

Floor Deck Design

The construction loading diagrams below are from the ANSI/SDI NC-2010 Standard for Non-Composite Steel Floor Deck and ANSI/SDI C-2011 Standard for Composite Steel Floor Deck-Slabs. The moment diagrams represent the maximum bending moment magnitudes resulting from loading applied in a sequence that simulates concrete placement. In addition to bending and deflection shown below, due consideration shall be given to the effects of shear, bending and shear interaction, and web crippling. The minimum construction live loads P and $W2$ shown below shall be increased by the designer when anticipated construction loading or methods will exceed the minimum values. See the referenced ANSI/SDI standards for further notes and commentary. The diagrams below should be used only for the design of the deck as a form. The concrete slab shall be designed in accordance with ACI 318.

FORM DECK BENDING MOMENT LOADING DIAGRAMS

$P = 150$ lbs. concentrated construction live load

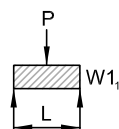
$W1_1 = 1.5 \times \text{slab weight} + \text{deck weight} \leq \text{slab weight} + 30 \text{ psf} + \text{deck weight (weights - psf)}$

$W1 = \text{Slab weight} + \text{deck weight (psf)}$

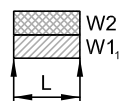
$W2 = 20 \text{ psf uniform construction live load}$

$L = \text{Clear span length (ft.)}$

Note: Live loads P and $W2$ listed are minimums, increase when actual construction loads dictate.

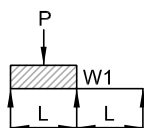


$$+M = 0.25 P L + 0.125 W1 L^2$$

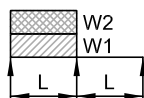


$$+M = 0.125 (W1 + W2) L^2$$

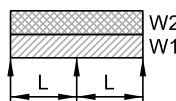
SINGLE SPAN CONDITION



$$+M = 0.203 P L + 0.096 W1 L^2$$

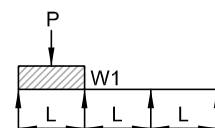


$$+M = 0.096 (W1 + W2) L^2$$

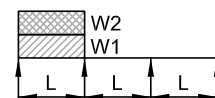


$$-M = 0.125 (W1 + W2) L^2$$

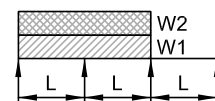
DOUBLE SPAN CONDITION



$$+M = 0.2 P L + 0.094 W1 L^2$$



$$+M = 0.094 (W1 + W2) L^2$$



$$-M = 0.117 (W1 + W2) L^2$$

TRIPLE SPAN CONDITION

COMPOSITE DECK BENDING MOMENT LOADING DIAGRAMS

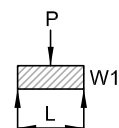
$P = 150$ lbs. concentrated construction live load

$W1 = \text{Slab weight} + \text{deck weight (psf)}$

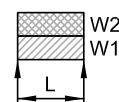
$W2 = 20 \text{ psf uniform construction live load}$

$L = \text{Clear span length (ft.)}$

Note: Live loads P and $W2$ listed are minimums, increase when actual construction loads dictate.

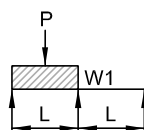


$$+M = 0.25 P L + 0.125 W1 L^2$$

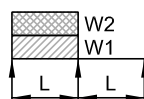


$$+M = 0.125 (W1 + W2) L^2$$

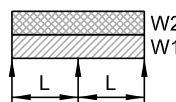
SINGLE SPAN CONDITION



$$+M = 0.203 P L + 0.096 W1 L^2$$

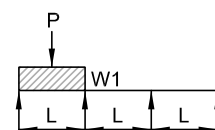


$$+M = 0.096 (W1 + W2) L^2$$

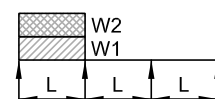


$$-M = 0.125 (W1 + W2) L^2$$

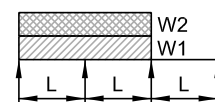
DOUBLE SPAN CONDITION



$$+M = 0.2 P L + 0.094 W1 L^2$$



$$+M = 0.094 (W1 + W2) L^2$$



$$-M = 0.117 (W1 + W2) L^2$$

TRIPLE SPAN CONDITION

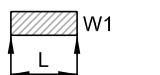
FORM & COMPOSITE DECK DEFLECTION LOADING DIAGRAMS

$I = \text{Deck moment of inertia (in.}^4\text{/ft.)}$

$W1 = \text{Slab weight} + \text{deck weight (psf)}$

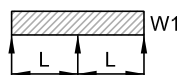
$E = 29.5 \times 10^6 \text{ (psi)}$

$L = \text{Clear span length (ft.)}$



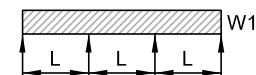
$$\Delta = \frac{0.013 W1 L^4}{EI}$$

SINGLE SPAN CONDITION



$$\Delta = \frac{0.0054 W1 L^4}{EI}$$

DOUBLE SPAN CONDITION



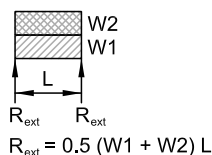
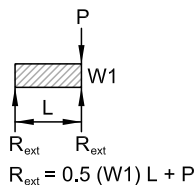
$$\Delta = \frac{0.0069 W1 L^4}{EI}$$

TRIPLE SPAN CONDITION

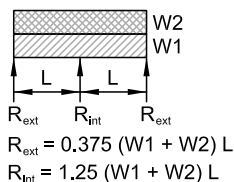
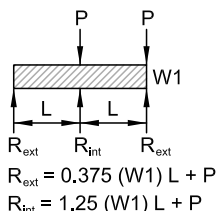


Web Crippling Support Reactions

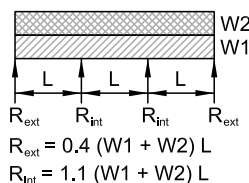
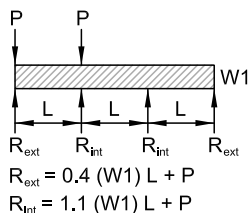
SUPPORT REACTION LOADING DIAGRAMS



SINGLE SPAN CONDITION



DOUBLE SPAN CONDITION



TRIPLE SPAN CONDITION

P = 150 lbs. conc. constr. live load
W1 = Slab weight + deck weight (psf)
W2 = 20 psf uniform constr. live load
L = Clear span length (ft.)
Note: Live loads P and W2 listed are minimums, increase when actual construction loads dictate.

ALLOWABLE REACTIONS AT EXTERIOR SUPPORTS (R_{ext}) - ASD

Type	Gage	F_y (ksi)	Allowable Exterior Reaction (lbs./ft. of width)									
			Bearing Length (in.)									
			1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	5 1/2	6
0.6FD	28	60	583	640	640	640	640	640	640	640	640	640
	26		811	887	887	887	887	887	887	887	887	887
	24		1352	1470	1470	1470	1470	1470	1470	1470	1470	1470
	22		1984	2149	2149	2149	2149	2149	2149	2149	2149	2149
1.0FD	26	60	466	517	561	601	632	632	632	632	632	632
	24		789	870	941	1006	1055	1055	1055	1055	1055	1055
	22		1169	1285	1387	1479	1548	1548	1548	1548	1548	1548
	20		1665	1824	1964	2091	2183	2183	2183	2183	2183	2183
1.5FD 1.5FDR	22	33	539	593	640	683	722	727	727	727	727	727
	20		769	843	907	966	1020	1026	1026	1026	1026	1026
	18		1285	1401	1503	1596	1681	1686	1686	1686	1686	1686
	16		1964	2133	2282	2416	2540	2541	2541	2541	2541	2541
1.5CD	22	40	654	719	776	827	875	881	881	881	881	881
	20		932	1021	1100	1171	1236	1243	1243	1243	1243	1243
	18		1557	1698	1822	1934	2037	2043	2043	2043	2043	2043
	16		2381	2586	2766	2929	3079	3080	3080	3080	3080	3080
2.0FD 2.0CD	22	40	292	321	347	370	391	411	429	447	463	479
	20		419	459	494	526	556	583	608	633	656	678
	18		705	769	825	876	922	966	1007	1045	1082	1117
	16		1083	1176	1258	1333	1401	1464	1524	1580	1634	1685
3.0FD 3.0CD	22	40	283	311	336	358	379	398	416	433	449	465
	20		409	448	482	514	542	569	594	618	640	662
	18		694	756	811	861	907	950	990	1028	1064	1099
	16		1071	1164	1245	1318	1386	1449	1508	1563	1616	1667

ALLOWABLE REACTIONS AT INTERIOR SUPPORTS (R_{int}) - ASD

Type	Gage	F_y (ksi)	Allowable Interior Reaction (lbs./ft. of width)									
			Bearing Length (in.)									
			1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	5 1/2	6
0.6FD	28	60	838	910	910	910	910	910	910	910	910	910
	26		1182	1278	1278	1278	1278	1278	1278	1278	1278	1278
	24		2008	2160	2160	2160	2160	2160	2160	2160	2160	2160
	22		2989	3201	3201	3201	3201	3201	3201	3201	3201	3201
1.0FD	26	60	662	724	779	828	867	867	867	867	867	867
	24		1149	1251	1341	1422	1483	1483	1483	1483	1483	1483
	22		1733	1879	2009	2126	2213	2213	2213	2213	2213	2213
	20		2504	2707	2886	3047	3165	3165	3165	3165	3165	3165
1.5FD 1.5FDR	22	33	794	861	920	974	1023	1030	1030	1030	1030	1030
	20		1150	1243	1325	1399	1467	1475	1475	1475	1475	1475
	18		1961	2109	2240	2358	2467	2473	2473	2473	2473	2473
	16		3047	3263	3454	3627	3786	3787	3787	3787	3787	3787
1.5CD	22	40	962	1044	1116	1181	1240	1248	1248	1248	1248	1248
	20		1393	1506	1606	1696	1779	1787	1787	1787	1787	1787
	18		2377	2557	2715	2858	2990	2998	2998	2998	2998	2998
	16		3693	3955	4187	4396	4589	4590	4590	4590	4590	4590
2.0FD 2.0CD	22	40	458	497	531	562	590	617	641	665	687	709
	20		662	716	763	806	845	882	916	949	979	1009
	18		1128	1213	1288	1356	1419	1477	1531	1583	1632	1679
	16		1750	1875	1985	2084	2175	2260	2340	2415	2487	2555
3.0FD 3.0CD	22	40	466	506	541	572	601	628	653	677	700	722
	20		675	730	778	821	862	899	934	967	998	1029
	18		1151	1238	1314	1384	1447	1507	1562	1615	1665	1713
	16		1787	1914	2026	2127	2221	2307	2389	2466	2539	2609



Fire Resistance Ratings

The following tables include a complete listing at the time of this publication, of UL/ULC (U.S./Canada) approved NMBS deck products. Please visit UL/ULC Online Certifications Directory, UL/ULC File Number R20577 for an up-to-date listing of UL/ULC Designs in which NMBS deck products have been approved. The information presented in these tables, is for general use only. Refer to the latest printed edition of the UL, LLC Fire Resistance Directory or online at www.ul.com/Tools/Online Certifications Directory to obtain additional design and construction requirements for each design listed.


[UL Directory](#)

[ULC Directory](#)

COMPOSITE FLOOR ASSEMBLIES

Restrained Assembly Rating (hrs.)	Type of Protection	Concrete Topping	U.L. Design Number	Classified Deck Type	Unrestrained Beam Rating (hrs.)
1, 1-1/2, 2 & 3	Exposed Grid	2-1/2" to 3-1/2" LW, NW	D216	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1, 1-1/2, 2 & 3
1, 1-1/2, 2 & 3		2-1/2" to 3-1/2" LW, NW	D219	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1, 1-1/2, 2 & 3
1-1/2 & 2	Gypsum Board	2-1/2" NW	D502	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1-1/2 & 2
1, 1-1/2, 2 & 3		2-1/2" LW, NW	D703	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1-1/2
3	Sprayed on Fire Resistive Materials	2-1/2" LW, NW	D708	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1-1/2 & 3
1, 1-1/2 & 2		2-1/2" LW, NW	D712	1.5CD, 1.5CDR, 2.0CD & 3.0CD	2
2		2-1/2" LW, NW	D716	1.5CD, 1.5CDR, 2.0CD & 3.0CD	1-1/2 & 2
1, 1-1/2 & 2		2-1/2" LW, NW	D722	1.5CD, 1.5CDR, 2.0CD & 3.0CD	1, 1-1/2 & 2
2		2-1/2" NW	D730	1.5CD, 2.0CD & 3.0CD	-
1, 1-1/2, 2, 3 & 4		2-1/2" LW, NW	D739	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1, 1-1/2, 2, 3 & 4
2 & 3		2-1/2" & 3-1/2" NW	D742	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1 & 1-1/2
1, 1-1/2, 2 & 3		2" LW, NW	D743	1.5CD, 2.0CD & 3.0CD	1, 1-1/2, 2 & 3
3 & 4		3-1/4" LW	D754	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1, 1-1/2 & 2
2 & 3		2-1/2" LW, NW	D755	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1, 1-1/2, 2 & 3
1, 1-1/2, 2 & 3		2-1/2" LW, NW	D759	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1, 1-1/2, 2 & 3
2, 3 & 4		2-1/2" LW, NW	D760	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1, 1-1/2, 2, 3 & 4
1, 1-1/2, 2, 3 & 4		2-1/2" LW, NW	D767	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1, 1-1/2, 2, 3 & 4
3		2-1/2" LW, NW	D768	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1-1/2 & 3
2 & 3		2-1/2" & 3-1/2" NW	D771	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1 & 1-1/2
2 & 3		2-1/2" LW	D773	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1, 1-1/2, 2 & 3
2		2-1/2" LW, NW	D775	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1-1/2 & 2
3 & 4		3-1/4" LW	D777	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1-1/2 & 2
1, 1-1/2, 2, 3 & 4		2-1/2" LW, NW	D779	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1, 1-1/2, 2, 3 & 4
1, 1-1/2, 2, 3 & 4		3-1/4" LW	D782	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1-1/2, 2, 3 & 4
2 & 3		2-1/2" LW, NW	D784	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1, 1-1/2, & 2
2, 3 & 4		2-1/2" LW, NW	D785	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1, 1-1/2, 2 & 3
2		2-1/2" LW, NW	D786	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1 & 1-1/2
1, 1-1/2, 2, 3 & 4		2-1/2" LW, NW	D787	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1, 1-1/2, 2, 3 & 4
1, 1-1/2, 2, 3 & 4		2-1/2" LW, NW	D788	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1, 1-1/2, 2, 3 & 4
2		2-1/2" LW, NW	D789	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1 & 1-1/2
2, 3 & 4		2-1/2" LW, NW	D790	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1, 1-1/2, 2 & 3
2 & 3		2-1/2" LW, NW	D793	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1, 1-1/2 & 2
1, 1-1/2, 2 & 3		2-1/2" LW, NW	D795	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1, 1-1/2, 2 & 3
1, 1-1/2, 2, 3 & 4		2-1/2" LW, NW	D796	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1, 1-1/2, 2, 3 & 4
3		2-1/2" LW, NW	D816	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1-1/2 & 2
2		2-1/2" LW, NW	D822	1.5CD, 2.0CD & 3.0CD	1
2		2-1/2" LW, NW	D825	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1, 1-1/2 & 2
2		3-1/4" LW	D826	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1, 1-1/2 & 2
2 & 3		2-1/2" LW, NW	D831	1.5CD, 1.5CDR, 2.0CD & 3.0CD	1, 1-1/2 & 2
1, 1-1/2, 2 & 3		2-1/2" LW, NW	D832	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1, 1-1/2, 2 & 3
2 & 3		2-1/2" LW, NW	D833	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1-1/2
2		3-1/4" & 3-1/2" LW	D840	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1 & 1-1/2
1, 1-1/2 & 2		2-1/2" LW, NW	D847	2.0CD & 3.0CD	1, 1-1/2 & 3
1, 1-1/2, 2, 3 & 4		2-1/2" LW, NW	D858	1.5CD, 2.0CD & 3.0CD	1, 1-1/2, 2, 3 & 4
1, 1-1/2, 2 & 3		2" LW, NW	D859	1.5CD, 2.0CD & 3.0CD	1, 1-1/2, 2 & 3
2, 3 & 4		3-1/4" LW	D860	1.5CD, 2.0CD & 3.0CD	1, 1-1/2 & 2
2		2-1/2" LW, NW	D861	1.5CD, 2.0CD & 3.0CD	1 & 1-1/2
1, 1-1/2, 2 & 3		2-1/2" LW, NW	D871	1.5CD, 2.0CD & 3.0CD	1, 1-1/2, 2 & 3
2		2-1/2" LW, NW	D873	1.5CD, 2.0CD & 3.0CD	1
2, 3 & 4		3-1/4" LW	D874	1.5CD, 2.0CD & 3.0CD	1, 1-1/2 & 2
1, 1-1/2, 2 & 3		2" LW, NW	D875	1.5CD, 2.0CD & 3.0CD	1, 1-1/2, 2 & 3
2		2-1/2" LW, NW	D877	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1, 1-1/2 & 2
2		3-1/4" LW	D878	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1, 1-1/2 & 2

Continued on next page



Fire Resistance Ratings

COMPOSITE FLOOR ASSEMBLIES (cont.)

Restrained Assembly Rating (hrs.)	Type of Protection	Concrete Topping	U.L. Design Number	Classified Deck Type	Unrestrained Beam Rating (hrs.)
2 & 3	Sprayed on Fire Resistive Materials	2-1/2" LW, NW	D822	1.5CD, 1.5CDR, 2.0CD & 3.0CD	1, 1-1/2 & 2
1, 1-1/2, 2 & 3		2-1/2" LW, NW	D883	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1, 1-1/2, 2 & 3
2 & 3		2-1/2" LW, NW	D884	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1-1/2
1, 1-1/2, 2, 3 & 4		2-1/2" LW, NW	D891	1.5CD, 2.0CD & 3.0CD	1, 1-1/2, 2, 3 & 4
2		2-1/2" LW, NW	D892	1.5CD, 2.0CD & 3.0CD	1 & 1-1/2
1, 1-1/2, 2 & 3		2-1/2" LW, NW	D898	1.5CD, 2.0CD & 3.0CD	1, 1-1/2, 2 & 3
2	Unprotected	3-1/4" to 3-1/2" LW	D888	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1 & 1-1/2
1, 1-1/2, 2 & 3		2-1/2" to 5-1/4" LW, NW	D902	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1, 1-1/2, 2 & 3
2		3-1/4" LW	D907	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1 & 2
2		3-1/4" LW	D913	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1
3/4 & 1		2-1/2" LW	D914	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1
3/4, 1, 1-1/2, 2 & 3		2-1/2" to 5-1/4" LW, NW	D916	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1, 1-1/2, 2 & 3
1, 1-1/2, 2 & 3		2-1/2" to 5-1/4" LW, NW	D918	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1 & 1-1/2
1, 1-1/2, 2 & 3		2-1/2" to 5-1/4" LW, NW	D919	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1 & 1-1/2
3/4, 1, 1-1/2, 2 & 3		2-1/2" to 5-1/4" LW, NW	D922	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1, 1-1/2, 2 & 3
3/4, 1, 1-1/2, 2 & 3		2-1/2" to 5-1/4" LW, NW	D923	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1, 1-1/2, 2 & 3
3/4, 1, 1-1/2, 2 & 3		2-1/2" to 5-1/4" LW, NW	D925	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1, 1-1/2, 2, 3 & 4
3/4, 1, 1-1/2, 2 & 3		2-1/2" to 5-1/4" LW, NW	D927	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1, 1-1/2, 2 & 3
1, 1-1/2, 2 & 3		2-1/2" to 5-1/4" LW, NW	D929	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1, 1-1/2 & 2
2		2-1/2" to 5-1/4" LW, NW	D931	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1
2 & 3		2-5/8" to 5-1/4" LW, NW	D935	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1, 1-1/2 & 2
2 & 3		2-1/2" to 5-1/4" LW, NW	D936	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1, 1-1/2, 2 & 3
2		2-5/8" to 4-1/2" LW, NW	D937	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1 & 1-1/2
3/4, 1, 1-1/2, 2 & 3		2-1/2" to 5-1/4" LW, NW	D943	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1, 1-1/2, 2 & 3
3/4, 1, 1-1/2, 2 & 3		2-1/2" to 5-1/4" LW, NW	D949	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1, 1-1/2, 2, 3 & 4
2		2-5/8" to 4-1/2" LW, NW	D953	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1 & 1-1/2
2 & 3		2-1/2" to 5-1/4" LW, NW	D954	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1, 1-1/2, 2 & 3
1, 1-1/2, 2 & 3		2-1/2" to 5-1/4" LW, NW	D957	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1, 1-1/2, 2 & 3
3/4, 1, 1-1/2, 2 & 3		2-1/2" to 5-1/4" LW, NW	D958	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1, 1-1/2, 2 & 3
2 & 3		2-5/8" to 5-1/4" LW, NW	D959	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1, 1-1/2 & 2
2		3-1/4" LW	D966	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1
1, 1-1/2, 2 & 3		2-1/2" to 5-1/4" LW, NW	D968	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1 & 1-1/2
1, 1-1/2, 2 & 3		2-1/2" to 5-1/4" LW, NW	D972	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1, 1-1/2, 2, 2-1/2 & 3
3		4-1/2" NW	D974	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1-1/2
1, 1-1/2, 2 & 3		2-1/2" to 5-1/4" LW, NW	D975	1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1, 1-1/2 & 2
1, 1-1/2, 2 & 3		2-1/2" to 5-1/4" LW, NW	D978	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1, 1-1/2, 2, 2-1/2 & 3

FLOOR ASSEMBLIES - CANADA

Restrained Assembly Rating (hrs.)	Type of Protection	Concrete Topping	U.L. Canada Design Number	Classified Deck Type	Unrestrained Beam Rating (hrs.)
3	Sprayed on Fire Resistive Materials	2-1/2" NW	F700	1.5FDI & 1.5CDI	1-1/2
2		2-1/2" NW	F701	1.5FDI, 1.5FDR, 1.5CDI & 3.0CD	2
2		2-1/2" LW	F703	1.5CD	1-1/2
1, 1-1/2, 2 & 3		2-1/2" LW, NW	F816	1.5FD, 1.5FDI, 1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1 & 1-1/2
1-1/2, 2 & 3		2-1/2" LW, NW	F817	1.5FDI, 1.5FDR, 1.5CD, 1.5CDI, 2.0CD & 3.0CD	1 & 1-1/2
1		2-1/2" LW, NW	F818	1.5FDR, 1.5CD, 1.5CDI, 2.0CD & 3.0CD	1
2 & 3	Unprotected	2-1/2" to 3-1/2" LW	F821	2.0CD & 3.0CD	1 & 1-1/2
2		3-1/2" LW	F902	1.5FDI & 1.5CDI	2
1, 1-1/2 & 2		2-1/2" to 4-1/2" LW, NW	F904	1.5FD, 1.5FDI, 1.5FDR, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	1-1/2
1, 1-1/2, 2 & 3		2-1/2" to 5-1/2" LW, NW	F906	1.5FDI, 1.5FDR, 1.5CD, 1.5CDI, 1.5CDR, 2.0CD & 3.0CD	3/4, 1 & 1-1/2
1, 1-1/2, 2 & 3		2-1/2" to 4-1/2" LW, NW	F910	1.5FDI, 1.5FDR, 1.5CDI, 1.5CDR & 3.0CD	1 & 1-1/2
1 & 2		2-1/2" to 4-1/2" LW, NW	F911	1.5FDI, 1.5CDI, 1.5CDR & 3.0CD	1
3		4-1/2" NW	F915	1.5CD, 1.5CDI, 2.0CD & 3.0CD	1-1/2
1, 1-1/2 & 2		3-1/2" NW	F916	1.5CD, 2.0CD & 3.0CD	1, 1-1/2 & 2
1, 1-1/2 & 2		3-1/2" LW	F917	1.5CD, 2.0CD & 3.0CD	1 & 1-1/2



Fire Resistance Ratings

ROOF ASSEMBLIES

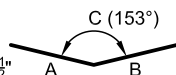
Restrained Assembly Ratings (hrs.)	Type of Protection	Roof Covering	UL Design Number	Classified Deck Type	Unrestrained Beam Rating (hrs.)
1 & 1-1/2	Exposed Grid	Roof Insulation	P225	B, BI, F, N & 1.0RD	1 & 1-1/2
1 & 1-1/2			P227	B, BI & F	-
1 & 1-1/2			P230	B, BI & F	1 & 1-1/2
1 & 1-1/2			P250	B, BI, F & N	1 & 1-1/2
1 & 1-1/2	Exposed Grid	Insulating or Cellular Concrete	P231	1.0FD, 1.5FD, 1.5FDR & 1.5FDI	1 & 1-1/2
1			P246	0.6FD, 1.0FD, 1.5FD, 1.5FDR & 0.6FDV	1
1-1/2 & 2	Metal Lath & Plaster	Roof Insulation	P404	B, BI & F	-
3	Metal Lath & Plaster	Insulating or Cellular Concrete	P405	0.6FD, 1.0FD, 1.5FD, 1.5FDR & 1.5FDI	-
2			P407	0.6FD, 1.0FD, 1.5FD, 1.5FDR & 1.5FDI	-
1	Gypsum Board	Insulating or Cellular Concrete	P509	B, BI, BV & 1.5FDR	1
1 & 1-1/2	Gypsum Board	Roof Insulation	P510	B, BI, F, N & 1.0RD	-
1 & 2			P519	B, BI & F	-
3/4, 1, 1-1/2 & 2	Sprayed on Fire Resistive Materials	Roof Insulation	P701	B, BI, F & N	1, 1-1/2 & 2
1, 1-1/2 & 2			P711	B, BI, F & N	1, 1-1/2 & 2
1, 1-1/2 & 2			P714	B, BI, F & N	1, 1-1/2 & 2
1, 1-1/2 & 2			P717	B, BI, F & N	1, 1-1/2 & 2
1, 1-1/2, 2 & 3			P719	B, BI, F & N	1, 1-1/2, 2 & 3
1, 1-1/2, 2 & 3			P723	B, BI, F & N	1, 1-1/2, 2 & 3
1, 1-1/2 & 2			P725	B, BI, F & N	1, 1-1/2 & 2
1, 1-1/2, 2 & 3			P732	B, BI, F & N	1, 1-1/2, 2 & 3
1, 1-1/2, 2 & 3			P733	B & BI	1, 1-1/2, 2 & 3
1			P735	B, BI, F & N	1
1, 1-1/2 & 2			P739	B, BI, F & N	1, 1-1/2 & 2
1, 1-1/2 & 2			P740	B, BI, F & N	1, 1-1/2 & 2
1, 1-1/2 & 2			P741	B, BI, F & N	1, 1-1/2 & 2
1, 1-1/2 & 2			P819	0.6FD, 1.0FD, 1.5FD, B, BI, F & N	1, 1-1/2 & 2
1, 1-1/2 & 2			P829	1.5FD, B, BI, F & N	1, 1-1/2 & 2
1, 1-1/2 & 2	Unprotected	Insulating or Cellular Concrete	P902	B, BI, F, N, 0.6FD, 1.0FD, 1.5FD, 1.5FDR, 1.5FDI, 2.0FD & 3.0FD	1, 1-1/2 & 2
1, 1-1/2 & 2			P908	B, BI, F, N, 0.6FD, 1.0FD, 1.5FD, 1.5FDR, 1.5FDI, 2.0FD & 3.0FD	1, 1-1/2 & 2
1 & 1-1/2			P919	B, BI, BV, F, N, 1.0FD, 1.0FDV, 1.5FD, 1.5FDR, 1.5FDI, 2.0FD & 3.0FD	1 & 1-1/2
1, 1-1/2 & 2			P921	B, BI, F, N, 0.6FD, 1.0FD, 1.5FD, 0.6FDV, 1.0FDV & BV	1, 1-1/2 & 2
1, 1-1/2 & 2			P922	B, BI, BV, F, N, 1.0FD, 1.0FDV, 1.5FD, 1.5FDR, 1.5FDI, 2.0FD & 3.0FD	1, 1-1/2 & 2
1, 1-1/2 & 2			P923	B, BI, F, N, 0.6FD, 1.0FD, 1.5FD, 0.6FDV, 1.0FDV & BV	1, 1-1/2 & 2
1, 1-1/2 & 2			P925	B, BI, BV, F, N, 0.6FD, 0.6FDV, 1.0FD, 1.0FDV, 1.5FD, 1.5FDR, 1.5FDI, 2.0FD & 3.0FD	1, 1-1/2 & 2
1, 1-1/2 & 2			P937	B, BI, F, N, 0.6FD, 1.0FD, 1.5FD, 0.6FDV, 1.0FDV & BV	1, 1-1/2 & 2
1, 1-1/2 & 2			P945	B, BI, F, N, 0.6FD, 1.0FD, 1.5FD, 0.6FDV, 1.0FDV & BV	1, 1-1/2 & 2



Standard Accessories & Roof Accessory Details

Stock Dims:

RVP1: A = 4 $\frac{1}{2}$ ", B = 4 $\frac{1}{2}$ "
RVP2: A = 6", B = 6"



RIDGE/VALLEY PLATE (RVPx)



Stock Dims:

FP6: A = 6"
FP9: A = 9"
FP12: A = 12", 18 Ga.

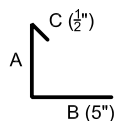
FLAT PLATE (FPx)



Stock Dims:

CC1: A = 1 $\frac{1}{2}$ "
CC2: A = 2"
CC3: A = 3"

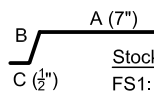
CELL CLOSURE (CCx)



Stock Dims:

PS1: A = 3"
PS2: A = 3 $\frac{1}{2}$ "
PS3: A = 4"
PS4: A = 4 $\frac{1}{2}$ ", 18 Ga.
PS5: A = 5", 18 Ga.

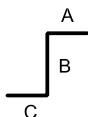
POUR STOP (PSx)



Stock Dims:

FS1: B = 1 $\frac{1}{2}$ "
FS2: B = 3"

FILLER SHEET (FSx)



Stock Dims:

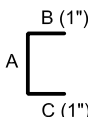
Dims: As required
Gage: As required

"Z" CLOSURE (Zx)

Stock Dims:

GF3: A = 4" (3" Gap)
GF6: A = 7" (6" Gap)
GF9: A = 10", 18 Ga. (9" Gap)
GF12: A = 13", 16 Ga. (12" Gap)

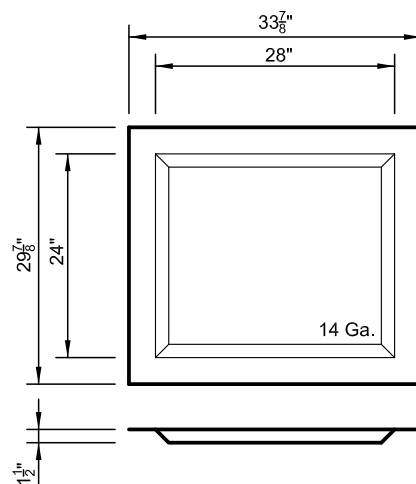
GIRDER FILLER (GFx)



Stock Dims:

SC1: A = 1 $\frac{1}{2}$ "
SC2: A = 2"
SC3: A = 3"

SIDE CLOSURE (SCx)



RECESSED SUMP PAN (SUMP)

MISC. STOCK ITEMS

10-1: #10-16 x $\frac{3}{4}$ " Type 1 Side Lap Screw
10-3: #10-16 x $\frac{3}{4}$ " Type 3 Side Lap Screw
12-3: #12-14 x $\frac{3}{4}$ " Type 3 Side Lap Screw
12-5: #12-24 x $1\frac{1}{4}$ " Type 5 Support Screw
COL: 12" x 24" Column Closure
WW: Weld Washer w/ $\frac{3}{8}$ " $\varnothing$ Hole, 16 Ga.

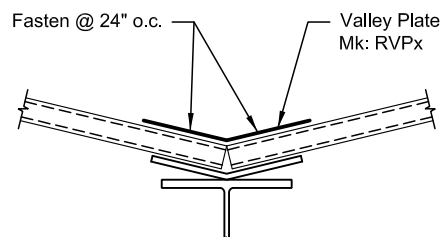
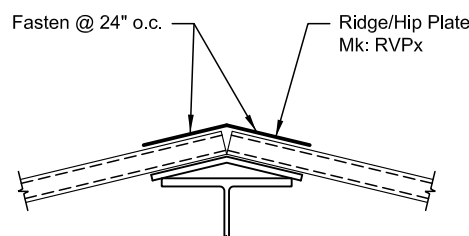
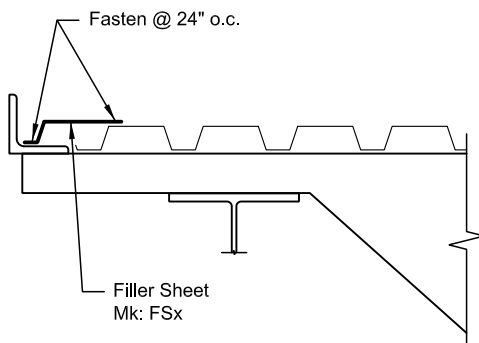
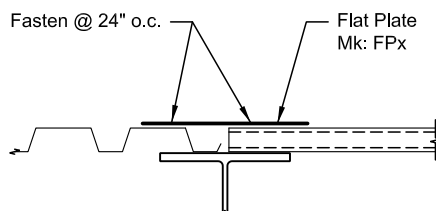
MISC. SPECIAL ITEMS*

Piercing & Non-Piercing Hanger Tabs
Top/Bottom Side Flexible Rubber Closures
Metal Lath-Type Column Closure
* Not supplied by New Millennium

STANDARD DECK ACCESSORIES

Notes:

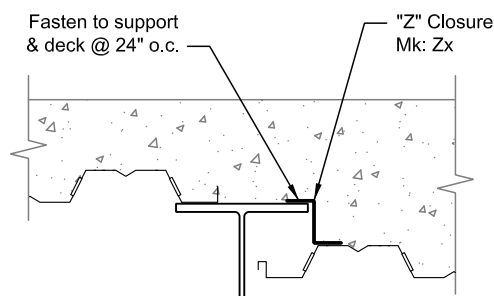
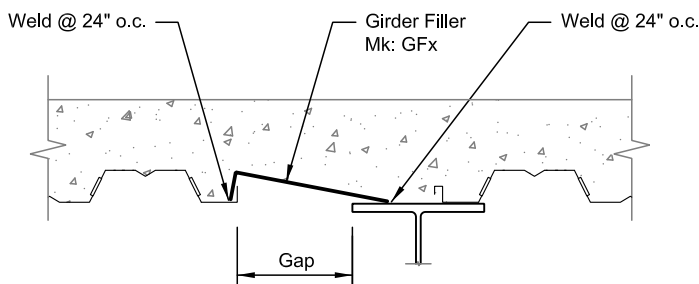
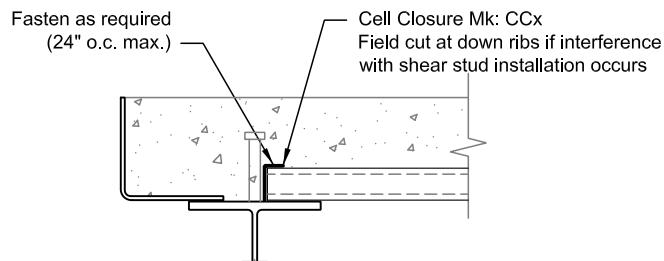
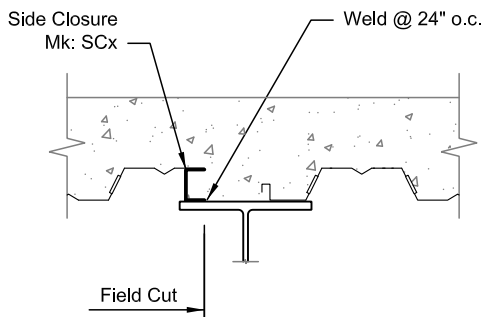
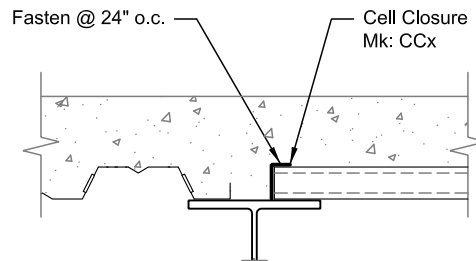
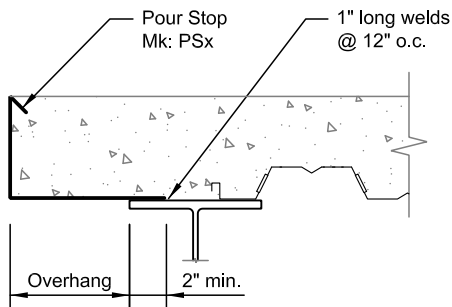
- Accessories are furnished with G60 galvanized coating minimum, in 10'-0" lengths.
- Stock accessories are 20 gage - U.N.O.
- New Millennium can provide special light-gage accessories to meet your project requirements, including notched or reinforced Pour Stops and accessories made of 304 stainless steel. Contact New Millennium for availability and pricing.



ROOF DECK ACCESSORY INSTALLATION DETAILS

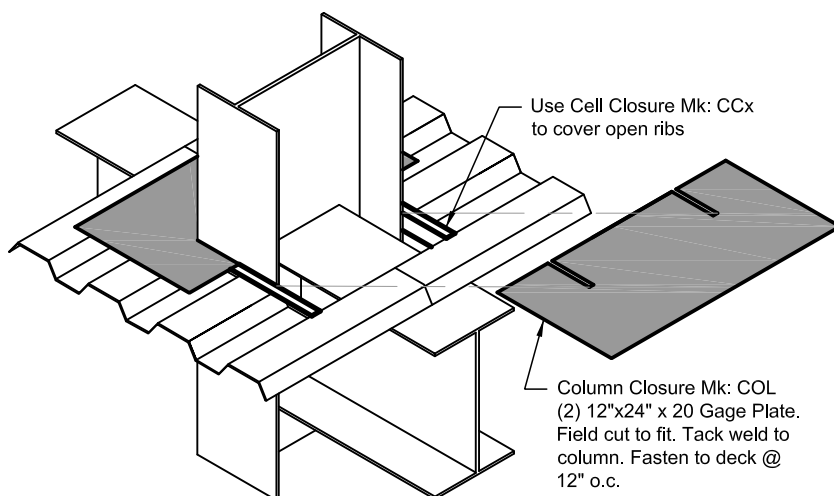
Accessories shall be attached to supporting structure or deck as required for servability, but spaced not to exceed criteria shown in above details.

Floor Deck Accessory Details

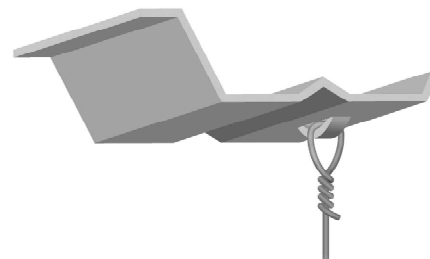


FLOOR DECK ACCESSORY INSTALLATION DETAILS

Accessories shall be attached to supporting structure or deck as required for servability, but spaced not to exceed criteria shown in above details.



COLUMN CLOSURE DETAIL



ROLLED-IN HANGER TAB DETAIL

Single-tab capacity = 100 lbs.
Available in deck types B, 1.5FDR, 2.0FD, 3.0FD, 1.5CD, 2.0CD and 3.0CD.



Pour Stop Gage Selection

GAGE SELECTION TABLE

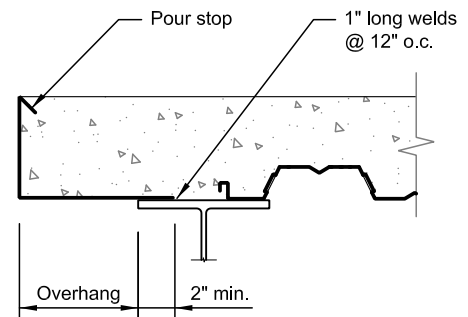
Slab Depth (in.)	Pour Stop Gage												
	Overhang (in.)												
	0	1	2	3	4	5	6	7	8	9	10	11	12
4	20	20	20	20	18	18	16	14	12	12	12	10	10
4 1/4	20	20	20	18	18	16	16	14	12	12	12	10	10
4 1/2	20	20	20	18	18	16	16	14	12	12	12	10	10
4 3/4	20	20	18	18	16	16	14	14	12	12	10	10	10
5	20	20	18	18	16	16	14	14	12	12	10	10	
5 1/4	20	18	18	16	16	14	14	12	12	12	10	10	
5 1/2	20	18	18	16	16	14	14	12	12	12	10	10	
5 3/4	20	18	16	16	14	14	12	12	12	12	10	10	
6	18	18	16	16	14	14	12	12	12	10	10	10	
6 1/4	18	18	16	14	14	12	12	12	12	10	10		
6 1/2	18	16	16	14	14	12	12	12	12	10	10		
6 3/4	18	16	14	14	14	12	12	12	10	10	10		
7	18	16	14	14	12	12	12	12	10	10	10		
7 1/4	16	16	14	14	12	12	12	10	10	10			
7 1/2	16	14	14	12	12	12	12	10	10	10			
7 3/4	16	14	14	12	12	12	10	10	10	10			
8	14	14	12	12	12	12	10	10	10				
8 1/4	14	14	12	12	12	10	10	10	10				
8 1/2	14	12	12	12	12	10	10	10					
8 3/4	14	12	12	12	12	10	10	10					
9	14	12	12	12	10	10	10						
9 1/4	12	12	12	12	10	10	10						
9 1/2	12	12	12	10	10	10							
9 3/4	12	12	12	10	10	10							
10	12	12	10	10	10	10							
10 1/4	12	12	10	10	10								
10 1/2	12	12	10	10	10								
10 3/4	12	10	10	10									
11	12	10	10	10									
11 1/4	12	10	10										
11 1/2	10	10	10										
11 3/4	10	10											
12	10	10											

Notes:

- Gages shown above are based on the following criteria:
 - Pour stop must be supported for its full length
 - Normal weight concrete (145 pcf)
 - Horizontal and vertical deflection is limited to 1/4" maximum under concrete dead load
 - Design stress is limited to 20 ksi for concrete dead load temporarily increased by one-third for the construction live load of 20 psf.
- The gage selection table above does not consider the effect of the performance, deflection or rotation of the pour stop support which may include both the supporting deck and/or the framing member.
- A vertical leg return lip is recommended for all gages.
- This selection table is not meant to replace the judgement of the Design Professional and shall be considered as reference only.
- Reinforced Pour Stop can be designed and supplied where slab edge condition exceeds table. Contact New Millennium for assistance.

DESIGN THICKNESS

Gage	Thickness (in.)
20	0.0358
18	0.0474
16	0.0598
14	0.0747
12	0.1046
10	0.1345





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