#### **GENERAL NOTES:**

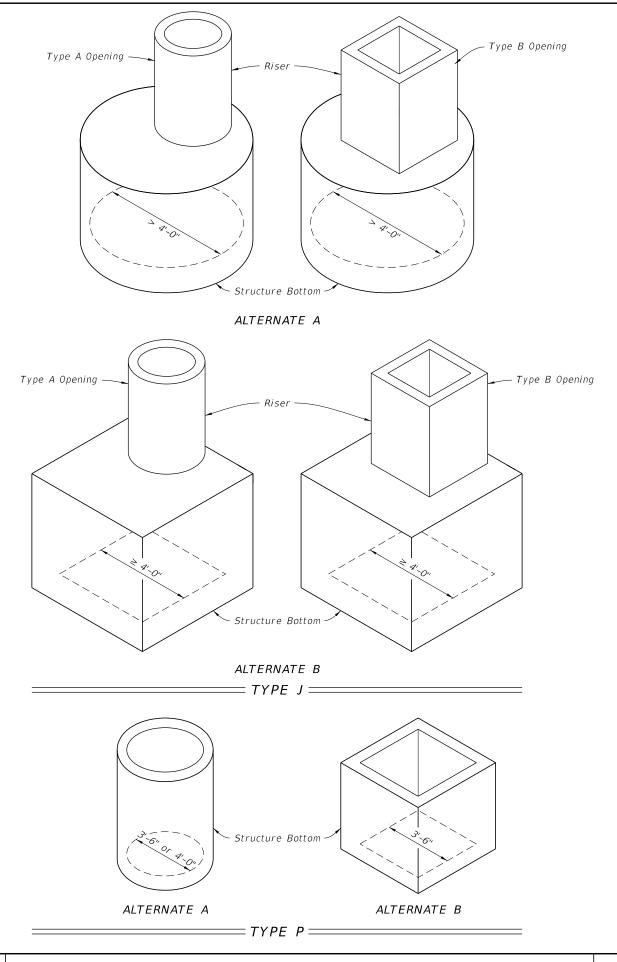
- 1. Work this Index with Specification 425 and Index 425-001.
- 2. Type P standard structure bottoms are 4'-0"diameter and smaller (Alt. A) and 3'-6" square (Alt. B) . Larger standard structure bottoms are designated Type J. Risers are permitted for all structures.
- 3. Walls of circular structures (Alt. A) constructed in place may be of brick or reinforced concrete. Construct precast and rectangular structures (Alt. B) with reinforced concrete only.
- 4. Wall thickness and reinforcement are for either reinforced cast-in-place or precast concrete units except that precast circular units may be furnished with walls in accordance with ASTM C478 (See Table 1).
- 5. Top and bottom slab thickness and reinforcement are for precast and cast-in-place construction.

  Use Class II concrete, except when Class IV concrete is shown in the Plans.
- 6. Alt. A or Alt. B structure bottoms may be used in conjunction with curb inlet tops Types 1, 2, 3, 4, 5, 6, 9, and 10, and any manhole or junction box. Alt. B structure bottoms may be used in conjunction with curb inlet Types 7 & 8, or any ditch bottom inlet.
- 7. Rectangular structures may be rotated as directed by the Engineer in order to facilitate connections between the structure walls and pipes.
- 8. Use straight embedment reinforcement in top and bottom slabs ,except when ACI hooks are specifically required.
- 9. Construct corner fillets as shown for rectangular structures used with circular risers and inlet throats, and when used on skew with rectangular risers, inlets, and inlet throats. Construct fillets in the top slab of the Alt. A structure bottoms when used with the Type B risers. Reinforce each fillet with two #5 bars.
- 10. Units larger than specified standards may be substituted at the contractor's option when these units will not cause or increase the severity of utility conflicts. Furnish such larger units at no additional cost to the Department. Larger Alt. A units cannot replace Alt. B units without approval of the Engineer. This Note applies to this Index only.

### REINFORCEMENT NOTES:

- 1. Locate wall reinforcement in rectangular structures as shown in the WALL REINFORCEMENT SPLICE DETAILS in Index 425-001.
- 2. Provide a minimum 2"clear cover for all reinforcement unless otherwise noted and except for 3'6"diameter ASTM C478 units.
- 3. Additional bars used to restrain hole formers for precast structures with grouted pipe connections may be left flush with the hole surface.
- 4. Cut or bend reinforcement at pipe openings to maintain cover.
- 5. Remove exposed ends of reinforcing at precast pipe openings and grouted joints to 1" below the concrete surface and seal with a Type F Epoxy meeting the requirements of Specification 926.
- 6. Equivalent area smooth or deformed welded wire reinforcement may be substituted in accordance with Index 425-001.

	TABLE OF CONTENTS:						
Sheet	Description						
1	General Notes and Contents						
2	Dimensional and Reinforcing Details						
3	Tables 1, 2, 3, and 4						
4	Tables 5 and 6						



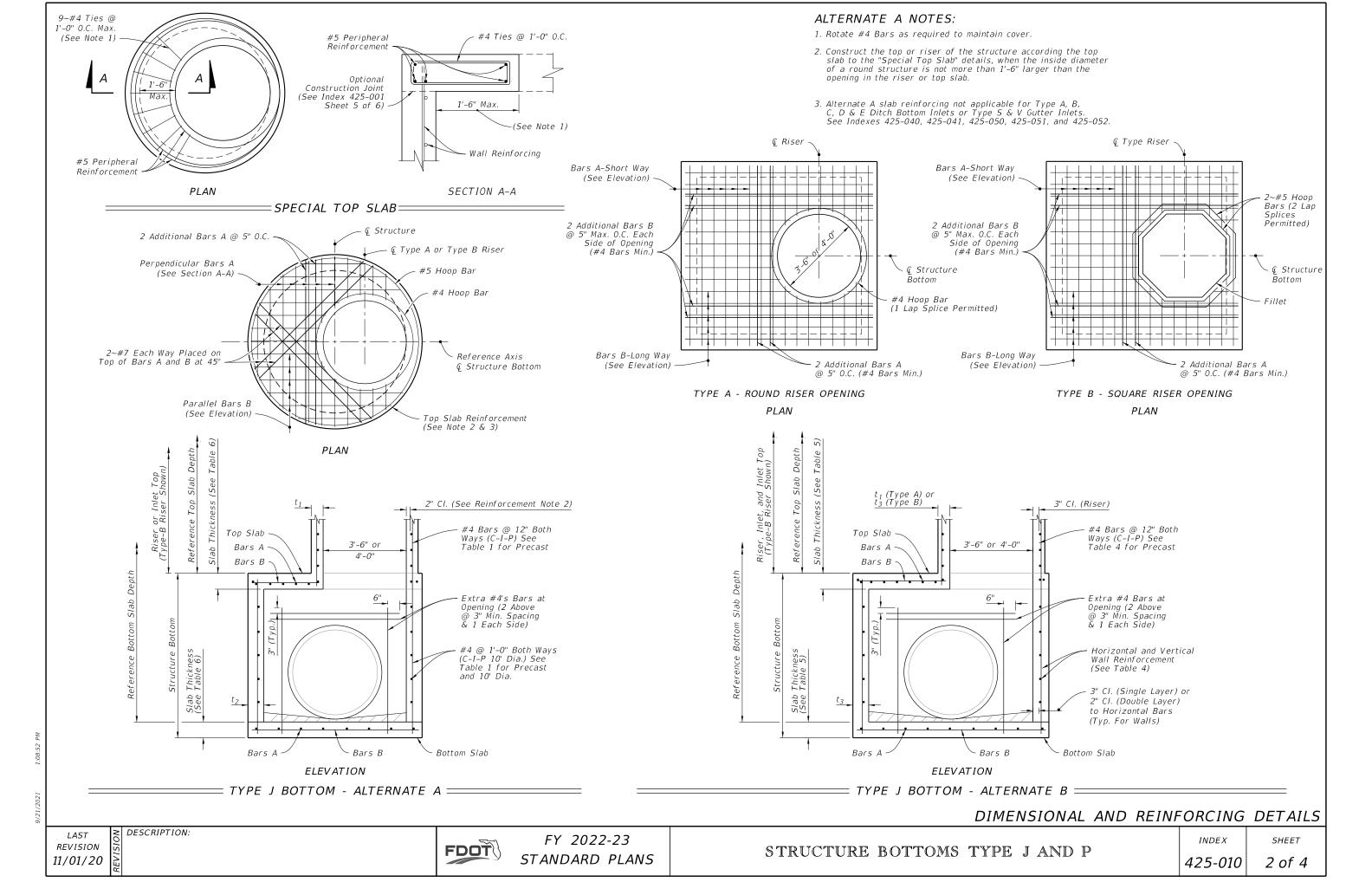


	TABLE 1 - ALTERNATE A - STRUCTURES								
		CAST-IN-PLACE ITEMS CLASS II CONCRETE		PRECAST ITEMS					
	CTDUCTUDE / DICED			CLASS II CONCRETE			ASTM C478		
TYPE	DIAMETER (ft)	t <sub>1</sub>	t <sub>2</sub>	A 5	t <sub>1</sub>	t <sub>2</sub>	A 5	t <sub>1</sub> or t <sub>2</sub>	A 2***
		RISER (in.)	BOTTOM (in.)	(in <sup>2</sup> /ft.)	RISER (in.)	BOTTOM (in.)	(in <sup>2</sup> /ft.)	(in.)	(in: <sup>2</sup> /ft.)
Р	3'-6"	6	8	0.20	6	8	0.20	4**	0.105
Р	4'-0"	6	8	0.20	6	8	0.20	5**	0.120
J	5'-0"	-	8	0.20	-	8	0.20	6**	0.150
J	6'-0"	-	8	0.20	-	8	0.20	6	0.180
J	7'-0"	-	8	0.20	-	8	0.20	7	0.210
J	8'-0"	-	8	0.20	-	8	0.20	8	0.240
J	10'-0"	-	10	0.40##	-	10	0.40##	10	0.300
J	12'-0"	_	10	0.40##	_	12	0.40##	12	0.360

 $t_1$  and  $t_2$ - Wall Thickness.

As- Vertical and horizontal areas of reinforcement.

##Provide 0.20 eq. in.2/ft. at each face, 12" max. bar spacing.

\*\*Modified minimum wall thickness.

\*\*\*Min. total circumferential reinforcement for continuous steel hoops:

A2 = 0.40 sq. in. for riser section height equal or less than 2'-0" (2 hoop min.)

 $A_2 = 0.60$  sq. in. for riser section height more than 2'-0" up to 4'-0" (3 hoop min.)

Areas of reinforcing for precast items are based on Grade 60 reinforcing.

No reduction in the area of reinforcement is allowed for welded wire fabric in Table 1.

Area of vertical reinforcing may be reduced in accordance with ASTM C478.

SQU.	SQUARE AND RECTANGULAR STRUCTURES						
TVDE	WALL	MAX.	WALL THIC	KNESS (t <sub>3</sub> )			
TYPE	LENGTH (FT)	DEPTH (FT)	C-I-P (in.)	PRECAST (in.)			
Р	≤ 3'-6"	40	6 Riser 8 Bottom	6			
J	4'-0"	40	8	6			
J	5'-0"	22	-	6			
J	6'-0"	15	-	6			
J	5'-0" to 9'-0"	40	8	8			
J	10'-0"	26	8	8			
J	10'-0" to 12'-0"	40	10	9			
J	16'-0"	35	-	9			
J	16'-0"	40	10	10			
1	20'-0"	25	_	9			

TABLE 2 - ALTERNATE B

See Table 4 for Reinforcing Schedule.

30

10

10

20'-0"

TABLE 3 - REINFORCING SCHEDULE							
GRADE 60 BARS OR 65 KSI & 70 KSI WELDED WIRE REINFORCING							
		MA	XIMUM SP	ACING			
SCHEDULE	GRADE 60 AREA	GR 60	WWR EQU	JIV. AREA			
	(in? /ft)	BARS (in.)	65 KSI (in.)	70 KSI (in.)			
A12	0.20	12	8	8			
A6	0.20	6	5	4½			
B10	0.24	10	8	7½			
B5.5	0.24	5½	5	4			
C6.5	0.37	$6\frac{1}{2}$	6	5			
C3.5	0.37	31/2	3	21/2			
D7	0.53	7	6	5			
D4.5	0.53	$4\frac{1}{2}$	4	31/2			
E5	0.73	5	4	4			
E3	0.73	3	3	3			
F5	1.06	5	4	4			
F3.5	1.06	$3\frac{1}{2}$	3	3			
G5	1.45	5	4	4			
G.3.5	1.45	31/2	3	3			
Н4	1.75	4	3	3			

		TAB	LE 4 - W	'ALL	DESI		REC	TANG	ULAF	R STR	UCTURE	 S
VERTICAL REINFORCING			HORIZONTAL REINFORCING		1 1 9 1		VERTICAL REINFORCING			HORIZO REINFO		
WALL DEPTH	SCH	EDULE	WALL SCHEDULE		W THIC		/ALL EPTH	SCHEDULE		WALL DEPTH		
	'	SIZE:	3'-6" & RISE	R					Si	ZE: 10'	-0" (Precast	0n
≥1.17' - 40'	4	112	≥1.17' < 10'	E	310	6"/8"			Inside	Outside		In
			10' < 18'	В	5.5	6"/8"	26'	- 40'	D7	D7	26' - 40'	
			18' < 29'	С	6.5	6"/8"				SI	ZE: 12'-0"	
			29' - 40'	С	3.5	6"/8"			Inside	Out side		In
		S	IZE: 4'-0"				≥1.17	7' < 14'	B10	B10	≥1.17' < 10'	' (
≥1.17' - 40'		12	≥1.17' < 6'	E	310	6"/8"	14'	< 25'	C6.5	C6.5	10' < 17'	
			6' < 10'		5.5	6"/8"	25'	- 40'	D7	D7	17' < 24'	
			10' < 20'		6.5	6"/8"					24' - 40'	
			20' < 28'		3.5	6"/8"			Si	ZE: 12'	-0" (Precast	0n
			28' - 40'	D	4.5	6"/8"			Inside	Outside		In
			IZE: 5'-0"	,			l	7' < 12'	B10	B10	≥1.17' < 10'	-
≥1.17' - 40'	A	12	≥1.17′ < 5′		5.5	6"/8"	l	< 24'	C6.5	C6.5	10' < 17'	L
			5' < 9'		6.5	6"/8"	24'	- 40'	D7	D7	17' < 23'	
			9' < 15'		3.5	6"/8"					23' < 32'	
			15' < 22'		4.5	6"/8"					32' - 40'	
			22' - 40'		E3	8"					ZE: 16'-0"	
		5	IZE: 6'-0"							Out side		In
≥1.17' < 26'	A	112	≥1.17' < 9'		3.5	6"/8"	l	7' < 11'	C6.5		≥1.17' < 13'	
			9' < 15'		4.5	6"/8"		< 20'	D7	D7	13' < 20'	
		I	15' < 26'		E3	8"	l	< 28'	E5	E5	20' < 28'	_
261 401		Outside			Outside		28'	- 40'	F5	F 5	28' - 40'	<u> </u>
26' - 40'	A12	A12	26' - 40'	D7	D7	8"					-0" (Precast	1
	I		IZE: 7'-0"				l			Outside		In
1.17		Outside	<b>!</b>		Outside			7' < 10'	C6.5	C6.5	≥1.17' < 9'	Ļ,
≥1.17' < 25'	A12	A12	≥1.17' < 7'	B10	B10	8"	·	< 18'	D7	D7	9' < 13'	E
26' - 40'	B10	B10	7' < 10' 10' < 20'	B5.5	B5.5	8" 8"		< 25' - 35'	E5 F5	E5	13' < 19' 19' < 27'	-
			20' < 30'	C6.5 D7	C6.5	8"	23	- 33	ГЭ	F5	19 < 27 27' - 35'	-
			30' - 40'	E5	E5	8"					ZE: 20'-0"	_
			IZE: 8'-0"						r.= = : = t =			l r
	Incido	Outside		Incido	Outsida		~ 1 1.	71 - 101	C6.5	Outside	≥1.17' < 8'	In
≥1.17' < 20'		A12	2 ≥1.17' < 6'		Outside B5.5	8"		7' < 10' < 17'	D7	C6.5	8' < 12'	-
20' - 40'	C6.5		6' < 13'	C6.5		8"	l	- 30'	E5	E5	12' < 20'	_
20 - 40	(0.5	20.5	13' < 22'	D7	D7	8"		50			20' - 30'	+
			22' < 31'	E5	E5	8"			S	レフト・フロウ	-0" (Precast	On
			31' - 40'	F5	F 5	8"				Outside	,	In
		5	IZE: 9'-0"				>1.1	7' < 8'	C6.5	C6.5	≥1.17' < 8'	L
	Inside	  Outside		Inside	Out side		l	< 13'	D7	D7	8' < 12'	
≥1.17' < 12'	A12	A12	≥1.17' < 8'	C6.5	C6.5	8"	l	- 25'	E5	E5	12' < 19'	-
12' < 28'	C6.5	C6.5	8' < 15'	D7	D7	8"					19' - 25'	+
28' - 40'	D7	D7	15' < 23'	E5	E5	8"			<u> </u>	1		
			23' - 40'	F5	F 5	8"	TA	BLE 4	NO.	TES:		
	'	SI	ZE: 10'-0"	'							I to the top	
	Inside	Outside		Inside	0utside		a	nd to th	ne top	of the i	ntermediate	Sla
≥1.17' < 10'	B10	B10	≥1.17' < 10'	D7	D7	8"					ance betweer	
10' < 21'	C6.5	C6.5	10' < 17'	E5	E5	8"					m wall heigh r wall length	
21' < 26'	D7	D7	17' < 26'	F 5	F5	8"					,	
26' - 40'	C6.5	C6.5	26' - 40'	F 5	F5	10"	3. W	all leng See Tah	thsex le4) w	ceeding ith 2" o	6'-0" requir f cover fron	e t n t
•	•			•		•	i ( i	nside ar	nd outs	ide face	es for each	i av

# 4 NOTES:

- epth is measured to the top of the bottom slab for boxes the top of the intermediate slab for risers.
- eight is the distance between top of lower slab to bottom er slab. Maximum wall height is 12' for wall lengths ling 5', or 10' for wall lengths exceeding 12'.
- ngths exceeding 6'-0" require two layers of reinforcing able 4) with 2" of cover from the horizontal bars to the inside and outside faces for each layer
- 4. Wall lengths exceeding the dimensions or depths shown in Table 4, or 12'-0" diameter require a special design.
- 5. Wall thickness and reinforcing for rectangular structures is based on the longer wall length.

TABLES 1, 2, 3, AND 4

LAST **REVISION** 11/01/20

DESCRIPTION:



FY 2022-23 STANDARD PLANS WALL THICKNESS

10"

10"

10"

10"

9"

9"

9"

9"

9"

10"

10"

10"

10"

9"

9"

9"

9"

10"

10"

10"

10"

9"

9"

9"

HORIZONTAL

REINFORCING

SCHEDULE

Inside Outside

F5 F5

Inside Outside

Inside Outside

Inside Outside

Inside Outside

Inside Outside D7 D7

Inside Outside

D7

E5

F 5

D7

D4.5

E5

F5

G5

D7

E5

F5

G5

D7

D4.5

E5

F5

G5

E5

F 5

G5

E5

F5

G5

D7

E5

F5

D7

D4.5

E5

F5

G5

D7

E5

F5

G5

D7

D4.5

E5

F5

G5

E5

F5

G5

E5

F5

G5

DEPTH SIZE: 10'-0" (Precast Only)

B10 ≥1.17' < 10' C6.5 C6.5

C6.5 ≥1.17' < 8' D4.5 D4.5

SIZE: 12'-0" (Precast Only)

SIZE: 16'-0" (Precast Only)

SIZE: 20'-0" (Precast Only)

## TABLE 5 - SLAB DESIGNS - SQUARE AND RECTANGULAR STRUCTURES (ALL SLABS 8" THICK EXCEPT AS NOTED - REINFORCING PARALLEL TO SHORT WAY AND LONG WAY)

(ALL SLADS & TITICK EXCER							
SHOR	T-WAY	LONG-WAY					
SLAB	SCHEDULE	SLAB	SCHEDULE				
DEPTH			(Bars B)				
<i>DEI</i> 1111	(Bars 71)	DEPTH	(Buis B)				
	1	x UNLIMITED					
≥0.5′ < 8′	B10	≥0.5′ < 24′	B10				
8' < 13'	B5.5	24'-40'	B5.5				
13' < 31'	C6.5						
31'-40'	D7						
SIZE: 4' x UNLIMITED							
≥0.5′ < 7′	B5.5	≥0.5′ < 15′	B10				
7' < 19'	C6.5	15' < 29'	B5.5				
19' < 31'	D7	29'-40'	C6.5				
31'-40'	E5						
	SIZE:	5' x 5'					
≥0.5′ < 3′	C6.5	≥0.5' < 3'	C6.5				
3' < 7'	B5.5	3' < 13'	C6.5				
7' < 22'	C6.5	13' < 22'	D7				
22' < 29'	D7	22' < 29'	D4.5				
29'-40'	E5	29'-40'	E5				
	SIZE:	5' x 6'					
≥0.5′ < 12′	C6.5	≥0.5′ < 3′	C6.5				
12' < 26'	D7	3' < 9'	B5.5				
26'-40'	E5	9' < 23'	C3.5				
		23' < 35'	D4.5				
		35'-40'	E5				
	SIZE:	5' x 7'					
≥0.5′ < 10′	C6.5	≥0.5′ < 10′	B5.5				
10' < 20'	D7	10' < 31'	C3.5				
20' < 34'	E5	31'-40'	D4.5				
34'-40'	F5						
		5' x 8'					
≥0.5′ < 7′	C6.5	≥0.5' < 8'	B10				
7' < 13'	D7	8' < 17'	B5.5				
13' < 24'	E5	17' < 25'	C6.5				
24'-40'	F 5	25'-40'	C3.5				
	SIZE.	5' x 9'					
≥0.5′ < 8′	C6.5	≥0.5′ < 14′	B10				
8' < 14'	D7	14' < 24'	B5.5				
14' < 25'	E5	24' < 34'	C6.5				
25'-40'	F5	34'-40'	C3.5				
2J -4U	13	J - 40	(3,5				
	SIZE: 5' x	UNLIMITED					
≥0.5′ < 8′	C6.5	≥0.5′ < 14′	B10				
8' < 14'	D7	14' < 24'	B5.5				
14' < 25'	E5	24' < 34'	C6.5				
25'-40'	F5	34'-40'	C3.5				

SHOR	T-WAY	LONG	LONG-WAY		
SLAB DEPTH	SCHEDULE (Bars A)	SLAB DEPTH	SCHEDULE (Bars B)		
	SIZE.	6' x 6'			
≥0.5′ < 13′	C6.5	≥0.5' < 10'	C3.5		
13' < 23'	D7	10' < 18'	D4.5		
23'-40'	E5	18' < 27'	E5		
23 -40	E 3				
		27' < 33' 33'-40'	E3 F5		
		33 -40	ГЭ		
		6' x 7'			
≥0.5′ < 8′	C6.5	≥0.5′ < 8′	C6.5		
8' < 16'	D7	8' < 12'	C3.5		
16' < 28'	E5	12' < 21'	D4.5		
28'-40'	F 5	21' < 28'	E5		
		28' < 35'	E3		
		35'-40'	F5		
	SIZE:	6' x 8'			
≥0.5′ < 6′	C6.5	≥0.5′ < 6′	B5.5		
6' < 13'	D7	6' < 11'	C6.5		
13' < 22'	E5	11' < 17'	C3.5		
22' < 35'	F5	17' < 22'	D4.5		
35'-40'	G5	22' < 32'	E5		
40 – در	כט				
	\$17F	32'-40' 6' x 9'	E3		
≥0.5′ < 8′	D7	≥0.5′ < 8′	B5.5		
8' < 14'	E5	8' < 14'	C6.5		
14' < 24'	F5	14' < 21'	C3.5		
24'-34'	G5	21' < 25'	D4.5		
		25'-34'	E5		
	SIZE: 6' x	UNLIMITED			
≥0.5' < 8'	D7	≥0.5' < 8'	B5.5		
8' < 14'	E5	8' < 14'	C6.5		
14' < 24'	F5	14' < 21'	C3.5		
24'-34'	G5	21' < 25'	D4.5		
24-34	65	25'-34'	E5		
		23-34	LJ		
		7' x 7'			
≥0.5′ < 8′	C6.5	≥0.5′ < 4′	C6.5		
8' < 15'	D7	4' < 7'	C3.5		
15' < 26'	E5	7' < 11'	D4.5		
26'-40'	F 5	11' < 22'	E3		
-		22' < 32'	F3.5		
		32'-40'	G3.5		
	SIZE:	7' x 8'	33.3		
≥0.5' < 5'	C6.5	≥0.5' < 5'	C6.5		
5' < 11'	D7	5' < 8'	C3.5		
11' < 19'	E5	8' < 13'	D4.5		
19' < 30'	F5	13' < 22'	E3		
30'-40'	G5	22' < 30'	F3.5		
	CIZE	30'-40' 7' x 9'	G3.5		
- 0.51			66.5		
≥0.5′ < 9′	D7	≥0.5′ < 7′	C6.5		
9' < 15'	E5	7' < 10'	C3.5		
15' < 25'	F5	10' < 14'	D4.5		
25' - 34'	G5	14' < 21'	E5		
		21' < 29'	F5		

SHORT	Γ-WAY	LONG-WAY					
SLAB	SCHEDULE	SLAB	SCHEDULE				
DEPTH	(Bars A)	DEPTH	(Bars B)				
≥0.5′ < 10′	D7	≥0.5' < 9'	D4.5				
10' < 19'	E5	9' < 13'	E5				
19'-30'	F5	13' < 18'	F5				
19-30	r J	18' < 23'	F3.5				
		23'-30'	G3.5				
	SIZE:	8' x 9'					
≥0.5′ < 8′	D7	≥0.5' < 7'	D7				
8' < 14'	E5	7' < 9'	D4.5				
14' < 23'	F5	9' < 15'	E3				
23'-31'	G3.5	15' < 20'	F5				
		20' < 23'	F3.5				
		23'-31'	G3.5				
SIZE: 9' x 9'							
≥0.5′ < 8′	D7	≥0.5′ < 7′	D4				
8' < 14'	E5	7' < 10'	E5				
14' < 22'	F5	10' < 17'	F3.5				
		17' < 22'	G3.5				
SIZE: 9'x9'x10" SLAB THICKNESS							
22' < 36'	F5	22' < 31'	F3.5				
36'-40'	G5	31'-40'	G3.5				
SIZ	E: 10'x10'x10"	SLAB THICK	NESS				
≥0.5′ < 7′	C6.5	0.5' < 6'	C6.5				
7' < 10'	D7	6' < 9'	D4.5				
10' < 18'	E5	9' < 15'	E5				
18' < 27'	F5	15' < 22'	F5				
27'-32'	G5	22'-32'	G3.5				
SIZ	E: 12'x12'x12"	SLAB THICK	NESS				
≥0.5′ < 10′	D7	≥0.5′ < 8′	D7				
10' < 16'	E5	8' < 14'	E5				
16' < 25'	F5	14' < 22'	F 5				
25'-35'	G5	22' < 30'	G5				
		30'-35'	H4				

### SLAB AND WALL DESIGN TABLE NOTES

- 1. Size is the inside dimension(s) of a structure.
- 2. Slab reinforcement is appropriate for top, intermediate, and bottom slabs.
- 3. Bottom Slabs for precast 3'-6" x 3'-6" rectangular structures at 15' depth or less, may be 6" thick.
- 4. Slab depth is measured from finished grade to top of slab.
- 5. Reinforcing schedules with larger areas of steel may be substituted for schedules with smaller bar or wire spacing, except that Schedule B10 may not be substituted for Schedule A6. See Index 425-001 for allowable bar spacing adjustments when larger areas of reinforcing are substituted.

	TABLE 6 - SLAB DESIGNS ROUND STRUCTURES								
SLAB DEPTH	SLAB THICKNESS	REINF. (2-WAY) SCHEDULE							
SIZE: 3'-6" DIAMETER									
2'-15'	6" Precast	C6.5							
0.5' < 30'	8"	A6							
30'-40'	8"	B5.5							
SIZE: 4'-0" DIAMETER									
≥0.5' < 19'	8"	A6							
19' < 30'	8"	B5.5							
30'-40'	8"	C6.5							
SIZI	E: 5'-0" DIAMET	rer							
≥0.5′ < 15′	8"	B5.5							
15' < 26'	8"	C6.5							
26' < 35'	8"	D7							
35'-40'	8"	D4.5							
SIZE: 6'-0" DIAMETER									
≥0.5' < 9'	8"	B5.5							
9' < 15'	8"	C6.5							
15' < 22'	8"	C3.5							
22' < 30'	8"	D4.5							
30'-40'	8"	E5							
SIZI	SIZE: 7'-0" DIAMETER								
≥0.5' < 8'	8"	C3.5							
8' < 16'	8"	D4.5							
16' < 23'	8"	E5							
23' < 27'	8"	E3							
27'-40'	8"	F3.5							
SIZI	E: 8'-0" DIAMET	ΓER							
≥0.5' < 10'	8"	D4.5							
10' < 16'	8"	E5							
16' < 19'	8"	E3							
19' < 29'	8"	F3.5							
29'-40'	10"	F 5							
SIZE	: 10'-0" DIAME	TER							
≥0.5′ < 12′	10"	D4.5							
12' < 20'	10"	E5							
20' < 28'	10"	F5							
28'-40'	10"	G3.5							
SIZE	: 12'-0" DIAME	TER							
≥0.5' < 8'	10"	D4.5							
8' < 13'	10"	E5							
13' < 18'	10"	F5							
18' < 26'	10"	G3.5							
26'-40'	12"	G3.5							

TABLES 5 AND 6

LAST REVISION 11/01/20

FDOT