

### Basic Requirements

- Soil Supported.
- Joints spacing meets ACI 360R-10 chapter 6.
- Original rebar or mesh design is available.
- Constructed in accordance with ACI 302.1R.

The PE stamp signifies that the design tables have been prepared in accordance with Uniform ES ER-0279



### Approval Method

- Slabs that do not support building structure: ACI 360R-10 chapter 11 (Elastic Design), UES ER-0279 Section 4.
- Slabs that support building or roof structure: ACI 318-14 section 1.10, UES ER-0279 Section 4.

### Design Basis and Class

- Class A (Shrinkage and Temperature): When original reinforcement ratio is less than 0.002 Uniform-ES ER-0279 Section 4.2.
- Class B (Structural Slabs): When original reinforcement ratio exceeds 0.002 Uniform-ES ER-0279 Section 4.3.

### Helix Conversion

- The following table contains dosage rates of Helix that have been calculated to provide the same or larger moment capacity than the original rebar or mesh configurations using Uniform-ES ER-0279 and elastic design methods.

#### Dosage of Helix 5-25 for Slabs on Ground

##### Common Mesh Arrangements Imperial Units

3000 psi Concrete		4 inch	5 inch	6 inch	7 inch	8 inch	10 inch
Grade 60 WWF	Helix 5-25 Micro Rebar Dosage (lb/yd <sup>3</sup> )						
6x6 W1.4XW1.4	4.5	4.5	4.5	4.5	4.5	4.5	4.5
6X6 W2.0XW2.0	5.2	4.5	4.5	4.5	4.5	4.5	4.5
6X6 W2.9XW2.9	7.5	6.0	5.0	4.5	4.5	4.5	4.5
6X6 W4XW4	10.3	8.2	6.9	5.9	5.2	4.5	
4X4 W2.9XW2.9	11.2	9.0	7.5	6.4	5.6	4.5	
6X6 W5.5XW5.5	15.7	11.3	9.4	8.1	7.1	5.7	
4X4 W4XW4	16.9	13.9	10.3	8.8	7.7	6.2	
4X4 W5.5XW5.5	22.3	18.3	15.7	12.0	10.6	8.5	

##### Single Layer Rebar Imperial Units

3000 psi Concrete		4 inch	5 inch	6 inch	7 inch	8 inch	10 inch
Grade 60 Rebar	Helix 5-25 Micro Rebar Dosage (lb/yd <sup>3</sup> )						
#3 24"	7.1	5.7	4.8	4.5	4.5	4.5	
#3 18"	9.4	7.6	6.3	5.4	4.8	4.5	
#3 16"	10.6	8.5	7.1	6.1	5.3	4.5	
#3 12"	15.7	11.3	9.4	8.1	7.1	5.7	
#4 24"	14.4	10.3	8.6	7.4	6.4	5.2	
#4 18"	18.5	15.2	11.4	9.8	8.6	6.9	
#4 16"	20.5	16.9	14.4	11.0	9.6	7.7	
#4 12"	35.0	21.7	18.5	16.7	14.3	10.2	
#5 12"		47.2	27.2	23.7	21.1	17.3	

##### Common Mesh Arrangements Metric Units

20 MPa Concrete		100 mm	150 mm	200 mm	250 mm
Grade 500 WWF	Helix Micro Rebar Dose (kg/m <sup>3</sup> )				
200mm 4.75mm	4.0	3.0	3.0	3.0	
200mm 6mm	6.4	4.3	3.2	3.0	
200mm 6.75mm	8.0	5.4	4.0	3.2	
200mm 7.6mm	11.5	6.8	5.1	4.1	
200mm 8.6mm	14.2	8.6	6.5	5.2	
200mm 9.5mm		11.9	7.9	6.3	
100mm 7.6mm		14.7	11.5	8.1	

##### Single Layer Rebar Metric Units

20 MPa Concrete		100 mm	150 mm	200 mm	250 mm
Grade 500 Rebar	Helix Micro Rebar Dose (kg/m <sup>3</sup> )				
10mm 400 mm	8.6	5.8	4.4	3.5	
10mm 300 mm	12.8	7.7	5.8	4.6	
10mm 200 mm	18.2	12.8	8.6	6.9	
12mm 400 mm	13.5	8.1	6.1	4.9	
12mm 300 mm		12.2	8.1	6.5	
12mm 200 mm			13.5	11.1	
16mm 400 mm			12.4	10.2	
16mm 300 mm				13.2	

Note: 1. Original rebar/mesh is placed at the center of the section.

### Instructions for Conversion

- Review Uniform-ES ER-0279 to assure project compliance with application restrictions.
- Determine the dosage in the table above using the original slab thickness and reinforcement detail.
- To activate the performance guarantee submit your design to [sales@helixsteel.com](mailto:sales@helixsteel.com).
- Note the drawing with the Helix alternative: "Use the rebar as shown on the drawing or XX lb/yd<sup>3</sup> Helix 5-25 designed in accordance with Uniform-ES ER-0279".
- Instruct contractor to contact Helix for pricing, delivery and installation instructions at
- 734-322-2114 or [sales@helixsteel.com](mailto:sales@helixsteel.com).

### Example

- Slab on ground, 5" thick.
- Reinforcement is #3 @ 16" on center at mid depth of slab.
- Concrete compressive strength 3000 psi.

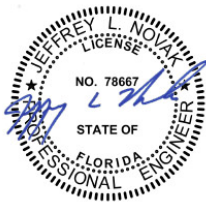
**Step 1** - Find the column in the table for the slab thickness (yellow).

**Step 2** - Read across the table for #3 at 16" spacing (blue).

**Step 3** - Select the dosage rate at the intersection, 8.5 lb/yd<sup>3</sup> (green).

**Step 4** - Add a note to drawing with the Helix alternative: "Use the rebar as shown on the drawing or 8.5 lb yd<sup>3</sup> Helix 5-25 designed in accordance with Uniform-ES ER-0279".

**Step 5** - If required, a calculation can be provided for the result shown in the table. Contact your local Helix representative.



**Single Layer Rebar Imperial Units**

3000 psi Concrete		4 inch	5 inch	6 inch	7 inch	8 inch	10 inch
Grade 60 Rebar		Helix 5-25 Micro Rebar Dosage (lb/yd <sup>3</sup> )					
#3	24"	7.1	5.7	4.8	4.5	4.5	4.5
#3	18"	9.4	7.6	6.3	5.4	4.8	4.5
#3	16"	10.6	8.5	7.1	6.1	5.3	4.5
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#4	18"	18.5	15.2	11.4	9.8	8.6	6.9
#4	16"	20.5	16.9	14.4	11.0	9.6	7.7
#4	12"	35.0	21.7	18.5	16.7	14.3	10.2
#5	12"		47.2	27.2	23.7	21.1	17.3