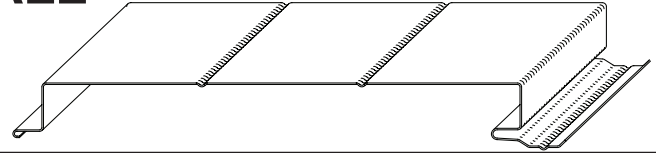


LOAD TABLES
ALUMINUM
ASTM B209
3105-H14
12" COVERAGE

DESIGN WALL DSF120

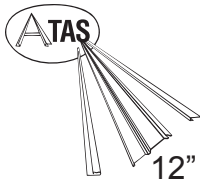


L/180 DEFLECTION CRITERIA .032 FTY=18KSI							L/240 DEFLECTION CRITERIA .032 FTY=18KSI						
POSITIVE BENDING				NEGATIVE BENDING			POSITIVE BENDING				NEGATIVE BENDING		
Yt= 0.3752 in.				Yt= 0.3752 in.			Yt= 0.3752 in.				Yt= 0.3752 in.		
St= 0.5084 cubic in/ft. (bend.)				St= 0.5084 cubic in/ft. (bend.)			St= 0.5084 cubic in/ft. (bend.)				St= 0.5084 cubic in/ft. (bend.)		
Sb= 0.1768 cubic in/ft. (bend.)				Sb= 0.1768 cubic in/ft. (bend.)			Sb= 0.1768 cubic in/ft. (bend.)				Sb= 0.1768 cubic in/ft. (bend.)		
I= 0.1511 in. ⁴ /ft. (defl.)				I= 0.1989 in. ⁴ /ft. (defl.)			I= 0.1511 in. ⁴ /ft. (defl.)				I= 0.1989 in. ⁴ /ft. (defl.)		
LOAD (PSF)	DOWNWARD LOAD			UPWARD LOAD			LOAD (PSF)	DOWNWARD LOAD			UPWARD LOAD		
	SINGLE SPAN	DOUBLE SPAN	THREE SPAN	SINGLE SPAN	DOUBLE SPAN	THREE SPAN		SINGLE SPAN	DOUBLE SPAN	THREE SPAN	SINGLE SPAN	DOUBLE SPAN	THREE SPAN
10	6'- 11"	6'- 8"	7'- 6"	6'- 8"	6'- 11"	7'- 9"	10	6'- 11"	6'- 8"	7'- 6"	6'- 8"	6'- 11"	7'- 9"
15	5'- 8"	5'- 6"	6'- 1"	5'- 6"	5'- 8"	6'- 4"	15	5'- 8"	5'- 6"	6'- 1"	5'- 6"	5'- 8"	6'- 4"
20	4'- 10"	4'- 9"	5'- 3"	4'- 9"	4'- 10"	5'- 5"	20	4'- 10"	4'- 9"	5'- 3"	4'- 9"	4'- 10"	5'- 5"
25	4'- 4"	4'- 3"	4'- 9"	4'- 3"	4'- 4"	4'- 10"	25	4'- 4"	4'- 3"	4'- 9"	4'- 3"	4'- 4"	4'- 10"
30	4'- 0"	3'- 10"	4'- 4"	3'- 10"	4'- 0"	4'- 5"	30	4'- 0"	3'- 10"	4'- 4"	3'- 10"	4'- 0"	4'- 5"
35	3'- 8"	3'- 7"	4'- 0"	3'- 7"	3'- 8"	4'- 1"	35	3'- 8"	3'- 7"	4'- 0"	3'- 7"	3'- 8"	4'- 1"
40	3'- 5"	3'- 4"	3'- 9"	3'- 4"	3'- 5"	3'- 10"	40	3'- 5"	3'- 4"	3'- 9"	3'- 4"	3'- 5"	3'- 10"
45	3'- 3"	3'- 2"	3'- 6"	3'- 2"	3'- 3"	3'- 7"	45	3'- 3"	3'- 2"	3'- 6"	3'- 2"	3'- 3"	3'- 7"
50	3'- 1"	3'- 0"	3'- 4"	3'- 0"	3'- 1"	3'- 5"	50	3'- 1"	3'- 0"	3'- 4"	3'- 0"	3'- 1"	3'- 5"
55	2'- 11"	2'- 10"	3'- 2"	2'- 10"	2'- 11"	3'- 3"	55	2'- 11"	2'- 10"	3'- 2"	2'- 10"	2'- 11"	3'- 3"
60	2'- 10"	2'- 9"	3'- 0"	2'- 9"	2'- 10"	3'- 2"	60	2'- 10"	2'- 9"	3'- 0"	2'- 9"	2'- 10"	3'- 2"
65	2'- 8"	2'- 7"	2'- 11"	2'- 7"	2'- 8"	3'- 0"	65	2'- 8"	2'- 7"	2'- 11"	2'- 7"	2'- 8"	3'- 0"
70	2'- 7"	2'- 6"	2'- 10"	2'- 6"	2'- 7"	2'- 11"	70	2'- 7"	2'- 6"	2'- 10"	2'- 6"	2'- 7"	2'- 11"

L/180 DEFLECTION CRITERIA .040 FTY=18KSI							L/240 DEFLECTION CRITERIA .040 FTY=18KSI						
POSITIVE BENDING				NEGATIVE BENDING			POSITIVE BENDING				NEGATIVE BENDING		
Yt= 0.3752 in.				Yt= 0.3752 in.			Yt= 0.3752 in.				Yt= 0.3752 in.		
St= 0.6291 cubic in/ft. (bend.)				St= 0.6291 cubic in/ft. (bend.)			St= 0.6291 cubic in/ft. (bend.)				St= 0.6291 cubic in/ft. (bend.)		
Sb= 0.2210 cubic in/ft. (bend.)				Sb= 0.2210 cubic in/ft. (bend.)			Sb= 0.2210 cubic in/ft. (bend.)				Sb= 0.2210 cubic in/ft. (bend.)		
I= 0.2000 in. ⁴ /ft. (defl.)				I= 0.2486 in. ⁴ /ft. (defl.)			I= 0.2000 in. ⁴ /ft. (defl.)				I= 0.2486 in. ⁴ /ft. (defl.)		
LOAD (PSF)	DOWNWARD LOAD			UPWARD LOAD			LOAD (PSF)	DOWNWARD LOAD			UPWARD LOAD		
	SINGLE SPAN	DOUBLE SPAN	THREE SPAN	SINGLE SPAN	DOUBLE SPAN	THREE SPAN		SINGLE SPAN	DOUBLE SPAN	THREE SPAN	SINGLE SPAN	DOUBLE SPAN	THREE SPAN
10	8'- 3"	8'- 0"	8'- 11"	8'- 0"	8'- 3"	9'- 3"	40	4'- 1"	4'- 0"	4'- 5"	4'- 0"	4'- 1"	4'- 7"
15	6'- 9"	6'- 6"	7'- 3"	6'- 6"	6'- 9"	7'- 7"	45	3'- 11"	3'- 9"	4'- 2"	3'- 9"	3'- 11"	4'- 4"
20	5'- 10"	5'- 8"	6'- 4"	5'- 8"	5'- 10"	6'- 6"	50	3'- 8"	3'- 7"	4'- 0"	3'- 7"	3'- 8"	4'- 1"
25	5'- 3"	5'- 0"	5'- 8"	5'- 0"	5'- 3"	5'- 10"	55	3'- 6"	3'- 5"	3'- 9"	3'- 5"	3'- 6"	3'- 11"
30	4'- 9"	4'- 7"	5'- 2"	4'- 7"	4'- 9"	5'- 4"	60	3'- 4"	3'- 3"	3'- 7"	3'- 3"	3'- 4"	3'- 9"
35	4'- 5"	4'- 3"	4'- 9"	4'- 3"	4'- 5"	4'- 11"	65	3'- 3"	3'- 1"	3'- 6"	3'- 1"	3'- 3"	3'- 7"
40	4'- 1"	4'- 0"	4'- 5"	4'- 0"	4'- 1"	4'- 7"	70	3'- 1"	3'- 0"	3'- 4"	3'- 0"	3'- 1"	3'- 6"
45	3'- 11"	3'- 9"	4'- 2"	3'- 9"	3'- 11"	4'- 4"	75	3'- 0"	2'- 11"	3'- 3"	2'- 11"	3'- 0"	3'- 4"
50	3'- 8"	3'- 7"	4'- 0"	3'- 7"	3'- 8"	4'- 1"	80	2'- 11"	2'- 10"	3'- 2"	2'- 10"	2'- 11"	3'- 3"
55	3'- 6"	3'- 5"	3'- 9"	3'- 5"	3'- 6"	3'- 11"	85	2'- 10"	2'- 9"	3'- 0"	2'- 9"	2'- 10"	3'- 2"
60	3'- 4"	3'- 3"	3'- 7"	3'- 3"	3'- 4"	3'- 9"	87	2'- 9"	2'- 8"	3'- 0"	2'- 8"	2'- 9"	3'- 1"
65	3'- 3"	3'- 1"	3'- 6"	3'- 1"	3'- 3"	3'- 7"	90	2'- 9"	2'- 8"	2'- 11"	2'- 8"	2'- 9"	3'- 1"
70	3'- 1"	3'- 0"	3'- 4"	3'- 0"	3'- 1"	3'- 6"	95	2'- 8"	2'- 7"	2'- 10"	2'- 7"	2'- 8"	3'- 0"

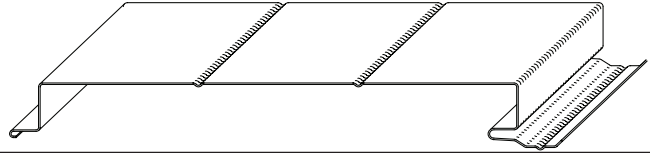
L/180 DEFLECTION CRITERIA .050 FTY=18KSI							L/240 DEFLECTION CRITERIA .050 FTY=18KSI						
POSITIVE BENDING				NEGATIVE BENDING			POSITIVE BENDING				NEGATIVE BENDING		
Yt= 0.3752 in.				Yt= 0.3752 in.			Yt= 0.3752 in.				Yt= 0.3752 in.		
St= 0.7765 cubic in/ft. (bend.)				St= 0.7765 cubic in/ft. (bend.)			St= 0.7765 cubic in/ft. (bend.)				St= 0.7765 cubic in/ft. (bend.)		
Sb= 0.2763 cubic in/ft. (bend.)				Sb= 0.2763 cubic in/ft. (bend.)			Sb= 0.2763 cubic in/ft. (bend.)				Sb= 0.2763 cubic in/ft. (bend.)		
I= 0.2635 in. ⁴ /ft. (defl.)				I= 0.3108 in. ⁴ /ft. (defl.)			I= 0.2635 in. ⁴ /ft. (defl.)				I= 0.3108 in. ⁴ /ft. (defl.)		
LOAD (PSF)	DOWNWARD LOAD			UPWARD LOAD			LOAD (PSF)	DOWNWARD LOAD			UPWARD LOAD		
	SINGLE SPAN	DOUBLE SPAN	THREE SPAN	SINGLE SPAN	DOUBLE SPAN	THREE SPAN		SINGLE SPAN	DOUBLE SPAN	THREE SPAN	SINGLE SPAN	DOUBLE SPAN	THREE SPAN
10	* 9'- 2"	9'- 7"	10'- 8"	9'- 7"	10'- 0"	11'- 2"	10	* 8'- 4"	9'- 7"	* 10'- 4"	* 8'- 10"	10'- 0"	* 10'- 11"
15	* 8'- 0"	7'- 10"	8'- 9"	7'- 10"	8'- 2"	9'- 1"	15	* 7'- 3"	7'- 10"	8'- 9"	* 7'- 8"	8'- 2"	9'- 1"
20	7'- 0"	6'- 9"	7'- 7"	6'- 9"	7'- 0"	7'- 11"	20	* 6'- 7"	6'- 9"	7'- 7"	6'- 9"	7'- 0"	7'- 11"
25	6'- 4"	6'- 0"	6'- 9"	6'- 0"	6'- 4"	7'- 0"	25	* 6'- 1"	6'- 0"	6'- 9"	6'- 0"	6'- 4"	7'- 0"
30	5'- 9"	5'- 6"	6'- 2"	5'- 6"	5'- 9"	6'- 5"	30	5'- 9"	5'- 6"	6'- 2"	5'- 6"	5'- 9"	6'- 5"
35	5'- 4"	5'- 1"	5'- 8"	5'- 1"	5'- 4"	5'- 11"	35	5'- 4"	5'- 1"	5'- 8"	5'- 1"	5'- 4"	5'- 11"
40	5'- 0"	4'- 9"	5'- 4"	4'- 9"	5'- 0"	5'- 7"	40	5'- 0"	4'- 9"	5'- 4"	4'- 9"	5'- 0"	5'- 7"
45	4'- 8"	4'- 6"	5'- 0"	4'- 6"	4'- 8"	5'- 3"	45	4'- 8"	4'- 6"	5'- 0"	4'- 6"	4'- 8"	5'- 3"
50	4'- 5"	4'- 3"	4'- 9"	4'- 3"	4'- 5"	5'- 0"	50	4'- 5"	4'- 3"	4'- 9"	4'- 3"	4'- 5"	5'- 0"
55	4'- 3"	4'- 1"	4'- 6"	4'- 1"	4'- 3"	4'- 9"	55	4'- 3"	4'- 1"	4'- 6"	4'- 1"	4'- 3"	4'- 9"
60	4'- 1"	3'- 11"	4'- 4"	3'- 11"	4'- 1"	4'- 6"	60	4'- 1"	3'- 11"	4'- 4"	4'- 1"	4'- 1"	4'- 6"
65	3'- 11"	3'- 9"	4'- 2"	3'- 9"	3'- 11"	4'- 4"	65	3'- 11"	3'- 9"	4'- 2"	3'- 9"	3'- 11"	4'- 4"
70	3'- 9"	3'- 7"	4'- 0"	3'- 7"	3'- 9"	4'- 2"	70	3'- 9"	3'- 7"	4'- 0"	3'- 7"	3'- 9"	4'- 2"

- Notes:**
- *Indicates maximum span controlled by deflection.
 - All loads are applied perpendicular to surface of panel.
 - No increase for wind loading has been assumed.
 - Shaded area denotes loads at which deflection of the panel in the transverse direction due to static gravity load may cause permanent deformations.
 - Since allowable loads and spans can be affected by actual conditions of use, information in these tables is intended for use only by those qualified to assess these effects.



LOAD TABLES
STEEL
ASTM A653
12" COVERAGE

DESIGN WALL DSF120



L/180 DEFLECTION GAUGE 24 FTY=40KSI							L/240 DEFLECTION GAUGE 24 FTY=40KSI						
POSITIVE BENDING				NEGATIVE BENDING			POSITIVE BENDING				NEGATIVE BENDING		
Yt= 0.935 in.				Yt= 0.297 in.			Yt= 0.935 in.				Yt= 0.297 in.		
St= 0.0525 cubic in/ft. (bend.)				St= 0.1613 cubic in/ft. (bend.)			St= 0.0525 cubic in/ft. (bend.)				St= 0.1613 cubic in/ft. (bend.)		
Sb= 0.0880 cubic in/ft. (bend.)				Sb= 0.0413 cubic in/ft. (bend.)			Sb= 0.0880 cubic in/ft. (bend.)				Sb= 0.0413 cubic in/ft. (bend.)		
l= 0.0574 in.^4/ft. (defl.)				l= 0.0888 in.^4/ft. (defl.)			l= 0.0574 in.^4/ft. (defl.)				l= 0.0888 in.^4/ft. (defl.)		
LOAD (PSF)	DOWNWARD LOAD			UPWARD LOAD			LOAD (PSF)	DOWNWARD LOAD			UPWARD LOAD		
	SINGLE SPAN	DOUBLE SPAN	THREE SPAN	SINGLE SPAN	DOUBLE SPAN	THREE SPAN		SINGLE SPAN	DOUBLE SPAN	THREE SPAN	SINGLE SPAN	DOUBLE SPAN	THREE SPAN
10	* 7'-11"	8'-1"	9'-1"	8'-1"	9'-1"	9'-11"	10	* 7'-2"	8'-1"	* 8'-11"	8'-1"	9'-1"	9'-11"
15	* 6'-11"	6'-7"	7'-5"	6'-7"	7'-5"	8'-1"	15	* 6'-3"	6'-7"	7'-5"	6'-7"	7'-5"	8'-1"
20	* 6'-3"	5'-8"	6'-5"	5'-8"	6'-5"	7'-0"	20	* 5'-8"	5'-8"	6'-5"	5'-8"	6'-5"	7'-0"
25	5'-9"	5'-1"	5'-8"	5'-1"	5'-9"	6'-3"	25	* 5'-3"	5'-1"	5'-8"	5'-1"	5'-9"	6'-3"
30	5'-3"	4'-8"	5'-2"	4'-8"	5'-3"	5'-8"	30	* 5'-0"	4'-8"	5'-2"	4'-8"	5'-3"	5'-8"
35	4'-10"	4'-4"	4'-10"	4'-4"	4'-10"	5'-3"	35	* 4'-9"	4'-4"	4'-10"	4'-4"	4'-10"	5'-3"
40	4'-6"	4'-0"	4'-6"	4'-0"	4'-6"	4'-11"	40	* 4'-6"	4'-0"	4'-6"	4'-0"	4'-6"	4'-11"
45	4'-3"	3'-9"	4'-3"	3'-9"	4'-3"	4'-8"	45	* 4'-3"	3'-9"	4'-3"	3'-9"	4'-3"	4'-8"
50	4'-1"	3'-7"	4'-0"	3'-7"	4'-1"	4'-5"	50	4'-1"	3'-7"	4'-0"	3'-7"	4'-1"	4'-5"
55	3'-10"	3'-5"	3'-10"	3'-5"	3'-10"	4'-2"	55	3'-10"	3'-5"	3'-10"	3'-5"	3'-10"	4'-2"
60	3'-8"	3'-3"	3'-8"	3'-3"	3'-8"	4'-0"	60	3'-8"	3'-3"	3'-8"	3'-3"	3'-8"	4'-0"
65	3'-7"	3'-2"	3'-6"	3'-2"	3'-7"	3'-10"	65	3'-7"	3'-2"	3'-6"	3'-2"	3'-7"	3'-10"
70	3'-5"	3'-0"	3'-5"	3'-0"	3'-5"	3'-9"	70	3'-5"	3'-0"	3'-5"	3'-0"	3'-5"	3'-9"

- Notes:**
- *Indicates maximum span controlled by deflection.
 - All loads are applied perpendicular to surface of panel.
 - No increase for wind loading has been assumed.
 - Shaded area denotes loads at which deflection of the panel in the transverse direction due to static gravity load may cause permanent deformations.
 - Since allowable loads and spans can be affected by actual conditions of use, information in these tables is intended for use only by those qualified to assess these effects.

Fy=50KSI					
22 Gauge					
	Top in Compression	Bottom in Compression		Top in Compression	Bottom in Compression
Yt=	0.3763 in	0.3763 in	l=	0.1861 in ⁴ /ft	0.1861 in ⁴ /ft
Yb=	1.3582 in	1.3582 in	M _a =	97 ft-lb/ft	226 ft-lb/ft
St=	0.4946 in ³ /ft	0.4946 in ³ /ft	P _{c,int} =	2530 lb/ft	2530 lb/ft
Sb=	0.1370 in ³ /ft	0.1370 in ³ /ft	P _{c,end} =	1953 lb/ft	1953 lb/ft

22-Gauge Steel Design System/DSF120 Inward (Positive) Pressure									
Load (psf)	Δ ≤ L/240			Δ ≤ L/180			Δ ≤ L/120		
	Span Condition			Span Condition			Span Condition		
	Single	Double	Triple	Single	Double	Triple	Single	Double	Triple
10	8'-9"	11'-8"	11'-0"	8'-9"	11'-8"	11'-0"	8'-9"	11'-8"	11'-0"
15	7'-2"	9'-7"	8'-11"	7'-2"	9'-7"	8'-11"	7'-2"	9'-7"	8'-11"
20	6'-2"	8'-3"	7'-9"	6'-2"	8'-3"	7'-9"	6'-2"	8'-3"	7'-9"
25	5'-6"	7'-5"	6'-11"	5'-6"	7'-5"	6'-11"	5'-6"	7'-5"	6'-11"
30	5'-1"	6'-9"	6'-4"	5'-1"	6'-9"	6'-4"	5'-1"	6'-9"	6'-4"
35	4'-8"	6'-3"	5'-10"	4'-8"	6'-3"	5'-10"	4'-8"	6'-3"	5'-10"
40	4'-4"	5'-10"	5'-6"	4'-4"	5'-10"	5'-6"	4'-4"	5'-10"	5'-6"
45	4'-1"	5'-6"	5'-2"	4'-1"	5'-6"	5'-2"	4'-1"	5'-6"	5'-2"
50	3'-11"	5'-3"	4'-11"	3'-11"	5'-3"	4'-11"	3'-11"	5'-3"	4'-11"
55	3'-9"	5'-0"	4'-8"	3'-9"	5'-0"	4'-8"	3'-9"	5'-0"	4'-8"
60	3'-7"	4'-9"	4'-5"	3'-7"	4'-9"	4'-5"	3'-7"	4'-9"	4'-5"
65	3'-5"	4'-7"	4'-3"	3'-5"	4'-7"	4'-3"	3'-5"	4'-7"	4'-3"
70	3'-3"	4'-5"	4'-1"	3'-3"	4'-5"	4'-1"	3'-3"	4'-5"	4'-1"
75	3'-2"	4'-3"	4'-0"	3'-2"	4'-3"	4'-0"	3'-2"	4'-3"	4'-0"
80	3'-1"	4'-1"	3'-10"	3'-1"	4'-1"	3'-10"	3'-1"	4'-1"	3'-10"
85	3'-0"	4'-0"	3'-9"	3'-0"	4'-0"	3'-9"	3'-0"	4'-0"	3'-9"
90	2'-11"	3'-10"	3'-8"	2'-11"	3'-10"	3'-8"	2'-11"	3'-10"	3'-8"
95	2'-10"	3'-9"	3'-6"	2'-10"	3'-9"	3'-6"	2'-10"	3'-9"	3'-6"
100	2'-9"	3'-8"	3'-5"	2'-9"	3'-8"	3'-5"	2'-9"	3'-8"	3'-5"

22-Gauge Steel Design System/DSF120 Outward (Negative) Pressure									
Load (psf)	Δ ≤ L/240			Δ ≤ L/180			Δ ≤ L/120		
	Span Condition			Span Condition			Span Condition		
	Single	Double	Triple	Single	Double	Triple	Single	Double	Triple
10	*10'-7"	8'-9"	9'-10"	*11'-8"	8'-9"	9'-10"	*13'-4"	8'-9"	9'-10"
15	*9'-3"	7'-2"	8'-0"	*10'-2"	7'-2"	8'-0"	10'-11"	7'-2"	8'-0"
20	*8'-5"	6'-2"	6'-11"	*9'-3"	6'-2"	6'-11"	9'-6"	6'-2"	6'-11"
25	*7'-9"	5'-6"	6'-2"	8'-6"	5'-6"	6'-2"	8'-6"	5'-6"	6'-2"
30	*7'-4"	5'-0"	5'-8"	7'-9"	5'-0"	5'-8"	7'-9"	5'-0"	5'-8"
35	*6'-11"	4'-8"	5'-3"	7'-2"	4'-8"	5'-3"	7'-2"	4'-8"	5'-3"
40	*6'-8"	4'-4"	4'-11"	6'-8"	4'-4"	4'-11"	6'-8"	4'-4"	4'-11"
45	6'-4"	4'-1"	4'-7"	6'-4"	4'-1"	4'-7"	6'-4"	4'-1"	4'-7"
50	6'-0"	3'-11"	4'-4"	6'-0"	3'-11"	4'-4"	6'-0"	3'-11"	4'-4"
55	5'-8"	3'-9"	4'-2"	5'-8"	3'-9"	4'-2"	5'-8"	3'-9"	4'-2"
60	5'-5"	3'-7"	4'-0"	5'-5"	3'-7"	4'-0"	5'-5"	3'-7"	4'-0"
65	5'-3"	3'-5"	3'-10"	5'-3"	3'-5"	3'-10"	5'-3"	3'-5"	3'-10"
70	5'-0"	3'-3"	3'-8"	5'-0"	3'-3"	3'-8"	5'-0"	3'-3"	3'-8"
75	4'-10"	3'-2"	3'-7"	4'-10"	3'-2"	3'-7"	4'-10"	3'-2"	3'-7"
80	4'-9"	3'-1"	3'-5"	4'-9"	3'-1"	3'-5"	4'-9"	3'-1"	3'-5"
85	4'-7"	3'-0"	3'-4"	4'-7"	3'-0"	3'-4"	4'-7"	3'-0"	3'-4"
90	4'-5"	2'-11"	3'-3"	4'-5"	2'-11"	3'-3"	4'-5"	2'-11"	3'-3"
95	4'-4"	2'-10"	3'-2"	4'-4"	2'-10"	3'-2"	4'-4"	2'-10"	3'-2"
100	4'-3"	2'-9"	3'-1"	4'-3"	2'-9"	3'-1"	4'-3"	2'-9"	3'-1"

- Notes:**
- Minimum 1.5" bearing assumed.
 - Connection of panel to supporting structure not investigated.
 - Minimum delivered thickness assumed to be 95% of design thickness
 - Span lengths indicated by * are controlled by deflection.
 - These load tables conform to the 2007 edition of the AISI "North American Specification for the Design of Cold-Formed Steel Structural Members."
 - Since allowable loads and spans can be affected by actual conditions of use, information in these tables is intended for use only by those qualified to assess these effects.