

TABLE 1—ALLOWABLE DIAPHRAGM VALUES (*q*) AND FLEXIBILITY FACTOR (*F*) FOR ZONOLITE® INSULPERM® ROOF DECKS ON HIGH-STRENGTH STEEL DECK

NOMINAL GAGE	THICKNESS (inch)	DEPTH (inches)	WELD ¹ PATTERN	FLANGE OR WEB SLOTS ²	MAXIMUM SPAN (feet)	<i>q</i> (plf)	<i>F</i>
24	0.0239 ≤ <i>t</i>	1 ⁵ / ₁₆	3-3	No	8	570	4.5
		1 ⁵ / ₁₆	2-2	No	8	410	4.5
		1 ⁵ / ₁₆	2-2	Yes	8	410	13.5
26	0.0239	1 ⁵ / ₁₆	3-3	No	8	570	9.0
		1 ⁵ / ₁₆	2-2	No	8	250	9.0
		1 ⁵ / ₁₆	2-2	Yes	8	250	13.5
16 18 20 22 24 26	0.0598 0.0478 0.0359 0.0299 0.0239 0.0179 0.0179 ≤ <i>t</i> 0.0179 < <i>t</i> < 0.239 0.0239 ≤ <i>t</i>	—	—	Yes	8	1,130	4.5
		1 ⁵ / ₁₆	3-3	Yes	8	960	4.5
		1 ⁵ / ₁₆	3-3	Yes	8	790	4.5
		1 ⁵ / ₁₆	3-3	Yes	8	730	4.5
		1 ⁵ / ₁₆	3-3	Yes	8	660	4.5
		1 ⁵ / ₁₆	3-3	Yes	8	570	4.5
		7/ ₈	3-3	Yes	4	820	4.5
		7/ ₈	2-2	Yes	4	250	13.5
		7/ ₈	2-2	Yes	4	410	13.5

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 plf = 14.6 N/m.

¹Weld patterns are identified by two numbers, the first referring to end support framing locations and the second to interior support framing locations (See Section 2.2.6).

²Flange or web slots must be minimum 1 percent nominal open area.

TABLE 2—DIAPHRAGM FLEXIBILITY LIMITATION^{1,2,3}

FLEXIBILITY CATEGORY	<i>F</i>	MAXIMUM SPAN IN FEET FOR MASONRY OR CONCRETE WALLS	SPAN-DEPTH LIMITATION			
			Rotation Not Considered in Diaphragm		Rotation Considered in Diaphragm	
			Masonry or Concrete Walls	Flexible Walls ⁴	Masonry or Concrete Walls	Flexible Walls ⁴
Semiflexible	10-70	400	2 ¹ / ₂ :1 or as required for deflection	4:1	As required for deflection	2 ¹ / ₂ :1
Semirigid	1-10	No limitation	3:1 or as required for deflection	5:1	As required for deflection	3:1

For SI: 1 foot = 304.8 mm, 1 lbf/foot = 14.6 N/m.

¹Roof diaphragms are to be investigated regarding their flexibility and recommended span-depth limitations. Refer to above tables for determination of value of *F*.

²Roof diaphragms supporting masonry or concrete walls are to have their deflections limited to the following amount:

$$\Delta_{wall} = \frac{H^2 f_c}{0.01Et}$$

where:

H = Unsupported height of wall, in feet.

t = Thickness of wall, in inches.

E = Modulus of elasticity of wall material for deflection determination, in pounds per square inch.

f_c = Allowable compressive strength of wall material in flexure, in pounds per square inch. For concrete, *f_c* = 0.45*f'_c*. For masonry, *f_c* = *F_b* = 0.33*f'_m*.

³The total deflection, Δ , of the diaphragm may be computed from the equation:

$$\Delta = \Delta f + \Delta w$$

where:

Δf = Flexural deflection of the diaphragm determined in the same manner as the deflection of beams.

Δw = The web deflection may be determined by the equation:

$$\Delta w = \frac{q_{avg} L_1 F}{10^6}$$

where:

L₁ = Distance in feet between vertical resisting element (such as shear wall) and the point to which the deflection is to be determined.

q_{avg} = Average shear in diaphragm in pounds per foot over length *L₁*.

F = Flexibility factor: The average microinches a diaphragm web will deflect in a span of 1 foot under a shear of 1 pound per foot. To determine actual diaphragm deflection in inches, multiply *F* by the length of the diaphragm in feet and by the lateral load in pounds per foot of diaphragm acting normal to the direction of the span considered and divide by 1,000,000.

⁴When applying these limitations to cantilevered diaphragms, the allowable span-depth ratio will be half that shown.

TABLE 3—MAXIMUM SPANS FOR ZONOLITE FIRE-RESISTIVE ASSEMBLIES

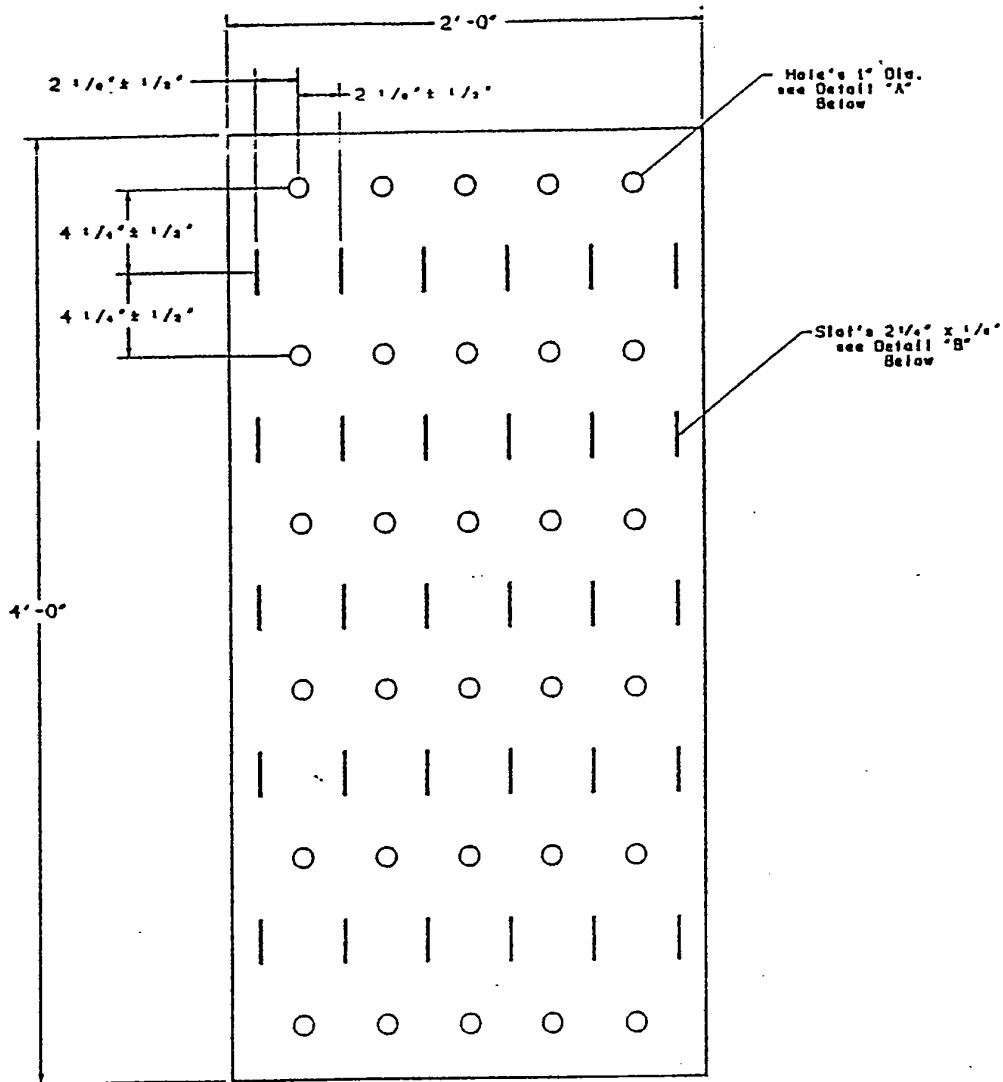
DECK DEPTH (inches)	MINIMUM GAGE	MAXIMUM CLEAR SPAN (feet-inches)
7/ ₈ , 1 ⁵ / ₁₆ , 1 ¹ / ₂ , 2, 3	26	6-0
7/ ₈ , 1 ⁵ / ₁₆ , 1 ¹ / ₂ , 2, 3	24	7-8- ³ / ₈ ¹
1 ¹ / ₂ , 2, 3	22	9-8- ³ / ₈ ²

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

¹Span may be increased to 8 feet 0 inch if assembly is restrained.

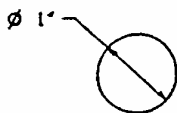
²Span may be increased to 10 feet 0 inch if assembly is restrained and three continuous spans are in place. Loading is based on noncomposite conditions considering allowable steel stresses and deflections using steel properties only.

FIGURE 1



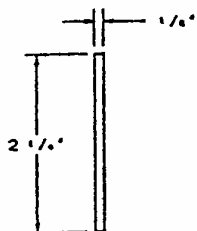
PLAN VIEW

Tolerances: Pos. Dimensions Equal to or Greater than 1 Inch, Tolerance Shall Be $\pm 1/8$ "



DETAIL VIEW "A" HOLE

Scale: Half Size



DETAIL VIEW "B" HOLE

Scale: Half Size

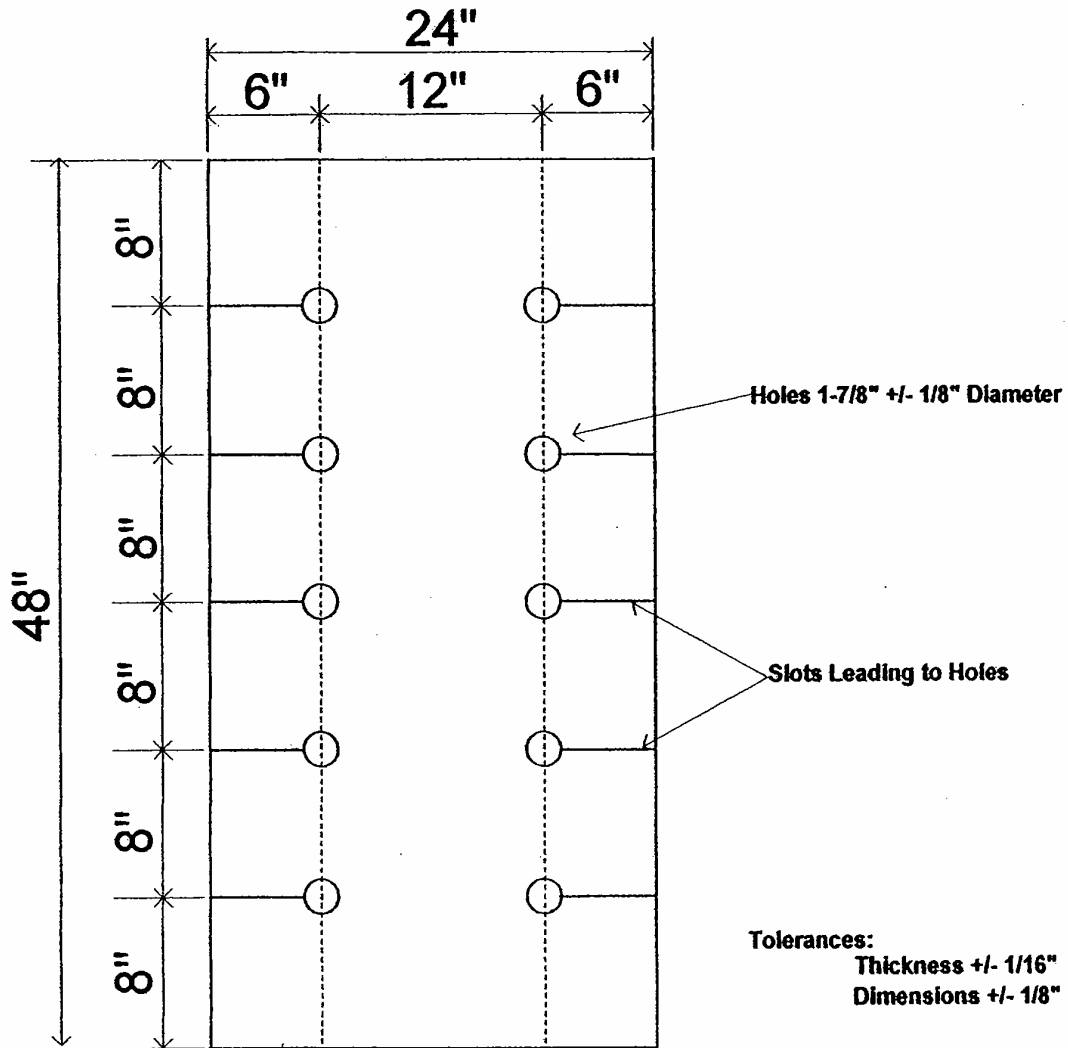
SIPLAST, INC.	DWG. NO. IP-1
EXPANDED POLYSTYRENE FOAM PLASTIC INSULATION BOARD (INSULPERM)	
Redrawn 01-06-93	

SIPLAST PRODUCT FORMULATION AND FINISH PRODUCT SPECIFICATION

Product: Insulperm Insulation Board (IP-1)

May 17, 1999

FIGURE 2



Tolerances:
Thickness +/- 1/16"
Dimensions +/- 1/8"

Insulperm IP-3 Design
Expanded Polystyrene Insulation

Siplast, Inc.
1000 E. Rochelle Blvd.
Irving, TX 75039

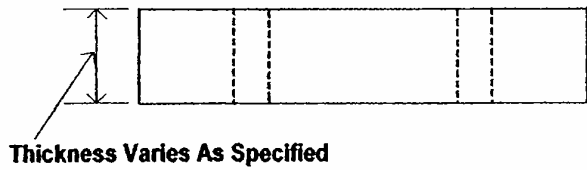
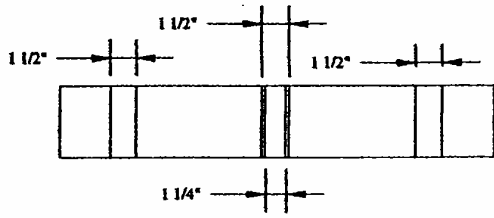
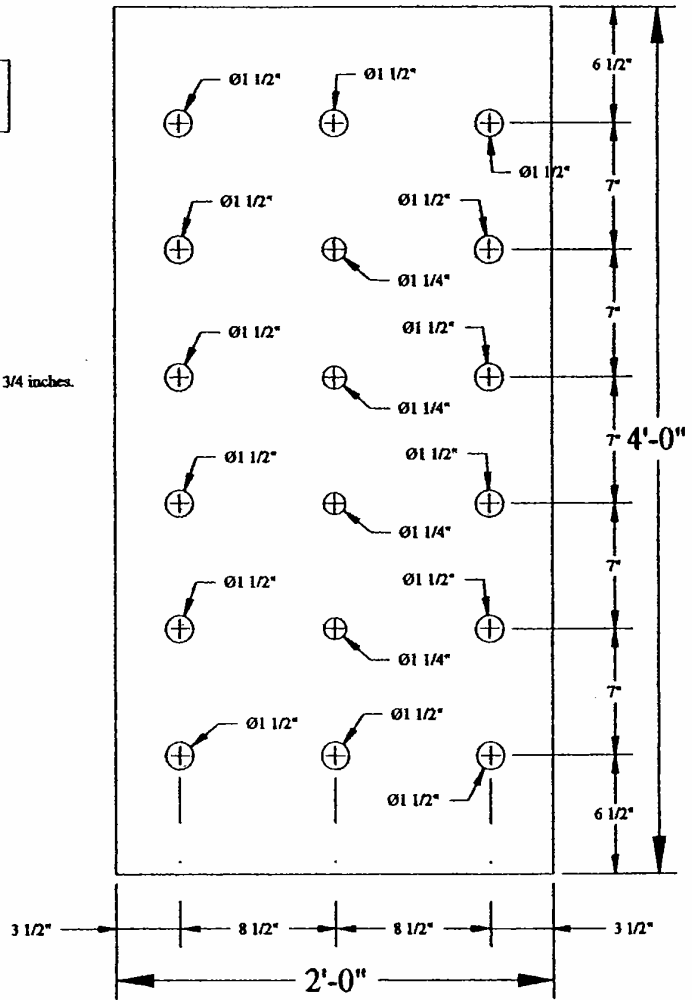


FIGURE 3



Cross Section View
(Panel Thickness Varies)

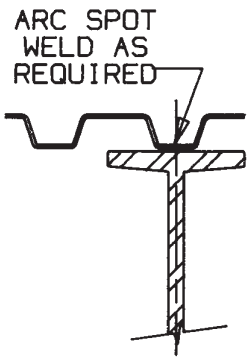
- Notes: 1. Hole Tolerance is +/- 1/16".
2. Through holes in board have a location tolerance of +/- 3/4 inches.



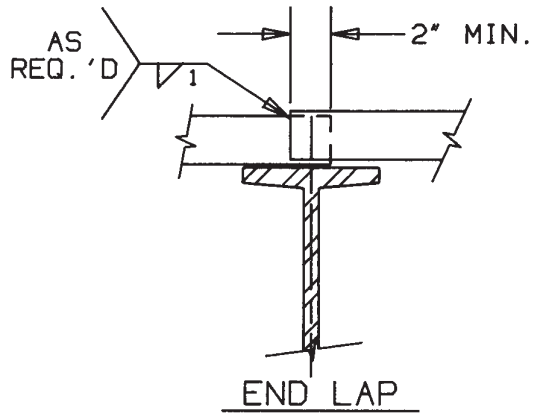
Insulperm IP-5

Siplast, Inc.

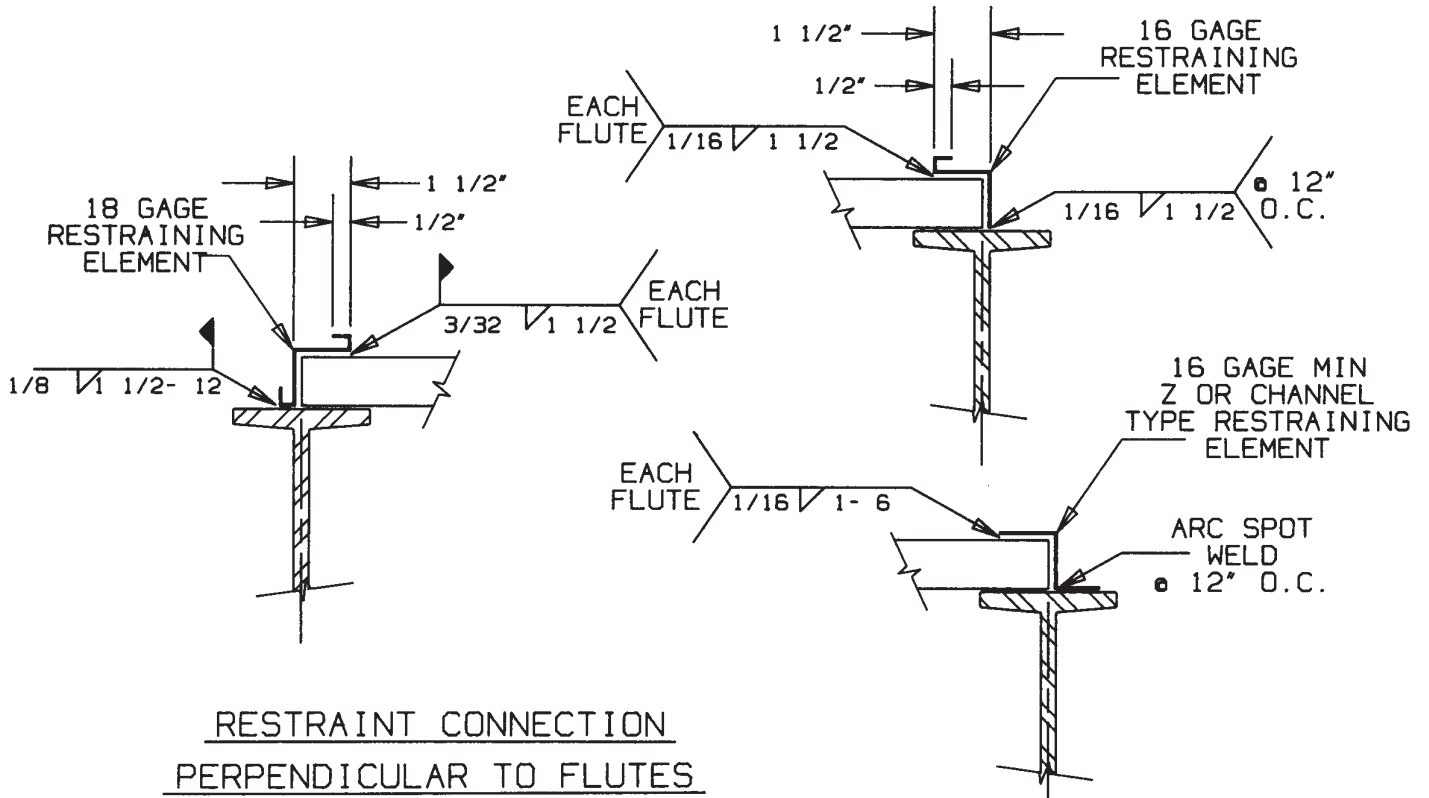
1000 East Rochelle Blvd.
Irving, TX 75062
August 14, 2001



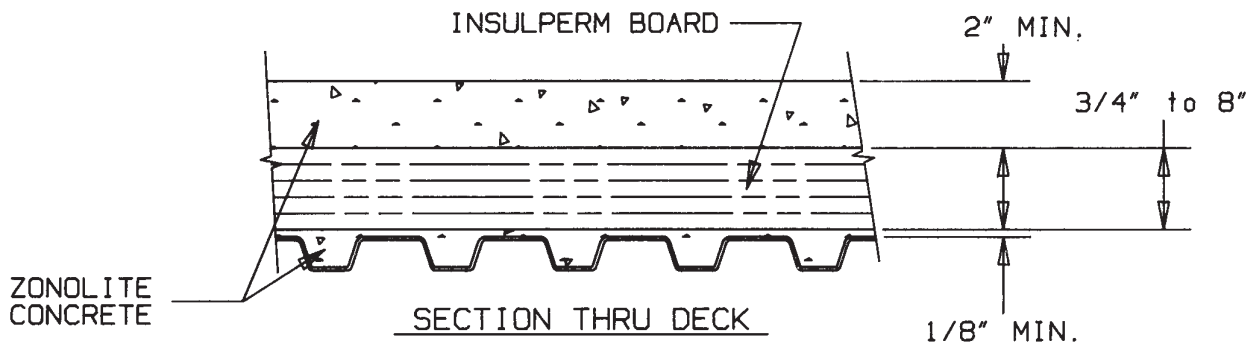
ATTACHMENT
PARALLEL TO FLUTES



END LAP



RESTRAINT CONNECTION
PERPENDICULAR TO FLUTES



SECTION THRU DECK

For SI: 1 inch = 25.4 mm.

FIGURE 3—RESTRAINED "B" DECK AND INSULPERM® DETAILS