



INTERTEK TEST REPORT #3103251 - 001

PULL RESISTANCE OF VENEER BRICK – MORTAR INTERFACE

FOR

**UNITED WALL SYSTEMS
5313 SOUTH FRONTAGE ROAD
GRAY COURT, SOUTH CAROLINA
864-414-6510**

BY

**INTERTEK TESTING SERVICES NA INC.
8431 MURPHY DRIVE
MIDDLETON, WISCONSIN 53562
608-836-4400**

**TEST DATE: AUGUST 25, 2006
REPORT DATE: AUGUST 28, 2006**



This report is for the exclusive use of the client of Intertek Testing Services NA, Inc (Intertek) and is provided pursuant to the agreement between Intertek and its client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the client is authorized to copy or distribute this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. The report by itself does not imply that the material, product or service is or ever has been under an Intertek certification program.

Intertek Testing Services NA, Inc.

8431 Murphy Drive, Middleton, WI 53562

Telephone: 608-836-4400 Fax: 608-831-9279 Web: www.intertek-etlsemko.com

INTRODUCTION

On Friday August 25, 2006, Intertek conducted pull resistance tests on five brick veneers (prepared in mortar by the client) for United Wall Systems of Gray Court, South Carolina. Testing was conducted in general accordance with ASTM E488 - 96, "Standard Test Method for Strength of Anchors in Concrete and Masonry Elements", section 8.4.1.

Pull resistance testing was conducted using the following calibrated equipment:

Instron 5580 Series Universal Materials Testing Machine w/ Bluehill test software,
Intertek asset #0870, due for calibration May 19, 2007

SPECIMEN DESCRIPTION

Two 13' x 32" x 3" wall specimens, each consisting of 20 brick veneer samples prepared in mortar and weighing 110 pounds, were provided by the client. Brick veneers were approximately 2" x 7-1/2" x 1/4" in size. A total of five brick veneers in one wall specimen were utilized for testing.

PROCEDURE

A total of five brick veneers in one wall specimen were utilized for testing: one at the edge of the specimen, two in the middle, and two adjacent to those two in the middle. Brick veneers were each prepared for pulling with an epoxy bond to a steel plate only slightly smaller in surface area than the face of the brick. A 60-minute epoxy was used and allowed to cure for 24 hours.

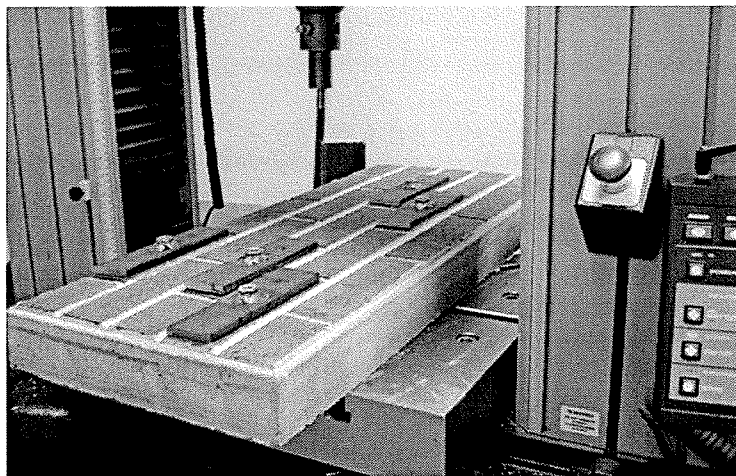


Figure 1: *Samples prepared for testing*

The brick veneers were pulled from the specimen at a uniform load rate of 2287.5 lbf/minute until failure. Evaluation was based on ultimate stress at failure and failure mode.

RESULTS

Sample Location	Failure Load (lbs)	Failure Stress (psi)	Failure Mode
Sample 1 (edge)	3826.8	261.7	Brick Face
Sample 2(non-adjacent)	3668.4	250.8	Brick Face / Epoxy
Sample 3 (non-adjacent)	3616.0	247.2	Brick Face
Sample 4 (adjacent)	3572.4	244.3	Brick Face / Epoxy
Sample 5 (adjacent)	3682.2	251.8	Brick Face

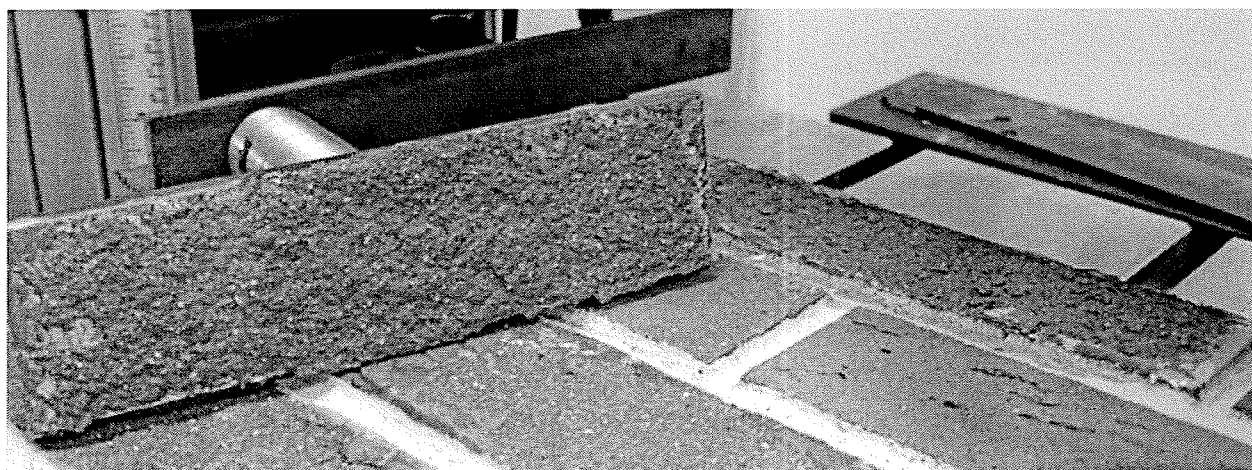


Figure 2: Sample 1 (edge) failure

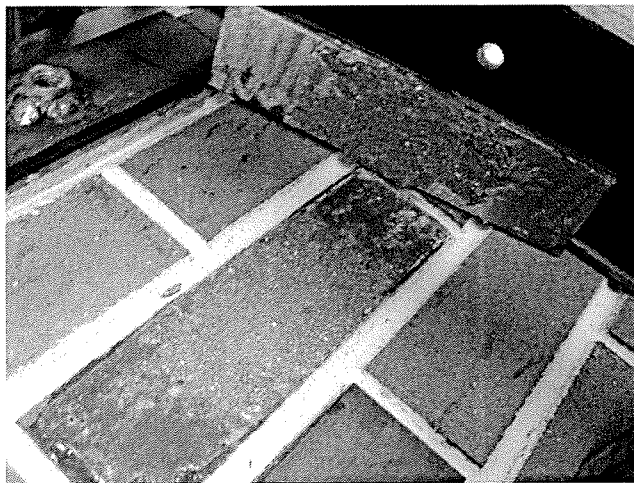


Figure 3: Sample 2 (middle, non-adjacent) failure

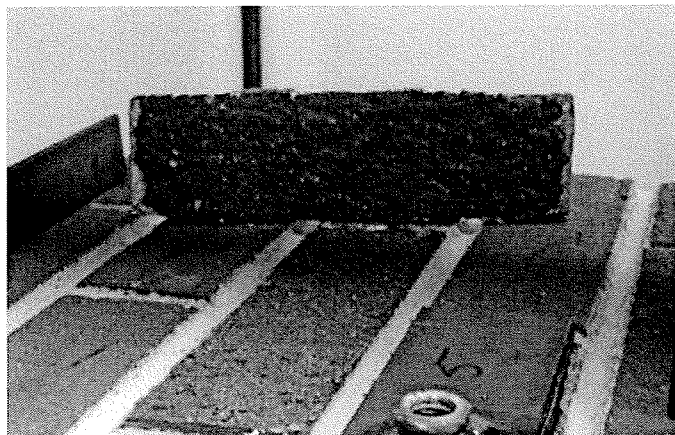


Figure 4: Sample 3 (middle, non-adjacent) failure

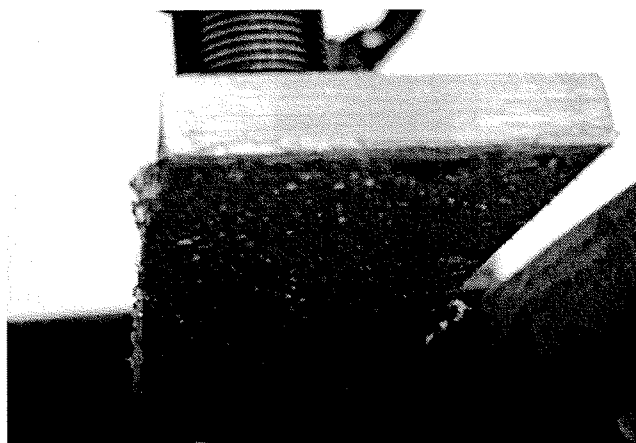


Figure 5: Sample 4 (adjacent) failure



Figure 6: Sample 5 (adjacent)

CONCLUSION

The brick veneer samples prepared in mortar, as supplied to Intertek by United Wall Systems, when tested in accordance with ASTM E488-96, each met and/or surpassed the following test criteria:

- Failure did not occur until stress exceeded 150 psi
- Failure did not occur in the mortar-brick interface

All preparation and tests performed by: Russ Burt, Jim Turgeson, Jessup LeBarron

Report written by

Jessup LeBarron
Mechanical Engineer
Building Products Group

Report Reviewed by

Jim Turgeson
Project Manager
Building Products Group