April 5, 2024

Dr. Andrew Shaver
Aeroseal LLC
225 Byers Rd
Miamisburg, OH, 45342
US

Our Reference: File SV30831, Project 4791018593

Subject: One small-scale vertical developmental test for duct sealant for dampers

Dear Dr. Shaver

The following confirms your application for the investigation described herein to develop developmental test data on fire and smoke dampers when exposed to your UL Certified Aeroseal LLC “Duct Seal” aerosol duct sealant spray. This will report the results of the testing.

Aeroseal LLC supplied all of the fire and smoke damper test samples for testing. UL did not select the samples nor determine whether the samples provided were representative of other manufactured products. UL tested the samples in accordance with requirements established by the submittor and in accordance with the noted tests in Standard UL 555. The test results apply only to the samples actually tested.

In no event shall UL LLC be responsible to anyone for whatever use or nonuse is made of the information contained in this Report and in no event shall UL LLC, or its agents, incur any obligation or liability for damages, including, but not limited to, consequential damages arising out of or in connection with the use of, or inability to use, the information contained in this Report.

## GENERAL

The sole purpose of this investigation is the development of fire test data on samples of UL Classified vertically mounted multi-blade dampers equipped with fusible link, spring-close and curtain type fire dampers. This verification testing contains abbreviated testing strictly for the purpose of providing data relative to exposure of the aerosol spray and does not constitute a full investigation program of dampers in accordance with UL 555 and UL 555S. The effect of the spray on electrical features, such as motors, actuators, wiring, and the like was outside the

scope of this test program. UL tested the samples in accordance with requirements established by the submittor and in accordance with the noted tests in Standard UL 555. The test plan called for the conduct of the following tests on UL Classified fire and smoke damper samples which had been subjected to the Aeroseal LLC spray-applied:

- Fire Endurance Tests

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## DESCRIPTION

TEST SAMPLES:

Representative samples of UL Classified fire and smoke dampers were submitted by Aeroseal for testing. The samples are summarized below.

| | | |
|---|---|---|
| Damper #1, 2 | 13-3/4 by 15-3/4 in. (2) | Dayton damper equipped with a stainless steel closure spring and UL listed fusible link rated at 165º F |
| Damper #3 | 14 in. Round | Dayton damper equipped with a stainless steel closure spring and UL listed fusible link rated at 165º F |
| Damper #4 | 18 x 18 in | Nailor damper equipped with a steel closure spring and UL listed fusible link rated at 165º F |

As noted in the individual tests herein, the dampers were subjected to the Aeroseal LLC "Duct Seal" spray prior to the fire testing described herein. The Aeroseal LLC spray was applied at Aeroseal's facility. Spray application was not witnessed by UL staff.

SUMMARY OF TESTS CONDUCTED ON THE DAMPER SAMPLES

I. FIRE ENDURANCE TESTS (UL 555):

SAMPLES

One wall assembly with four damper samples was tested. The wall assembly was constructed in accordance with a 2 hr rated gypsum steel stud wall design. The wall openings for each damper sample allowed for a minimum expansion clearance of 1/8 in. per ft.

The multiblade damper samples and curtain damper were installed within the wall openings using 1-1/2 by 1-1/2 by 16 ga steel perimeter retaining angles at both sides of wall. The angles were secured to the damper sleeves with #10 sheet metal screws.
The Round 14 in. damper was installed with the supplied damper surround on the unexposed side. The surround was attached to the wall with the supplied screws in the corners of each half of the surround.

The damper samples installed in each wall assembly as described in this section were subjected to a fire endurance test exposure to evaluate the closure and performance of the dampers which had been subjected to the Aeroseal LLC spray. Each fire exposure was continued for a duration of 90 min at the submittor request.

The dampers were installed in the requested orientation as specified by Aeroseal LLC.

The fire endurance test was started with each damper in the open position.

## METHOD

The fire endurance tests were conducted in accordance with the Standard UL 555. Furnace temperatures were measured with three thermocouples symmetrically located in the furnace chamber. The junction of the thermocouples was located 12 in. from the exposed face of the test assembly.

Throughout the fire test, observations were made of the character of the fire and its control, the conditions of the exposed and unexposed faces and all developments pertaining to the performance of the dampers as a fire barrier with special reference to stability and flame passage when installed in ducts passing through walls or floors.

## RESULTS

Fire Test Observations - The following observations were noted during the Fire Endurance tests conducted on the test samples described above.

Fire Test Observations:

| Time, hr: min: sec | Observation |
|---|---|
| 00:00 | Gas on. Dampers were covered with 5/8 in. gypsum board covers to reduce heat loss. |
| 00:18 | Damper 3 closed completely. |
| 00:21 | Damper 2 closed completely. |
| 00:40 | Damper 1 and 4 closed completely. |
| 10:54 | Galvanization on damper 3 is melting off |
| 18:00 | Galvanization has melted off each damper. |
| 35:00 | No significant changes. |
| 50:00 | Dampers are glowing orange. |
| 65:00 | No significant changes. |
| 90:00 | Gas off. Wall assembly removed from the furnace. |

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Observations After Fire Exposure Test – The dampers closed and latched as intended and in accordance with the applicable requirements of the Standard during the fire exposure and no flaming was observed on the unexposed side of the dampers.

This will complete the work anticipated under Project 4791018593.
Any information and documentation involving UL Mark services are provided on behalf of Underwriters Laboratories Inc, (UL) or any authorized licensee.

Report by:

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APPENDIX A

## WALL ASSEMBLY

### UNEXPOSED SIDE OF TEST ASSEMBLY PRE-TEST


### EXPOSED SIDE OF TEST ASSEMBLY PRE-TEST


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DAMPERS COVERED PRIOR TO THE START OF THE FIRE EXPOSURE

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UNEXPOSED SIDE OF TEST ASSEMBLY PRE-TEST


EXPOSED SIDE OF TEST ASSEMBLY PRE-TEST


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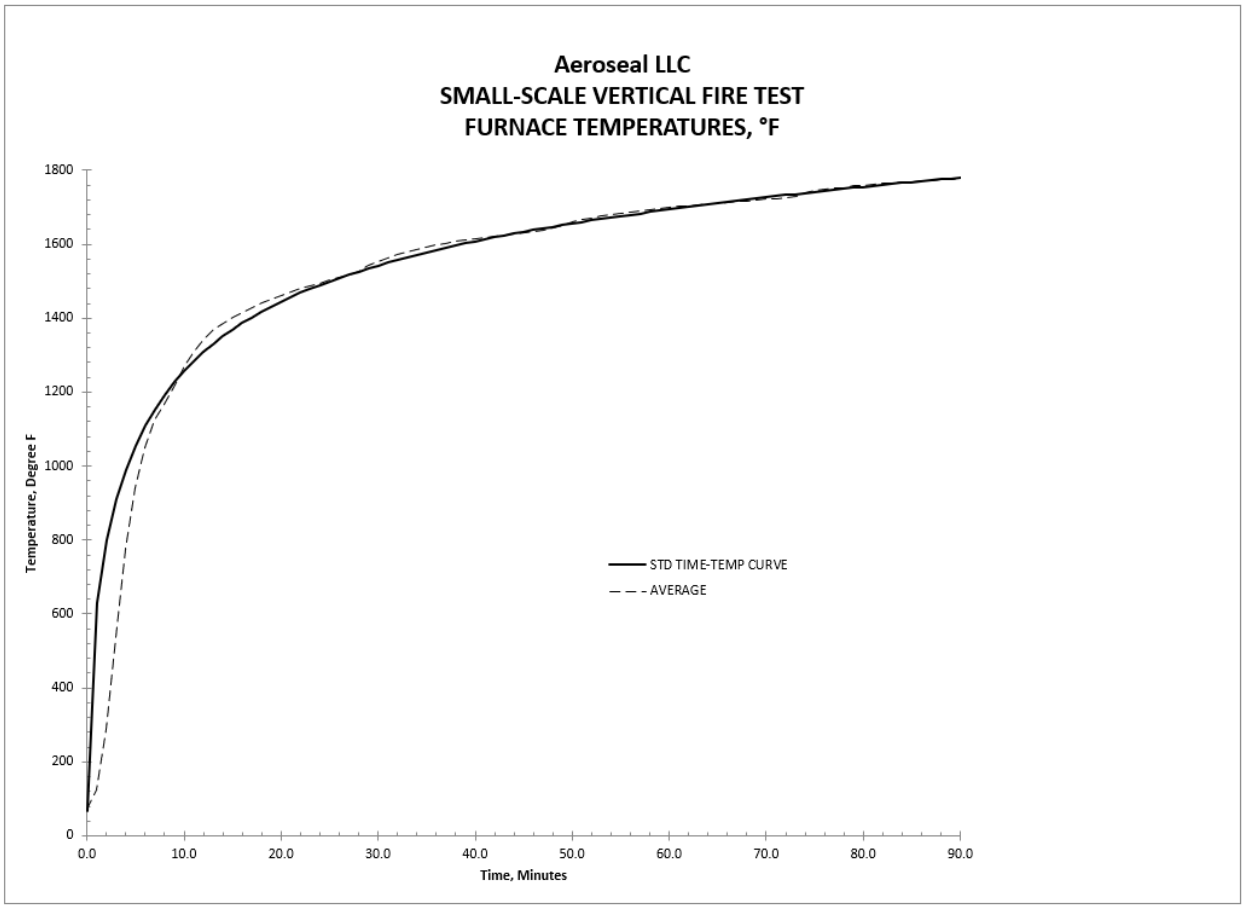


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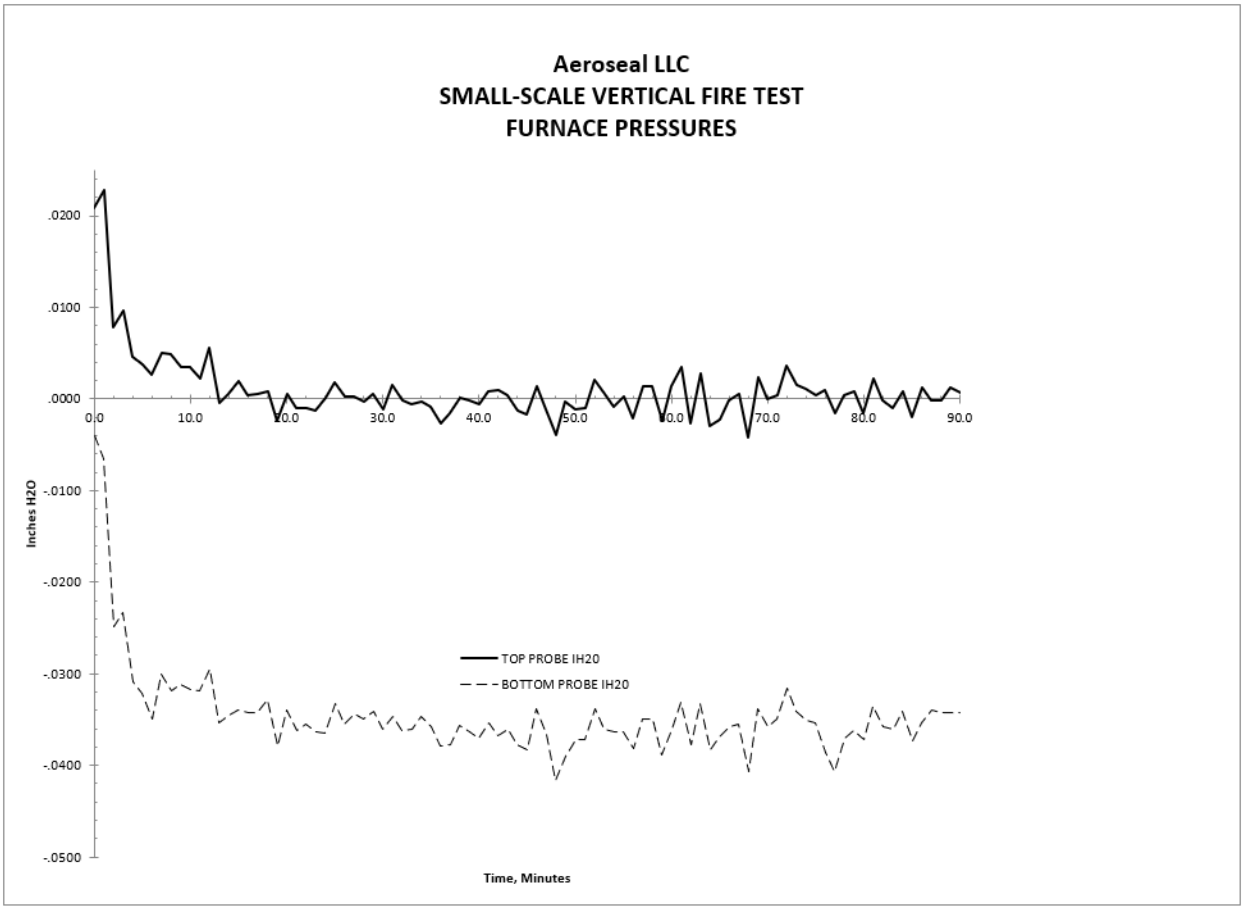


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