



SOUTH CAROLINA  
DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION  
P.O. BOX 191  
COLUMBIA, S.C. 29202

DM 0393

DANIEL P. FANNING  
EXECUTIVE DIRECTOR

March 30, 1993

**MEMORANDUM TO BRIDGE DESIGN GROUPS**

**SUBJECT: Standardized Load Factor Design For Bridge Slabs**

The attached "Slab Design Table" is provided for use in detailing in-house plans. This design table can be used for slab detailing of normal multiple girder spans.

The designer should independently check unusual designs. These include designs with large cantilever overhangs, design spans not included in table and staged or new construction with less than three girders.

For designs that require a slab thickness exceeding 8 1/2 inches, the designer may elect to use #6 bar main reinforcing and do an independent design.

Designs and plans previously completed need not be revised to comply with this memorandum.

B. A. Meetze, Jr.  
Bridge Design Engineer

Attachment

cc: Assistant Bridge Design Engineers  
Design Group Leaders

REL/slb

S. C. DEPT. OF HWYS. & PUBLIC TRANS.  
BRIDGE DESIGN  
SLAB DESIGN TABLE  
LOAD FACTOR DESIGN

DESIGN CRITERIA :

- > HS-25 TRUCK LOADING                      IMPACT = 0.3
- > GRADE 60 REINFORCING STEEL ( $f_y = 60,000$  psi)
- > CLASS D CONCRETE ( $f'_c = 4,000$  psi)
- > FUTURE WEARING SURFACE = 15 psf
- > CONTINUITY FACTOR = 0.8

| Design<br>Span<br>(ft.) | Slab<br>Thick.<br>(in.) | Design<br>Moment<br>(k - ft) | Main<br>Reinforcement |      | Distr. Steel<br>(Middle Half) |       |
|-------------------------|-------------------------|------------------------------|-----------------------|------|-------------------------------|-------|
|                         |                         |                              | #                     | @    | #                             | @     |
| 5.0000                  | 7.000                   | 10.21                        | 5                     | 7.00 | 5                             | 10.25 |
| 5.0833                  | 7.000                   | 10.34                        | 5                     | 6.75 | 5                             | 10.00 |
| 5.1667                  | 7.000                   | 10.47                        | 5                     | 6.75 | 5                             | 10.00 |
| 5.2500                  | 7.000                   | 10.60                        | 5                     | 6.75 | 5                             | 10.00 |
| 5.3333                  | 7.000                   | 10.73                        | 5                     | 6.50 | 5                             | 9.50  |
| 5.4167                  | 7.000                   | 10.86                        | 5                     | 6.50 | 5                             | 9.50  |
| 5.5000                  | 7.000                   | 10.99                        | 5                     | 6.50 | 5                             | 9.50  |
| 5.5833                  | 7.000                   | 11.12                        | 5                     | 6.25 | 5                             | 9.25  |
| 5.6667                  | 7.000                   | 11.25                        | 5                     | 6.25 | 5                             | 9.25  |
| 5.7500                  | 7.000                   | 11.38                        | 5                     | 6.25 | 5                             | 9.25  |
| 5.8333                  | 7.000                   | 11.51                        | 5                     | 6.00 | 5                             | 8.75  |
| 5.9167                  | 7.000                   | 11.64                        | 5                     | 6.00 | 5                             | 8.75  |
| 6.0000                  | 7.000                   | 11.77                        | 5                     | 6.00 | 5                             | 8.75  |
| 6.0833                  | 7.000                   | 11.90                        | 5                     | 5.75 | 5                             | 8.50  |
| 6.1667                  | 7.000                   | 12.03                        | 5                     | 5.75 | 5                             | 8.50  |
| 6.2500                  | 7.000                   | 12.16                        | 5                     | 5.75 | 5                             | 8.50  |
| 6.3333                  | 7.000                   | 12.29                        | 5                     | 5.50 | 5                             | 8.00  |
| 6.4167                  | 7.000                   | 12.43                        | 5                     | 5.50 | 5                             | 8.00  |
| 6.5000                  | 7.000                   | 12.56                        | 5                     | 5.50 | 5                             | 8.00  |
| 6.5833                  | 7.000                   | 12.69                        | 5                     | 5.50 | 5                             | 8.00  |
| 6.6667                  | 7.500                   | 12.86                        | 5                     | 6.00 | 5                             | 8.75  |
| 6.7500                  | 7.500                   | 12.99                        | 5                     | 6.00 | 5                             | 8.75  |
| 6.8333                  | 7.500                   | 13.13                        | 5                     | 6.00 | 5                             | 8.75  |
| 6.9167                  | 7.500                   | 13.26                        | 5                     | 5.75 | 5                             | 8.50  |
| 7.0000                  | 7.500                   | 13.39                        | 5                     | 5.75 | 5                             | 8.50  |
| 7.0833                  | 7.500                   | 13.53                        | 5                     | 5.75 | 5                             | 8.50  |
| 7.1667                  | 7.500                   | 13.66                        | 5                     | 5.75 | 5                             | 8.50  |
| 7.2500                  | 7.500                   | 13.80                        | 5                     | 5.50 | 5                             | 8.00  |
| 7.3333                  | 7.500                   | 13.93                        | 5                     | 5.50 | 5                             | 8.00  |
| 7.4167                  | 7.500                   | 14.07                        | 5                     | 5.50 | 5                             | 8.00  |
| 7.5000                  | 7.500                   | 14.20                        | 5                     | 5.50 | 5                             | 8.00  |
| 7.5833                  | 7.750                   | 14.36                        | 5                     | 5.75 | 5                             | 8.50  |
| 7.6667                  | 7.750                   | 14.50                        | 5                     | 5.50 | 5                             | 8.00  |
| 7.7500                  | 7.750                   | 14.63                        | 5                     | 5.50 | 5                             | 8.00  |
| 7.8333                  | 7.750                   | 14.77                        | 5                     | 5.50 | 5                             | 8.00  |
| 7.9167                  | 7.750                   | 14.91                        | 5                     | 5.50 | 5                             | 8.00  |
| 8.0000                  | 8.000                   | 15.07                        | 5                     | 5.75 | 5                             | 8.50  |
| 8.0833                  | 8.000                   | 15.21                        | 5                     | 5.50 | 5                             | 8.00  |
| 8.1667                  | 8.000                   | 15.34                        | 5                     | 5.50 | 5                             | 8.00  |
| 8.2500                  | 8.000                   | 15.48                        | 5                     | 5.50 | 5                             | 8.00  |
| 8.3333                  | 8.000                   | 15.62                        | 5                     | 5.50 | 5                             | 8.00  |

| Design<br>Span<br>(ft.) | Slab<br>Thick.<br>(in.) | Design<br>Moment<br>(k - ft) | Main<br>Reinforcement |      | Distr. Steel<br>(Middle Half) |      |
|-------------------------|-------------------------|------------------------------|-----------------------|------|-------------------------------|------|
|                         |                         |                              | #                     | @    | #                             | @    |
| 8.4167                  | 8.000                   | 15.76                        | 5                     | 5.50 | 5                             | 8.00 |
| 8.5000                  | 8.250                   | 15.93                        | 5                     | 5.50 | 5                             | 8.00 |
| 8.5833                  | 8.250                   | 16.07                        | 5                     | 5.50 | 5                             | 8.00 |
| 8.6667                  | 8.250                   | 16.21                        | 5                     | 5.50 | 5                             | 8.00 |
| 8.7500                  | 8.250                   | 16.35                        | 5                     | 5.50 | 5                             | 8.00 |
| 8.8333                  | 8.250                   | 16.49                        | 5                     | 5.50 | 5                             | 8.00 |
| 8.9167                  | 8.500                   | 16.66                        | 5                     | 5.50 | 5                             | 8.00 |
| 9.0000                  | 8.500                   | 16.80                        | 5                     | 5.50 | 5                             | 8.00 |
| 9.0833                  | 8.500                   | 16.94                        | 5                     | 5.50 | 5                             | 8.00 |
| 9.1667                  | 8.500                   | 17.08                        | 5                     | 5.50 | 5                             | 8.00 |
| 9.2500                  | 8.500                   | 17.22                        | 5                     | 5.50 | 5                             | 8.00 |
| 9.3333                  | 8.750                   | 17.40                        | 5                     | 5.50 | 5                             | 8.00 |
| 9.4167                  | 8.750                   | 17.54                        | 5                     | 5.50 | 5                             | 8.00 |
| 9.5000                  | 8.750                   | 17.69                        | 5                     | 5.50 | 5                             | 8.00 |
| 9.5833                  | 8.750                   | 17.83                        | 5                     | 5.50 | 5                             | 8.00 |
| 9.6667                  | 8.750                   | 17.97                        | 5                     | 5.50 | 5                             | 8.00 |
| 9.7500                  | 9.000                   | 18.16                        | 5                     | 5.50 | 5                             | 8.00 |
| 9.8333                  | 9.000                   | 18.30                        | 5                     | 5.50 | 5                             | 8.00 |
| 9.9167                  | 9.000                   | 18.45                        | 5                     | 5.50 | 5                             | 8.00 |
| 10.0000                 | 9.000                   | 18.59                        | 5                     | 5.50 | 5                             | 8.00 |