LEGACY REPORT

ER-4315

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Legacy report on the 1997 *Uniform Building Code*™

DIVISION: 05—METALS
Section: 05320—Raceway Deck Systems

WALKERDECK WDR-2 AND WDR-3 CELLULAR RACEWAY SYSTEMS

WALKER SYSTEMS, INC.
1000 INNOVATION DRIVE
WILLIAMSTOWN, WEST VIRGINIA 26187

1.0 SUBJECT

Walkerdeck WDR-2 and WDR-3 Cellular Raceway Systems.

2.0 DESCRIPTION

2.1 General:

Walkerdeck WDR-2 and WDR-3 are cellular steel decks used as electrical raceways in floor systems composed entirely of Walkerdeck panels, or Walkerdeck panels combined with single-sheet fluted steel sections manufactured by others. Walkerdeck panels are fabricated from galvanized steel sheets conforming to ASTM A 653 Grade SS 37, and having a minimum yield strength of 37,000 psi (255 MPa). Galvanization shall be with G-60 or G-90 coating. Walkerdeck panels consist of a primarily flat lower sheet, a fluted upper sheet and a U-shaped section. The upper and lower sheets of each Walkerdeck panel may be different combinations of No. 20, No. 18 or No. 16 gage steel. The U-shaped section of each panel is the same thickness as the upper sheet. Walkerdeck panels are 24 inches (610 mm) wide. Walkerdeck WDR-2 and WDR-3 panels are 2 and 3 inches (51 and 76 mm) deep, respectively. See Figures 1, 2 and 3 for additional details.

The concrete fill utilizes regular or expanded shale aggregates and has a minimum compressive strength of 3,000 psi (20.7 MPa). It must have a minimum 2-inch (51 mm) thickness above the deck flute and be reinforced with a minimum 6-by-6—W1.4-by-W1.4 welded wire mesh approximately 1 inch (25 mm) below the fill surface, or with the addition of Fibermesh Fibers (Evaluation Report ER-4811) at a rate of 1.5 pounds per cubic yard (0.9 kg/m^3) of concrete. If the fill exceeds a 3$^1/_4$-inch (83 mm) thickness above the top of the deck, reinforcement in each direction equal to 0.01 times the depth of fill over the top of the deck is required.

2.2 Welding:

E60XX or E70XX rods having a minimum size of $^1/_8$ inch (3.2 mm), and complying with the appropriate AWS standard, are required. Arc spot (puddle) welds have a fusion area to supporting members of not less than $^3/_8$ inch (9.5 mm) by 1 inch (25 mm) or $^1/_2$ inch (12.7 mm) in diameter. Other weld requirements must comply with Chapter 22, Division VII, of the code (AWS D1.3). Prior to installation, the welder must demonstrate the ability to produce the prescribed weld to the satisfaction of the welding inspector.

2.3 Design:

Vertical loads that are predominately vibratory are not permitted. Deck thicknesses in the allowable superimposed load tables are nominal base-metal thicknesses used in design. The concrete thicknesses in the tables are the total depths, including the depth of the deck section. The allowable superimposed load tables give one-, two- or three-span conditions for construction loading, with maximum spans to be used without midspan shoring and the allowable superimposed loads based on a simple-span condition for composite behavior. The determination of shoring limits is based on the strength or deflection of the deck section using a construction uniform live load of 20 psf (958 Pa) and a concentrated construction live load of 150 pounds (20.7 N).

The combinations and distribution of loads are shown in Tables 7 and 8. One row of shoring is required at midspan for values to the right of the heavy line in the load tables. The dead load includes the weight of concrete deposited as a result of the deflection of the deck during the pouring sequence. No allowance is made for weights resulting from the deflection of supporting framing members. The deflections resulting from the tabulated loads are less than the first, second and fourth limitations specified in Table 9.5 (b) of ACI 318-95. To meet the third limitation in the table, special calculations are required.

When used as diaphragms, the allowable shear in pounds per lineal foot is limited to values set forth in Tables 9 through 12. When Walkerdeck is used in a blended deck system with single-sheet fluted deck units, the shear and flexibility factors are the lesser of those values assigned to the Walkerdeck and those values assigned to the single-sheet fluted deck. Standing seams are button-punched at a maximum spacing of 3 feet (914 mm) on center. Decks are welded, using one arc-spot weld in Flutes No. 1 and No. 2 to the supporting framing members, as noted in Figure 1. Arc-spot welds to members parallel to the flutes, such as chords or collector elements (struts or ties), have a maximum spacing in inches as determined by the following formula:

$$S = 32{,}000\ t/v$$

For **SI:** $S = 5600\ t/v$

where:

S = Spacing of arc welds to members parallel to flutes, in feet (m).

t = Base-metal thickness of the deck, in inches (mm).

v = Actual diaphragm shear at supports parallel to flutes or actual shear to be transferred to the collector element, in pounds per foot (N/m).

Maximum spacing of arc-spot welds is one-third the deck span. Shear transfer from the diaphragm to an interior tie or strut perpendicular to deck flutes cannot exceed the shear values indicated in the tables, using connections at the line of shear transfer similar to exterior support connections. Two lines of such exterior support connections may be used to develop the total shear transfer. Where individual panels are cut, the partial panel is fastened in a manner to fully transfer the diaphragm shear at that point to the adjacent full panels.

2.4 Special Inspection:

2.4.1 Concrete: Special inspection for concrete and concrete reinforcement is in accordance with Sections 1701.5.1 and 1701.5.4 of the code. The inspector's duties include sampling and testing, and verification of concrete mixes, reinforcement types and placement, and concrete placement.

2.4.2 Welding: Special inspection for field welding is in accordance with Section 1701.5.5 of the code. Before proceeding, the welder must demonstrate the ability to produce the prescribed weld to the special inspector's satisfaction. The inspector's other duties include verification of materials, weld preparation, welding procedures and welding processes.

2.5 Identification:

Deck bundles are identified by a label bearing the type and gage of the decks, the manufacturer's name (Walker Systems, Inc.) and the evaluation report number (ER-4315).

3.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Interim Criteria for Steel Decks (AC43), dated January 2002.

4.0 FINDINGS

That the Walkerdeck Cellular Raceway Systems described in this report comply with the 1997 *Uniform Building Code*™, subject to the following conditions:

4.1 The systems are not used for vertical loads that are predominantly vibratory.

4.2 Special inspection for concrete placement and welding is required, in accordance with Section 2.4 of this report.

4.3 Where blended systems are used, the single-sheet fluted sections supplied by others must have approved composite superimposed-load values exceeding the design requirements for the building under consideration.

4.4 Allowable diaphragm shears comply with tables in this report, with no increase for short-term loading and, in blended systems, no increase beyond the allowable values of other decks.

4.5 Cellular deck units are fabricated at 1000 Innovation Drive, in Williamstown, West Virginia, 26187.

This report is subject to re-examination in two years.

INDEX TO TABLES

TABLE 1—WALKERDECK SECTION PROPERTIES[1]

DECK TYPE[2]	GAGE[3]	BASE METAL THICKNESS (inch)[3]	GROSS MOMENT OF INERTIA (inch^4/ft.)	MOMENT OF INERTIA FOR DEFLECTION (inch^4/ft.)	SECTION MODULUS (in.^{3}/ft.)	
					Positive Moment	Negative Moment
WDR-2	20/20	0.0358/0.0358	0.508	0.424	0.380	0.367
	20/18	0.0358/0.0474	0.550	0.493	0.388	0.399
	18/20	0.0474/0.0358	0.627	0.526	0.524	0.450
	18/18	0.0474/0.0474	0.679	0.604	0.536	0.513
	18/16	0.0474/0.0600	0.728	0.680	0.547	0.544
	16/18	0.0600/0.0474	0.811	0.726	0.691	0.637
	16/16	0.0600/0.0600	0.870	0.812	0.707	0.674
WDR-3	20/20	0.0358/0.0358	1.469	1.195	0.714	0.648
	20/18	0.0358/0.0474	1.593	1.388	0.728	0.764
	18/20	0.0474/0.0358	1.802	1.489	0.990	0.795
	18/18	0.0474/0.0474	1.956	1.695	1.012	0.981
	18/16	0.0474/0.0600	2.097	1.915	1.031	1.039
	16/18	0.0600/0.0474	2.323	2.030	1.315	1.186
	16/16	0.0600/0.0600	2.492	2.275	1.341	1.285

For **SI:** 1 inch = 25.4 mm, 1 inch^3 = 16 387 mm^3, 1 inch^4 = 4 162 314 mm^4, 1 psi = 6.89 kPa.

[1]The section properties are based on 22,200-psi design stress and 37,000-psi yield stress.

[2]Dimension indicates nominal panel depth.

[3]First number indicates gage or thickness of fluted upper sheet and U-shaped section. Second number indicates gage or thickness of lower sheet.

TABLE 2—ALLOWABLE SUPERIMPOSED LOAD (psf) FOR WDR–2 WALKERDECK COMPOSITE DECK WITH CONCRETE DENSITY OF 110 PCF(f'_c = 3,000 psi)[1]

TOTAL SLAB DEPTH (In.)	DECK GAGE[2]	NO. OF SPAN	SPAN OF COMPOSITE DECK														
			6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"
4	20/20	1	181	164	149	137	126	117	109	102	72	67	61	57	53	49	45
		2	181	164	149	137	126	117	109	102	95	67	61	57	53	49	45
		3	181	164	149	137	126	117	109	102	95	90	85	57	53	49	45
	20/18	1	183	165	151	138	127	118	110	103	73	67	62	57	53	49	46
		2	183	165	151	138	127	118	110	103	96	91	62	57	53	49	46
		3	183	165	151	138	127	118	110	103	96	91	86	81	53	49	46
	18/20	1	200	196	179	164	151	140	131	122	114	108	102	72	67	63	59
		2	200	196	179	164	151	140	131	122	114	108	102	96	67	63	59
		3	200	196	179	164	151	140	131	122	114	108	102	96	91	87	59
	18/18	1	200	200	182	167	154	143	133	124	117	110	103	98	68	64	60
		2	200	200	182	167	154	143	133	124	117	110	103	98	93	64	60
		3	200	200	182	167	154	143	133	124	117	110	103	98	93	88	84
	18/16	1	200	200	183	168	155	143	133	125	117	110	104	98	68	64	59
		2	200	200	183	168	155	143	133	125	117	110	104	98	93	88	59
		3	200	200	183	168	155	143	133	125	117	110	104	98	93	88	84
	16/18	1	200	197	180	165	152	141	131	123	115	108	102	97	92	62	58
		2	200	197	180	165	152	141	131	123	115	108	102	97	92	87	83
		3	200	197	180	165	152	141	131	123	115	108	102	97	92	87	83
	16/16	1	200	199	182	167	154	142	133	124	116	109	103	98	93	63	58
		2	200	199	182	167	154	142	133	124	116	109	103	98	93	88	84
		3	200	199	182	167	154	142	133	124	116	109	103	98	93	88	84
$4^1/_2$	20/20	1	200	185	169	155	143	132	123	88	81	74	69	64	59	55	51
		2	200	185	169	155	143	132	123	115	81	74	69	64	59	55	51
		3	200	185	169	155	143	132	123	115	108	102	69	64	59	55	51
	20/18	1	200	187	170	156	144	134	124	89	81	75	69	64	59	55	51
		2	200	187	170	156	144	134	124	116	109	75	69	64	59	55	51
		3	200	187	170	156	144	134	124	116	109	103	97	64	59	55	51
	18/20	1	200	200	200	185	171	158	148	138	129	122	87	81	75	70	65
		2	200	200	200	185	171	158	148	138	129	122	115	81	75	70	65
		3	200	200	200	185	171	158	148	138	129	122	115	109	103	70	65
	18/18	1	200	200	200	188	174	161	150	140	131	124	117	82	76	71	66
		2	200	200	200	188	174	161	150	140	131	124	117	110	76	71	66
		3	200	200	200	188	174	161	150	140	131	124	117	110	105	99	66
	18/16	1	200	200	200	189	174	161	150	140	132	124	117	82	76	71	66
		2	200	200	200	189	174	161	150	140	132	124	117	111	105	71	66
		3	200	200	200	189	174	161	150	140	132	124	117	111	105	100	95
	16/18	1	200	200	200	185	171	158	148	138	129	122	115	109	74	69	64
		2	200	200	200	185	171	158	148	138	129	122	115	109	103	98	64
		3	200	200	200	185	171	158	148	138	129	122	115	109	103	98	93
	16/16	1	200	200	200	187	173	160	149	139	131	123	116	110	75	69	65
		2	200	200	200	187	173	160	149	139	131	123	116	110	104	99	94
		3	200	200	200	187	173	160	149	139	131	123	116	110	104	99	94

(Continued)

TABLE 2—ALLOWABLE SUPERIMPOSED LOAD (psf) FOR WDR–2 WALKERDECK COMPOSITE DECK WITH CONCRETE DENSITY OF 110 PCF(f'_c = 3,000 psi)[1]—(Continued)

TOTAL SLAB DEPTH (in.)	DECK GAGE[2]	NO. OF SPAN	SPAN OF COMPOSITE DECK														
			6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"
5	20/20	1	200	200	189	174	160	149	107	98	90	83	77	71	65	61	56
		2	200	200	189	174	160	149	138	98	90	83	77	71	65	61	56
		3	200	200	189	174	160	149	138	129	121	114	77	71	65	61	56
	20/18	1	200	200	191	175	162	150	108	99	91	83	77	71	65	61	56
		2	200	200	191	175	162	150	139	130	122	83	77	71	65	61	56
		3	200	200	191	175	162	150	139	130	122	115	77	71	65	61	56
	18/20	1	200	200	200	200	192	178	165	155	145	105	97	90	84	78	73
		2	200	200	200	200	192	178	165	155	145	136	97	90	84	78	73
		3	200	200	200	200	192	178	165	155	145	136	129	122	84	78	73
	18/18	1	200	200	200	200	194	180	168	157	147	138	98	91	85	79	74
		2	200	200	200	200	194	180	168	157	147	138	130	91	85	79	74
		3	200	200	200	200	194	180	168	157	147	138	130	123	117	79	74
	18/16	1	200	200	200	200	195	180	168	157	147	139	98	91	85	79	73
		2	200	200	200	200	195	180	168	157	147	139	131	124	85	79	73
		3	200	200	200	200	195	180	168	157	147	139	131	124	117	111	73
109	16/18	1	200	200	200	200	191	177	165	154	145	136	128	89	82	77	71
		2	200	200	200	200	191	177	165	154	145	136	128	121	115	77	71
		3	200	200	200	200	191	177	165	154	145	136	128	121	115	109	104
	16/16	1	200	200	200	200	193	179	166	155	146	137	129	122	83	77	72
		2	200	200	200	200	193	179	166	155	146	137	129	122	116	110	72
		3	200	200	200	200	193	179	166	155	146	137	129	122	116	110	105
5 1/4	20/20	1	200	200	200	183	169	157	113	103	95	87	81	74	69	64	59
		2	200	200	200	183	169	157	146	103	95	87	81	74	69	64	59
		3	200	200	200	183	169	157	146	137	128	87	81	74	69	64	59
	20/18	1	200	200	200	185	170	158	114	104	95	88	81	75	69	64	59
		2	200	200	200	185	170	158	147	137	95	88	81	75	69	64	59
		3	200	200	200	185	170	158	147	137	129	88	81	75	69	64	59
	18/20	1	200	200	200	200	200	188	175	163	153	110	102	95	88	82	77
		2	200	200	200	200	200	188	175	163	153	110	102	95	88	82	77
		3	200	200	200	200	200	188	175	163	153	144	136	129	88	82	77
	18/18	1	200	200	200	200	200	190	177	165	155	112	103	96	89	83	78
		2	200	200	200	200	200	190	177	165	155	146	138	96	89	83	78
		3	200	200	200	200	200	190	177	165	155	146	138	130	123	83	78
	18/16	1	200	200	200	200	200	190	177	166	155	146	103	96	89	83	77
		2	200	200	200	200	200	190	177	166	155	146	138	96	89	83	77
		3	200	200	200	200	200	190	177	166	155	146	138	130	124	117	77
	16/18	1	200	200	200	200	200	187	174	163	152	143	135	93	87	81	75
		2	200	200	200	200	200	187	174	163	152	143	135	128	121	81	75
		3	200	200	200	200	200	187	174	163	152	143	135	128	121	115	110
	16/16	1	200	200	200	200	200	188	175	164	154	145	136	129	87	81	75
		2	200	200	200	200	200	188	175	164	154	145	136	129	122	116	75
		3	200	200	200	200	200	188	175	164	154	145	136	129	122	116	111

(Continued)

TABLE 2—ALLOWABLE SUPERIMPOSED LOAD (psf) FOR WDR–2 WALKERDECK COMPOSITE DECK WITH CONCRETE DENSITY OF 110 PCF(f'_c = 3,000 psi)[1]—(Continued)

TOTAL SLAB DEPTH (in.)	DECK GAGE[2]	NO. OF SPAN	SPAN OF COMPOSITE DECK														
			6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"
5 1/2	20/20	1	200	200	200	193	178	130	119	109	100	92	85	78	72	67	62
		2	200	200	200	193	178	165	154	109	100	92	85	78	72	67	62
		3	200	200	200	193	178	165	154	144	135	92	85	78	72	67	62
	20/18	1	200	200	200	194	179	166	119	109	100	92	85	78	73	67	62
		2	200	200	200	194	179	166	155	145	100	92	85	78	73	67	62
		3	200	200	200	194	179	166	155	145	100	92	85	78	73	67	62
	18/20	1	200	200	200	200	200	198	184	172	161	116	107	100	93	86	80
		2	200	200	200	200	200	198	184	172	161	116	107	100	93	86	80
		3	200	200	200	200	200	198	184	172	161	152	143	100	93	86	80
	18/18	1	200	200	200	200	200	200	186	174	163	117	109	101	94	87	81
		2	200	200	200	200	200	200	186	174	163	153	109	101	94	87	81
		3	200	200	200	200	200	200	186	114	163	153	145	137	130	87	81
	18/16	1	200	200	200	200	200	200	186	174	163	117	108	101	93	87	81
		2	200	200	200	200	200	200	186	174	163	154	145	101	93	87	81
		3	200	200	200	200	200	200	186	174	163	154	145	137	130	87	81
	16/18	1	200	200	200	200	200	197	183	171	160	151	142	98	91	85	79
		2	200	200	200	200	200	197	183	171	160	151	142	135	91	85	79
		3	200	200	200	200	200	197	183	171	160	151	142	135	128	121	116
	16/16	1	200	200	200	200	200	198	184	172	162	152	143	98	91	85	79
		2	200	200	200	200	200	198	184	172	162	152	143	136	129	85	79
		3	200	200	200	200	200	198	184	172	162	152	143	136	129	122	116
6 1/4	20/20	1	200	200	200	200	200	150	137	125	115	106	97	90	83	77	71
		2	200	200	200	200	200	191	137	125	115	106	97	90	83	77	71
		3	200	200	200	200	200	191	178	166	115	106	97	90	83	77	71
	20/18	1	200	200	200	200	200	150	137	125	115	106	98	90	83	77	71
		2	200	200	200	200	200	192	137	125	115	106	98	90	83	77	71
		3	200	200	200	200	200	192	179	125	115	106	98	90	83	77	71
	18/20	1	200	200	200	200	200	200	200	198	145	134	124	115	107	99	93
		2	200	200	200	200	200	200	200	198	145	134	124	115	107	99	93
		3	200	200	200	200	200	200	200	198	186	175	124	115	107	99	93
	18/18	1	200	200	200	200	200	200	200	200	146	135	125	116	108	100	93
		2	200	200	200	200	200	200	200	200	188	135	125	116	108	100	93
		3	200	200	200	200	200	200	200	200	188	177	167	116	108	100	93
	18/16	1	200	200	200	200	200	200	200	200	146	135	125	115	107	100	93
		2	200	200	200	200	200	200	200	200	188	177	125	115	107	100	93
		3	200	200	200	200	200	200	200	200	188	177	167	158	107	100	93
	16/18	1	200	200	200	200	200	200	200	197	185	174	122	113	105	97	91
		2	200	200	200	200	200	200	200	197	185	174	164	113	105	97	91
		3	200	200	200	200	200	200	200	197	185	174	164	155	147	140	91
	16/16	1	200	200	200	200	200	200	200	198	186	175	122	113	105	98	91
		2	200	200	200	200	200	200	200	198	186	175	165	156	105	98	91
		3	200	200	200	200	200	200	200	198	186	175	165	156	148	141	91

For **SI:** 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 psf = 47.88 Pa, 1 pcf = 16 kg/m^3, 1 psi = 6.89 kPa.

[1]Loads are in pounds per square foot. Shoring is required at midspan for spans to the right of the darkened line.

[2]The first number indicates gage of fluted upper sheet and U-shaped section. The second number indicates gage of lower sheet. See Table 1 for base metal thickness.

TABLE 3—ALLOWABLE SUPERIMPOSED LOAD (psf) FOR WDR-2 WALKERDECK COMPOSITE DECK WITH CONCRETE DENSITY OF 145 PCF(f'_c = 3,000 psi)[1]

TOTAL SLAB DEPTH (in.)	DECK GAGE[2]	NO. OF SPAN	SPAN OF COMPOSITE DECK														
			6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"
4	20/20	1	200	200	198	182	168	155	115	106	97	90	83	77	71	66	62
		2	200	200	198	182	168	155	145	135	97	90	83	77	71	66	62
		3	200	200	198	182	168	155	145	135	127	119	83	77	71	66	62
	20/18	1	200	200	200	184	169	157	116	106	98	90	84	77	72	67	62
		2	200	200	200	184	169	157	146	137	128	90	84	77	72	67	62
		3	200	200	200	184	169	157	147	137	128	121	114	77	72	67	62
	18/20	1	200	200	200	200	200	186	173	162	152	113	105	97	91	85	79
		2	200	200	200	200	200	186	173	162	152	143	105	97	91	85	79
		3	200	200	200	200	200	186	173	162	152	144	135	128	91	85	79
	18/18	1	200	200	200	200	200	190	177	165	155	146	107	99	93	86	81
		2	200	200	200	200	200	190	177	165	155	146	137	99	93	86	81
		3	200	200	200	200	200	190	177	165	155	146	137	130	123	117	81
	18/16	1	200	200	200	200	200	190	177	166	155	146	107	99	93	86	81
		2	200	200	200	200	200	190	177	166	155	146	138	130	93	86	81
		3	200	200	200	200	200	190	177	166	155	146	138	130	124	118	81
	16/18	1	200	200	200	200	200	187	174	163	153	144	136	97	90	84	79
		2	200	200	200	200	200	187	174	163	153	144	136	128	122	116	79
		3	200	200	200	200	200	187	174	163	153	144	136	128	122	116	110
	16/16	1	200	200	200	200	200	189	176	165	154	145	137	130	91	85	79
		2	200	200	200	200	200	189	176	165	154	145	137	130	123	117	79
		3	200	200	200	200	200	189	176	165	154	145	137	130	123	117	111
4 1/2	20/20	1	200	200	200	200	190	141	129	118	109	100	93	86	79	74	69
		2	200	200	200	200	190	176	164	118	109	100	93	86	79	74	69
		3	200	200	200	200	190	176	164	153	144	100	93	86	79	74	69
	20/18	1	200	200	200	200	191	177	130	119	110	101	93	86	80	74	69
		2	200	200	200	200	191	177	165	154	110	101	93	86	80	74	69
		3	200	200	200	200	191	171	165	154	145	101	93	86	80	74	69
	18/20	1	200	200	200	200	200	200	196	183	136	126	117	109	101	95	88
		2	200	200	200	200	200	200	196	183	172	126	117	109	101	95	88
		3	200	200	200	200	200	200	196	183	172	162	153	109	101	95	88
	18/18	1	200	200	200	200	200	200	199	186	174	128	119	111	103	96	90
		2	200	200	200	200	200	200	199	186	174	164	119	111	103	96	90
		3	200	200	200	200	200	200	199	186	174	164	155	147	103	96	90
	18/16	1	200	200	200	200	200	200	200	187	175	128	119	111	103	96	90
		2	200	200	200	200	200	200	200	187	175	165	155	111	103	96	90
		3	200	200	200	200	200	200	200	187	175	165	155	147	139	96	90
	16/18	1	200	200	200	200	200	200	196	183	172	162	116	108	100	93	87
		2	200	200	200	200	200	200	196	183	172	162	153	144	100	93	87
		3	200	200	200	200	200	200	196	183	172	162	153	144	137	130	87
	16/16	1	200	200	200	200	200	200	198	185	173	163	154	109	101	94	88
		2	200	200	200	200	200	200	198	185	173	163	154	146	138	94	88
		3	200	200	200	200	200	200	198	185	173	163	154	146	138	131	125

(Continued)

TABLE 3—ALLOWABLE SUPERIMPOSED LOAD (psf) FOR WDR-2 WALKERDECK COMPOSITE DECK WITH CONCRETE DENSITY OF 145 PCF(f'_c = 3,000 psi)[1]—(Continued)

TOTAL SLAB DEPTH (In.)	DECK GAGE[2]	NO. OF SPAN	SPAN OF COMPOSITE DECK														
			6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"
5	20/20	1	200	200	200	200	200	157	144	132	121	112	103	95	88	82	76
		2	200	200	200	200	200	197	144	132	121	112	103	95	88	82	76
		3	200	200	200	200	200	197	184	172	121	112	103	95	88	82	76
	20/18	1	200	200	200	200	200	158	145	133	122	112	104	96	89	82	76
		2	200	200	200	200	200	199	145	133	122	112	104	96	89	82	76
		3	200	200	200	200	200	199	185	133	122	112	104	96	89	82	76
	18/20	1	200	200	200	200	200	200	200	200	152	141	130	121	113	105	98
		2	200	200	200	200	200	200	200	200	152	141	130	121	113	105	98
		3	200	200	200	200	200	200	200	200	193	181	130	121	113	105	98
	18/18	1	200	200	200	200	200	200	200	200	154	143	132	123	114	107	100
		2	200	200	200	200	200	200	200	200	195	143	132	123	114	107	100
		3	200	200	200	200	200	200	200	200	195	184	173	123	114	107	100
	18/16	1	200	200	200	200	200	200	200	200	154	143	132	123	114	106	99
		2	200	200	200	200	200	200	200	200	196	184	132	123	114	106	99
		3	200	200	200	200	200	200	200	200	196	184	174	164	114	106	99
	16/18	1	200	200	200	200	200	200	200	200	192	181	129	120	111	104	97
		2	200	200	200	200	200	200	200	200	192	181	170	120	111	104	97
		3	200	200	200	200	200	200	200	200	192	181	170	161	153	145	97
	16/16	1	200	200	200	200	200	200	200	200	194	182	130	120	112	104	97
		2	200	200	200	200	200	200	200	200	194	182	172	163	112	104	97
		3	200	200	200	200	200	200	200	200	194	182	172	163	154	146	97
$5^1/_2$	20/20	1	200	200	200	200	192	174	159	146	134	123	114	105	97	90	84
		2	200	200	200	200	200	174	159	146	134	123	114	105	97	90	84
		3	200	200	200	200	200	200	200	146	134	123	114	105	97	90	84
	20/18	1	200	200	200	200	200	175	160	147	135	124	114	106	98	91	84
		2	200	200	200	200	200	175	160	147	135	124	114	106	98	91	84
		3	200	200	200	200	200	200	160	147	135	124	114	106	98	91	84
	18/20	1	200	200	200	200	200	200	200	182	168	156	144	134	125	116	108
		2	200	200	200	200	200	200	200	182	168	156	144	134	125	116	108
		3	200	200	200	200	200	200	200	200	168	156	144	134	125	116	108
	18/18	1	200	200	200	200	200	200	200	185	170	158	146	136	126	118	110
		2	200	200	200	200	200	200	200	200	170	158	146	136	126	118	110
		3	200	200	200	200	200	200	200	200	200	200	192	136	126	118	110
	18/16	1	200	200	200	200	200	200	200	185	170	157	146	135	126	117	110
		2	200	200	200	200	200	200	200	200	200	157	146	135	126	117	110
		3	200	200	200	200	200	200	200	200	200	200	193	135	126	117	110
	16/18	1	200	200	200	200	200	200	200	200	200	154	142	132	123	114	107
		2	200	200	200	200	200	200	200	200	200	200	189	132	123	114	107
		3	200	200	200	200	200	200	200	200	200	200	189	179	170	114	107
	16/16	1	200	200	200	200	200	200	200	200	200	200	143	133	123	115	107
		2	200	200	200	200	200	200	200	200	200	200	190	133	123	115	107
		3	200	200	200	200	200	200	200	200	200	200	190	180	171	115	107

(Continued)

TABLE 3—ALLOWABLE SUPERIMPOSED LOAD (psf) FOR WDR-2 WALKERDECK COMPOSITE DECK WITH CONCRETE DENSITY OF 145 PCF(f'_c = 3,000 psi)[1]—(Continued)

TOTAL SLAB DEPTH (In.)	DECK GAGE[2]	NO. OF SPAN	SPAN OF COMPOSITE DECK														
			6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"
6	20/20	1	200	200	200	200	200	192	175	160	147	135	125	115	107	99	92
		2	200	200	200	200	200	192	175	160	147	135	125	115	107	99	92
		3	200	200	200	200	200	200	175	160	147	135	125	115	107	99	92
	20/18	1	200	200	200	200	200	192	176	161	148	136	125	116	107	99	92
		2	200	200	200	200	200	192	176	161	148	136	125	116	107	99	92
		3	200	200	200	200	200	192	176	161	148	136	125	116	107	99	92
	18/20	1	200	200	200	200	200	200	200	200	185	171	159	147	137	128	119
		2	200	200	200	200	200	200	200	200	185	171	159	147	137	128	119
		3	200	200	200	200	200	200	200	200	200	171	159	147	137	128	119
	18/18	1	200	200	200	200	200	200	200	200	187	173	160	149	139	129	120
		2	200	200	200	200	200	200	200	200	187	173	160	149	139	129	120
		3	200	200	200	200	200	200	200	200	200	200	160	149	139	129	120
	18/16	1	200	200	200	200	200	200	200	200	187	173	160	149	138	129	120
		2	200	200	200	200	200	200	200	200	187	173	160	149	138	129	120
		3	200	200	200	200	200	200	200	200	200	173	160	149	138	129	120
	16/18	1	200	200	200	200	200	200	200	200	183	169	156	145	135	126	117
		2	200	200	200	200	200	200	200	200	200	200	156	145	135	126	117
		3	200	200	200	200	200	200	200	200	200	200	200	197	135	126	117
	16/16	1	200	200	200	200	200	200	200	200	200	170	157	146	135	126	118
		2	200	200	200	200	200	200	200	200	200	200	157	146	135	126	118
		3	200	200	200	200	200	200	200	200	200	200	200	198	188	126	118
$6^1/_2$	20/20	1	200	200	200	200	200	200	191	175	161	148	136	126	117	108	100
		2	200	200	200	200	200	200	191	175	161	148	136	126	117	108	100
		3	200	200	200	200	200	200	191	175	161	148	136	126	117	108	100
	20/18	1	200	200	200	200	200	200	192	176	161	148	137	126	117	108	100
		2	200	200	200	200	200	200	192	176	161	148	137	126	117	108	100
		3	200	200	200	200	200	200	192	176	161	148	137	126	117	108	100
	18/20	1	200	200	200	200	200	200	200	200	200	187	173	161	150	139	130
		2	200	200	200	200	200	200	200	200	200	187	173	161	150	139	130
		3	200	200	200	200	200	200	200	200	200	187	173	161	150	139	130
	18/18	1	200	200	200	200	200	200	200	200	200	189	175	162	151	141	131
		2	200	200	200	200	200	200	200	200	200	189	175	162	151	141	131
		3	200	200	200	200	200	200	200	200	200	189	175	162	151	141	131
	18/16	1	200	200	200	200	200	200	200	200	200	188	175	162	151	140	131
		2	200	200	200	200	200	200	200	200	200	188	175	162	151	140	131
		3	200	200	200	200	200	200	200	200	200	188	175	162	151	140	131
	16/18	1	200	200	200	200	200	200	200	200	200	184	171	158	147	137	128
		2	200	200	200	200	200	200	200	200	200	184	171	158	147	137	128
		3	200	200	200	200	200	200	200	200	200	200	200	158	147	137	128
	16/16	1	200	200	200	200	200	200	200	200	200	185	171	159	148	138	128
		2	200	200	200	200	200	200	200	200	200	200	171	159	148	138	128
		3	200	200	200	200	200	200	200	200	200	200	200	200	148	138	128

For **SI:** 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 psf = 47.88 Pa, 1 pcf = 16 kg/m^3, 1 psi = 6.89 kPa.

[1]Loads are in pounds per square foot. Shoring is required at midspan for spans to the right of the darkened line.

[2]The first numher indicates gage of fluted upper sheet and U-shaped section. The second number indicates gage of lower sheet. See Table 1 for base metal thickness.

TABLE 4—ALLOWABLE SUPERIMPOSED LOAD (psf) FOR WDR–3 WALKERDECK COMPOSITE DECK WITH CONCRETE DENSITY OF 110 PCF (f'_c = 3,000 psi)[1]

TOTAL SLAB DEPTH (in.)	DECK GAGE[2]	NO. OF SPAN	SPAN OF COMPOSITE DECK																	
			8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"	14'-6"	15'-0"	15'-6"	16'-0"	16'-6"	17'-0"
5	20/20	1	161	149	139	130	121	114	108	102	97	92	87	83	55	52	—	—	—	—	—
		2	161	149	139	130	121	114	108	102	97	92	87	83	55	52	—	—	—	—	—
		3	161	149	139	130	121	114	108	102	97	92	87	83	80	76	73	—	—	—	—
	20/18	1	162	150	140	130	122	115	109	103	97	93	88	84	80	52	48	—	—	—	—
		2	162	150	140	130	122	115	109	103	97	93	88	84	80	77	48	—	—	—	—
		3	162	150	140	130	122	115	109	103	97	93	88	84	80	77	74	71	68	—	—
	18/20	1	193	179	167	156	146	138	130	123	116	111	105	100	96	66	63	59	56	53	50
		2	193	179	167	156	146	138	130	123	116	111	105	100	96	92	88	59	56	53	50
		3	193	179	167	156	146	138	130	123	116	111	105	100	96	92	88	85	81	78	50
	18/18	1	188	175	163	152	143	134	126	120	113	108	103	98	94	90	60	56	53	50	—
		2	188	175	163	152	143	134	126	120	113	108	103	98	94	90	86	82	79	76	—
		3	188	175	163	152	143	134	126	120	113	108	108	98	94	90	86	82	79	76	73
	18/16	1	183	170	158	148	138	130	123	116	110	105	100	95	91	87	83	54	50	48	45
		2	183	170	158	148	138	130	123	116	110	105	100	95	91	87	83	80	77	74	45
		3	183	170	158	148	138	130	123	116	110	105	100	95	91	87	83	80	77	74	71
	16/18	1	182	169	157	147	138	130	122	116	110	104	99	95	91	87	83	53	50	—	—
		2	182	169	157	147	138	130	122	116	110	104	99	95	91	87	83	80	77	74	71
		3	182	169	157	147	138	130	122	116	110	104	99	95	91	87	83	80	77	74	71
	16/16	1	179	166	154	144	135	127	120	114	108	102	97	93	89	85	81	78	—	—	—
		2	179	166	154	144	135	127	120	114	108	102	97	93	89	85	81	78	75	72	70
		3	179	166	154	144	135	127	120	114	108	102	97	93	89	85	81	78	75	72	70
$5^1/_2$	20/20	1	175	162	151	141	133	125	118	111	106	100	96	62	58	55	51	—	—	—	—
		2	175	162	151	141	133	125	118	111	106	100	96	62	58	55	51	—	—	—	—
		3	175	162	151	141	133	125	118	111	106	100	96	91	87	83	51	—	—	—	—
	20/18	1	178	165	153	143	134	126	119	113	107	102	97	63	59	55	52	—	—	—	—
		2	178	165	153	143	134	126	119	113	107	102	97	92	88	55	52	—	—	—	—
		3	178	165	153	143	134	126	119	113	107	102	97	92	88	84	81	78	—	—	—
	18/20	1	200	195	181	169	159	150	141	133	127	120	115	109	75	70	66	62	59	56	52
		2	200	195	181	169	159	150	141	133	127	120	115	109	104	70	66	62	59	56	52
		3	200	195	181	169	159	150	141	133	127	120	115	109	104	100	96	92	59	56	52
	18/18	1	200	198	184	172	161	152	143	135	128	122	116	111	106	71	67	63	60	56	53
		2	200	198	184	172	161	152	143	135	128	122	116	111	106	101	97	63	60	56	53
		3	200	198	184	172	161	152	143	135	128	122	116	111	106	101	97	93	90	86	53
	18/16	1	200	200	186	174	163	153	145	137	130	123	118	112	107	103	68	64	60	57	54
		2	200	200	186	174	163	153	145	137	130	123	118	112	107	103	98	94	91	57	54
		3	200	200	186	174	163	153	145	137	130	123	118	112	107	103	98	94	91	87	84
	16/18	1	200	196	183	171	160	151	142	134	127	121	115	110	105	101	66	62	58	55	52
		2	200	196	183	171	160	151	142	134	127	121	115	110	105	101	96	93	89	86	82
		3	200	196	183	171	160	151	142	134	127	121	115	110	105	101	96	93	89	86	82
	16/16	1	200	199	185	173	162	153	144	136	129	123	117	111	106	102	98	63	59	56	52
		2	200	199	185	173	162	153	144	136	129	123	117	111	106	102	98	94	90	87	84
		3	200	199	185	173	162	153	144	136	129	123	117	111	106	102	98	94	90	87	84

(Continued)

TABLE 4—ALLOWABLE SUPERIMPOSED LOAD (psf) FOR WDR–3 WALKERDECK COMPOSITE DECK WITH CONCRETE DENSITY OF 110 PCF (f'_c = 3,000 psi)[1]—(Continued)

TOTAL SLAB DEPTH (in.)	DECK GAGE[2]	NO. OF SPAN	SPAN OF COMPOSITE DECK																		
			8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"	14'-6"	15'-0"	15'-6"	16'-0"	16'-6"	17'-0"
6	20/20	1	191	177	165	154	145	136	128	121	115	109	71	67	62	58	54	51	—	—	—
		2	191	177	165	154	145	136	128	121	115	109	71	67	62	58	54	51	—	—	—
		3	191	177	165	154	145	136	128	121	115	109	104	99	62	58	54	51	—	—	—
	20/18	1	193	179	167	156	146	138	130	123	117	111	72	67	63	59	55	52	—	—	—
		2	193	179	167	156	146	138	130	123	117	111	105	101	63	59	55	52	—	—	—
		3	193	179	167	156	146	138	130	123	117	111	105	101	96	92	88	52	—	—	—
	18/20	1	200	200	197	184	173	163	153	145	138	131	125	119	80	75	71	67	63	59	56
		2	200	200	197	184	173	163	153	145	138	131	125	119	80	75	71	67	63	59	56
		3	200	200	197	184	173	163	153	145	138	131	125	119	114	109	104	67	63	59	56
	18/18	1	200	200	200	187	175	165	156	147	140	133	126	120	81	76	72	68	64	60	56
		2	200	200	200	187	175	165	156	147	140	133	126	120	115	110	106	68	64	60	56
		3	200	200	200	187	175	165	156	147	140	133	126	120	115	110	106	101	97	60	56
	18/16	1	200	200	200	189	177	167	157	149	141	134	128	122	116	77	72	68	64	60	57
		2	200	200	200	189	177	167	157	149	141	134	128	122	116	111	107	102	64	60	57
		3	200	200	200	187	177	167	157	149	141	134	128	122	116	111	107	102	98	95	57
	16/18	1	200	200	198	185	173	163	154	146	138	131	125	119	114	109	70	66	62	58	55
		2	200	200	198	185	173	163	154	146	138	131	125	119	114	109	104	100	96	93	55
		3	200	200	198	185	173	163	154	146	138	131	125	119	114	109	104	100	96	93	89
	16/16	1	200	200	200	187	175	165	156	147	140	133	126	121	115	110	71	66	62	59	55
		2	200	200	200	187	175	165	156	147	140	133	126	121	115	110	106	101	98	94	90
		3	200	200	200	187	175	165	156	147	140	133	126	121	115	110	106	101	98	94	90
6 1/4	20/20	1	199	185	172	161	151	142	134	127	120	79	74	69	64	60	56	53	—	—	—
		2	199	185	172	161	151	142	134	127	120	79	74	69	64	60	56	53	—	—	—
		3	199	185	172	161	151	142	134	127	120	114	109	104	64	60	56	53	—	—	—
	20/18	1	200	187	174	163	153	144	135	128	121	115	75	70	65	61	57	53	50	—	—
		2	200	187	174	163	153	144	135	128	121	115	110	70	65	61	57	53	50	—	—
		3	200	187	174	163	153	144	135	128	121	115	110	105	100	96	57	53	50	—	—
	18/20	1	200	200	200	192	180	170	160	151	143	136	130	88	83	78	73	69	65	61	57
		2	200	200	200	192	180	170	160	151	143	136	130	124	83	78	73	69	65	61	57
		3	200	200	200	192	180	170	160	151	143	136	130	124	118	113	109	69	65	61	57
	18/18	1	200	200	200	195	183	172	162	153	145	138	131	125	84	79	74	70	66	62	58
		2	200	200	200	195	183	172	162	153	145	138	131	125	120	115	110	70	66	62	58
		3	200	200	200	195	183	172	162	153	145	138	131	125	120	115	110	106	101	62	58
	18/16	1	200	200	200	197	184	174	164	155	147	140	133	127	121	80	75	70	66	62	59
		2	200	200	200	197	184	174	164	155	147	140	133	127	121	116	111	70	66	62	59
		3	200	200	200	197	184	174	164	155	147	140	133	127	121	116	111	107	102	99	59
	16/18	1	200	200	200	192	180	170	160	152	144	137	130	124	119	77	72	68	64	60	56
		2	200	200	200	192	180	170	160	152	144	137	130	124	119	113	109	104	100	60	56
		3	200	200	200	192	180	170	160	152	144	137	130	124	119	113	109	104	100	97	56
	16/16	1	200	200	200	195	183	172	162	153	145	138	132	125	120	115	73	69	64	61	57
		2	200	200	200	195	183	172	162	153	145	138	132	125	120	115	110	106	101	98	57
		3	200	200	200	195	183	172	162	153	145	138	132	125	120	115	110	106	101	98	94

(Continued)

TABLE 4—ALLOWABLE SUPERIMPOSED LOAD (psf) FOR WDR–3 WALKERDECK COMPOSITE DECK WITH CONCRETE DENSITY OF 110 PCF (f'_c = 3,000 psi)[1]—(Continued)

TOTAL SLAB DEPTH (in.)	DECK GAGE[2]	NO. OF SPAN	SPAN OF COMPOSITE DECK																	
			8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"	14'-6"	15'-0"	15'-6"	16'-0"	16'-6"	17'-0"
6 1/2	20/20	1	200	193	179	168	157	148	140	132	125	82	77	71	67	62	58	54	51	—	—
		2	200	193	179	168	157	148	140	132	125	82	77	71	67	62	58	54	51	—	—
		3	200	193	179	168	157	148	140	132	125	119	113	108	67	62	58	54	51	—	—
	20/18	1	200	195	181	169	159	150	141	133	127	83	77	72	67	63	59	55	51	—	—
		2	200	195	181	169	159	150	141	133	127	120	114	72	67	63	59	55	51	—	—
		3	200	195	181	169	159	150	141	133	121	120	114	109	100	63	59	55	51	—	—
	18/20	1	200	200	200	200	188	177	167	158	149	142	135	92	86	81	76	71	67	63	59
		2	200	200	200	200	188	177	167	158	149	142	135	92	86	81	76	71	67	63	59
		3	200	200	200	200	188	177	167	158	149	142	135	129	123	118	76	71	67	63	59
	18/18	1	200	200	200	200	190	179	169	160	151	144	137	131	87	82	77	72	68	64	60
		2	200	200	200	200	190	179	169	160	151	144	137	131	125	119	77	72	68	64	60
		3	200	200	200	200	190	179	169	160	151	144	137	131	125	119	114	110	68	64	60
	18/16	1	200	200	200	200	192	181	170	161	153	145	138	132	88	82	77	73	68	64	61
		2	200	200	200	200	192	181	170	161	153	145	138	132	126	121	116	73	68	64	61
		3	200	200	200	200	192	181	170	161	153	145	138	132	126	121	116	111	107	64	61
	16/18	1	200	200	200	200	188	177	167	158	149	142	135	129	123	79	75	70	66	62	58
		2	200	200	200	200	188	177	167	158	149	142	135	129	123	118	113	109	104	62	58
		3	200	200	200	200	188	177	167	158	149	142	135	129	123	118	113	109	104	100	58
	16/16	1	200	200	200	200	190	179	168	159	151	144	137	130	125	119	75	71	67	63	59
		2	200	200	200	200	190	179	168	159	151	144	137	130	125	119	114	110	105	101	59
		3	200	200	200	200	190	179	168	159	151	144	137	130	125	119	114	110	105	101	98
7 1/4	20/20	1	200	200	200	188	177	166	157	148	98	91	85	79	74	69	64	60	56	52	49
		2	200	200	200	188	177	166	157	148	98	91	85	79	74	69	64	60	56	52	49
		3	200	200	200	188	177	166	157	148	144	134	85	79	74	69	64	60	56	52	49
	20/18	1	200	200	200	190	179	168	158	150	99	92	86	80	74	69	65	60	56	53	49
		2	200	200	200	190	179	168	158	150	142	135	86	80	74	69	65	60	56	53	49
		3	200	200	200	190	179	168	158	150	142	135	129	123	74	69	65	60	56	53	49
	18/20	1	200	200	200	200	200	198	187	177	168	160	109	102	95	89	84	79	74	70	65
		2	200	200	200	200	200	198	187	177	168	160	109	102	95	89	84	79	74	70	65
		3	200	200	200	200	200	198	187	177	168	160	152	145	139	89	84	79	74	70	65
	18/18	1	200	200	200	200	200	200	189	179	170	161	154	103	96	90	85	80	75	70	66
		2	200	200	200	200	200	200	189	179	170	161	154	147	140	90	85	80	75	70	66
		3	200	200	200	200	200	200	189	179	170	161	154	147	140	134	128	80	75	70	66
	18/16	1	200	200	200	200	200	200	191	181	171	163	155	148	97	91	85	80	75	71	67
		2	200	200	200	200	200	200	191	181	171	163	155	148	141	91	85	80	75	71	67
		3	200	200	200	200	200	200	191	181	171	163	155	148	141	135	130	80	75	71	67
	16/18	1	200	200	200	200	200	198	187	177	168	159	152	145	94	88	82	77	73	68	64
		2	200	200	200	200	200	198	187	177	168	159	152	145	138	132	127	77	73	68	64
		3	200	200	200	200	200	198	187	177	168	159	152	145	138	132	127	122	117	68	64
	16/16	1	200	200	200	200	200	200	189	178	169	161	153	146	139	89	83	78	73	69	65
		2	200	200	200	200	200	200	189	178	169	161	153	146	139	134	128	123	73	69	65
		3	200	200	200	200	200	200	189	178	169	161	153	146	139	134	128	123	118	114	65

For **SI:** 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 psf = 47.88 Pa, 1 pcf = 16 kg/m^3, 1 psi = 6.89 kPa.

[1]Loads are in pounds per square foot. Shoring is required at midspan for spans to the right of the darkened line.

[2]The first number indicates gage of fluted upper sheet and U-shaped section. The second number indicates gage of lower sheet. See Table 1 for base metal thickness.

TABLE 5—ALLOWABLE SUPERIMPOSED LOAD (psf) FOR WDR-3 WALKERDECK COMPOSITE DECK WITH CONCRETE DENSITY OF 145 PCF (f'_c = 3,000 psi)[1]

TOTAL SLAB DEPTH (in.)	DECK GAGE[2]	NO. OF SPAN	SPAN OF COMPOSITE DECK																		
			8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"	14'-6"	15'-0"	15'-6"	16'-0"	16'-6"	17'-0"
5	20/20	1	200	200	200	200	200	200	200	191	181	172	132	124	118	111	105	100	95	90	85
		2	200	200	200	200	200	200	200	191	181	172	132	124	118	111	105	100	95	90	85
		3	200	200	200	200	200	200	200	191	181	172	164	156	149	111	105	100	95	90	85
	20/18	1	200	200	200	200	200	200	200	192	182	173	133	125	118	112	106	100	95	90	86
		2	200	200	200	200	200	200	200	192	182	173	165	157	118	112	106	100	95	90	86
		3	200	200	200	200	200	200	200	192	182	173	165	157	150	144	138	100	95	90	86
	18/20	1	200	200	200	200	200	200	200	200	200	200	197	188	147	140	132	126	120	114	109
		2	200	200	200	200	200	200	200	200	200	200	197	188	147	140	132	126	120	114	109
		3	200	200	200	200	200	200	200	200	200	200	197	188	178	164	151	126	120	114	109
	18/18	1	200	200	200	200	200	200	200	200	200	200	192	183	142	135	128	121	115	110	105
		2	200	200	200	200	200	200	200	200	200	200	192	183	175	167	161	121	115	110	105
		3	200	200	200	200	200	200	200	200	200	200	192	183	175	167	161	154	145	110	105
	18/16	1	200	200	200	200	200	200	200	200	200	196	186	178	170	129	123	116	111	105	100
		2	200	200	200	200	200	200	200	200	200	196	186	178	170	163	156	116	111	105	100
		3	200	200	200	200	200	200	200	200	200	196	186	178	170	163	156	150	144	138	100
	16/18	1	200	200	200	200	200	200	200	200	200	195	186	177	169	162	122	116	110	104	99
		2	200	200	200	200	200	200	200	200	200	195	186	177	169	162	155	149	143	138	99
		3	200	200	200	200	200	200	200	200	200	195	186	177	169	162	155	149	143	138	132
	16/16	1	200	200	200	200	200	200	200	200	200	191	182	174	166	159	118	112	107	101	96
		2	200	200	200	200	200	200	200	200	200	191	182	174	166	159	152	146	140	135	130
		3	200	200	200	200	200	200	200	200	200	191	182	174	166	159	152	146	140	135	130
$5^1/_2$	20/20	1	200	200	200	200	200	200	200	200	197	151	142	134	126	119	113	107	101	96	91
		2	200	200	200	200	200	200	200	200	197	151	142	134	126	119	113	107	101	96	91
		3	200	200	200	200	200	200	200	200	197	188	179	134	126	119	113	107	101	96	91
	20/18	1	200	200	200	200	200	200	200	200	200	153	144	135	128	121	114	108	102	97	92
		2	200	200	200	200	200	200	200	200	200	190	181	135	128	121	114	108	102	97	92
		3	200	200	200	200	200	200	200	200	200	190	181	173	165	121	114	108	102	97	92
	18/20	1	200	200	200	200	200	200	200	200	200	200	200	167	158	149	142	134	128	121	116
		2	200	200	200	200	200	200	200	200	200	200	200	167	158	149	142	134	128	121	116
		3	200	200	200	200	200	200	200	200	200	200	200	200	195	187	142	134	128	121	116
	18/18	1	200	200	200	200	200	200	200	200	200	200	200	200	160	152	144	136	130	123	117
		2	200	200	200	200	200	200	200	200	200	200	200	200	198	189	144	136	130	123	117
		3	200	200	200	200	200	200	200	200	200	200	200	200	198	189	182	174	130	123	117
	18/16	1	200	200	200	200	200	200	200	200	200	200	200	200	162	153	145	138	131	125	119
		2	200	200	200	200	200	200	200	200	200	200	200	200	200	192	184	138	131	125	119
		3	200	200	200	200	200	200	200	200	200	200	200	200	200	192	184	176	170	125	119
	16/18	1	200	200	200	200	200	200	200	200	200	200	200	200	197	149	142	134	128	121	115
		2	200	200	200	200	200	200	200	200	200	200	200	200	197	188	180	173	128	121	115
		3	200	200	200	200	200	200	200	200	200	200	200	200	197	188	180	173	166	160	115
	16/16	1	200	200	200	200	200	200	200	200	200	200	200	200	199	151	143	136	129	123	117
		2	200	200	200	200	200	200	200	200	200	200	200	200	199	190	183	175	168	162	117
		3	200	200	200	200	200	200	200	200	200	200	200	200	199	190	183	175	168	162	117

(Continued)

TABLE 5—ALLOWABLE SUPERIMPOSED LOAD (psf) FOR WDR-3 WALKERDECK COMPOSITE DECK WITH CONCRETE DENSITY OF 145 PCF (f'_c = 3,000 psi)[1]—(Continued)

TOTAL SLAB DEPTH (In.)	DECK GAGE[2]	NO. OF SPAN	SPAN OF COMPOSITE DECK																		
			8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"	14'-6"	15'-0"	15'-6"	16'-0"	16'-6"	17'-0"
6	20/20	1	200	200	200	200	200	200	200	200	173	163	153	144	136	128	121	114	108	103	97
		2	200	200	200	200	200	200	200	200	173	163	153	144	136	128	121	114	108	103	97
		3	200	200	200	200	200	200	200	200	200	200	153	144	136	128	121	114	108	103	97
	20/18	1	200	200	200	200	200	200	200	200	176	165	155	146	137	130	122	116	110	104	99
		2	200	200	200	200	200	200	200	200	200	200	155	146	137	130	122	116	110	104	99
		3	200	200	200	200	200	200	200	200	200	200	197	188	137	130	122	116	110	104	99
	18/20	1	200	200	200	200	200	200	200	200	200	200	190	179	170	161	152	144	137	130	124
		2	200	200	200	200	200	200	200	200	200	200	190	179	170	161	152	144	137	130	124
		3	200	200	200	200	200	200	200	200	200	200	200	200	200	161	152	144	137	130	124
	18/18	1	200	200	200	200	200	200	200	200	200	200	200	182	172	163	154	146	139	132	126
		2	200	200	200	200	200	200	200	200	200	200	200	200	200	163	154	146	139	132	126
		3	200	200	200	200	200	200	200	200	200	200	200	200	200	200	197	146	139	132	126
	18/16	1	200	200	200	200	200	200	200	200	200	200	200	200	174	165	156	148	140	134	127
		2	200	200	200	200	200	200	200	200	200	200	200	200	200	165	156	148	140	134	127
		3	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	148	140	134	127
	16/18	1	200	200	200	200	200	200	200	200	200	200	200	200	169	160	151	144	136	130	123
		2	200	200	200	200	200	200	200	200	200	200	200	200	200	200	195	144	136	130	123
		3	200	200	200	200	200	200	200	200	200	200	200	200	200	200	195	187	180	130	123
	16/16	1	200	200	200	200	200	200	200	200	200	200	200	200	200	162	153	145	138	131	125
		2	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	190	138	131	125
		3	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	190	182	131	125
6 1/2	20/20	1	200	200	200	200	200	200	200	200	187	175	165	155	146	138	130	123	116	110	104
		2	200	200	200	200	200	200	200	200	187	175	165	155	146	138	130	123	116	110	104
		3	200	200	200	200	200	200	200	200	200	175	165	155	146	138	130	123	116	110	104
	20/18	1	200	200	200	200	200	200	200	200	189	177	167	157	148	139	131	124	118	111	106
		2	200	200	200	200	200	200	200	200	200	177	167	157	148	139	131	124	118	111	106
		3	200	200	200	200	200	200	200	200	200	200	200	157	148	139	131	124	118	111	106
	18/20	1	200	200	200	200	200	200	200	200	200	200	200	193	183	173	164	155	147	140	133
		2	200	200	200	200	200	200	200	200	200	200	200	193	183	173	164	155	147	140	133
		3	200	200	200	200	200	200	200	200	200	200	200	200	183	173	164	155	147	140	133
	18/18	1	200	200	200	200	200	200	200	200	200	200	200	196	185	175	166	157	149	142	135
		2	200	200	200	200	200	200	200	200	200	200	200	200	185	175	166	157	149	142	135
		3	200	200	200	200	200	200	200	200	200	200	200	200	200	200	166	157	149	142	135
	18/16	1	200	200	200	200	200	200	200	200	200	200	200	198	187	177	167	159	151	143	136
		2	200	200	200	200	200	200	200	200	200	200	200	200	187	177	167	159	151	143	136
		3	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	159	151	143	136
	16/18	1	200	200	200	200	200	200	200	200	200	200	200	192	181	172	162	154	146	139	132
		2	200	200	200	200	200	200	200	200	200	200	200	200	200	200	162	154	146	139	132
		3	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	146	139	132
	16/16	1	200	200	200	200	200	200	200	200	200	200	200	200	184	174	164	156	148	140	133
		2	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	156	148	140	133
		3	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	197	140	133

(Continued)

TABLE 5—ALLOWABLE SUPERIMPOSED LOAD (psf) FOR WDR-3 WALKERDECK COMPOSITE DECK WITH CONCRETE DENSITY OF 145 PCF (f'_c = 3,000 psi)[1]—(Continued)

TOTAL SLAB DEPTH (In.)	DECK GAGE[2]	NO. OF SPAN	SPAN OF COMPOSIT DECK																		
			8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"	14'-6"	15'-0"	15'-6"	16'-0"	16'-6"	17'-0"
7	20/20	1	200	200	200	200	200	200	200	200	200	188	177	166	157	148	139	132	124	118	112
		2	200	200	200	200	200	200	200	200	200	188	177	166	157	148	139	132	124	118	112
		3	200	200	200	200	200	200	200	200	200	188	177	166	157	148	139	132	124	118	112
	20/18	1	200	200	200	200	200	200	200	200	200	190	179	168	158	149	141	133	126	119	113
		2	200	200	200	200	200	200	200	200	200	190	179	168	158	149	141	133	126	119	113
		3	200	200	200	200	200	200	200	200	200	200	179	168	158	149	141	133	126	119	113
	18/20	1	200	200	200	200	200	200	200	200	200	200	200	200	196	186	176	167	158	150	143
		2	200	200	200	200	200	200	200	200	200	200	200	200	196	186	176	167	158	150	143
		3	200	200	200	200	200	200	200	200	200	200	200	200	196	186	176	167	158	150	143
	18/18	1	200	200	200	200	200	200	200	200	200	200	200	200	199	188	178	169	160	152	144
		2	200	200	200	200	200	200	200	200	200	200	200	200	199	188	178	169	160	152	144
		3	200	200	200	200	200	200	200	200	200	200	200	200	200	188	178	169	160	152	144
	18/16	1	200	200	200	200	200	200	200	200	200	200	200	200	200	190	179	170	161	153	146
		2	200	200	200	200	200	200	200	200	200	200	200	200	200	190	179	170	161	153	146
		3	200	200	200	200	200	200	200	200	200	200	200	200	200	200	179	170	161	153	146
	16/18	1	200	200	200	200	200	200	200	200	200	200	200	200	195	184	174	165	156	148	141
		2	200	200	200	200	200	200	200	200	200	200	200	200	200	184	174	165	156	148	141
		3	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	165	156	148	141
	16/16	1	200	200	200	200	200	200	200	200	200	200	200	200	197	186	176	167	158	150	143
		2	200	200	200	200	200	200	200	200	200	200	200	200	200	200	176	167	158	150	143
		3	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	158	150	143
7 1/2	20/20	1	200	200	200	200	200	200	200	200	200	200	190	178	168	158	149	141	133	126	119
		2	200	200	200	200	200	200	200	200	200	200	190	178	168	158	149	141	133	126	119
		3	200	200	200	200	200	200	200	200	200	200	190	178	168	158	149	141	133	126	119
	20/18	1	200	200	200	200	200	200	200	200	200	200	192	180	169	160	151	142	134	127	120
		2	200	200	200	200	200	200	200	200	200	200	192	180	169	160	151	142	134	127	120
		3	200	200	200	200	200	200	200	200	200	200	192	180	169	160	151	142	134	127	120
	18/20	1	200	200	200	200	200	200	200	200	200	200	200	200	200	199	188	178	169	161	153
		2	200	200	200	200	200	200	200	200	200	200	200	200	200	199	188	178	169	161	153
		3	200	200	200	200	200	200	200	200	200	200	200	200	200	199	188	178	169	161	153
	18/18	1	200	200	200	200	200	200	200	200	200	200	200	200	200	200	190	180	171	162	154
		2	200	200	200	200	200	200	200	200	200	200	200	200	200	200	190	180	171	162	154
		3	200	200	200	200	200	200	200	200	200	200	200	200	200	200	190	180	171	162	154
	18/16	1	200	200	200	200	200	200	200	200	200	200	200	200	200	200	192	182	173	164	156
		2	200	200	200	200	200	200	200	200	200	200	200	200	200	200	192	182	173	164	156
		3	200	200	200	200	200	200	200	200	200	200	200	200	200	200	192	182	173	164	156
	16/18	1	200	200	200	200	200	200	200	200	200	200	200	200	200	197	186	177	167	159	151
		2	200	200	200	200	200	200	200	200	200	200	200	200	200	197	186	177	167	159	151
		3	200	200	200	200	200	200	200	200	200	200	200	200	200	200	186	177	167	159	151
	16/16	1	200	200	200	200	200	200	200	200	200	200	200	200	200	199	188	178	169	160	152
		2	200	200	200	200	200	200	200	200	200	200	200	200	200	199	188	178	169	160	152
		3	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	178	169	160	152

For **SI:** 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 psf = 47.88 Pa, 1 pcf = 16 kg/m^3, 1 psi = 6.89 kPa.

[1]Loads are in pounds per square foot. Shoring is required at midspan for spans to the right of the darkened line.

[2]The first number indicates gage of fluted upper sheet and U-shaped section. The second number indicates gage of lower sheet. See Table 1 for base metal thickness.

TABLE 6—ALLOWABLE REACTION BASED ON WEB CRIPPLING, POUNDS PER LINEAR FOOT OF DECK WIDTH[1,2]

WEB GAGE	DECK TYPE			
	WDR-2		WDR-3	
	Reaction Location on Panel			
	Ends[3]	Interior[4]	Ends[3]	Interior[4]
20	974	1,970	1,010	1,970
18	1,576	3,198	1,620	3,198
16	2,380	4,848	2,430	4,848

For **SI:** 1 inch = 25.4 mm, 1 plf = 14.59 N/m, 1 psi = 6.89 kPa.

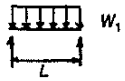
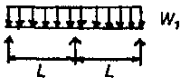
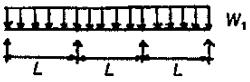
[1]Values are based on a steel yield point of 37 ksi.

[2]Values are based on calcuations prepared in accordance with Chapter 22, Division VII of the code.

[3]Values are based on a minimum bearing length of 2 inches.

[4]Values are based on a minimum bearing length of 4 inches.

TABLE 7—LOADING DIAGRAMS AND DEFLECTION FOR CONSTRUCTION LOADS[1,2]

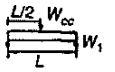
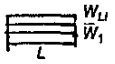
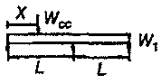
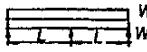
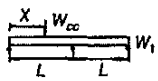
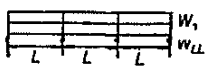
CONDITION	LOADING DIAGRAM	DEFLECTION
SIMPLE SPAN		$\Delta = \frac{0.0130\, W_1 L^4}{EI}$
TWO SPANS		$\Delta = \frac{0.0054\, W_1 L^4}{EI}$
THREE OR MORE SPANS		$\Delta = \frac{0.0069\, W_1 L^4}{EI}$

For SI: 1 inch = 25.4 mm, 1 psf = 47.88 Pa.

[1] W_1 = Concrete dead weight and deck dead weight (psf).

[2] Maximum dead load deflection is span/180 or 3/4 inch, whichever is smaller.

TABLE 8—LOADING DIAGRAMS AND BENDING MOMENTS FOR CONSTRUCTION LOADS[1]

CONDITION	LOADING DIAGRAM	BENDING MOMENTS
SIMPLE SPAN		$M^+ = 0.25\, W_{cc} L + 0.125\, W_1 L^2$
		$M^+ = 0.125\, (W_1 + W_{LL})\, L^2$
TWO SPANS		$(M^+) = 0.204\, W_{cc} L + 0.070\, W_1 L^2$ $X = .385L$ $(M^+) = 0.207\, W_{cc} L + 0.069\, W_1 L^2$ $X = .4323L$
		$M^+ = 0.070\, (W_1 + W_{LL}) L^2$ $M^- = 0.125\, (W_1 + W_{LL}) L^2$
		$(M^-) = 0.125\, W_1 L^2 + 0.096\, W_{cc} L$ $X = .577L$
THREE OR MORE SPANS		$M^+ = 0.08\, (W_1 + W_{LL}) L^2$ $M^- = 0.1\, (W_1 + W_{LL}) L^2$
		$(M^+) = 0.08\, W_1 L^2 + 0.204\, W_{cc} L$ $X = 0.400L$ $(M^+) = 0.0796\, W_1 L^2 + 0.205\, W_{cc} L$ $X = 0.428L$ $(M^-) = 0.1\, W_1 L^2 + 0.1026\, W_{cc} L$ $X = 0.500L$

For SI: 1 lbf = 4/45 N, 1 psf = 47.88 Pa.

[1] W_1 = Concrete dead weight and deck dead weight (includes ponding).
W_{cc} = 150 pounds concentrated live load.
W_{LL} = 20 psf distributed live load.

TABLE 9—ALLOWABLE DIAPHRAGM SHEAR VALUES, *Q* (plf), AND FLEXIBILITY FACTORS, *F*, FOR WDR-2 WALKERDECK WITH CONCRETE FILL[2,3,4]

CONCRETE THICKNESS AND TYPE[1]	DECK GAGE[5]	FACTOR	SPAN IN FEET							
			6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0
2″ Lightweight (110 pcf)	20/20	*Q*	1,730	1,610	1,520	1,450	1,400	1,350	1,320	1,290
		F	0.79	0.85	0.89	0.94	0.97	1.01	1.04	1.06
	20/18	*Q*	1,870	1,730	1,620	1,540	1,470	1,420	1,370	1,340
		F	0.67	0.72	0.77	0.81	0.85	0.88	0.91	0.93
	18/20	*Q*	1,820	1,690	1,590	1,510	1,450	1,400	1,350	1,320
		F	0.70	0.76	0.81	0.85	0.89	0.92	0.95	0.97
	18/18	*Q*	1,960	1,810	1,690	1,600	1,520	1,460	1,420	1,370
		F	0.60	0.66	0.70	0.74	0.78	0.81	0.84	0.86
	18/16	*Q*	2,120	1,940	1,800	1,700	1,610	1,540	1,490	1,440
		F	0.52	0.57	0.61	0.65	0.68	0.71	0.74	0.77
	16/18	*Q*	2,070	1,890	1,760	1,660	1,580	1,520	1,460	1,420
		F	0.55	0.59	0.64	0.68	0.71	0.74	0.77	0.80
	16/16	*Q*	2,230	2,030	1,880	1,760	1,670	1,600	1,530	1,480
		F	0.47	0.52	0.56	0.60	0.63	0.66	0.69	0.71
2 1/2″ Lightweight (110 pcf)	20/20	*Q*	1,890	1,770	1,680	1,610	1,560	1,510	1,480	1,440
		F	0.72	0.77	0.81	0.85	0.88	0.90	0.92	0.94
	20/18	*Q*	2,020	1,880	1,780	1,700	1,630	1,580	1.530	1,490
		F	0.62	0.66	0.70	0.74	0.77	0.79	0.81	0.84
	18/20	*Q*	1,980	1,850	1,750	1,670	1,610	1,550	1,510	1,480
		F	0.65	0.69	0.73	0.77	0.80	0.82	0.85	0.87
	18/18	*Q*	2,120	1,960	1,850	1,760	1,680	1,620	1,570	1,530
		F	0.56	0.60	0.64	0.68	0.70	0.73	0.75	0.77
	18/16	*Q*	2,280	2,100	1,960	1,850	1,770	1,700	1,640	1,590
		F	0.48	0.53	0.56	0.59	0.62	0.65	0.67	0.69
	16/18	*Q*	2,220	2,050	1,920	1,820	1,740	1,670	1,620	1,570
		F	0.51	0.55	0.59	0.62	0.65	0.67	0.70	0.72
	16/16	*Q*	2,380	2,190	2,040	1,920	1,830	1,750	1,690	1,640
		F	0.44	0.48	0.52	0.55	0.58	0.60	0.62	0.64
3 1/4″ Lightweight (110 pcf)	20/20	*Q*	2,120	2,010	1,920	1,850	1,790	1,750	1,710	1,680
		F	0.64	0.68	0.71	0.74	0.76	0.78	0.80	0.81
	20/18	*Q*	2,260	2,120	2,020	1,930	1,870	1,810	1,770	1,730
		F	0.55	0.59	0.62	0.65	0.67	0.69	0.71	0.72
	18/.20	*Q*	2,220	2,080	1,980	1,900	1,840	1,790	1,750	1,710
		F	0.58	0.62	0.65	0.67	0.70	0.72	0.73	0.75
	18/18	*Q*	2,360	2,200	2,080	1,990	1,920	1,860	1,810	1,770
		F	0.50	0.54	0.57	0.59	0.62	0.64	0.65	0.67
	18/16	*Q*	2,510	2,330	2,200	2,090	2,010	1,940	1,880	1,830
		F	0.44	0.47	0.50	0.53	0.55	0.57	0.59	0.60
	16/18	*Q*	2,460	2,290	2,160	2,060	1,980	1,910	1,860	1,810
		F	0.46	0.49	0.52	0.55	0.57	0.59	0.61	0.62
	16/16	*Q*	2,620	2,420	2,270	2,160	2,070	1,990	1,930	1,880
		F	0.40	0.43	0.46	0.49	0.51	0.53	0.55	0.56
2″ Normal Weight (145 pcf)	20/20	*Q*	2,050	1,940	1,850	1,780	1,720	1,680	1,640	1,610
		F	0.66	0.70	0.74	0.77	0.79	0.81	0.83	0.85
	20/18	*Q*	2,190	2,050	1,940	1,860	1,800	1,740	1,700	1,660
		F	0.57	0.61	0.64	0.67	0.69	0.72	0.73	0.75
	18/20	*Q*	2,150	2,010	1,910	1,830	1,770	1,720	1,680	1,640
		F	0.60	0.64	0.67	0.70	0.72	0.75	0.76	0.78
	18/18	*Q*	2,290	2,130	2,010	1,920	1,850	1,790	1,740	1,700
		F	0.52	0.56	0.59	0.62	0.64	0.66	0.68	0.70
	18/16	*Q*	2,440	2,260	2,130	2,020	1,940	1,870	1,810	1,760
		F	0.45	0.49	0.52	0.54	0.57	0.59	0.61	0.62
	16/18	*Q*	2,390	2,220	2,090	1,990	1,910	1,840	1,790	1,740
		F	0.47	0.51	0.54	0.57	0.59	0.61	0.63	0.65
	16/16	*Q*	2,550	2,350	2,220	2,090	2,000	1,920	1,860	1,810
		F	0.41	0.45	0.48	0.50	0.53	0.55	0.57	0.58

(Continued)

TABLE 9—ALLOWABLE DIAPHRAGM SHEAR VALUES, *Q* (plf), AND FLEXIBILITY FACTORS, *F*, FOR WDR-2 WALKERDECK WITH CONCRETE FILL[2,3,4]—(Continued)

CONCRETE THICKNESS AND TYPE[1]	DECK GAGE[5]	FACTOR	SPAN IN FEET							
			6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0
2½" Normal Weight (145 pcf)	20/20	*Q*	2,290	2,180	2,090	2,020	1,960	1,920	1,880	1,850
		F	0.59	0.63	0.65	0.68	0.69	0.71	0.72	0.74
	20/18	*Q*	2,430	2,290	2,180	2,100	2,040	1,980	1,940	1,900
		F	0.51	0.54	0.57	0.59	0.61	0.63	0.64	0.66
	18/20	*Q*	2,380	2,250	2,150	2,070	2,010	1,960	1,920	1,880
		F	0.54	0.57	0.60	0.62	0.64	0.65	0.67	0.68
	18/18	*Q*	2,520	2,370	2,250	2,160	2,090	2,030	1,980	1,940
		F	0.47	0.50	0.53	0.55	0.57	0.58	0.60	0.61
	18/16	*Q*	2,680	2,500	2,370	2,260	2,180	2,110	2,050	2,000
		F	0.41	0.44	0.47	0.49	0.51	0.52	0.54	0.55
	16/18	*Q*	2,630	2,460	2,330	2,230	2,150	2,080	2,030	1,980
		F	0.43	0.46	0.48	0.51	0.52	0.54	0.56	0.57
	16/16	*Q*	2,790	2,590	2,440	2,330	2,240	2,160	2,100	2,040
		F	0.38	0.41	0.43	0.45	0.47	0.49	0.50	0.52

For **SI:** 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 plf = 14.59 N/m, 1 psi = 6.89 kPa.

[1]Concrete fill thickness is measured above the top of the steel deck.

[2]Concrete fill must have a minimum compressive strength f'_c = 3,000 psi.

[3]Button-punched seam attachment spacing is 36 inches, maximum.

[4]See Table 13 for diaphragm flexibility limitations.

[5]The first number is the gage of fluted upper sheet and U-shaped section. The second number is the gauge of lower sheet. See Table No. 1 for base metal thickness.

TABLE 10—ALLOWABLE DIAPHRAGM SHEAR VALUES, *Q* (plf), AND FLEXIBILITY FACTORS *F*, FOR WDR-3 WALKERDECK WITH CONCRETE FILL[2, 3, 4]

CONCRETE THICKNESS AND TYPE[1]	DECK GAGE[5]	FACTOR	SPAN IN FEET							
			8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0
2" Lightweight (110 pcf)	20/20	*Q*	1,520	1,450	1,400	1,350	1,320	1,290	1,260	1,230
		F	0.89	0.94	0.97	1.01	1.04	1.06	1.08	1.10
	20/18	*Q*	1,620	1,540	1.470	1,420	1.370	1,340	1,300	1,280
		F	0.77	0.81	0.85	0.88	0.91	0.93	0.96	0.98
	18/20	*Q*	1,590	1,510	1,450	1,400	1,350	1.320	1,290	1,260
		F	0.81	0.85	0.89	0.92	0.95	0.97	1.00	1.02
	18/18	*Q*	1,690	1,600	1,520	1,460	1.420	1,370	1.340	1,310
		F	0.70	0.74	0.78	0.81	0.84	0.86	0.89	0.91
	18/16	*Q*	1,800	1,700	1.610	1,540	1.490	1,440	1.390	1,360
		F	0.61	0.65	0.68	0.71	0.74	0.77	0.79	0.81
	16/18	*Q*	1,760	1,660	1,580	1,520	1,460	1,420	1,380	1,340
		F	0.64	0.68	0.71	0.74	0.77	0.80	0.82	0.84
	16/16	*Q*	1,880	1,760	1,670	1,600	1,530	1,480	1,440	1,400
		F	0.56	0.60	0.63	0.66	0.69	0.71	0.73	0.75
2½" Lightweight (110 pcf)	20/20	*Q*	1,680	1.610	1.560	1,510	1.480	1,440	1.420	1,390
		F	0.81	0.85	0.88	0.90	0.92	0.94	0.96	0.98
	20/18	*Q*	1,780	1,700	1.630	1.580	1,530	1,490	1,460	1,430
		F	0.70	0.74	0.77	0.79	0.81	0.84	0.85	0.87
	18/20	*Q*	1,750	1,670	1,610	1.550	1.510	1.480	1,450	1,420
		F	0.73	0.77	0.80	0.82	0.85	0.87	0.89	0.90
	18/18	*Q*	1,850	1,760	1,680	1.620	1,570	1.530	1,490	1,460
		F	0.64	0.68	0.70	0.73	0.75	0.77	0.79	0.81
	18/16	*Q*	1,960	1,850	1,770	1,700	1,640	1.590	1.550	1,520
		F	0.56	0.59	0.62	0.65	0.67	0.69	0.71	0.73
	16/18	*Q*	1,920	1,820	1,740	1,670	1,620	1,570	1,530	1,500
		F	0.59	0.62	0.65	0.67	0.70	0.72	0.73	0.75
	16/16	*Q*	2,040	1,920	1,830	1,750	1,690	1,640	1,590	1,550
		F	0.52	0.55	0.58	0.60	0.62	0.64	0.66	0.68

(Continued)

TABLE 10—ALLOWABLE DIAPHRAGM SHEAR VALUES, Q (plf), AND FLEXIBILITY FACTORS F, FOR WDR-3 WALKERDECK WITH CONCRETE FILL[2, 3, 4]—(Continued)

CONCRETE THICKNESS AND TYPE[1]	DECK GAGE[5]	FACTOR	SPAN IN FEET							
			9.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0
3 1/4" Lightweight (110 pcf)	20/20	Q	1,920	1,850	1,790	1,750	1.710	1,680	1,650	1,630
		F	0.71	0.74	0.76	0.78	0.80	0.81	0.82	0.84
	20/18	Q	2,020	1,930	1,870	1,810	1.770	1.730	1,700	1,670
		F	0.62	0.65	0.67	0.69	0.71	0.72	0.73	0.75
	18/20	Q	1,980	1,900	1,840	1,790	1,750	1,710	1,680	1,660
		F	0.65	0.67	0.70	0.72	0.73	0.75	0.76	0.77
	18/18	Q	2,080	1,990	1.920	1.860	1.810	1,770	1,730	1,700
		F	0.57	0.59	0.62	0.64	0.65	0.67	0.68	0.70
	18/16	Q	2,200	2,090	2,010	1,940	1,880	1,830	1,790	1,750
		F	0.50	0.53	0.55	0.57	0.59	0.60	0.61	0.63
	16/18	Q	2,160	2,060	1,980	1,910	1,860	1,810	1,770	1,740
		F	0.52	0.55	0.57	0.59	0.61	0.62	0.64	0.65
	16/16	Q	2,270	2,160	2,070	1,990	1,930	1,880	1,830	1,790
		F	0.46	0.49	0.51	0.53	0.55	0.56	0.58	0.59
2" Normal Weight (145 pcf)	20/20	Q	1,850	1,780	1,720	1,680	1.640	1,610	1,580	1,560
		F	0.74	0.77	0.79	0.81	0.83	0.85	0.86	0.87
	20/18	Q	1,940	1,860	1,800	1,740	1,700	1.660	1,630	1,600
		F	0.64	0.67	0.69	0.72	0.73	0.75	0.77	0.78
	18/20	Q	1,910	1,830	1,770	1,720	1,680	1.640	1,610	1.590
		F	0.67	0.70	0.72	0.75	0.76	0.78	0.80	0.81
	18/18	Q	2,010	1,920	1,850	1,790	1,740	1,700	1,660	1,630
		F	0.59	0.62	0.64	0.66	0.68	0.70	0.71	0.73
	18/16	Q	2,130	2,020	1,940	1,870	1,810	1.760	1,720	1,680
		F	0.52	0.54	0.57	0.59	0.61	0.62	0.64	0.65
	16/18	Q	2,090	1,990	1,910	1,840	1,790	1,740	1,700	1,670
		F	0.54	0.57	0.59	0.61	0.63	0.65	0.66	0.68
	16/16	Q	2,200	2,090	2,000	1,920	1,860	1,810	1,760	1,720
		F	0.48	0.50	0.53	0.55	0.57	0.58	0.60	0.61
2 1/2" Normal Weight (145 pcf)	20/20	Q	2,090	2,020	1,960	1,920	1,880	1,850	1.820	1,800
		F	0.65	0.68	0.69	0.71	0.72	0.74	0.75	0.76
	20/18	Q	2,180	2,100	2,040	1,980	1,940	1,900	1,870	1,840
		F	0.57	0.59	0.61	0.63	0.64	0.66	0.67	0.68
	18/20	Q	2.150	2.070	2,010	1,960	1,920	1,880	1,850	1,820
		F	0.60	0.62	0.64	0.65	0.67	0.68	0.69	0.70
	18/18	Q	2,250	2,160	2,090	2,030	1,980	1,940	1,900	1,870
		F	0.53	0.55	0.57	0.58	0.60	0.61	0.62	0.63
	18/16	Q	2,370	2,260	2,180	2,110	2,050	2,000	1,960	1,920
		F	0.47	0.49	0.51	0.52	0.54	0.55	0.56	0.57
	16/18	Q	2,330	2,230	2,150	2,080	2,030	1,980	1,940	1,900
		F	0.48	0.51	0.52	0.54	0.56	0.57	0.58	0.59
	16/16	Q	2,440	2,330	2,240	2,160	2,100	2,040	2,000	1,960
		F	0.43	0.45	0.47	0.49	0.50	0.52	0.53	0.54

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 plf = 14.59 N/m, 1 psi = 6.89 kPa.

[1]Concrete fill thickness is measured above the top of the steel deck.

[2]Concrete fill must have a minimum compressive strength f'_c = 3,000 psi.

[3]Button-punched seam attachment spacing is 36 inches maximum.

[4]See Table 13 for diaphragm flexibility limitations.

[5]The first number is the gage of fluted upper sheet and U-shaped section. The second number is the gage of lower sheet. See Table 1 for base metal thickness.

TABLE 11—ALLOWABLE DIAPHRAGM SHEAR VALUES, Q (plf), FOR WDR-2 WALKERDECK WITH TRENCH HEADER[1,2,3,4,7,10]

SEAM ATTACHMENT	DECK GAGE	F_1[8]	FACTOR	SPAN							
				5'-0"[5]	6'-0"[6]	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"
Button-punched spaced at 36" on center	20/20	13.0	Q	900	900	900	900	900	900	900	900
			F_2[9]	0.73	0.79	0.85	0.89	0.94	0.97	1.01	1.04
	20/18	9.8	Q	1,130	950	900	900	900	900	900	900
			F_2[9]	0.62	0.67	0.72	0.77	0.81	0.85	0.88	0.91
	18/20	11.6	Q	900	900	900	900	900	900	900	900
			F_2[9]	0.70	0.76	0.81	0.85	0.89	0.92	0.95	0.97
	18/18	9.0	Q	1,160	980	900	900	900	900	900	900
			F_2[9]	0.54	0.60	0.66	0.70	0.74	0.78	0.81	0.84
	18/16	7.2	Q	1,430	1,200	1,040	920	900	900	900	900
			F_2[9]	0.47	0.52	0.57	0.61	0.65	0.68	0.71	0.74
	16/18	8.1	Q	1,020	900	900	900	900	900	900	900
			F_2[9]	0.55	0.59	0.64	0.68	0.71	0.74	0.77	0.80
	16/16	6.6	Q	1,240	1,070	950	900	900	900	900	900
			F_2[9]	0.47	0.52	0.56	0.60	0.63	0.66	0.69	0.71
Top seam welds spaced at 12" on center	20/20	13.0	Q	900	900	900	900	900	900	900	900
			F_2[9]	0.73	0.79	0.85	,89	0.94	0.97	1.01	1.04
	20/18	9.8	Q	1,590	1,400	1,260	1,150	1,080	1,010	960	920
			F_2[9]	0.62	0.67	0.72	0.77	0.81	0.85	0.88	0.91
	18/20	11.6	Q	980	900	900	900	900	900	900	900
			F_2[9]	0.70	0.76	0.81	0.85	0.89	0.92	0.95	0.97
	18/18	9.0	Q	1,640	1,470	1,340	1,220	1,130	1,060	1,010	960
			F_2[9]	0.54	0.60	0.66	0.70	0.74	0.78	0.81	0.84
	18/16	7.2	Q	2,040	1,830	1,680	1,580	1,500	1,440	1,390	1,360
			F_2[9]	0.47	0.52	0.57	0.61	0.65	0.68	0.71	0.74
	16/18	8.1	Q	1,480	1,350	1,260	1,190	1,120	1,060	1,010	960
			F_2[9]	0.55	0.59	0.64	0.68	0.71	0.74	0.77	0.80
	16/16	6.6	Q	1,830	1,670	1,570	1,480	1,420	1,370	1,330	1,300
			F_2[9]	0.47	0.52	0.56	0.60	0.63	0.66	0.69	0.71

For **SI:** 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 plf = 14.59 N/m, 1 psi = 6.89 kPa.

[1]If there is 2 inches (minimum) of concrete above the trench header, use the values for decks without trench header.

[2]Seam attachments shall be button punched at a minimum of 3 feet 0 inch o.c., with one button punch at center of trench header.

[3]Trench header shall be located at a minimum distance of 2 feet 0 inch from support.

[4]Maximum trench header width shall be 3 feet 0 inch, unless noted otherwise.

[5]Maximum trench header width shall be 1 foot 0 inch.

[6]Maximum trench header width shall be 2 feet 0 inch.

[7]Web deflections shall be calculated using F_1 for trench header width and F_2 for the remaining span in calculating deflections.

[8]F_1 is the flexibility factor for decks without fill. Values tabulated with simple span condition for the 4 feet 0 span and are conservative for deflection determination. Seams are button punched at 36 inches o.c.

[9]F_2 is the flexibility factor for decks with fill. Values tabulated are for 2 inch minimum fill above top of the deck.

[10]F'_c shall be at least 4,000 psi.

TABLE 12—ALLOWABLE DIAPHRAGM SHEAR VALUES, Q (plf), FOR WDR-3 WALKERDECK WITH TRENCH HEADER[1,2,3,4,7,10]

SEAM ATTACHMENT	DECK GAGE	F_1[8]	FACTOR	SPAN							
				5'-0"[5]	6'-0"[6]	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"
Button-punched spaced at 36" on center	20/20	13.0	Q	900	900	900	900	900	900	900	900
			F_2[9]	0.77	0.81	0.84	0.89	0.94	0.97	1.01	1.04
	20/18	9.9	Q	1.130	950	900	900	900	900	900	900
			F_2[9]	0.66	0.69	0.73	0.77	0.81	0.85	0.88	0.91
	18/20	11.6	Q	900	900	900	900	900	900	900	900
			F_2[9]	0.70	0.73	0.77	0.81	0.85	0.89	0.92	0.95
	18/18	9.0	Q	1,150	970	900	900	900	900	900	900
			F_2[9]	0.59	0.62	0.66	0.70	0.74	0.78	0.81	0.84
	18/16	7.1	Q	1,430	1,200	1,040	920	900	900	900	900
			F_2[9]	0.51	0.54	0.57	0.61	0.65	0.68	0.70	0.74
	16/18	8.1	Q	900	900	900	900	900	900	900	900
			F_2[9]	0.64	0.68	0.71	0.74	0.77	0.80	0.82	0.84
	16/16	6.6	Q	940	900	900	900	900	900	900	900
			F_2[9]	0.56	0.60	0.63	0.66	0.69	0.71	0.73	0.75

(Continued)

TABLE 12—ALLOWABLE DIAPHRAGM SHEAR VALUES Q (plf), FOR WDR-3 WALKERDECK WITH TRENCH HEADER[1,2,3,4,7,10]—(Continued)

SEAM ATTACHMENT	DECK GAUGE	F_1[8]	FACTOR	SPAN							
				5'-0"[5]	6'-0"[6]	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"
Top seam Welds spaced at 12" on center	20/20	13.0	Q	910	900	900	900	900	900	900	900
			F_2[9]	0.77	0.81	0.84	0.89	0.94	0.97	1.01	1.04
	20/18	9.9	Q	1,600	1,400	1,260	1,160	1,080	1,020	970	930
			F_2[9]	0.66	0.69	0.73	0.77	0.81	0.85	0.88	0.91
	18/20	11.6	Q	990	900	900	900	900	900	900	900
			F_2[9]	0.70	0.73	0.77	0.81	0.85	0.89	0.92	0.95
	18/18	9.0	Q	1,630	1,460	1,340	1,230	1,140	1,070	1,010	970
			F_2[9]	0.59	0.62	0.66	0.70	0.74	0.78	0.81	0.84
	18/16	7.1	Q	20,30	1,820	1,670	1,560	1,490	1,430	1,380	1.340
			F_2[9]	0.51	0.54	0.57	0.61	0.65	0.68	0.71	0.74
	16/18	8.2	Q	1,240	1,170	1,120	1,060	1,010	970	930	900
			F_2[9]	0.64	0.68	0.71	0.74	0.77	0.80	0.82	0.84
	16/16	6.6	Q	1,550	1,460	1,400	1,350	1,310	1,280	1,260	1,240
			F_2[9]	0.56	0.60	0.63	0.66	0.69	0.71	0.73	0.75

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 plf = 14.59 N/m, 1 psi = 6.89 kPa.
See footnotes to Table 11.

TABLE 13—DIAPHRAGM FLEXIBILITY LIMITATION[1,2,3]

FLEXIBILITY CATEGORY	F	MAXIMUM SPAN IN FEET FOR MASONRY OR CONCRETE WALLS	SPAN-DEPTH LIMITATION			
			Rotation Not Considered in Diaphragm		Rotation Considered in Diaphragm	
			Masonry or Concrete Walls	Flexible Walls[4]	Masonry or Concrete Walls	Flexible Walls[4]
Very Flexible	More than 150	Not used	Not used	2:1	Not Used	$1^1/_2$:1
Flexible	70-150	200	2:1 or as required for deflection	3:1	Not Used	2:1
Semi-flexible	10-70	400	$2^1/_2$:1 or as required for deflection	4:1	As required for deflection	$2^1/_2$:1
Semi-rigid	1-10	No limitation	3:1 or as required for deflection	5:1	As required for	3:1
Rigid	Less than 1	No limitation	As required for deflection	No limitation	As required for deflection	$3^1/_2$:1

For SI: 1 foot = 304.8 mm.

[1]Roof diaphragms are to be investigated regarding their flexibility and recommended span-depth limitations. Refer to above tables for determination of value of "F."

[2]Roof diaphragms supporting masonry or concrete walls are to have their deflections limited to the following amount:

$$\Delta\, wall = \frac{H^2 f_c}{0.01\, Et}$$

Where:

H = Unsupported height of wall in feet.
t = Thickness of wall in inches.
E = Modulus of elasticity of wall material for deflection determination in pounds per square inch. Where a reduced E is given in the code for uninspected masonry, the reduction is not recommended in this formula.
f_c = Allowable compressive strength of wall material in flexure in pounds per square inch. For concrete, $f_c = 0.45f'_c$. For masonry $f_c = F_b = 0.33f'_m$.

[3]The total deflection Δ of the diaphragm may be computed from the equation:

$$\Delta = \Delta_f + \Delta_w$$

Where:

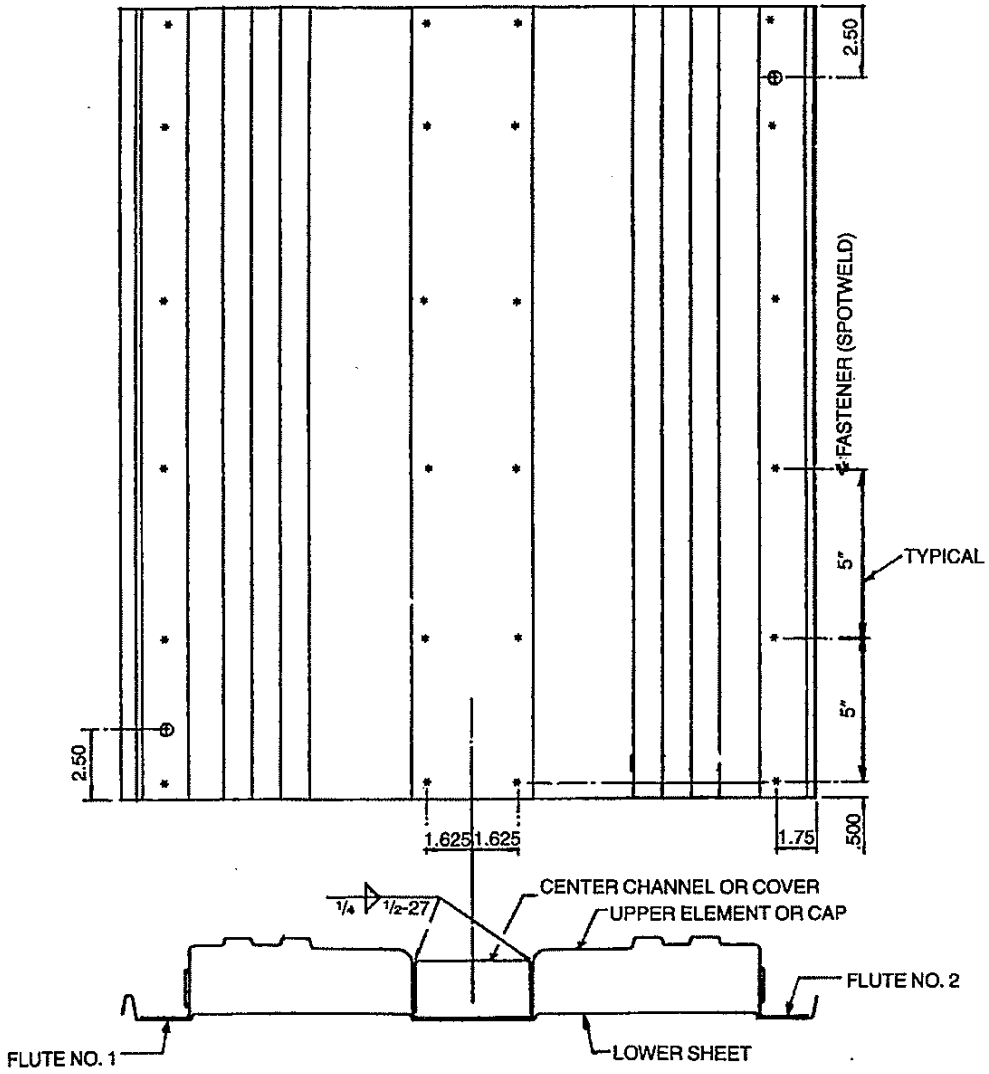
Δ_f = Flexural deflection of the diaphragm determined in the same manner as the deflection of beams.
Δ_w = The web deflection may be determined by the equation:

$$\Delta\, wall = \frac{q_{ave} L_1 F}{10^6}$$

Where:

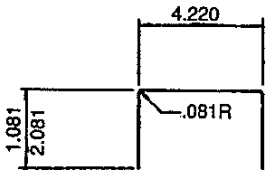
L_1 = Distance in feet between vertical resisting element (such as shear wall) and the point to which the deflection is to be determined.
q_{ave} = Average shear in diaphragm in pounds per foot over length L_1.
F = Flexibility factor: The average microinches a diaphragm web will deflect in a span of 1 foot under a shear of 1 pound per foot.

[4]When applying these limitations to cantilevered diaphragms, the allowable span-depth ratio will be half that shown.

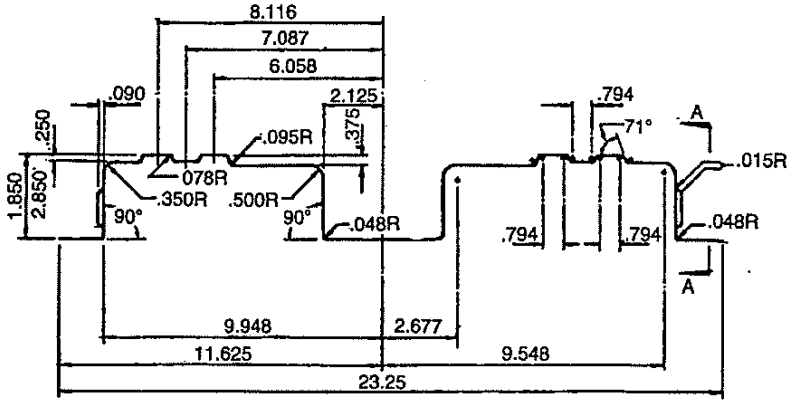


Note: Dimensions are in inches.

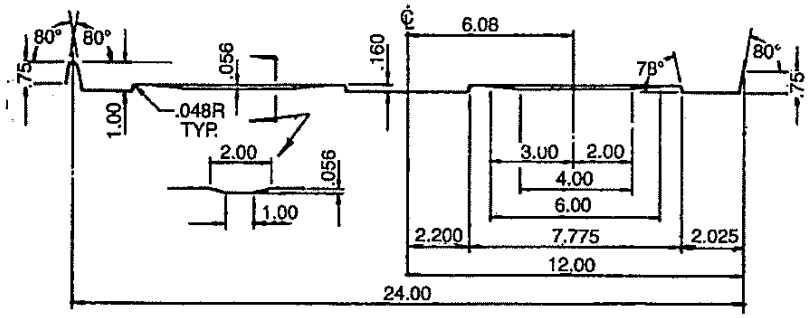
FIGURE 1—WALKERDECK CELLULAR RACEWAY ASSEMBLY



CENTER U-SHAPED SECTION

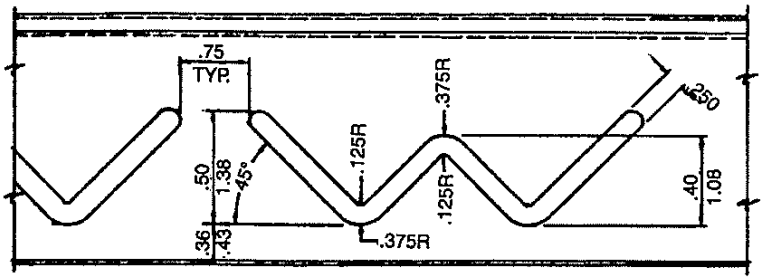


FLUTED (UPPER SHEET)



Note: Dimensions are in inches.

FIGURE 2—LOWER SHEET



Note: Dimensions are in inches.

FIGURE 3—WEB EMBOSSMENTS—ELEVATION A-A