



DATE: December 18, 2007

TO: David Phillips, D.A.P. Building & Construction Services, DISS, UK

FROM: Keith Brebner

SUBJECT: LONDON CITY HOSPITAL – CURTAIN WALL TO SLAB EDGE FIRESTOP SEAL

With regard to our November 23rd memo to your attention, we understand that the project requirements have been modified. The construction now consists of a 300 mm thick concrete slab intersecting with a curtain wall panel where the gap will be a maximum of 133.5 mm. It is also our understanding that the STC requirement has been increased from 52 to 53.

In July 2005 NUCO conducted a Sound Transmission Loss Test at Riverbank Acoustical Laboratories, Geneva, Illinois, in conformance with ASTM E90-04 and E-413-04. The 203 mm wide by 4.27 m Fire Seal consisted of a 6.4 mm thickness of Self Seal SL-100 applied over a nominal 152 mm thickness of Self Seal MW-300 and installed in the Laboratories 152 mm thick reference concrete slab mounted in a 4.27 m wide by 6.1 m horizontal floor ceiling opening. The STC of the concrete slab was 54 and the STC of the 203 mm wide seal was measured as 36.

According to Laboratory Manager, Mr. David Moyer, an STC is based on the acoustical performance of the entire floor assembly and he kindly provided us with a method of calculating the STC of the laboratory assembly based on the STC of the concrete slab and the width of the gap. If the concrete slab were to be 300 mm thick having an STC of 60 or greater and the gap was a maximum of 133.5 mm, then a composite STC of **52** would be achieved with the installation of the Fire Seal described above, see following chart. By increasing the STC of the Fire Seal to 37 from 36 it would be possible to provide the required composite STC of **53**. To achieve this result we would recommend that an acoustical insulation batt, such as the Roxul AFB or an equivalent, be installed to a nominal depth of 100 mm flush with the bottom of the floor slab. It is our understanding that this additional insulation can increase the STC by 3 to 5 points thus providing a margin for error.

**LONDON CITY
HOSPITAL**

December 18, 2007

Floor - 6.1 m x 4.27 m with a Firestop Seal of 4.27 m x 133.5 mm

Sample	Conc	Fire Seal	Other	Combined Terms	Resulting Composite STC
Total Area	TL	60	36	0	
280 Area, sq ft		273.87	6.13	0	280
tauf*area		0.0002739	0.00154	0	0.001813656
					52

Sample	Conc	Fire Seal	Other	Combined Terms	Resulting Composite STC
Total Area	TL	60	37	0	
280 Area, sq ft		273.87	6.13	0	280
tauf*area		0.0002739	0.001223	0	0.001496966
					53

The fire test for this project would be Underwriters Laboratories of Canada Reference No. CR2632-25340(B), May 11, 1998 (excerpt attached). The test was conducted in accordance with BS 476: Part 20, 1987 and consisted of two 156 mm wide linear gaps packed with Self Seal MW-300 compressed into the openings to a depth of 95 mm and topped with either a 2 or 3 mm depth of Self Seal SL-100. The test showed that these seals are capable of maintaining integrity for a period of 4 hours. The width of the gap, depth of the SL-100 / MW-300, depth of the test slab and the duration of the fire test all represent more severe conditions that those found on the project site.

The aging tests for the Self Seal SL-100 and supporting report are also attached.

Yours truly,
NUCO INC



Keith Brebner