

Stress Tables and Rigging Patterns

Note: The accompanying stress tables and rigging configurations are intended for estimating purposes only and are not to be used for designing purposes.

The stress tables are valid for solid, uniformly thick panels without exposed aggregate or formliners. For panel shapes that vary from these criteria, contact a Dayton Superior Technical Services Department for assistance. A flexure (bending) stress analysis will be required.

The following tables show the actual bending stresses in pounds per square inch (psi) according to panel thickness, height and rigging configuration and are based on dead load only. Additional safety factors must be applied for any anticipated impact or dynamic loads.

Table of Allowable Concrete Stresses (psi)							
f_c	2,000	2,300	2,500	2,700	3,000	3,500	4,000
Allowable Bending Stress	268	287	300	311	328	354	379

f_c = Normal weight concrete compressive strength at time of lift.

Note: See page 4 before using these charts for estimating lightweight concrete panels

Panel Thickness	Maximum Panel Width	
	2 Wide Rigging	4 Wide Rigging
4"	21'-0"	34'-0"
5"	23'-0"	38'-0"
5-1/2"	24'-0"	40'-0"
6"	25'-0"	42'-0"
7-1/2"	27'-0"	45'-0"
8"	29'-0"	47'-0"

When choosing a desired rigging configuration, always make certain that the panel total weight divided by the number of lifting inserts does not exceed the following:

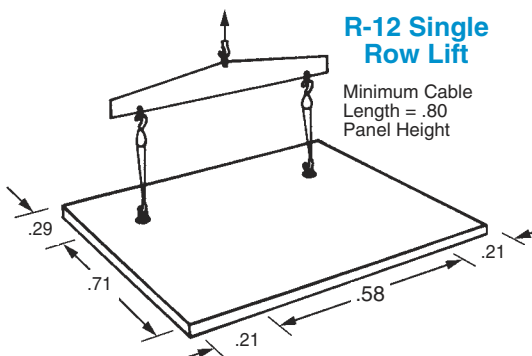
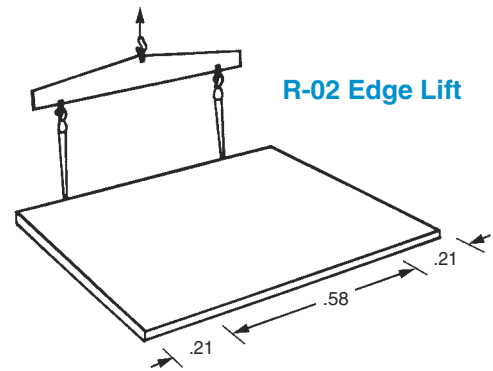
1. Face lift insert safe working load.
2. Edge lift inserts tension safe working load.
3. 65% of the panel weight divided by the number of inserts does not exceed edge lift insert shear safe working load.

Calculate normal weight concrete at 150 pounds per cubic foot.

Panels may be safely tilted when the calculated bending stress is equal to, or lower than the allowable bending stress for the compressive strength at the time of lifting. When the calculated bending stress exceeds the allowable, the panel can be tilted only if the bending stress is reduced by:

1. Increasing the number of lifting inserts;
2. Using additional, properly placed reinforcing steel;
3. Using external stiffening devices, such as strongbacks or
4. Possibly changing the concrete mix to a stronger compressive strength.

R-02 Edge Lift											
Panel Thickness	Panel Height										
	9'	10'	11'	12'	13'	14'	15'	16'	17'	18'	19'
4"	190	235	284	338	396						
5"	152	188	227	270	317	367					
5-1/2"	138	171	207	246	288	334	384				
6"	127	157	189	225	264	306	352	400			
7-1/2"	102	125	151	180	212	245	281	320	362		
8"	95	118	142	169	198	230	264	300	339	380	423



R-12 Single Row Lift													
Panel Thickness	Panel Height												
	13'	14'	15'	16'	17'	18'	19'	20'	21'	22'	23'	24'	25'
4"	139	161	185	210	237	266	297	329	362				
5"	111	129	148	168	190	213	237	263	290	318			
5-1/2"	101	124	135	153	173	194	216	239	263	289	316		
6"	93	103	123	140	159	178	198	219	242	265	290	315	
7-1/2"	74	86	99	112	127	142	158	175	193	212	232	252	274
8"	70	81	93	105	119	133	148	165	181	199	217	237	257