Architectural Testing

VACUUM DECAY TEST REPORT

Rendered to:

ARCOPLAST, INC.

PRODUCT: Arcoplast Composite Wall and Ceiling Liner Panel System

Report No:	**62525.01-106-31**
Report Date:	**05/19/06**
Expiration Date:	**04/13/10**
Revision 1:	**06/29/06**

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ARCOPLAST, INC.
1873 Williamstown Drive
St. Peters, Missouri 63376

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Product: Arcoplast Composite Wall and Ceiling Liner Panel System mock-up constructed with 2-1/2" - 20 gauge steel stud on 24" centers. The Arcoplast composite 6mm cement core wall and ceiling liner panel with the USDA antimicrobial gel coat finish was bonded to the steel stud structure with urethane adhesive. Modular panel seam, wall to wall and wall to ceiling junctions completed with the Arcoplast finishing compound 9177. (Dimensions - nominal 4' x 3.5' x 3.5'**)**

Project Summary: Architectural Testing, Inc. (ATI) was contracted by Arcoplast, Inc. to perform vacuum decay testing on a preassembled nominal 4' cube sample module constructed with composite 6mm cement core wall and ceiling liner panels with USDA antimicrobial gel coat finish. Tests were performed on the preassembled module provided by the client to ATI. The testing was conducted as a timed decay from 1000Pa - 200Pa.

The Public Health Agency of Canada document, *The Laboratory Biosafety Guidelines: 3rd Edition 2004*, requires that an AP containment level 4 room exhibit a maximum of 12.5 Pa per minute pressure drop at 500 Pa over a twenty minute period. The test resulted in a rate of vacuum loss of 1.76 Pa per minute which meets this requirement.

In addition, the ASME N510 document, *Testing of Nuclear Air Treatment Systems* (1989) states that the rate of air leakage shall not exceed 0.1% of volume/minute at 1000 Pa for biosafety facilities. The volume of the chamber tested was calculated to be 49 cubic feet. The allowable rate of air flow for the unit was 0.049 cfm at 1000 Pa and was measured to be 0.01 cfm at 1000 Pa thereby meeting the ASME N510 requirement for biosafety facilities.

Test Procedure: All testing was performed with a vacuum pump and vacuum sensor calibrated immediately prior to use. Vacuum measurements for the decay were taken at 10 second intervals throughout the test by means of a computerized recording device. The vacuum pump and sensor were attached to the module by drilling through a wall of the preassembled module, cutting threads into the holes and inserting two barbed hose connectors. A seal was then placed around the hose connector/wall joint using silicone-based sealant and allowed to cure for 24 hours prior to test. The vacuum pressure was applied until a level of 1000 Pa was achieved. The equivalent water column height to a vacuum of 1000 Pa is 4 inches.

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Test Results: The total recorded vacuum drop of 737.6 Pa required an elapsed time of 420 minutes to attain. The resulting rate of vacuum drop measured was 1.76 Pa per minute.

The values reported in this report represent calculated decay rates based on a zero opening sealed module as reiterated in the photographs attached to this report. This test does not include any openings, ventilation systems, or other components as may be provided by others and is applicable only to the wall panels and the joint seals between panels.

This report will be retained by ATI for a period of four years from the original test date. The above results are the exclusive property of the client so named herein and are applicable only to the sample tested. This report does not constitute an opinion or endorsement by this laboratory. This report may not be reproduced, except in full, without the approval of Architectural Testing.

For ARCHITECTURAL TESTING, INC.:

Digitally Signed by: Bernard A. Albright

Bernard A. Albright
Technician - Component/Materials Testing

Digitally Signed by: Todd D. Burroughs

Todd D. Burroughs
Director - Component/Materials Testing

BA:ba/nlb

Attachments (pages)
Appendix A - Graphs (2)
Appendix B - Photographs (2)

Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	05/19/06	N/A	Original report issue
1	06/29/06	Cover, 1-3 and Appendix A Graphs	Added Revision Date to report and updated graphs to include 10-second interval factor.

APPENDIX A

Graphs

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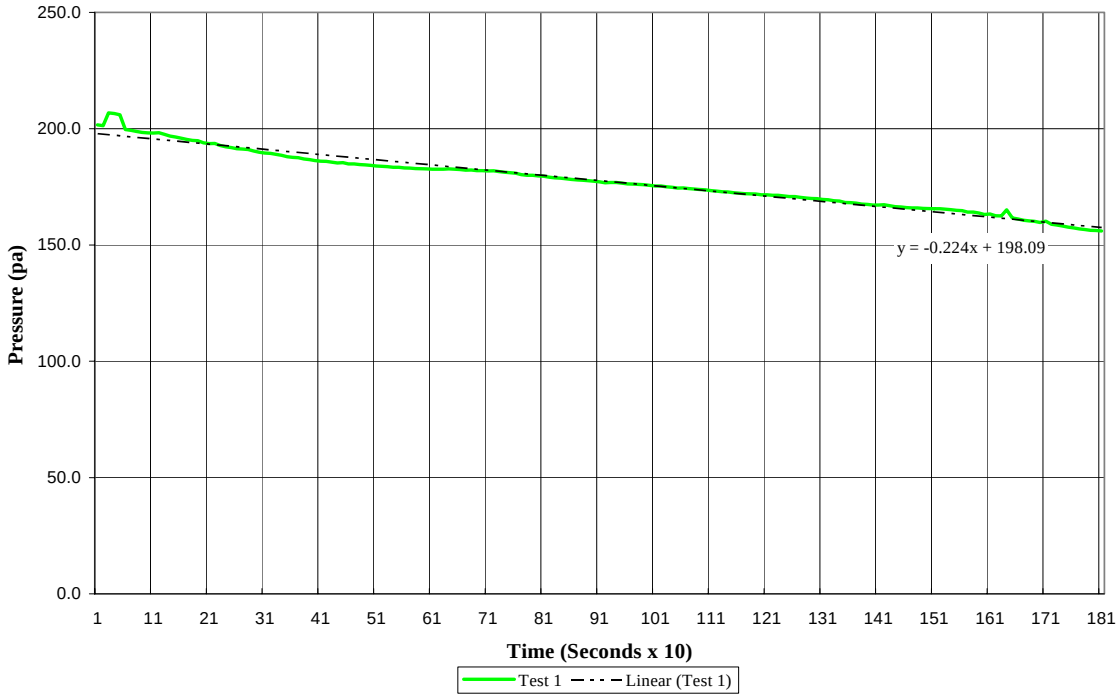
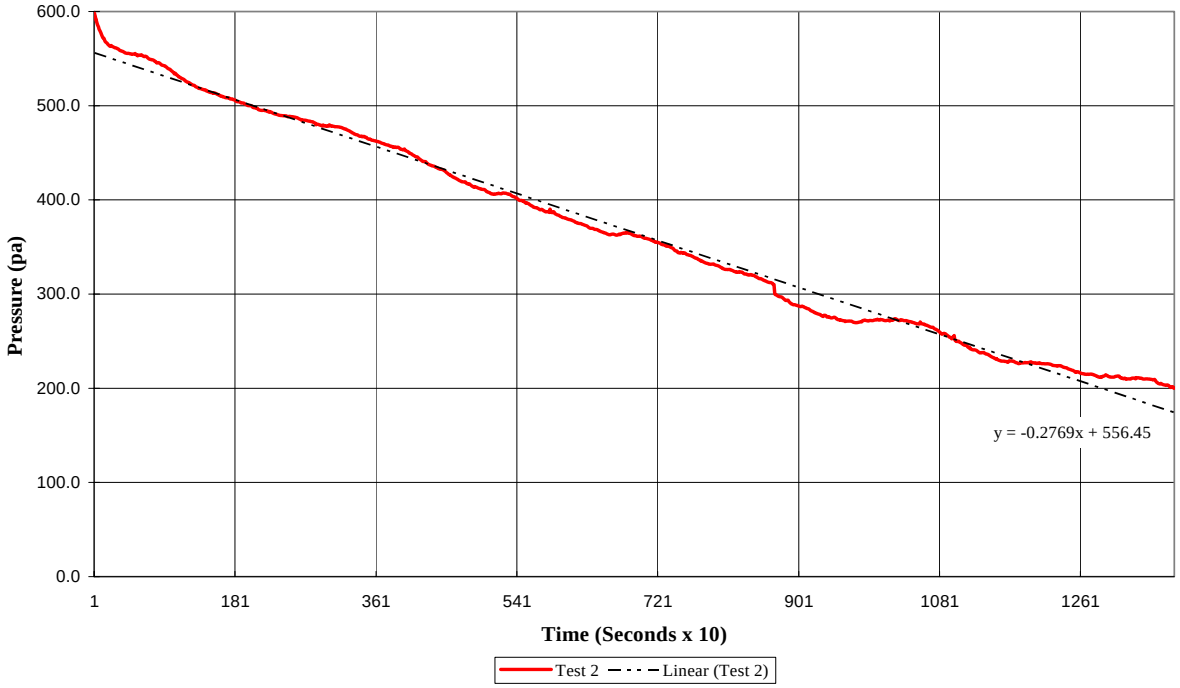
Test 1



Test 2



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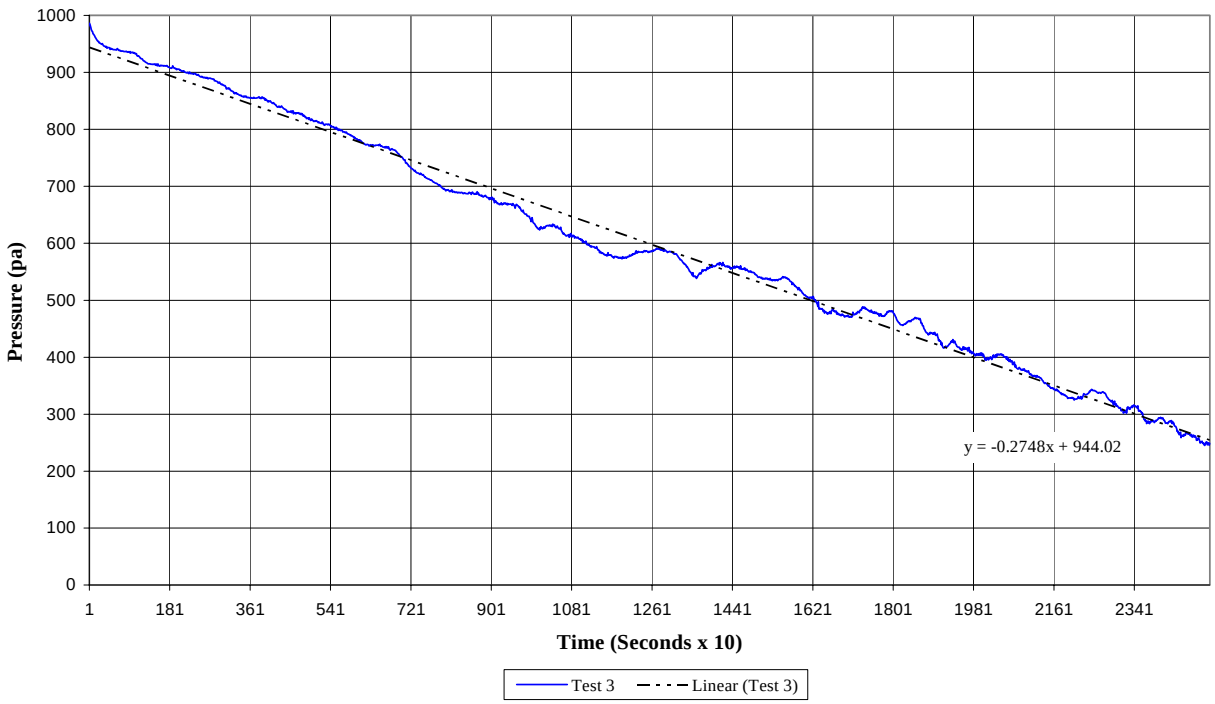
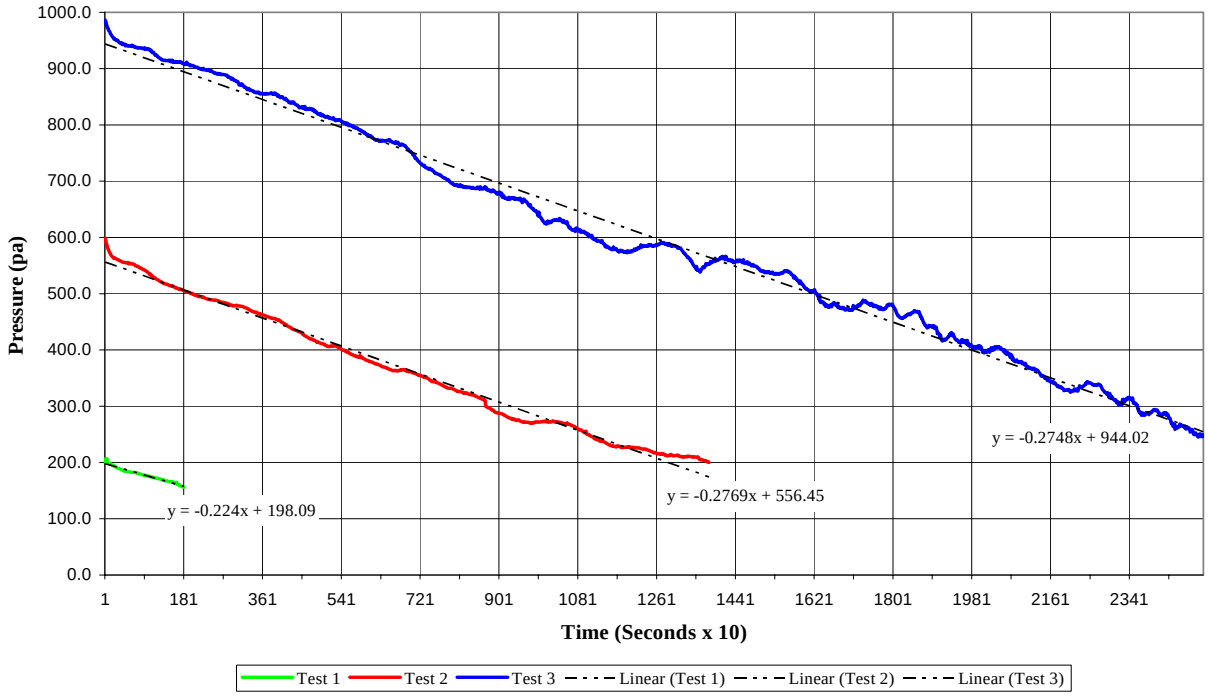
Test 3



Combined Testing



APPENDIX B

Photographs

Photo No. 1
Connection of Vacuum and Instrumentation Lines to Module

Photo No. 2
Connection of Module to Computerized Data Collector

Photo No. 3
Interior View of Chamber Showing Corner and Butt Joint Seams