



Structural Prestressed Industries, Inc.
11405 N.W. 138th ST Medley, Florida 33178
Ph: (305) 556-6699 Fax: (305) 556-9696
www.spimiami.com

JOISTS

AND

SOFFIT BEAMS

LOAD TABLES

2008

About This Publication

To the best of our knowledge and understanding, the information given in this reference book is complete and accurate. This document is intended to guide the design professional while making his or her own preliminary evaluations of approximate depth, span, spacing and connections. The information given represents typical installations and applications for Structural Prestressed Industries Inc. (SPI) products. For applications requiring special loadings and or special serviceability requirements please contact SPI.

These guidelines are specific to Structural Prestressed Industries (SPI) precast/prestressed members and should never be used to evaluate members from other precast producers. These guidelines are not expressed nor implied warranties for other applications.

SPI encourages the Design and Construction Professionals to contact our Engineering Department for value engineering solutions and design build projects. Our team of experienced engineers, designers and project managers are available to assist you with all your needs.



FOR SPANS AND LOADS NOT SHOWN
IN TABLES CONTACT SPI ENGINEERING

CAMBER IS INHERENT TO PRESTRESSED
MEMBERS. HEAVY LOADING AND LONG
SPANS MAY RESULT IN HIGHER CAMBERS.
CONTACT SPI WITH ANY CAMBER CONCERNS.

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8" PRESTRESSED KEYSTONE JOISTS 3" COMPOSITE SLAB f'c=3000psi

Spcg	Design	Span (ft)														Sys. Wt. (psf)
		18	19	20	21	22	23	24	25	26	27	28	30	32	34	
2'-6"	A	170	150	130	115	100	90	80	70	55						57
	B			150	135	120	105	95	85	75	65	55	45			
	C							130	110	90	70	65	60	50		
	D							200	180	165	155	140	115	95	65	
3'-6"	A	120	105	90	80	70	60	45								51
	B		120	105	90	80	70	60	45							
	C							95	85	75	65	55	45			
	D							130	120	110	105	85	75	55		
4'-6"	A	90	80	70	60	50										48
	B	105	90	75	65	60	50	45								
	C			100	90	80	70	65	60	55	50	45				
	D				145	135	125	115	105	95	85	80	70	65	50	

8" PRESTRESSED KEYSTONE JOISTS 4" (Min.) COMPOSITE SLAB f'c=4000psi

Spcg	Design	Span (ft)														Sys. Wt. (psf)
		18	19	20	21	22	23	24	25	26	27	28	29	30	31	
5'-6"	A	70	60	50												59
	B	90	80	70	60	50										
	C	120	110	100	90	80	70	60	50							
	D	155	145	135	125	115	105	95	85	80	75	70	65	60	50	
6'-6"	A	70	65	60	55	50	45									57
	B	90	85	80	75	70	60	50	45							
	C	105	100	95	90	85	75	65	55	45						
	D	140	135	130	125	120	115	110	100	90	80	70	60	55	45	

These tables provide allowable superimposed service loads (in psf) on the composite system based on the following assumptions:

- 1- Prestressed Concrete: f'c=6000 psi
- 2- 20 psf of the allowable superimposed service load is considered dead load on the composite system
- 3- Loads are based on ACI 318-02
- 4- Loads in the shaded boxes are controlled by serviceability (i.e. initial camber, permissible deflections). SPI recommends changing to a 4" thick slab with f'c=4000 psi min.



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12" PRESTRESSED KEYSTONE JOISTS 3" COMPOSITE SLAB f'c=3000psi

Spcg	Design	Span (ft)																		Sys. Wt. (psf)	
		27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44		45
2'-6"	A	125	115	105	95	85	75	65	60	55	45										66
	B	170	165	160	140	130	120	110	100	90	80	75	65	60	55	50	45				
	C			180	170	160	150	135	120	110	100	90	85	75	70	65	55	50	45		
	D					200	190	185	170	160	150	130	115	105	95	85	80	75	65	45	

Spcg	Design	Span (ft)																		Sys. Wt. (psf)	
		27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44		45
3'-6"	A	95	85	75	65	60	55	45													57
	B		135	125	115	105	95	85	75	70	65	60	55	45							
	C				160	150	140	120	110	95	85	75	65	55	50	45					
	D				190	170	150	140	130	125	110	100	90	80	70	60	50	45			
	E				200	180	160	150	140	135	125	115	105	95	85	70	60	50	45		

Spcg	Design	Span (ft)																		Sys. Wt. (psf)	
		21	22	23	24	25	26	27	28	29	30	32	33	34	35	36	37	38	39		40
4'-6"	A	95	90	85	80	75	70	65	55	45											53
	B	180	165	155	140	130	120	110	105	95	85	75	65	55	45						
	C		200	195	190	180	165	150	135	120	105	90	80	70	65	60	55	50	45		
	D						200	190	180	170	160	150	135	120	105	90	80	70	60	50	
	E							195	185	175	165	155	140	125	110	95	85	75	60	50	

12" PRESTRESSED KEYSTONE JOISTS 4" (Min.) COMPOSITE SLAB f'c=4000psi

Spcg	Design	Span (ft)																		Sys. Wt. (psf)	
		21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38		39
5'-6"	A	75	65	55	45																63
	B	150	140	130	120	110	100	90	80	70	60										
	C		180	170	160	150	140	130	120	110	100	90	80	70	60	55	50				
	D				200	180	160	150	140	130	120	110	100	90	80	70	60	55	45		
	E					190	170	155	145	135	125	115	105	95	85	75	65	60	55	45	

Spcg	Design	Span (ft)																		Sys. Wt. (psf)	
		21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38		39
6'-6"	A	60	50																		61
	B	95	85	75	65	55															
	C	115	95	85	80	75	70	65	60	55	45										
	D	140	125	115	110	105	100	95	90	85	80	75	70	65	60	55	45				
	E	150	135	125	120	115	110	105	100	95	90	85	80	75	70	65	60	55	45		

These tables provide allowable superimposed service loads (in psf) on the composite system based on the following assumptions:
 1- Prestressed Concrete: f'c=6000 psi
 2- 20 psf of the allowable superimposed service load is considered dead load on the composite system
 3- Loads are based on ACI 318-02
 4- Loads in the shaded boxes are controlled by serviceability (i.e. initial camber, permissible deflections). SPI recommends changing to a 4" thick slab with f'c=4000 psi min.



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16" PRESTRESSED KEYSTONE JOISTS 3" COMPOSITE SLAB f'c=3000psi

Spcg	Design	Span (ft)																		Sys. Wt. (psf)	
		24	26	28	30	32	34	36	38	40	42	44	46	48	50	51	52	53	54		55
3'-6"	A	160	130	105	80	65	55														65
	B	220	190	160	145	120	105	95	80	60	50										
	C				200	175	150	125	105	95	75	70	60	50							
	D						190	170	150	130	110	90	80	70	60	55	50				
	E						200	180	160	140	120	100	90	80	70	65	60	55	50	45	

Spcg	Design	Span (ft)																		Sys. Wt. (psf)	
		28	30	32	34	36	38	40	41	42	43	44	45	46	47	48	49	50	51		52
4'-6"	A	80	65	45																	59
	B	130	110	90	75	60	50	45													
	C	170	150	120	100	85	75	70	65	60	55	50	45								
	D		180	160	140	130	110	100	90	85	80	75	70	65	60	55	50	45			
	E		200	180	160	140	120	110	100	95	90	85	80	75	70	65	60	55	50	45	

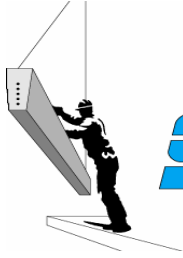
16" PRESTRESSED KEYSTONE JOISTS 4" (Min.) COMPOSITE SLAB f'c=4000psi

Spcg	Design	Span (ft)																		Sys. Wt. (psf)	
		28	30	32	34	36	37	38	39	40	41	42	43	44	45	46	47	48	49		50
5'-6"	B	105	85	65	45																67
	C	145	120	100	80	70	60	55	50	45											
	D	180	160	140	120	100	95	90	85	80	75	70	65	60	55	50	45				
	E	200	180	160	140	120	110	105	100	95	90	85	80	75	70	65	60	55	50	45	

Spcg	Design	Span (ft)																		Sys. Wt. (psf)	
		28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45		46
6'-6"	B	85	65	45																	65
	C	115	95	75	55																
	D	155	135	120	110	105	100	95	90	85	80	75	70	65	60	55	50	45			
	E	170	150	140	130	120	110	105	100	95	90	85	80	75	70	65	60	55	50	45	

These tables provide allowable superimposed service loads (in psf) on the composite system based on the following assumptions:

- 1- Prestressed Concrete: f'c=6000 psi
- 2- 20 psf of the allowable superimposed service load is considered dead load on the composite system
- 3- Loads are based on ACI 318-02
- 4- Loads in the shaded boxes are controlled by serviceability (i.e. initial camber, permissible deflections). SPI recommends changing to a 4" thick slab with f'c=4000 psi min.
- 5- Values in bold font are Class C based on computed extreme fiber stress at service loads as per ACI 318-02. Additional mild reinforcement may be required.



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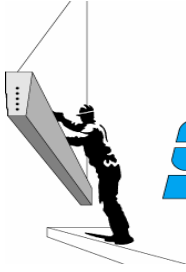
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20" PRESTRESSED KEYSTONE JOISTS 4.75" COMPOSITE SLAB

Spcg	Design	Span											Sys. Wt. (psf)
		36	38	40	42	44	46	48	50	52	54	56	
4'-8"	A	160	135	120	100	85	75	60	50				91
	B	190	165	140	120	105	90	80	70	60	50		
	C	250	220	190	165	145	130	110	100	85	75	65	
	D	290	250	220	185	165	150	130	120	105	90	80	
Spcg	Design	Span											Sys. Wt. (psf)
		36	38	40	42	44	46	48	50	52	54	56	
5'-8"	A	125	110	90	75	65	55						85
	B	155	135	110	95	85	70	60	50				
	C	200	175	150	135	115	100	90	75	70	55		
	D	230	200	175	150	130	120	105	90	80	70	60	
Spcg	Design	Span											Sys. Wt. (psf)
		36	38	40	42	44	46	48	50	52	54	56	
6'-8"	A	100	85	70	60	50							81
	B	130	110	90	75	65	55						
	C	165	145	125	105	95	80	70	60	50			
	D	190	170	145	125	110	95	85	75	65	55		
Spcg	Design	Span											Sys. Wt. (psf)
		36	38	40	42	44	46	48	50	52	54	56	
7'-8"	B	105	90	75	60	50							78
	C	135	120	100	90	75	65	55					
	D	165	140	120	100	90	80	65	55	50			
Spcg	Design	Span											Sys. Wt. (psf)
		36	38	40	42	44	46	48	50	52	54	56	
8'-8"	B	80	65	50									76
	C	115	95	85	70	60	55						
	D	150	130	110	95	80	70	60	55				

These tables provide allowable superimposed service loads (in psf) on the composite system based on the following assumptions:

- 1- Prestressed Concrete: $f'c=6000\text{psi}$
- 2- CIP Slab: $f'c=4000\text{psi}$
- 3- 20 psf of the allowable superimposed service load is considered dead load on the composite system
- 4- Loads factors as per ACI 318-02
- 5- Values in bold font are Class C based on computed extreme fiber stress at service loads as per ACI 318-02. Additional mild reinforcement may be required.
- 6- These design loads are based on 1 hour fire rating.



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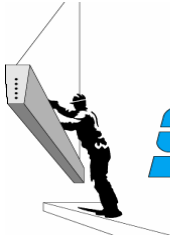
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24" PRESTRESSED KEYSTONE JOISTS 4.75" COMPOSITE SLAB

Spcg	Design	Span (ft)												Sys. Wt. (psf)	
		40	42	44	46	48	50	52	54	56	58	60	62		64
6'-8"	B	135	120	115	100	95									85
	C	190	170	150	130	110	90	70	50						
	D	245	220	205	175	160	135	115	95	85	70	60	55		
	E	265	240	225	195	180	145	125	105	95	80	70	65		
Spcg	Design	Span												Sys. Wt. (psf)	
		40	42	44	46	48	50	52	54	56	58	60	62		64
8'-8"	B	110	90	75	60									80	
	C	130	110	90	70	50									
	D	180	150	120	110	95	85	80	70	65	60	55			
	E	200	165	135	125	110	100	90	80	70	60	55	50		
Spcg	Design	Span												Sys. Wt. (psf)	
		40	42	44	46	48	50	52	54	56	58	60	62		64
10'-8"	E	120	105	95	85	80	75	70	60	55	50			76	

These tables provide allowable superimposed service loads (in psf) on the composite system based on the following assumption

- 1- Prestressed Concrete: $f'_c=6000\text{psi}$
- 2- CIP Slab: $f'_c=4000\text{psi}$
- 3- 20 psf of the allowable superimposed service load is considered dead load on the composite system, except in the highlighted cells where the load can be taken all as a live load for parking structures.
- 4- ACI 318-02
- 5- Values in bold font are Class C based on computed extreme fiber stress at service loads as per ACI 318-02. Additional mild reinforcement may be required.
- 6- These design loads are based on 1 hour fire rating.



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28" PRESTRESSED KEYSTONE JOISTS 4.75" COMPOSITE SLAB

Spcg	Design	Span (ft)													Sys. Wt. (psf)
		54	55	56	57	58	59	60	61	62	64	66	68	70	
8'-8"	A	70	65	60	55	50	45								84
	B	100	90	85	80	75	70	65	60	55	50	45			
	C	125	115	105	95	85	80	75	70	65	60	55	50		
Spcg	Design	Span (ft)													Sys. Wt. (psf)
		54	55	56	57	58	59	60	61	62	63	64	65	66	
10'-8"	B	70	65	60	55	50	45								79
	C	90	85	80	75	70	65	60	55	50					
	D	100	95	90	85	80	75	70	65	60	55	50			

These tables provide allowable superimposed service loads (in psf) on the composite system based on the following assumptions:

- 1- Prestressed Concrete: $f'c=6000\text{psi}$
- 2- CIP Slab: $f'c=4000\text{psi}$
- 3- 20 psf of the allowable superimposed service load is considered dead load on the composite system
- 4- Load Factors as per ACI 318-02
- 5- Values in bold font are Class C based on computed extreme fiber stress at service loads as per ACI 318-02. Additional mild reinforcement may be required.
- 6- These design loads are based on 1 hour fire rating.