



Product Evaluation for Safti-Seal
Report #: 051021_HW-STS-041621-02
Date: May 10, 2021

RectorSeal Fire Test Laboratory
3300 Produce Row
Houston, TX 77023
(713) 921.5926

Safti-Seal Product Evaluation

Product Evaluated

SSG

Evaluation Standard

ANSI/UL 2079, 5th EDITION

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1 Introduction

RectorSeal Fire Test Laboratory (RectorSeal) is conducting a product evaluation for Safti-Seal on the Safti-Seal SSG to evaluate its air leakage seal ability. The evaluation is being conducted to determine air leakage flow rate when the SSG is installed at Head of Wall for in a 1-hr gypsum wall. The joint is conditioned by movement cycling prior to being tested for air leakage.

2 Product and Assembly Description

2.1 Product Description:

The material is a “peel & stick” gasket composed of a foam and black colored protective layer. The product is designed to be used in the following applications: Head of Wall Joints, Wall to Wall Joints, and Bottom of Wall Joints within gypsum wall assemblies. The product is adhered to a framing member by removing the release paper to expose a pressure sensitive adhesive (PSA). The material is supplied up to 2-1/4 inch width.

2.2 Assembly Description:

A 1-hr UL V450 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). The floor runner (track) was 25-GA galvanized steel with standard 1-1/4 inch legs, and the ceiling runner (track) was 18-GA galvanized steel with 3-in legs. The assembly was built with a nom. 1-in Head of Wall joint installed. The header track was attached to a 4-1/2 inch thick lightweight concrete slab with concrete anchors spaced 24 inch OC. Owens Corning R13 fiberglass insulation was installed within the stud cavity. See Figure 1 for image:



Figure 1: 3-inch leg ceiling runner (18-GA) and nom. 3-1/2 inch steel stud framing (25-GA, 24 inch OC) used to construct the wall. R13 fiberglass insulation fills the wall cavity.



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A 2.25-in wide specimen of SSG was installed on the ceiling runner legs on both sides of the assembly (Fig 2). Figure 3 is a CAD produced rendering of the Head of Wall joint.



Figure 2: On the left the SSG is shown to be 2-1/4 inches wide. On the right the SSG is shown adhered to the ceiling runner/top track.

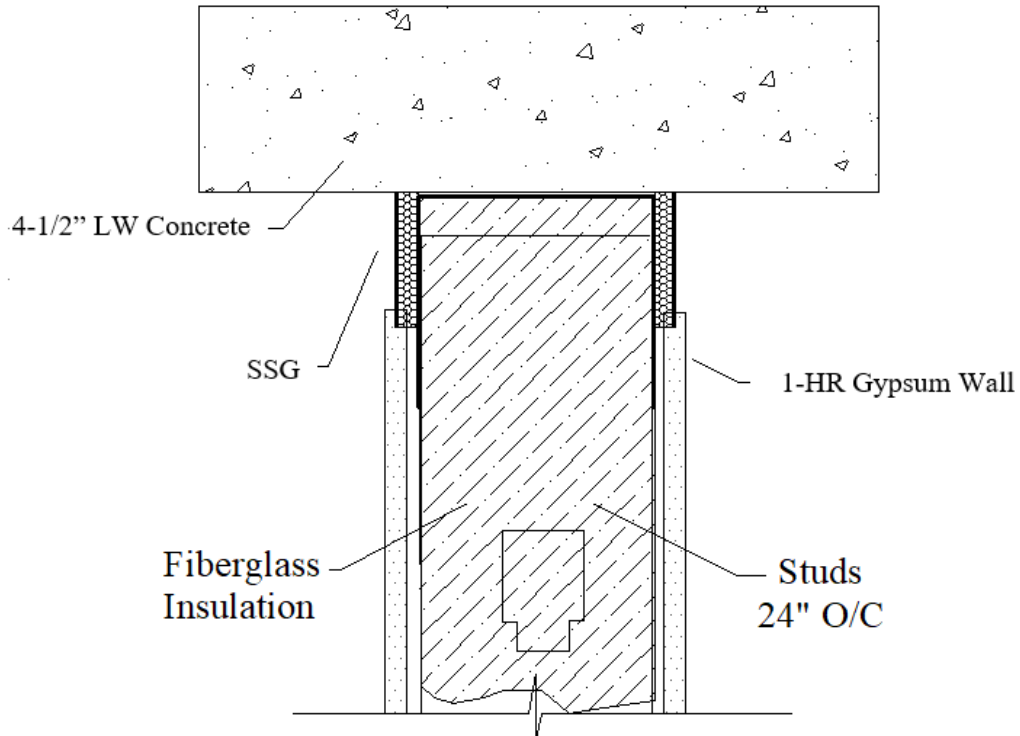


Figure 3: CAD rendering of head of wall joint showing the SSG installed on both legs of ceiling runner behind the layer of gypsum wallboard.



One layer of 5/8 inch CertainTeed Type X gypsum wallboard was installed on each side of the assembly. The wallboard was installed using 1-5/8 inch No. 6 drywall screws 12 inch OC with the first screw located 3-1/2 inches below the top edge of the gypsum wallboard on each side of the assembly (Fig 4).

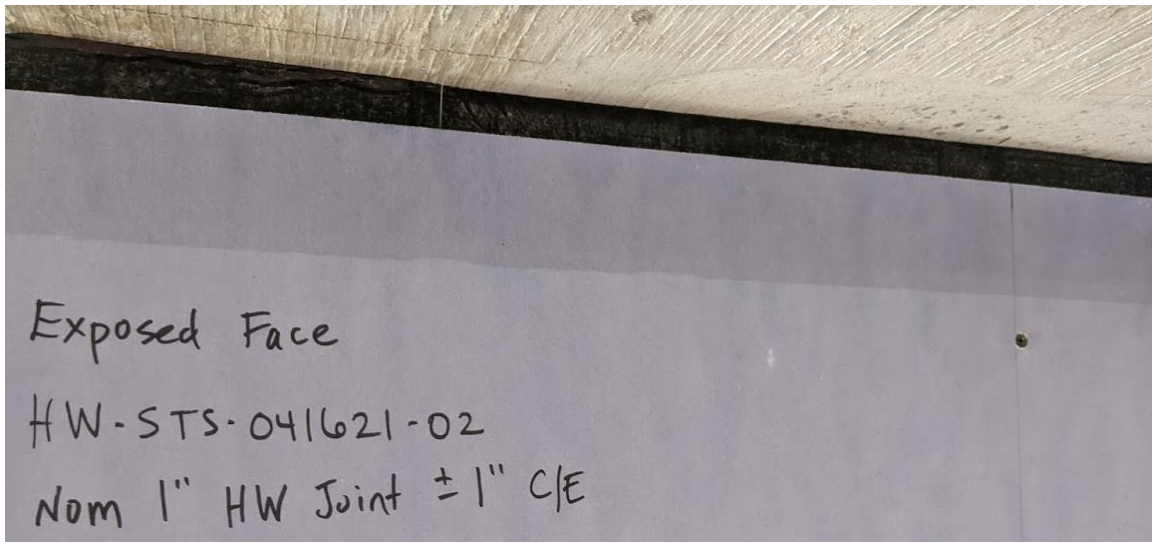


Figure 4: The head of wall joint installed into wall prior to movement cycling.

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 fire rated 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:

- ANSI/UL 2079 5th ed, Tests for Fire Resistance of Building Joint Systems

4 Evaluation Method

The test assembly was cycled within the test frame for vertical movement across the head of wall joint +/- 1.00 inch (100% C/E). The cycle rate and observations of joint are found in Fig 5 below:

CYCLES (#)	RATE (CPM)	OBSERVATIONS
1-100	30	minor rubbing on joint treatment evidenced by lighter color in several small areas where outer layer was worn
101-200	25	more wear on outer layer, no pulling from the top track/concrete INT. No tears, no openings; just wear on both faces of outer layer.
201-300	19	No change
301-400	19	No change
401-500	19	Minor rolls near midpoint of exposed face, lightening of protective layer on both faces. No tears or openings observed.

Figure 5: The assembly was cycled per ANSI/UL 2079 on 03-MAY-2021 at 3:33 PM.

After movement cycling, the assembly was transferred to the air leakage apparatus to be evaluated for air leakage at ambient and elevated (400°F) temperatures. The exposed joint treatment (SSG) was affected from elevated temperature during the air leakage testing, and can be seen below in Fig 6:

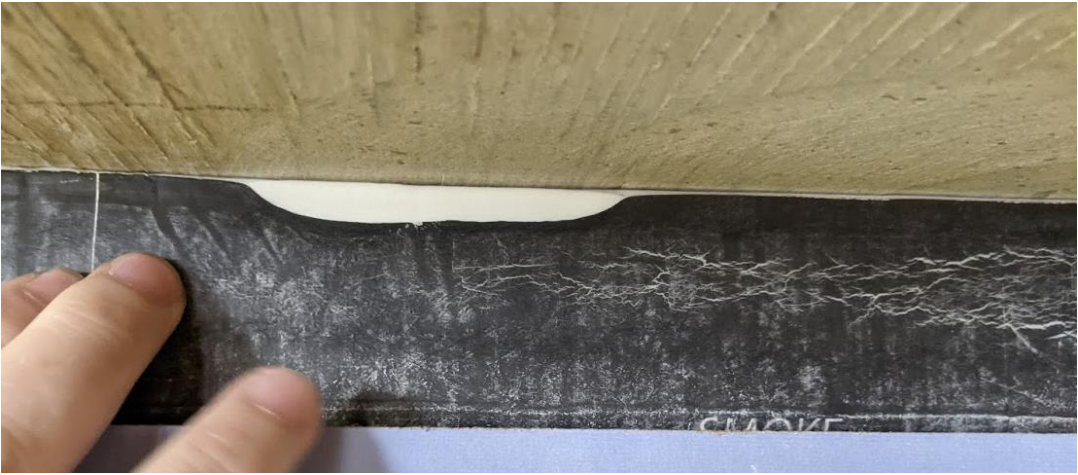


Figure 6: The outer protective layer of SSG was peeled back in two places after exposure to elevated temperature in air leakage test. The largest peeled area is shown above.



The results of the air leakage test are recorded in Figure 7 below:

PENETRANT/ JOINT #	CHAMBER		CFM	CFM/LF OR	TIME TO	TIME TO REACH
	TEMP (°F)	SCFH		CFM/DEVICE	REACH 350F	400F
1	79	30.00	0.50	0.17	N/A	N/A
	405	27.00	0.45	0.15	0:05:52	0:08:39

Figure 7: Three linear feet of the head of wall joint was evaluated for air leakage at ambient and elevated temperature with less than 1 CFM/LF leakage each.

An example calculation for air leakage follows:

$$\frac{30 \text{ SCF}}{1 \text{ H}} \times \frac{1 \text{ H}}{60 \text{ M}} = 0.50 \text{ CFM} \times \frac{1}{3 \text{ LF}} = 0.17 \text{ CFM/LF}$$

5 Conclusion

RectorSeal has conducted this product evaluation for Safti-Seal on SSG to evaluate air leakage performance. The evaluation was conducted to test the product effectiveness when installed in a dynamic Head of Wall joint within a one-hour fire rated gypsum wall assembly.

Based on the test data contained within this report, the tested assembly satisfied the ANSI/UL 2079 test standard acceptance criteria for an air leakage rating of < 1 CFM/LF at ambient temperature and 400°F.

RectorSeal Fire Test Laboratory

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6 Appendix

PROJECT:	HW-ST5-041621-02
TEST DATE:	3-May-2021
START TIME:	15:33
FINISH TIME:	16:29

TEMP (°F)	RH%
88	60

Temperature and humidity data determined with ID#200553782 (16-SEP-2022)

CYCLES (#)	RATE (CPM)	OBSERVATIONS
1-100	30	minor rubbing on joint treatment evidenced by lighter color in several small areas where outer layer was worn
101-200	25	more wear on outer layer, no pulling from the top track/concrete INT. No tears, no openings; just wear on both faces of outer layer.
201-300	19	No change
301-400	19	No change
401-500	19	Minor rolls near midpoint of exposed face, lightening of protective layer on both faces. No tears or openings observed.



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PROJECT:	HW-ST5-041621-02
TEST DATE:	4-May-2021
START TIME:	10:43
FINISH TIME:	11:08

TEMP (°F)	RH%	PRESSURE (in-Hg)
82.3	77	29.72

CHAMBER LEAKAGE DATA		
SCFH W/SEAL	CFM W/SEAL	CHAMBER LEAK (CFM)
N/A	N/A	N/A

PENETRANT/ JOINT #	CHAMBER TEMP (°F)	SCFH	CFM	CFM/LF OR CFM/DEVICE	TIME TO REACH 350F	TIME TO REACH 400F
1	79	30.00	0.50	0.17	N/A	N/A
	405	27.00	0.45	0.15	0:05:52	0:08:39
2			0.00	#VALUE!		
			0.00	#VALUE!		

*leakage of chamber and joint

Observations: Exposed face joint treatment showed two spots where the outer protective layer was compromised by elevated temperature. This is evidenced by shrinkage where a 3-in by 1/4-in opening on left side of joint at slab INT and a 2-in by 1/4-in opening on right side at slab INT. Both areas revealed white TC3 foam behind protective layer. No other changes to joint treatment (unexposed & exposed) observed.

ID#: 200553782 _____

CAL EXP. 16-Sep-2022 _____

ID#: 200641416 _____

CAL EXP. 22-Oct-2022 _____