

**S T E E L R O O F D E C K
L E G A C Y P R O D U C T**

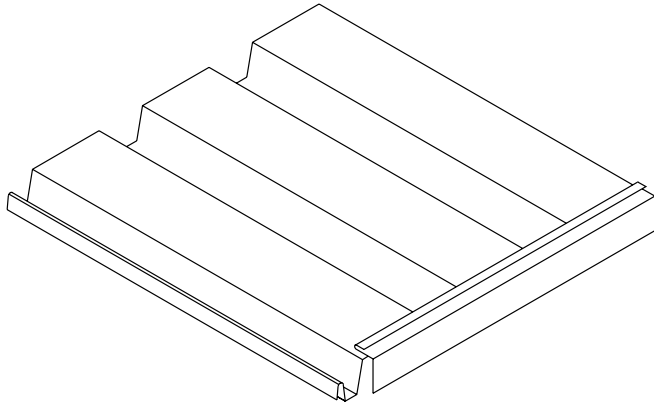
This product is no longer manufactured.

This product information has been made available to support the retrofit of existing buildings by providing the original design performance for the specified product.



Q-MAX with B-36

Q-Max® System with B-36 Roof Deck



ASC Steel Deck combines **B-36** with our 16 gauge Shear Resistance Angle to offer a very cost effective roofing system which provides excellent resistance to lateral loads.

Q-Max® Section Properties

Gauge	Weight (psf)	I (In4)	S+ (In3)	S- (In3)
22	1.68	0.178	0.18	0.195
20	2.04	0.22	0.235	0.246
18	2.7	0.302	0.321	0.336
16	3.36	0.379	0.407	0.415

1. Section properties are based on minimum 38 ksi steel (Fy).

Q-Max® — Allowable Reactions (plf)

Gauge	Bearing Length						
	1"	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"
22	416	468	520	572	625	677	729
	1007	1103	1213	1363	1513	1663	1813
20	700	776	853	929	1005	1082	1158
	1495	1617	1739	1897	2088	2280	2472
18	1443	1568	1693	1818	1943	2068	2193
	2734	2909	3084	3258	3436	3710	3985
16	2434	2606	2782	2957	3131	3305	3480
	4350	4578	4806	5034	5262	5490	5786

1. The top value reflects the allowable reaction at the panel end supports.
2. The bottom value reflects the allowable reaction at the interior supports.
3. Values are in pounds per linear foot.

Q-Max® Allowable Total (DL + LL) Uniform Load (psf)

Condition	Span Gauge		Span										
			5'0"	5'6"	6'0"	6'6"	7'0"	7'6"	8'0"	8'6"	9'0"	9'6"	10'0"
SINGLE SPAN	22	Stress	109	90	76	65	56	49	43	38	34	30	27
		Deflection	93	70	54	42	34	28	23	19	16	14	12
	20	Stress	143	118	99	85	73	64	56	49	44	40	36
		Deflection	115	87	67	53	42	34	28	23	20	17	14
	18	Stress	195	161	136	115	100	87	76	68	60	54	49
		Deflection	158	119	92	72	58	47	39	32	27	23	20
	16	Stress	247	205	172	146	126	110	97	86	76	69	62
		Deflection	199	149	115	90	72	59	49	40	34	29	25
DOUBLE SPAN	22	Stress	119	98	82	70	60	53	46	41	37	33	30
		Deflection	119	98	82	70	60	53	46	41	37	33	28
	20	Stress	150	124	104	89	76	66	58	52	46	41	37
		Deflection	150	124	104	89	76	66	58	52	46	41	35
	18	Stress	204	169	142	121	104	91	80	71	63	57	51
		Deflection	204	169	142	121	104	91	80	71	63	56	48
	16	Stress	252	209	175	149	129	112	99	87	78	70	63
		Deflection	252	209	175	149	129	112	99	87	78	70	60
TRIPLE SPAN	22	Stress	148	122	103	88	76	66	58	51	46	41	37
		Deflection	148	122	102	80	64	52	43	36	30	26	22
	20	Stress	187	155	130	111	95	83	73	65	58	52	47
		Deflection	187	155	126	99	79	65	53	44	37	32	27
	18	Stress	255	211	177	151	130	113	100	88	79	71	64
		Deflection	255	211	173	136	109	89	73	61	51	44	37
	16	Stress	315	261	219	187	161	140	123	109	97	87	79
		Deflection	315	261	217	171	137	111	92	76	64	55	47

1. Stress based on allowable flexural stress of 22.8 ksi.
2. Deflection based on maximum deflection of L/240.
3. Adequate bearing must be provided.
4. See page 4 for General Notes.

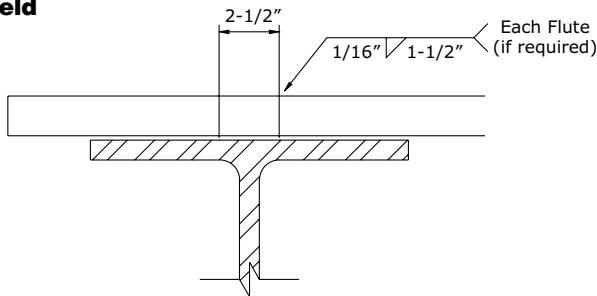
Q-Max[®] – Allowable Diaphragm Shear (q) and Flexibility Factor (F) with Lap Splice Welds

Gauge	Seam Attachment	No. Puddle Welds	No. Puddle Welds		Span				
			6'0"	7'0"	8'0"	9'0"	10'0"		
22	Top Seam Weld	12" O.C.	7	q	1200	1030	920	830	770
				F	3.8	4.0	4.2	4.3	4.4
20	Top Seam Weld	12" O.C.	7	q	1440	1280	1130	1020	940
				F	3.2	3.3	3.4	3.5	3.7
18	Top Seam Weld	12" O.C.	7	q	1860	1760	1570	1410	1290
				F	2.3	2.4	2.5	2.6	2.7
16	Top Seam Weld	12" O.C.	7	q	1960	1843	1774	1737	1723
				F	4.2 + 2.8R	4.5 + 2.4R	4.7 + 2.1R	4.9 + 1.9R	5.1 + 1.7R

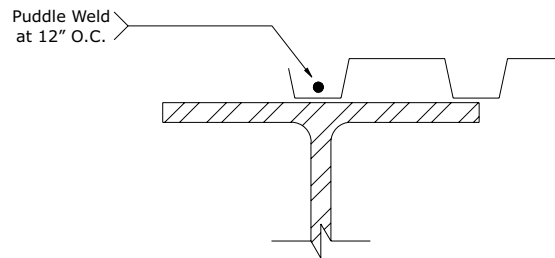
1. The allowable diaphragm shears "q" are listed in pounds per linear foot (plf).
2. See page 4 for General Notes.

Q-Max[®] Details

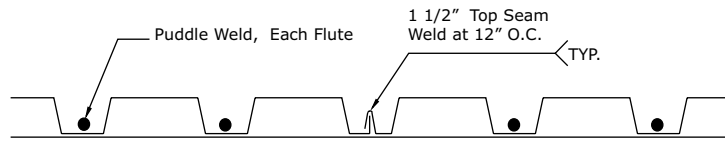
Lap Weld



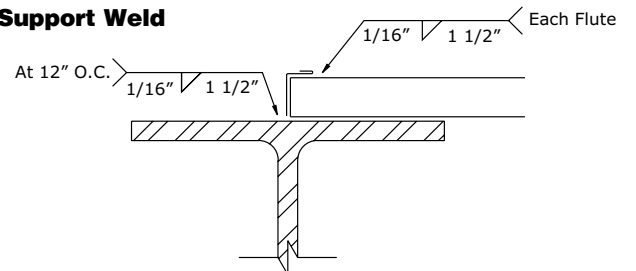
Perimeter Weld



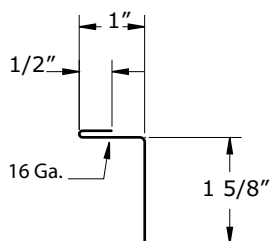
Interior Seam Welds



End Support Weld



Shear Resistance Angle



Shear Resistance Angle to be used at end of deck units and at lines of shear transfer to structural frame

Q-Max[®] System with B-36 Roof Deck

Q-Max[®] – Allowable Diaphragm Shear (q) and Flexibility Factor (F) without Lap Splice Welds

		Seam		Span						
Gauge	Attachment			6'0"	7'0"	8'0"	9'0"	10'0"	11'0"	12'0"
22	Top Seam Weld	12" O.C.	q	996	854	755	683	629	587	554
			F	7.4 + 5.6R	7.8 + 4.8R	8.1 + 4.2R	8.3 + 3.8R	8.5 + 3.4R	8.6 + 3.1R	8.7 + 2.8R
20	Top Seam Weld	12" O.C.	q	1232	1162	1120	1032	947	881	830
			F	6.3 + 4.7R	6.7 + 4R	6.9 + 3.5R	7.2 + 3.1R	7.3 + 2.8R	7.5 + 2.5R	7.5 + 2.3R
18	Top Seam Weld	12" O.C.	q	1584	1491	1436	1407	1396	1398	1409
			F	5 + 3.5R	5.4 + 3R	5.6 + 2.6R	5.8 + 2.3R	6 + 2.1R	6.1 + 1.9R	6.2 + 1.8R
16	Top Seam Weld	12" O.C.	q	1960	1843	1774	1737	1723	1725	1740
			F	4.2 + 2.8R	4.5 + 2.4R	4.7 + 2.1R	4.9 + 1.9R	5.1 + 1.7R	5.2 + 1.5R	5.3 + 1.4R
22	Top Seam Weld	18" O.C.	q	877	752	666	564	522	490	436
			F	8 + 5.6R	8.5 + 4.8R	8.8 + 4.2R	9.5 + 3.8R	9.6 + 3.4R	9.7 + 3.1R	10.3 + 2.8R
20	Top Seam Weld	18" O.C.	q	1092	1029	993	858	790	738	655
			F	6.8 + 4.7R	7.2 + 4R	7.5 + 3.5R	8.2 + 3.1R	8.3 + 2.8R	8.5 + 2.5R	8.9 + 2.3R
18	Top Seam Weld	18" O.C.	q	1414	1328	1279	1177	1171	1176	1119
			F	5.4 + 3.5R	5.8 + 3R	6.1 + 2.6R	6.6 + 2.3R	6.8 + 2.1R	6.9 + 1.9R	7.4 + 1.8R
16	Top Seam Weld	18" O.C.	q	1759	1649	1585	1459	1450	1456	1386
			F	4.5 + 2.8R	4.8 + 2.4R	5.1 + 2.1R	5.6 + 1.9R	5.8 + 1.7R	5.9 + 1.5R	6.3 + 1.4R
22	Top Seam Weld	24" O.C.	q	818	701	577	525	451	426	377
			F	8.4 + 5.6R	8.9 + 4.8R	9.7 + 4.2R	10 + 3.8R	10.7 + 3.4R	10.8 + 3.1R	11.4 + 2.8R
20	Top Seam Weld	24" O.C.	q	1022	962	865	800	685	643	568
			F	7.1 + 4.7R	7.6 + 4R	8.3 + 3.5R	8.6 + 3.1R	9.3 + 2.8R	9.4 + 2.5R	9.9 + 2.3R
18	Top Seam Weld	24" O.C.	q	1330	1247	1121	1100	1021	1029	973
			F	5.6 + 3.5R	6.1 + 3R	6.7 + 2.6R	7 + 2.3R	7.5 + 2.1R	7.7 + 1.9R	8.2 + 1.8R
16	Top Seam Weld	24" O.C.	q	1658	1551	1396	1367	1268	1277	1209
			F	4.7 + 2.8R	5.1 + 2.4R	5.6 + 2.1R	5.9 + 1.9R	6.4 + 1.7R	6.5 + 1.5R	7 + 1.4R

1. The allowable diaphragm shears "q" are listed in pounds per linear foot (plf).

2. See page 4 for General Notes.

The following notes apply to the load tables.

1. The length of seam welds shall be a minimum of 1 1/2" long.
2. Arc spot or arc seam (puddle) welds shall have an effective fusion area to supporting members, equivalent to at least 3/8" by 1" long or 1/2" in diameter.
3. Spacing of marginal welds to members parallel to the flutes:
 - (a) Arc spot (puddle) welds to members, such as chords, and to collector elements, such as struts or ties, shall have a spacing in feet equal to $35,000 (t)/v$ where:

t = Uncoated steel thickness of fluted deck in inches (see ICC Report for "t")
 v = Actual diaphragm shear at marginal supports or actual shear transferred to collector (at struts or ties) in pounds per foot.
 - (b) Fillet welds to members, such as diaphragm chords, shall have spacing in feet equal to $480 l_w/v$, where:

l_w = Length of weld in inches (not less than 1 1/2")
 v = Actual diaphragm shear to be transferred to chords in pounds per foot.
 - (c) Fillet welds attaching the diaphragm to struts, ties or other collector elements shall have a spacing, in feet, equal to $300 l_w/v$ where:

v = Actual shear to be transferred to the collector element, in pounds per foot.
 - (d) In no case shall any weld spacing exceed 3'0".
4. Attachments at interior lines of shear transfer, perpendicular to deck corrugations:
 - (a) The shear transfer from a diaphragm to interior ties or strut lines, perpendicular to deck corrugations, shall not exceed the shear values indicated in the tables. Two lines of puddle welds may be used to develop to the actual shear transfer to these collector elements.
5. Where individual panels are cut, the partial panel shall be fastened in a manner to fully transfer the shears at the point of the diaphragm to the adjacent full panels for the values specified in the tables.
6. For all cellular profiles, the first number of the gauge designations (**20/20**) refers to the beam section (corrugated profile). The second number (**20/20**) refers to the pan section (flat plate).
7. For all allowable diaphragm shear tables, R is the vertical load span (L_v) of the deck unit divided by the length (L_2) of the deck unit. Both units are in linear feet.
8. Typical roof deck manufacturing tolerances:

Panel Length: $\pm 1/2"$
 Thickness: Not less than 95% of the design base metal thickness.
 Panel Cover width: $-3/8"$, $+3/4"$
 Panel Camber/Sweep: $1/4"$ in 10' length
 Panel End Out of Square: $1/8"$ per foot of panel width
9. 1% Venting
 Venting of Roof Deck may be provided to meet the requirements for insulating concrete systems.

Fire Resistance Ratings and Code Approvals

Roof Deck – Fire Resistance Rating

Restrained Assembly	UL Design No.	Concrete Type	Profile (Gauge)	Max Span	Fireproofing Required
1 HOUR	P921	Lightweight	B (22-16)	10'0"	No
2 HOUR ¹	P925	Insulating			
	P928				
	P936				
1 HOUR	P 908	Lightweight	B (22-16)	8'0"	No
2 HOUR ¹	P927	Insulating			
1 HOUR	P920	Lightweight	B (22-16)	8'0"	No
2 HOUR ¹		Insulating			

1. For 2 hour rated assembly wire mesh must be used.

Please refer to the current UL fire Resistance Directory and ICBO Evaluation Report No. 3260 for additional information.

Alternative Fastening Methods:

For attachment of decking, for methods other than welding, refer to the following technical information:

(a.) Screwed and Pinned Attachments

ICBO Report No.	Company
3056 and 4254	ITW, Buildex Division
3829	Pneutek, Inc.
2197	Hilti Fastening Systems

Code Approvals

ASC's steel deck profiles have been evaluated or approved for use by:

1. ICC Evaluation Service Report No. 1414
2. City of Los Angeles Research Report Nos. 23783, 23784 and 25762
3. Factory Mutual
4. Underwriter's Laboratory Fire Resistance Directory

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