

**ASTM D1037, Standard Test Methods for Evaluating Properties of
Wood-Based Fiber and Particle Panel Materials
Section 14 Nail Withdrawal
Section 15 Nail-Head Pull-Through**

Client: Gerald Henderson
Job Number: GHN031811-8
Test Location: *NTA, Inc.
Nappanee, Indiana*

Performed By: Steve Penrose
Witnessed By: Jacob Yoder

General:	Apparatus:	Asset No.	Load Frame:	Asset No.
Date Received: 3/21/2011	Balance:	00003	Load Cell:	00140
Fabrication Date: 4/22/2011	Timing:	00326	Upper Vise:	00575
Test Date: 5/2/2011			Lower Grip:	00389
			Micrometer:	00528
			Caliper:	N/A
				00643

Substrate Description

Manufacturer: Not Provided
Trade Name/Designation: Colorado Panels
Material Description: Magnesium Oxide Panels as Roofing Material

Ambient Conditions:

Ambient Temp.: 73.4 deg. F
Ambient R.H.: 52.3% RH
Sensor Asset No.: 00577

Fastener Description

Fastener: 0.151 -in. Diameter x 2-5/8 -in. Long Screw (Supplied by Client;
All Reported Dimensions are Measured Dimensions)

Type: **Screw**

Fastener Length: 2.625 in. (Measured from underside of head to tip)
Shank Diameter: 0.151 in.
Shank Length: 0.644 in.
Tip Length: 0.316 in.
Major Diameter: 0.175 in.
Minor/Root Diameter: Not Measured
Thread Pitch: 24.000 in.
Head Diameter: 0.310 in.
Head height: 0.127 in.
Washer Thickness: 0.060 in.
Washer Diameter: 0.468 in.
Head Type: Hex head
Drive: Hex head

Head Markings: Z
Tip Type: Self-drilling
Manufacturer/Source: Not provided
Steel Grade: Not provided
Surface/Coating: Not provided
Heat Treatments: Not provided
Steel Mill: Not provided
Mill Certificate: Not provided

Avg. Measured Head Dia.: 0.317 in.
Avg. Measured Shank Dia.: 0.647 in.
Avg. Measured Washer Dia.: 0.451 in.

Nail Head Pull Through	% Strength			Nail Withdrawal	% Strength		
	Dry	Soaked	Lost		Dry	Soaked	Lost
Average Max Load (lbs):	136.21	Not Tested	NA	Average Max Load (lbs):	Not Tested	Not Tested	NA
Max Difference:	0.10	Not Tested		Max Difference:	Not Tested	Not Tested	

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 Section 15 Nail-Head Pull-Through**

Test Data

Rate of Loading: 0.06 in./min.

Table A1: Summary of Test Data

Specimen No.	Moisture Content	Ultimate Load (lbs)	Difference From Avg. (%)	Failure Mode ^a
1	39310	142.58	0.05	P
2	39311	130.11	-0.04	P
3	39312	143.86	0.06	P
4	39313	142.41	0.05	P
5	39314	122.11	-0.10	P
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^a Failure Modes

- P Panel Failure
- F Fastener Failure

	Dry	Soaked
Average	136.21	NA
Minimum	122.11	NA
Maximum	143.86	NA
Max % Difference	10.35%	NA

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