

**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.

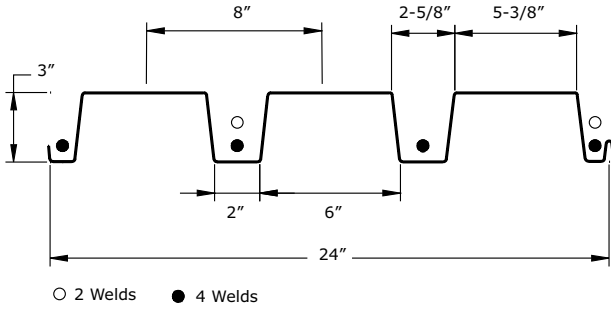
This product information has been made available to support the retrofit of existing buildings by providing the original design performance for the specified product.



N-24 & NF-24



N-24 Roof Deck



N-24 Section Properties

Gauge	Weight (psf)	I (In4)	S+ (In3)	S- (In3)
22	2.18	0.771	0.361	0.449
20	2.58	0.945	0.467	0.554
18	3.40	1.330	0.689	0.765
16	4.22	1.716	0.882	0.949

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

N-24 Allowable Reactions (plf)

Gauge	Bearing Length						
	1"	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"
22	292	328	365	402	438	475	512
	728	797	876	985	1093	1202	1310
20	501	556	610	665	720	774	829
	1095	1184	1274	1389	1530	1670	1811
18	1057	1148	1240	1331	1423	1514	1606
	2035	2165	2296	2426	2557	2762	2966
16	1805	1935	2064	2193	2323	2452	2582
	3269	3440	3611	3783	3954	4125	4348

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.

N-24 Allowable Total (DL + LL) Uniform Load (psf)

Span Condition	Gauge		Span										
			6'0"	7'0"	8'0"	9'0"	10'0"	11'0"	12'0"	13'0"	14'0"	15'0"	16'0"
SINGLE SPAN	22	Stress	152	112	86	68	55	45	38	32	28	24	21
		Deflection	152	112	86	68	51	38	29	23	18	15	12
	20	Stress	197	145	111	88	71	59	49	42	36	32	28
		Deflection	197	145	111	85	62	47	36	28	23	18	15
	18	Stress	291	214	164	129	105	87	73	62	53	47	41
		Deflection	291	214	164	120	87	66	50	40	32	26	21
	16	Stress	372	274	209	166	134	111	93	79	68	60	52
		Deflection	372	274	209	154	112	85	65	51	41	33	27
DOUBLE SPAN	22	Stress	190	139	107	84	68	56	47	40	35	30	27
		Deflection	190	139	107	84	68	56	47	40	35	30	27
	20	Stress	234	172	132	104	84	70	58	50	43	37	33
		Deflection	234	172	132	104	84	70	58	50	43	37	33
	18	Stress	323	237	182	144	116	96	81	69	59	52	45
		Deflection	323	237	182	144	116	96	81	69	59	52	45
	16	Stress	401	294	225	178	144	119	100	85	74	64	56
		Deflection	401	294	225	178	144	119	100	85	74	64	56
TRIPLE SPAN	22	Stress	237	174	133	105	85	71	59	50	44	38	33
		Deflection	237	174	133	105	85	71	55	43	35	28	23
	20	Stress	292	215	164	130	105	87	73	62	54	47	41
		Deflection	292	215	164	130	105	87	68	53	43	35	29
	18	Stress	404	297	227	179	145	120	101	86	74	65	57
		Deflection	404	297	227	179	145	120	95	75	60	49	40
	16	Stress	501	368	282	223	180	149	125	107	92	80	70
		Deflection	501	368	282	223	180	149	123	97	77	63	52

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 6 for General Notes.

N-24 Roof Deck

N 24 Allowable Diaphragm Shear (q) and Flexibility Factor (F)

Gauge	Seam Attachment	No. Puddle Welds		Span					
				6'0"	8'0"	10'0"	12'0"	14'0"	
22	Button Punch	12" O.C.	2	q	190	170	160	150	140
			F	26.7 + 1480R	30.1 + 1110R	32.6 + 839R	34.7 + 741R	36.5 + 635R	
	24" O.C.	2	q	140	120	100	100	90	
		F	35.7 + 1480R	42.4 + 1110R	47.9 + 839R	52.5 + 741R	56.5 + 635R		
	1 1/2" Seam Weld	12" O.C.	2	q	280	260	250	250	240
			F	13.8 + 1480R	11.6 + 1110R	10.2 + 839R	9.1 + 741R	8.4 + 635R	
	24" O.C.	2	q	170	150	140	140	130	
		F	21.1 + 1480R	18.0 + 1110R	15.8 + 839R	14.2 + 741R	13.0 + 635R		
	Button Punch	12" O.C.	4	q	290	240	220	200	190
			F	17.8 + 165R	21.3 + 123R	24.3 + 98.3R	27.0 + 82.3R	29.4 + 70.6R	
24" O.C.	4	q	240	190	160	150	130		
	F	21.0 + 165R	26.3 + 123R	31.2 + 98.3R	35.9 + 82.3R	40.3 + 70.6R			
1 1/2" Seam Weld	12" O.C.	4	q	350	310	290	280	270	
		F	11.3 + 165R	10.1 + 123R	9.1 + 98.3R	8.4 + 82.3R	7.9 + 70.6R		
24" O.C.	4	q	240	200	180	170	160		
	F	15.3 + 165R	14.0 + 123R	12.9 + 98.3R	12.1 + 82.3R	11.4 + 70.6R			
20	Button Punch	12" O.C.	2	q	260	230	210	200	190
			F	22.2 + 857R	25.7 + 643R	28.4 + 514R	30.7 + 429R	32.7 + 367R	
	24" O.C.	2	q	200	170	150	130	120	
		F	28.3 + 857R	34.3 + 643R	39.6 + 514R	44.2 + 429R	48.3 + 367R		
	1 1/2" Seam Weld	12" O.C.	2	q	420	390	380	370	360
			F	11.7 + 857R	9.9 + 643R	8.7 + 514R	7.9 + 429R	7.2 + 367R	
	24" O.C.	2	q	260	240	220	210	200	
		F	17.3 + 857R	15.0 + 643R	13.3 + 514R	12.1 + 429R	11.1 + 367R		
	Button Punch	12" O.C.	4	q	420	350	300	280	260
			F	14.1 + 95.3R	17.3 + 71.4R	20.2 + 57.2R	22.8 + 47.6R	25.2 + 40.8R	
24" O.C.	4	q	360	280	240	210	190		
	F	16.1 + 95.3R	20.5 + 71.4R	24.8 + 57.2R	28.9 + 47.6R	33.0 + 40.8R			
1 1/2" Seam Weld	12" O.C.	4	q	550	480	450	420	410	
		F	9.3 + 95.3R	8.4 + 71.4R	7.7 + 57.2R	7.2 + 47.6R	6.7 + 40.8R		
24" O.C.	4	q	390	330	290	260	250		
	F	12.1 + 95.3R	11.3 + 71.4R	10.6 + 57.2R	10.0 + 47.6R	9.5 + 40.8R			

1. The allowable diaphragm shears "q" are listed in pounds per linear foot (plf).
2. See page 6 for General Notes.

N-24 Roof Deck

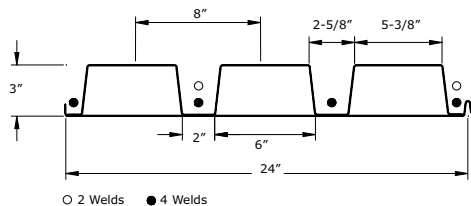
N 24 Allowable Diaphragm Shear (q) and Flexibility Factor (F)

Gauge	Seam Attachment	12" O.C.	No. Puddle		Span					
			Welds		6'0"	8'0"	10'0"	12'0"	14'0"	
18	Button Punch	12" O.C.	2	q F	440 15.7 + 362R	370 18.8 + 271R	330 21.5 + 217R	310 23.8 + 181R	290 25.9 + 155R	
		24" O.C.	2	q F	370 18.7 + 362R	300 23.4 + 271R	250 27.7 + 217R	230 31.7 + 181R	210 35.4 + 155R	
	1 1/2" Seam Weld	12" O.C.	2	q F	830 8.6 + 362R	760 7.5 + 271R	720 6.7 + 217R	690 6.1 + 181R	670 5.6 + 155R	
		24" O.C.	2	q F	550 12.2 + 362R	480 10.8 + 271R	440 9.8 + 217R	410 9.0 + 181R	390 8.4 + 155R	
	Button Punch	12" O.C.	4	q F	710 9.5 + 40.2R	580 12.0 + 30.1R	500 14.4 + 24.1R	440 16.7 + 20.1R	410 18.9 + 17.2R	
		24" O.C.	4	q F	640 10.4 + 40.2R	500 13.5 + 30.1R	420 16.7 + 24.1R	360 19.9 + 20.1R	330 23.2 + 17.2R	
	1 1/2" Seam Weld	12" O.C.	4	q F	1110 6.6 + 40.2R	960 6.1 + 30.1R	870 5.7 + 24.1R	810 5.4 + 20.1R	770 5.1 + 17.2R	
		24" O.C.	4	q F	830 8.2 + 40.2R	680 7.9 + 30.1R	590 7.5 + 24.1R	530 7.3 + 20.1R	490 7.0 + 17.2R	
	16	Button Punch	12" O.C.	2	q F	630 11.5 + 185R	520 14.1 + 139R	450 16.4 + 111R	410 18.6 + 92.6R	380 20.5 + 79.4R
			24" O.C.	2	q F	540 13.2 + 185R	430 16.8 + 139R	360 20.2 + 111R	320 23.5 + 92.6R	290 26.7 + 79.4R
1 1/2" Seam Weld		12" O.C.	2	q F	1230 6.6 + 185R	1130 5.8 + 139R	1070 5.2 + 111R	1040 4.8 + 92.6R	1020 4.5 + 79.4R	
		24" O.C.	2	q F	840 9.0 + 185R	730 8.1 + 139R	670 7.5 + 111R	630 7.0 + 92.6R	610 6.5 + 79.4R	
Button Punch		12" O.C.	4	q F	1000 6.9 + 20.6R	800 8.8 + 15.4R	680 10.7 + 12.4R	600 12.7 + 10.3R	550 14.6 + 8.8R	
		24" O.C.	4	q F	920 7.4 + 20.6R	710 9.7 + 15.4R	590 12.1 + 12.4R	510 14.6 + 10.3R	450 17.3 + 8.8R	
1 1/2" Seam Weld		12" O.C.	4	q F	1560 4.9 + 20.6R	1370 4.6 + 15.4R	1270 4.4 + 12.4R	1210 4.2 + 10.3R	1180 4.0 + 8.8R	
		24" O.C.	4	q F	1200 6.0 + 20.6R	1000 5.8 + 15.4R	890 5.7 + 12.4R	820 5.5 + 10.3R	770 5.4 + 8.8R	

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

2. See page 6 for General Notes.

NF-24 Roof Deck



NF-24 Allowable Reactions (plf)

Gauge	Bearing Length						
	1"	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"
20/20	501	556	610	665	720	774	829
	1095	1184	1274	1389	1530	1670	1811
20/18	501	556	610	665	720	774	829
	1095	1184	1274	1389	1530	1670	1811
20/16	501	556	610	665	720	774	829
	1095	1184	1274	1389	1530	1670	1811
18/20	1057	1148	1240	1331	1423	1514	1606
	2035	2165	2296	2426	2557	2762	2966
18/18	1057	1148	1240	1331	1423	1514	1606
	2035	2165	2296	2426	2557	2762	2966
18/16	1057	1148	1240	1331	1423	1514	1606
	2035	2165	2296	2426	2557	2762	2966
16/16	1805	1935	2064	2193	2323	2452	2582
	3269	3440	3611	3783	3954	4125	4348

NF 24 Section Properties

Gauge	Weight (psf)	I (In4)	S+ (In3)	S- (In3)
20/20	3.96	1.666	0.566	0.85
20/18	4.5	1.868	0.562	0.977
20/16	4.73	1.987	0.595	1.04
18/20	4.78	1.95	0.841	0.946
18/18	5.27	2.31	0.861	1.228
18/16	5.82	2.597	0.878	1.342
16/16	6.37	3.029	1.198	1.545

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

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

BF-36— Allowable Total (DL + LL) Uniform Load (psf)

Condition	Span Gauge		Span											
			6'0"	7'0"	8'0"	9'0"	10'0"	11'0"	12'0"	13'0"	14'0"	15'0"	16'0"	
SINGLE SPAN	20/20	Stress	239	176	134	106	86	71	60	51	44	38	34	
		Deflection	239	176	134	106	86	71	60	50	40	32	27	
	20/18	Stress	237	174	133	105	85	71	59	51	44	38	33	
		Deflection	237	174	133	105	85	71	59	51	44	36	30	
	18/18	Stress	364	267	204	162	131	108	91	77	67	58	51	
		Deflection	364	267	204	162	131	108	88	69	55	45	37	
	18/16	Stress	371	272	209	165	133	110	93	79	68	59	52	
		Deflection	371	272	209	165	133	110	93	77	62	50	42	
	16/16	Stress	506	372	285	225	182	150	126	108	93	81	71	
		Deflection	506	372	285	225	182	149	115	90	72	59	48	
DOUBLE SPAN	20/20	Stress	359	264	202	160	129	107	90	76	66	57	50	
		Deflection	359	264	202	160	129	107	90	76	66	57	50	
	20/18	Stress	413	303	232	183	149	123	103	88	76	66	58	
		Deflection	413	303	232	183	149	123	103	88	76	66	58	
	18/18	Stress	518	381	292	230	187	154	130	110	95	83	73	
		Deflection	518	381	292	230	187	154	130	110	95	83	73	
	18/16	Stress	567	416	319	252	204	169	142	121	104	91	80	
		Deflection	567	416	319	252	204	169	142	121	104	91	80	
	16/16	Stress	652	479	367	290	235	194	163	139	120	104	92	
		Deflection	652	479	367	290	235	194	163	139	120	104	92	
TRIPLE SPAN	20/20	Stress	373	274	210	166	134	111	93	80	69	60	53	
		Deflection	373	274	210	166	134	111	93	80	69	60	50	
	20/18	Stress	371	272	209	165	133	110	93	79	68	59	52	
		Deflection	371	272	209	165	133	110	93	79	68	59	52	
	18/18	Stress	568	417	320	252	204	169	142	121	104	91	80	
		Deflection	568	417	320	252	204	169	142	121	104	85	70	
	18/16	Stress	579	426	326	257	209	172	145	123	106	93	81	
		Deflection	579	426	326	257	209	172	145	123	106	93	78	
	16/16	Stress	790	581	445	351	285	235	198	168	145	126	111	
		Deflection	790	581	445	351	285	235	198	168	137	111	91	

- Stress based on allowable flexural stress of 22.8 ksi.
- Deflection based on maximum deflection of L/240.
- Adequate bearing must be provided.
- See page 6 for General Notes.

NF-24 Roof Deck

NF-24 Allowable Diaphragm Shear (q) and Flexibility Factor (F)

Gauge	Seam Attachment	No. Puddle		Span									
		Welds		8'0"	9'0"	10'0"	11'0"	12'0"	13'0"	14'0"	15'0"	16'0"	
20/20	Top Seam Weld	12" O.C.	4	q	605	570	541	518	499	483	469	457	447
		F		F	5.7+3.4R	5.5+3.0R	5.4+2.7R	5.2+2.5R	5.1+2.3R	5.0+2.1R	4.9+2.0R	4.8+1.8R	4.7+1.7R
	24" O.C.	4	q	448	412	394	361	342	326	312	300	290	
	F		F	7.3+3.4R	7.2+3.0R	7.1+2.7R	7.0+2.5R	6.9+2.3R	6.9+2.1R	6.7+2.0R	6.7+1.8R	6.6+1.7R	
20/18	Top Seam Weld	12" O.C.	4	q	1078	1013	962	920	886	857	832	811	792
		F		F	4.5+2.6R	4.4+2.3R	4.3+2.1R	4.2+1.9R	4.1+1.7R	4.0+1.6R	2.9+1.5R	3.8+1.4R	3.8+1.3R
	24" O.C.	4	q	748	733	682	640	605	576	552	530	512	
	F		F	5.7+2.6R	5.7+2.3R	5.6+2.1R	5.3+1.9R	5.5+1.7R	5.4+1.6R	5.4+1.5R	5.3+1.4R	5.3+1.3R	
18/18	Top Seam Weld	12" O.C.	7	q	1313	1213	1135	1071	1019	975	938	907	879
		F		F	3.7+2.5R	3.7+2.2R	3.7+2.1R	3.6+1.8R	3.6+1.7R	3.6+1.5R	3.6+1.4R	3.5+1.3R	3.5+1.3R
	24" O.C.	7	q	1033	933	855	791	739	695	658	627	599	
	F		F	4.4+2.5R	4.5+2.2R	4.5+2.1R	4.6+1.8R	4.6+1.7R	4.6+1.5R	4.7+1.4R	4.7+1.3R	4.7+1.3R	
18/16	Top Seam Weld	12" O.C.	4	q	1138	1066	1008	962	923	890	863	839	818
		F		F	3.8+2.5R	3.7+2.3R	3.7+2.0R	3.6+1.9R	3.5+1.7R	3.5+1.6R	3.4+1.5R	3.4+1.4R	3.3+1.3R
	24" O.C.	4	q	858	786	729	682	643	610	582	559	538	
	F		F	4.8+2.5R	4.8+2.3R	4.7+2.0R	4.7+1.9R	4.7+1.7R	4.7+1.6R	4.6+1.5R	4.6+1.4R	4.6+1.3R	
16/16	Top Seam Weld	12" O.C.	7	q	1384	1281	1194	1123	1065	1017	976	941	910
		F		F	3.2+2.4R	3.2+2.1R	3.2+1.9R	3.2+1.7R	3.2+1.6R	3.1+1.5R	3.1+1.4R	3.1+1.3R	3.1+1.2R
	24" O.C.	7	q	1106	1001	914	843	785	737	696	661	630	
	F		F	3.8+2.4R	3.8+2.1R	3.9+1.9R	3.9+1.7R	4.0+1.6R	4.0+1.5R	4.0+1.4R	4.0+1.3R	4.1+1.2R	
16/16	Top Seam Weld	12" O.C.	4	q	1541	1468	1412	1368	1334	1306	1285	1267	1253
		F		F	3.2+2.0R	3.1+1.8R	3.1+1.6R	3.0+1.5R	3.0+1.4R	2.9+1.3R	2.9+1.2R	2.9+1.1R	2.8+1.0R
	24" O.C.	4	q	1161	1081	1019	968	927	894	866	842	822	
	F		F	4.0+2.0R	4.0+1.8R	4.0+1.6R	4.0+1.5R	3.9+1.4R	3.9+1.3R	3.9+1.2R	3.9+1.1R	3.9+1.0R	
16/16	Top Seam Weld	12" O.C.	7	q	1724	1629	1557	1501	1456	1421	1393	1371	1353
		F		F	2.7+1.9R	2.7+1.7R	2.7+1.6R	2.7+1.4R	2.7+1.3R	2.7+1.2R	2.7+1.1R	2.7+1.0R	2.7+1.0R
	24" O.C.	7	q	1375	1270	1189	1123	1070	1026	990	959	933	
	F		F	3.2+1.9R	3.3+1.7R	3.3+1.6R	3.4+1.4R	3.4+1.3R	3.4+1.2R	3.5+1.1R	3.5+1.0R	3.5+1.0R	
16/16	Top Seam Weld	12" O.C.	4	q	1518	1442	1384	1338	1302	1273	1250	1232	1217
		F		F	2.8+2.0R	2.8+1.8R	2.7+1.6R	2.7+1.5R	2.7+1.3R	2.6+1.2R	2.6+1.2R	2.6+1.0R	2.5+1.0R
	24" O.C.	4	q	1161	1078	1013	961	919	884	855	830	809	
	F		F	4.0+2.0R	3.5+1.8R	3.5+1.6R	3.5+1.5R	3.5+1.3R	3.5+1.2R	3.5+1.2R	3.5+1.1R	3.4+1.0R	
16/16	Top Seam Weld	12" O.C.	7	q	1707	1609	1534	1475	1430	1393	363	1339	1320
		F		F	2.7+1.9R	2.4+1.6R	2.4+1.5R	2.4+1.3R	2.4+1.2R	2.4+1.1R	2.4+1.0R	2.4+1.0R	2.4+1.0R
	24" O.C.	7	q	1378	1271	1187	1119	1064	1019	981	949	922	
	F		F	2.8+1.8R	2.9+1.6R	2.9+1.5R	3.0+1.3R	2.0+1.2R	3.1+1.1R	3.1+1.0R	3.1+1.0R	3.1+1.0R	

1. The allowable diaphragm shears "q" are listed in pounds per linear foot (plf).
 2. See page 6 for General Notes.

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	N (22-26)	12'0"	No
2 HOUR ¹	P925 P928 P936	Insulating			
1 HOUR	P 908	Lightweight	N (22-16)	8'0"	No
2 HOUR ¹	P927	Insulating			
1 HOUR	P924	Lightweight			
2 HOUR ¹	P930	Insulating	N (22-16)	8'0"	No

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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