



INTERTEK TEST REPORT #3051160

REPORT

OF

NAIL WITHDRAWAL AND TENSILE TESTS

FOR

ITW-BUILDEX
1349 WEST BRYN MAWR AVENUE
ITASCA, ILLINOIS 60143

BY

INTERTEK TESTING SERVICES NA INC.
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MIDDLETON, WISCONSIN 53562

TEST DATE: NOVEMBER 24, 2003
REPORT DATE: NOVEMBER 25, 2003
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INTRODUCTION

This report gives the results of the evaluation of the provided samples (Job #3051160). The test results described in this report are limited to the submitted items. On November 24, 2003 an Intertek Testing Services representative witnessed tests for nail withdrawal resistance and tensile tests at ITW-Buildex's facility in Itasca, Illinois. The tests conducted are listed in the procedure section.

SPECIMEN DESCRIPTION

Nail Withdrawal

Material	Description
Steel Substrate	20 gauge steel studs (Measured thickness 0.034")
Sheathing	5/16" thick James Hardie® fiber cement siding Hardiboard (represented by ITW-Buildex to be "Hardiplank®"). The sheathing was removed before the Nail withdrawal test was conducted.
Steel Fasteners	1.) ITW-Buildex Gyp-Fast™ Knurled Nail- 0.145" shank diameter by 1-1/2" long; 5/16" diameter bugle head design 2.) Represented by ITW-Buildex to be ET&F Panelfast® Nail- 0.105" shank diameter by 1-1/2" long ring shank nail; 5/16" diameter head

Tensile Tests

- 1.) ITW-Buildex Gyp-Fast™ Knurled Bugle Head Nail- 0.145" shank diameter by 1-1/2" long; 5/16" diameter bugle head design
- 2.) Represented by ITW-Buildex to be ET&F Panelfast® Nail- 0.105" shank diameter by 1-1/2" long ring shank nail; 5/16" diameter head

PROCEDURE

The nail withdrawal was done in accordance with ASTM D1037 Sections 47-53 with the only deviation being the Speed of Testing. A steady load of 0.20 inches per minute was applied to each sample with a Tinius Olsen UTM - Calibrated November 4, 2003 by Cal-Rite Corporation. The samples were prepared by driving the fasteners through the sheathing (5/16" thick James Hardie® fiber cement siding Hardiboard (represented by ITW-Buildex to be "Hardiplank®") into the face of a 7" long section of 20 gauge steel stud. The sheathing was then removed leaving approximately 3/8" of the fastener protruding from the steel stud to attach loading apparatus to. The ITW Gypfast™ fasteners were driven with a Gypfast™ air gun (Part #2409910). The ET&F Panel-Fast® fasteners were driven with an ET&F Model 510 air gun. Both nail guns were operated at 100 PSI.

The tensile tests were conducted by grinding the head off of the above referenced fasteners and clamping them into the loading jaws of the Tinius Olsen UTM and loading at a steady rate of 0.20 inches per minute until failure.

RESULTS

Nail Withdrawal Tests

Sample #	Load (lbs.)	Sample #	Load (lbs.)
ITW-1	292	ET&F-1	52
ITW-2	286	ET&F-2	46
ITW-3	285	ET&F-3	42
ITW-4	111	ET&F-4	45
ITW-5	59	ET&F-5	41
ITW-6	290	ET&F-6	50
ITW-7	286	ET&F-7	45
ITW-8	281	ET&F-8	43
ITW-9	292	ET&F-9	59
ITW-10	280	ET&F-10	55
Average	246.2	Average	47.9
Std. Deviation	85.9	Std. Deviation	5.9
COV	0.35	COV	0.12

COV= Coefficient of variation= Standard Deviation/Average

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NAIL WITHDRAWAL/TENSILE TESTS

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Tensile Tests


Sample #	Load (lbs.)	Sample #	Load (lbs.)
ITW-1	2188	ET&F-1	2110
ITW-2	2154	ET&F-2	1995
ITW-3	2167	ET&F-3	2048
ITW-4	2217	ET&F-4	1946
ITW-5	2199	ET&F-5	1833
ITW-6	2224	ET&F-6	2065
ITW-7	2174	ET&F-7	2121
ITW-8	2206	ET&F-8	1935
ITW-9	2099	ET&F-9	2022
ITW-10	2185	ET&F-10	2058
Average	2181.3	Average	2013.3
Std. Deviation	36.3	Std. Deviation	88.4
COV	0.02	COV	0.04

SUMMARY

The following is a list of the average values obtained for each type of fastener tested:

Fastener	Nail Withdrawal Load (lbs.)	Tensile Load (lbs.)
ITW	246.2	2181.3
ET&F	47.9	2013.3

Test Witnessed by:


Russ Burt
Associate Engineer

Report Reviewed by:


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Project Manager