



Product Evaluation for Safti-Seal Inc
Report #: 10242019-001
Date: October 28, 2019

Rectorseal Fire Test Laboratory
3300 Produce Row
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Safti-Seal Inc Product Evaluation

Product Evaluated

SAFTI-SEAL SMOKE-N-SOUND GASKET

Evaluation Standard

ASTM E1399, ANSI/UL 2079

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1 Introduction

Rectorseal Fire Test Laboratory (Rectorseal) is conducting a product evaluation for Safti-Seal Inc, on Safti-Seal Smoke-n-Sound Gasket to evaluate its air leakage properties. The evaluation is being conducted to determine if the Smoke-n-Sound Gasket will maintain an adequate seal after Class III cycling.

2 Product and Assembly Description

2.1 Product Description:

The material is a “peel & stick” gasket composed of a foam and abuse resistant coating. The product is designed to be used in the following applications: Head of Wall and Joints with gypsum wall assemblies. The product is adhered to a stud framing member, top track/header, or bottom track/footer by removing the release paper to expose a pressure sensitive adhesive (PSA). The material is packaged in rolls of various heights (1.00-in or 1.25-in).

2.2 Assembly Description:

A 1-hr gypsum wall was constructed using nominal 3-1/2 inch steel framing (25-GA). The wall was constructed within a 4-ft X 4-ft steel test frame. Steel studs were spaced 24 inch on center (OC), and each stud was cut 1 inch short to accommodate vertical movement. The top track was 20-GA galvanized steel with 3 inch legs, attached to a 4-1/2 inch thick lightweight concrete deck with concrete anchors spaced 12 inch OC. Each leg had 1-1/2 inch slots starting 1 inch down from the top of the track. See Figure 1 for more detail:



Figure 1: The top track used for the 1-hr gypsum wall assembly. The track has 1-1/2 inch long slots spaced 1 inch OC.



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A 1-1/4 inch wide specimen of Smoke-n-Sound Gasket was installed at the top of each leg of the top track using the peel and stick adhesive (Fig 2). A joint was made near the midpoint of the assembly to provide an evaluation of the product as it might be installed in the field (Fig 3).



Figure 2: 1-1/4 inch Safti-Seal Smoke-n-Sound Gasket installed on the top track.



Figure 3: A joint was made near the center of the assembly for evaluation of the product.

One layer of 5/8 inch CertainTeed type X gypsum wallboard was installed on each side of the assembly using 1-5/8 inch No. 6 drywall screws 12 inch OC with the first screw 4 inches below bottom surface of the deck. A 3/8 inch joint was left between the top of the gypsum wallboard and the bottom of the concrete deck (Fig 4). Owens Corning R19 fiberglass insulation was installed filling the wall cavity.



Figure 4: The assembly was constructed with a 3/8 inch Head of Wall joint.

Authorities Having Jurisdiction (AHJ) should be consulted in all cases as to the particular requirements covering the installation and use of certified products, equipment, systems, devices, and materials. The AHJ should be consulted before construction. Smoke and sound resistant assemblies and products are developed by the design submitter and have been investigated by Rectorseal for compliance with specific requirements. The published information cannot always address every construction nuance encountered in the field. When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of smoke and sound resistance assemblies are advised to consult the test standard referenced for each certified product. The test standard includes specifics concerning alternate materials and alternate methods of construction.

3 Reference Documents

As part of this evaluation, Rectorseal has directly or indirectly used the following referenced documents:

- ASTM E1399/E1399M-97 (2017), Standard Test Method for Cyclic Movement and Measuring the Minimum and Maximum Joint Widths of Architectural Joint Systems
- ANSI/UL 2079 5th ed, Tests for Fire Resistance of Building Joint Systems
- Rectorseal Test Data Z1024078

4 Evaluation Method

The test assembly was cycled to ASTM E1399 at $\pm 100\%$, with no observable defects on the test specimen aside from minor rolling of the abuse resistant coating (Fig 5). Cycling was conducted with the joint starting at $3/8$ inch, closing to 0 inch, and then opening to $3/4$ inch before returning to the starting position for one cycle. The assembly was cycled 500 times at a rate of 35 CPM (cycles per minute).



Figure 5: Minor rolling of abuse resistant coating after Class III cycling. The joint was left opened to $3/4$ inch for air leakage testing.

The assembly was then moved to the air leakage apparatus and tested for air leakage through the Head of Wall joint at both ambient temperature (70.3°F) and elevated temperature (400°F) per ANSI/UL 2079 sec.20-23. The assembly was sealed inside the test frame prior to air leakage testing, resulting in 12 inches of the test specimen being covered up and removed from the test. This was done to isolate any leakage through the assembly to only the Head of Wall joint.

The assembly was found to have a leakage rate of 27 CFH and 10 CFH at ambient and elevated temperatures respectively. The air leakage rating for the assembly was determined by dimensional analysis and accounting for the 3 linear feet of the test specimen:

$$\frac{27 \text{ CF}}{1 \text{ H}} \times \frac{1 \text{ H}}{60 \text{ M}} \times \frac{1}{3 \text{ LF}} = 0.15 \text{ CFM/LF @ } 70.3^\circ\text{F (ambient)}$$

$$\frac{10 \text{ CF}}{1 \text{ H}} \times \frac{1 \text{ H}}{60 \text{ M}} \times \frac{1}{3 \text{ LF}} = 0.06 \text{ CFM/LF @ } 400^\circ\text{F}$$

Whereas in the equations above, “CF” stands for cubic feet, “H” stands for hour, “M” stands for minute, and “LF” stands for linear feet.

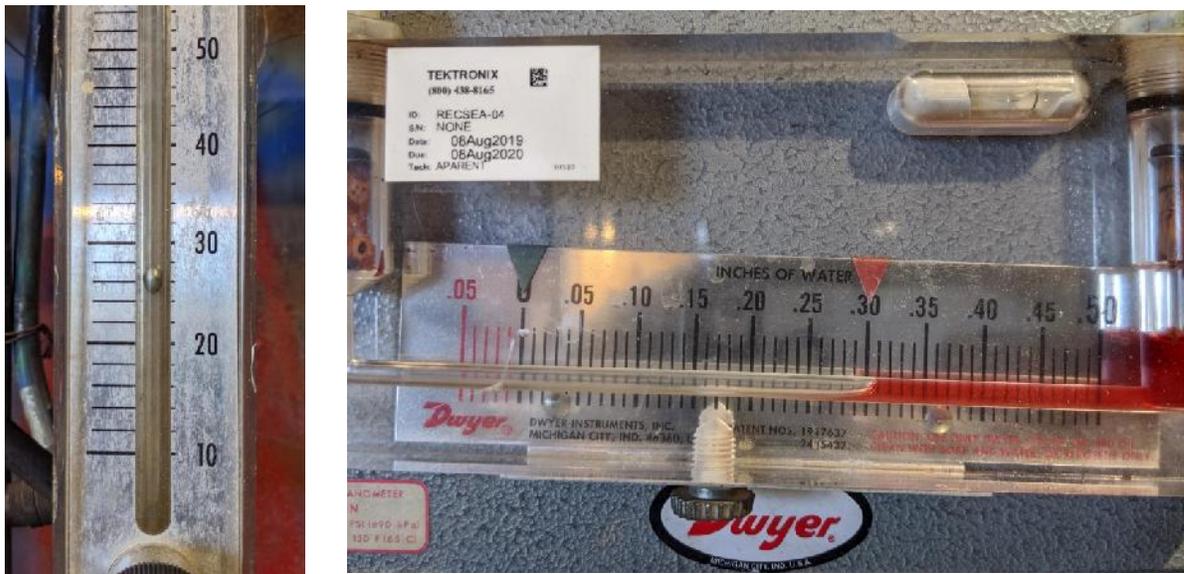


Figure 6: The air flow into the air leakage apparatus is shown on the left and the differential pressure inside the apparatus is shown on the right. This data was obtained at 70.3°F (ambient).



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Figure 7: The air flow into the air leakage apparatus is shown on the left and the differential pressure inside the apparatus is shown on the right. This data was obtained at 400°F (elevated).

5 Conclusion

Rectorseal has conducted this product evaluation for Safti-Seal Inc, on Smoke-n-Sound Gasket to evaluate its air leakage after cycling. The evaluation was conducted to test the product effectiveness when installed in a dynamic joint of a smoke and sound wall.

Based on the test data contained within this report, the tested assembly satisfied the ANSI/UL 2079 test standard acceptance criteria for an L-Rating of < 1 CFM/LF at ambient and elevated temperatures.

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