Form No. TW 1

# Safe Load Table

## 8" x 16" flexicore® SECTION

**MAXIMUM SAFE SUPERIMPOSED* UNIFORMLY DISTRIBUTED WORKING LOADS IN POUNDS PER SQUARE FOOT OF AREA**

| STD. DESIGNATION | TENSILE STEEL AREA Sq. In. | SIMPLE SLAB SPANS IN FEET AND INCHES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 10'-0" | | 11'-0" | | 12'-0" | | 13'-0" | | 14'-0" | | 15'-0" | | 16'-0" | | 17'-0" | | 18'-0" | | 19'-0" | | 20'-0" | | 21'-0" | | 22'-0" | | 23'-0" | | 24'-0" | | 25'-0" | | 26'-0" | | 27'-0" | | 28'-0" | | 29'-0" | | 30'-0" |
| W 148 | 1.485 | | DO NOT | | | | | 475 | 436 | 401 | 370 | 343 | 318 | 294 | 274 | 254 | 237 | 221 | 206 | 192 | 180 | 168 | 157 | 147 | 138 | 130 | 121 | 114 | 106 | 100 | 93 | 87 | 82 | 77 | 72 | 67 | 62 | 58 | 54 | 51 | 47 | 44 |
| W 141 | 1.408 | | EXTRAPOLATE | | | | 489 | 448 | 411 | 378 | 349 | 322 | 298 | 277 | 257 | 239 | 222 | 206 | 193 | 180 | 168 | 156 | 147 | 137 | 128 | 120 | 112 | 105 | 98 | 92 | 86 | 80 | 75 | 70 | 65 | 61 | 57 | 53 | 49 | 45 | 42 | 39 |
| W 136 | 1.356 | | VALUES | | 513 | 468 | 428 | 393 | 361 | 333 | 308 | 285 | 264 | 244 | 227 | 211 | 197 | 183 | 171 | 159 | 149 | 139 | 130 | 121 | 113 | 105 | 98 | 92 | 86 | 80 | 75 | 70 | 65 | 61 | 56 | 52 | 48 | 45 | 41 | 38 | 35 | |
| W 123 | 1.227 | | | 558 | 506 | 460 | 420 | 384 | 353 | 324 | 298 | 274 | 254 | 235 | 217 | 202 | 187 | 174 | 161 | 150 | 140 | 130 | 121 | 113 | 105 | 97 | 91 | 85 | 79 | 73 | 68 | 63 | 58 | 54 | 50 | 46 | 41 | 39 | 35 | 32 | | |
| W 111 | 1.111 | 616 | 553 | 500 | 452 | 411 | 374 | 341 | 313 | 287 | 263 | 243 | 224 | 206 | 191 | 176 | 163 | 151 | 140 | 130 | 121 | 112 | 104 | 96 | 89 | 83 | 77 | 71 | 65 | 60 | 56 | 51 | 47 | 43 | 40 | 36 | 33 | | | | | |
| W 104** | 1.037 | 574 | 515 | 464 | 420 | 381 | 347 | 317 | 290 | 265 | 244 | 224 | 206 | 190 | 176 | 162 | 150 | 138 | 128 | 118 | 110 | 102 | 94 | 87 | 80 | 74 | 68 | 63 | 58 | 53 | 49 | 45 | 41 | 37 | 34 | | | | | | | |
| W 99 | 0.994 | 550 | 494 | 445 | 403 | 365 | 332 | 303 | 277 | 253 | 233 | 213 | 196 | 181 | 167 | 154 | 142 | 131 | 121 | 112 | 104 | 96 | 88 | 81 | 75 | 69 | 64 | 59 | 54 | 49 | 45 | 41 | 37 | 33 | | | | | | | | |
| W 92 | 0.920 | 508 | 455 | 410 | 370 | 335 | 305 | 278 | 253 | 232 | 213 | 194 | 179 | 164 | 151 | 139 | 128 | 118 | 109 | 100 | 92 | 85 | 78 | 72 | 66 | 60 | 55 | 51 | 46 | 42 | 38 | 34 | | | | | | | | | | |
| W 88** | 0.884 | 486 | 435 | 392 | 354 | 320 | 291 | 264 | 241 | 220 | 202 | 185 | 170 | 156 | 143 | 132 | 121 | 111 | 102 | 94 | 87 | 79 | 73 | 67 | 61 | 56 | 51 | 46 | 42 | 38 | 34 | | | | | | | | | | | |
| W 86 | 0.862 | 472 | 423 | 381 | 344 | 310 | 281 | 256 | 234 | 213 | 194 | 178 | 164 | 150 | 138 | 127 | 117 | 107 | 98 | 90 | 83 | 76 | 70 | 64 | 58 | 53 | 48 | 44 | 40 | 35 | | | | | | | | | | | | |
| W 80 | 0.804 | 438 | 391 | 351 | 318 | 287 | 260 | 236 | 215 | 196 | 179 | 164 | 150 | 137 | 126 | 115 | 105 | 96 | 88 | 81 | 74 | 67 | 61 | 56 | 51 | 46 | 41 | 37 | 33 | | | | | → FOR ROOF SLABS ONLY | | | | | | | | | |
| W 75 | 0.746 | 406 | 363 | 326 | 294 | 265 | 240 | 217 | 198 | 180 | 164 | 149 | 136 | 124 | 114 | 104 | 95 | 86 | 79 | 72 | 66 | 60 | 54 | 49 | 44 | 39 | 35 | 31 | | | | | | | | | | | | | | |
| W 74** | 0.742 | 403 | 359 | 323 | 291 | 262 | 237 | 215 | 196 | 178 | 162 | 148 | 135 | 123 | 113 | 103 | 94 | 85 | 78 | 71 | 65 | 59 | 53 | 48 | 43 | 39 | 34 | | | | | | | | | | | | | | | |
| W 69 | 0.693 | 373 | 334 | 298 | 269 | 242 | 219 | 198 | 180 | 163 | 148 | 135 | 123 | 111 | 101 | 92 | 84 | 76 | 69 | 63 | 57 | 51 | 46 | 41 | 36 | 32 | | | | | | | | | | | | | | | | |
| W 64 | 0.641 | 340 | 303 | 271 | 244 | 219 | 198 | 178 | 161 | 146 | 132 | 120 | 109 | 98 | 89 | 81 | 73 | 66 | 59 | 54 | 48 | 43 | 38 | 32 | 29 | | | | | | | | | | | | | | | | | |
| W 61** | 0.614 | 325 | 289 | 259 | 232 | 208 | 188 | 169 | 153 | 138 | 125 | 113 | 103 | 93 | 84 | 76 | 68 | 61 | 55 | 49 | 44 | 39 | 35 | 30 | | | | | | | | | | | | | | | | | | |
| W 59 | 0.589 | 310 | 276 | 247 | 221 | 198 | 178 | 160 | 145 | 131 | 118 | 106 | 96 | 87 | 78 | 71 | 63 | 57 | 51 | 45 | 40 | 35 | 31 | | | | | | | | | | | | | | | | | | | |
| W 54 | 0.543 | 282 | 251 | 223 | 200 | 178 | 160 | 144 | 130 | 116 | 105 | 94 | 85 | 76 | 68 | 61 | 54 | 48 | 43 | 37 | 33 | | | | | | | | | | | | | | | | | | | | | |
| W 50** | 0.497 | 255 | 226 | 201 | 180 | 160 | 143 | 128 | 115 | 103 | 92 | 82 | 73 | 65 | 58 | 51 | 45 | 40 | 35 | 30 | | | | | | | | | | | | | | | | | | | | | | |
| W 45 | 0.451 | 226 | 200 | 177 | 158 | 140 | 125 | 111 | 99 | 88 | 78 | 69 | 61 | 54 | 48 | 42 | 36 | 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| W 41 | 0.411 | 202 | 179 | 157 | 139 | 123 | 109 | 97 | 86 | 75 | 67 | 59 | 52 | 45 | 39 | 33 | 28 | | | | | | | | | | | | | | | | | | | | | | | | | |
| W 39** | 0.393 | 190 | 167 | 147 | 130 | 114 | 101 | 89 | 79 | 69 | 61 | 53 | 47 | 40 | 34 | 29 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W 37 | 0.371 | 177 | 156 | 136 | 120 | 106 | 93 | 82 | 72 | 63 | 55 | 47 | 41 | 35 | 29 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W 33 | 0.332 | 153 | 134 | 117 | 102 | 89 | 78 | 68 | 59 | 51 | 44 | 37 | 31 | 26 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W 30** | 0.301 | 135 | 117 | 102 | 88 | 77 | 66 | 57 | 49 | 41 | 34 | 28 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W 22** | 0.221 | 84 | 71 | 60 | 50 | 41 | 33 | 27 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

*INCLUDES THE LIVE LOAD PLUS ANY DEAD LOAD THAT IS ADDITIONAL TO THE WEIGHT OF THE BARE GROUTED SLABS IN PLACE.

Made here.

**REMARKS**

1. Safe loads for greater steel content must not be extrapolated. A balanced slab has 1.705 sq. in. of steel for ACI Code allowables of 20,000 - 1688 - 8.
2. Safe superimposed $W = \frac{6M}{L^2} - 56.3$ (W in lb. per sq. ft. of floor area.)
3. The maximum span without stirrups $= \frac{3320}{W_{D+L}}$. With stirrups used it is $\frac{8820}{W_{D+L}}$
4. Table is based on dead load plus grout of 75 plf.
5. Stirrups are needed for all loadings indicated in light figures above the heavy stepped dashed line.
6. The safe loads shown in shaded area produce deflection in excess of 1/360 of the span.
7. The above tabulated load contemplate a depth, d, to the centroid of the steel of 6.75 in.
8. Minimum total wall thickness ($b'$) = 3.22 in.
9. Load computations are in accordance with **1951 ACI 318 Code.**

•• Indicates slabs with 2 rods for tensile steel.

**THE FLEXICORE CO., INC.**
**Dayton, Ohio**

December 17, 1957

Form No. TPW . Rev. a

# Safe Load Table

## hi-stress flexicore®
### 8" x 16" SECTION

TABULATED LOADS ARE BASED ON **DEAD LOAD** GREATER THAN **LIVE LOAD** AND $M_U = 1.8\ (M_D + M_L)$ WITH **NO TOPPING** OR **UNBONDED** OR **NON-STRUCTURAL TOPPING**

See Instructions Below for Using this Table

**UNIFORMLY DISTRIBUTED SUPERIMPOSED* LOAD IN LBS. PER SQ. FT.**

| Standard Designation | 7-Wire P/S Strand Combination | P/S Strand Area Sq. In. | Ultimate Bending Moment, $M_u$ in Kip. Ft. per Unit | SIMPLE SPAN IN FEET - CENTER TO CENTER OF END BEARINGS | | | | | | | | | | | | | Top Tensile Cage Bars Required at Each End of Slab | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | Span in Ft. | Bar Size | Min. Length of Bar |
| PW33 | 3 - 7/16 | 0.327 | 39.2 | 275 | 244 | 218 | 195 | 175 | 157 | 141 | 127 | 115 | 103 | 93 | 84 | 76 | 20′<br>32′ | 2 - #4<br>2 - #4 | 3′ - 6″<br>2′ - 9″ |
| PW30 | 2 - 7/16 &<br>1 - 3/8 | 0.298 | 36.4 | 251 | 223 | 199 | 178 | 158 | 142 | 127 | 114 | 103 | 92 | 83 | 74 | 66 | 20′<br>32′ | 2 - #4<br>2 - #4 | 3′ - 0″<br>2′ - 6″ |
| PW27 | 1 - 7/16 &<br>2 - 3/8 | 0.269 | 33.5 | 227 | 201 | 179 | 159 | 142 | 127 | 113 | 101 | 90 | 81 | 72 | 64 | 57 | 20′<br>32′ | 2 - #3<br>2 - #3 | 2′ - 6″<br>2′ - 3″ |
| PW24 | 3 - 3/8 | 0.240 | 30.4 | 202 | 178 | 158 | 140 | 124 | 110 | 98 | 87 | 77 | 68 | 60 | 53 | 47 | All | 2 - #3 | 1′ - 10″ |
| PW22 | 2 - 7/16 | 0.218 | 27.6 | 178 | 156 | 138 | 122 | 108 | 95 | 84 | 74 | 65 | 57 | 50 | 44 | 38 | All | 2 - #3 | 1′ - 10″ |
| PW16 | 2 - 3/8 | 0.160 | 21.0 | 123 | 107 | 93 | 80 | 69 | 60 | 51 | 44 | 37 | 31 | 26 | | | All | 2 - #3 | 1′ - 10″ |

*INCLUDES THE LIVE LOAD PLUS ANY DEAD LOAD THAT IS ADDITIONAL TO THE WEIGHT OF THE BARE GROUTED SLABS IN PLACE.

### NOTATION

$w_S$ is the uniform safe load, superimposed on the Flexicore unit in lbs. per sq. ft.

$w_L$ is the uniform live load in lbs. per sq. ft.

$w_D$ is the total dead load including weight of Flexicore unit of 52 lbs. per sq. ft.

$w_{AD}$ is dead load other than the weight of the Flexicore unit in lbs. per sq. ft.

$M_U$ is ultimate bending moment in kip-ft. per unit. $M_D$ is safe working dead load moment.

L is span in ft. cc of end bearings. $M_L$ is safe working live load moment.

### INSTRUCTIONS FOR USING TABLE

1. Below the solid stepped line, total dead load, $w_D$, will always exceed live load, $w_L$, and the tabulated values may be used directly.
2. Above the solid stepped line, check dead load, $w_D$, and live load, $w_L$, and proceed according to the following table:*

| $w_D > w_L$ | $w_D < w_L$ |
|---|---|
| a. $M_U = 1.8\ (M_D + M_L)$ governs and tabulated loads may be used directly.<br>b. To figure between tabulated spans, interpolate or use the formula:<br>$w_S = \frac{3333\ M_U}{L^2} - 52$ | a. $M_U = 1.2\ M_D + 2.4\ M_L$ governs and the required $M_U$ must be computed from the formula:<br>$M_U = \frac{L^2}{2500}\left(w_L + \frac{w_{AD}}{2} + 26\right)$<br>Enter the table with required $M_U$ to find the standard designation needed.<br>b. To check designs use the formula<br>$w_L = \frac{2500\ M_U}{L^2} - \frac{w_{AD}}{2} - 26$ |

3. If $w_D$ equals $w_L$, then either criteria may be used and tabulated loads may be taken directly from the table.
4. For concentrated loads, bending moments, $M_D$ and $M_L$ producing a maximum combined moment, must be calculated and the appropriate ultimate moment formula from section 2 must be applied. Enter the table with required $M_U$ to find the standard designation needed. See also instructions on web reinforcement.

### SHEAR AND WEB REINFORCEMENT

1. Eight No. 9 wire stirrups are required at 3" spacing, beginning 1" from slab ends, for all uniform loadings except those above the dashed stepped line require 16 at 1½" spacing.
2. No additional web reinforcement is required for UNIFORM LOADINGS contemplated by this table.
3. Concentrated loads producing shear in excess of 2280 lbs. per 16" width may require additional web reinforcement. Consult your local manufacturer.

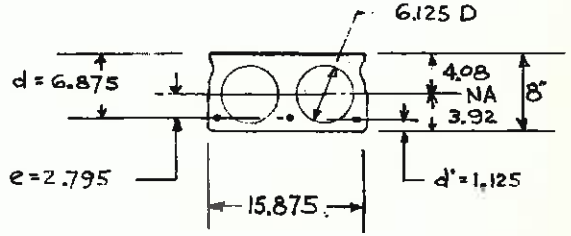
### CAMBER AND DEFLECTION

1. The above table indicates maximum allowable safe loads, however camber and deflection may limit the use of a prestress unit even though the load carrying capacity is satisfactory.
2. Camber and deflection must always be investigated for the contemplated loading condition and span so that these factors are compatible with contiguous materials in the proposed building. Consult your local manufacturer.

### END TOP - TENSILE - REINFORCEMENT

1. Provide top cage steel as specified in right hand portion of table.
2. Interpolate for spans not tabulated.

### SPECIFICATIONS AND PHYSICAL PROPERTIES




A = 65.6 sq. in. I = 527.4 in.$^4$ b 3.625

$f'_c$ = 5000 psi $f'_{ci}$ = 3500 psi

$f_s$ = 250,000 psi $f_{si}$ = 175,000 psi

Design is based on ACI - ASCE Joint Committee 323 "Tentative Recommendations for Prestressed Concrete", 1958

Grouted weight of slabs is 52 lbs. per sq. ft.

NOTE: FOR LONGER SPANS, HEAVIER LOADS, OR SPECIAL CONDITIONS, CONSULT LOCAL MANUFACTURER.


**THE FLEXICORE CO., INC.**
**DAYTON, OHIO**


July 14, 1960

Form No. 816B-A April 24, 1964

# hi-stress flexicore®

8" x 16" SECTION

## Safe Load Table

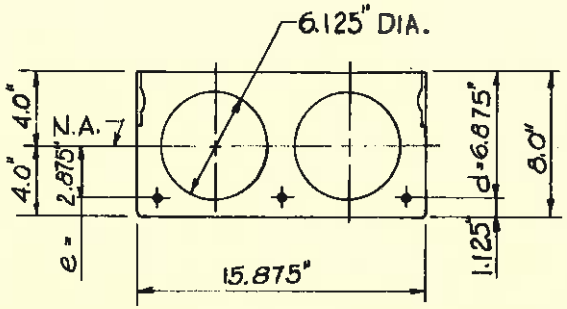
See instructions on back side of sheet for using this table.

**UNIFORMLY DISTRIBUTED SUPERIMPOSED* LOAD IN LBS. PER SQ. FT.**

| Standard Designation | Combination of 7-Wire Strand | Strand Area Sq. In. | $M_U$ in Ft.-Kips per Unit | SIMPLE SPAN IN FEET — CENTER TO CENTER OF END BEARINGS | | | | | | | | | | | | | | | | | | $V_{AU(CW)}$ in Lbs. per Unit | $M'_{Cr}$ in Ft. Lbs. per Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | |
| 816B-A33 | 3—7/16 | 0.3267 | 35.72 | 344 | 318 | 296 | 276 | 258 | 242 | 228 | 215 | 196 | 178 | 163 | 146 | 132 | 119 | 108 | 97 | 88 | 80 | 72 | 6536 | 22297 |
| 816B-A30 | 2—7/16 & 1—3/8 | 0.2977 | 33.03 | 339 | 313 | 291 | 271 | 254 | 238 | 224 | 205 | 183 | 164 | 147 | 132 | 119 | 107 | 96 | 87 | 78 | 70 | 63 | 6444 | 21050 |
| 816B-A27 | 2—3/8 & 1—7/16 | 0.2687 | 30.25 | 333 | 308 | 286 | 266 | 249 | 234 | 208 | 185 | 164 | 146 | 131 | 117 | 105 | 94 | 84 | 76 | 68 | 61 | 54 | 6346 | 19736 |
| 816B-A24 | 3—3/8 | 0.2397 | 27.38 | 337 | 312 | 289 | 270 | 238 | 209 | 184 | 163 | 144 | 128 | 114 | 102 | 91 | 81 | 72 | 64 | 57 | 51 | 45 | 6412 | 18343 |
| 816B-A22 | 2—7/16 | 0.2178 | 25.16 | 322 | 298 | 277 | 246 | 215 | 188 | 165 | 146 | 129 | 114 | 101 | 90 | 80 | 71 | 63 | 56 | 49 | 43 | 38 | 6167 | 17299 |
| 816B-A16 | 2—3/8 | 0.1598 | 19.00 | 279 | 237 | 203 | 175 | 151 | 131 | 114 | 99 | 87 | 76 | 66 | 57 | 50 | 43 | 37 | 31 | | | | 6061 | 14289 |

*TABULATED LOADS ARE BASED ON $M_U$=1.5 $M_D$+1.8 $M_L$ AND WITH ALL LOAD SUPERIMPOSED ON THE STRUCTURAL SECTION CONSIDERED AS LIVE LOAD.

### PHYSICAL PROPERTIES OF STRUCTURAL SECTION AND SPECIFICATIONS




| | | |
|---|---|---|
| A = 68.0 in.² | $f'_s$ = 250.0 ksi | $V_{CI}$ min = 2995 lbs. |
| $f'_{CI}$ = 3500 psi | $b'$ = 3.625 in. | $\phi_s V_{CI}$ min=2546 lbs. |
| $f'_c$ = 5000 psi | $I_s$ = 539.1 in.⁴ | $V_A$ = 1057 lbs. |
| $f_{si}$ = 175.0 ksi | $\phi_s$ = 0.85 | |

Grouted weight of structural unit is 53 lbs. per sq. ft. or 71 lbs. per lin. ft.

Design is based on ACI 318-63 building code requirements for reinforced concrete.

Note — For longer spans, heavier loads or special conditions consult your local manufacturer.