Center for Building Innovation
6300 Enterprise Lane | Madison, WI 53719 | cbitest.com

Confidential Research & Testing

ASTM E2237 Drainage Efficiency Testing of Tanager Products DrainStrip™

Conducted for:

Tanager Products, Inc.
14048 Terrace Road NE
Ham Lake, MN 55304

Testing Facility:

Center for Building Innovation
6300 Enterprise Lane
Madison, Wisconsin 53719
ISO/IEC 17025 Accredited (ANAB Certificate Number AT-1373)

Report Number: 22-065

Testing Conducted: October 26, 2022

Final Report: October 31, 2022

CBI is an Approved Source and Approved Agency

The IBC defines:

- APPROVED SOURCE. An independent person, firm or corporation, approved by the building official, who is competent and experienced in the application of engineering principles to materials, methods or systems analyses.
- APPROVED AGENCY. An established and recognized agency that is regularly engaged in conducting tests, furnishing inspection services or furnishing product certification where such agency has been approved by the building official.

CBI's building design and construction professionals meet the competency requirements as an ANAB accredited testing laboratory. As Section 1701.1 states "the building official shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new materials or assemblies as provided for in Section 104.11.

Introduction and Test Specimens:

The Center for Building Innovation (CBI) tested two (2) rain screen systems featuring Tanager Product DrainStrips™ in general accordance with test standard *ASTM E2273-18: Standard Test Method for Determining the Drainage Efficiency of Exterior Insulation and Finish Systems (EIFS) Clad Wall Assemblies*. DrainStrips™ are 2" x ½" porous furring members that can be used as part of a rain screen system. DrainStrips™ consist of two plastic facers over an open-cellular plastic core. One of the facers is coated with a puttie that seals fasteners which have penetrated the weather resistant barrier. The DrainStrip™ located at the bottom of the system features a wire mesh covering the bottom edge that serves as an insect deterrent. Testing was conducted to evaluate the drainage efficiency of the DrainStrip™. Photographs of the DrainStrips™ and their layout are provided in **Figures 1 and 2**. A detailed description of specimen construction is provided in **Table 1**.

Figure 1: DrainStrip™ Close-Up

Figure 2: DrainStrip™ Layout

Table 1: Test Specimen Details

Category	
Description	DrainStrips™ Spaced 16" o.c.
Quantity of Tests	2
Drainage System	
Drainage Elements	(4) Vertical DrainStrips™ Spaced 16" o.c. (aligned with studs) (2) Horizontal DrainStrips™ (aligned with top/bottom plates)
Lot Number / Date of Receipt	Unknown / 10/11/2022
Attachment	0.113" x 2.375" nails spaced 6":12" (driven into studs and top/bottom plates)
Wall Construction	
Nominal Wall Length	4 ft
Nominal Wall Height	8 ft
Stud Spacing	16" o.c.
Exterior Sheathing / Weather Resistant Barrier	OX ThermoPly, attached with 16ga 1" Crown x 1-1/4" Leg Staples spaced 3":3"
Summarized Test Results	
Average Drainage Efficiency	95.9%

Test Procedure:

A wall was framed using industry standard methods and sheathed with Ox Thermo-Ply, a type of exterior sheathing that includes a weather resistant barrier. DrainStrips™ were then attached over the exterior sheathing. Finally, a second sheet of Ox Thermo-Ply was attached to the outside face of the DrainStrips™ to simulate any type of impermeable cladding material. Preliminary testing found that water clung to the bottom plate after passing through the rain screen system, so a thin strip of steel was inserted below the bottom DrainStrip™ to serve as a drip edge. The vertical edges of the wall panel were sealed. A slot fault (an opening in the test specimen that exposes the water or weather resistant barrier) was cut into the specimen. The slot fault was 24" wide by 2" high and positioned 12" from the top of the wall assembly. A photo of a finished test specimen with slot fault is shown in **Figure 3**.

Figure 3: Test Specimen with Slot Fault

The specimen was oriented vertical and plumb. A transparent spray box measuring 24.5" wide x 7.25" high x 9.5" deep containing two spray nozzles was mounted against the slot fault. The nozzles were positioned 6" on either side of center and aligned such that all water would enter the slot fault. The flowrate of the spray box had been calibrated in accordance with *ASTM E2273-03* Section 7 to produce a minimum flowrate of 0.234 lbs/minute. Water was sprayed into the slot fault for 75 minutes. A trough collected water as it passed through the drainage system, which was intermittently weighed. Water was collected and weighed for an additional 60 minutes after spraying ceased. A diagram of the test setup is provided in **Figure 4**. Measuring devices used in testing are documented and detailed information is available upon request.

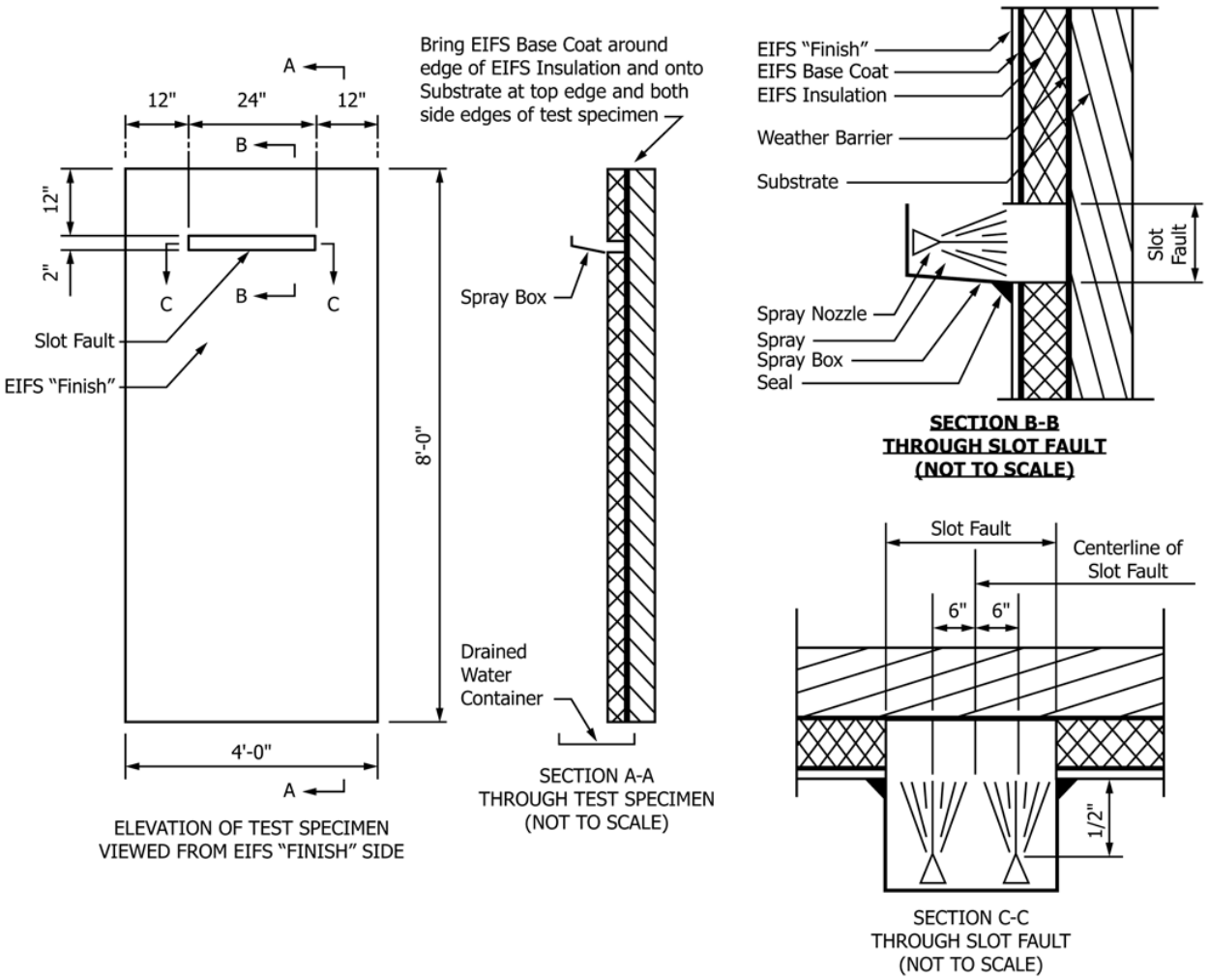


Figure 4: Test Setup

Test Summary:

Test results are provided in **Table 2**. No water leakage through the back of the test specimens was observed. No build-up of water in the spray box was observed. Test results apply only to samples as received by the testing facility.

Table 2: Test Results

Test Number	1	2
Input Flow Rate (lbs/min)	0.278	0.262
15 min. weight (lbs)	3.737	3.603
30 min. weight (lbs)	4.028	3.781
45 min. weight (lbs)	4.009	3.806
60 min. weight (lbs)	3.953	3.788
75 min. weight (lbs)	3.998	3.782
135 min. weight (lbs)	0.156	0.194
Total Input (lbs)	20.864	19.650
Total Output (lbs)	19.882	18.952
Drainage Efficiency	95.3%	96.5%
Average Drainage Efficiency	95.9%	

Photos of tests are provided in **Appendix A**.

Testing observed by,

Nicholas Bennett
Laboratory Technician
CBI

Report written by,

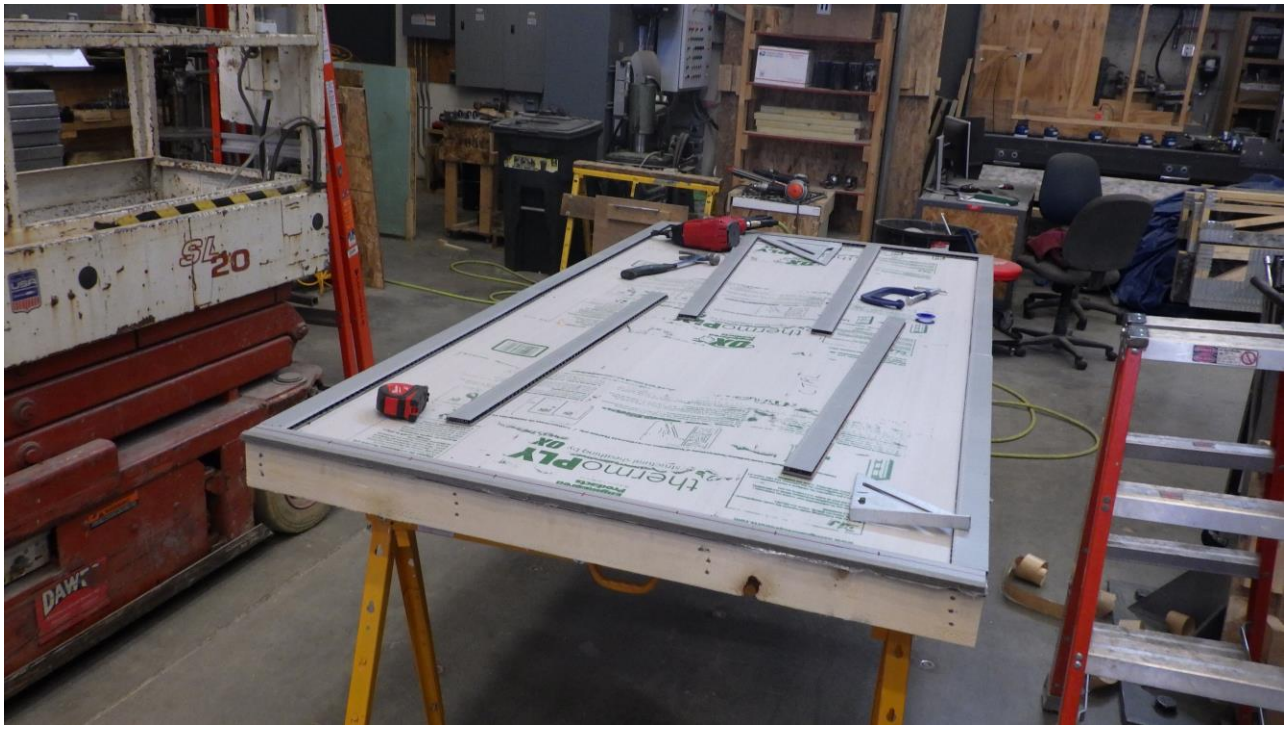
Michael Fehling
Technical Manager
CBI

Report reviewed by,

Kirk Grundahl
Owner
CBI

Appendix A:
Photos

The following pages contain photos from testing.


SL 20
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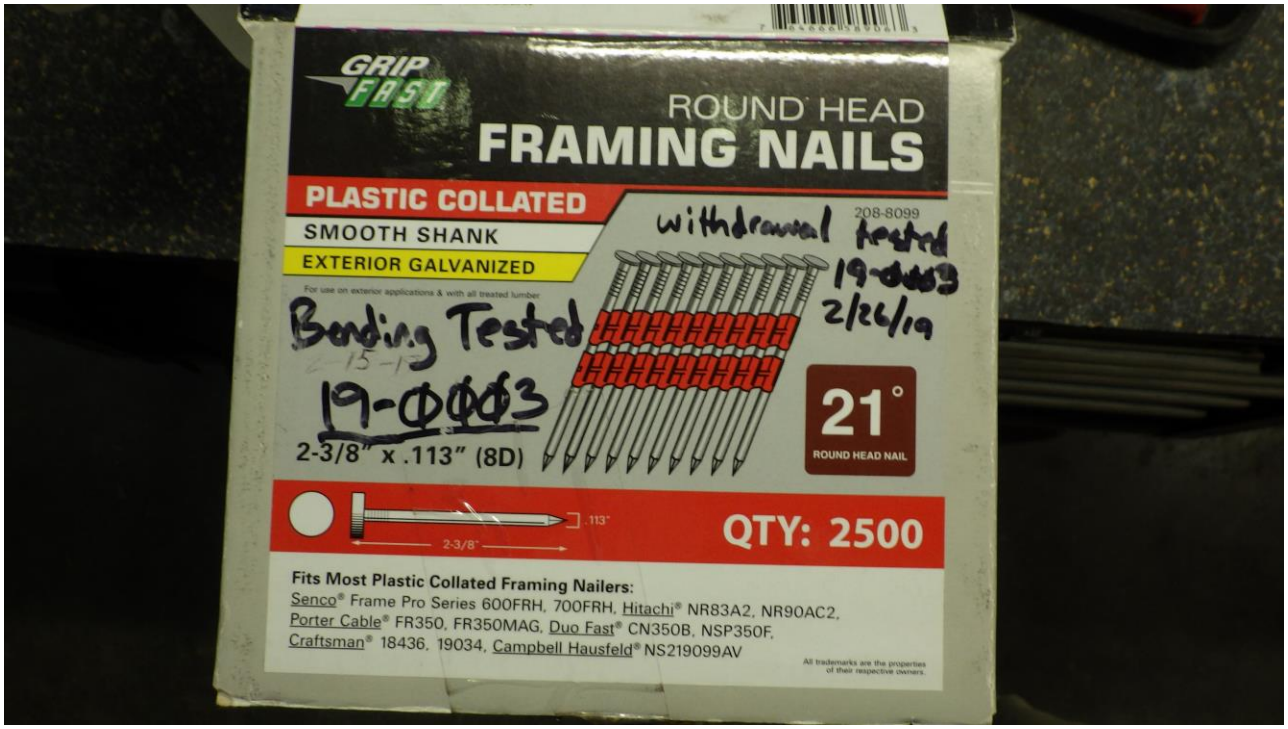
GRIP FAST
ROUND HEAD
FRAMING NAILS
PLASTIC COLLATED
SMOOTH SHANK
EXTERIOR GALVANIZED
208-8099
withdrawal tested
19-0003
2/26/19
Bending Tested
19-0003
2-3/8" x .113" (8D)
21°
ROUND HEAD NAIL
.113"
2-3/8"
QTY: 2500
Fits Most Plastic Collated Framing Nailers:
Senco® Frame Pro Series 600FRH, 700FRH, Hitachi® NR83A2, NR90AC2,
Porter Cable® FR350, FR350MAG, Duo Fast® CN350B, NSP350F,
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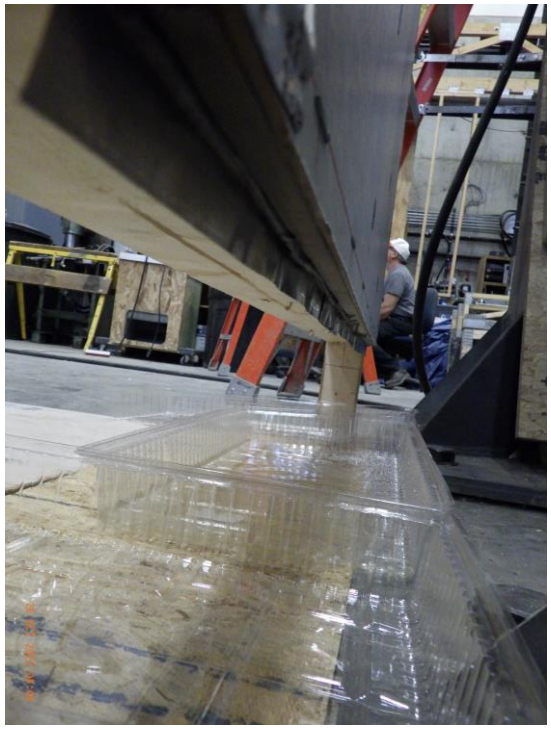


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