

Concrete Pour Pressure Information



CONCRETE POUR PRESSURE CHART (For Walls Only) *

CONCRETE TEMPERATURE (F°) & WALL HEIGHTS

RATE (R) PER HOUR	55°		60°		65°		70°		75°		80°	
	14'-0" and Less	Over 14'-0"	14'-0" and Less	Over 14'-0"	14'-0" and Less	Over 14'-0"	14'-0" and Less	Over 14'-0"	14'-0" and Less	Over 14'-0"	14'-0" and Less	Over 14'-0"
1'-0"	600	1386	600	1288	600	1205	600	1134	600	1072	600	1018
2'-0"	668	1457	630	1353	600	1265	600	1190	600	1125	600	1068
3'-0"	897	1529	840	1419	792	1326	750	1246	714	1177	683	1117
4'-0"	1126	1600	1050	1484	985	1386	930	1302	882	1229	840	1166
5'-0"	1355	1671	1260	1549	1179	1446	1110	1358	1050	1281	998	1215
6'-0"	1585	1742	1470	1614	1373	1507	1290	1414	1218	1334	1155	1264
7'-0"	1814	1814	1680	1680	1567	1567	1470	1470	1386	1386	1313	1313

- * Black Values are for Wall Heights 14'-0" and Less; Green Values are for Wall Heights Over 14'-0".
- * Concrete Pour Pressure Values shown are listed as pounds per square foot (psf).
- * Concrete Temperature Values (T) shown are listed as Fahrenheit degrees.
- * The chart above does not include all variables or represent all possible Concrete Pour Pressure results.
- * Use the Concrete Pour Pressure Equations below for precise calculations of Concrete Pour Pressures.

- * The chart above shows Concrete Pour Pressure results based on a specific set of variables, as follows:
 - * Allows for Concrete Mix Designs that include Slag, Fly Ash and Retarders - (Cc = 1.4)
 - * Allows for a Maximum Slump of 7"
 - * Allows for a Maximum Vibration Depth of 4'-0"
 - * Unit Weight Coefficient - (Cw = 1.0)

* All information shown is based on American Concrete Institute (ACI) 347 R-14, dated July 2014.

CONCRETE POUR PRESSURE EQUATIONS *

SLUMP (in) *	INTERNAL DEPTH OF VIBRATION (ft)	ELEMENT TYPE	RATE (R)	CONCRETE POUR PRESSURE EQUATIONS (psf) (Note: 600 psf = MINIMUM; w * h = MAXIMUM)	UNIT WEIGHT COEFFICIENT - (Cw)
> 7 in	Any	Any	Any	= w * h	Concrete weighing less than 140 lbs / cu ft Cw = 0.5 * (1 + w / 145), but not less than 0.80
<= 7 in	> 4 feet	Any	Any	= w * h	Concrete weighing 140 to 150 lbs / cu ft Cw = 1.0
<= 7 in	<= 4 feet	Column **	Any	= Cw * Cc * (150 + (9000 * R / T))	Concrete weighing more than 150 lbs / cu ft Cw = w / 145
		Wall (Ht <= 14')	< 7 ft / hr	= Cw * Cc * (150 + (9000 * R / T))	CHEMISTRY COEFFICIENT - (Cc) Types I, II and III Cement without slag, fly ash or retarders * Types I, II and III Cement without slag or fly ash, but with retarder * Any cement types without retarders containing less than 70% slag and less than 40% fly ash Any cement types with retarders containing less than 70% slag and less than 40% fly ash Any cement types without retarders containing 70% or more slag or 40% or more fly ash Any cement types with retarders containing 70% or more slag or 40% or more fly ash * Retarders include any admixtures such as retarders, retarding water reducers, or retarding midrange or high-range water-reducing admixtures that delay the setting of concrete.
		Wall (Ht > 14')	< 7 ft / hr	= Cw * Cc * (150 + (43400 / T) + (2800 * R / T))	
		Wall ***	7 ft/hr - 15 ft/hr	= Cw * Cc * (150 + (43400 / T) + (2800 * R / T))	
Wall	>= 15 ft / hr	= w * h			

NOTES

- h = Depth of fluid concrete (feet)
- R = Rate of concrete placement (feet per hour)
- T = Temperature of concrete at time of placement (degrees Fahrenheit)
- w = Unit weight of concrete (pounds per cubic foot)
- * Slump to be measured after the addition of all admixtures
- ** Column defined as vertical element with no plan dimension > 6.5 ft
- *** Wall defined as vertical element with at least one plan dimension > 6.5 ft

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