and, based on the fire testing conducted to date, we
have determined that the Type CP-25 WB+ caulk fill material may be
used as an alternate to the Type CP-25 WB caulk in all of the
through-penetration firestop systems which presently specify the
Type CP-25 WB caulk. Accordingly, we are Classifying the Type
CP-25 WB+ caulk fill material in the following Through-Penetration
Firestop Systems:

<u>Numerical System No.</u>	<u>New Alpha-Alpha-Numeric System No.(s)</u>
61	C-AJ-0001
62	C-AJ-0002
63	C-AJ-1002
64	C-AJ-2001, C-AJ-2002, C-AJ-2003, C-AJ-2004, C-AJ-2005, F-A-2001
65	C-AJ-3002
66	C-BJ-4011
90	C-AJ-2006
91	C-AJ-5001, C-AJ-5002, C-AJ-5003, C-BJ-5002, C-BJ-5003
92	C-AJ-0004
93	C-AJ-1006, C-AJ-3005, C-AJ-5030, C-AJ-8001
99	C-AJ-6001
147	W-L-1001, W-L-5001, W-L-5002
148	W-L-2002, W-L-2003, W-L-2004, W-L-2005
149	W-L-3001
152	F-A-1002, F-A-5001, F-A-8001

Page 2
November 23, 1992
R9700

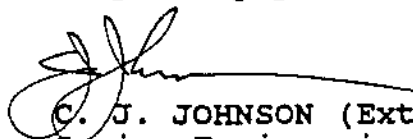
<u>Numerical System No.</u>	<u>New Alpha-Alpha-Numeric System No.(s)</u>
167	F-C-2002
233	C-BJ-1020, C-BJ-3016, C-BJ-5004, C-BJ-8004
318	C-AJ-0009
319	C-AJ-1044, C-AJ-7003
320	C-AJ-3030
321	W-J-1010
322	W-L-1016
394	C-AJ-2027
395	C-AJ-1066, C-AJ-2044, C-AJ-5017, C-AJ-8013
446	F-C-2007
448	C-AJ-2028, C-AJ-2029, C-AJ-2030
451	F-C-2008, F-C-2009
453	F-C-1006
454	F-C-5002
487	C-AJ-1092
560	F-A-3001
561	C-AJ-1112
562	C-AJ-2040
566	W-L-5009
567	W-L-5010
568	W-L-5011
570	W-L-1037, W-L-2031, W-L-8002
571	W-L-3030
572	W-L-2032
573	W-L-2033
590	W-L-3032
592	C-AJ-5024

Please note that, since the time of our letter to you dated May 29, 1992, we have found it necessary to change the new alphanumeric system number for Through-Penetration Firestop System No. 66. Rather than System No. C-BJ-4005, the new alphanumeric system number for System No. 66 will be C-BJ-4011.

We have revised Follow-Up Service Procedure R9700, Volume 1, to include the Type CP-25 WB+ caulk fill material. You should be receiving the new Section for inclusion in your copy of Follow-Up Service Procedure R9700, Volume 1 in the near future.

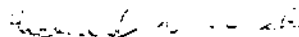
Page 3
November 23, 1992
R9700

Very truly yours,



C. J. JOHNSON (Ext. 2649)
Senior Engineering Associate
Engineering Services, 411B

Reviewed by:



RICHARD N. WALKE (Ext. 3084)
Engineering Group Leader
Engineering Services, 411B

333 Pfingsten Road
Northbrook, Illinois 60062-1111
(708) 272-8800
FAX No. (708) 272-8129
MCI Mail No. 254-3343
Cable ULINC NORTHBROOK
Telex No. 6502543343

 Underwriters Laboratories Inc. 3

November 23, 1992

3M Company
Mr. Tony Schommer
207-1W-02 3M Center
St. Paul, MN 55144-1000

Our Reference: R9700, 92NK13354

Subject: Classification Of Type CP-25 WB+ Caulk In
Through-Penetration Firestop Systems

Dear Mr. Schommer:

This is pursuant to our telephone conversation on November 10, 1992 concerning the above subject.

As discussed, we have completed our work under Project 92NK13354, File R9700 and, based on the fire testing conducted to date, we have determined that the Type CP-25 WB+ caulk fill material may be used as an alternate to the Type CP-25 WB caulk in all of the through-penetration firestop systems which presently specify the Type CP-25 WB caulk. Accordingly, we are Classifying the Type CP-25 WB+ caulk fill material in the following Through-Penetration Firestop Systems:

<u>Numerical System No.</u>	<u>New Alpha-Alpha-Numeric System No.(s)</u>
61	C-AJ-0001
62	C-AJ-0002
63	C-AJ-1002
64	C-AJ-2001, C-AJ-2002, C-AJ-2003, C-AJ-2004, C-AJ-2005, F-A-2001
65	C-AJ-3002
66	C-BJ-4011
90	C-AJ-2006
91	C-AJ-5001, C-AJ-5002, C-AJ-5003, C-BJ-5002, C-BJ-5003
92	C-AJ-0004
93	C-AJ-1006, C-AJ-3005, C-AJ-5030, C-AJ-8001
99	C-AJ-6001
147	W-L-1001, W-L-5001, W-L-5002
148	W-L-2002, W-L-2003, W-L-2004, W-L-2005
149	W-L-3001
152	F-A-1002, F-A-5001, F-A-8001



Underwriters Laboratories Inc. s

333 Pfingsten Road
Northbrook, Illinois 60062-2096
(847) 272-8800
FAX No. (847) 272-8129
MCI Mail No. 254-3343
Telex No. 6502543343



March 26, 1997

3M Company
Mr. Richard Licht
3M Center Bldg. 207-1W-02
St. Paul, MN 55144-1000

Our Reference: File R9700

Dear Richard:

This is in reference to our phone conversation on February 21, 1996. As discussed, we are revising Electrical Circuit Protective Systems Nos. 2, 3, 4, 6, 7, 8 and 9 to replace the CP-25 N/S and CP-25 S/L caulks with your CP 25WB+ caulk.

Should you have any questions, please feel free to contact us.

Very truly yours,

STEVEN J. HOFFMAN (Ext. 43353)
Staff Engineer
Engineering Services, Dept 411B

A1592
RRL