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PERFORMANCE EVALUATION OF KREYSLER & ASSOCIATES' KREYSLER FIRESHIELD 285 TESTED IN ACCORDANCE WITH NFPA 268, 2012 EDITION, STANDARD TEST METHOD FOR DETERMINING IGNITIBILITY OF EXTERIOR WALL ASSEMBLIES USING A RADIANT HEAT ENERGY SOURCE

MATERIAL ID: KREYSLER FIRESHIELD 285

FINAL REPORT
Consisting of 9 Pages

SwRI® Project No. 01.17787.01.618b
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1.0 INTRODUCTION

Southwest Research Institute's (SwRI) Fire Technology Department, located in San Antonio, Texas, conducted one radiant panel test for Kreysler & Associates. The test was conducted on June 27, 2013, in accordance with the procedures described in the National Fire Protection Association (NFPA) 268, 2012 Edition, *Standard Test Method for Determining Ignitability of Exterior Wall Assemblies Using a Radiant Heat Energy Source*. Mr. Barry Badders (Professional Engineer, License No. 61907, registered in the State of Florida) was present to witness testing. The Test Notification Number for Miami-Dade County Florida for this test program is SwRI 13016.

The objective of the test was to evaluate the propensity for ignition of an external wall assembly when subjected to a minimum radiant heat flux of $12.5 \text{ kW/m}^2 \pm 5\%$ in the presence of a pilot ignition source, during a 20-min period. Ignition is defined as the time at which flaming is sustained. Sustained flaming is defined as the visual confirmation of the uninterrupted existence of flame on, or near, the surface of the specimen for at least 5 s.

The procedure described in NFPA 268 test 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 of the factors which are pertinent to an assessment of the fire hazard of a particular end use. This report includes a description of the test materials, procedures used, and results. The results presented in this report apply only to the materials tested, in the manner tested, and not to any similar materials or material combinations.

2.0 MATERIAL DESCRIPTION

SwRI received the test materials from Kreysler & Associates on June 18, 2013. The test assembly was a prefabricated unit, which consisted of aluminum framing, mineral wool insulation, and FRP panels attached to aluminum framing. The FRP panels were identified by the Client as *Kreysler Fireshield 285 Panels*. This prefabricated unit had overall dimensions of 4×8 ft and incorporated two panels on the front face. The bottom panel measured nominally 4×5 ft (W \times H) and the top panel measured nominally 4×3 ft (W \times H). The Kreysler Fireshield 285 panels on the front face of the test assembly were proprietary panels with a nominal thickness of 0.18 in. The production of the test assembly panels was witnessed by Mr. Alex Olmos of QAI, and Mr. Fred Fisher of Fisher Research & Development, Inc. Inspection reports documenting the production of the panels can be obtained from Kreysler & Associates. The panels were sent prefabricated with preformed returns and integral aluminum interior framing. The panels were an off-white color and had a nominal density of 125 lb/ft^3 . The frame assembly was conditioned at ambient conditions.

3.0 TEST PROCEDURE

The NFPA 268, 2012 Edition, *Standard Test Method for Determining Ignitibility of Exterior Wall Assemblies Using a Radiant Heat Energy Source*, was conducted using SwRI's calibrated 3 × 3-ft propane-fired radiant panel heat source.

A calibration test was performed to establish the distance from the radiant panel to the calibration panel, in order to maintain an average $12.5\text{-kW/m}^2 \pm 5\%$ heat flux for a 20-min period. The radiant panel was ignited and brought to a specified steady-state temperature of $1,600\text{ °F} \pm 50\text{ °F}$. The radiant shield was removed, and the distance between the calibration panel and the radiant panel was adjusted to achieve the specified heat flux. The distance to the face of the calibration panel measured 32.5 in. The 12.5-kW/m^2 heat flux was determined by averaging the four heat flux meters located at the corners of the central square foot of the calibration panel. A reference heat flux meter, mounted adjacent to the calibration panel and the calibration heat flux meters, was present during the calibration. The reference heat flux was determined to be 3.538 kW/m^2 , which directly correlated to the calibrated heat flux level of $12.5\text{ kW/m}^2 \pm 5\%$. After the completion of the calibration, the radiant shield was moved into place, and the calibration panel was replaced with the test frame assembly.

The radiant shield was removed, and the specified radiant heat flux of $12.5\text{ kW/m}^2 \pm 5\%$ was maintained for 20 min in the presence of a spark ignition source by observing and maintaining the reference heat flux meter output of $3.538\text{ kW/m}^2 \pm 2.5\%$.

4.0 TEST RESULTS

The test assembly including the *Kreysler Fireshield 285 Panels*, as constructed and described herein, did not exhibit sustained flaming when exposed to a radiant heat flux of $12.5\text{ kW/m}^2 \pm 5\%$ for a 20-min period in the presence of a spark ignition source. A summary of observations taken during the test are presented in Appendix A. See Appendix B for photographic documentation of the test. Appendix C consists of the temperature and heat flux data in graphical format.

5.0 CONCLUSIONS

The test assembly including the *Kreysler Fireshield 285 Panels* was exposed to a radiant heat flux of $12.5\text{ kW/m}^2 \pm 5\%$ in the presence of a spark ignition source. The panel assembly did not exhibit sustained flaming, thus it meets the acceptance criteria described in NFPA 268. Mr. Barry Badders (Professional Engineer, License No. 61907, registered in the State of Florida) was present to witness testing. The Test Notification Number for Miami-Dade County Florida for this test program is SwRI 13016.