CLIENT: QUADRANT URETHANE TECHNOLOGIES
200 Industrial Blvd.
McKinney, TX 75069
Attn: Navin Pydugadu

Test Report No: TJ0825-7 Date: November 11, 2012

SUBJECT: Room Corner Burn – Spray Applied Foam, AC377 Appendix X Requirements.

PRODUCT EVALUATED: Client refers to samples received as “NatureSeal 500”. This project was entered into our receiving system on 09/12/12 in good condition.


SAMPLING DETAIL: Test samples were randomly selected by a QAI representative at the client’s manufacturing facility located at 200 Industrial Blvd. McKinney, TX 75069. QAI documented the materials and manufacturing procedures in accordance with ICC-ES AC85, Section 3.1. The foam components (part A and B as described by the Client) arrived on September 12, 2012. Construction of the test room, spraying of the NatureSeal 500 ½ lbs/ft³ open cell spray applied polyurethane foam insulation was witnessed by QAI Laboratories in accordance with Section 3.3 of ICC-ES AC85.

TEST DATE: October 30, 2012

RESULTS: Results can be found on the following pages.

CONCLUSION: ICC-ES AC377 Appendix X pass / fail criteria require the assembly to meet or surpass 4:18 min:sec. The assembly constructed of NatureSeal 500 ½ lbs/ft³ at 7 ½ inches in the wall and 11 ½ inches in the ceiling COMPLIES with the requirements of ICC-ES AC377.

CERTIFICATION: The tests reported here were conducted under the continuous direct supervision of QAI Laboratories Inc., Tulsa, OK. No revisions of this report will be allowed after 90 days of the original report issue.

SIGNED FOR AND ON BEHALF OF QAI LABORATORIES, INC.

Greg Ertel J. Brian McDonald
Test Technician Operations Manager
VISUAL OBSERVATIONS and DISCUSSIONS OF PERFORMANCE:

0:00:00 – Sand diffusion burner lit to 40 kW flame
0:01:00 – Medium density of smoke, light grey in color, corner slightly visible
0:03:00 – Flame contribution from sample negligible at this point in the test, smoke density increasing slightly
0:04:00 – Smoke density heaviest at this point, minimal flaming of specimen noted.
0:05:00 – Gas to burner was shut off, test was concluded

Flame Spread and Charring Measurement Discussion: (See video)

Flame spread of sample was negligible throughout duration of test. Charring of walls was measured to be approximately 1.5 to 2 foot wide in the heaviest section tapering to about 7 feet high and 1 foot down from the ceiling in the corner of ignition. Flames did not reach the ceiling during the duration test. Smoke was heaviest during the last two minutes of test. Flames did not reach the extremities of the test cell and flashover, as defined in the specified test designation, did not occur.

Smoke Density:

A peak duct smoke obscuration value of 26.7% (73.3 % blocked) and a Peak Smoke Release Rate was 1.190 m²/sec was measured 4 minute 30 seconds after ignition. The Total Smoke Released at the end of the test was 245 m².

The smoke obscuration reading was taken in the center of a 16 inch diameter duct.

Heat Flux Information:

The heat flux gauge registered a peak Heat Flux of 0.80 kW/m² 4:30 into test.

FLASHOVER POTENTIAL:

In Section 1.3.1 of NFPA 286 and Section X2.1.4 of AC377, Appendix X, the definition of flashover is an event where any two of the following conditions have been attained:

- Heat Release Rate exceeds 1 MW
- Average upper layer temperature exceeds 600ºC (1112ºF)
- Heat Flux at the floor exceeds 20 kW/m²
- Flames exit doorway

For purposes these test results, the following compares the standard’s definition of flashover with actual test results for comparison purposes:

- Peak Heat Release Rate of 58 kW
- Average upper average temperature – 227 ºF (108 ºC)
- Heat Flux at floor measured 0.80 kW/m²
- Flames did not exit doorway