

## 6. Steel Roof Decks

Insulated steel roof decks may contain combustible insulations, sometimes adhesives or a vapor/air retarder and always a roof cover, applied over a steel deck. (Aluminum deck installations are not applicable.) If these combustibles are not carefully selected based on their maximum heat release rate, a self-propagating fire may result on the underside of the roof deck due to the evolution of combustible vapors. FM Approved assemblies have shown that they produce heat release rates within acceptable limits when each component is combined with its own compatible adhesive, vapor/air retarder, insulation, and roof cover. The FM Approved assemblies are Class 1 fire rated.

Steel deck strongly influences the ability of the roof construction to resist wind uplift forces by its structural integrity, general physical configuration and method of installation. The listed decks are FM Approved for both Class 1 and Class 2 fire rated insulated steel roof decks. Roofs of this type have been divided into these two designations according to their susceptibility to a self-propagating interior fire independent of the decking.

Steel deck is normally classified by the rib opening as follows: narrow rib deck has a minimum rib opening of 1 in. (25 mm), intermediate rib 1.75 in. (45 mm) and wide rib 2.5 in. (65 mm), measured along the top surface. The top flange surface of the deck must be flat.

Roof assemblies are continuously subjected to concentrated loads from personnel and equipment during and sometime after construction. Deflection from this type of loading is greater than with a uniformly distributed design load. The minimum acceptable steel thickness must conform to Approval requirements. Side laps securement and attachment to structural supports must be according to FM Approved means.

Unless otherwise classified, these assemblies conform to minimum Windstorm Classification 1-90 corresponding to Class 1-60, 1-75 and 1-90. (FM Global Property Loss Prevention Data Sheet 1-28). For installation guidelines at the roof perimeter consult FM Global Property Loss Prevention Data Sheet 1-28.

### Consolidated Systems Inc, Box 1756, Columbia SC 29202

Trade Name: Type A

Type: Type A Narrow Rib

Thickness: 18, 20 or 22 ga. (0.0474, 0.0358, 0.0295 in. [1.2, 0.91, 0.75 mm])

Depth: 1.5 in. (40 mm)

Max Spans: 4 ft 10 in. (1.5 m) for 22 ga. (0.0295 in. [0.75 mm])

5 ft 3 in. (2.0 m) for 20 ga. (0.0358 in. [0.91 mm])

6 ft 0 in. (2.3 m) for 18 ga. (0.0474 in. [1.20 mm])

Trade Name: Type F

Type: Type F Intermediate Rib

Thickness: 16, 18, 20 or 22 ga. (0.0598, 0.0474, 0.0358, 0.0298 in. [1.52, 1.2, 0.91, 0.76 mm])

Depth: 1.5 in. (40 mm)

Max Spans: 5 ft 3 in. (1.6 m) for 22 ga. (0.0295 in. [0.75 mm])

6 ft 0 in. (1.8 m) for 20 ga. (0.0358 in. [0.91 mm])

7 ft 2 in. (2.2 m) for 18 ga. (0.0474 in. [1.20 mm])

8 ft 2 in. (2.5 m) for 16 ga. (0.0598 in. [1.52 mm])

Trade Name: Type B, BI

Type: Type B Wide Rib

Thickness: 16, 18, 20 or 22 ga. (0.0598, 0.0474, 0.0358, 0.0298 in. [1.52, 1.2, 0.91, 0.76 mm])

Depth: 1.5 in. (40 mm)

Max Spans: 6 ft 3 in. (1.9 m) for 22 ga. (0.0295 in. [0.75 mm])

7 ft 1 in. (2.2 m) for 20 ga. (0.0358 in. [0.91 mm])

8 ft 4 in. (2.3 m) for 18 ga. (0.0474 in. [1.20 mm])

9 ft 4 in. (2.8 m) for 16 ga. (0.0598 in. [1.52 mm])

Trade Name: Versa-Dek

Thickness: 16, 18, 20 or 22 ga. (0.0598, 0.0474, 0.0358, 0.0295 in. [1.5, 1.2, 0.91, 0.75 mm])

Depth: 2 in. (50 mm)

Max Spans: 8 ft 3 in. (2.5 m) for 22 ga. (0.0295 in. [0.75 mm])

9 ft 4 in. (2.8 m) for 20 ga. (0.0358 in. [0.91 mm])

10 ft 10 in. (3.3 m) for 18 ga. (0.0474 in. [1.20 mm])

12 ft 3 in. (3.7 m) for 16 ga. (0.0598 in. [1.50 mm])

Trade Name: Versa-Dek Acoustical

Thickness: 16, 18, 20 or 22 ga. (0.0598, 0.0474, 0.0358, 0.0295 in. [1.5, 1.2, 0.91, 0.75 mm])

Depth: 2 in. (50 mm)

Max Spans: 8 ft 3 in. (2.5 m) for 22 ga. (0.0295 in. [0.75 mm])

9 ft 2 in. (2.8 m) for 20 ga. (0.0358 in. [0.91 mm])

10 ft 7 in. (3.2 m) for 18 ga. (0.0474 in. [1.20 mm])

11 ft 11 in. (3.6 m) for 16 ga. (0.0598 in. [1.50 mm])

Trade Name: Versa-Dek® 3.5LS Standard

Thickness: 16, 18, 20 (0.0598, 0.0474, 0.0358, [1.52, 1.20, 0.91 mm])

Depth: 3.5 in. (89 mm)

Max Spans: 16 ft 6 in. (5.0 m) for 20 ga. (0.0358 in. [0.91 mm])

21 ft 0 in. (6.4 m) for 18 ga. (0.0474 in. [1.20 mm])

23 ft 0 in. (7.0 m) for 16 ga. (0.0598 in. [1.52 mm])

Trade Name: Versa-Dek® 3.5LS Acoustical  
Thickness: 16, 18, 20 (0.0598, 0.0474, 0.0358 in. [1.52, 1.20, 0.91 mm])  
Depth: 3.5 in. (89 mm)  
Max Spans: 15 ft 8 in. (4.8 m) for 20 ga. (0.0358 in. [0.91 mm])  
19 ft 11 in. (6.0 m) for 18 ga. (0.0474 in. [1.20 mm])  
21 ft 10 in. (6.7 m) for 16 ga. (0.0598 in. [1.52 mm])

Trade Name: N-Deck and N-Deck Interlocking  
Thickness: 16, 18, 20, 22 (0.0598, 0.0474, 0.0358, 0.0295 [1.52, 1.20, 0.91, 0.75 mm])  
Depth: 3 in. (76 mm)  
Max Spans: 10 ft 5 in. (3.2 m) for 22 ga. (0.0295 in. [0.75 mm])  
11 ft 9 in. (3.6 m) for 20 ga. (0.0358 in. [0.91 mm])  
14 ft 2 in. (4.3 m) for 18 ga. (0.0474 in. [1.20 mm])  
16 ft 5 in. (5.0 m) for 16 ga. (0.0598 in. [1.52 mm])

Trade Name: N-Dek Cellular and N-Dek Interlocking Cellular  
Thickness: 16, 18, 20 (0.0598, 0.0474, 0.0358 [1.52, 1.20, 0.91 mm])  
Depth: 3 in. (76 mm)  
Max Spans: 11 ft 9 in. (3.6 m) for 20 ga. (0.0358 in. [0.91 mm])  
14 ft 2 in. (4.3 m) for 18 ga. (0.0474 in. [1.20 mm])  
16 ft 5 in. (5.0 m) for 16 ga. (0.0598 in. [1.52 mm])

Deck/Panel Gauge: 16 ga. (0.0598 in. [1.52 mm])/16 ga. (0.0598 in. [1.52 mm])  
18 ga. (0.0474 in. [1.20 mm])/16 ga. (0.0598 in. [1.52 mm])  
18 ga. (0.0474 in. [1.20 mm])/18 ga. (0.0474 in. [1.20 mm])  
18 ga. (0.0474 in. [1.20 mm])/20 ga. (0.0358 in. [0.91 mm])  
20 ga. (0.0358 in. [0.91 mm])/18 ga. (0.0474 in. [1.20 mm])  
20 ga. (0.0358 in. [0.91 mm])/20 ga. (0.0358 in. [0.91 mm])

Trade Name: N-Deck Acoustical and N-Deck Interlocking Acoustical  
Thickness: 16, 18, 20, 22 (0.0598, 0.0474, 0.0358, 0.0295 in. [1.52, 1.20, 0.91, 0.75 mm])  
Depth: 3 in. (76 mm)  
Max Spans: 10 ft 2 in. (3.0 m) for 22 ga. (0.0295 in. [0.75 mm])  
11 ft 6 in. (3.5 m) for 20 ga. (0.0358 in. [0.91 mm])  
13 ft 9 in. (4.2 m) for 18 ga. (0.0474 in. [1.20 mm])  
16 ft 0 in. (4.9 m) for 16 ga. (0.0598 in. [1.52 mm])

Trade Name: N-Dek Cellular Acoustical, N-Dek Interlocking Cellular Acoustical  
Thickness: 16, 18, 20 (0.0598, 0.0474, 0.0358 [1.52, 1.20, 0.91 mm])  
Depth: 3 in. (76 mm)  
Max Spans: 11 ft 6 in. (3.5 m) for 20 ga. (0.0358 in. [0.91 mm])  
13 ft 9 in. (4.2 m) for 18 ga. (0.0474 in. [1.20 mm])  
16 ft 0 in. (4.9 m) for 16 ga. (0.0598 in. [1.52 mm])

Deck/Panel Gauge: 16 ga. (0.0598 in. [1.52 mm])/16 ga. (0.0598 in. [1.52 mm])  
18 ga. (0.0474 in. [1.20 mm])/16 ga. (0.0598 in. [1.52 mm])  
18 ga. (0.0474 in. [1.20 mm])/18 ga. (0.0474 in. [1.20 mm])  
18 ga. (0.0474 in. [1.20 mm])/20 ga. (0.0358 in. [0.91 mm])  
20 ga. (0.0358 in. [0.91 mm])/18 ga. (0.0474 in. [1.20 mm])  
20 ga. (0.0358 in. [0.91 mm])/20 ga. (0.0358 in. [0.91 mm])  
Insulation: 2 in. (51 mm) x 5.25 in. (133 mm) Acoustical insulation batts, 3 pcf (48 kcm)