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May 11, 1998

Mr. Keith Brebner
Nuco Inc.
3185 Unity Drive
Mississauga, Ontario
L5L 4L5

Subject: Firestop System Components - Site Specific Plaza
3 x 3 ft. Fire Test

Dear Keith:

The purpose of this brief Letter Report is to describe the fire test conducted on your behalf on September 24, 1992.

GENERAL

The purpose of the project was to subject a firestop system consisting of your Type "MW-300" mineral wool insulation and Type "SL-100" sealant to a fire exposure as described in BS 476: Part 20: 1987, Fire Tests on Building Materials and Structures. For supplementary information, the furnace temperatures were also monitored with thermocouples as described in CAN4-S115-M85, Standard Method of Fire Tests of Firestop Systems.

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THE INVESTIGATION

TEST SAMPLE:

The test slab measured 915 mm by 915 mm, and 100 mm thick. The insulation in the assembly was installed with the grain of the material running perpendicular to the horizontal plane of the assembly. The insulation was installed in such a manner as to provide butt joints at the mid-length of each opening.

The assembly consisted of two openings each 156 mm wide. Type "MW-300" mineral wool insulation was compressed into the openings to a depth of 95 mm. The insulation was compressed to 66% its original thickness.

The insulation was recessed from the top surface of the slab by 2 mm and 3 mm at the West and East openings respectively. Type "SL-100" sealant was applied on top of the insulation to a nominal depth of 2 mm at the West opening and a nominal depth of 3 mm at the East opening, flush with the top surface of the concrete slab.

The construction of the assembly is shown in Fig. No. 1.

FIRE TEST:

METHOD

The fire test was conducted September 24, 1992. The assembly was installed on the Laboratories' 910 mm by 910 mm horizontal furnace, (shown in Fig. No. 8) and subjected to a fire endurance test in accordance with the Standard BS476: Part 20; 1987.

Furnace Thermocouples - Three thermocouples were constructed in accordance with BS 476: Part 20 and symmetrically located within the furnace chamber 100 mm below the exposed sample face.

Unexposed Surface Thermocouples - Nine thermocouples and pads were constructed in accordance with BS 476: Part 20 and located on the unexposed surface of the assembly as indicated in Fig. 1.

Pressure Measurements - Differential pressure between the exposed and unexposed test assembly surfaces was recorded during the test. The pressure probe was located 305 mm below the exposed sample face, within the furnace chamber.

RESULTS

Character and distribution of the Fire - The furnace fire was luminous and well distributed. The temperatures within the furnace chamber substantially followed the standard time-temperature curve as shown in Fig. 2.

Observation of the Exposed Surface - Observation of the exposed surfaces was not possible on the furnace used.

Observations of the Unexposed Surface - Except for a slight upward bowing of the sealant along the longitudinal centreline of the firestop system, no events of significance were observed. The test was terminated after 240 minutes of fire exposure.

Post Test Observations - There was no evidence of discolouration or degradation of the "SL-100" sealant on the unexposed side of the firestop system. On the underside, the mineral wool insulation remained in place and was charred.

Pressure Recorded - Pressures within the furnace chamber, relative to the laboratory, were recorded as follows:

Time, Min	Pressure, Pa
15	5.8
30	6.4
45	6.4
60	6.1
75	6.8
90	6.8
105	6.8
120	6.8
135	7.8
155	8.8
165	8.5
180	8.8
195	8.5
210	8.5
225	8.5
240	8.5

Recorded Temperatures – The temperatures recorded on Openings Nos. 1-2 are shown in Fig. No. 3-7. In addition to the rating criteria in the Standard for system integrity, the Standard requires that for insulation ratings, the transmission of heat through the firestop system during the rating period shall not raise the temperature of any thermocouple on the unexposed surface of the firestop system more than 180°C above its initial temperature.

Based on the initial ambient temperature of 17°C, the limiting temperature was therefore 197°C. The following table indicates the times at which the limiting temperature rise of 180°C occurred:

TC No.	Location of Thermocouple	Time to Limiting Temperature, Min.
1	On sealant – East opening	131
2	On sealant – East opening	135
3	On sealant – East opening	147
4	On sealant – West opening	149
5	On sealant – West opening	165
6	On sealant – West opening	165
7	On concrete, 25 mm from West Opening	138
8	On concrete midway between Openings	142
9	On concrete, 25 mm from East Opening	144

We trust that this brief Report will satisfy your immediate requirements.

This Report is intended for information purposes only and therefore contains no conclusions or discussions of the test results.

Yours very truly,

Elizabeth Paddon, P.Eng.
Project Engineer
Construction Materials

Reviewed by:

Emmanuel Sopaju, P.Eng.
Managing Engineer
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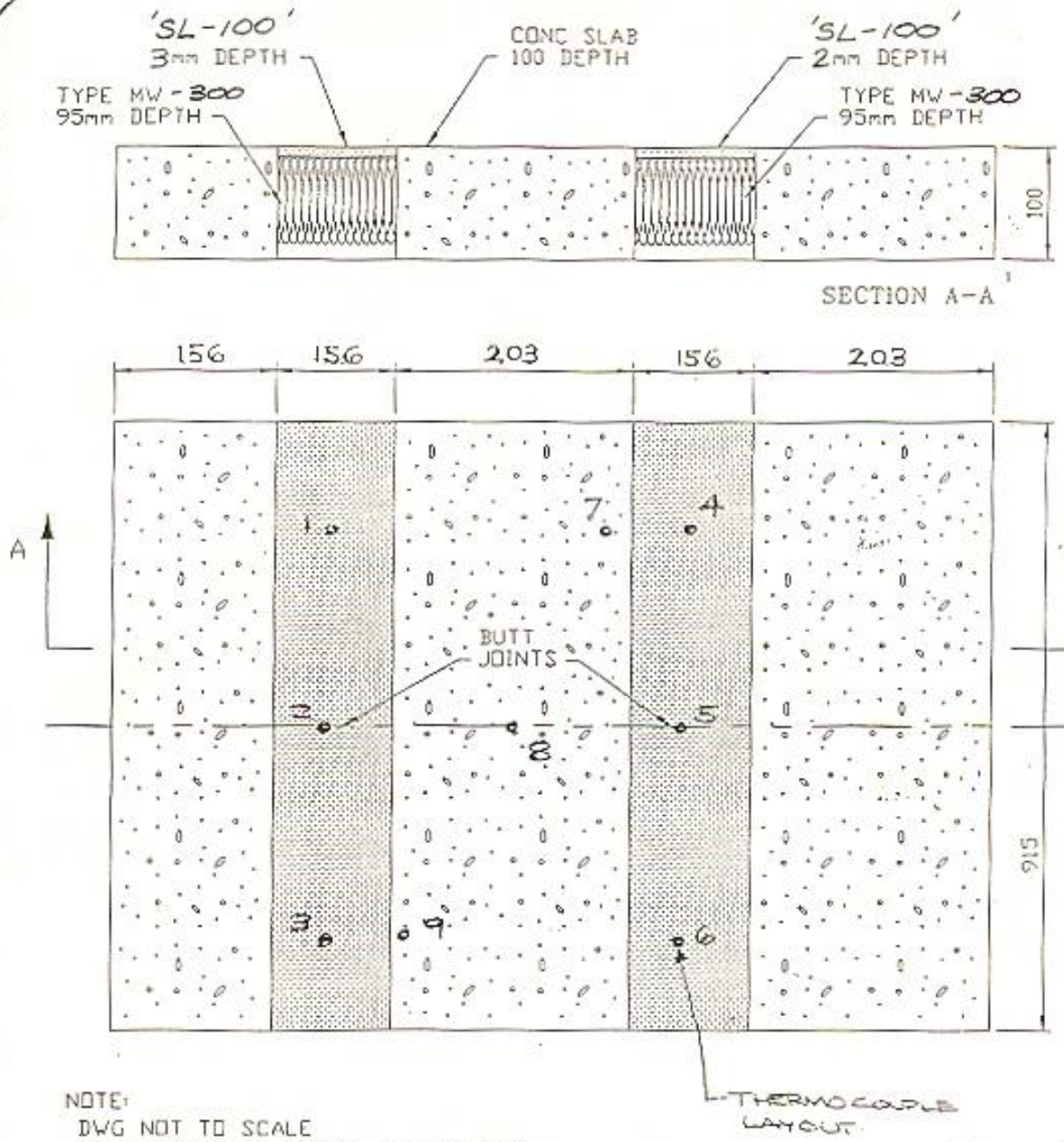
REPORTS 4194

F I G U R E I N D E X



NOTE:
DWG NOT TO SCALE
ALL DIMENSIONS ARE IN MILLIMETERS

FIG 1

	TITLE SITE SPECIFIC FIRE TEST FIRESTOPPING	DATE SEPT 24/02
	PROJECT:	DWG. No. 1 OF 1