FASTENER PULL-OUT EVALUATION OF WEB FASTENING STRIPS
BY
BODYCOTE MATERIALS TESTING INC.

FOR

NUDURA™ INTERGATED BUILDING TECHNOLOGY

NOTE:

ON NOV 1st, 2002, THE COMPANY FORMERLY KNOWN AS "AIM BUILDING PRODUCTS INC." BECAME INCORPORATED UNDER THE COMPANY NAME OF "NUDURA CORPORATION"

Bodycote MATERIALS TESTING CANADA INC. www.na.bodycote-mt.com

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Fastener Pullout Evaluation of ICF Webbing

A Report to:	**AIM Building Products Inc.** P.O. Box 189 Long Sault, ON K0C 1P0
Attention:	Mr. Alain C. Leger, P.Eng
Telephone: Fax:	613 534 2091 613 534 3899
Report No.:	01-06-M0288-3 2 Pages, 1 Appendix
Date:	November 8, 2001

1.0 INTRODUCTION

AIM Building Products Inc. submitted a sample of 6 inch hinged polyethylene webbing for a fastener pullout test using various fasteners. The webbing submitted was of the same type and size as tested in Bodycote Report No. 01-06-M0288-1 and was issued Bodycote Sample No. 01-06-M0288A. This webbing is a component of their insulated concrete forms (ICF) identified as NUDURA wall forms. Two selected fasteners were also pulled from a standard 2 x 4 wood stud for comparison purposes.

Testing was completed for CCMC evaluation purposes. See Appendix A for a copy of the sample selection letter.

2.0 PROCEDURE

The fastener pullout test was completed using an Instron (MII A06347 Calibration due 2002-02-14) and a 5 kN load cell (MII A06348 Calibration due 2002-02-13). Each fastener was embedded into the tie section of the webbing and subsequently pulled out using the Instron machine. The fasteners were embedded into the 2 " surface of the 2 x 4 wood stud. The maximum load was recorded using a crosshead speed of 25 mm/min. The following fasteners were used;

#6 drywall screw (1 5/8") into the webbing
#10 pan screw (1 1/2") into the webbing
Ardox nail (1 ½") into the webbing and wood stud
Roofing nail (1 ½") into the webbing and wood stud
Ardox / coated air nail (2") into the webbing

3.0 RESULTS

Table 1 summarizes the results for fastener pullout load (kN) of each fastener type from each substrate.

Table 1
Fastener Pullout Strength – Maximum Load: kN

Substrate	webbing	webbing	webbing	webbing	webbing	wood	wood
Fastener	#6 drywall screw	#10 pan screw	Ardox nail	Roofing Nail	Ardox air nail	Ardox nail	Roofing nail
Specimen 1	1.0160	1.349	0.1161	0.2943	0.2935	0.3318	0.9102
Specimen 2	1.0060	1.077	0.0974	0.3199	0.2143	0.2893	0.9798
Specimen 3	1.0500	1.120	0.1013	0.3003	0.2081	0.3229	0.7133
Specimen 4	0.9700	1.301	0.0860	0.2559	0.2417	0.3953	0.8983
Specimen 5	0.9837	1.319	0.0989	0.2411	0.2802	0.3552	0.7033
Specimen 6	0.9076	1.347	0.0974	0.3363	0.2309	0.2597	0.7227
Specimen 7		1.239		0.2067			0.6993
Specimen 8		1.068		0.2860			0.6340
Specimen 9		1.163		0.2905			
Average	**0.9889**	**1.220**	**0.0995**	**0.2812**	**0.2448**	**0.3355**	**0.7826**
Std. Dev.	0.0484	0.115	0.0097	0.0403	0.0349	0.0508	0.1266

Reported by:

Marianne Addison
Project Technologist
Building Performance

Reviewed by:

David Bailey, P.Eng.
Operations Manager
Material Technologies

ACCREDITATION

Canadian General Standards Board #76002, Standards Council of Canada #1.

REGISTRATION

ISO 9002-1994 registered by QMI, Registration #001109

This report refers only to the particular samples, units, material, instrument, or other subject used and referred to in it, and is limited by the tests and/or analyses performed. Similar articles may not be of like quality, and other testing and/or analysis programs might be desirable and might give different results.

Please note that unless otherwise notified by the client, the sample(s) will be disposed of 30 days following issue of the final report. The client is responsible for any costs associated with returning the sample.

Appendix A

Sample Selection Letter
(1 Page)

POLYFORM

October 31th, 2001

BODYCOTE
Projet Technologist
2395 Speaknab Drive
Mississauga, Ont.
L5J 1B3

att: Marianne Addison

This letter is to certify that on October 31st. 2001, I, Leon Bombardier, randomly selected for the Nudura Wall System, webs supplied to Plastiques Cellulaires Polyform at the Polymax plant situated at 870 Industrial Blvd. Granby, Qc

These webs were manufactured by : PPD Thermoplastiques, 300 Raymond, Waterville, Qc JOB 3HO between the date of october 20th.and october 30th. This random selection of web was shipped to: Bodycote, 2395 Speakman Drive, Mississauga, Ontario L5K 1B3 as requested by Alain Leger, P. Eng. Fo AIM Building Products Inc.

Leon Bombardier, P. Eng.

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