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Providing Quality Control, Testing, Inspection and Certification Services to the Building Industry

PFS TEST REPORT #93-65
IMPACT LOAD TESTS

FOR

THE MILLENNIUM GROUP
WATERLOO, WISCONSIN

GENERAL

Impact load tests on wall panels were conducted on March 8, 1994, at PFS Corporation, Madison, Wisconsin. Testing was conducted in accordance with ASTM E 695-79, Section 8.4.

DESCRIPTION

Four 4-ft.-by-8-ft. wall panels were constructed. Each wall panel frame was constructed of nominal 2-in.-by-4-in. SPF stud grade lumber fastened together by 16d common nails. Two wall panel frames have a 2-in.-by-4-in.-by-8-ft. stud member fastened flatwise in the center of the wall panel frame to simulate an adjoining wall (see Photo No. 1). Two wall panel frames have a 2-in.-by-4-in.-by-4-ft. stud member fastened flatwise at one end of the wall panel frame to simulate an adjoining wall (see Photo No. 2).

The Nailer is designed to be a construction materials fastening component and can be used as a drywall support clip for ceiling and corner fastening of drywall and drywall-to-wood construction. The Nailer's dimensions consist of an approximate 2.125 in.-by-1.5 in.-by-0.10 in.-thick rectangle with a projecting tab. On the backside of the main rectangle is a centrally-located approximate 0.28 in.-wide-by-2.125 in.-long-by-0.10-0.60 in.-thick rib. The projecting tab is approximately 1.5 in.-wide-by-0.94 in.-high-by-0.78-0.58 in.-thick. The projecting tab is located approximately 0.56 in. from the main rectangle end.

Nailers were fastened on both sides of the flatwise center mounted stud members. Nailers were fastened on one side of the flatwise end mounted stud member. Each Nailer was fastened with three 1/2-in.-long staples by a Duo-Fast hand stapler, Model CT 859A. Nailers were spaced 16 in. o.c. Each wall panel frame was covered with 1/2-in. gypsum wallboard. The gypsum wallboard was fastened to the wall panel frames and Nailer with 1-1/4-in. drywall screws. Spacing for the drywall screws was 12 in. o.c. for each stud member.

TEST PROCEDURES

The weight bag was set up to impact at the center area of the wall panel on the center flatwise stud for two wall panel tests, and at the center area between two studs for two wall panel tests (see Figure 1 for test setup). The weight bag consisted of a 10-1/2-in. diameter heavy-duty, vinyl-coated, double-stitched, sand-filled canvas bag weighing a total of 60 lbs. The weight bag was pulled away from the wall panel vertically at 6-in. increments and impacted the wall panel. Deflection and set measurements were recorded at each 6-in. progressive impact. The deflectometer is clamped on the opposite side of the wall panel in direct line with the weight bag impact point.

TEST RESULTS

A summary of deflections by impact are as follows:

Height of Drop	Deflection (in.)			
	Test #1	Test #2	Test #3	Test #4
4'6" = 6"	.625	.812	.828	.343
5'0" = 12"	1.297	1.297	*	*
5'6" = 18"	1.875	1.703		

NOTE: Test #1 and #2 impact is on stud.
Test #3 and #4 impact is between studs.
* Gypsum fractured, stopped testing.

Tests Conducted and
Report Prepared By:

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Tests Witnessed and
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Tests Witnessed and
Report Reviewed By:

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04/03/95
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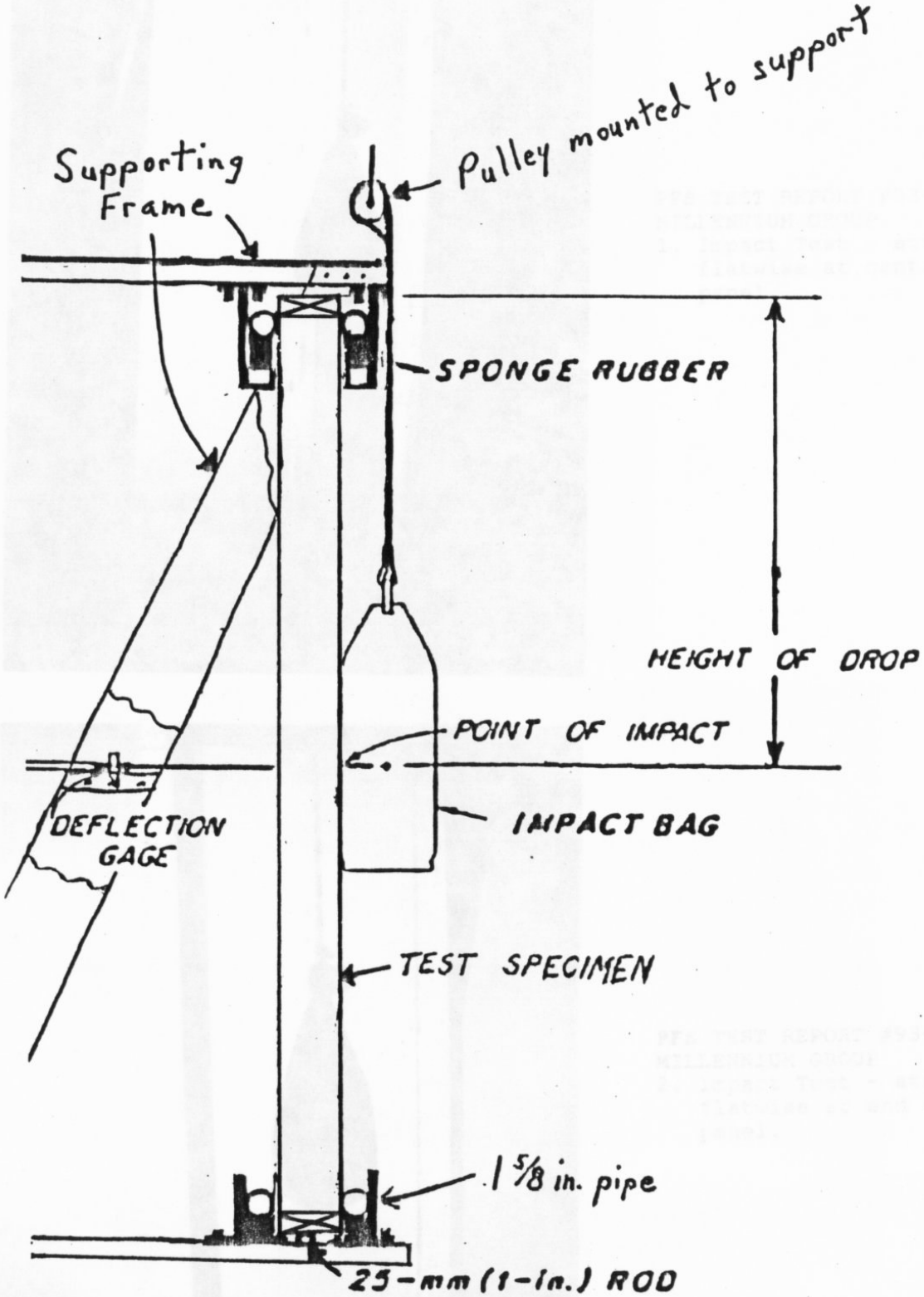
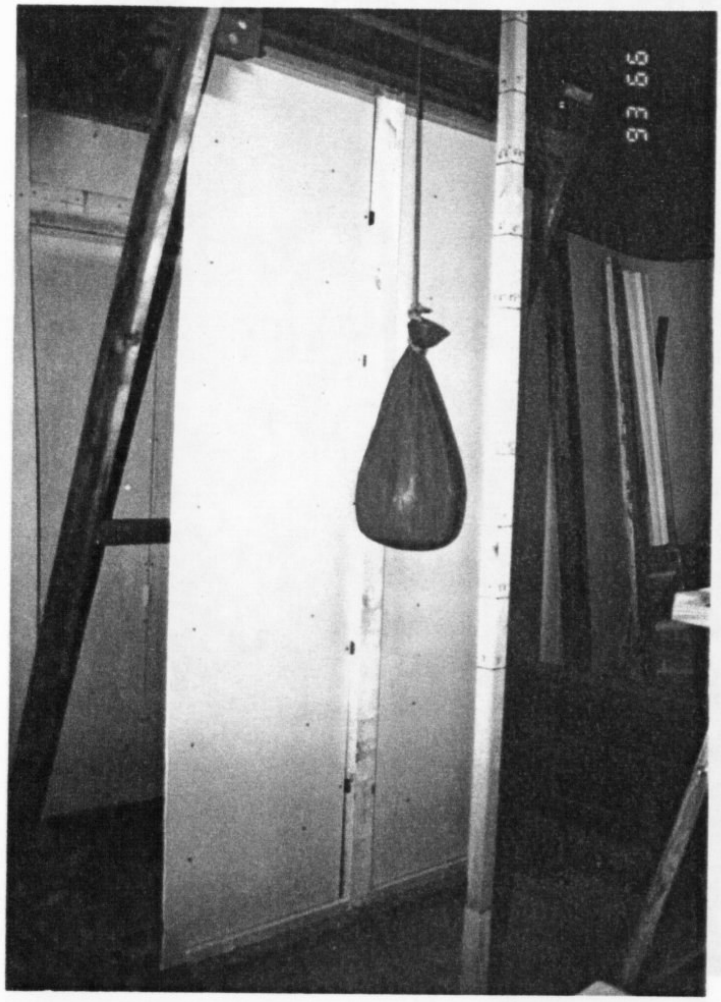
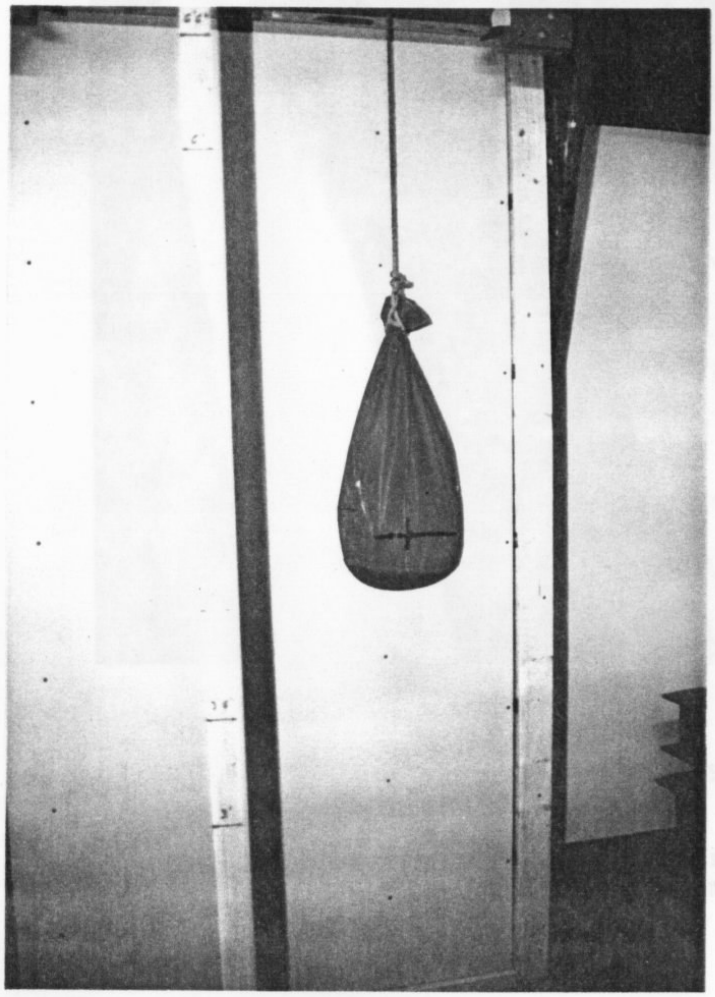


IMPACT LOAD TEST SETUP

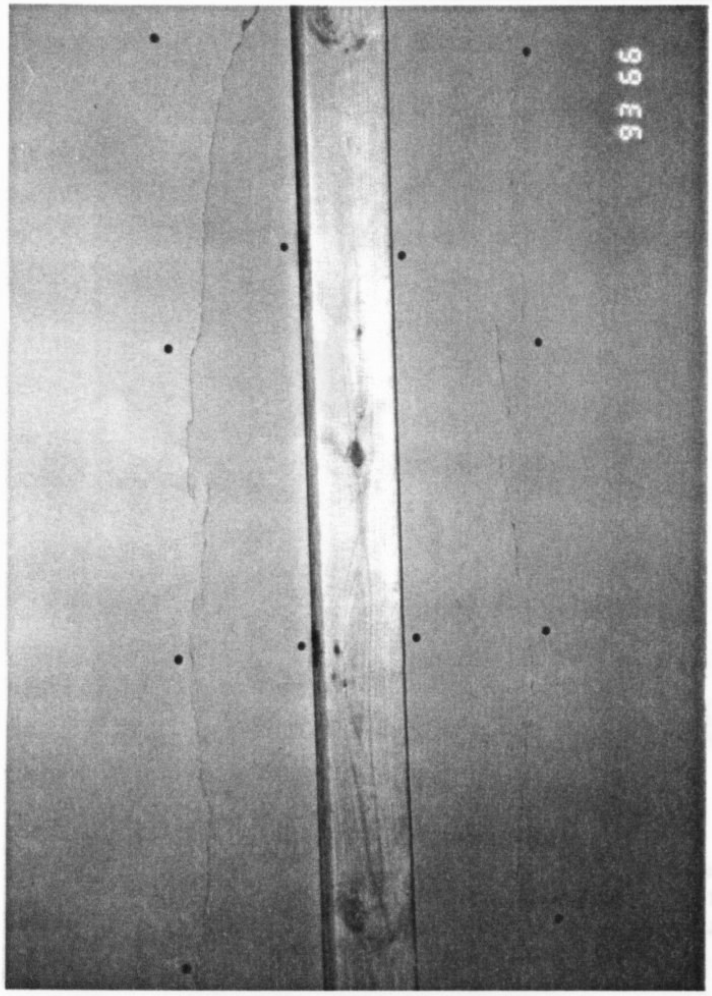
FIGURE 1



PFS TEST REPORT #93-65
MILLENNIUM GROUP
1. Impact Test - stud member flatwise at center of wall panel.



PFS TEST REPORT #93-65
MILLENNIUM GROUP
2. Impact Test - stud member flatwise at end of wall panel.



PFS TEST REPORT #93-65
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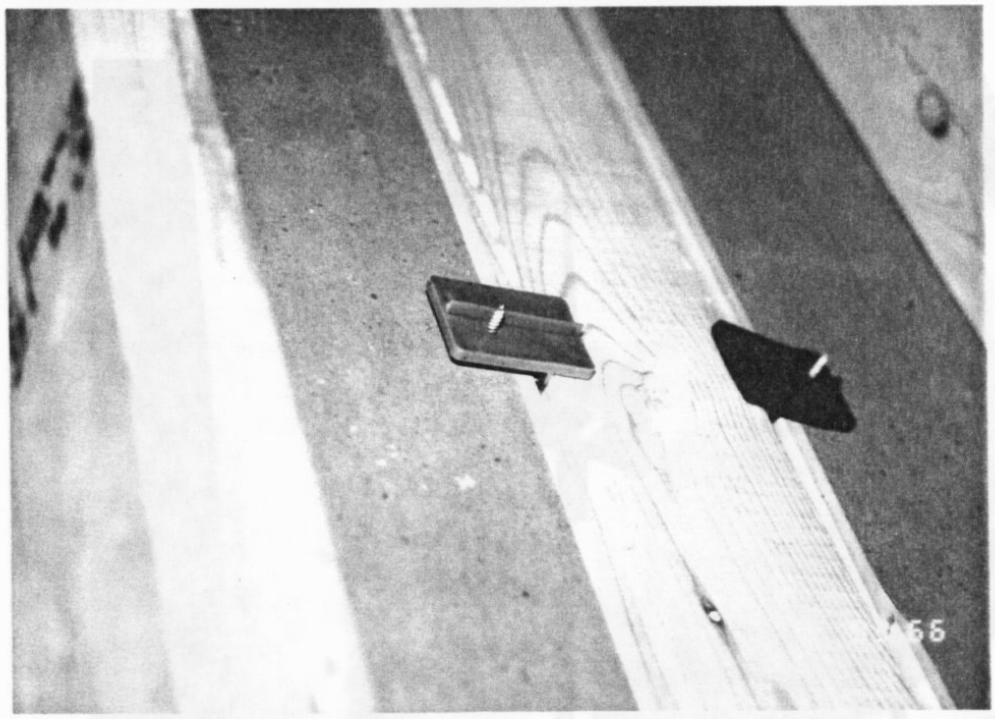
3. Impact Test - view of gypsum failure after impacted center stud of wall panel.



PFS TEST REPORT #93-65
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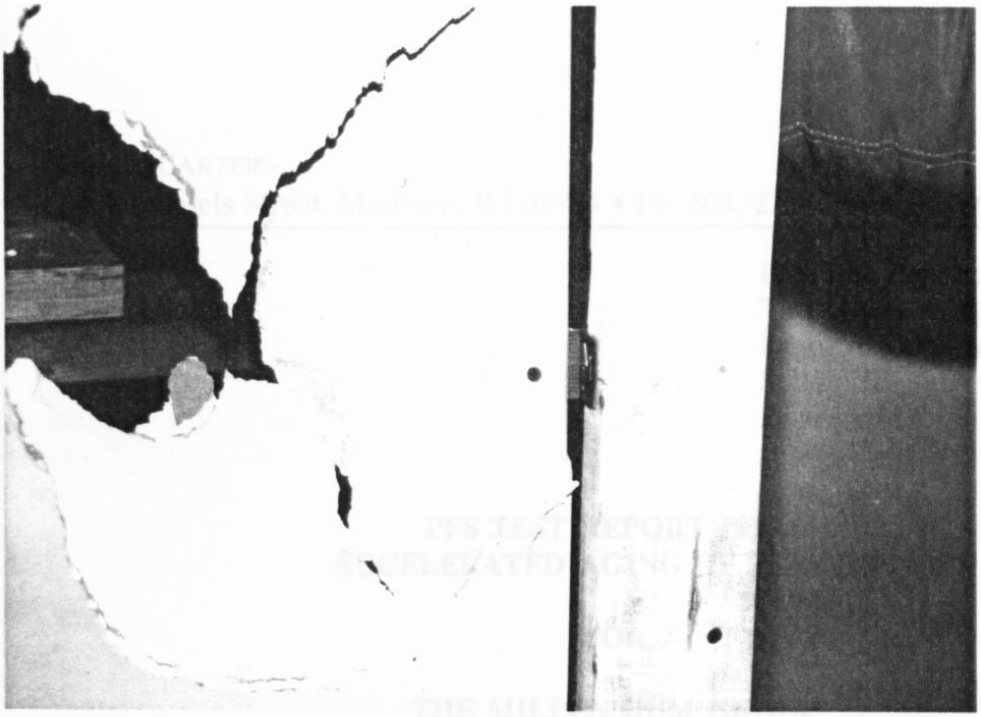
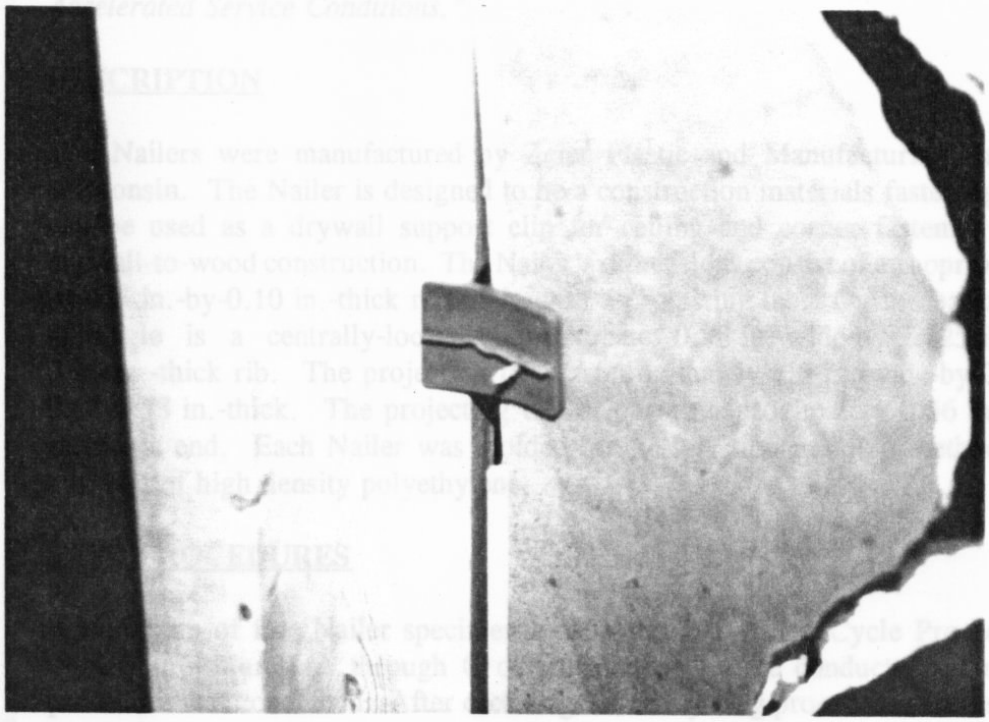
4. Impact Test - view of Nailer after center stud impacted and gypsum fractured.



PFS TEST REPORT #93-65
MILLENNIUM GROUP
5. Impact Test--gypsum failure after impacted between studs at end where stud was mounted flatwise.



PFS TEST REPORT #93-65
MILLENNIUM GROUP
6. Impact Test - view of back side of Photo #5.