Web Crippling

Steel Deck Reactions at Supports

Steel deck reactions at supports are governed by the web crippling capacity of the steel deck webs on the supporting member. This is calculated in accordance with Section C3.4 of AISI S100-2007 for multi-web steel decks.

Reactions Due to Uniform Loads

The end and interior reactions listed in the tables in this catalog are for a uniformly distributed out-of-plane load applied to the deck (see *Figure 1.8.1)*.

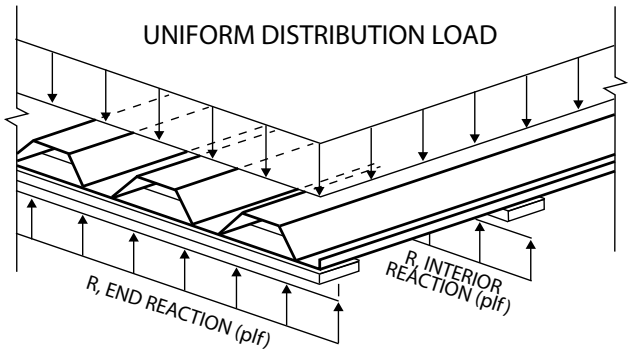


Figure 1.8.1: **UNIFORM DISTRIBUTED OUT-OF-PLANE LOAD**

The allowable R_n/Ω and factored ϕR_n reactions presented in the tables are in pounds per linear foot running axially along the support for a given deck-bearing length (the support member width) on the support. This is based on the web crippling capacity multiplied by the number of webs per foot. *Figure 1.8.3* shows how to read the reaction tables in this catalog.

Panels must be attached to supports with fastener patterns not less than the minimum attachment patterns shown for the deck panel.

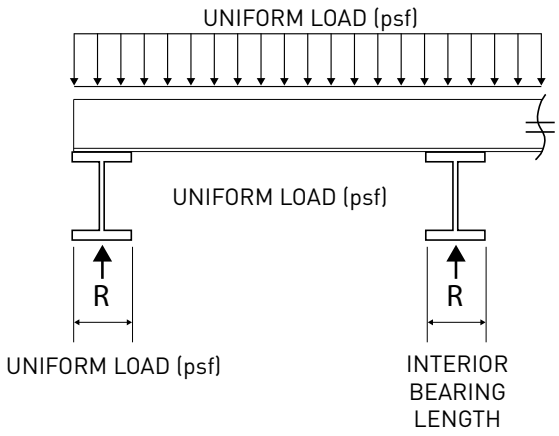
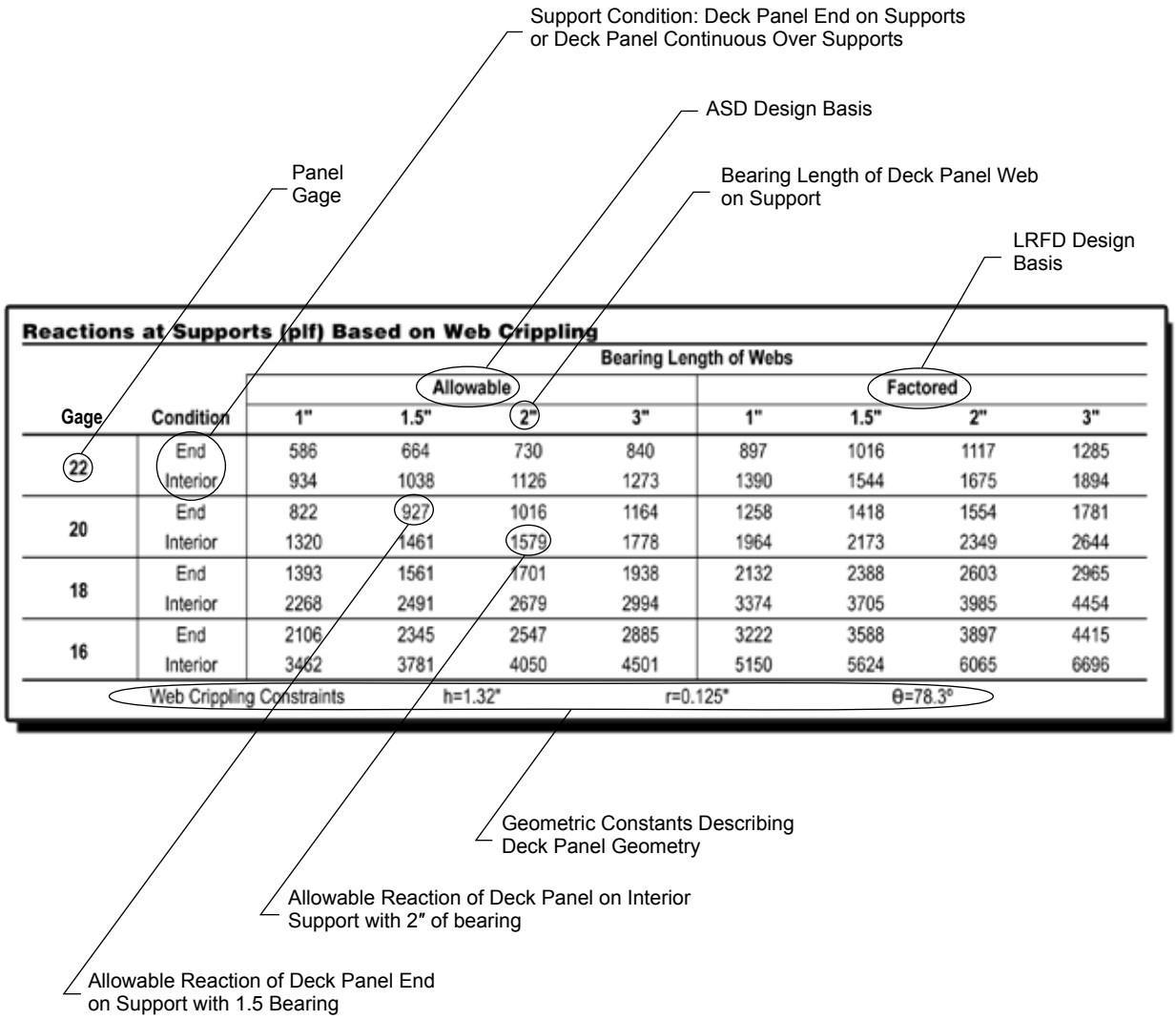


Figure 1.8.2: **SUPPORT REACTIONS**

Point or Line Load Reactions

For load conditions that exceed the uniform reaction tables, including point load and line loads on the steel deck panel, the maximum reactions should be based on the web crippling capacity for the steel deck. Reactions exceeding the published values, or for conditions other than a uniformly distributed loads, shall be determined by the designer in accordance with section C3.4 of the North American Specifications for the Design of Cold-Formed Steel Structural Members for multi-web steel panels and the geometric constants presented in the web crippling tables for the deck panel.

How to Read Web Crippling Table



Reactions at Supports (plf) Based on Web Crippling

		Bearing Length of Webs							
		Allowable				Factored			
Gage	Condition	1"	1.5"	2"	3"	1"	1.5"	2"	3"
22	End	586	664	730	840	897	1016	1117	1285
	Interior	934	1038	1126	1273	1390	1544	1675	1894
20	End	822	927	1016	1164	1258	1418	1554	1781
	Interior	1320	1461	1579	1778	1964	2173	2349	2644
18	End	1393	1561	1701	1938	2132	2388	2603	2965
	Interior	2268	2491	2679	2994	3374	3705	3985	4454
16	End	2106	2345	2547	2885	3222	3588	3897	4415
	Interior	3462	3781	4050	4501	5150	5624	6065	6696
Web Crippling Constraints		h=1.32"		r=0.125"		θ=78.3°			

Figure 1.8.3: **SAMPLE OF WEB CRIPPLING TABLE**