TEST REPORT-ASTM D-1183

I. SCOPE

To determine the resistance of the adhesive in the ZAGROS Panel to cycle accelerated service on conditions by exposing the panel to conditions of high and low temperatures and high and low humidity per ASTM D-1183.

II. OBJECTIVE

To determine the extent of degradation if say, from a changes in the strength properties in the ZAGROS panel as a result of the exposure to high or low temperature and high and low relative humidity.

III. STRENGTH TEST:

The strength test was performed per ASTM E-72 "Conducting Strength tests of panels for building Construction" Section 9. The apparatus used is per section 9. The apparatus used is per Section 9 and as shows in the attached sheet.

IV. TEST SPECIMENS:

The Test specimens were six (6) ZAGROS Panels 48" wide, 96'Long and 3 ½" thick with channel reinforcement at the centerline. Three (3) panels were tested per ASTM E-72, Section 9, without being subjected to cylic accelerated service conditions. The other three (3) panels were than subjected to three (3) cycles of accelerated service conditions by exposing to high and low temperatures and high and low relative humidity and then tested per ASTM E-72, Section 9.

V: PROCEEDURE:

The panels were subjected to procedure, table 1 of ASTM D-1183 as follows:

RECOMMENDED TEST PROCEDURES

PROCEDURE DESIGNATION	NAME	PERIOD HOURS	TEMPERATURE DEG. F	RELATIVE HUMIDITY - %
C	Exterior Land and Air	48	160±5	<10
		48	73±2	Immersed in water
		8	-70±5	About 100%
		64	100±3.5	About 100%

ACTUAL TEST - PROCEDURE DESIGNATION C

VI. 3 Cycles

	PERIOD	TEMPERATURE DEG. F	RELATIVE HUMIDITY %
Cycle #1 March 19, 1984 thru March 25, 1984.	48	163°F	8%
	48	73°F	Immersed in water
	8	-65°F	Approximately 98%
	64	100°F	Approximately 98%
Cycle #2 March 26, 1984 thru April 1, 1984.	48	162°F	8%
	48	73°F	Immersed in water
	8	-65°F	Approximately 98%
	64	100°F	Approximately 98%
Cycle #3 April 2, 1984 thru April 8, 1984.	48	164°F	8%
	48	73°F	Immersed in water
	8	-65°F	Approximately 98%
	64	100°F	Approximately 98%

VII. Conditioning:

The ASTM-D1183 specifications was written primarily for testing wood products where the moisture content is important relative to structural strength. The ZAGROS Panel consists of expanded polystyrene and galvanized metal, therefore conditioning is not as an important factor. After completion of the exposure tests the ZAGROS panels were conditioned for 24 hours for dimensional stability only.

VIII. Stength Tests: (Axial Load)

1. Three (3) panels tested per ASTM E-72, Section 9, without exposure test resulted in the following axial loads without failure:

#1 14,500 #
#2 14,300 #
#3 14,500 #

For an average of 14,433 #

IX. Calculations:

The average strength value determined in accordance with the designated method of test and used to calculate the change in strenth is as follows:

R= [(y-x) /x] x100

Where:

R=percentage change in strength as a result of exposure to the test conditions

X=initial strength

Y=strength after exposure to the test conditions

R=[(14,367-14, 433)/14,433] x100

R=66/14,433 x 100

R= -.00457 x 100

R= -.457% Strength Loss

X. Strength Tests: (Transverse Load)

1. The three (3) panels tested in the axial load test were then tested per ASTM Section 11, without the exposure test resulted in the following transverse loads without failure:

		Deflection
#1	33.5 PSF	.564"
#2	31.2 PSF	.496"
#3	32.8 PSF	.536"

For an average of 32.5 PSF

2. The three (3) panels tested after completion of the exposure test resulted in the following transverse loads without failure:

		Deflection
#1	31.0 PSF	.494"
#2	31.8 PSF	.496"
#3	32.8 PSF	.542"

For an average of 31.87 PSF

NOTE: On panels #2 and #3, the load was increased to 60 PSF without failure. The deflection was 1.5" on #2 and 1.4" on #3.

XI. Calculations:

The average strength value determined in accordance with the designated method of test and used to calculate the change in strength is as follows:

$$R = \boxed{(Y-X)/X} \text{ X100}$$

where:

R = percentage change in strength as a result of exposure to the test conditions

X = initial strength

Y = strength after exposure to the test conditions

$$R = \boxed{31.87 - 32.5/32.5} \text{ X100}$$

$$R = -.63/32.5 \times 100$$

$$R = -.0194 \times 100$$

$$R = -1.94\% \text{ strength loss}$$

XII. Conclusion:

None of the panels delaminated during the exposure tests nor during the strength tests. There was no change in appearance of the test panels.