

TEST REPORT

Report No.: D4387.02-901-44

Rendered to:

PHOENIX METALWORKS, LLC
D/B/A PHOENIX PANELS
Lynden, Washington

PRODUCT TYPE: Wall Cladding System
SERIES/MODEL: Phoenix Flex

Title	Summary of Results
Design Pressure	±4800 Pa (100.25 psf)
Uniform Load Structural Test Pressure	±7200 Pa (150.38 psf)

Reference must be made to Report No. D4387.02-901-44, dated 06/23/14, for complete test specimen description and detailed test results.



1.0 Report Issued To: Phoenix Metalworks, LLC
D/B/A Phoenix Panels
8650 Line Road
Lynden, WA 98264

2.0 Test Laboratory: Architectural Testing, Inc.
22155 68th Ave. South
Kent, Washington 98032
253-395-5656

3.0 Project Summary:

3.1 Product Type: Wall Cladding System

3.2 Series/Model: Phoenix Flex

3.3 Compliance Statement: Results obtained are tested values and were secured by using the designated test method(s). Test specimen description and results are reported herein.

3.4 Test Date: 3/17/14

3.5 Test Record Retention End Date: All test records for this report will be retained until 3/17/18.

3.6 Test Location: Architectural Testing facility located in Kent, Washington.

3.7 Test Sample Source: The test specimen was provided by the client.

3.8 Drawing Reference: The test specimen drawings have been reviewed by Architectural Testing and are representative of the test specimen(s) reported herein. Test specimen construction was verified by Architectural Testing per the drawings located in the appropriate Appendix. Any deviations are documented herein or on the drawings.

3.9 List of Official Observers:

<u>Name</u>	<u>Company</u>
Brian Rasmussen	Architectural Testing, Inc.

4.0 Test Method(s):

ASTM E 330-02, *Test Method for Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference*



5.0 Test Specimen Description:

5.1 Product Sizes:

Overall Area: 5.9 m ² (64.0 ft ²)	Width		Height	
	millimeters	inches	millimeters	inches
Overall size	2438	96	2438	96
Panel size (4)	908	35-3/4	1197	47-1/8
Panel size (1)	578	22-3/4	2407	94-3/4

5.2 Panel Construction: The test specimen was constructed of five 4 mm (0.15") thick Phoenix Panel Systems composite panels. The bottom of each panel utilized 4.8 mm (3/16") diameter weeps, two per panel.

5.3 Test Wall Construction: The 96" wide by 96" high test wall was constructed of 2 x 6 Douglas-fir wood studs. The studs were spaced 16" on center inside a 2 x 10 wood buck. Two 2 x 8 studs were also added near the vertical panel joints to provide an anchoring substrate for the panel clip screws. The stud wall was covered with 1/2" thick OSB sheathing, which was penetrated with forty-two evenly spaced 2-1/2" diameter holes, allowing for air passage. The test wall was covered with a single loose layer of 4 mil plastic, its edges being sealed with tape at the perimeter of the test wall. The panels were then installed over the plastic.

5.4 Reinforcement: One extruded aluminum tube stiffener 25 mm x 25 mm (1" x 1") was adhered to the center of each panel with adhesive sealant.

5.5 Installation: Installation of the tested product was performed by the client.

The panels were installed in a bottom-to-top and left-to-right order. The sill and jambs utilized metal flashing and a continuous starter strip secured to the studs with #10 x 1-1/2" long screws and spaced approximately 16" on center.

The corner panels were secured to a full length z-clip at their interior vertical edge. That z-clip was secured with #10 by 1-1/2" screws spaced approx. 16" on center. The center panel utilized spear clips spaced approximately 16" on center and secured with one #10 by 1-1/2" screw each. The remaining panel edges utilized field clips spaced approx. 16" on center and secured with one #10 by 1-1/2" screw each.

6.0 Test Results: The temperature during testing was 22°C (71°F). The results are tabulated as follows:

Pressure	Results	Note
Taken at central panel edge +4800 Pa (100.25 psf) -4800 Pa (100.25 psf)	8.1 mm (0.32") 7.6 mm (0.30")	1
Taken at corner panel – interior vertical joint +4800 Pa (100.25 psf) -4800 Pa (100.25 psf)	0.6 mm (0.03") 0.1 mm (0.01")	1
Taken at panel center +4800 Pa (100.25 psf) -4800 Pa (100.25 psf)	0.3 mm (0.01") 12.2 mm (0.48")	1
Taken at corner panel - interior horizontal joint +4800 Pa (100.25 psf) -4800 Pa (100.25 psf)	1.0 mm (0.04") <0.25 mm (<0.01")	1

Pressure	Results	Note
Taken at central panel vertical edge +7200 Pa (150.38 psf) -7200 Pa (150.38 psf)	1.0 mm (0.04") 0.6 mm (0.03")	1
Taken at corner panel – interior vertical joint +7200 Pa (150.38 psf) -7200 Pa (150.38 psf)	0.3 mm (0.01") 0.3 mm (0.01")	1
Taken at panel center +7200 Pa (150.38 psf) -7200 Pa (150.38 psf)	<0.25 mm (<0.01") <0.25 mm (<0.01")	1
Taken at corner panel - interior horizontal joint +7200 Pa (150.38 psf) -7200 Pa (150.38 psf)	0.3 mm (0.01") <0.25 mm (<0.01")	1

General Note: All testing was performed in accordance with the referenced standard(s).

Note #1: Loads were held for 10 seconds.



Architectural Testing will service this report for the entire test record retention period. Test records that are retained, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained by Architectural Testing, Inc. for the entire test record retention period.

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 tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC.

Brian L. Rasmussen
Technician

Jeffrey L. Dideon
Director – Regional Operations

BLR:pac

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

Appendix-A: Photographs (1)

Appendix-B: Drawings (4)



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Appendix A

Photographs



Test Wall Interior



Test Wall Exterior



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Appendix B

Drawings

PHOENIX PANEL SYSTEMS SCOPE OF WORK, SUPPLY ONLY

- A. PANEL SYSTEMS
- B. FASTENERS
- C. MOISTURE BARRIERS
- D. PANEL CAVITY INSULATION
- E. SEALANT
- F. FLASHING
- G. FLASHING
- H. FLASHING
- I. FLASHING
- J. FLASHING
- K. FLASHING
- L. FLASHING
- M. FLASHING
- N. FLASHING
- O. FLASHING
- P. FLASHING
- Q. FLASHING
- R. FLASHING
- S. FLASHING
- T. FLASHING
- U. FLASHING
- V. FLASHING
- W. FLASHING
- X. FLASHING
- Y. FLASHING
- Z. FLASHING

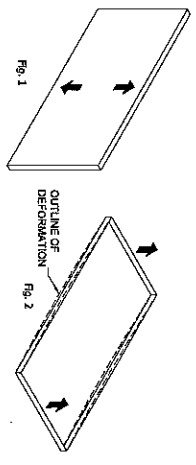
- 1.1 ACQ MATERIAL CONSIST OF A CORE THERMOPLASTIC WITH AN ALUMINUM SURFACE FINISH PROTECTED BY ALUMINUM ALLOY 4mm THICK
- 1.2 SHIMS AND FABRICATION
 - 1.2.1 ACQ PANELS WILL BE CUT TO SIZE AND RANGES
 - 1.2.2 ALL PANELS WILL BE CUT TO SIZE AND RANGES
 - 1.2.3 ALL PANELS WILL BE CUT TO SIZE AND RANGES
 - 1.2.4 ALL PANELS WILL BE CUT TO SIZE AND RANGES
 - 1.2.5 ALL PANELS WILL BE CUT TO SIZE AND RANGES
- 1.3 ORIENTATION
 - 1.3.1 COMPOSITE PANELS ARE CLEARLY MARKED WITH
 - 1.3.2 COMPOSITE PANELS ARE CLEARLY MARKED WITH
 - 1.3.3 COMPOSITE PANELS ARE CLEARLY MARKED WITH
 - 1.3.4 COMPOSITE PANELS ARE CLEARLY MARKED WITH
 - 1.3.5 COMPOSITE PANELS ARE CLEARLY MARKED WITH
- 1.4 VENTING AND MESSAGE
 - 1.4.1 EACH PANEL SHALL HAVE AT LEAST ONE PRESSURE
 - 1.4.2 EACH PANEL SHALL HAVE AT LEAST ONE PRESSURE
 - 1.4.3 EACH PANEL SHALL HAVE AT LEAST ONE PRESSURE
 - 1.4.4 EACH PANEL SHALL HAVE AT LEAST ONE PRESSURE
 - 1.4.5 EACH PANEL SHALL HAVE AT LEAST ONE PRESSURE
- 1.5 SEALANTS AND ISOLATION
 - 1.5.1 Laid Back - Mastic - W/18 CART 9975 FOR
 - 1.5.2 Laid Back - Mastic - W/18 CART 9975 FOR
 - 1.5.3 Laid Back - Mastic - W/18 CART 9975 FOR
 - 1.5.4 Laid Back - Mastic - W/18 CART 9975 FOR
 - 1.5.5 Laid Back - Mastic - W/18 CART 9975 FOR
- 1.6 UNLOADING
 - 1.6.1 THESE ACQ PANELS ARE QUALITY FINISHED
 - 1.6.2 THESE ACQ PANELS ARE QUALITY FINISHED
 - 1.6.3 THESE ACQ PANELS ARE QUALITY FINISHED
 - 1.6.4 THESE ACQ PANELS ARE QUALITY FINISHED
 - 1.6.5 THESE ACQ PANELS ARE QUALITY FINISHED
- 1.7 HANDLING AND INSTALLATION
 - 1.7.1 THESE ACQ PANELS ARE QUALITY FINISHED
 - 1.7.2 THESE ACQ PANELS ARE QUALITY FINISHED
 - 1.7.3 THESE ACQ PANELS ARE QUALITY FINISHED
 - 1.7.4 THESE ACQ PANELS ARE QUALITY FINISHED
 - 1.7.5 THESE ACQ PANELS ARE QUALITY FINISHED
- 1.8 MATERIAL TYPE
 - 1.8.1 THESE ACQ PANELS ARE QUALITY FINISHED
 - 1.8.2 THESE ACQ PANELS ARE QUALITY FINISHED
 - 1.8.3 THESE ACQ PANELS ARE QUALITY FINISHED
 - 1.8.4 THESE ACQ PANELS ARE QUALITY FINISHED
 - 1.8.5 THESE ACQ PANELS ARE QUALITY FINISHED
- 1.9 MATERIAL TYPE
 - 1.9.1 THESE ACQ PANELS ARE QUALITY FINISHED
 - 1.9.2 THESE ACQ PANELS ARE QUALITY FINISHED
 - 1.9.3 THESE ACQ PANELS ARE QUALITY FINISHED
 - 1.9.4 THESE ACQ PANELS ARE QUALITY FINISHED
 - 1.9.5 THESE ACQ PANELS ARE QUALITY FINISHED
- 1.10 MATERIAL TYPE
 - 1.10.1 THESE ACQ PANELS ARE QUALITY FINISHED
 - 1.10.2 THESE ACQ PANELS ARE QUALITY FINISHED
 - 1.10.3 THESE ACQ PANELS ARE QUALITY FINISHED
 - 1.10.4 THESE ACQ PANELS ARE QUALITY FINISHED
 - 1.10.5 THESE ACQ PANELS ARE QUALITY FINISHED

2.2 SITE STORAGE

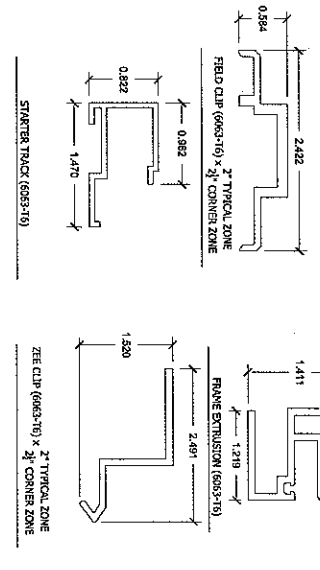
- 2.2.1 LOCATE THE MATERIAL AT CONVENIENT LOCATIONS
- 2.2.2 LOCATE THE MATERIAL AT CONVENIENT LOCATIONS
- 2.2.3 LOCATE THE MATERIAL AT CONVENIENT LOCATIONS
- 2.2.4 LOCATE THE MATERIAL AT CONVENIENT LOCATIONS
- 2.2.5 LOCATE THE MATERIAL AT CONVENIENT LOCATIONS

2.3 PANEL HANDLING

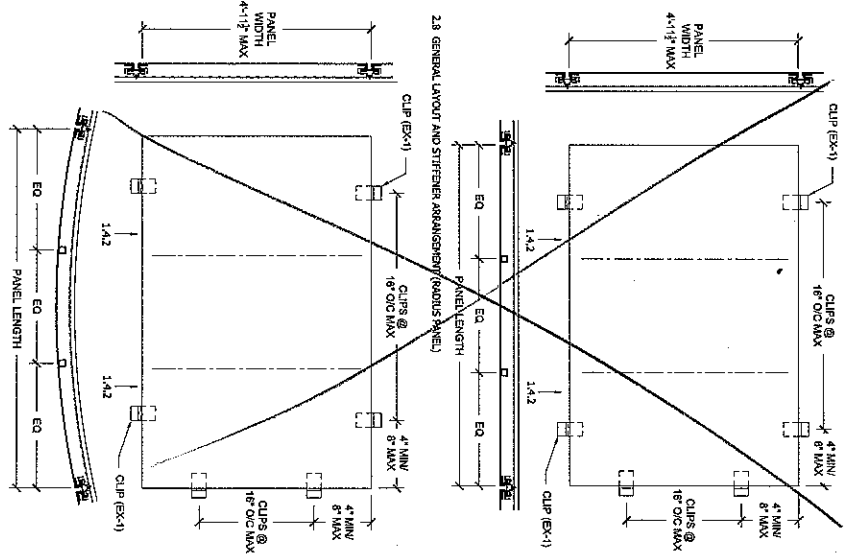
- 2.3.1 CARRY PANELS AND TRUCK ON EDGE IN A VERTICAL
- 2.3.2 CARRYING PANELS IN A FLAT HORIZONTAL POSITION
- 2.3.3 CARRYING PANELS IN A FLAT HORIZONTAL POSITION
- 2.3.4 CARRYING PANELS IN A FLAT HORIZONTAL POSITION
- 2.3.5 CARRYING PANELS IN A FLAT HORIZONTAL POSITION



2.6 EXTRUSIONS



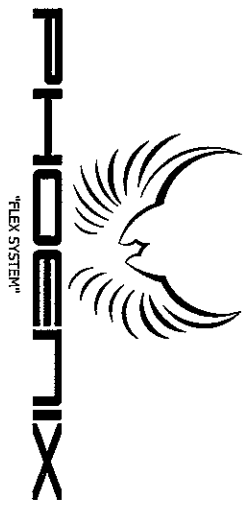
2.7 GENERAL LAYOUT AND STIFFENER ARRANGEMENT (RECTANGLE SQUARE PANEL)



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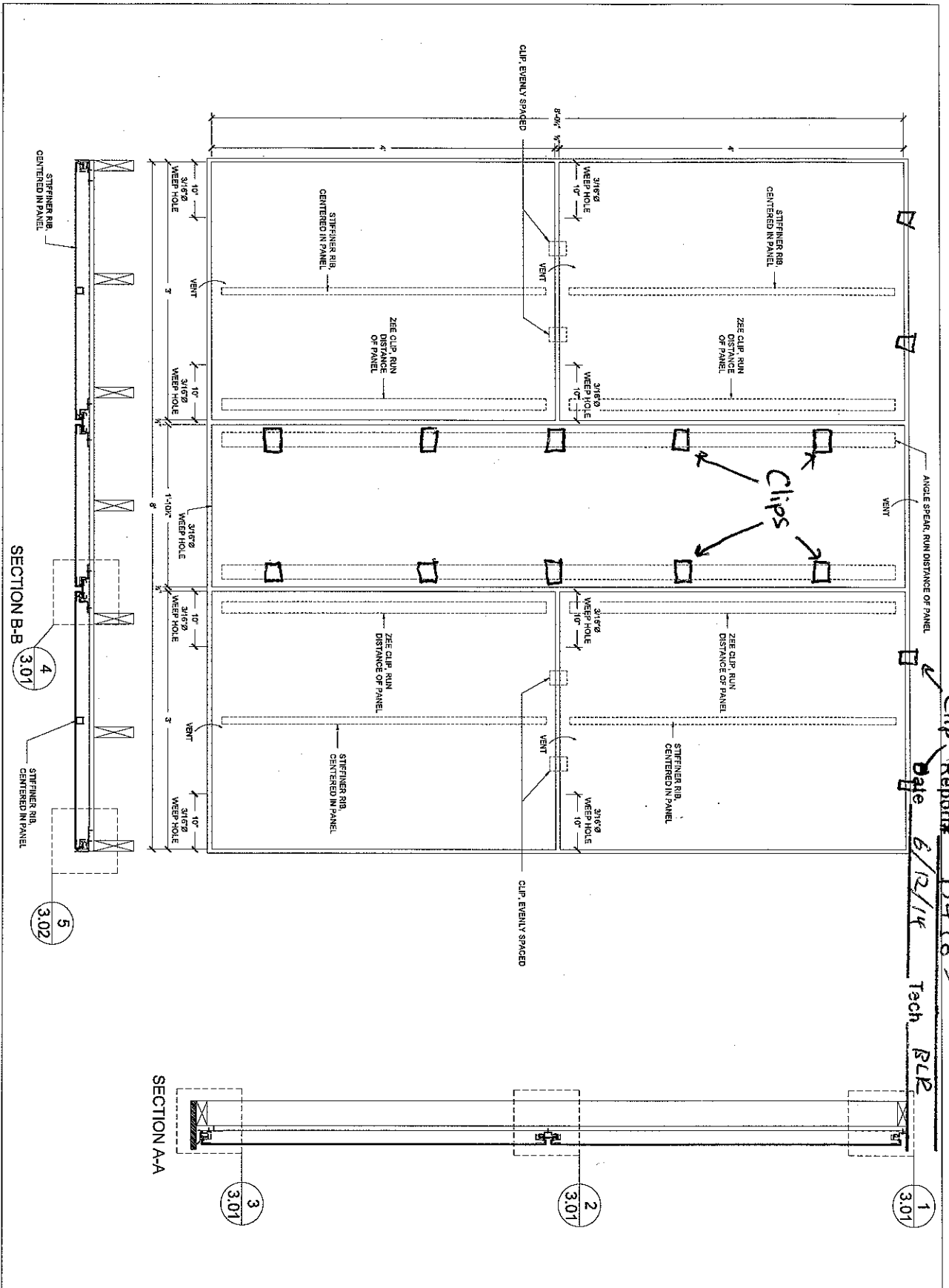
Test sample complies with these details. Deviations are noted.

Report# D4387
Date 6/12/14 Tech RLR



Test sample complies with these details.
Deviations are noted.

Clip Report
Date 6/12/14
Tech BLR



GENERAL NOTES:

FIRM NAME & ADDRESS:

PHOENIX
"FLEX SYSTEM"
8660 LINA RD.
LITHON, WA 98561
PH: 360.435.4125
stone@phoenixwindow.net

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PROJECT: PHOENIX PANEL SYSTEM
TYPICAL PANEL DETAILS

DATE: 6-5-14	SCALE:
REVISION: B	SHEET: 2.01
DRAWN BY: J.K.	

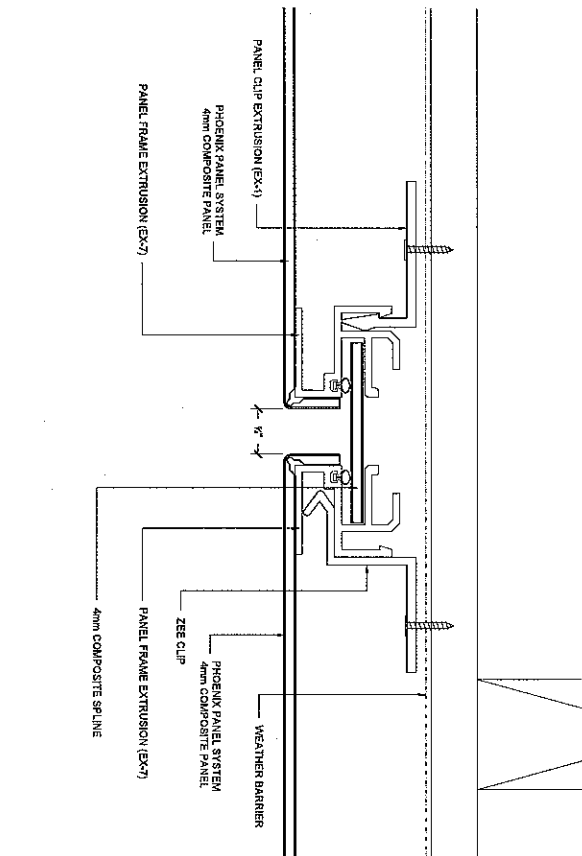
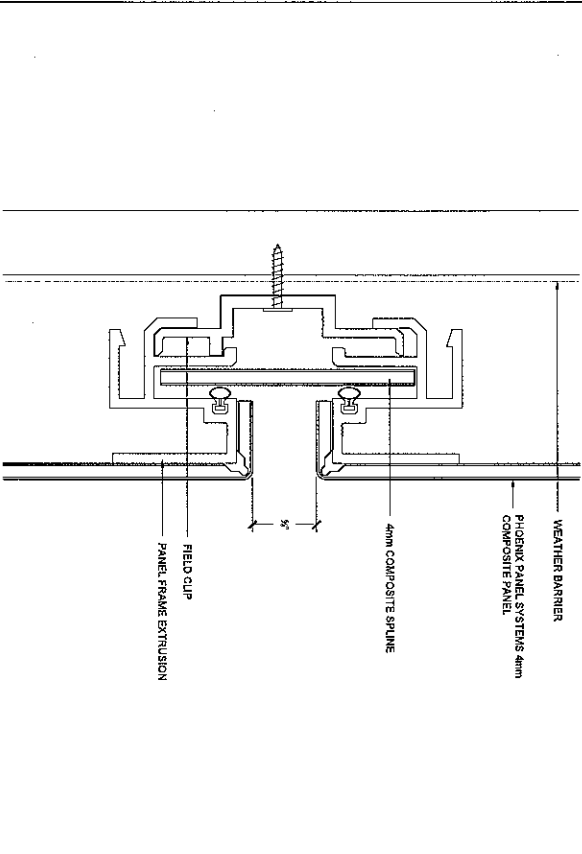
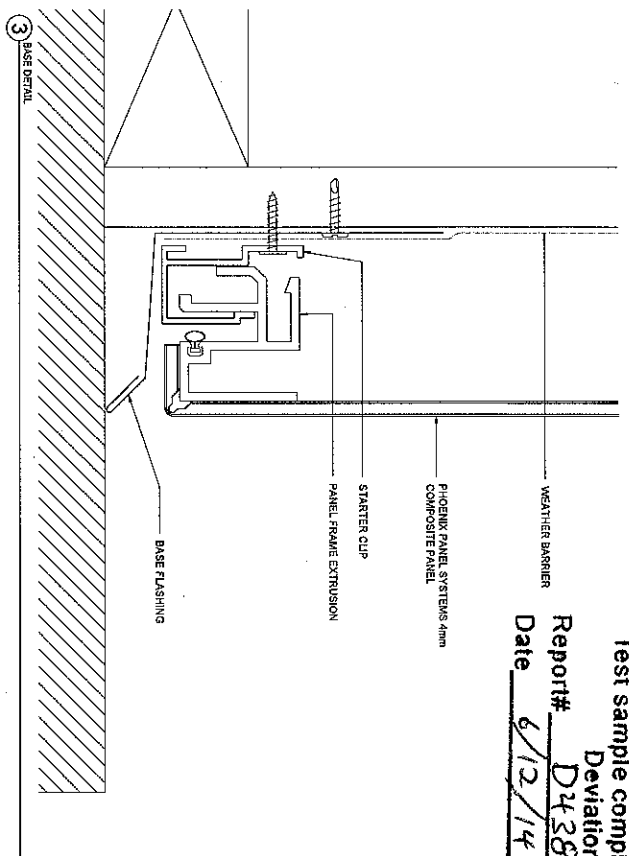
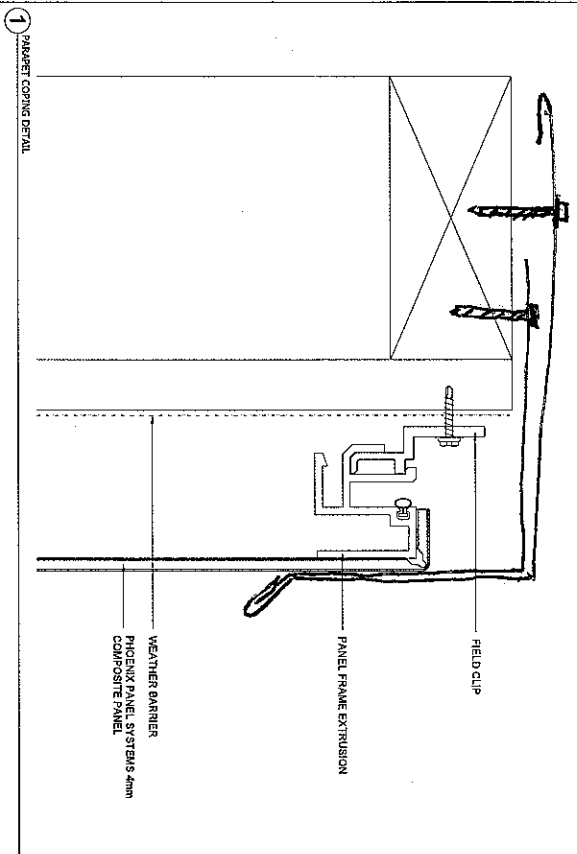


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Test sample complies with these details.
Deviations are noted.

Report# D4387

Date 6/12/14 Tech GLE



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PROJECT:

PHOENIX PANEL SYSTEM
TYPICAL DETAILS

DATE: 6-5-14

SCALE:

REVISION: B

SHEET:

DRAWN BY: J.K.

3.01

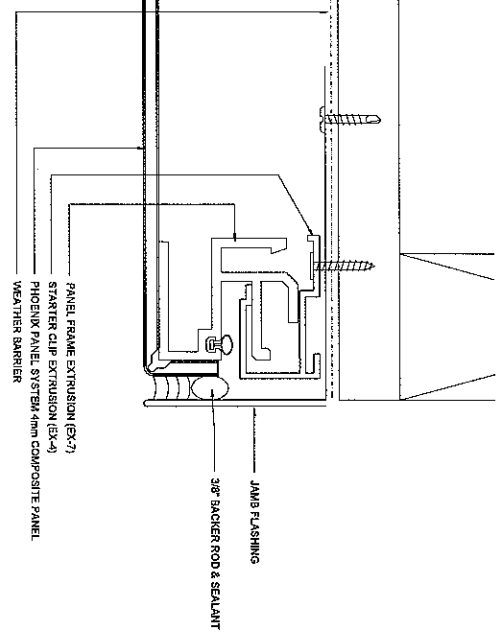
1 PARAPET COPING DETAIL

2 HORIZONTAL JOINT DETAIL

3 BASE DETAIL

4 VERTICAL JOINT DETAIL

GENERAL NOTES:



5 JAMB DETAIL



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# D4387
 Date 6/2/14 Tech RLR

FIRM NAME & ADDRESS:

PHOENIX FLEX SYSTEM
 8550 Line Rd.
 Suite 100
 Phoenix, AZ 85044
 Phone: 602-954-4115
 Email: phine@phoenixflex.com

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PROJECT:
**PHOENIX PANEL SYSTEM
 TYPICAL DETAILS**

DATE:	6-5-14	SCALE:	
REVISION:	B	SHEET:	3.02
DRAWN BY:	J.K.		