

THE CONSULTING ENGINEERS GROUP INC.

1701 E. Lake Avenue, Glenview, IL 60025 (312) 729-0646
8918 Tesoro Drive, San Antonio, TX 78217 (512) 828-0312
825 Imperial Way, Napa, CA 94559 (707) 252-9544

Fire Endurance of
Sandwich Panels
Insteel Industries

SHEET NUMBER

1

JOB NUMBER

9027

MADE BY

AHA

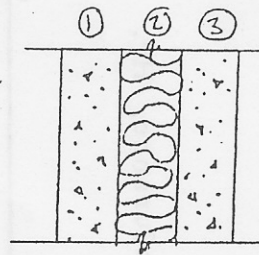
DATE

June 15, '84

CHECKED BY

Because $\frac{3}{8}$ -in. maximum size aggregate is used in 3-D panels, the fire endurances are about 10% longer for the individual wythes than if they were made with $\frac{3}{4}$ -in. or 1-in. aggregate. To be conservative, use an 8% increase:

$$R = (R_1^{0.59} + R_2^{0.59} + R_3^{0.59})^{1.7}$$



For $1\frac{1}{2}$ " wythes of carbonate aggregate concrete:

$$R_1^{0.59} = R_3^{0.59} = [1.08(5.5)^{1.7}]^{0.59} = 5.8$$

$R_2^{0.59}$ for 1" or more of expanded polystyrene = 2.5

$$R = (5.8 + 2.5 + 5.8)^{1.7} = 89 \text{ minutes} = \underline{1 \text{ hr } 29 \text{ min}}$$

For $1\frac{3}{4}$ " wythes:

$$R_1^{0.59} = R_3^{0.59} = [1.08(6.2)^{1.7}]^{0.59} = 6.5$$

$$R = (6.5 + 2.5 + 6.5)^{1.7} = 105 \text{ min} = \underline{1 \text{ hr } 45 \text{ min}}$$

For 2" wythes:

$$R_1^{0.59} = R_3^{0.59} = [1.08(7.1)^{1.7}]^{0.59} = 7.5$$

$$R = (7.5 + 2.5 + 7.5)^{1.7} = 129 \text{ min} = \underline{2 \text{ hr } 09 \text{ min}}$$



Armand H. Gustafiero