

**MIAMI-DADE COUNTY
PERFORMANCE TEST REPORT**

Rendered to:

BRICK-IT

**SERIES/MODEL: Brick Veneer Panel Systems
PRODUCT TYPE: Wall Panel Systems**

This report contains in its entirety:

**Cover Page: 1 page
Report Body: 15 pages
Sketches: 7 pages
Drawing: 1 page**

**Report No.: 82460.01-109-18
Test Dates: 04/22/08
Through: 04/24/08
Report Date: 07/02/08
Expiration Date: 04/24/18
Miami-Dade County Notification No.: ATI 08028**

MIAMI-DADE COUNTY PERFORMANCE TEST REPORT

Rendered to:

BRICK-IT
35 Carlough Road, Unit 3
Bohemia, New York 11716

Report No.: 82460.01-109-18
Test Dates: 04/22/08
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Project Summary: Architectural Testing, Inc. was contracted by Brick-It to perform testing per Florida Building Code, Test Protocols for High Velocity Hurricane Zone, Protocols TAS 201-94, TAS 202-94, and TAS 203-94 on three Series/Model Brick Veneer Wall Panel Systems (Densglas) and three Brick Veneer Wall Panel Systems (OSB). The samples tested met the performance requirements set forth in the protocols for a ± 75.0 psf *Design Pressure* rating. Test specimen description and results are reported herein. The samples were provided by the client.

Test Procedures: The test specimens were evaluated in accordance with the following:

TAS 201-94, *Impact Test Procedures.*

TAS 202-94, *Criteria for Testing Impact and Non Impact Resistant Building Envelope Components Using Uniform Static Air Pressure Loading.*

TAS 203-94, *Criteria for Testing Products Subject to Cyclic Wind Pressure Loading.*

Drawing Reference: The test specimen drawings have been reviewed and verified by Architectural Testing and are representative of the samples tested.

Test Specimen Description:

Test Specimen #1 - #3:

Series/Model: Brick Veneer Panel System (Densglas)

Test Wall Description: The unit was installed onto an 8' 0-1/4" wide by 2' 9" tall Spruce-Pine-Fir wood wall, with 2x4 studs located 16" on center. Densglas sheathing was installed over the studs and secured with 1-5/8" drywall screws, located 2" from all corners and spaced 10" on center at each stud and around the perimeter.

Test Specimen #4 - #6:

Series/Model: Brick Veneer Panel System (OSB)

Test Wall Description: The unit was installed onto an 8' 0-1/4" wide by 2' 9" tall Spruce-Pine-Fir wood wall, with 2x4 studs located 16" on center. OSB sheathing was installed over the studs and secured with 1-1/2" brad nails, located 2" from all corners and spaced 10" on center at each stud and around the perimeter.

The following details apply to all test specimens.

Product Type: Wall Panel System

Overall Size: 8' 0-1/4" wide by 2' 8-3/4" high

Individual Panel Size (4): 8' 0-1/4" wide by 8-3/16" high

Finish: All veneer bricks were red.

Test Specimen Description: A vapor barrier wrap was installed over the wall and secured with 3/8" crowned staples. Four 18 gauge (0.050") roll-formed steel interlocking panels were installed with 1" crowned staples located on each course around the perimeter and spaced 16" on center at each stud. Each panel was three brick courses high, resulting in 12 brick courses for the entire test specimen. The 7-1/2" wide by 2-1/4" high by 1/2" thick bricks were glued to the steel panels. All brick joints were then filled with mortar. A silicone sealant was used to seal the perimeter of the panel.

Test Results: The following results have been recorded:

Protocol TAS 202-94, Static Air Pressure Tests

Test Unit #1

Design Pressure: ±75.0 psf

Title of Test	Results		
Air Infiltration			
1.57 psf (25 mph)	<0.01 cfm/ft ²		
6.24 psf (50 mph)	0.22 cfm/ft ²		
	Indicator Readings (inch)		
	#1	#2	#3
Structural Loads			
50% of Test Pressure (+56.43 psf)			
Maximum Deflection	<0.01	0.02	<0.01
Permanent Set	<0.01	<0.01	<0.01
Design Pressure (+75.24 psf)			
Maximum Deflection	0.01	0.04	0.01
Permanent Set	<0.01	<0.01	<0.01
50% of Test Pressure (-56.43 psf)			
Maximum Deflection	0.01	0.06	0.01
Permanent Set	<0.01	0.01	<0.01
Design Pressure (-75.24 psf)			
Maximum Deflection	0.01	0.09	0.01
Permanent Set	<0.01	0.02	<0.01
Water Infiltration			
15% Positive Design Pressure (+11.29 psf)	No Penetration		
Test Pressure (+112.85 psf)			
Maximum Deflection	0.01	0.05	0.01
Permanent Set	0.01	0.01	<0.01
Test Pressure (-112.85 psf)			
Maximum Deflection	0.01	0.12	0.01
Permanent Set	0.01	0.03	0.01

Note: See Architectural Testing Sketch #4 for indicator locations.

Test Results: (Continued)

Protocol TAS 201-94, *Impact Test Procedures*

Missile Weight: 9.25 lbs

Muzzle Distance from Test Specimen: 17 ft.

Test Unit #1

Impact #1: Missile Velocity: 49.9 fps

Impact Area: Lower left corner

Observations: Impacted target area, fractured brick and mortar façade, dented steel interlock and damaged the densglas, no penetration.

Results: Pass

Impact #2: Missile Velocity: 50.0fps

Impact Area: Five brick courses down at steel interlock, and in-between the wood studs at the third cavity from the left side.

Observations: Impacted target area, fractured brick and mortar façade, dented the steel interlock and damaged the densglas, no penetration.

Results: Pass

Impact #3: Missile Velocity: 49.9 fps

Impact Area: Five courses up from the bottom, in-between the steel interlocks, and in-between the wood studs at the third cavity from the left side.

Observations: Impacted target area, fractured brick and mortar façade, dented the steel interlock, and damaged the densglas, no penetration.

Results: Pass

Note: Refer to Architectural Testing Sketch #1 for impact locations.

Test Results: (Continued)

Protocol TAS 201-94, *Impact Test Procedures*

Missile Weight: 9.25 lbs

Muzzle Distance from Test Specimen: 17 ft.

Test Unit #2

Impact #1: Missile Velocity: 50.3 fps

Impact Area: Upper right corner

Observations: Impacted target area, fractured brick and mortar façade, dented steel interlock and damaged the densglas, no penetration.

Results: Pass

Impact #2: Missile Velocity: 50.1 fps

Impact Area: Five courses up from the bottom, in-between the steel interlocks, and in-between the wood studs at the third cavity from the left side.

Observations: Impacted target area, fractured brick and mortar façade, dented the steel interlock and damaged the densglas, no penetration.

Results: Pass

Impact #3: Missile Velocity: 50.4 fps

Impact Area: Five brick courses down at steel interlock, in-between the wood studs at the third cavity from the left side.

Observations: Impacted target area, fractured brick and mortar façade, dented the steel interlock, and damaged the densglas, no penetration.

Results: Pass

Note: Refer to Architectural Testing Sketch #2 for impact locations.

Test Results: (Continued)

Protocol TAS 201-94, *Impact Test Procedures*

Missile Weight: 9.25 lbs

Muzzle Distance from Test Specimen: 17 ft.

Test Unit #3

Impact #1: Missile Velocity: 50.3 fps

Impact Area: Upper left corner

Observations: Impacted target area, fractured brick and mortar façade, dented and separated steel interlock approximately 4", densglas was damaged and separated from corner, no penetration.

Results: Pass

Impact #2: Missile Velocity: 49.8 fps

Impact Area: Five courses up from the bottom, in-between the steel interlocks, and in-between the wood studs at the third cavity from the left side.

Observations: Impacted target area, fractured brick and mortar façade, dented the steel interlock and damaged the densglas, no penetration.

Results: Pass

Impact #3: Missile Velocity: 50.1 fps

Impact Area: Five brick courses down at steel interlock, in-between the wood studs at the third cavity from the left side.

Observations: Impacted target area, fractured brick and mortar façade, dented the steel interlock, and damaged the densglas, no penetration.

Results: Pass

Note: Refer to Architectural Testing Sketch #3 for impact locations.

Test Results: The following results have been recorded:

Protocol TAS 201-94, *Impact Test Procedures*

Missile Weight: 9.14 lbs

Muzzle Distance from Test Specimen: 17 ft.

Test Unit #4

Impact #1: Missile Velocity: 50.4 fps

Impact Area: Lower left corner, three courses up from bottom at the interlock

Observations: Impacted target area, fractured brick and mortar façade, dented steel panel, no penetration.

Results: Pass

Impact #2: Missile Velocity: 50.8 fps

Impact Area: Five courses up from the bottom, between the wood studs, and between the steel interlocks three cavities from the left side.

Observations: Impacted target area, fractured brick and mortar façade, dented steel panel, no penetration.

Results: Pass

Impact #3: Missile Velocity: 50.6 fps

Impact Area: Five courses from top, between the wood studs, at the steel interlock, three cavities from the left side.

Observations: Impacted target area, fractured brick and mortar façade, dented steel panel, no penetration.

Results: Pass

Note: Refer to Architectural Testing Sketch #5 for impact locations.

Test Results: (Continued)

Protocol TAS 201-94, *Impact Test Procedures*

Missile Weight: 9.14 lbs

Muzzle Distance from Test Specimen: 17 ft.

Test Unit #5

Impact #1: Missile Velocity: 50.9 fps

Impact Area: Upper right corner, three courses from the top at the interlock

Observations: Impacted target area, fractured brick and mortar façade, dented steel panel, no penetration.

Results: Pass

Impact #2: Missile Velocity: 50.8 fps

Impact Area: Five courses up from the bottom, between the wood studs, and between the steel interlocks, three cavities from the left side.

Observations: Impacted target area, fractured brick and mortar façade, dented steel panel, no penetration.

Results: Pass

Impact #3: Missile Velocity: 50.5 fps

Impact Area: Five courses from top, between the wood studs, at the steel interlock, three cavities from the left side.

Observations: Impacted target area, fractured brick and mortar façade, dented steel panel, no penetration.

Results: Pass

Note: Refer to Architectural Testing Sketch #6 for impact locations.

Test Results: (Continued)

Protocol TAS 201-94, *Impact Test Procedures*

Missile Weight: 9.14 lbs

Muzzle Distance from Test Specimen: 17 ft.

Test Unit #6

Impact #1: Missile Velocity: 50.5 fps

Impact Area: Upper left corner, three courses from the top at the interlock

Observations: Impacted target area, fractured brick and mortar façade, dented steel panel, no penetration.

Results: Pass

Impact #2: Missile Velocity: 50.8 fps

Impact Area: Five courses from top, between the wood studs, at the steel interlock, three cavities from the left side.

Observations: Impacted target area, fractured brick and mortar façade, dented steel panel, no penetration.

Results: Pass

Impact #3: Missile Velocity: 50.5 fps

Impact Area: Five courses up from the bottom, between the wood studs, and between the steel interlocks, three cavities from the left side.

Observations: Impacted target area, fractured brick and mortar façade, dented steel panel, no penetration.

Results: Pass

Note: Refer to Architectural Testing Sketch #7 for impact locations.

Test Results: (Continued)

Protocol TAS 203-94, Cyclic Wind Pressure Loading

Test Unit #1

Design Pressure: ±75.0 psf

POSITIVE PRESSURE

Pressure Range (psf)	Number of Cycles	Average Cycle Time (sec.)	Maximum Deflection at Indicator (inch)		
			#1	#2	#3
0.0 to 37.5	600	2.50	0.01	0.06	0.02
0.0 to 45.0	70	2.59	0.01	0.07	0.02
0.0 to 97.5	1	N/A	0.01	0.11	0.02
			Permanent Set (inch)		
			<0.01	0.04	<0.01

NEGATIVE PRESSURE

Pressure Range (psf)	Number of Cycles	Average Cycle Time (sec.)	Maximum Deflection at Indicator (inch)		
			#1	#2	#3
0.0 to 37.5	600	2.29	0.01	0.05	0.03
0.0 to 45.0	70	2.24	0.01	0.05	0.03
0.0 to 97.5	1	N/A	0.02	0.12	0.04
			Permanent Set (inch)		
			<0.01	0.02	0.03

Result: Pass

Note: Refer to Architectural Testing Sketch #4 for indicator locations.

Test Results: (Continued)

Protocol TAS 203-94, Cyclic Wind Pressure Loading

Test Unit #2

Design Pressure: ±75.0 psf

POSITIVE PRESSURE

Pressure Range (psf)	Number of Cycles	Average Cycle Time (sec.)	Maximum Deflection at Indicator (inch)		
			#1	#2	#3
0.0 to 37.5	600	2.01	<0.01	0.03	<0.01
0.0 to 45.0	70	2.19	<0.01	0.04	<0.01
0.0 to 97.5	1	N/A	<0.01	0.08	<0.01
			Permanent Set (inch)		
			<0.01	<0.01	<0.01

NEGATIVE PRESSURE

Pressure Range (psf)	Number of Cycles	Average Cycle Time (sec.)	Maximum Deflection at Indicator (inch)		
			#1	#2	#3
0.0 to 37.5	600	2.16	0.01	0.08	0.01
0.0 to 45.0	70	2.40	0.01	0.08	0.01
0.0 to 97.5	1	N/A	0.06	0.23	0.03
			Permanent Set (inch)		
			0.01	0.06	0.02

Result: Pass

Note: Refer to Architectural Testing Sketch #4 for indicator locations.

Test Results: (Continued)

Protocol TAS 203-94, Cyclic Wind Pressure Loading

Test Unit #3

Design Pressure: ±75.0 psf

POSITIVE PRESSURE

Pressure Range (psf)	Number of Cycles	Average Cycle Time (sec.)	Maximum Deflection at Indicator (inch)		
			#1	#2	#3
0.0 to 37.5	600	2.01	<0.01	0.03	<0.01
0.0 to 45.0	70	2.19	<0.01	0.04	<0.01
0.0 to 97.5	1	N/A	<0.01	0.08	<0.01
			Permanent Set (inch)		
			<0.01	<0.01	<0.01

NEGATIVE PRESSURE

Pressure Range (psf)	Number of Cycles	Average Cycle Time (sec.)	Maximum Deflection at Indicator (inch)		
			#1	#2	#3
0.0 to 37.5	600	2.16	0.01	0.08	0.01
0.0 to 45.0	70	2.40	0.01	0.08	0.01
0.0 to 97.5	1	N/A	0.06	0.23	0.03
			Permanent Set (inch)		
			0.01	0.06	0.02

Result: Pass

Note: Refer to Architectural Testing Sketch #4 for indicator locations.

Test Equipment:

Cannon: Steel pipe barrel utilizing compressed air to propel the missile

Missile: 2x4 Southern Pine

Timing Device: Electronic Beam Type

Cycling Mechanism: Computer controlled centrifugal blower with electronic pressure measuring device

Deflection Measuring Device: Linear transducers

Laboratory Compliance Statements: The following are provided as required by the protocols for the testing reported herein.

Upon completion of testing, specimens tested for TAS 201-94 met the requirements of Section 1626 of the Florida Building Code, Building (2004).

Upon completion of testing, specimens tested for TAS 202-94 met the requirements of Section 1620 of the Florida Building Code, Building (2004).

Upon completion of testing, specimens tested for TAS 203-94 met the requirements of Section 1625 of the Florida Building Code, Building (2004).

Tape and film were used to seal against air leakage during structural testing. In our opinion, the tape and film did not influence the results of the test.

Testing was conducted at the Architectural Testing, Inc. laboratory located in York, Pennsylvania.

List of Official Observers:

<u>Name</u>	<u>Company</u>
Michael D. Stremmel, P.E.	Architectural Testing, Inc.
Eric M. Brennan	Architectural Testing, Inc.

Detailed drawings, data sheets, representative samples of test specimens, a copy of this report, or other pertinent project documentation will be retained by Architectural Testing, Inc. for a period of ten years from the original test date. At the end of this retention period, such materials shall be discarded without notice and the service life of this report will expire.

Results obtained are tested values and were secured by using the designated test methods. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen(s) tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC.

Eric M. Brennan
Technician

Michael D. Stremmel, P.E.
Senior Project Engineer

EMB:vlm

Attachments (pages): This report is complete only when all attachments listed are included.

Appendix-A: Sketches (7)

Appendix-B: Drawing (1)

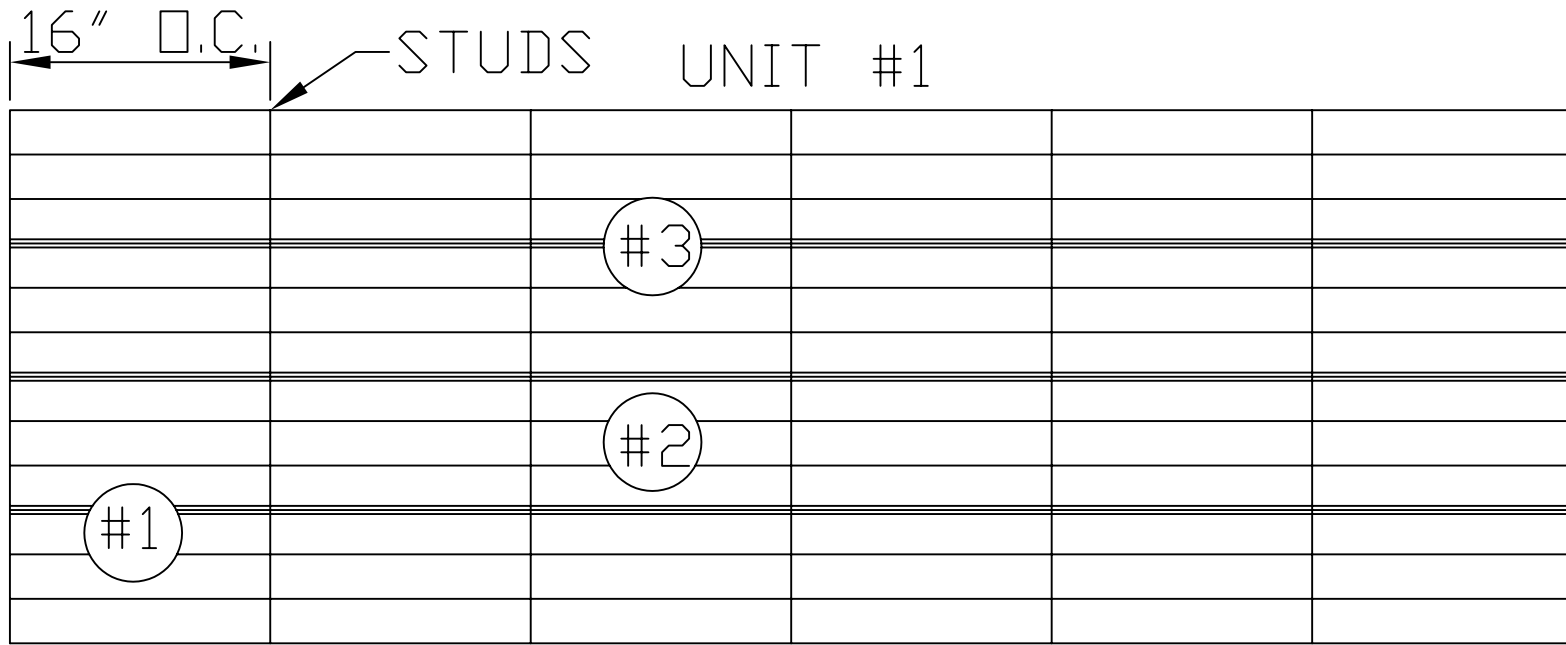
Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
0	07/02/08	N/A	Original report issue

Appendix A

Sketches

REV	DATE	DESCRIPTION	BY



IMPACT LOCATIONS

PROJECT NO.
82460.01
109-18

PROJECT NAME: Exterior Wall System-TAS 201,202,203
CLIENT: Brick-It



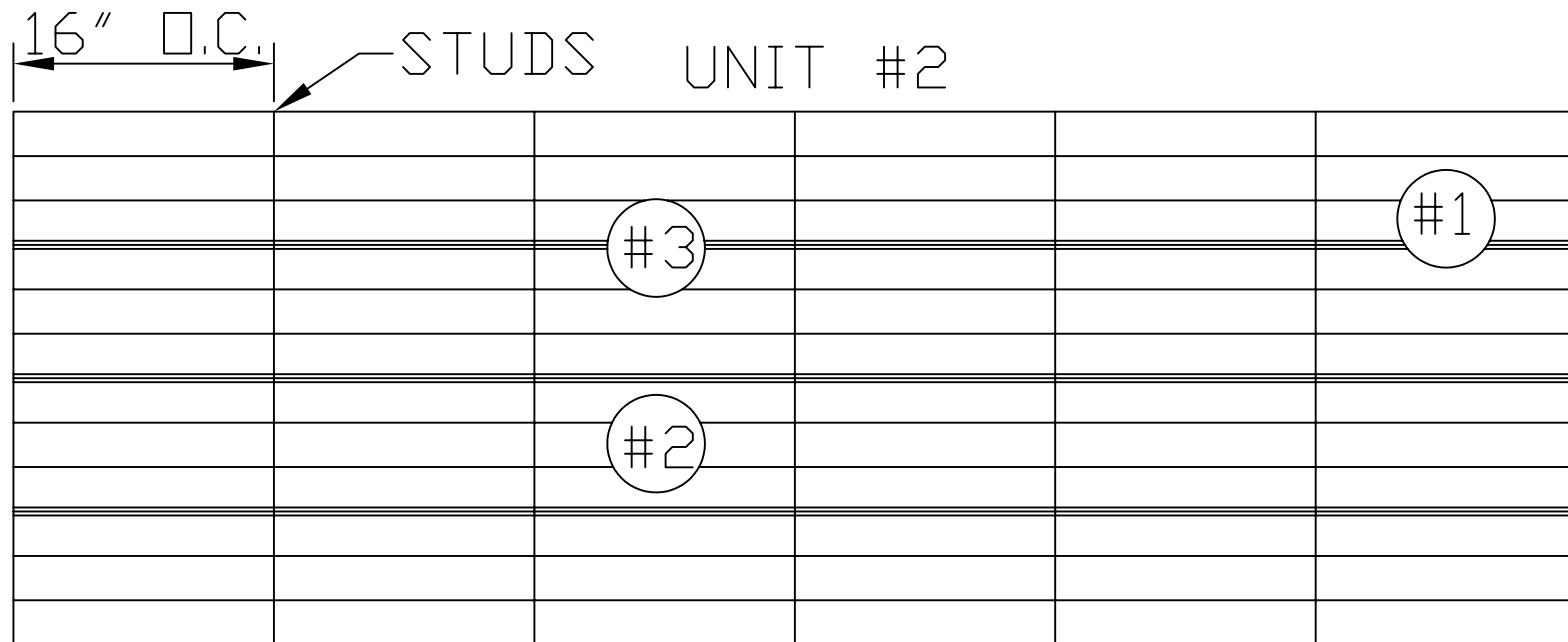
DRAWING

Sketch 1 (Impacts)

DWG. BY: TM
DATE: 6/6/08

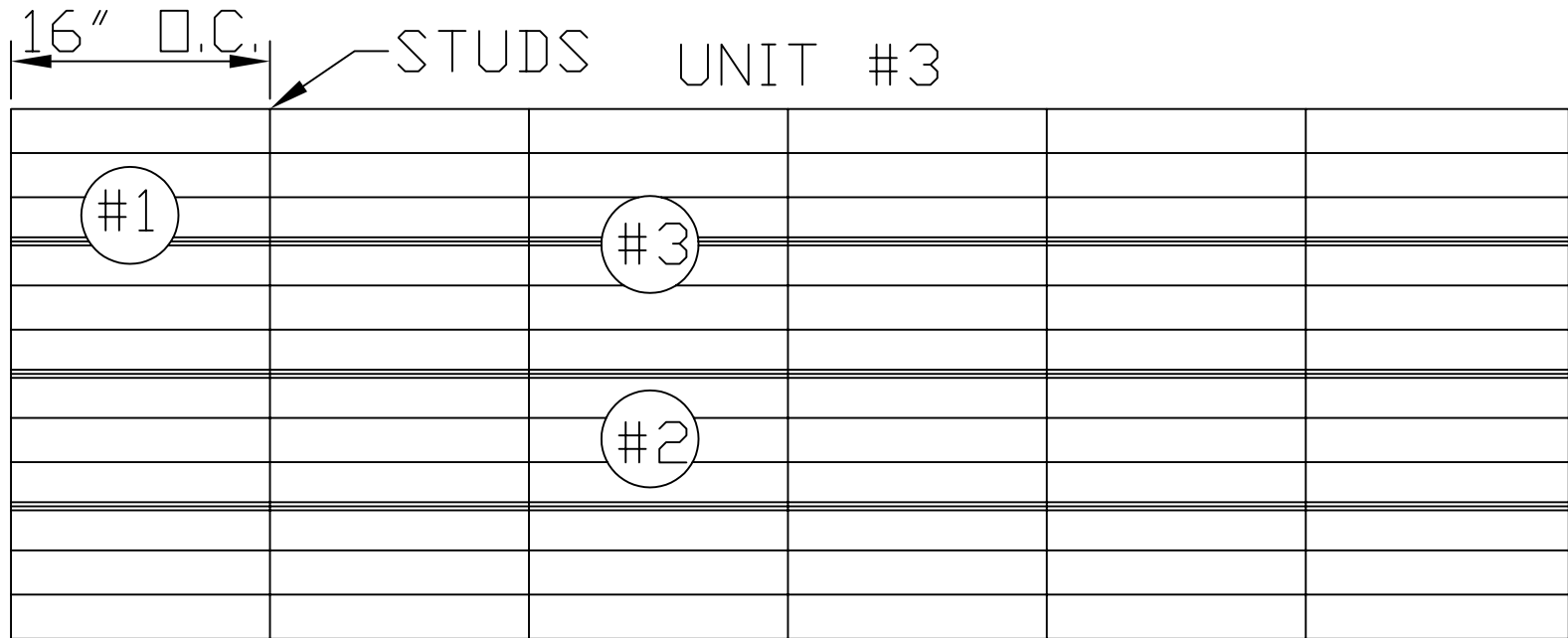
SHEET 1 OF 1

REV	DATE	DESCRIPTION	BY



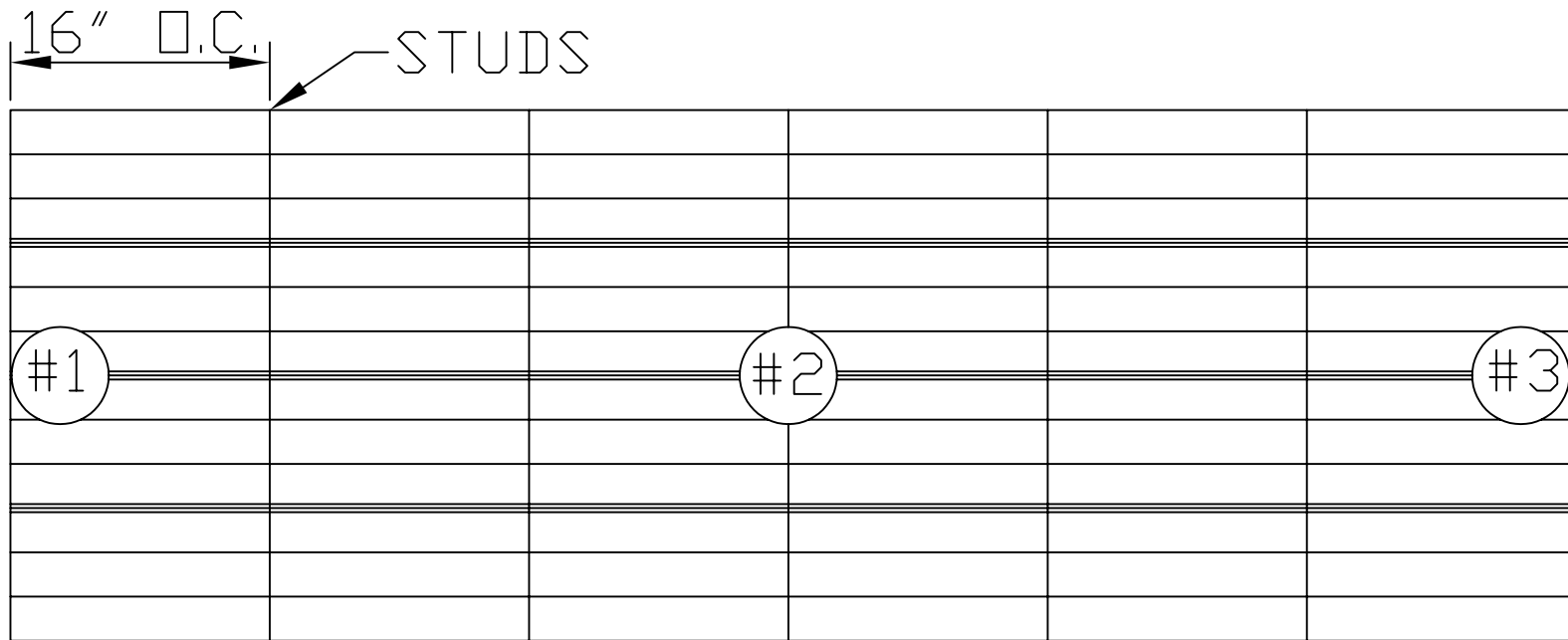
IMPACT LOCATIONS

REV	DATE	DESCRIPTION	BY



IMPACT LOCATIONS

REV	DATE	DESCRIPTION	BY



INDICATOR LOCATIONS

PROJECT NO.
82460.01
109-18

PROJECT NAME: Exterior Wall System-TAS 201,202,203
CLIENT: Brick-It

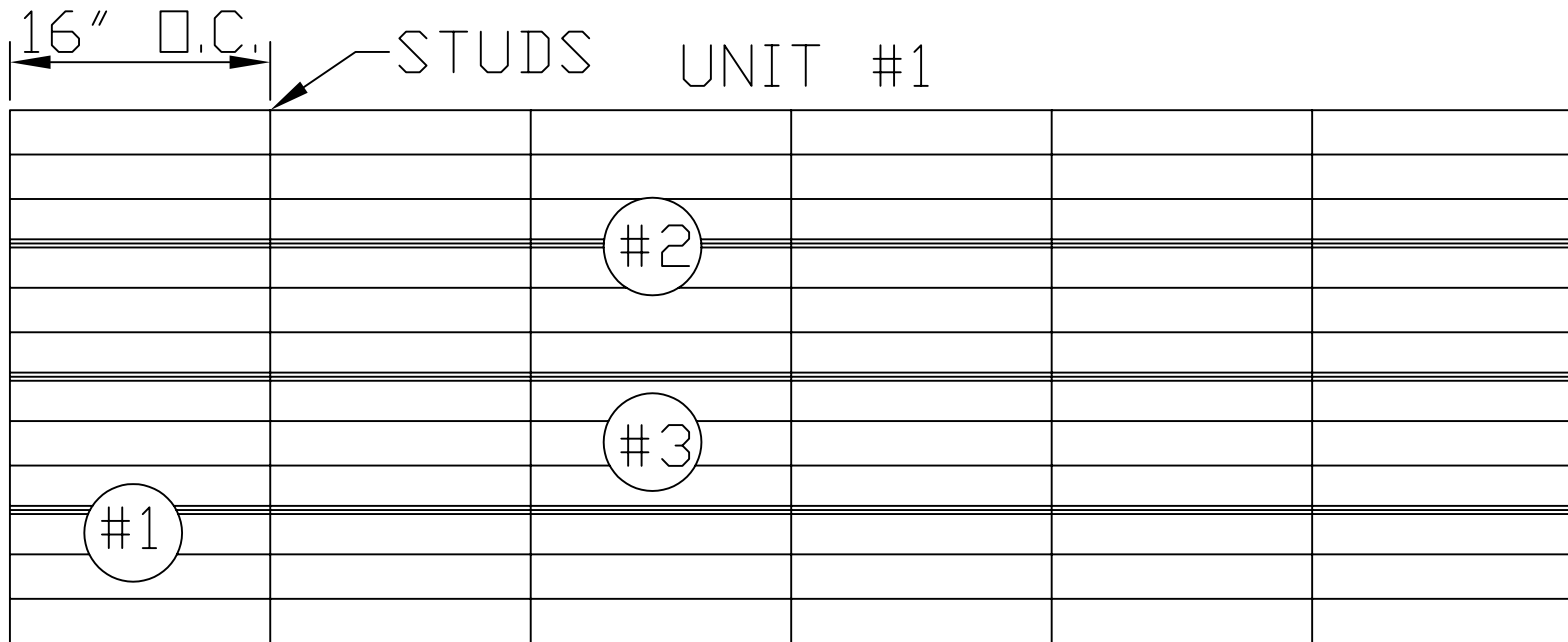


DRAWING
Sketch 4 (Indicators)

DWG. BY: TM
DATE: 6/6/08

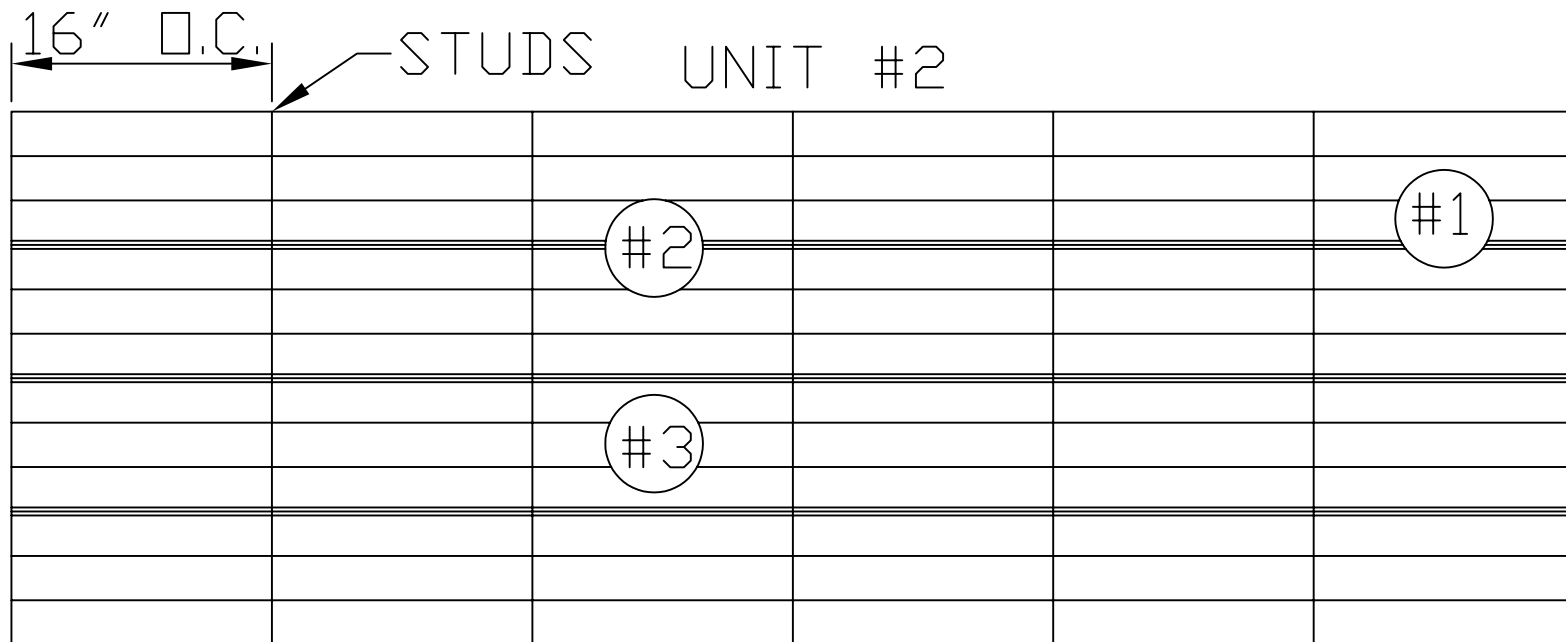
SHEET
1 OF
1

REV	DATE	DESCRIPTION	BY



IMPACT LOCATIONS

REV	DATE	DESCRIPTION	BY



IMPACT LOCATIONS

PROJECT NO.
82460.02
109-18

PROJECT NAME: Exterior Wall System-TAS 201,202,203
CLIENT: Brick-It

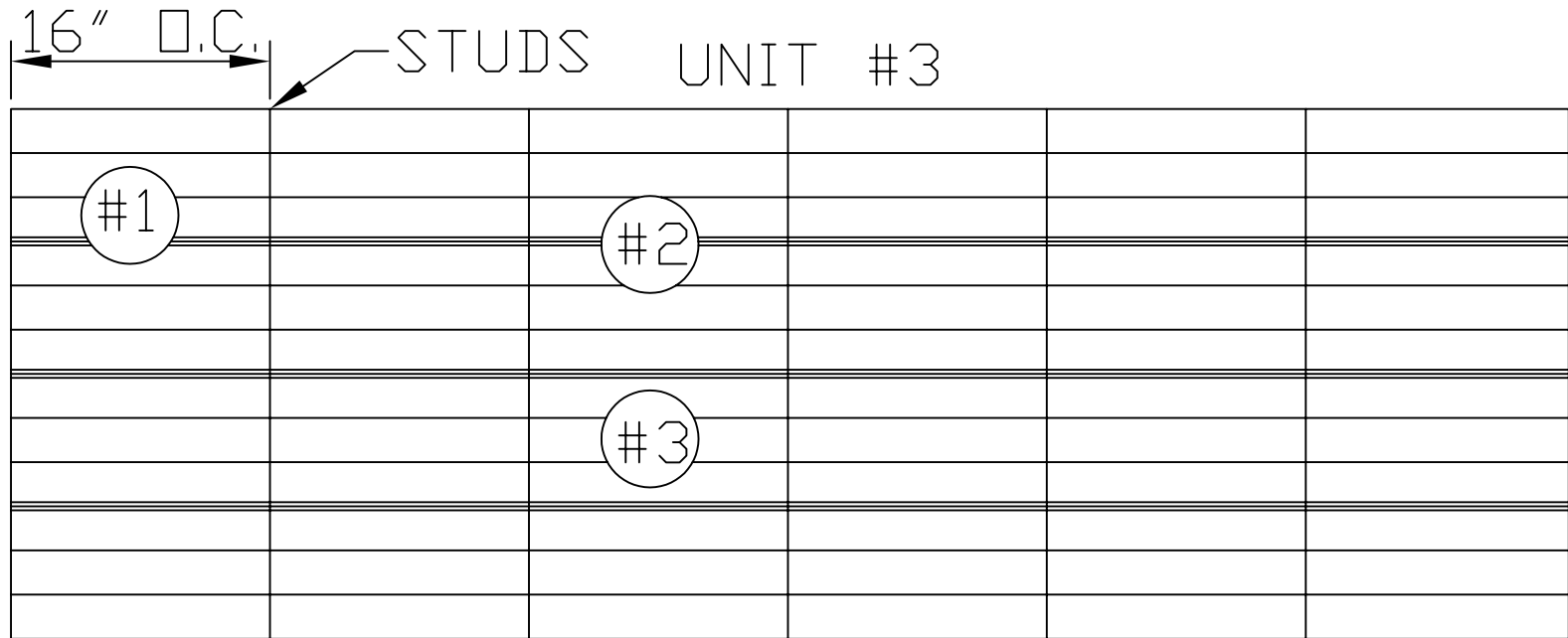


DRAWING
Sketch 6 (Impacts)

DWG. BY: TM
DATE: 6/6/08

SHEET 1 OF 1

REV	DATE	DESCRIPTION	BY



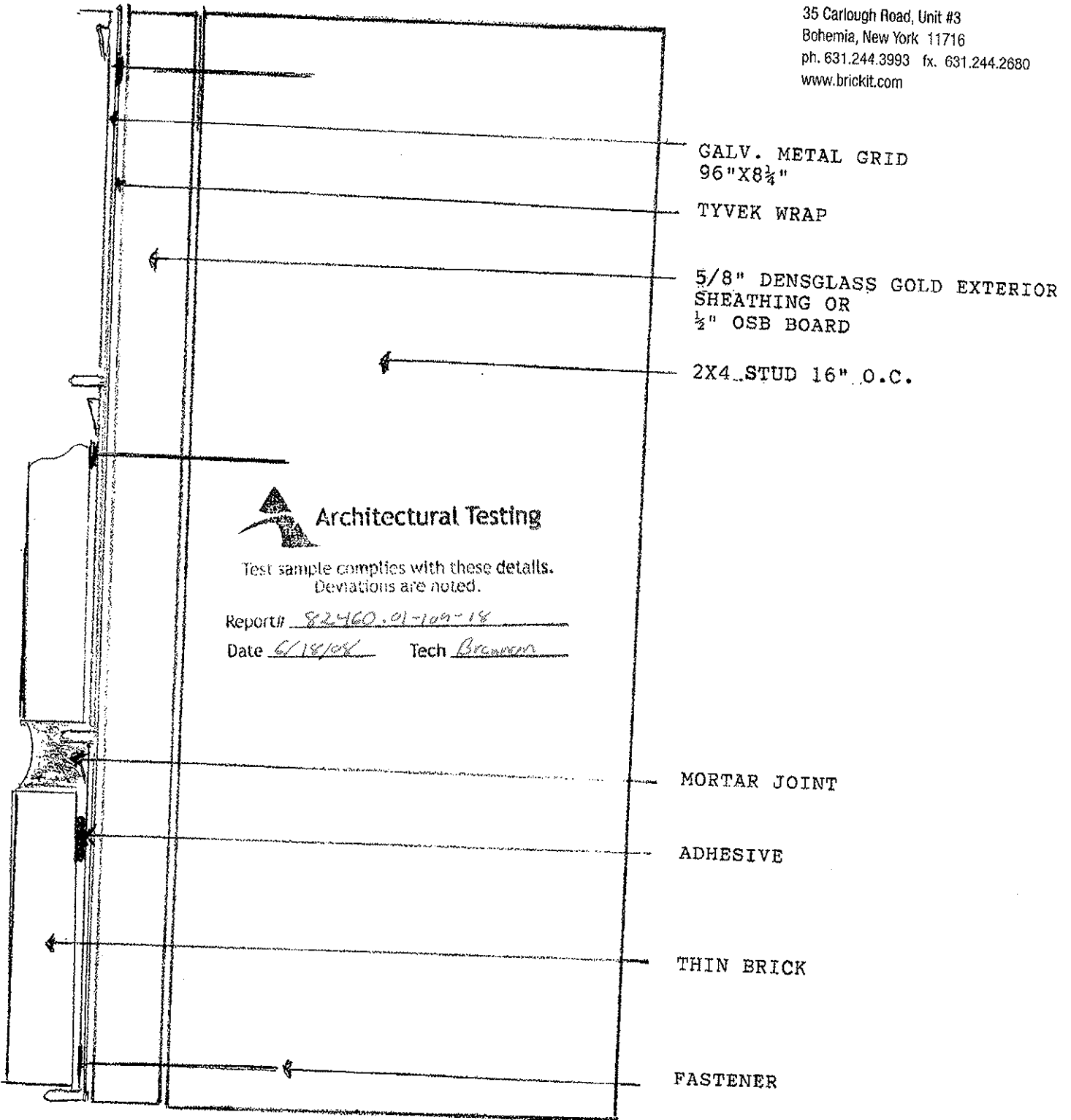
IMPACT LOCATIONS

Appendix B

Drawings



35 Carlough Road, Unit #3
Bohemia, New York 11716
ph. 631.244.3993 fx. 631.244.2680
www.brickit.com



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 82460.01-109-18

Date 6/18/08 Tech Brennan

GALV. METAL GRID
96"X8 1/4"

TYVEK WRAP

5/8" DENSGLASS GOLD EXTERIOR
SHEATHING OR
1/2" OSB BOARD

2X4 STUD 16" O.C.

MORTAR JOINT

ADHESIVE

THIN BRICK

FASTENER