



**MIAMI-DADE COUNTY
PERFORMANCE TEST REPORT**

Rendered to:

ECOLITE CONCRETE USA, INC.

**SERIES/MODEL: 2" Standard Ecolite Concrete Panel
PRODUCT TYPE: Thin Shelled Cementitious Concrete
with an Expanded Metal Lath on a Steel Frame**

This report contains in its entirety:

**Cover Page: 1 page
Report Body: 12 pages
Sketches: 2 pages
Drawings: 2 pages**

Report No.: 66338.01-301-18

Test Dates: 07/06/06

Through: 08/04/06

Report Date: 08/31/06

Expiration Date: 08/04/16

Miami-Dade County Notification No.: ATI CA 06019

2524 E. Jensen Ave
Fresno, CA 93706
phone: 559-233-8705
fax: 559-233-8360
www.archtest.com

Joseph A. [unclear]
9/12/06



MIAMI-DADE COUNTY PERFORMANCE TEST REPORT

Rendered to:

ECOLITE CONCRETE USA, INC.
2091 Las Palmas Drive, Suite E
Carlsbad, California 92011

Report No.: 66338.01-301-18

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Project Summary: Architectural Testing, Inc. (ATI) was contracted by Ecolite Concrete USA, Inc. 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 (3) Series/Model 2" Standard Ecolite Concrete Panels, thin shelled cementitious concrete with an expanded metal lath on a steel frame. The samples tested met the performance requirements set forth in the protocols for a ± 70.0 psf *Design Pressure* rating. Test specimen description and results are reported herein.

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 attached drawings have been checked by ATI and are representative of the samples tested.

Test Specimen Description:

Series/Model: 2" Standard Ecolite Concrete Panel

Product Type: Thin Shelled Cementitious Concrete with an Expanded Metal Lath on a Steel Frame

Panel Construction: Each panel measured 48" wide by 96" high and consisted of a 20 gauge 3-1/2" deep steel stud frame at the perimeter. The corners of the stud frame were butted and attached with a single #10 x 3/4" Torx head self-drilling screw. A 20 gauge steel stud was attached to the head and sill frame member at midspan with a single #10 x 3/4" Torx head self-drilling screw at each location. A continuous 18 gauge steel diamond shape lath was attached to the framing and stud with #8 x 1" washer head Phillips screws located 3" from each end and 6" on center. Cellular lightweight concrete approximately 2" thick covered the lath.

Note: One (1) 60" wide by 96" high panel with studs 24" on center was tested for TAS 202. The panel was sealed with an elastomeric masonry and brick paint.

Test Results: The following results have been recorded:

Protocol TAS 202-94, *Static Air Pressure Tests*

Test Unit #4: 48" by 96" panel (without elastomeric paint)

Design Pressure: ±70.0 psf

| <u>Title of Test</u> | <u>Results</u> | | |
|---|----------------------------------|-----------|-----------|
| | <u>Indicator Readings (inch)</u> | | |
| | <u>#1</u> | <u>#2</u> | <u>#3</u> |
| Air Infiltration | <0.01 cfm/ft ² | | |
| 1.57 psf (25 mph) | 0.05 cfm/ft ² | | |
| 6.24 psf (50 mph) | | | |
| Structural Loads | | | |
| 50% of Test Pressure (+52.5 psf) | | | |
| Maximum Deflection | 0.07 | 0.32 | 0.04 |
| Permanent Set | 0.01 | 0.03 | 0.01 |
| Design Pressure (+70.0 psf) | | | |
| Maximum Deflection | 0.08 | 0.39 | 0.05 |
| Permanent Set | 0.01 | 0.02 | <0.01 |
| 50% of Test Pressure (-52.5 psf) | | | |
| Maximum Deflection | 0.08 | 0.31 | 0.03 |
| Permanent Set | 0.01 | 0.02 | <0.01 |
| Design Pressure (-70.0 psf) | | | |
| Maximum Deflection | 0.15 | 0.44 | 0.05 |
| Permanent Set | 0.01 | 0.03 | 0.01 |
| Water Infiltration | | | |
| 15% Positive Design Pressure (+10.65 psf) | | Failed | |
| Test Pressure (+105.0 psf) | | | |
| Maximum Deflection | 0.07 | 0.63 | 0.07 |
| Permanent Set | 0.01 | 0.10 | 0.01 |
| Test Pressure (-105.0 psf) | | | |
| Maximum Deflection | 0.07 | 0.60 | 0.08 |
| Permanent Set | 0.01 | 0.08 | 0.01 |

Note: See ATI Sketch #1 for indicator locations.

Test Results: (Continued)

Protocol TAS 202-94, *Static Air Pressure Tests*

Test Unit #5: 60" by 96" panel (with elastomeric paint)

Design Pressure: ±70.0 psf

| <u>Title of Test</u> | <u>Results</u> | | |
|---|----------------------------------|-----------|-----------|
| | <u>Indicator Readings (inch)</u> | | |
| | <u>#1</u> | <u>#2</u> | <u>#3</u> |
| Air Infiltration | 0.0 cfm/ft ² | | |
| 1.57 psf (25 mph) | 0.0 cfm/ft ² | | |
| 6.24 psf (50 mph) | | | |
| Structural Loads | | | |
| 50% of Test Pressure (+52.5 psf) | | | |
| Maximum Deflection | 0.08 | 0.36 | 0.07 |
| Permanent Set | <0.01 | 0.01 | <0.01 |
| Design Pressure (+70.0 psf) | | | |
| Maximum Deflection | 0.09 | 0.50 | 0.07 |
| Permanent Set | 0.01 | 0.02 | 0.02 |
| 50% of Test Pressure (-52.5 psf) | | | |
| Maximum Deflection | 0.14 | 0.50 | 0.07 |
| Permanent Set | 0.01 | 0.04 | 0.01 |
| Design Pressure (-70.0 psf) | | | |
| Maximum Deflection | 0.22 | 1.15 | 0.14 |
| Permanent Set | 0.03 | 0.07 | 0.04 |
| Water Infiltration | | | |
| 15% Positive Design Pressure (+10.65 psf) | No Penetration | | |
| Test Pressure (+105.0 psf) | | | |
| Maximum Deflection | 0.18 | 1.28 | 0.12 |
| Permanent Set | 0.04 | 0.54 | 0.03 |
| Test Pressure (-105.0 psf) | | | |
| Maximum Deflection | 2.35 | 3.63 | 2.59 |
| Permanent Set | 0.07 | 1.09 | 0.07 |

Note: See ATI Sketch #2 for indicator locations.

Test Results: (Continued)

Protocol TAS 201-94, *Impact Test Procedures*

Missile Weight: 9.0 lbf

Muzzle Distance from Test Specimen: 17 ft.

Test Unit # 1: 48" by 96" panel

Impact #1: Missile Velocity: 49.5 fps

Impact Area: Center of panel on the stud

Observations: Fractured surface, no penetration

Results: Pass

Impact #2: Missile Velocity: 49.1 fps

Impact Area: Lower left corner

Observations: Fractured surface, no penetration

Results: Pass

Note: Refer to ATI Sketch #3 for impact locations.

Test Unit # 2: 48" by 96" panel

Impact #1: Missile Velocity: 50.9 fps

Impact Area: Vertically centered, 12" from left frame between studs

Observations: Fractured surface, no penetration

Results: Pass

Impact #2: Missile Velocity: 50.3 fps

Impact Area: Top right corner

Observations: Fractured surface, no penetration

Results: Pass

Note: Refer to ATI Sketch #4 for impact locations.

Test Results: (Continued)

Protocol TAS 201-94, *Impact Test Procedures*

Test Unit # 3: 48" by 96" panel

Impact #1: Missile Velocity: 50.3 fps

Impact Area: Lower right corner

Observations: Fractured surface, no penetration

Results: Pass

Impact #2: Missile Velocity: 50.3 fps

Impact Area: Center of panel, on stud

Observations: Fractured surface, no penetration

Results: Pass

Note: Refer to ATI Sketch #5 for impact locations.

Test Results: (Continued)

Protocol TAS 203-94, Cyclic Wind Pressure Loading

Test Unit #1

Design Pressure: ±70.0 psf

POSITIVE PRESSURE

| Pressure Range (psf) | Number of Cycles | Average Cycle Time (sec.) | Maximum Deflection at Indicator (inch) | | |
|----------------------|------------------|---------------------------|--|------|------|
| | | | #1 | #2 | #3 |
| 0.0 to 35.0 | 600 | 2.17 | 0.09 | 0.27 | 0.09 |
| 0.0 to 42.0 | 70 | 2.66 | 0.10 | 0.31 | 0.10 |
| 0.0 to 91.0 | 1 | 1.56 | 0.16 | 0.57 | 0.17 |
| | | | Permanent Set (inch) | | |
| | | | 0.03 | 0.08 | 0.03 |

NEGATIVE PRESSURE

| Pressure Range (psf) | Number of Cycles | Average Cycle Time (sec.) | Maximum Deflection at Indicator (inch) | | |
|----------------------|------------------|---------------------------|--|------|------|
| | | | #1 | #2 | #3 |
| 0.0 to 35.0 | 600 | 2.65 | 0.05 | 0.27 | 0.06 |
| 0.0 to 42.0 | 70 | 2.58 | 0.06 | 0.30 | 0.07 |
| 0.0 to 91.0 | 1 | 1.82 | 0.10 | 0.60 | 0.16 |
| | | | Permanent Set (inch) | | |
| | | | 0.01 | 0.11 | 0.03 |

Result: Pass

Note: Refer to ATI Sketch #1 for indicator locations.

Test Results: (Continued)

Protocol TAS 203-94, Cyclic Wind Pressure Loading

Test Unit #2

Design Pressure: ±70.0 psf

POSITIVE PRESSURE

| Pressure Range (psf) | Number of Cycles | Average Cycle Time (sec.) | Maximum Deflection at Indicator (inch) | | |
|----------------------|------------------|---------------------------|--|------|------|
| | | | #1 | #2 | #3 |
| 0.0 to 35.0 | 600 | 2.14 | 0.04 | 0.29 | 0.04 |
| 0.0 to 42.0 | 70 | 2.81 | 0.04 | 0.32 | 0.05 |
| 0.0 to 91.0 | 1 | 3.00 | 0.06 | 0.69 | 0.18 |
| | | | Permanent Set (inch) | | |
| | | | 0.05 | 0.13 | 0.08 |

NEGATIVE PRESSURE

| Pressure Range (psf) | Number of Cycles | Average Cycle Time (sec.) | Maximum Deflection at Indicator (inch) | | |
|----------------------|------------------|---------------------------|--|------|------|
| | | | #1 | #2 | #3 |
| 0.0 to 35.0 | 600 | 2.65 | 0.05 | 0.30 | 0.03 |
| 0.0 to 42.0 | 70 | 2.58 | 0.06 | 0.33 | 0.04 |
| 0.0 to 91.0 | 1 | 1.82 | 0.17 | 0.62 | 0.08 |
| | | | Permanent Set (inch) | | |
| | | | 0.01 | 0.09 | 0.01 |

Result: Pass

Note: Refer to ATI Sketch #1 for indicator locations.

Test Results: (Continued)

Protocol TAS 203-94, Cyclic Wind Pressure Loading

Test Unit #3

Design Pressure: ±70.0 psf

POSITIVE PRESSURE

| Pressure Range (psf) | Number of Cycles | Average Cycle Time (sec.) | Maximum Deflection at Indicator (inch) | | |
|----------------------|------------------|---------------------------|--|------|------|
| | | | #1 | #2 | #3 |
| 0.0 to 35.0 | 600 | 2.19 | 0.08 | 0.27 | 0.06 |
| 0.0 to 42.0 | 70 | 2.48 | 0.08 | 0.30 | 0.07 |
| 0.0 to 91.0 | 1 | 2.00 | 0.11 | 0.52 | 0.08 |
| | | | Permanent Set (inch) | | |
| | | | 0.04 | 0.09 | 0.05 |

NEGATIVE PRESSURE

| Pressure Range (psf) | Number of Cycles | Average Cycle Time (sec.) | Maximum Deflection at Indicator (inch) | | |
|----------------------|------------------|---------------------------|--|------|------|
| | | | #1 | #2 | #3 |
| 0.0 to 35.0 | 600 | 2.09 | 0.02 | 0.26 | 0.03 |
| 0.0 to 42.0 | 70 | 2.22 | 0.02 | 0.28 | 0.03 |
| 0.0 to 91.0 | 1 | 2.00 | 0.04 | 0.53 | 0.05 |
| | | | Permanent Set (inch) | | |
| | | | 0.01 | 0.11 | 0.02 |

Result: Pass

Note: Refer to ATI Sketch #1 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 and 1" dial indicators

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 1609 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.

List of Official Observers:

Name

Company

Joseph A. Reed, P.E.

Architectural Testing, Inc.

David Douglass

Architectural Testing, Inc.

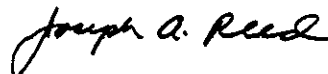
Representative samples of the test specimen and a copy of this report will be retained by ATI for a period of ten years from the original test date. This report is the exclusive property of the client so named herein and is applicable to the sample tested. Results obtained are tested values and do not constitute an opinion or endorsement by this laboratory. This report may not be reproduced, except in full, without the approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC.



Digitally Signed by: David Douglass

David Douglass
Technician



Digitally Signed by: Joseph A. Reed

Joseph A. Reed, P.E.
Director - Engineering and Product Testing

DD:sj/cmd

Attachments (pages):

- Appendix A: Sketches (2)
- Appendix B: Drawings (2)

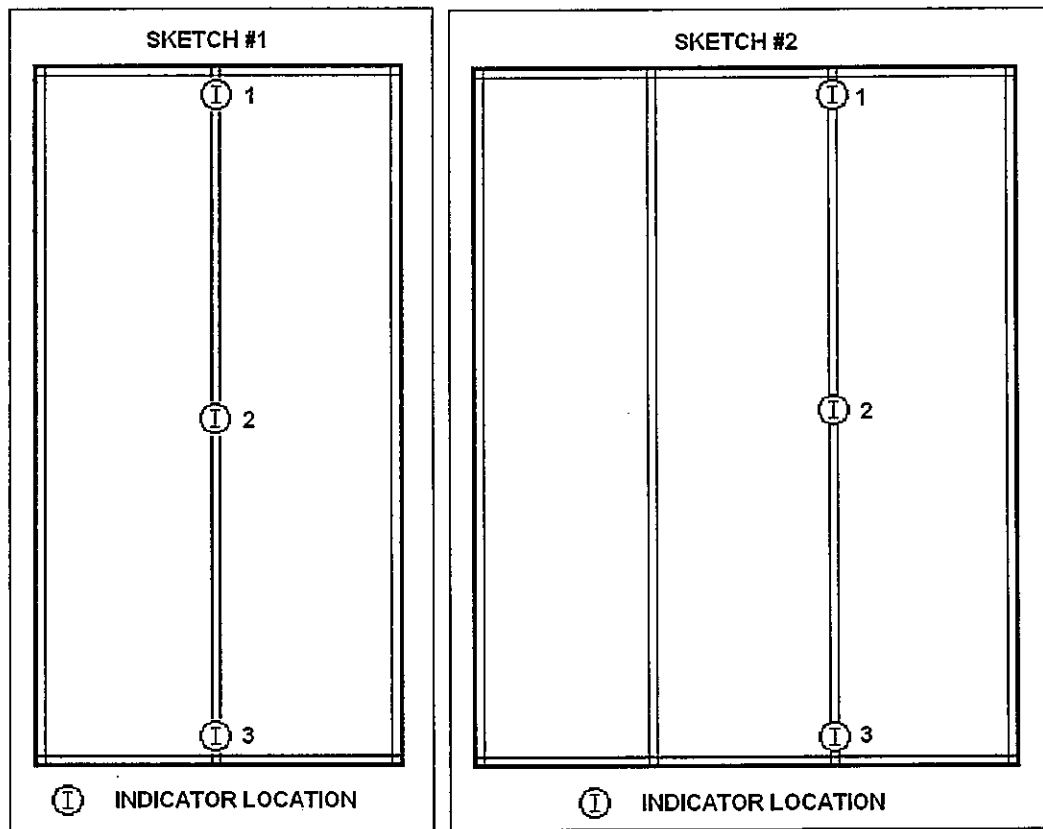
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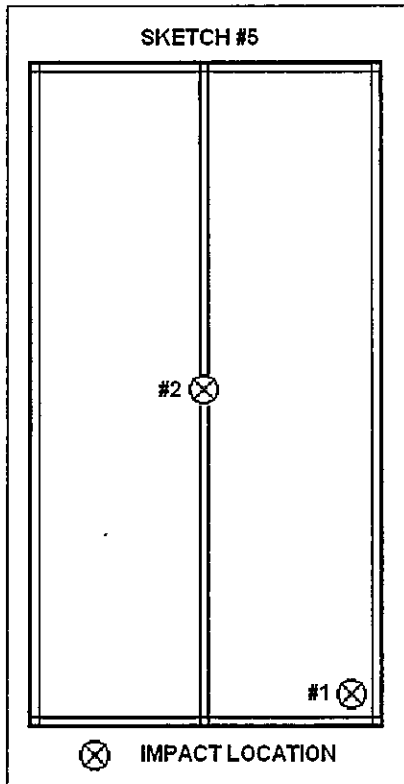
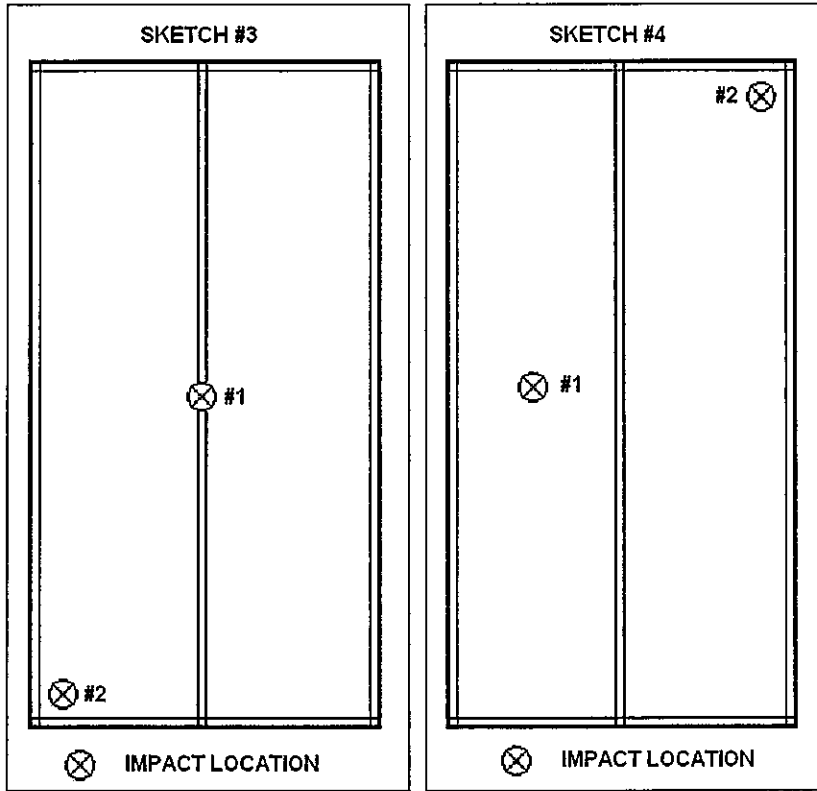
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| 0 | 08/31/06 | N/A | Original report issue |

APPENDIX A

Sketches

NOTE: All sketches show exterior views.

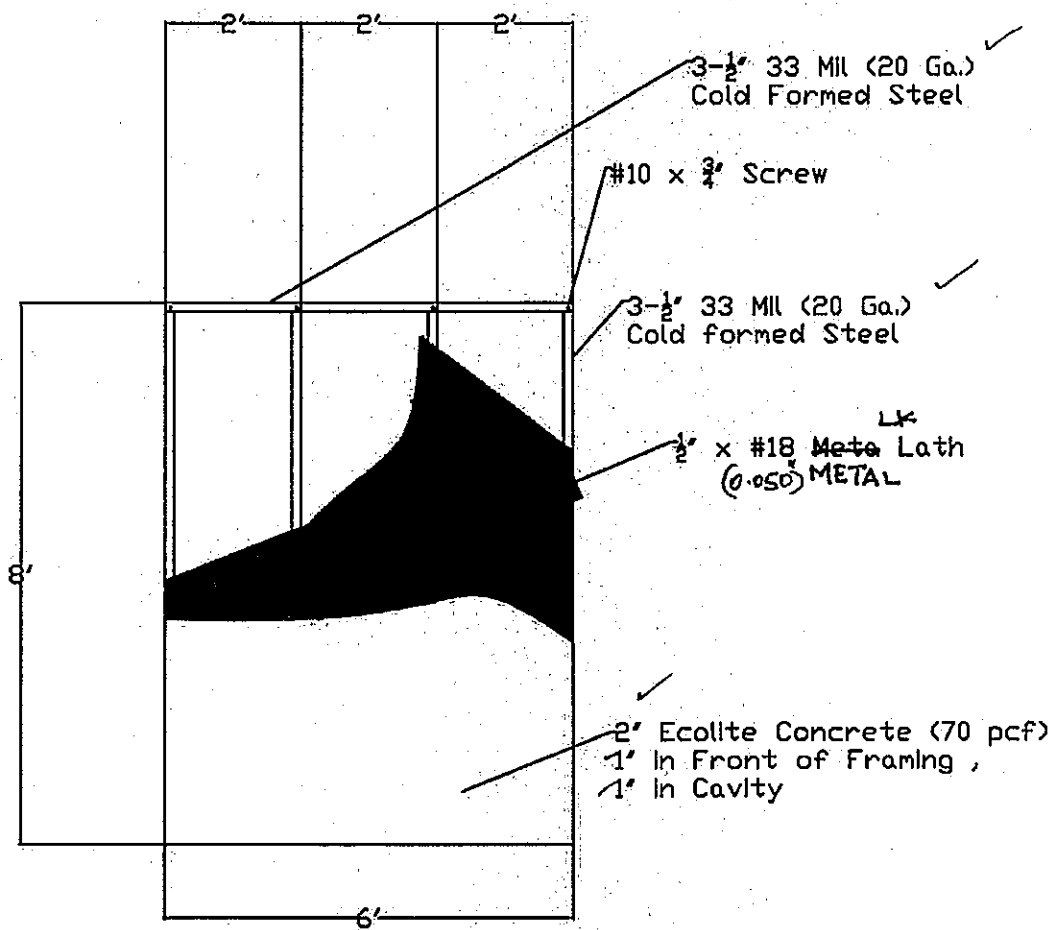






APPENDIX B

Drawings



Architectural Testing, Inc
 Test sample complies with these details
 Deviations are noted

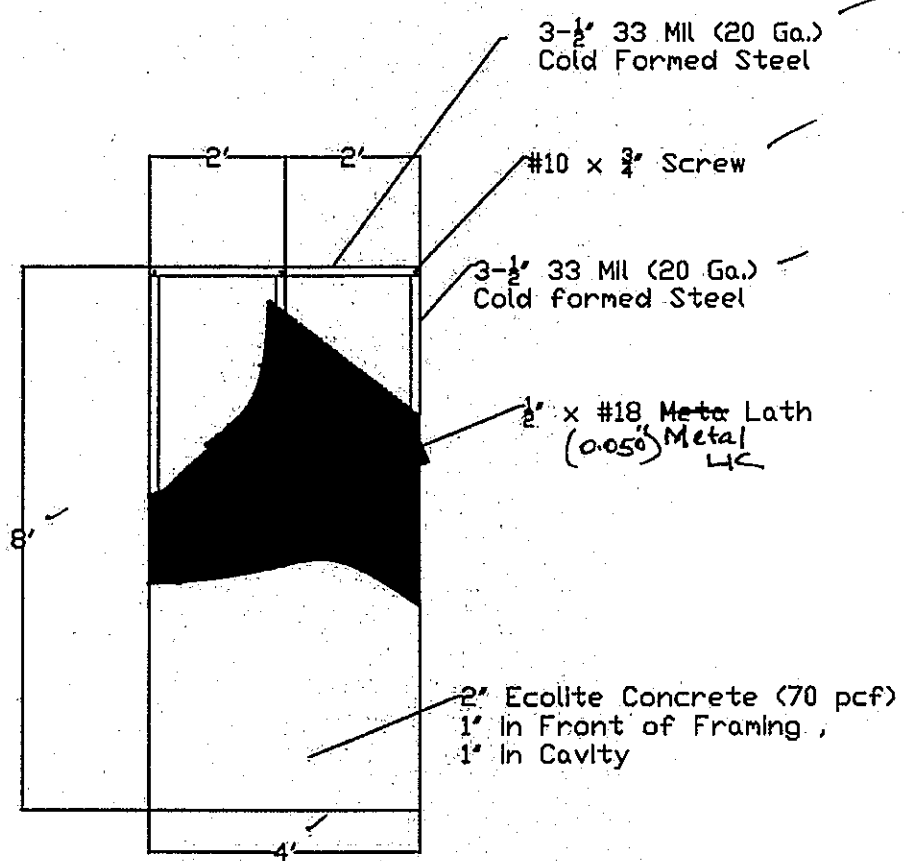
6 6 3 3 8

AUG 29 2006

Reports
 Tech L Kirk Data

6'0" x 8'0" Panel
SPECIMEN # 5 TAS 202

ecolite



Architectural Testing, Inc.
Test results comply with these details
Deviations are noted

6 6 3 3 8

AUG 29 2006

Report

Draw

Tech

L KIRK

4'
4' x 0" x 8' 0" Panel

TEST UNITS 1, 2, 3, AND 4

ecolite