ASTM E119 FIRE TEST
ON FLOOR ASSEMBLY #1 WITH
TWO LAYERS OF 1/2" GYPSUM BOARD
FOR
U.S. ARCHITECTURAL PRODUCTS, INC.
LINCOLN, RI 02865
TESTED: NOVEMBER 4, 1997
V100-779-2

VTEC Laboratories Inc.

November 13, 1997

Client: U.S. Architectural Products, Inc.
20 Moshassuck Road
Lincoln, RI 02865

Attn: Mr. Richard Fifield

Subject: Fire Endurance Testing of Floor Deck.

SPECIMEN DESCRIPTION:

A floor assembly was submitted to VTEC Laboratories, Inc. for fire endurance testing. The floor was labeled Assembly #1 and was constructed per Figure 1.0. The exposed side was two layers of 1/2" firecode gypsum board and the unexposed side was 1" Plycem Cement Board. The unexposed side of the specimen was loaded at 50 pounds per square foot during the fire endurance testing according to ASTM E119.

CLIENT DESCRIPTION (Assembly #1):

* 14" Steel Bar Joists spaced 24" o.c.
* 25mm PLYCEM with "V" Groove Joint screwed directly to the top of the bar Joists with # 12 X 24 X 2 1/4" Buildex Teks Screw # 1092000 spaced 24" o.c. X 12 o.c.
* 25 gauge, double leg 1/2" resilient channels spaced 16 o.c., double wire tied to the underside of bar joist with 18 gauge tie wire.
* Two (2) layers of 1/2" firecode gypsum board screw attached to resilient channels. First layer attached with 1 1/4" bugle head drywall screws. Second layer attached with 1 5/8" bugle head drywall screws spaced 8" o.c. at the edges c and 12" o.c. in the field of the sheets. All screw heads filled and Finnish layer taped and finished with ready mix joint compound.
* Cavity above gypsum board filled with 3 1/2" fiberglass insulation

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PROCEDURE:

The furnace measure nominally 5 ft x 5 ft x 7ft. The outside construction is steel and the furnace is lined with a ceramic refractory insulation. Four burners, one centered on each wall provide uniform heat. Each burner is rated for 1.5 million Btu/hr and is of the flat flame or non-impinging flame design. Furnace conditions are monitored by four Inconel-sheathed chromel-alumel thermocouples.

The fire test was run following the ASTM E119 time-temperature curve. The end point for the test is reached when the average of all thermocouples indicate unexposed specimen temperature of 250°F plus ambient, or when a single thermocouple exceeds 325°F plus ambient.

OBSERVATIONS AND RESULTS:

At 3 minutes the exposed side of the gypsum board was on fire. At five minutes the flames self extinguished. At 29 minutes, the seam on the exposed side began to open. At 1 hour and 44 minutes some smoke began emitting from the unexposed side of the specimen. At 1 hour and 45 minutes most of the gypsum board fell off. At 1 hour and 46 minutes all the fiberglass insulation was burnt and fell off.

At 2 hours and 4 minutes, the end point was reached on a single thermocouple.

At 2 hours and 10 minutes cracks were seen on the exposed side of the Plycem Cement Board and the furnace was turned off.

The floor specimen met the acceptance criteria for 2 hours as specified in the ASTM E119 specification.

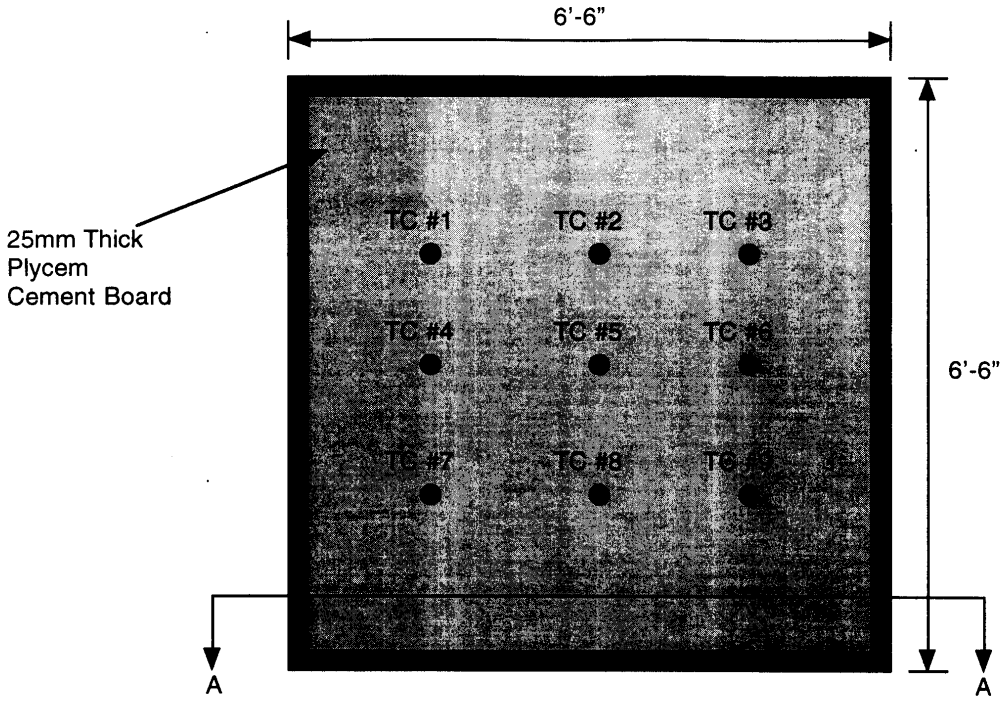
The time/temperature data are contained on the following pages.

DISCLAIMER:

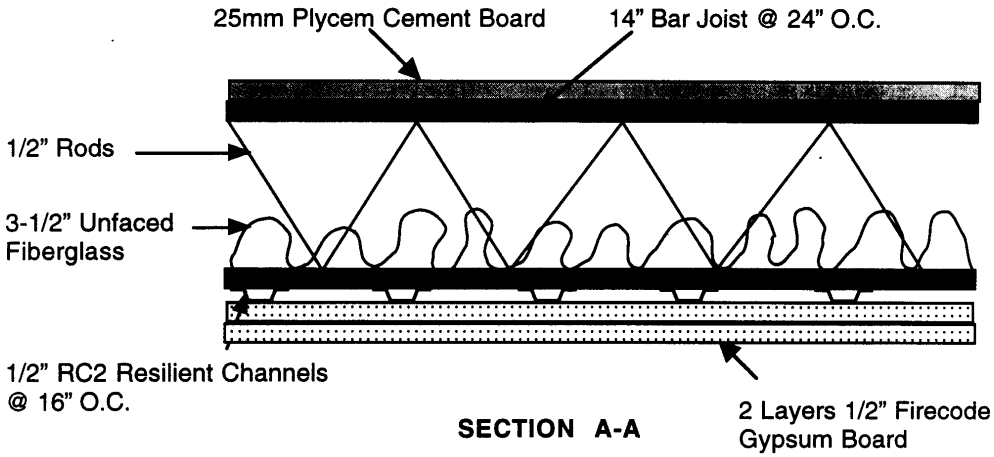
This test should be used to measure and describe the properties of materials, products or assemblies in response to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazards or fire risks of materials, products or assemblies under actual fire 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 fire hazard of a particular end use.

Neil Schultz
Executive Director

A. Rahim
Amirudin Rahim
Technical Director



PLAN VIEW OF FLOOR ASSEMBLY #1
UNEXPOSED SIDE



SECTION A-A

FIGURE 1.0