

Helix Versus Mesh and Rebar

Updated 10/2/06

HELIX STRENGTH

Dosage	Strength, Mn (Kip-in)				
	4 inch	5 inch	6 inch	7 inch	8 inch
10 lb/yd ³	10.0	15.7	22.6	30.8	40.2
15 lb/yd ³	11.8	18.4	26.4	36.0	47.0
20 lb/yd ³	14.0	21.8	31.4	42.8	55.9
25 lb/yd ³	15.9	24.8	35.8	48.7	63.6
30 lb/yd ³	18.2	28.5	41.0	55.8	72.9
40 lb/yd ³	21.6	33.8	48.6	66.2	86.4
50 lb/yd ³	25.3	39.6	57.0	77.5	101.3

To get the Helix dosage and cost

1. Look up the mesh or rebar configuration for the table and get the Strength number
2. Find the same or slightly greater strength on the Helix chart (you can use the same thickness concrete or reduce the thickness)

Example:

#4 rebar, 18" OC with 8" concrete = 31.2

Acceptable Helix dosages could be

7" concrete with 10 lbs/yd of Helix

or 6" concrete with 20 lbs/yd of Helix

3. Fill in the red blanks below

Concrete price \$/yd = 85
 Concrete thickness = 8
 Installed steel cost (\$/ft²) = 0.694

Helix dosage = 20
 Concrete thickness w/Helix = 6
 Helix price in \$/lb = 1.5

4. Get cost in \$/ft² (includes both the concrete and Helix)

Total cost with steel = \$ 2.79

Total cost w/helix = \$ 2.13

% Savings with Helix = -23.7%

Common Mesh Arrangements

Rebar/Mesh Designation		Strength, Mn (Kip-in)				
		4 inch	5 inch	6 inch	7 inch	8 inch
6x6	W1.4XW1.4	3.3	4.2	5.0	5.8	6.7
6x6	W2.1XW2.1	5.2	6.5	7.9	9.2	10.5
6X6	W2.9XW2.9	6.8	8.6	10.3	12.0	13.8
4X4	W2.1XW2.1	7.3	9.1	11.0	12.9	14.7
6X6	W4XW4	9.3	11.7	14.1	16.5	18.9
4X4	W2.9XW2.9	10.1	12.7	15.3	17.9	20.6
6X6	W5.5XW5.5	12.7	16.0	19.3	22.6	25.9
4X4	W4XW4	13.8	17.4	21.0	24.6	28.2
4X4	W5.5XW5.5	18.6	23.5	28.5	33.4	38.4

Common Rebar Arrangments (single layer)

Rebar Configuration		Strength, Mn (Kip-in)				
		4 inch	5 inch	6 inch	7 inch	8 inch
#3	18" OC	8.6	10.7	13.0	15.1	17.4
#3	16" OC	9.6	12.1	14.6	17.1	19.5
#3	12" OC	12.7	16.0	19.3	22.6	25.9
#4	18" OC	15.2	19.2	23.2	27.1	31.2
#4	16" OC	17.0	21.5	26.0	30.5	35.0
#4	12" OC	22.2	28.2	34.2	40.2	46.2
#5	12" OC	33.0	42.3	51.6	60.9	70.2

Common Rebar Arrangments (double layer)

Rebar Configuration		Strength, Mn (Kip-in)				
				6 inch	7 inch	8 inch
#4	12" OC T&B			42.2	54.8	67.4
#5	12" OC T&B			63.9	83.4	103