

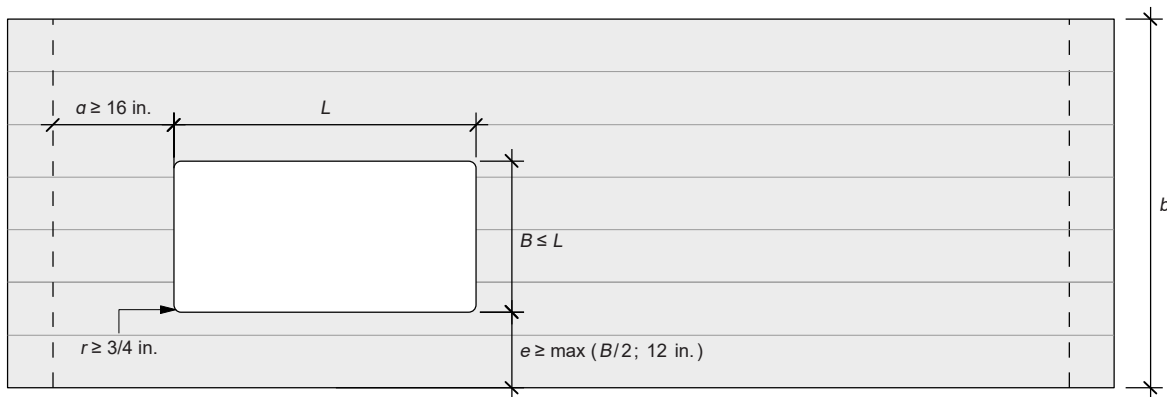
Openings in Nordic X-Lam Floor Slabs

This technical note provides guidelines for the design of openings in Nordic X-Lam floor slabs.

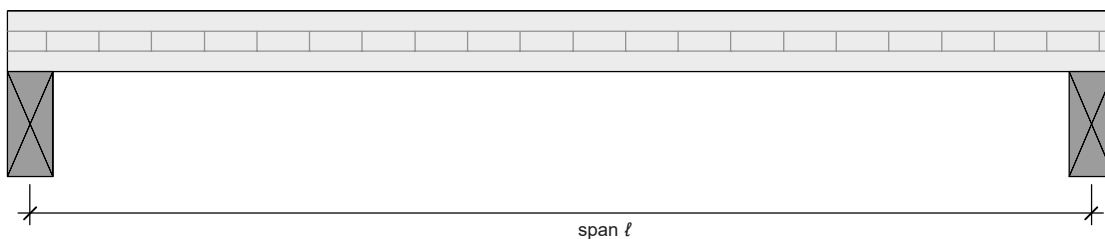
This technical note is only applicable if the following conditions are met:

- Simple or multiple span slab
- Bending in major strength direction
- Uniformly distributed loads only
- Deflection limit of $L/360$ under live load and $L/240$ under total load
- Maximum one opening per span

The openings shall conform to the following geometries. If these requirements cannot be met, an engineering analysis must be carried out and a reinforcement may be required. If applicable, the transmission of diaphragm lateral forces and fire-resistance requirements must be verified by a qualified engineer.



Plan view



Elevation view

Notes:

1. Opening size: The opening should conform to the following dimensions, with corners rounded to $r \geq 3/4$ in.
 - Length (L): The maximum opening length, in the longitudinal direction of the panel, is given in the following table.
 - Width (B): The opening width, in the transverse direction of the panel, should be less than or equal to the opening length.
2. Distance from support (a): The minimal distance between the edge of the opening and the nearest inside face of support is 16 in.
3. Edge distance (e): The minimal distance between the edge of the opening and the nearest edge of the panel is $1/2$ the opening width, B , or 12 in., whichever is larger.
4. Circular opening: The opening can be circular if it fits inside a square meeting the above requirements.
5. Group of openings: A group of small openings located nearby may be considered as a single large opening whose dimensions are the overall length and width of the group.

Live load = 40 psf

Maximum opening length, L (ft) ^(c)

Dead load ^(a) (psf)	Layup combination	Span, ℓ (ft) ^(b)															
		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
20	89-3s	2'-1"	1'-10"	1'-0"	0'-6"	-	-	-	-	-	-	-	-	-	-	-	
	105-3s	4'-5"	4'-5"	3'-10"	1'-2"	1'-2"	0'-6"	-	-	-	-	-	-	-	-	-	
	143-5s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-6"	1'-6"	1'-5"	0'-6"	-	-	-	-	-	
	175-5s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-6"	1'-8"	1'-9"	0'-11"	-	-	
	197-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-9"	1'-10"	2'-0"	1'-9"	0'-6"
	213-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-3"	4'-2"	2'-0"	2'-1"	2'-1"
	244-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	2'-0"	2'-1"	2'-1"
	244-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	2'-1"
	267-9l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"
40	89-3s	1'-9"	0'-10"	0'-6"	-	-	-	-	-	-	-	-	-	-	-	-	
	105-3s	4'-5"	1'-11"	1'-0"	0'-10"	-	-	-	-	-	-	-	-	-	-	-	
	143-5s	4'-5"	4'-5"	4'-5"	4'-5"	1'-11"	1'-3"	1'-3"	0'-6"	-	-	-	-	-	-	-	
	175-5s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-9"	1'-6"	1'-6"	1'-0"	-	-	-	-	-	
	197-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-9"	1'-8"	1'-9"	1'-6"	0'-6"	-	-	
	213-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-3"	4'-0"	1'-10"	1'-10"	2'-0"	2'-1"	1'-2"	
	244-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-10"	2'-0"	2'-1"	1'-9"
	244-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	2'-0"	2'-1"	2'-1"
	267-9l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	2'-1"
60	89-3s	0'-11"	0'-6"	-	-	-	-	-	-	-	-	-	-	-	-	-	
	105-3s	4'-5"	1'-0"	0'-10"	-	-	-	-	-	-	-	-	-	-	-	-	
	143-5s	4'-5"	4'-5"	4'-5"	1'-11"	1'-2"	1'-3"	0'-6"	-	-	-	-	-	-	-	-	
	175-5s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-8"	1'-3"	1'-6"	0'-6"	-	-	-	-	-	-	
	197-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-6"	1'-6"	1'-8"	0'-11"	-	-	-	-	
	213-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-3"	4'-0"	3'-10"	1'-8"	1'-9"	1'-10"	1'-6"	0'-6"	-	
	244-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-9"	1'-9"	1'-10"	2'-0"	0'-10"	-	
	244-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-10"	2'-0"	2'-1"	1'-11"	
	267-9l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	2'-0"	2'-1"	2'-1"
80	89-3s	0'-9"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	105-3s	1'-5"	0'-10"	-	-	-	-	-	-	-	-	-	-	-	-	-	
	143-5s	4'-5"	4'-5"	4'-5"	1'-3"	1'-2"	0'-6"	-	-	-	-	-	-	-	-	-	
	175-5s	4'-5"	4'-5"	4'-5"	4'-5"	1'-9"	1'-3"	1'-3"	0'-6"	-	-	-	-	-	-	-	
	197-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-8"	1'-6"	1'-6"	0'-8"	-	-	-	-	-	
	213-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-3"	3'-10"	3'-7"	1'-6"	1'-8"	1'-9"	1'-2"	-	-	-	
	244-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-9"	1'-8"	1'-9"	1'-9"	0'-6"	-	-	
	244-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-11"	1'-9"	1'-10"	1'-9"	1'-5"	-	
	267-9l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-10"	2'-0"	1'-10"	1'-8"	
100	89-3s	0'-6"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	105-3s	0'-10"	0'-6"	-	-	-	-	-	-	-	-	-	-	-	-	-	
	143-5s	4'-5"	4'-5"	1'-6"	1'-0"	0'-7"	-	-	-	-	-	-	-	-	-	-	
	175-5s	4'-5"	4'-5"	4'-5"	4'-5"	1'-2"	1'-3"	0'-7"	-	-	-	-	-	-	-	-	
	197-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-10"	1'-3"	1'-6"	0'-9"	-	-	-	-	-	-	
	213-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-3"	3'-10"	3'-7"	1'-8"	1'-6"	1'-6"	1'-0"	-	-	-	-	
	244-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-10"	1'-6"	1'-8"	1'-8"	0'-6"	-	-	-	
	244-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-11"	1'-8"	1'-8"	1'-6"	1'-2"	-	-	
	267-9l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-10"	1'-9"	1'-6"	1'-5"	1'-3"

a) The panel self weight is considered in the calculation and shall not be included in the dead load.

b) Span is measured centre to centre of supports.

c) The values take into account the bending moment and shear capacities as well as the deflection limits specified on page 1.

Live load = 50 psf

Maximum opening length, L (ft) ^(c)

Dead load ^(a) (psf)	Layup combination	Span, ℓ (ft) ^(b)															
		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
20	89-3s	1'-11"	1'-6"	1'-0"	0'-6"	-	-	-	-	-	-	-	-	-	-	-	
	105-3s	4'-5"	4'-3"	1'-9"	1'-0"	0'-10"	-	-	-	-	-	-	-	-	-	-	
	143-5s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-11"	1'-3"	1'-6"	0'-10"	-	-	-	-	-	-	
	175-5s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-10"	1'-6"	1'-8"	1'-6"	0'-6"	-	-	
	197-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-11"	1'-9"	1'-10"	2'-0"	1'-0"	
	213-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-3"	4'-0"	3'-10"	2'-0"	2'-1"	2'-1"
	244-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	2'-0"	2'-1"	2'-1"
	244-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	2'-1"
	267-9l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"
40	89-3s	1'-6"	0'-10"	-	-	-	-	-	-	-	-	-	-	-	-	-	
	105-3s	4'-5"	1'-8"	1'-0"	0'-6"	-	-	-	-	-	-	-	-	-	-	-	
	143-5s	4'-5"	4'-5"	4'-5"	4'-5"	1'-8"	1'-3"	1'-3"	-	-	-	-	-	-	-	-	
	175-5s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-6"	1'-6"	1'-6"	0'-6"	-	-	-	-	-	
	197-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-6"	1'-8"	1'-9"	1'-0"	-	-	-	
	213-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-3"	4'-0"	3'-10"	1'-9"	1'-10"	2'-0"	1'-10"	0'-6"
	244-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-10"	1'-10"	2'-0"	2'-1"	1'-2"
	244-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	2'-0"	2'-1"	2'-1"
	267-9l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	2'-1"
60	89-3s	0'-9"	0'-6"	-	-	-	-	-	-	-	-	-	-	-	-	-	
	105-3s	1'-11"	0'-11"	0'-6"	-	-	-	-	-	-	-	-	-	-	-	-	
	143-5s	4'-5"	4'-5"	4'-5"	1'-9"	1'-2"	1'-0"	-	-	-	-	-	-	-	-	-	
	175-5s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-6"	1'-3"	1'-3"	0'-6"	-	-	-	-	-	-	
	197-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-6"	1'-6"	1'-8"	0'-6"	-	-	-	-	
	213-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-2"	3'-10"	3'-7"	1'-8"	1'-9"	1'-10"	1'-0"	-	-	
	244-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-8"	1'-9"	1'-10"	1'-8"	0'-6"	-	
	244-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-10"	1'-10"	2'-0"	1'-10"	1'-5"	
	267-9l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	2'-0"	2'-1"	1'-11"
80	89-3s	0'-7"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	105-3s	1'-3"	0'-10"	-	-	-	-	-	-	-	-	-	-	-	-	-	
	143-5s	4'-5"	4'-5"	4'-5"	1'-0"	1'-2"	-	-	-	-	-	-	-	-	-	-	
	175-5s	4'-5"	4'-5"	4'-5"	4'-5"	1'-6"	1'-3"	1'-3"	0'-6"	-	-	-	-	-	-	-	
	197-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-6"	1'-6"	1'-6"	0'-6"	-	-	-	-	-	
	213-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-0"	3'-9"	3'-6"	1'-6"	1'-8"	1'-6"	0'-9"	-	-	-	
	244-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-6"	1'-8"	1'-9"	1'-5"	0'-6"	-	-	
	244-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-9"	1'-9"	1'-9"	1'-6"	1'-0"	-	
	267-9l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-10"	1'-9"	1'-6"	1'-5"
100	89-3s	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	105-3s	0'-9"	0'-6"	-	-	-	-	-	-	-	-	-	-	-	-	-	
	143-5s	4'-5"	4'-5"	1'-5"	1'-0"	0'-6"	-	-	-	-	-	-	-	-	-	-	
	175-5s	4'-5"	4'-5"	4'-5"	1'-10"	1'-2"	1'-3"	0'-6"	-	-	-	-	-	-	-	-	
	197-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-8"	1'-3"	1'-5"	0'-6"	-	-	-	-	-	-	
	213-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-2"	3'-9"	3'-4"	1'-6"	1'-6"	1'-3"	0'-9"	-	-	-	-	
	244-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-8"	1'-6"	1'-8"	1'-3"	-	-	-	-	
	244-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-10"	1'-8"	1'-6"	1'-3"	0'-10"	-	-	
	267-9l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-11"	1'-9"	1'-6"	1'-3"	1'-2"	0'-11"	

a) The panel self weight is considered in the calculation and shall not be included in the dead load.

b) Span is measured centre to centre of supports.

c) The values take into account the bending moment and shear capacities as well as the deflection limits specified on page 1.

Live load = 80 psf

Maximum opening length, L (ft) ^(c)

Dead load ^(a) (psf)	Layup combination	Span, l (ft) ^(b)														
		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
20	89-3s	1'-6"	0'-10"	0'-6"	-	-	-	-	-	-	-	-	-	-	-	-
	105-3s	4'-5"	1'-11"	1'-0"	0'-10"	-	-	-	-	-	-	-	-	-	-	-
	143-5s	4'-5"	4'-5"	4'-5"	4'-5"	1'-11"	1'-3"	1'-3"	0'-6"	-	-	-	-	-	-	-
	175-5s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-9"	1'-6"	1'-6"	1'-0"	-	-	-	-	-
	197-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-9"	1'-8"	1'-9"	1'-6"	0'-6"	-	-
	213-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-3"	4'-0"	3'-10"	3'-7"	1'-10"	1'-10"	1'-11"	1'-9"	1'-2"
	244-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-10"	2'-0"	2'-1"	1'-9"
	244-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	2'-0"	2'-1"	2'-1"
	267-9l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	2'-1"
40	89-3s	0'-11"	0'-6"	-	-	-	-	-	-	-	-	-	-	-	-	-
	105-3s	3'-6"	1'-0"	0'-10"	-	-	-	-	-	-	-	-	-	-	-	-
	143-5s	4'-5"	4'-5"	4'-5"	1'-11"	1'-2"	1'-3"	0'-6"	-	-	-	-	-	-	-	-
	175-5s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-8"	1'-3"	1'-6"	0'-6"	-	-	-	-	-	-
	197-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-6"	1'-6"	1'-8"	0'-11"	-	-	-	-
	213-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-3"	3'-10"	3'-7"	3'-4"	1'-8"	1'-9"	1'-6"	1'-3"	0'-6"	-
	244-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-9"	1'-9"	1'-10"	1'-9"	0'-10"	-
	244-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-10"	1'-9"	1'-6"	1'-5"
	267-9l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	2'-0"	1'-10"	1'-8"
60	89-3s	0'-9"	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	105-3s	1'-5"	0'-10"	-	-	-	-	-	-	-	-	-	-	-	-	-
	143-5s	4'-5"	4'-5"	4'-5"	1'-3"	1'-2"	0'-6"	-	-	-	-	-	-	-	-	-
	175-5s	4'-5"	4'-5"	4'-5"	4'-5"	1'-9"	1'-3"	1'-3"	0'-6"	-	-	-	-	-	-	-
	197-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-8"	1'-6"	1'-5"	0'-8"	-	-	-	-	-
	213-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-3"	3'-10"	3'-7"	1'-11"	1'-6"	1'-6"	1'-3"	1'-0"	-	-	-
	244-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-9"	1'-8"	1'-8"	1'-6"	0'-6"	-	-
	244-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-11"	1'-8"	1'-6"	1'-3"	1'-2"	-
	267-9l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-11"	1'-9"	1'-6"	1'-5"	1'-3"
80	89-3s	0'-6"	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	105-3s	0'-10"	0'-6"	-	-	-	-	-	-	-	-	-	-	-	-	-
	143-5s	4'-5"	4'-5"	1'-6"	1'-0"	0'-7"	-	-	-	-	-	-	-	-	-	-
	175-5s	4'-5"	4'-5"	4'-5"	4'-5"	1'-2"	1'-3"	0'-7"	-	-	-	-	-	-	-	-
	197-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-9"	1'-3"	1'-3"	0'-9"	-	-	-	-	-	-
	213-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-0"	3'-7"	1'-9"	1'-6"	1'-3"	1'-0"	0'-11"	-	-	-	-
	244-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-10"	1'-6"	1'-6"	1'-3"	0'-6"	-	-	-
	244-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-11"	1'-8"	1'-6"	1'-3"	1'-0"	0'-11"	-	-
	267-9l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-9"	1'-6"	1'-3"	1'-2"	1'-0"	0'-11"
100	89-3s	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	105-3s	0'-9"	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	143-5s	4'-5"	1'-8"	1'-0"	1'-0"	-	-	-	-	-	-	-	-	-	-	-
	175-5s	4'-5"	4'-5"	2'-0"	1'-6"	1'-2"	0'-11"	-	-	-	-	-	-	-	-	-
	197-7s	4'-5"	4'-5"	4'-5"	4'-5"	1'-8"	1'-3"	1'-2"	0'-11"	-	-	-	-	-	-	-
	213-7l	4'-5"	4'-5"	4'-5"	4'-2"	1'-11"	1'-8"	1'-3"	1'-2"	0'-11"	0'-9"	-	-	-	-	-
	244-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-10"	1'-6"	1'-3"	1'-2"	0'-6"	-	-	-	-
	244-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-10"	1'-6"	1'-3"	1'-2"	1'-0"	0'-10"	-	-	-
	267-9l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-10"	1'-6"	1'-3"	1'-2"	1'-0"	0'-10"	0'-9"	-

a) The panel self weight is considered in the calculation and shall not be included in the dead load.

b) Span is measured centre to centre of supports.

c) The values take into account the bending moment and shear capacities as well as the deflection limits specified on page 1.

Live load = 100 psf

Maximum opening length, L (ft) ^(c)

Dead load ^(a) (psf)	Layup combination	Span, l (ft) ^(b)														
		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
20	89-3s	1'-3"	0'-10"	-	-	-	-	-	-	-	-	-	-	-	-	
	105-3s	3'-6"	1'-5"	1'-0"	0'-6"	-	-	-	-	-	-	-	-	-	-	
	143-5s	4'-5"	4'-5"	4'-5"	4'-5"	1'-5"	1'-3"	0'-11"	-	-	-	-	-	-	-	
	175-5s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-3"	1'-6"	1'-3"	-	-	-	-	-	
	197-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-6"	1'-8"	1'-6"	0'-6"	-	-	
	213-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-3"	3'-10"	3'-7"	3'-4"	1'-11"	1'-9"	1'-6"	1'-3"	1'-2"	
	244-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-9"	1'-10"	1'-9"	1'-6"	0'-7"
	244-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-10"	1'-9"	1'-6"	1'-5"
	267-9l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-10"	1'-8"
40	89-3s	0'-9"	-	-	-	-	-	-	-	-	-	-	-	-	-	
	105-3s	1'-9"	0'-10"	0'-6"	-	-	-	-	-	-	-	-	-	-	-	
	143-5s	4'-5"	4'-5"	4'-5"	1'-6"	1'-2"	0'-10"	-	-	-	-	-	-	-	-	
	175-5s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-3"	1'-3"	1'-0"	-	-	-	-	-	-	
	197-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-11"	1'-6"	1'-5"	1'-3"	0'-6"	-	-	-	
	213-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-3"	3'-10"	3'-7"	1'-11"	1'-8"	1'-6"	1'-3"	1'-0"	0'-7"	-	
	244-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-8"	1'-8"	1'-6"	1'-3"	-	
	244-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-11"	1'-8"	1'-6"	1'-3"	1'-2"	0'-11"
	267-9l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-11"	1'-9"	1'-6"	1'-5"	1'-3"
60	89-3s	0'-6"	-	-	-	-	-	-	-	-	-	-	-	-	-	
	105-3s	1'-0"	0'-9"	-	-	-	-	-	-	-	-	-	-	-	-	
	143-5s	4'-5"	4'-5"	1'-8"	1'-0"	1'-0"	-	-	-	-	-	-	-	-	-	
	175-5s	4'-5"	4'-5"	4'-5"	4'-5"	1'-5"	1'-3"	1'-0"	-	-	-	-	-	-	-	
	197-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-9"	1'-3"	1'-3"	1'-0"	0'-6"	-	-	-	-	
	213-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-0"	3'-7"	1'-9"	1'-6"	1'-3"	1'-0"	0'-11"	0'-6"	-	-	
	244-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-11"	1'-6"	1'-6"	1'-3"	1'-0"	-	-	
	244-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-11"	1'-8"	1'-6"	1'-3"	1'-0"	0'-11"	0'-6"	
	267-9l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-9"	1'-6"	1'-3"	1'-2"	1'-0"	0'-11"
80	89-3s	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	105-3s	0'-9"	-	-	-	-	-	-	-	-	-	-	-	-	-	
	143-5s	4'-5"	1'-8"	1'-3"	1'-0"	0'-6"	-	-	-	-	-	-	-	-	-	
	175-5s	4'-5"	4'-5"	2'-0"	1'-6"	1'-2"	1'-0"	0'-6"	-	-	-	-	-	-	-	
	197-7s	4'-5"	4'-5"	4'-5"	4'-5"	1'-8"	1'-5"	1'-2"	0'-11"	0'-6"	-	-	-	-	-	
	213-7l	4'-5"	4'-5"	4'-5"	4'-2"	1'-11"	1'-8"	1'-3"	1'-2"	0'-11"	0'-9"	0'-6"	-	-	-	
	244-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-10"	1'-6"	1'-3"	1'-2"	1'-0"	-	-	-	
	244-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-10"	1'-6"	1'-3"	1'-2"	1'-0"	0'-10"	0'-6"	-	
	267-9l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-10"	1'-6"	1'-3"	1'-2"	1'-0"	0'-10"	0'-9"	0'-7"
100	89-3s	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	105-3s	0'-9"	-	-	-	-	-	-	-	-	-	-	-	-	-	
	143-5s	1'-9"	1'-3"	1'-0"	0'-8"	-	-	-	-	-	-	-	-	-	-	
	175-5s	4'-5"	4'-5"	1'-6"	1'-3"	1'-0"	0'-6"	-	-	-	-	-	-	-	-	
	197-7s	4'-5"	4'-5"	4'-5"	1'-8"	1'-3"	1'-0"	0'-10"	0'-7"	-	-	-	-	-	-	
	213-7l	4'-5"	4'-5"	4'-5"	1'-11"	1'-6"	1'-3"	1'-0"	0'-10"	0'-8"	0'-6"	-	-	-	-	
	244-7s	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-9"	1'-6"	1'-3"	1'-0"	0'-10"	-	-	-	-	
	244-7l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-9"	1'-6"	1'-3"	1'-0"	0'-10"	0'-8"	0'-7"	-	-	
	267-9l	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	4'-5"	1'-9"	1'-6"	1'-3"	1'-0"	0'-11"	0'-9"	0'-7"	0'-6"	

a) The panel self weight is considered in the calculation and shall not be included in the dead load.

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