

SOUTHWEST RESEARCH INSTITUTE®

6220 CULEBRA RD. 78238-8166 • P.O. DRAWER 28510 78228-0510 • SAN ANTONIO, TEXAS, USA • (210) 834-5111 • WWW.SWRI.ORG
CHEMISTRY AND CHEMICAL ENGINEERING DIVISION
FIRE TECHNOLOGY DEPARTMENT
WWW.FIRE.SWRI.ORG
FAX (210) 522-3377



FIRE PERFORMANCE EVALUATION OF THE NONLOAD-BEARING SUPPRESS 5/8-IN. SED PANEL STEEL STUD WALL ASSEMBLY IN ACCORDANCE WITH ASTM E 119-05a, STANDARD TEST METHODS FOR FIRE TESTS OF BUILDING CONSTRUCTION AND MATERIALS

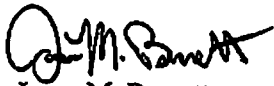
FINAL REPORT
Consisting of 14 Pages

SwRI® Project No. 01.12694.01.117b
Test Dates: April 19 and June 5, 2007
Report Date: June 19, 2007

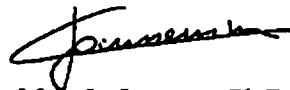
Prepared for:

Supress Products, LLC
1050 Northgate Drive, Suite 570
San Rafael, CA 94903


Prepared by:


Jason M. Barnett
Engineer
Fire Resistance Section

Approved by:


Marc L. Janssens, Ph.D.
Director
Fire Technology Department

6/19/07
Reviewed by:


Barry L. Badders, Jr., P.E.
No. 61907, Florida

This report is for the information of the client. It may be used in its entirety for the purpose of securing product acceptance from duly constituted approval authorities. This report shall not be reproduced except in full, without the written approval of SwRI. Neither the report nor the name of the Institute shall be used in publicity or advertising.



ABSTRACT

Two asymmetric nonload-bearing wall assemblies, both identified as the Supress 5/8-in. SED Panel Steel Stud Wall Assembly were tested from one side by Southwest Research Institute's (SwRI) Fire Technology Department, located in San Antonio, TX, for Supress Products, LLC, of San Rafael, CA.

Both wall assemblies consisted of 3-5/8-in. 20-ga. steel studs spaced 16 in. on center, 5/8-in. thick Supress[®] Sound-Engineered Drywall™ fastened to one side of the steel stud framing, and 5/8-in. Type "X" gypsum wallboard fastened to the other side of the steel stud framing. The wall assembly constructed for the purpose of conducting a hose stream retest had Kraft-faced 3-1/2-in. R-13 fiberglass insulation friction-fit within the stud cavities. Testing was conducted on April 19 and June 5, 2007, in accordance with ASTM E 119-05a, *Standard Test Methods for Fire Tests of Building Construction and Materials*.

Based on the test results, the Supress 5/8-in. SED Panel Steel Stud Wall Assembly achieved a fire resistance rating of 1 hr from one side in accordance with ASTM E 119 when tested exposing the 5/8-in. Type "X" gypsum wallboard side of the assembly and constructed with Kraft-faced 3-1/2-in. R-13 fiberglass insulation friction-fit within the stud cavities.

1.0 INTRODUCTION

A fire performance evaluation of two asymmetric nonload-bearing wall assemblies were conducted for Supress Products, LLC, of San Rafael, CA, at Southwest Research Institute's (SwRI) Fire Technology Department, located in San Antonio, TX. Testing was conducted on April 19 and June 5, 2007, in accordance with ASTM E 119-05a, *Standard Test Methods for Fire Tests of Building Construction and Materials*.

This report contains a description of the test procedure followed, assembly tested, and the results obtained. The results presented in this report apply only to the assembly tested, in the manner tested, and not to any similar assemblies or material combinations.

2.0 OBJECTIVE

The ASTM E 119 test method is intended to evaluate the duration for which the assembly tested will contain a fire, or retain its structural integrity, or display both properties dependent upon the type of assembly involved, during a predetermined fire exposure time.

This test measures the response of the assembly to exposure in terms of the transmission of heat and hot gases through the assembly. This standard should be used to measure and describe the properties of materials, products, or assemblies in response to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazard or fire risk of materials, products, or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire risk assessment, which takes into account all the factors that are pertinent to an assessment of the fire hazard of a particular end use.

3.0 TEST ASSEMBLY

SwRI received the material supplied by Supress Products, LLC, on April 12, 2007. SwRI constructed two 12 × 9-ft wall assemblies for Supress Products, LLC. Both wall assemblies consisted of 3-5/8-in. 20-ga. steel studs spaced 16 in. on center, 5/8-in. thick Supress® Sound-Engineered Drywall™ fastened to one side of the steel stud framing, and 5/8-in. Type "X" gypsum wallboard fastened to the other side of the steel stud framing. The wall assembly constructed for the purpose of conducting a hose stream retest had Kraft-faced 3-1/2-in. R-13 fiberglass insulation friction-fit within the stud cavities. The Supress® Sound-Engineered Drywall™ and Type "X" gypsum wallboard sheets were fastened to the steel stud framing with 1-1/4-in. fine thread drywall screws spaced 8 in. on center along the perimeter and 12 in. on center in the field of the wallboard. All joints were taped and treated with joint compound, and all fastener heads were covered with joint compound.

4.0 TEST RESULTS

The 5/8-in. Type "X" gypsum wallboard side of Supress Products, LLC's assembly, identified as the Supress 5/8-in. SED Panel Steel Stud Wall assembly was tested on April 19, 2007. The wall assembly was mounted to SwRI's large-vertical furnace, and all instrumentation connections were verified. The wall assembly was exposed to the standard temperature-time curve specified in ASTM E 119.

Present to witness the test was Mr. Bruce Donaldson of Supress Products, LLC, and Mr. Barry L. Badders, P.E. (License No. 61907), licensed in the State of Florida. The test notification number from Miami-Dade County, Florida, for this program is SWRI 07018.

The ambient temperature and relative humidity prior to the test were 77°F and 53%, respectively. Visual observations are presented in Table 1.

Table 1. Test Observations.

| TIME Hr:Min:Sec | OBSERVATIONS |
|----------------------------|---|
| 0:00 | Start of test. |
| 23:00 | Light smoke/steam exiting from assembly. |
| 43:30 | Slight inward bowing. |
| 50:00 | Discoloration on unexposed side fastener heads. |
| 1:00:00 | End of test. |
| Post Test | Exposed gypsum wallboard remains intact and fastened to assembly. |

The wall assembly sustained the 1-hr fire endurance test without unexposed surface conditions to ignite cotton waste, and also the transmission of heat through the wall assembly did not raise the temperature on its unexposed surface more than 250°F above its initial temperature.

Immediately following the 1-hr fire endurance test, a hose stream test was performed. The wall assembly failed to limit the passage of water to the unexposed side. A second sample, constructed with Kraft-faced 3-1/2-in. R-13 fiberglass insulation friction-fit within the stud cavities, was exposed to similar furnace conditions on June 5, 2007, for the purpose of conducting a hose stream retest. The hose stream retest sample was exposed on the 5/8-in. Type "X" gypsum wallboard side to fire conditions for 30 min (1/2 of the 1-hr desired fire resistance rating) and was immediately subjected to a 30-psi water hose stream for 65 sec. The assembly did not allow the passage of water during the hose stream test; therefore, the wall assembly satisfied the conditions of acceptance of the hose stream test in accordance with ASTM E 119.

Select photographs are provided in Appendix A. Unexposed side temperatures and furnace temperature data for the tests are contained in Appendix B. Video documentation and photographs taken during the test accompany this report as enclosures on DVD and compact disc, respectively, and are considered part of this report.

5.0 CONCLUSION

Based on the test results, the Supress 5/8-in. SED Panel Steel Stud Wall assemblies achieved a fire resistance rating of 1 hr from one side in accordance with ASTM E 119 when tested exposing the 5/8-in. Type "X" gypsum wallboard side of the assembly and constructed with Kraft-faced 3-1/2-in. R-13 fiberglass insulation friction-fit within the stud cavities.

APPENDIX A
PHOTOGRAPHIC DOCUMENTATION
(CONSISTING OF 5 PAGES)

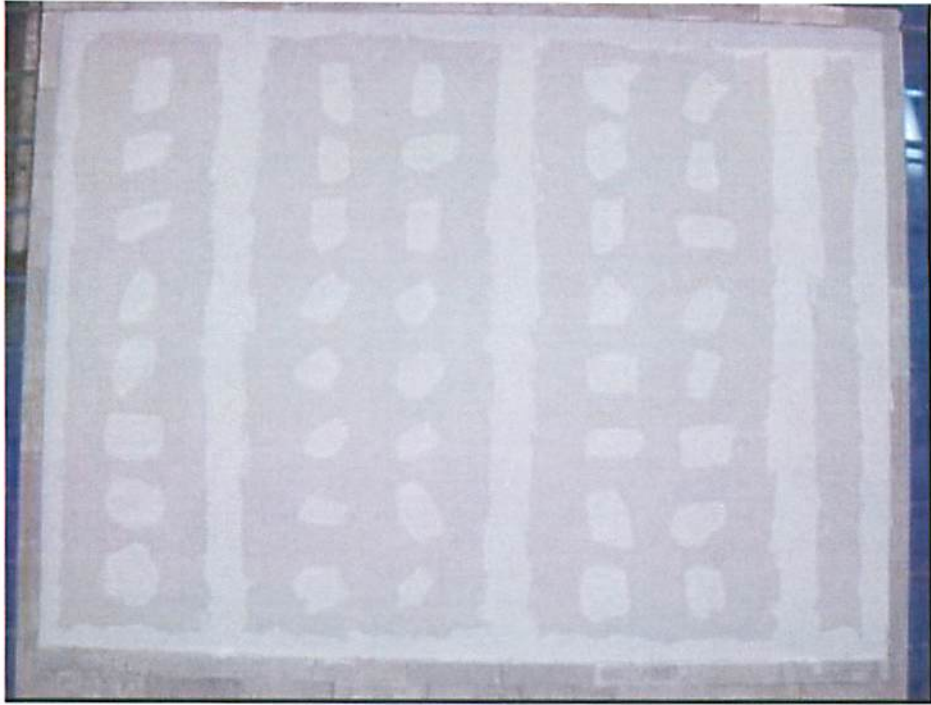


Figure A-1. Exposed Side of Assembly Prior to the Fire Test.



Figure A-2. Unexposed Side of Assembly During the Fire Test.



Figure A-3. Exposed Side of Assembly Immediately After the Fire Test.



Figure A-4. Unexposed Side of Assembly Immediately After the Fire Test.

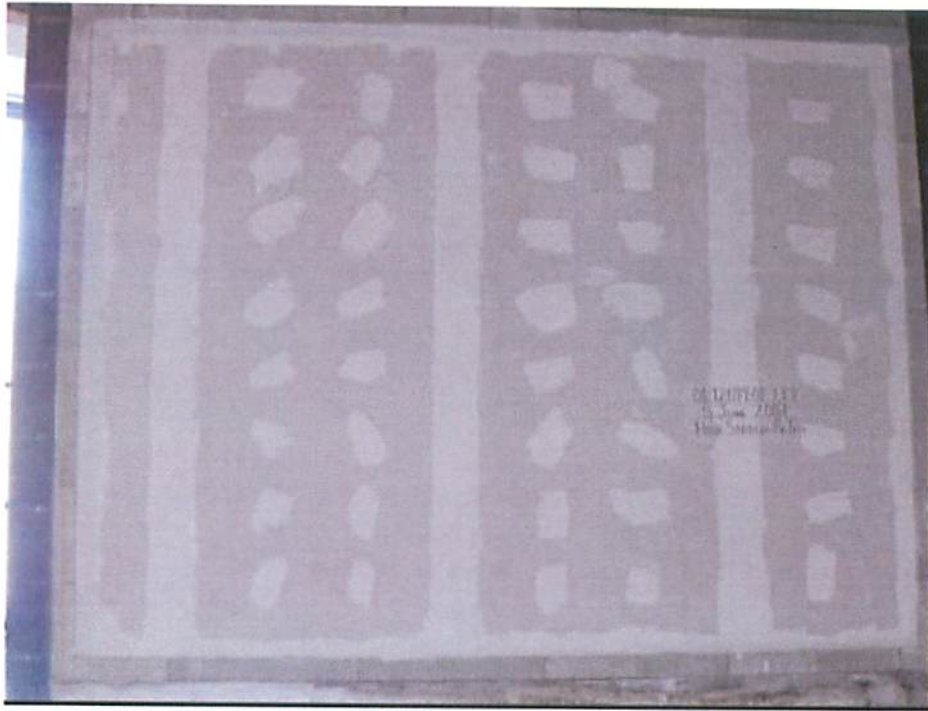


Figure A-5. Exposed Side of Hose Stream Retest Prior to the Fire Test.



Figure A-6. Unexposed Side of Hose Stream Retest Prior to the Fire Test.



Figure A-7. Exposed Side of Hose Stream Retest Immediately After the Fire Test.



Figure A-8. Exposed Side of Hose Stream Retest Immediately After Hose Stream Test.

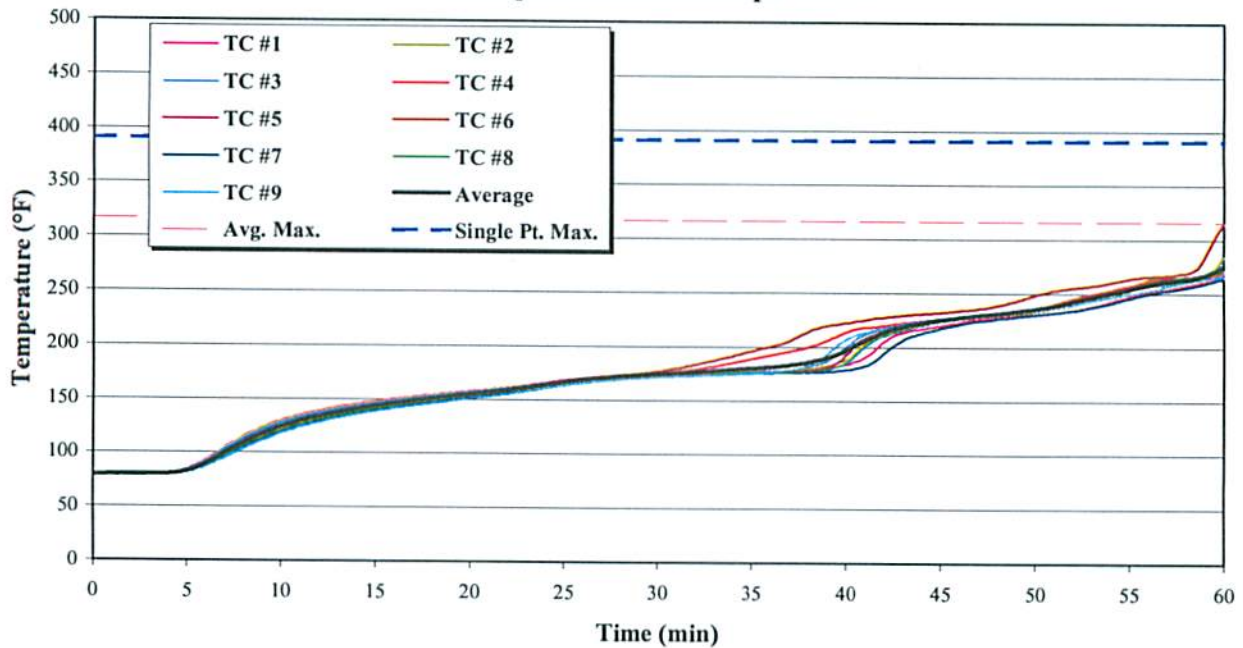


Figure A-9. Unexposed Side of Hose Stream Retest After Hose Stream Test.

APPENDIX B
TEMPERATURE DATA
(CONSISTING OF 2 PAGES)

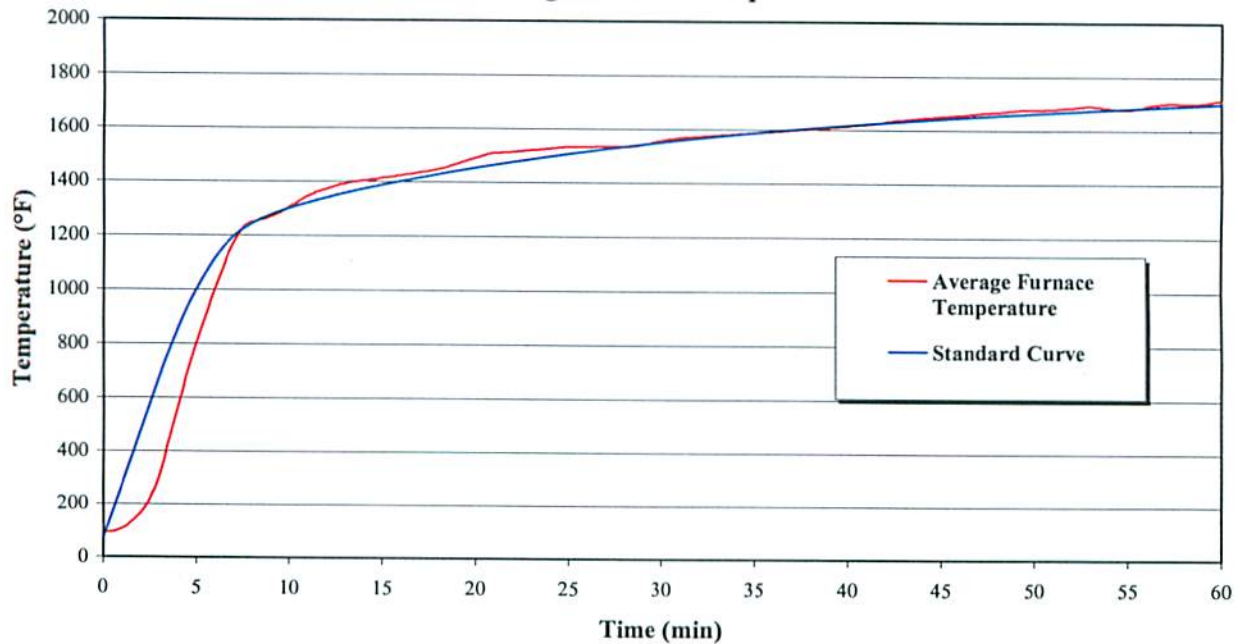
Supress Products, LLC
SwRI Project No. 01.12694.01.117b
Test Date: 4/19/2007
Test ID: 07-109Sp2.csv

Unexposed Surface Temperatures



Supress Products, LLC
SwRI Project No. 01.12694.01.117b
Test Date: 4/19/2007
Test ID: 07-109Sp2.csv

Average Furnace Temperature



Supress Products, LLC
SwRI Project No. 01.12694.01.117b
Test Date: 5/4/2007
Test ID: 07-156Sup1.csv

Hose Stream Retest Average Furnace Temperature

