# GENERAL NOTES

## GENERAL

THESE PLANS ARE INTENDED TO SERVE AS A GUIDE TO STATE, COUNTY, AND LOCAL HIGHWAY DEPARTMENTS IN THE DEVELOPMENT OF SUITABLE AND ECONOMICAL STEEL BRIDGE SUPERSTRUCTURE DESIGNS. THE PLANS SHOULD BE PARTICULARLY VALUABLE TO THE SMALLER HIGHWAY DEPARTMENTS WITH LIMITED ENGINEERING STAFF.

## SPECIFICATIONS

SPECIFICATIONS FOR DESIGN, MATERIALS, AND CONSTRUCTION ARE INCLUDED IN THE FOLLOWING:

- AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION WITH 2010 INTERIM REVISIONS. 2010. ADOPTED AND PUBLISHED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS. WASHINGTON, DC
- AASHTO/NSBA COLLABORATION STANDARD S2.1. STEEL BRIDGE FABRICATION GUIDE SPECIFICATIONS. 2008. DEVELOPED BY THE AASHTO/NSBA STEEL BRIDGE COLLABORATION. WASHINGTON, DC
- AASHTO/NSBA COLLABORATION STANDARD G1.4. GUIDELINES FOR DESIGN DETAILS. 2006. DEVELOPED BY THE AASHTO/NSBA STEEL BRIDGE COLLABORATION. WASHINGTON, DC
- ASTM STANDARDS. PUBLISHED BY THE AMERICAN SOCIETY FOR TESTING AND MATERIALS. ASTM INTERNATIONAL, 100 BARR HARBOR DRIVE, PO BOX C700, WEST CONSHOHOCKEN, PA, 19428–2959 USA.

## DESIGN LOADING

AASHTO HL–93 VEHICULAR LIVE LOADING WAS USED THROUGHOUT.

## DESIGN METHOD

LOAD AND RESISTANCE FACTOR DESIGN (LRFD) METHOD WAS EMPLOYED THROUGHOUT. DESIGNS WERE ORIGINATED USING 5 GIRDERS WITH EQUAL SPACING. HOWEVER, PLATE SIZES AND BEAM SELECTIONS ARE ADEQUATE FOR ANY INCREMENT OF GIRDER LAYOUT. DESIGNS WILL ACCOMMODATE SKEWS UP TO 20° FROM PERPENDICULAR, AND ARE INTENDED TO BE PARALLEL.

THREE OPTIONS ARE AVAILABLE FOR STEEL SUPERSTRUCTURE COMPOSITE I–GIRDERS. THESE OPTIONS ARE AS FOLLOWS:

1. HOMOGENOUS PLATE GIRDERS COMPRISED OF ASTM A709–50W STEEL. THESE DESIGNS ARE AVAILABLE FOR A SPAN RANGE OF 60'–140' AND ARE LISTED ON SHEETS 101, 103, 105, & 107.
2. HYBRID PLATE GIRDERS COMPRISED OF ASTM A709–50W AND A709–70W STEEL. A709–50W STEEL IS UTILIZED FOR THE TOP FLANGE AND WEB. A709–70W STEEL IS UTILIZED FOR THE BOTTOM FLANGE. THESE DESIGNS ARE AVAILABLE FOR A SPAN RANGE OF 80'–140' AND ARE LISTED ON SHEETS 102, 104, 106, & 108.
3. ROLLED BEAMS COMPRISED OF ASTM A709–50W STEEL. THESE DESIGNS ARE AVAILABLE FOR A SPAN RANGE OF 40'–100' AND ARE LISTED ON SHEETS 201–203.

## STRUCTURAL STEEL

ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO M270 (ASTM A709) GRADE 50, 50W, OR 70W, AS APPLICABLE. REFER TO "DESIGN METHOD."

## CONCRETE

CONCRETE FOR DECK AND PARAPET SHALL HAVE A MINIMUM 28–DAY COMPRESSIVE STRENGTH (f'c) OF 4000 PSI.

## CONCRETE DECK

THE DECK THICKNESS EMPLOYED FOR DESIGN WAS 8". THIS INCLUDES A 1/4" INTEGRAL WEARING SURFACE WHICH IS NOT CONSIDERED PART OF THE STRUCTURAL DEPTH. THE OWNER SHALL SPECIFY THE REQUIRED DECK CROSS SLOPE AND GRADE.

## REINFORCING STEEL

REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60.

## SHEAR CONNECTORS

WELDED STUD SHEAR CONNECTORS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A108.

## ELASTOMERIC BEARINGS

REFER TO SHEETS 303–308.

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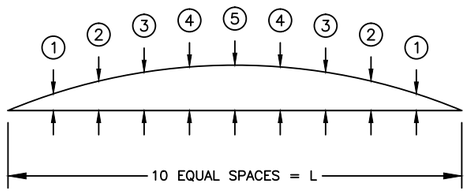
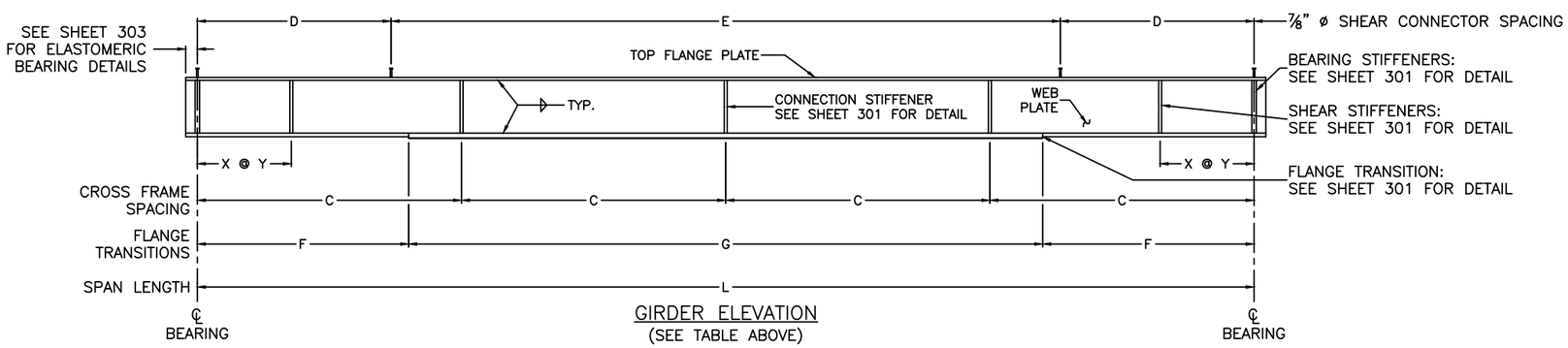
| GENERAL NOTES | | | |
|---|---|---|---|
| DATE: 04/06/2012 | | DO NOT SCALE | |
| DRAFTED BY: GKM | DESIGNED BY: ASB/SAM | CHECKED BY: KEB | SHEET NO: 001 |




D.L. CAMBER
(SEE TABLE BELOW)

## COMPOSITE PLATE GIRDER WITH PARTIALLY STIFFENED WEB – 6'–0" GIRDER SPACING, HOMOGENEOUS

| SPAN (L) – ft. | PLATE GIRDER SIZE | | | | | | DIAPHRAGM SPACING (C) – ft. | SHEAR STIFFENERS | | SHEAR CONNECTOR MAX. SPACING | | STEEL D.L. CAMBER – in. | | | | | TOTAL D.L. CAMBER – in. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TOP FLANGE – in. | BOTTOM FLANGE (F) | | BOTTOM FLANGE (G) | | WEB PLATE – in. | | X (NO. REQ'D) | Y – ft. (SPACING) | D | E | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| | | PLATE – in. | LENGTH – ft. | PLATE – in. | LENGTH – ft. | | | | | | | | | | | | | | | | |
| 60 | 12 x 3/4 | – | – | 14 x 1 | 60 | 24 x 1/2 | 20 | – | – | 12 @ 6" | 9" | 0.114 | 0.215 | 0.295 | 0.345 | 0.362 | 0.768 | 1.452 | 1.988 | 2.327 | 2.444 |
| 65 | 12 x 3/4 | – | – | 14 x 1 1/2 | 65 | 24 x 1/2 | 21.67 | – | – | 36 @ 9" | 12" | 0.153 | 0.290 | 0.397 | 0.465 | 0.489 | 0.905 | 1.714 | 2.347 | 2.748 | 2.887 |
| 70 | 12 x 3/4 | – | – | 16 x 1 1/2 | 70 | 24 x 1/2 | 23.33 | – | – | 16 @ 6" | 9" | 0.209 | 0.395 | 0.541 | 0.634 | 0.665 | 1.172 | 2.216 | 3.035 | 3.555 | 3.732 |
| 75 | 14 x 3/4 | – | – | 14 x 2 | 75 | 24 x 1/2 | 25 | – | – | 15 @ 6" | 9" | 0.261 | 0.494 | 0.676 | 0.792 | 0.831 | 1.362 | 2.577 | 3.528 | 4.131 | 4.338 |
| 80 | 12 x 3/4 | – | – | 18 x 1 | 80 | 32 x 1/2 | 20 | – | – | 22 @ 9" | 12" | 0.211 | 0.399 | 0.546 | 0.640 | 0.672 | 1.239 | 2.345 | 3.210 | 3.760 | 3.947 |
| 85 | 12 x 3/4 | 14 x 1 | 17 | 14 x 1 1/2 | 51 | 32 x 1/2 | 21.25 | – | – | 34 @ 9" | 12" | 0.263 | 0.494 | 0.673 | 0.786 | 0.825 | 1.528 | 2.864 | 3.895 | 4.549 | 4.773 |
| 90 | 14 x 3/4 | 16 x 1 | 18 | 16 x 2 | 54 | 32 x 1/2 | 22.5 | – | – | 36 @ 9" | 12" | 0.319 | 0.596 | 0.808 | 0.943 | 0.989 | 1.617 | 3.015 | 4.077 | 4.751 | 4.982 |
| 95 | 16 x 3/4 | 18 x 1 | 19 | 18 x 2 | 57 | 32 x 1/2 | 23.75 | – | – | 38 @ 9" | 12" | 0.385 | 0.719 | 0.974 | 1.137 | 1.193 | 1.846 | 3.443 | 4.654 | 5.425 | 5.688 |
| 100 | 14 x 3/4 | 16 x 1 | 20 | 16 x 1 1/2 | 60 | 40 x 1/2 | 25 | – | – | 14 @ 9" | 12" | 0.322 | 0.605 | 0.824 | 0.963 | 1.011 | 1.681 | 3.156 | 4.292 | 5.012 | 5.261 |
| 105 | 14 x 3/4 | 16 x 1 | 21 | 16 x 1 1/2 | 63 | 40 x 1/2 | 26.25 | – | – | 14 @ 9" | 12" | 0.392 | 0.736 | 1.002 | 1.171 | 1.229 | 2.045 | 3.837 | 5.217 | 6.094 | 6.394 |
| 110 | 16 x 3/4 | 18 x 1 | 22 | 18 x 1 1/2 | 66 | 40 x 1/2 | 27.5 | – | – | 45 @ 9" | 15" | 0.456 | 0.856 | 1.166 | 1.362 | 1.430 | 2.268 | 4.254 | 5.785 | 6.756 | 7.089 |
| 115 | 16 x 3/4 | 18 x 1 | 23 | 18 x 1 1/2 | 69 | 46 x 1/2 | 28.75 | – | – | 25 @ 12" | 15" | 0.422 | 0.793 | 1.080 | 1.262 | 1.324 | 2.033 | 3.816 | 5.190 | 6.062 | 6.360 |
| 120 | 16 x 3/4 | 18 x 1 | 24 | 18 x 1 1/2 | 72 | 46 x 1/2 | 30 | – | – | 40 @ 12" | 15" | 0.501 | 0.941 | 1.280 | 1.496 | 1.570 | 2.411 | 4.526 | 6.153 | 7.187 | 7.541 |
| 125 | 18 x 3/4 | 18 x 1 | 25 | 18 x 1 1/2 | 75 | 46 x 1/2 | 31.25 | – | – | 40 @ 12" | 15" | 0.573 | 1.075 | 1.464 | 1.710 | 1.795 | 2.730 | 5.123 | 6.965 | 8.134 | 8.536 |
| 130 | 18 x 3/4 | 18 x 1 | 26 | 18 x 2 | 78 | 46 x 1/2 | 32.5 | – | – | 40 @ 12" | 15" | 0.668 | 1.248 | 1.692 | 1.974 | 2.071 | 2.972 | 5.543 | 7.498 | 8.737 | 9.162 |
| 135 | 18 x 3/4 | 18 x 1 | 28.5 | 18 x 1 1/2 | 78 | 54 x 1/2 | 33.75 | – | – | 33 @ 15" | 18" | 0.583 | 1.096 | 1.491 | 1.743 | 1.829 | 2.671 | 5.014 | 6.816 | 7.963 | 8.355 |
| 140 | 18 x 1 | 18 x 1 | 31 | 18 x 1 1/2 | 78 | 54 x 1/2 | 35 | – | – | 35 @ 15" | 18" | 0.633 | 1.189 | 1.617 | 1.890 | 1.983 | 2.790 | 5.235 | 7.116 | 8.311 | 8.720 |

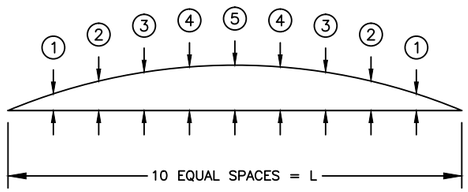



GIRDER ELEVATION
(SEE TABLE ABOVE)

Steel Market Development Institute

COMPOSITE PLATE GIRDER – PART. STIFF. WEB
6'–0" GIRDER SPACING – HOMOGENEOUS

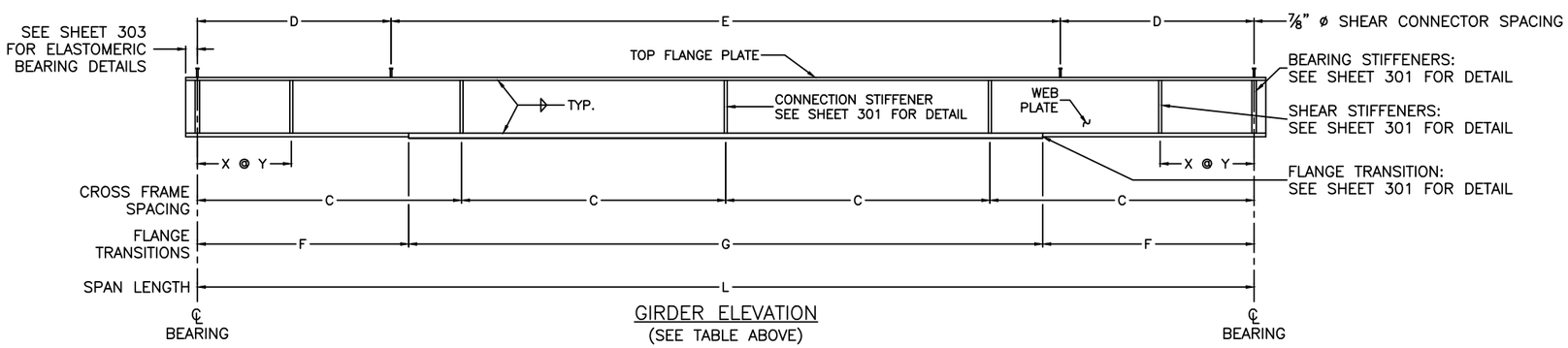
| DATE: | | | |
|---|---|---|---|
| 04/06/2012 | | DO NOT SCALE | |
| DRAFTED BY: | DESIGNED BY: | CHECKED BY: | SHEET NO: |
| GKM | ASB/SAM | KEB | 101 |




D.L. CAMBER
(SEE TABLE BELOW)

## COMPOSITE PLATE GIRDER WITH PARTIALLY STIFFENED WEB – 6'–0" GIRDER SPACING, HYBRID

| SPAN (L) – ft. | PLATE GIRDER SIZE | | | | | | DIAPHRAGM SPACING (C) – ft. | SHEAR STIFFENERS | | SHEAR CONNECTOR MAX. SPACING | | STEEL D.L. CAMBER – in. | | | | | TOTAL D.L. CAMBER – in. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TOP FLANGE – in. | BOTTOM FLANGE (F) | | BOTTOM FLANGE (G) | | WEB PLATE – in. | | X (NO. REQ'D) | Y – ft. (SPACING) | D | E | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| | | PLATE – in. | LENGTH – ft. | PLATE – in. | LENGTH – ft. | | | | | | | | | | | | | | | | |
| 80 | 12 x 3/4 | – | – | 16 x 1 | 80 | 32 x 1/2 | 20 | – | – | 32 @ 9" | 12" | 0.212 | 0.401 | 0.549 | 0.643 | 0.675 | 1.290 | 2.440 | 3.340 | 3.912 | 4.107 |
| 85 | 12 x 3/4 | 14 x 1 | 17 | 14 x 1 1/2 | 51 | 32 x 1/2 | 21.25 | – | – | 34 @ 9" | 12" | 0.263 | 0.494 | 0.673 | 0.786 | 0.825 | 1.528 | 2.864 | 3.895 | 4.549 | 4.773 |
| 90 | 14 x 3/4 | 18 x 1 | 18 | 18 x 1 1/2 | 54 | 32 x 1/2 | 22.5 | – | – | 36 @ 9" | 12" | 0.319 | 0.599 | 0.816 | 0.954 | 1.001 | 1.679 | 3.150 | 4.283 | 5.003 | 5.249 |
| 95 | 14 x 3/4 | 16 x 3/4 | 19 | 16 x 1 | 57 | 40 x 1/2 | 23.75 | – | – | 40 @ 9" | 15" | 0.272 | 0.511 | 0.697 | 0.815 | 0.856 | 1.571 | 2.954 | 4.024 | 4.703 | 4.938 |
| 100 | 14 x 3/4 | 18 x 1 | 20 | 18 x 1 1/2 | 60 | 40 x 1/2 | 25 | – | – | 14 @ 9" | 12" | 0.322 | 0.606 | 0.825 | 0.964 | 1.012 | 1.622 | 3.045 | 4.139 | 4.835 | 5.073 |
| 105 | 14 x 1 | 16 x 1 | 21 | 16 x 1 1/2 | 63 | 40 x 1/2 | 26.25 | – | – | 45 @ 9" | 15" | 0.364 | 0.684 | 0.931 | 1.088 | 1.141 | 1.835 | 3.443 | 4.681 | 5.466 | 5.733 |
| 110 | 16 x 3/4 | 18 x 1 | 22 | 18 x 1 1/2 | 66 | 40 x 1/2 | 27.5 | – | – | 45 @ 9" | 15" | 0.456 | 0.856 | 1.166 | 1.362 | 1.430 | 2.268 | 4.254 | 5.785 | 6.756 | 7.089 |
| 115 | 16 x 3/4 | 18 x 1 | 23 | 18 x 1 1/2 | 69 | 46 x 1/2 | 28.75 | – | – | 25 @ 12" | 15" | 0.422 | 0.793 | 1.080 | 1.262 | 1.324 | 2.033 | 3.816 | 5.190 | 6.062 | 6.360 |
| 120 | 16 x 1 | 16 x 1 | 24 | 16 x 1 1/2 | 72 | 46 x 1/2 | 30 | – | – | 40 @ 12" | 15" | 0.470 | 0.883 | 1.201 | 1.404 | 1.473 | 2.256 | 4.234 | 5.754 | 6.720 | 7.051 |
| 125 | 18 x 3/4 | 18 x 1 | 25 | 18 x 1 1/2 | 75 | 46 x 1/2 | 31.25 | – | – | 40 @ 12" | 15" | 0.573 | 1.075 | 1.464 | 1.710 | 1.795 | 2.730 | 5.123 | 6.965 | 8.134 | 8.536 |
| 130 | 18 x 3/4 | 18 x 1 | 26 | 18 x 1 1/2 | 78 | 54 x 1/2 | 32.5 | – | – | 34 @ 15" | 18" | 0.501 | 0.942 | 1.282 | 1.498 | 1.572 | 2.296 | 4.310 | 5.860 | 6.844 | 7.181 |
| 135 | 18 x 1 | 18 x 1 | 28.5 | 18 x 1 1/2 | 78 | 54 x 1/2 | 33.75 | – | – | 36 @ 15" | 18" | 0.547 | 1.028 | 1.398 | 1.634 | 1.715 | 2.412 | 4.526 | 6.153 | 7.186 | 7.540 |
| 140 | 18 x 1 | 18 x 1 | 31 | 18 x 1 1/2 | 78 | 54 x 1/2 | 35 | – | – | 38 @ 15" | 18" | 0.633 | 1.189 | 1.617 | 1.890 | 1.983 | 2.790 | 5.235 | 7.116 | 8.311 | 8.720 |

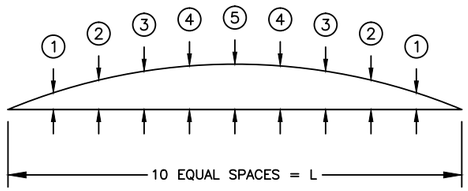



GIRDER ELEVATION
(SEE TABLE ABOVE)

Steel Market Development Institute

COMPOSITE PLATE GIRDER – PART. STIFF. WEB
6'–0" GIRDER SPACING – HYBRID

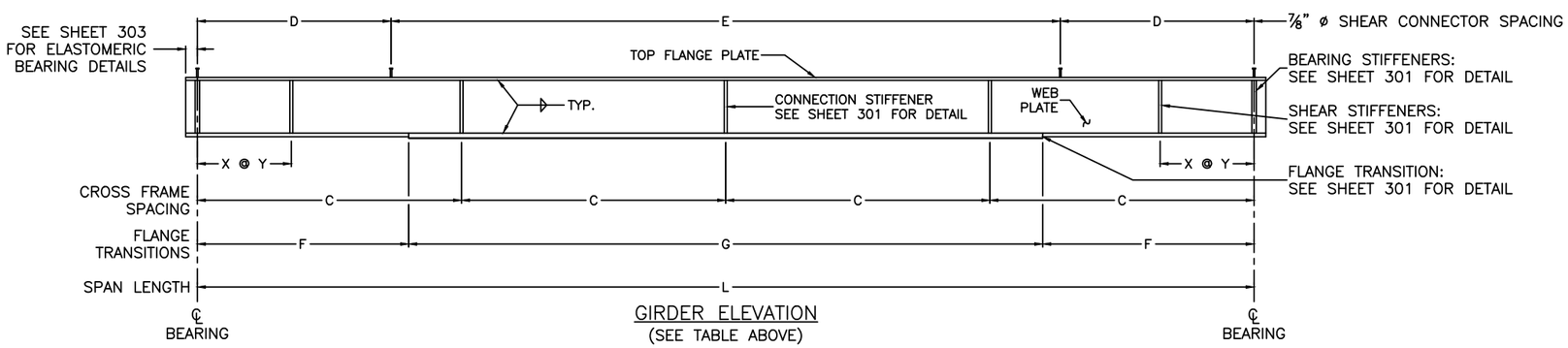
| DATE: | | | |
|---|---|---|---|
| 04/06/2012 | | DO NOT SCALE | |
| DRAFTED BY: | DESIGNED BY: | CHECKED BY: | SHEET NO: |
| GKM | ASB/SAM | KEB | 102 |




D.L. CAMBER
(SEE TABLE BELOW)

## COMPOSITE PLATE GIRDER WITH PARTIALLY STIFFENED WEB – 7'–6" GIRDER SPACING, HOMOGENEOUS

| SPAN (L) – ft. | PLATE GIRDER SIZE | | | | | | DIAPHRAGM SPACING (C) – ft. | SHEAR STIFFENERS | | SHEAR CONNECTOR MAX. SPACING | | STEEL D.L. CAMBER – in. | | | | | TOTAL D.L. CAMBER – in. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TOP FLANGE – in. | BOTTOM FLANGE (F) | | BOTTOM FLANGE (G) | | WEB PLATE – in. | | X (NO. REQ'D) | Y – ft. (SPACING) | D | E | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| | | PLATE – in. | LENGTH – ft. | PLATE – in. | LENGTH – ft. | | | | | | | | | | | | | | | | |
| 60 | 12 x 3/4 | – | – | 14 x 1 1/2 | 60 | 24 x 1/2 | 20 | – | – | 24 @ 6" | 9" | 0.111 | 0.211 | 0.288 | 0.338 | 0.355 | 0.777 | 1.470 | 2.013 | 2.357 | 2.476 |
| 65 | 12 x 3/4 | – | – | 14 x 1 1/2 | 65 | 24 x 1/2 | 21.67 | – | – | 26 @ 6" | 9" | 0.153 | 0.290 | 0.397 | 0.465 | 0.489 | 1.070 | 2.024 | 2.772 | 3.247 | 3.410 |
| 70 | 14 x 3/4 | – | – | 14 x 1 1/2 | 70 | 24 x 1/2 | 23.33 | – | – | 28 @ 6" | 9" | 0.197 | 0.373 | 0.510 | 0.598 | 0.628 | 1.352 | 2.559 | 3.501 | 4.102 | 4.307 |
| 75 | 16 x 3/4 | 16 x 1 | 15 | 16 x 2 | 45 | 24 x 1/2 | 25 | – | – | 45 @ 6" | 9" | 0.250 | 0.467 | 0.632 | 0.738 | 0.774 | 1.517 | 2.825 | 3.815 | 4.447 | 4.662 |
| 80 | 16 x 3/4 | 16 x 1 1/2 | 16 | 16 x 2 | 48 | 24 x 1/2 | 20 | – | – | 50 @ 6" | 9" | 0.324 | 0.611 | 0.833 | 0.974 | 1.022 | 1.919 | 3.609 | 4.916 | 5.746 | 6.029 |
| 85 | 14 x 3/4 | 14 x 1 | 17 | 14 x 2 | 51 | 32 x 1/2 | 21.25 | – | – | 34 @ 9" | 12" | 0.251 | 0.469 | 0.635 | 0.741 | 0.777 | 1.570 | 2.925 | 3.953 | 4.607 | 4.830 |
| 90 | 14 x 3/4 | 16 x 1 | 18 | 16 x 1 1/2 | 54 | 32 x 1/2 | 22.5 | – | – | 18 @ 6" | 9" | 0.317 | 0.596 | 0.812 | 0.949 | 0.996 | 2.045 | 3.838 | 5.217 | 6.092 | 6.392 |
| 95 | 16 x 3/4 | 18 x 1 1/2 | 19 | 18 x 1 1/2 | 57 | 32 x 1/2 | 23.75 | – | – | 52 @ 9" | 12" | 0.386 | 0.729 | 0.999 | 1.170 | 1.228 | 2.259 | 4.273 | 5.850 | 6.851 | 7.194 |
| 100 | 16 x 3/4 | 16 x 1 | 20 | 16 x 1 1/2 | 60 | 40 x 1/2 | 25 | – | – | 40 @ 9" | 12" | 0.312 | 0.586 | 0.797 | 0.931 | 0.977 | 1.884 | 3.535 | 4.805 | 5.611 | 5.887 |
| 105 | 16 x 3/4 | 16 x 1 | 21 | 16 x 2 | 63 | 40 x 1/2 | 26.25 | – | – | 42 @ 9" | 12" | 0.377 | 0.704 | 0.954 | 1.113 | 1.168 | 2.118 | 3.948 | 5.337 | 6.220 | 6.523 |
| 110 | 18 x 3/4 | 18 x 1 | 22 | 18 x 1 1/2 | 66 | 40 x 1/2 | 27.5 | – | – | 44 @ 9" | 12" | 0.442 | 0.831 | 1.131 | 1.322 | 1.387 | 2.543 | 4.772 | 6.485 | 7.574 | 7.947 |
| 115 | 16 x 3/4 | 18 x 1 | 23 | 18 x 1 1/2 | 69 | 46 x 1/2 | 28.75 | – | – | 50 @ 9" | 15" | 0.422 | 0.793 | 1.080 | 1.262 | 1.324 | 2.375 | 4.456 | 6.059 | 7.077 | 7.425 |
| 120 | 18 x 3/4 | 18 x 1 | 24 | 18 x 1 1/2 | 72 | 46 x 1/2 | 30 | – | – | 16 @ 9" | 12" | 0.487 | 0.914 | 1.244 | 1.454 | 1.526 | 2.707 | 5.077 | 6.902 | 8.061 | 8.458 |
| 125 | 18 x 1 | 18 x 1 | 25 | 18 x 2 | 75 | 46 x 1/2 | 31.25 | – | – | 18 @ 9" | 12" | 0.529 | 0.987 | 1.336 | 1.559 | 1.635 | 2.637 | 4.912 | 6.637 | 7.733 | 8.109 |
| 130 | 18 x 1 | 18 x 1 | 26 | 18 x 2 | 78 | 46 x 1/2 | 32.5 | – | – | 55 @ 9" | 15" | 0.619 | 1.156 | 1.565 | 1.826 | 1.915 | 3.085 | 5.750 | 7.768 | 9.052 | 9.491 |
| 135 | 18 x 1 | 18 x 1 | 28.5 | 18 x 1 1/2 | 78 | 54 x 1/2 | 33.75 | 2 | 6 | 30 @ 12" | 15" | 0.547 | 1.028 | 1.398 | 1.634 | 1.715 | 2.804 | 5.261 | 7.150 | 8.351 | 8.762 |
| 140 | 20 x 1 | 20 x 1 | 31 | 20 x 1 1/2 | 78 | 54 x 1/2 | 35 | 2 | 6 | 30 @ 12" | 15" | 0.615 | 1.155 | 1.571 | 1.836 | 1.927 | 3.020 | 5.665 | 7.699 | 8.990 | 9.434 |




GIRDER ELEVATION
(SEE TABLE ABOVE)

Steel Market Development Institute

COMPOSITE PLATE GIRDER – PART. STIFF. WEB
7'–6" GIRDER SPACING – HOMOGENEOUS

| DATE: | |
|---|---|
| 04/06/2012 | DO NOT SCALE |

| DRAFTED BY: | DESIGNED BY: | CHECKED BY: | SHEET NO: |
|---|---|---|---|
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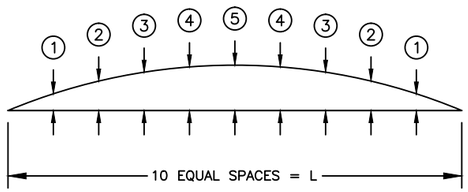
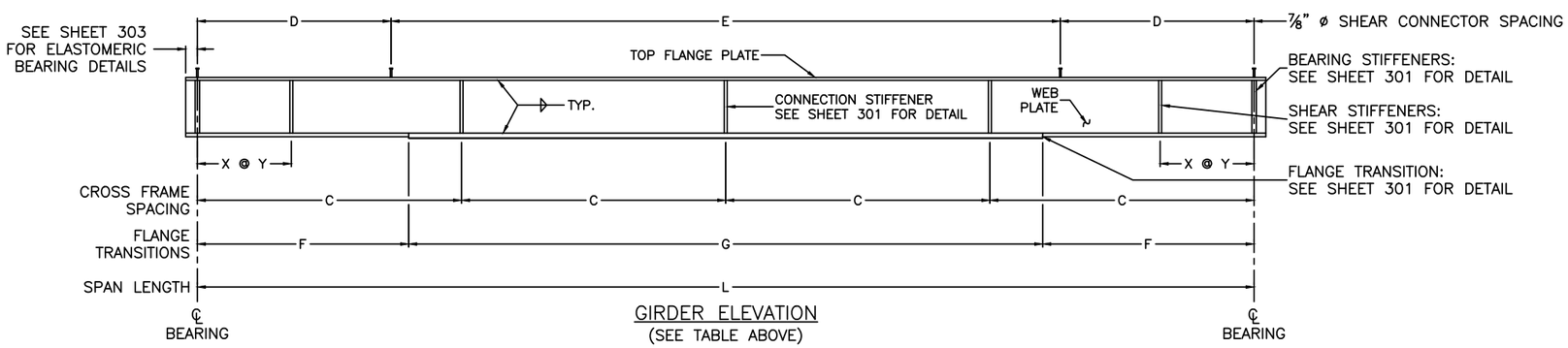



D.L. CAMBER
(SEE TABLE BELOW)

## COMPOSITE PLATE GIRDER WITH PARTIALLY STIFFENED WEB – 7'–6" GIRDER SPACING, HYBRID

| SPAN (L) – ft. | PLATE GIRDER SIZE | | | | | | DIAPHRAGM SPACING (C) – ft. | SHEAR STIFFENERS | | SHEAR CONNECTOR MAX. SPACING | | STEEL D.L. CAMBER – in. | | | | | TOTAL D.L. CAMBER – in. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TOP FLANGE – in. | BOTTOM FLANGE (F) | | BOTTOM FLANGE (G) | | WEB PLATE – in. | | X (NO. REQ'D) | Y – ft. (SPACING) | D | E | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| | | PLATE – in. | LENGTH – ft. | PLATE – in. | LENGTH – ft. | | | | | | | | | | | | | | | | |
| 80 | 14 x 1 | 16 x 1 1/2 | 16 | 16 x 2 | 48 | 24 x 1/2 | 20 | – | – | 50 @ 6" | 9" | 0.306 | 0.577 | 0.786 | 0.919 | 0.965 | 1.771 | 3.330 | 4.535 | 5.299 | 5.562 |
| 85 | 12 x 1 | 14 x 1 | 17 | 14 x 2 | 51 | 32 x 1/2 | 21.25 | – | – | 34 @ 9" | 12" | 0.241 | 0.450 | 0.609 | 0.710 | 0.745 | 1.477 | 2.752 | 3.718 | 4.331 | 4.542 |
| 90 | 14 x 3/4 | 16 x 1 | 18 | 16 x 1 1/2 | 54 | 32 x 1/2 | 22.5 | – | – | 36 @ 9" | 12" | 0.317 | 0.596 | 0.812 | 0.949 | 0.996 | 2.045 | 3.838 | 5.217 | 6.092 | 6.392 |
| 95 | 16 x 3/4 | 18 x 1 1/2 | 19 | 18 x 1 1/2 | 57 | 32 x 1/2 | 23.75 | – | – | 52 @ 9" | 12" | 0.386 | 0.729 | 0.999 | 1.170 | 1.228 | 2.259 | 4.273 | 5.850 | 6.851 | 7.194 |
| 100 | 14 x 1 | 14 x 1 | 20 | 14 x 2 | 60 | 40 x 1/2 | 25 | – | – | 40 @ 9" | 12" | 0.297 | 0.554 | 0.750 | 0.874 | 0.917 | 1.705 | 3.176 | 4.291 | 4.998 | 5.241 |
| 105 | 16 x 3/4 | 16 x 1 | 21 | 16 x 2 | 63 | 40 x 1/2 | 26.25 | – | – | 42 @ 9" | 12" | 0.377 | 0.704 | 0.954 | 1.113 | 1.168 | 2.118 | 3.948 | 5.337 | 6.220 | 6.523 |
| 110 | 16 x 1 | 18 x 1 | 22 | 18 x 1 1/2 | 66 | 40 x 1/2 | 27.5 | – | – | 30 @ 9" | 12" | 0.424 | 0.795 | 1.082 | 1.265 | 1.327 | 2.369 | 4.442 | 6.037 | 7.052 | 7.398 |
| 115 | 16 x 1 | 16 x 1 | 23 | 16 x 1 1/2 | 69 | 46 x 1/2 | 28.75 | – | – | 35 @ 12" | 15" | 0.397 | 0.745 | 1.013 | 1.184 | 1.242 | 2.222 | 4.167 | 5.663 | 6.613 | 6.938 |
| 120 | 18 x 1 | 18 x 1 | 24 | 18 x 1 1/2 | 72 | 46 x 1/2 | 30 | – | – | 16 @ 9" | 12" | 0.455 | 0.855 | 1.163 | 1.359 | 1.426 | 2.427 | 4.553 | 6.187 | 7.226 | 7.581 |
| 125 | 18 x 1 | 18 x 1 | 25 | 18 x 2 | 75 | 46 x 1/2 | 31.25 | – | – | 18 @ 9" | 12" | 0.529 | 0.987 | 1.336 | 1.559 | 1.635 | 2.637 | 4.912 | 6.637 | 7.733 | 8.109 |
| 130 | 18 x 1 | 18 x 1 | 26 | 18 x 2 | 78 | 46 x 1/2 | 32.5 | – | – | 40 @ 12" | 15" | 0.619 | 1.155 | 1.564 | 1.824 | 1.914 | 3.085 | 5.749 | 7.767 | 9.050 | 9.490 |
| 135 | 18 x 1 | 18 x 1 | 28.5 | 18 x 1 1/2 | 78 | 54 x 1/2 | 33.75 | – | – | 30 @ 12" | 15" | 0.547 | 1.027 | 1.397 | 1.633 | 1.714 | 2.804 | 5.260 | 7.149 | 8.350 | 8.761 |
| 140 | 20 x 1 | 20 x 1 | 31 | 20 x 1 1/2 | 78 | 54 x 1/2 | 35 | 2 | 6 | 15 @ 12" | 15" | 0.615 | 1.154 | 1.570 | 1.835 | 1.926 | 3.020 | 5.664 | 7.698 | 8.989 | 9.433 |

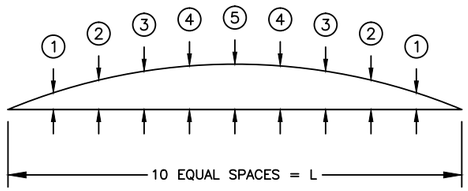



GIRDER ELEVATION
(SEE TABLE ABOVE)

Steel Market Development Institute

COMPOSITE PLATE GIRDER – PART. STIFF. WEB
7'–6" GIRDER SPACING – HYBRID

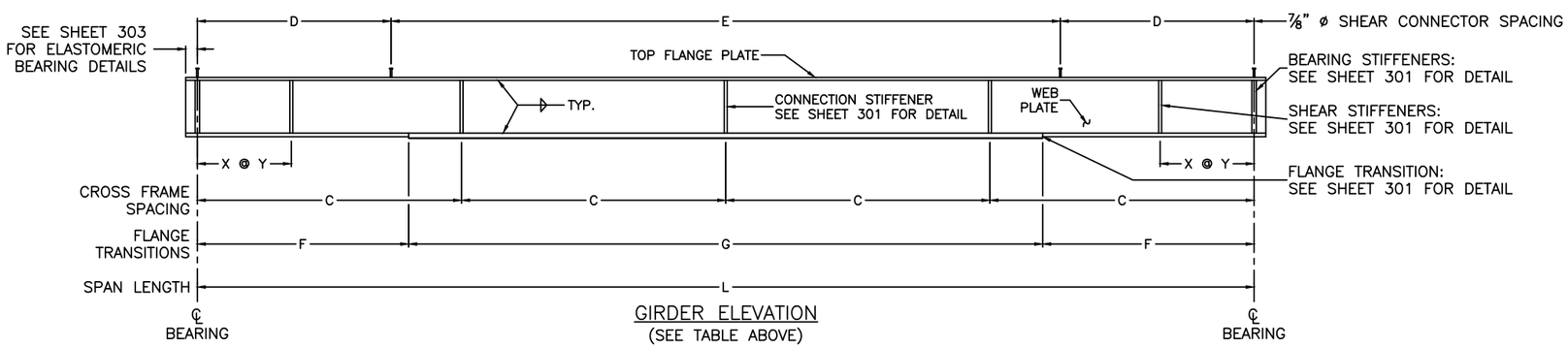
| DATE: | | | |
|---|---|---|---|
| 04/06/2012 | | DO NOT SCALE | |
| DRAFTED BY: | DESIGNED BY: | CHECKED BY: | SHEET NO: |
| GKM | ASB/SAM | KEB | 104 |




D.L. CAMBER
(SEE TABLE BELOW)

## COMPOSITE PLATE GIRDER WITH PARTIALLY STIFFENED WEB – 9'–0" GIRDER SPACING, HOMOGENEOUS

| SPAN (L) – ft. | PLATE GIRDER SIZE | | | | | | DIAPHRAGM SPACING (C) – ft. | SHEAR STIFFENERS | | SHEAR CONNECTOR MAX. SPACING | | STEEL D.L. CAMBER – in. | | | | | TOTAL D.L. CAMBER – in. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TOP FLANGE – in. | BOTTOM FLANGE (F) | | BOTTOM FLANGE (G) | | WEB PLATE – in. | | X (NO. REQ'D) | Y – ft. (SPACING) | D | E | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| | | PLATE – in. | LENGTH – ft. | PLATE – in. | LENGTH – ft. | | | | | | | | | | | | | | | | |
| 60 | 12 x 3/4 | – | – | 14 x 1 1/2 | 60 | 24 x 1/2 | 20 | – | – | 36 @ 6" | 9" | 0.111 | 0.211 | 0.288 | 0.338 | 0.355 | 0.896 | 1.696 | 2.321 | 2.718 | 2.854 |
| 65 | 14 x 3/4 | – | – | 14 x 1 1/2 | 65 | 24 x 1/2 | 21.67 | – | – | 41 @ 6" | 9" | 0.147 | 0.277 | 0.379 | 0.444 | 0.467 | 1.159 | 2.190 | 2.998 | 3.511 | 3.687 |
| 70 | 14 x 1 | – | – | 16 x 1 1/2 | 70 | 24 x 1/2 | 23.33 | – | – | 43 @ 6" | 9" | 0.181 | 0.343 | 0.470 | 0.550 | 0.578 | 1.303 | 2.465 | 3.375 | 3.952 | 4.152 |
| 75 | 16 x 1 | 16 x 1 | 15 | 16 x 2 | 45 | 24 x 1/2 | 25 | – | – | 60 @ 6" | 9" | 0.228 | 0.425 | 0.575 | 0.671 | 0.704 | 1.537 | 2.860 | 3.859 | 4.494 | 4.711 |
| 80 | 16 x 1 | 16 x 1 1/2 | 16 | 16 x 2 | 48 | 24 x 1/2 | 20 | – | – | 50 @ 6" | 9" | 0.294 | 0.553 | 0.754 | 0.882 | 0.926 | 1.912 | 3.595 | 4.895 | 5.721 | 6.004 |
| 85 | 14 x 3/4 | 14 x 1 | 17 | 14 x 2 | 51 | 32 x 1/2 | 21.25 | – | – | 34 @ 6" | 9" | 0.251 | 0.469 | 0.636 | 0.742 | 0.778 | 1.803 | 3.358 | 4.538 | 5.288 | 5.545 |
| 90 | 16 x 3/4 | 16 x 1 | 18 | 16 x 2 | 54 | 32 x 1/2 | 22.5 | – | – | 36 @ 6" | 9" | 0.306 | 0.572 | 0.774 | 0.904 | 0.948 | 2.059 | 3.838 | 5.185 | 6.042 | 6.336 |
| 95 | 18 x 3/4 | 18 x 1 | 19 | 18 x 2 | 57 | 32 x 1/2 | 23.75 | – | – | 38 @ 6" | 9" | 0.371 | 0.692 | 0.938 | 1.094 | 1.148 | 2.350 | 4.380 | 5.919 | 6.896 | 7.231 |
| 100 | 16 x 3/4 | 16 x 1 | 20 | 16 x 2 | 60 | 40 x 1/2 | 25 | – | – | 40 @ 9" | 12" | 0.310 | 0.579 | 0.785 | 0.916 | 0.961 | 1.992 | 3.712 | 5.019 | 5.849 | 6.134 |
| 105 | 18 x 3/4 | 18 x 1 | 21 | 18 x 2 | 63 | 40 x 1/2 | 26.25 | – | – | 42 @ 9" | 12" | 0.367 | 0.686 | 0.929 | 1.084 | 1.138 | 2.232 | 4.161 | 5.625 | 6.555 | 6.874 |
| 110 | 18 x 1 | 18 x 1 | 22 | 18 x 2 | 66 | 40 x 1/2 | 27.5 | – | – | 44 @ 9" | 12" | 0.408 | 0.762 | 1.031 | 1.203 | 1.262 | 2.384 | 4.440 | 5.997 | 6.987 | 7.326 |
| 115 | 18 x 3/4 | 18 x 1 | 23 | 18 x 1 1/2 | 69 | 46 x 1/2 | 28.75 | – | – | 32 @ 9" | 12" | 0.410 | 0.771 | 1.049 | 1.226 | 1.287 | 2.605 | 4.888 | 6.646 | 7.762 | 8.144 |
| 120 | 18 x 1 | 18 x 1 | 24 | 18 x 2 | 72 | 46 x 1/2 | 30 | – | – | 48 @ 9" | 12" | 0.449 | 0.838 | 1.135 | 1.324 | 1.389 | 2.548 | 4.748 | 6.415 | 7.474 | 7.836 |
| 125 | 18 x 1 | 18 x 1 1/2 | 25 | 18 x 2 | 75 | 46 x 1/2 | 31.25 | – | – | 34 @ 9" | 12" | 0.527 | 0.992 | 1.352 | 1.582 | 1.660 | 2.898 | 5.450 | 7.423 | 8.678 | 9.106 |
| 130 | 18 x 1 | 18 x 1 1/2 | 26 | 18 x 2 | 78 | 46 x 1/2 | 32.5 | – | – | 36 @ 9" | 12" | 0.617 | 1.161 | 1.582 | 1.851 | 1.943 | 3.392 | 6.376 | 8.685 | 10.152 | 10.654 |
| 135 | 18 x 1 | 20 x 1 | 28.5 | 20 x 1 1/2 | 78 | 54 x 1/2 | 33.75 | 3 | 6 | 45 @ 12" | 15" | 0.543 | 1.020 | 1.388 | 1.622 | 1.703 | 3.076 | 5.771 | 7.843 | 9.161 | 9.613 |
| 140 | 20 x 1 | 20 x 1 | 31 | 20 x 2 | 78 | 54 x 1/2 | 35 | 3 | 6 | 45 @ 12" | 15" | 0.608 | 1.135 | 1.537 | 1.793 | 1.881 | 3.169 | 5.907 | 7.983 | 9.301 | 9.754 |

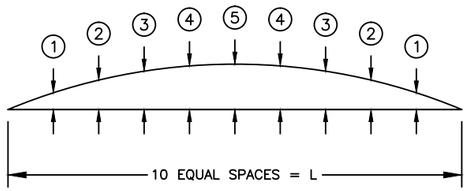



GIRDER ELEVATION
(SEE TABLE ABOVE)

Steel Market Development Institute

COMPOSITE PLATE GIRDER – PART. STIFF. WEB
9'–0" GIRDER SPACING – HOMOGENEOUS

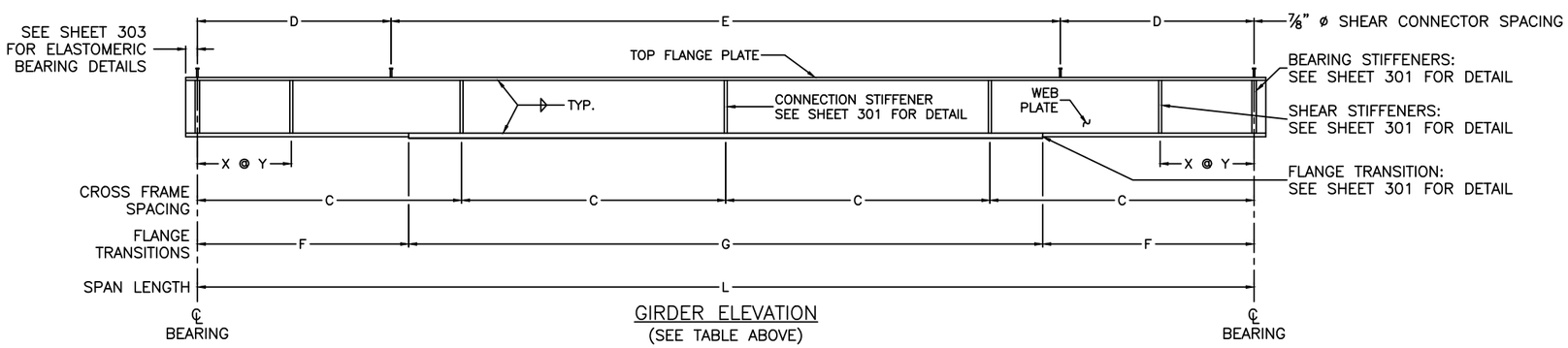
| DATE: | | | |
|---|---|---|---|
| 04/06/2012 | | DO NOT SCALE | |
| DRAFTED BY: | DESIGNED BY: | CHECKED BY: | SHEET NO: |
| GKM | ASB/SAM | KEB | 105 |




D.L. CAMBER
(SEE TABLE BELOW)

## COMPOSITE PLATE GIRDER WITH PARTIALLY STIFFENED WEB – 9'–0" GIRDER SPACING, HYBRID

| SPAN (L) – ft. | PLATE GIRDER SIZE | | | | | | DIAPHRAGM SPACING (C) – ft. | SHEAR STIFFENERS | | SHEAR CONNECTOR MAX. SPACING | | STEEL D.L. CAMBER – in. | | | | | TOTAL D.L. CAMBER – in. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TOP FLANGE – in. | BOTTOM FLANGE (F) | | BOTTOM FLANGE (G) | | WEB PLATE – in. | | X (NO. REQ'D) | Y – ft. (SPACING) | D | E | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| | | PLATE – in. | LENGTH – ft. | PLATE – in. | LENGTH – ft. | | | | | | | | | | | | | | | | |
| 80 | 16 x 1 | 16 x 1 1/2 | 16 | 16 x 2 | 48 | 24 x 1/2 | 20 | – | – | 50 @ 6" | 9" | 0.294 | 0.553 | 0.754 | 0.882 | 0.926 | 1.807 | 3.396 | 4.623 | 5.402 | 5.670 |
| 85 | 14 x 3/4 | 14 x 1 | 17 | 14 x 2 | 51 | 32 x 1/2 | 21.25 | – | – | 34 @ 6" | 9" | 0.244 | 0.455 | 0.616 | 0.719 | 0.754 | 1.848 | 3.443 | 4.652 | 5.421 | 5.683 |
| 90 | 16 x 3/4 | 16 x 1 | 18 | 16 x 1 1/2 | 54 | 32 x 1/2 | 22.5 | – | – | 36 @ 6" | 9" | 0.274 | 0.511 | 0.692 | 0.807 | 0.847 | 1.872 | 3.484 | 4.704 | 5.478 | 5.744 |
| 95 | 18 x 3/4 | 18 x 1 | 19 | 18 x 1 1/2 | 57 | 32 x 1/2 | 23.75 | – | – | 38 @ 6" | 9" | 0.340 | 0.635 | 0.859 | 1.002 | 1.051 | 2.324 | 4.326 | 5.838 | 6.800 | 7.129 |
| 100 | 16 x 3/4 | 16 x 1 | 20 | 16 x 2 | 60 | 40 x 1/2 | 25 | – | – | 40 @ 9" | 12" | 0.287 | 0.535 | 0.725 | 0.845 | 0.886 | 1.994 | 3.714 | 5.016 | 5.843 | 6.126 |
| 105 | 18 x 3/4 | 18 x 1 | 21 | 18 x 2 | 63 | 40 x 1/2 | 26.25 | – | – | 56 @ 9" | 12" | 0.339 | 0.633 | 0.856 | 0.999 | 1.048 | 2.223 | 4.140 | 5.591 | 6.514 | 6.830 |
| 110 | 18 x 1 | 18 x 1 | 22 | 18 x 2 | 66 | 40 x 1/2 | 27.5 | – | – | 44 @ 9" | 12" | 0.408 | 0.762 | 1.031 | 1.203 | 1.262 | 2.676 | 4.986 | 6.733 | 7.843 | 8.224 |
| 115 | 18 x 3/4 | 18 x 1 | 23 | 18 x 1 1/2 | 69 | 46 x 1/2 | 28.75 | – | – | 32 @ 9" | 12" | 0.351 | 0.655 | 0.887 | 1.034 | 1.085 | 2.212 | 4.121 | 5.568 | 6.487 | 6.801 |
| 120 | 18 x 1 | 18 x 1 | 24 | 18 x 2 | 72 | 46 x 1/2 | 30 | – | – | 48 @ 9" | 12" | 0.416 | 0.776 | 1.051 | 1.226 | 1.286 | 2.623 | 4.885 | 6.600 | 7.692 | 8.064 |
| 125 | 18 x 1 | 18 x 1 | 25 | 18 x 1 1/2 | 75 | 46 x 1/2 | 31.25 | – | – | 34 @ 9" | 12" | 0.449 | 0.837 | 1.131 | 1.319 | 1.383 | 2.626 | 4.886 | 6.591 | 7.677 | 8.048 |
| 130 | 18 x 1 1/2 | 18 x 1 | 26 | 18 x 2 | 78 | 46 x 1/2 | 32.5 | – | – | 36 @ 9" | 12" | 0.519 | 0.977 | 1.331 | 1.556 | 1.633 | 2.954 | 5.552 | 7.558 | 8.833 | 9.269 |
| 135 | 18 x 1 1/2 | 18 x 1 | 28.5 | 18 x 2 | 78 | 54 x 1/2 | 33.75 | 3 | 6 | 45 @ 12" | 15" | 0.494 | 0.922 | 1.247 | 1.454 | 1.525 | 2.819 | 5.249 | 7.087 | 8.253 | 8.653 |
| 140 | 20 x 1 | 20 x 1 | 31 | 20 x 2 | 78 | 54 x 1/2 | 35 | 3 | 6 | 45 @ 12" | 15" | 0.567 | 1.059 | 1.432 | 1.670 | 1.751 | 3.136 | 5.840 | 7.884 | 9.182 | 9.627 |

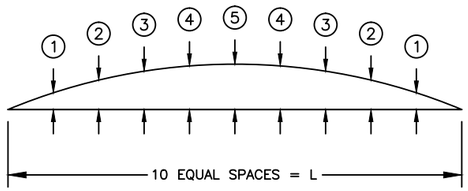



GIRDER ELEVATION
(SEE TABLE ABOVE)

Steel Market Development Institute

COMPOSITE PLATE GIRDER – PART. STIFF. WEB
9'–0" GIRDER SPACING – HYBRID

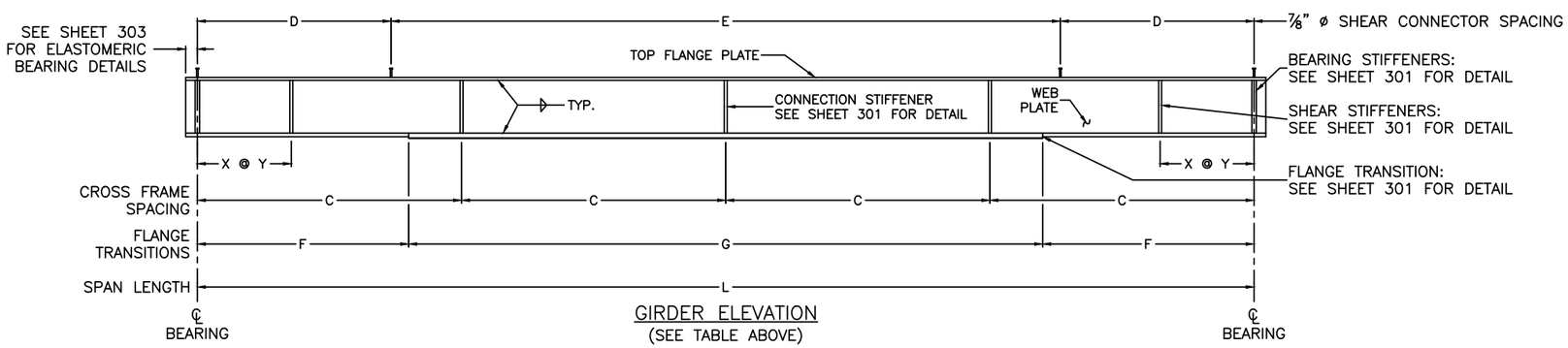
| DATE: | | | |
|---|---|---|---|
| 04/06/2012 | | DO NOT SCALE | |
| DRAFTED BY: | DESIGNED BY: | CHECKED BY: | SHEET NO: |
| GKM | ASB/SAM | KEB | 106 |




D.L. CAMBER
(SEE TABLE BELOW)

## COMPOSITE PLATE GIRDER WITH PARTIALLY STIFFENED WEB – 10'–6" GIRDER SPACING, HOMOGENEOUS

| SPAN (L) – ft. | PLATE GIRDER SIZE | | | | | | DIAPHRAGM SPACING (C) – ft. | SHEAR STIFFENERS | | SHEAR CONNECTOR MAX. SPACING | | STEEL D.L. CAMBER – in. | | | | | TOTAL D.L. CAMBER – in. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TOP FLANGE – in. | BOTTOM FLANGE (F) | | BOTTOM FLANGE (G) | | WEB PLATE – in. | | X (NO. REQ'D) | Y – ft. (SPACING) | D | E | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| | | PLATE – in. | LENGTH – ft. | PLATE – in. | LENGTH – ft. | | | | | | | | | | | | | | | | |
| 60 | 12 x 3/4 | – | – | 14 x 1 1/2 | 60 | 24 x 1/2 | 20 | – | – | 48 @ 6" | 9" | 0.111 | 0.211 | 0.289 | 0.338 | 0.355 | 1.016 | 1.922 | 2.633 | 3.084 | 3.237 |
| 65 | 14 x 3/4 | – | – | 14 x 1 1/2 | 65 | 24 x 1/2 | 21.67 | – | – | 53 @ 6" | 9" | 0.147 | 0.277 | 0.379 | 0.444 | 0.467 | 1.313 | 2.481 | 3.397 | 3.977 | 4.176 |
| 70 | 16 x 3/4 | – | – | 16 x 1 1/2 | 70 | 24 x 1/2 | 23.33 | – | – | 58 @ 6" | 9" | 0.191 | 0.361 | 0.494 | 0.579 | 0.608 | 1.591 | 3.011 | 4.122 | 4.827 | 5.069 |
| 75 | 16 x 1 | 16 x 1 | 15 | 16 x 2 | 45 | 24 x 1/2 | 25 | – | – | 45 @ 6" | 8" | 0.228 | 0.425 | 0.575 | 0.671 | 0.704 | 1.735 | 3.225 | 4.351 | 5.068 | 5.312 |
| 80 | 16 x 1 | 16 x 1 | 16 | 16 x 1 1/2 | 48 | 32 x 1/2 | 20 | – | – | 47 @ 6" | 9" | 0.178 | 0.334 | 0.454 | 0.530 | 0.557 | 1.397 | 2.618 | 3.554 | 4.149 | 4.355 |
| 85 | 16 x 3/4 | 16 x 1 | 17 | 16 x 2 | 51 | 32 x 1/2 | 21.25 | – | – | 52 @ 6" | 9" | 0.244 | 0.455 | 0.617 | 0.719 | 0.755 | 1.848 | 3.443 | 4.653 | 5.421 | 5.684 |
| 90 | 18 x 1 | 18 x 1 | 18 | 18 x 2 | 54 | 32 x 1/2 | 22.5 | – | – | 54 @ 6" | 9" | 0.277 | 0.519 | 0.706 | 0.825 | 0.865 | 2.044 | 3.830 | 5.202 | 6.073 | 6.371 |
| 95 | 18 x 1 | 18 x 1 1/2 | 19 | 18 x 2 | 57 | 32 x 1/2 | 23.75 | – | – | 38 @ 6" | 9" | 0.340 | 0.639 | 0.871 | 1.019 | 1.070 | 2.238 | 4.206 | 5.728 | 6.694 | 7.026 |
| 100 | 18 x 3/4 | 18 x 1 | 20 | 18 x 2 | 60 | 40 x 1/2 | 25 | – | – | 22 @ 6" | 9" | 0.302 | 0.564 | 0.765 | 0.892 | 0.936 | 2.064 | 3.849 | 5.203 | 6.055 | 6.358 |
| 105 | 18 x 1 | 18 x 1 | 21 | 18 x 2 | 63 | 40 x 1/2 | 26.25 | – | – | 21 @ 6" | 9" | 0.339 | 0.633 | 0.857 | 1.000 | 1.049 | 2.223 | 4.140 | 5.592 | 6.515 | 6.831 |
| 110 | 18 x 1 | 18 x 1 | 22 | 18 x 2 | 66 | 40 x 1/2 | 27.5 | – | – | 23 @ 6" | 9" | 0.408 | 0.762 | 1.032 | 1.204 | 1.263 | 2.676 | 4.986 | 6.734 | 7.844 | 8.225 |
| 115 | 18 x 1 | 18 x 1 | 23 | 18 x 2 | 69 | 48 x 1/2 | 28.75 | 1 | 5 | 46 @ 9" | 12" | 0.322 | 0.601 | 0.813 | 0.949 | 0.995 | 2.183 | 4.067 | 5.494 | 6.402 | 6.711 |
| 120 | 18 x 1 | 20 x 1 | 24 | 20 x 2 | 72 | 48 x 1/2 | 30 | 1 | 5 | 48 @ 9" | 12" | 0.416 | 0.778 | 1.054 | 1.229 | 1.290 | 2.532 | 4.719 | 6.378 | 7.430 | 7.792 |
| 125 | 18 x 1 1/2 | 18 x 1 1/2 | 25 | 18 x 2 | 75 | 48 x 1/2 | 31.25 | 1 | 5 | 50 @ 9" | 12" | 0.444 | 0.835 | 1.138 | 1.331 | 1.397 | 2.524 | 4.745 | 6.460 | 7.550 | 7.923 |
| 130 | 18 x 1 1/2 | 20 x 1 | 26 | 20 x 2 | 78 | 48 x 1/2 | 32.5 | 2 | 5 | 52 @ 9" | 12" | 0.521 | 0.972 | 1.314 | 1.532 | 1.607 | 2.952 | 5.491 | 7.412 | 8.632 | 9.050 |
| 135 | 18 x 1 | 18 x 1 1/2 | 28.5 | 18 x 2 | 78 | 54 x 1/2 | 33.75 | 3 | 6 | 18 @ 9" | 12" | 0.537 | 1.010 | 1.378 | 1.611 | 1.691 | 3.191 | 6.001 | 8.175 | 9.555 | 10.028 |
| 140 | 20 x 1 | 20 x 1 1/2 | 31 | 20 x 2 | 78 | 54 x 1/2 | 35 | 4 | 6.5 | 20 @ 9" | 12" | 0.606 | 1.141 | 1.555 | 1.819 | 1.909 | 3.428 | 6.448 | 8.782 | 10.266 | 10.774 |



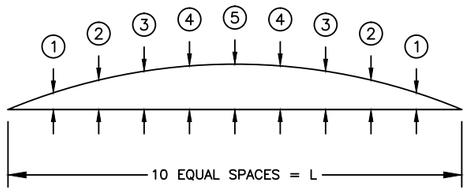

GIRDER ELEVATION
(SEE TABLE ABOVE)

Steel Market Development Institute

COMPOSITE PLATE GIRDER – PART. STIFF. WEB
10'–6" GIRDER SPACING – HOMOGENEOUS

| DATE: | |
|---|---|
| 04/06/2012 | DO NOT SCALE |

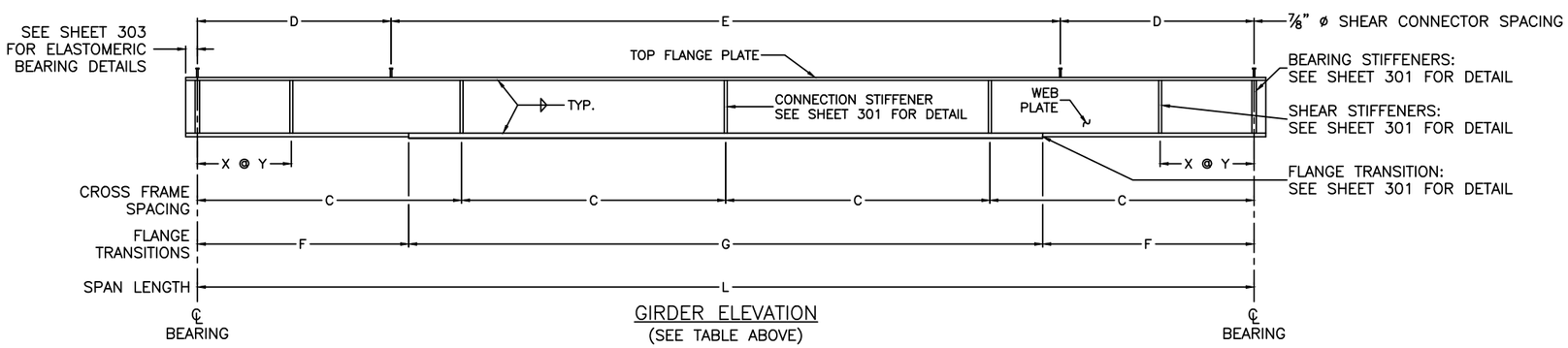
| DRAFTED BY: | DESIGNED BY: | CHECKED BY: | SHEET NO: |
|---|---|---|---|
| GKM | ASB/SAM | KEB | 107 |




D.L. CAMBER
(SEE TABLE BELOW)

## COMPOSITE PLATE GIRDER WITH PARTIALLY STIFFENED WEB – 10'–6" GIRDER SPACING, HYBRID

| SPAN (L) – ft. | PLATE GIRDER SIZE | | | | | | DIAPHRAGM SPACING (C) – ft. | SHEAR STIFFENERS | | SHEAR CONNECTOR MAX. SPACING | | STEEL D.L. CAMBER – in. | | | | | TOTAL D.L. CAMBER – in. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TOP FLANGE – in. | BOTTOM FLANGE (F) | | BOTTOM FLANGE (G) | | WEB PLATE – in. | | X (NO. REQ'D) | Y – ft. (SPACING) | D | E | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| | | PLATE – in. | LENGTH – ft. | PLATE – in. | LENGTH – ft. | | | | | | | | | | | | | | | | |
| 80 | 16 x 1 | 16 x 1 1/2 | 16 | 16 x 2 | 48 | 24 x 1/2 | 20 | – | – | 48 @ 6" | 8" | 0.294 | 0.553 | 0.754 | 0.882 | 0.926 | 1.807 | 3.396 | 4.623 | 5.402 | 5.670 |
| 85 | 16 x 3/4 | 16 x 1 | 17 | 16 x 2 | 51 | 32 x 1/2 | 21.25 | – | – | 52 @ 6" | 9" | 0.244 | 0.455 | 0.616 | 0.719 | 0.754 | 1.848 | 3.443 | 4.652 | 5.421 | 5.683 |
| 90 | 18 x 1 | 18 x 1 | 18 | 18 x 2 | 54 | 32 x 1/2 | 22.5 | – | – | 54 @ 6" | 9" | 0.274 | 0.511 | 0.692 | 0.807 | 0.847 | 1.872 | 3.484 | 4.704 | 5.478 | 5.744 |
| 95 | 18 x 1 | 18 x 1 | 19 | 18 x 2 | 57 | 32 x 1/2 | 23.75 | – | – | 59 @ 6" | 9" | 0.340 | 0.635 | 0.859 | 1.002 | 1.051 | 2.324 | 4.326 | 5.838 | 6.800 | 7.129 |
| 100 | 16 x 1 | 16 x 1 | 20 | 16 x 2 | 60 | 40 x 1/2 | 25 | – | – | 40 @ 6" | 9" | 0.287 | 0.535 | 0.725 | 0.845 | 0.886 | 1.994 | 3.714 | 5.016 | 5.843 | 6.126 |
| 105 | 18 x 1 | 18 x 1 | 21 | 18 x 2 | 63 | 40 x 1/2 | 26.25 | – | – | 21 @ 6" | 9" | 0.339 | 0.633 | 0.856 | 0.999 | 1.048 | 2.223 | 4.140 | 5.591 | 6.514 | 6.830 |
| 110 | 18 x 1 | 18 x 1 | 22 | 18 x 2 | 66 | 40 x 1/2 | 27.5 | – | – | 88 @ 6" | 12" | 0.408 | 0.762 | 1.031 | 1.203 | 1.262 | 2.676 | 4.986 | 6.733 | 7.843 | 8.224 |
| 115 | 18 x 1 | 18 x 1 | 23 | 18 x 2 | 69 | 48 x 1/2 | 28.75 | 1 | 3 | 46 @ 9" | 12" | 0.351 | 0.655 | 0.887 | 1.034 | 1.085 | 2.212 | 4.121 | 5.568 | 6.487 | 6.801 |
| 120 | 18 x 1 | 18 x 1 | 24 | 18 x 2 | 72 | 48 x 1/2 | 30 | 1 | 3 | 48 @ 9" | 12" | 0.416 | 0.776 | 1.051 | 1.226 | 1.286 | 2.623 | 4.885 | 6.600 | 7.692 | 8.064 |
| 125 | 18 x 1 1/2 | 18 x 1 | 25 | 18 x 2 | 75 | 48 x 1/2 | 31.25 | 1 | 3 | 50 @ 9" | 12" | 0.449 | 0.837 | 1.131 | 1.319 | 1.383 | 2.626 | 4.886 | 6.591 | 7.677 | 8.048 |
| 130 | 18 x 1 1/2 | 18 x 1 1/2 | 26 | 18 x 2 | 78 | 48 x 1/2 | 32.5 | 2 | 5 | 52 @ 9" | 12" | 0.519 | 0.977 | 1.331 | 1.556 | 1.633 | 2.954 | 5.552 | 7.558 | 8.833 | 9.269 |
| 135 | 18 x 1 1/2 | 18 x 1 | 28.5 | 18 x 2 | 78 | 54 x 1/2 | 33.75 | 4 | 6 | 36 @ 9" | 12" | 0.494 | 0.922 | 1.247 | 1.454 | 1.525 | 2.819 | 5.249 | 7.087 | 8.253 | 8.653 |
| 140 | 18 x 1 1/2 | 20 x 1 | 31 | 20 x 2 | 78 | 54 x 1/2 | 35 | 4 | 6.5 | 20 @ 9" | 12" | 0.567 | 1.059 | 1.432 | 1.670 | 1.751 | 3.136 | 5.840 | 7.884 | 9.182 | 9.627 |




GIRDER ELEVATION
(SEE TABLE ABOVE)

Steel Market Development Institute

COMPOSITE PLATE GIRDER – PART. STIFF. WEB
10'–6" GIRDER SPACING – HYBRID

| DATE: | | | |
|---|---|---|---|
| 04/06/2012 | | DO NOT SCALE | |
| DRAFTED BY: | DESIGNED BY: | CHECKED BY: | SHEET NO: |
| GKM | ASB/SAM | KEB | 108 |

## COMPOSITE ROLLED BEAM WITH PART. STIFF. WEB – LIGHTEST WEIGHT DESIGNS

| SPAN (L) – ft. | GIRDER SPACING | | | | SELECTED SECTIONS | DIAPHRAGM SPACING (C) – ft. |
|---|---|---|---|---|---|---|
| | 6'–0" | 7'–6" | 9'–0" | 10'–6" | | |
| 40 | W21x62 | W21x73 | W24x76 | W24x84 | W30x108 | 20 |
| 45 | W24x68 | W21x101 | W27x84 | W30x90 | | 22.5 |
| 50 | W27x84 | W21x111 | W30x99 | W30x108 | | 25 |
| 55 | W30x90 | W24x117 | W30x116 | W33x118 | W36x135 | 27.5 |
| 60 | W30x108 | W27x129 | W33x118 | W36x135 | | 20 |
| 65 | W33x118 | W30x132 | W36x135 | W40x149 | W40x167 | 21.67 |
| 70 | W33x130 | W30x148 | W40x149 | W40x167 | | 23.33 |
| 75 | W36x135 | W36x150 | W40x167 | W36x182 | W36x210 | 25 |
| 80 | W40x149 | W36x160 | W36x182 | W36x210 | | 20 |
| 85 | W40x167 | W36x182 | W36x210 | W36x231 | W36x247 | 21.25 |
| 90 | W40x183 | W40x183 | W40x211 | W36x247 | | 22.5 |
| 95 | W40x211 | W40x199 | W40x235 | W40x249 | W44x262 | 23.75 |
| 100 | W44x230 | W40x211 | W40x249 | W44x262 | | 25 |

## COMPOSITE ROLLED BEAM WITH PART. STIFF. WEB – LIMITED DEPTH DESIGNS

| SPAN (L) – ft. | GIRDER SPACING | | | | SELECTED SECTIONS | DIAPHRAGM SPACING (C) – ft. |
|---|---|---|---|---|---|---|
| | 6'–0" | 7'–6" | 9'–0" | 10'–6" | | |
| 40 | W21x62 | W21x73 | W21x83 | W21x93 | W21x132 | 20 |
| 45 | W21x83 | W21x101 | W21x101 | W21x111 | | 22.5 |
| 50 | W21x111 | W21x111 | W21x122 | W21x132 | | 25 |
| 55 | W24x117 | W24x117 | W24x131 | W24x146 | W24x162 | 27.5 |
| 60 | W24x162 | W27x129 | W24x146 | W24x162 | | 20 |
| 65 | W24x192 | W30x132 | W24x176 | W24x192 | W27x194 | 21.67 |
| 70 | W27x194 | W30x148 | W27x178 | W27x194 | | 23.33 |
| 75 | W27x217 | W36x150 | W27x194 | W27x217 | W30x235 | 25 |
| 80 | W30x211 | W36x160 | W30x211 | W30x235 | | 20 |
| 85 | W33x221 | W36x182 | W33x221 | W33x241 | W33x291 | 21.25 |
| 90 | W33x241 | W40x183 | W33x241 | W33x291 | | 22.5 |
| 95 | W36x247 | W40x199 | W36x247 | W36x282 | W36x302 | 23.75 |
| 100 | W36x282 | W40x211 | W36x262 | W36x302 | | 25 |

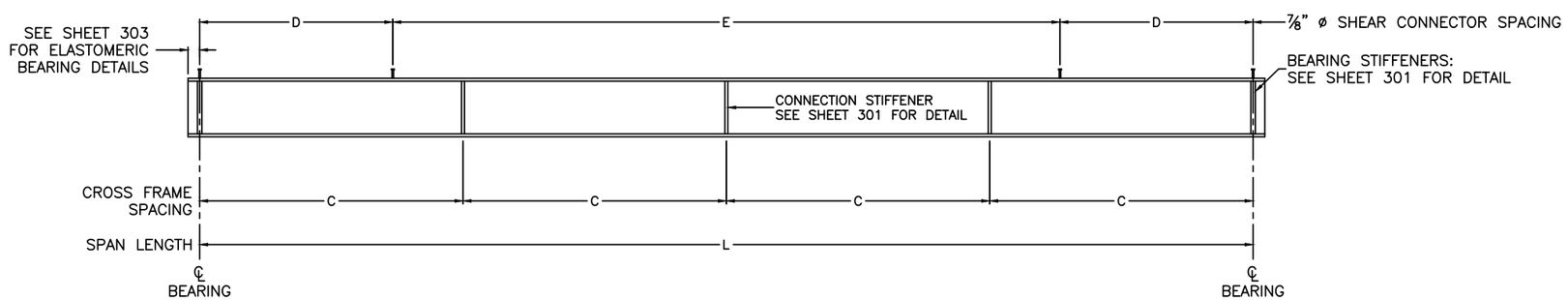
## COMPOSITE ROLLED BEAM WITH PART. STIFF. WEB – LIGHTEST WEIGHT DESIGNS

| SPAN (L) – ft. | SHEAR CONNECTOR MAX. SPACING (S = 6'–0") | | SHEAR CONNECTOR MAX. SPACING (S = 7'–6") | | SHEAR CONNECTOR MAX. SPACING (S = 9'–0") | | SHEAR CONNECTOR MAX. SPACING (S = 10'–6") | |
|---|---|---|---|---|---|---|---|---|
| | D | E | D | E | D | E | D | E |
| 40 | 6 @ 9" | 12" | – | 9" | 10 @ 6" | 9" | 10 @ 6" | 9" |
| 45 | 20 @ 9" | 12" | 20 @ 6" | 9" | 32 @ 6" | 9" | 20 @ 6" | 9" |
| 50 | 20 @ 9" | 12" | 20 @ 6" | 9" | 32 @ 6" | 9" | 20 @ 6" | 9" |
| 55 | 16 @ 9" | 12" | 12 @ 6" | 9" | 24 @ 6" | 9" | 24 @ 6" | 9" |
| 60 | 16 @ 9" | 12" | 12 @ 6" | 9" | 24 @ 6" | 9" | 24 @ 6" | 9" |
| 65 | 10 @ 9" | 12" | 28 @ 9" | 12" | 16 @ 6" | 9" | 16 @ 6" | 9" |
| 70 | 10 @ 9" | 12" | 28 @ 9" | 12" | 16 @ 6" | 9" | 16 @ 6" | 9" |
| 75 | 22 @ 9" | 12" | 20 @ 6" | 9" | 32 @ 6" | 9" | 32 @ 6" | 9" |
| 80 | 22 @ 9" | 12" | 20 @ 6" | 9" | 32 @ 6" | 9" | 32 @ 6" | 9" |
| 85 | 24 @ 9" | 12" | 18 @ 6" | 9" | 36 @ 6" | 9" | 36 @ 6" | 9" |
| 90 | 24 @ 9" | 12" | 18 @ 6" | 9" | 36 @ 6" | 9" | 36 @ 6" | 9" |
| 95 | 30 @ 12" | 15" | 40 @ 9" | 12" | – | 9" | 22 @ 6" | 9" |
| 100 | 30 @ 12" | 15" | 40 @ 9" | 12" | – | 9" | 22 @ 6" | 9" |

## COMPOSITE ROLLED BEAM WITH PART. STIFF. WEB – LIMITED DEPTH DESIGNS

| SPAN (L) – ft. | SHEAR CONNECTOR MAX. SPACING (S = 6'–0") | | SHEAR CONNECTOR MAX. SPACING (S = 7'–6") | | SHEAR CONNECTOR MAX. SPACING (S = 9'–0") | | SHEAR CONNECTOR MAX. SPACING (S = 10'–6") | |
|---|---|---|---|---|---|---|---|---|
| | D | E | D | E | D | E | D | E |
| 40 | – | 8" | – | 8" | – | 6" | 24 @ 6" | 8" |
| 45 | – | 9" | 18 @ 6" | 9" | 36 @ 6" | 9" | 27 @ 6" | 8" |
| 50 | – | 8" | 32 @ 6" | 9" | 30 @ 6" | 8" | 40 @ 6" | 8" |
| 55 | 30 @ 9" | 12" | 22 @ 6" | 9" | 34 @ 6" | 9" | 33 @ 6" | 8" |
| 60 | 30 @ 8" | 10" | 36 @ 6" | 9" | 48 @ 6" | 9" | 48 @ 6" | 8" |
| 65 | 26 @ 9" | 12" | 20 @ 8" | 10" | 26 @ 6" | 9" | 41 @ 6" | 9" |
| 70 | 38 @ 9" | 12" | 28 @ 6" | 9" | 43 @ 6" | 9" | 58 @ 6" | 9" |
| 75 | 27 @ 10" | 12" | 40 @ 9" | 12" | 30 @ 6" | 9" | 60 @ 6" | 9" |
| 80 | 30 @ 10" | 12" | 44 @ 9" | 12" | 32 @ 6" | 9" | 65 @ 6" | 9" |
| 85 | 30 @ 12" | 15" | 24 @ 9" | 12" | 46 @ 9" | 12" | 34 @ 6" | 9" |
| 90 | 50 @ 9" | 15" | 36 @ 9" | 12" | 45 @ 8" | 10" | 54 @ 6" | 9" |
| 95 | 30 @ 12" | 15" | 26 @ 9" | 12" | 52 @ 9" | 12" | 20 @ 6" | 9" |
| 100 | 36 @ 10" | 14" | 40 @ 9" | 12" | 25 @ 6" | 9" | 40 @ 6" | 9" |

NOTE: SHEAR CONNECTOR SPACINGS SHOWN ARE BASED ON SELECTED SECTIONS



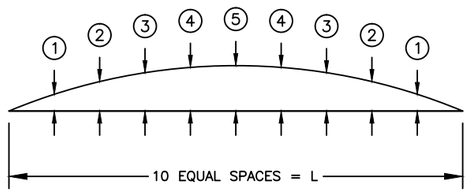

BEAM ELEVATION
(SEE TABLE ABOVE)

Steel Market Development Institute

COMPOSITE ROLLED BEAM – PART. STIFF. WEB DESIGNS

| DATE: | |
|---|---|
| 04/06/2012 | DO NOT SCALE |

| DRAFTED BY: | DESIGNED BY: | CHECKED BY: | SHEET NO: |
|---|---|---|---|
| GKM | ASB/SAM | KEB | 201 |




D.L. CAMBER
(SEE TABLE BELOW)

## LIGHTEST WEIGHT DESIGN CAMBERS – 6'–0" GIRDER SPACING

| SPAN (L) – ft. | SELECTED SECTIONS | STEEL D.L. CAMBER – in. | | | | | TOTAL D.L. CAMBER – in. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 40 | W30x108 | 0.019 | 0.035 | 0.048 | 0.056 | 0.059 | 0.136 | 0.256 | 0.352 | 0.411 | 0.432 |
| 45 | | 0.032 | 0.061 | 0.083 | 0.097 | 0.102 | 0.234 | 0.442 | 0.605 | 0.708 | 0.744 |
| 50 | | 0.045 | 0.086 | 0.117 | 0.137 | 0.144 | 0.332 | 0.627 | 0.858 | 1.005 | 1.055 |
| 55 | W36x135 | 0.055 | 0.105 | 0.143 | 0.167 | 0.176 | 0.372 | 0.704 | 0.963 | 1.128 | 1.184 |
| 60 | | 0.065 | 0.123 | 0.168 | 0.197 | 0.207 | 0.412 | 0.780 | 1.067 | 1.250 | 1.312 |
| 65 | W40x167 | 0.081 | 0.154 | 0.210 | 0.246 | 0.258 | 0.474 | 0.897 | 1.228 | 1.438 | 1.510 |
| 70 | | 0.097 | 0.184 | 0.252 | 0.295 | 0.309 | 0.536 | 1.014 | 1.388 | 1.626 | 1.707 |
| 75 | W36x210 | 0.138 | 0.261 | 0.357 | 0.418 | 0.438 | 0.689 | 1.304 | 1.785 | 2.091 | 2.195 |
| 80 | | 0.178 | 0.337 | 0.461 | 0.540 | 0.567 | 0.842 | 1.594 | 2.182 | 2.556 | 2.683 |
| 85 | W36x247 | 0.219 | 0.415 | 0.568 | 0.665 | 0.698 | 0.980 | 1.855 | 2.539 | 2.974 | 3.122 |
| 90 | | 0.260 | 0.493 | 0.674 | 0.790 | 0.829 | 1.118 | 2.115 | 2.895 | 3.391 | 3.560 |
| 95 | W44x262 | 0.275 | 0.521 | 0.713 | 0.835 | 0.877 | 1.157 | 2.190 | 2.997 | 3.511 | 3.687 |
| 100 | | 0.290 | 0.549 | 0.751 | 0.880 | 0.924 | 1.196 | 2.264 | 3.099 | 3.631 | 3.813 |

## LIGHTEST WEIGHT DESIGN CAMBERS – 7'–6" GIRDER SPACING

| SPAN (L) – ft. | SELECTED SECTIONS | STEEL D.L. CAMBER – in. | | | | | TOTAL D.L. CAMBER – in. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 40 | W30x108 | 0.019 | 0.035 | 0.048 | 0.056 | 0.059 | 0.159 | 0.300 | 0.411 | 0.480 | 0.505 |
| 45 | | 0.032 | 0.061 | 0.083 | 0.097 | 0.102 | 0.273 | 0.516 | 0.707 | 0.827 | 0.869 |
| 50 | | 0.045 | 0.086 | 0.117 | 0.137 | 0.144 | 0.387 | 0.732 | 1.002 | 1.173 | 1.232 |
| 55 | W36x135 | 0.055 | 0.105 | 0.143 | 0.167 | 0.176 | 0.432 | 0.818 | 1.119 | 1.311 | 1.376 |
| 60 | | 0.065 | 0.123 | 0.168 | 0.197 | 0.207 | 0.477 | 0.903 | 1.236 | 1.448 | 1.520 |
| 65 | W40x167 | 0.081 | 0.154 | 0.210 | 0.246 | 0.258 | 0.548 | 1.036 | 1.419 | 1.662 | 1.744 |
| 70 | | 0.097 | 0.184 | 0.252 | 0.295 | 0.309 | 0.618 | 1.169 | 1.601 | 1.875 | 1.968 |
| 75 | W36x210 | 0.138 | 0.261 | 0.357 | 0.418 | 0.438 | 0.793 | 1.499 | 2.052 | 2.404 | 2.523 |
| 80 | | 0.178 | 0.337 | 0.461 | 0.540 | 0.567 | 0.967 | 1.829 | 2.503 | 2.932 | 3.078 |
| 85 | W36x247 | 0.219 | 0.415 | 0.568 | 0.665 | 0.698 | 1.122 | 2.122 | 2.904 | 3.402 | 3.572 |
| 90 | | 0.260 | 0.493 | 0.674 | 0.790 | 0.829 | 1.277 | 2.415 | 3.305 | 3.872 | 4.065 |
| 95 | W44x262 | 0.275 | 0.521 | 0.713 | 0.835 | 0.877 | 1.321 | 2.498 | 3.419 | 4.005 | 4.206 |
| 100 | | 0.290 | 0.549 | 0.751 | 0.880 | 0.924 | 1.365 | 2.581 | 3.533 | 4.138 | 4.346 |

## LIGHTEST WEIGHT DESIGN CAMBERS – 9'–0" GIRDER SPACING

| SPAN (L) – ft. | SELECTED SECTIONS | STEEL D.L. CAMBER – in. | | | | | TOTAL D.L. CAMBER – in. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 40 | W30x108 | 0.019 | 0.035 | 0.048 | 0.056 | 0.059 | 0.182 | 0.344 | 0.470 | 0.550 | 0.579 |
| 45 | | 0.032 | 0.061 | 0.083 | 0.097 | 0.102 | 0.313 | 0.592 | 0.810 | 0.948 | 0.996 |
| 50 | | 0.045 | 0.086 | 0.117 | 0.137 | 0.144 | 0.443 | 0.840 | 1.149 | 1.346 | 1.412 |
| 55 | W36x135 | 0.055 | 0.105 | 0.143 | 0.167 | 0.176 | 0.494 | 0.935 | 1.279 | 1.499 | 1.573 |
| 60 | | 0.065 | 0.123 | 0.168 | 0.197 | 0.207 | 0.545 | 1.030 | 1.409 | 1.652 | 1.734 |
| 65 | W40x167 | 0.081 | 0.154 | 0.210 | 0.246 | 0.258 | 0.623 | 1.178 | 1.612 | 1.889 | 1.983 |
| 70 | | 0.097 | 0.184 | 0.252 | 0.295 | 0.309 | 0.700 | 1.325 | 1.814 | 2.125 | 2.231 |
| 75 | W36x210 | 0.138 | 0.261 | 0.357 | 0.418 | 0.438 | 0.895 | 1.692 | 2.316 | 2.713 | 2.849 |
| 80 | | 0.178 | 0.337 | 0.461 | 0.540 | 0.567 | 1.089 | 2.059 | 2.818 | 3.301 | 3.466 |
| 85 | W36x247 | 0.219 | 0.415 | 0.568 | 0.665 | 0.698 | 1.259 | 2.381 | 3.259 | 3.817 | 4.008 |
| 90 | | 0.260 | 0.493 | 0.674 | 0.790 | 0.829 | 1.429 | 2.703 | 3.699 | 4.333 | 4.549 |
| 95 | W44x262 | 0.275 | 0.521 | 0.713 | 0.835 | 0.877 | 1.477 | 2.793 | 3.823 | 4.478 | 4.701 |
| 100 | | 0.290 | 0.549 | 0.751 | 0.880 | 0.924 | 1.524 | 2.883 | 3.946 | 4.622 | 4.853 |

## LIGHTEST WEIGHT DESIGN CAMBERS – 10'–6" GIRDER SPACING

| SPAN (L) – ft. | SELECTED SECTIONS | STEEL D.L. CAMBER – in. | | | | | TOTAL D.L. CAMBER – in. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 40 | W30x108 | 0.019 | 0.035 | 0.048 | 0.056 | 0.059 | 0.211 | 0.399 | 0.547 | 0.640 | 0.673 |
| 45 | | 0.032 | 0.061 | 0.083 | 0.097 | 0.102 | 0.363 | 0.687 | 0.940 | 1.101 | 1.156 |
| 50 | | 0.045 | 0.086 | 0.117 | 0.137 | 0.144 | 0.515 | 0.975 | 1.333 | 1.561 | 1.639 |
| 55 | W36x135 | 0.055 | 0.105 | 0.143 | 0.167 | 0.176 | 0.573 | 1.084 | 1.484 | 1.738 | 1.824 |
| 60 | | 0.065 | 0.123 | 0.168 | 0.197 | 0.207 | 0.631 | 1.193 | 1.634 | 1.914 | 2.009 |
| 65 | W40x167 | 0.081 | 0.154 | 0.210 | 0.246 | 0.258 | 0.721 | 1.363 | 1.867 | 2.186 | 2.295 |
| 70 | | 0.097 | 0.184 | 0.252 | 0.295 | 0.309 | 0.810 | 1.532 | 2.100 | 2.458 | 2.580 |
| 75 | W36x210 | 0.138 | 0.261 | 0.357 | 0.418 | 0.438 | 1.033 | 1.954 | 2.675 | 3.133 | 3.289 |
| 80 | | 0.178 | 0.337 | 0.461 | 0.540 | 0.567 | 1.255 | 2.375 | 3.250 | 3.807 | 3.997 |
| 85 | W36x247 | 0.219 | 0.415 | 0.568 | 0.665 | 0.698 | 1.449 | 2.743 | 3.754 | 4.397 | 4.617 |
| 90 | | 0.260 | 0.493 | 0.674 | 0.790 | 0.829 | 1.643 | 3.110 | 4.258 | 4.987 | 5.236 |
| 95 | W44x262 | 0.275 | 0.521 | 0.713 | 0.835 | 0.877 | 1.698 | 3.213 | 4.399 | 5.152 | 5.409 |
| 100 | | 0.290 | 0.549 | 0.751 | 0.880 | 0.924 | 1.752 | 3.316 | 4.539 | 5.317 | 5.582 |

NOTES:

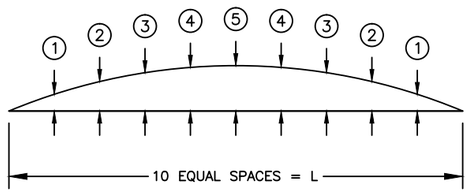
1. CAMBERS LISTED ON THIS SHEET CORRESPOND TO THE "SELECTED SECTIONS" SHOWN.

Steel Market Development Institute

COMPOSITE ROLLED BEAM – PART. STIFF. WEB
LIGHTEST WEIGHT DESIGN CAMBER TABLES

| DATE: | |
|---|---|
| 04/06/2012 | DO NOT SCALE |

| DRAFTED BY: | DESIGNED BY: | CHECKED BY: | SHEET NO: |
|---|---|---|---|
| GKM | ASB/SAM | KEB | 202 |




D.L. CAMBER
(SEE TABLE BELOW)

## LIMITED DEPTH DESIGN CAMBERS – 6'–0" GIRDER SPACING

| SPAN (L) – ft. | SELECTED SECTIONS | STEEL D.L. CAMBER – in. | | | | | TOTAL D.L. CAMBER – in. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 40 | W21x132 | 0.030 | 0.058 | 0.079 | 0.092 | 0.097 | 0.193 | 0.368 | 0.502 | 0.587 | 0.618 |
| 45 | | 0.049 | 0.092 | 0.126 | 0.148 | 0.155 | 0.311 | 0.587 | 0.803 | 0.942 | 0.989 |
| 50 | | 0.074 | 0.141 | 0.193 | 0.225 | 0.237 | 0.473 | 0.896 | 1.225 | 1.435 | 1.507 |
| 55 | W24x162 | 0.081 | 0.153 | 0.209 | 0.245 | 0.258 | 0.453 | 0.854 | 1.168 | 1.369 | 1.439 |
| 60 | | 0.115 | 0.217 | 0.297 | 0.348 | 0.365 | 0.640 | 1.211 | 1.657 | 1.940 | 2.037 |
| 65 | W27x194 | 0.122 | 0.230 | 0.315 | 0.369 | 0.388 | 0.606 | 1.144 | 1.567 | 1.836 | 1.928 |
| 70 | | 0.164 | 0.310 | 0.424 | 0.497 | 0.521 | 0.814 | 1.541 | 2.108 | 2.470 | 2.593 |
| 75 | W30x235 | 0.172 | 0.325 | 0.445 | 0.521 | 0.547 | 0.757 | 1.431 | 1.959 | 2.294 | 2.408 |
| 80 | | 0.222 | 0.421 | 0.576 | 0.675 | 0.709 | 0.979 | 1.853 | 2.536 | 2.970 | 3.117 |
| 85 | W33x291 | 0.228 | 0.431 | 0.590 | 0.691 | 0.726 | 0.874 | 1.654 | 2.263 | 2.650 | 2.783 |
| 90 | | 0.286 | 0.542 | 0.742 | 0.869 | 0.912 | 1.097 | 2.077 | 2.844 | 3.331 | 3.496 |
| 95 | W36x302 | 0.308 | 0.583 | 0.798 | 0.935 | 0.982 | 1.157 | 2.190 | 2.998 | 3.511 | 3.688 |
| 100 | | 0.378 | 0.716 | 0.980 | 1.147 | 1.205 | 1.420 | 2.688 | 3.681 | 4.310 | 4.526 |

## LIMITED DEPTH DESIGN CAMBERS – 7'–6" GIRDER SPACING

| SPAN (L) – ft. | SELECTED SECTIONS | STEEL D.L. CAMBER – in. | | | | | TOTAL D.L. CAMBER – in. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 40 | W21x132 | 0.030 | 0.058 | 0.079 | 0.092 | 0.097 | 0.228 | 0.431 | 0.590 | 0.691 | 0.726 |
| 45 | | 0.049 | 0.092 | 0.126 | 0.148 | 0.155 | 0.365 | 0.691 | 0.945 | 1.107 | 1.162 |
| 50 | | 0.074 | 0.141 | 0.193 | 0.225 | 0.237 | 0.557 | 1.053 | 1.442 | 1.687 | 1.772 |
| 55 | W24x162 | 0.081 | 0.153 | 0.209 | 0.245 | 0.258 | 0.528 | 0.998 | 1.366 | 1.601 | 1.681 |
| 60 | | 0.115 | 0.217 | 0.297 | 0.348 | 0.365 | 0.747 | 1.415 | 1.937 | 2.268 | 2.381 |
| 65 | W27x194 | 0.122 | 0.230 | 0.315 | 0.369 | 0.388 | 0.704 | 1.331 | 1.822 | 2.135 | 2.241 |
| 70 | | 0.164 | 0.310 | 0.424 | 0.497 | 0.521 | 0.947 | 1.791 | 2.451 | 2.872 | 3.014 |
| 75 | W30x235 | 0.172 | 0.325 | 0.445 | 0.521 | 0.547 | 0.875 | 1.654 | 2.263 | 2.651 | 2.783 |
| 80 | | 0.222 | 0.421 | 0.576 | 0.675 | 0.709 | 1.132 | 2.141 | 2.930 | 3.432 | 3.604 |
| 85 | W33x291 | 0.228 | 0.431 | 0.590 | 0.691 | 0.726 | 1.004 | 1.898 | 2.599 | 3.044 | 3.197 |
| 90 | | 0.286 | 0.542 | 0.742 | 0.869 | 0.912 | 1.261 | 2.386 | 3.267 | 3.826 | 4.017 |
| 95 | W36x302 | 0.308 | 0.583 | 0.798 | 0.935 | 0.982 | 1.327 | 2.512 | 3.439 | 4.029 | 4.230 |
| 100 | | 0.378 | 0.716 | 0.980 | 1.147 | 1.205 | 1.630 | 3.084 | 4.221 | 4.944 | 5.192 |

## LIMITED DEPTH DESIGN CAMBERS – 9'–0" GIRDER SPACING

| SPAN (L) – ft. | SELECTED SECTIONS | STEEL D.L. CAMBER – in. | | | | | TOTAL D.L. CAMBER – in. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 40 | W21x132 | 0.030 | 0.058 | 0.079 | 0.092 | 0.097 | 0.257 | 0.487 | 0.667 | 0.780 | 0.819 |
| 45 | | 0.049 | 0.092 | 0.126 | 0.148 | 0.155 | 0.412 | 0.780 | 1.068 | 1.251 | 1.312 |
| 50 | | 0.074 | 0.141 | 0.192 | 0.225 | 0.237 | 0.627 | 1.188 | 1.626 | 1.905 | 2.001 |
| 55 | W24x162 | 0.081 | 0.153 | 0.209 | 0.245 | 0.257 | 0.593 | 1.120 | 1.532 | 1.795 | 1.885 |
| 60 | | 0.115 | 0.217 | 0.297 | 0.347 | 0.365 | 0.839 | 1.587 | 2.172 | 2.544 | 2.672 |
| 65 | W27x194 | 0.122 | 0.230 | 0.315 | 0.369 | 0.387 | 0.785 | 1.485 | 2.034 | 2.382 | 2.501 |
| 70 | | 0.164 | 0.310 | 0.424 | 0.496 | 0.521 | 1.057 | 1.998 | 2.735 | 3.204 | 3.363 |
| 75 | W30x235 | 0.172 | 0.325 | 0.445 | 0.521 | 0.547 | 0.970 | 1.835 | 2.512 | 2.942 | 3.089 |
| 80 | | 0.222 | 0.421 | 0.576 | 0.674 | 0.708 | 1.256 | 2.376 | 3.252 | 3.807 | 3.998 |
| 85 | W33x291 | 0.228 | 0.431 | 0.590 | 0.691 | 0.725 | 1.107 | 2.093 | 2.867 | 3.356 | 3.524 |
| 90 | | 0.286 | 0.541 | 0.741 | 0.868 | 0.912 | 1.390 | 2.630 | 3.602 | 4.217 | 4.429 |
| 95 | W36x302 | 0.308 | 0.583 | 0.798 | 0.934 | 0.981 | 1.462 | 2.767 | 3.789 | 4.436 | 4.658 |
| 100 | | 0.378 | 0.715 | 0.979 | 1.147 | 1.204 | 1.796 | 3.397 | 4.650 | 5.445 | 5.719 |

## LIMITED DEPTH DESIGN CAMBERS – 10'–6" GIRDER SPACING

| SPAN (L) – ft. | SELECTED SECTIONS | STEEL D.L. CAMBER – in. | | | | | TOTAL D.L. CAMBER – in. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 40 | W21x132 | 0.030 | 0.058 | 0.079 | 0.092 | 0.097 | 0.298 | 0.564 | 0.772 | 0.904 | 0.949 |
| 45 | | 0.049 | 0.092 | 0.126 | 0.148 | 0.155 | 0.478 | 0.903 | 1.235 | 1.447 | 1.519 |
| 50 | | 0.074 | 0.141 | 0.192 | 0.225 | 0.237 | 0.727 | 1.377 | 1.883 | 2.205 | 2.317 |
| 55 | W24x162 | 0.081 | 0.153 | 0.209 | 0.245 | 0.257 | 0.684 | 1.294 | 1.773 | 2.076 | 2.179 |
| 60 | | 0.115 | 0.217 | 0.297 | 0.347 | 0.365 | 0.970 | 1.835 | 2.511 | 2.941 | 3.088 |
| 65 | W27x194 | 0.122 | 0.230 | 0.315 | 0.369 | 0.387 | 0.907 | 1.714 | 2.346 | 2.748 | 2.886 |
| 70 | | 0.164 | 0.310 | 0.424 | 0.496 | 0.521 | 1.220 | 2.306 | 3.157 | 3.697 | 3.882 |
| 75 | W30x235 | 0.172 | 0.325 | 0.445 | 0.521 | 0.547 | 1.116 | 2.113 | 2.893 | 3.389 | 3.558 |
| 80 | | 0.222 | 0.421 | 0.576 | 0.674 | 0.708 | 1.445 | 2.736 | 3.745 | 4.384 | 4.605 |
| 85 | W33x291 | 0.228 | 0.431 | 0.590 | 0.691 | 0.725 | 1.272 | 2.405 | 3.291 | 3.854 | 4.047 |
| 90 | | 0.286 | 0.541 | 0.741 | 0.868 | 0.912 | 1.597 | 3.020 | 4.136 | 4.843 | 5.086 |
| 95 | W36x302 | 0.308 | 0.583 | 0.798 | 0.934 | 0.981 | 1.678 | 3.176 | 4.348 | 5.091 | 5.346 |
| 100 | | 0.378 | 0.715 | 0.979 | 1.147 | 1.204 | 2.060 | 3.898 | 5.336 | 6.249 | 6.562 |

NOTES:

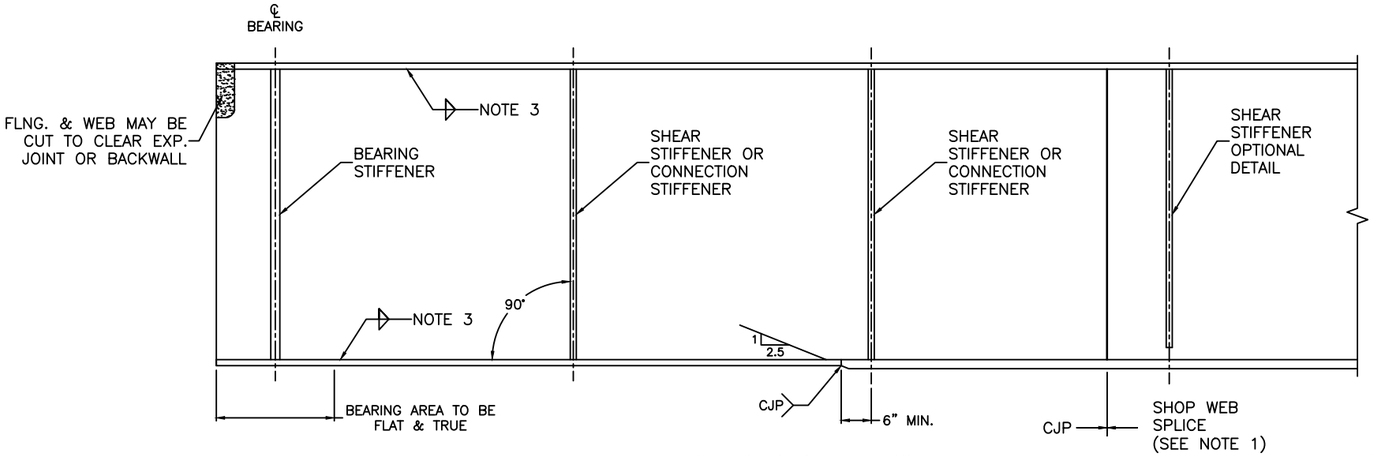
1. CAMBERS LISTED ON THIS SHEET CORRESPOND TO THE "SELECTED SECTIONS" SHOWN.

Steel Market Development Institute

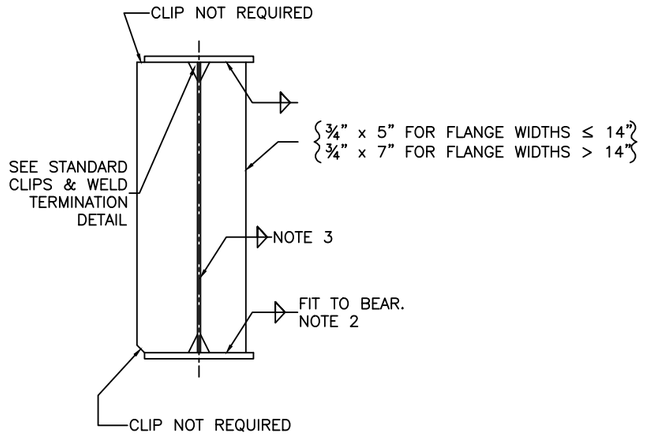
COMPOSITE ROLLED BEAM – PART. STIFF. WEB
LIMITED DEPTH DESIGN CAMBER TABLES

| DATE: | |
|---|---|
| 04/06/2012 | DO NOT SCALE |

| DRAFTED BY: | DESIGNED BY: | CHECKED BY: | SHEET NO: |
|---|---|---|---|
| GKM | ASB/SAM | KEB | 203 |

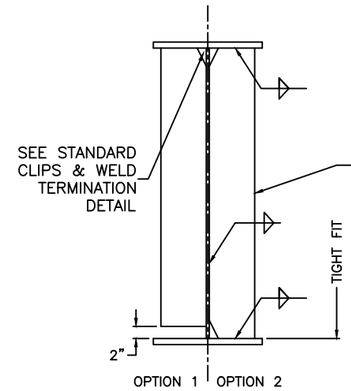



TYPICAL GIRDER ELEVATION
(N.T.S.)

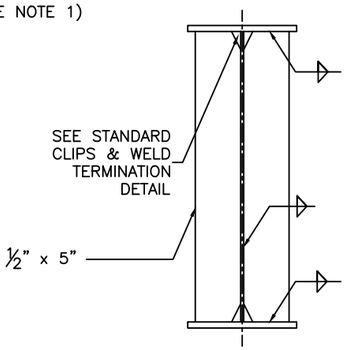



BEARING STIFFENER
(N.T.S.)

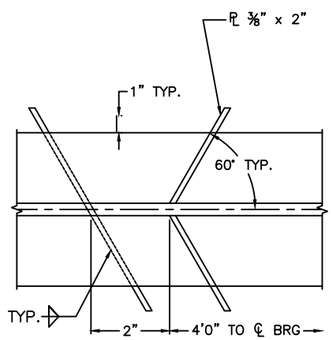
BEARING STIFFENER TO FLANGE WELDING IS REQUIRED IF A DIAPHRAGM OR CROSS FRAME IS ATTACHED TO THE STIFFENER




SHEAR STIFFENER
(N.T.S.)

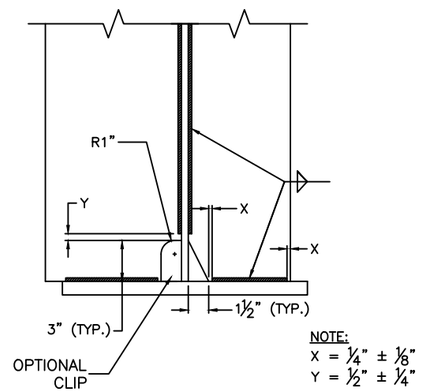



CONNECTION STIFFENER
(N.T.S.)




DRIP BAR DETAIL
(N.T.S.)

SEAL GAPS AT WEB W/ CAULK MATCHING COLOR OF WEATHERED STEEL




STANDARD CLIP & WELD TERMINATION DETAIL
(N.T.S.)

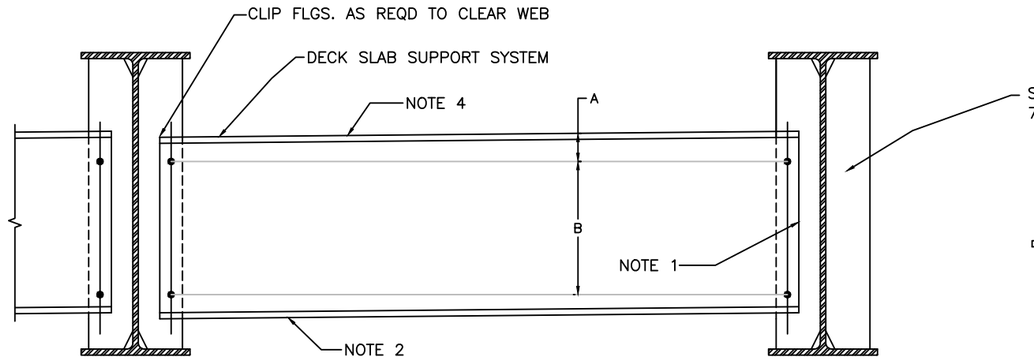
NOTES:

1. ALL CJP WELDS TO BE GROUND AND TESTED PER STATE SPECIFICATIONS.
2. FIT TO BEARING IS TO BE 50% IN CONTACT WITH FLANGE AND WITHIN 1/16" FOR REMAINDER.
3. MT 1' OF EVERY 10' (EXTENTS OF MAG PARTICLE INSPECTION FOR FILLET WELDS) –OR– SEE STATE SPECS

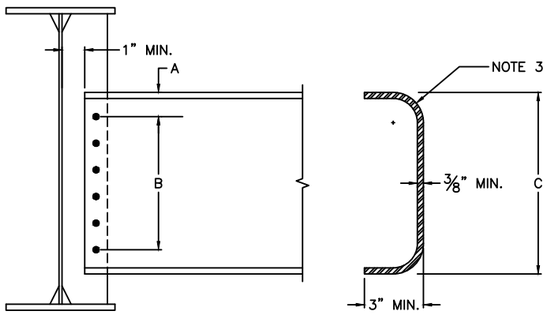
Steel Market Development Institute

TYPICAL GIRDER DETAILS

| DATE: | | | |
|---|---|---|---|
| 04/06/2012 | | DO NOT SCALE | |
| DRAFTED BY: | DESIGNED BY: | CHECKED BY: | SHEET NO: |
| GKM | ASB/SAM | KEB | 301 |




END DIAPHRAGM
(N.T.S.)

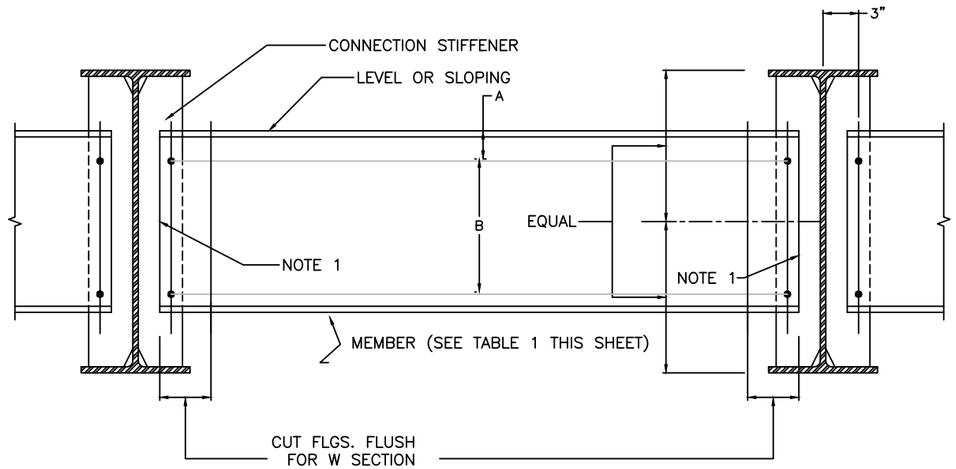




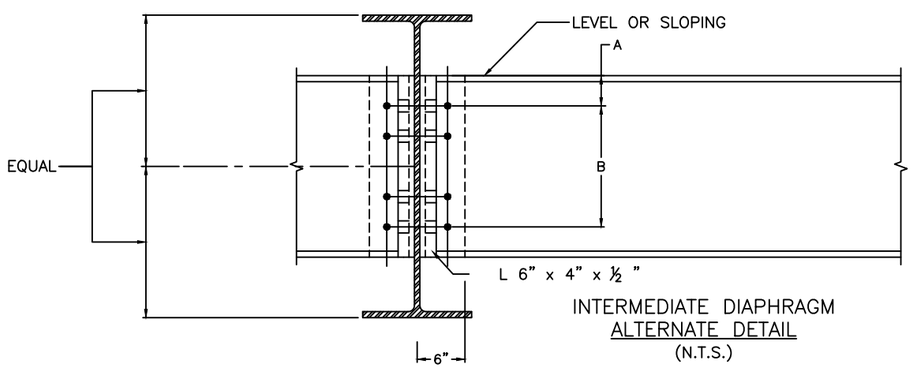


BENT PLATE DIAPHRAGM
(N.T.S.)

(CAN BE USED AS ALTERNATE TO ROLLED SHAPE DIAPHRAGM)




INTERMEDIATE DIAPHRAGM
(N.T.S.)




INTERMEDIATE DIAPHRAGM
ALTERNATE DETAIL
(N.T.S.)

| TABLE 1 | | | | |
|---|---|---|---|---|
| DEPTH OF STRINGER OR GIRDER WEB | DIAPHRAGM SIZE | DIMENSIONS | | |
| | | A | B | C |
| ≤ 30" | C15x33.9 | 3" | 3 @ 3" | 15" |
| 30" < X ≤ 36" | MC18x42.7 | 3" | 4 @ 3" | 18" |
| > 36" | W30x90 | 5" | 5 @ 4" | 30" |

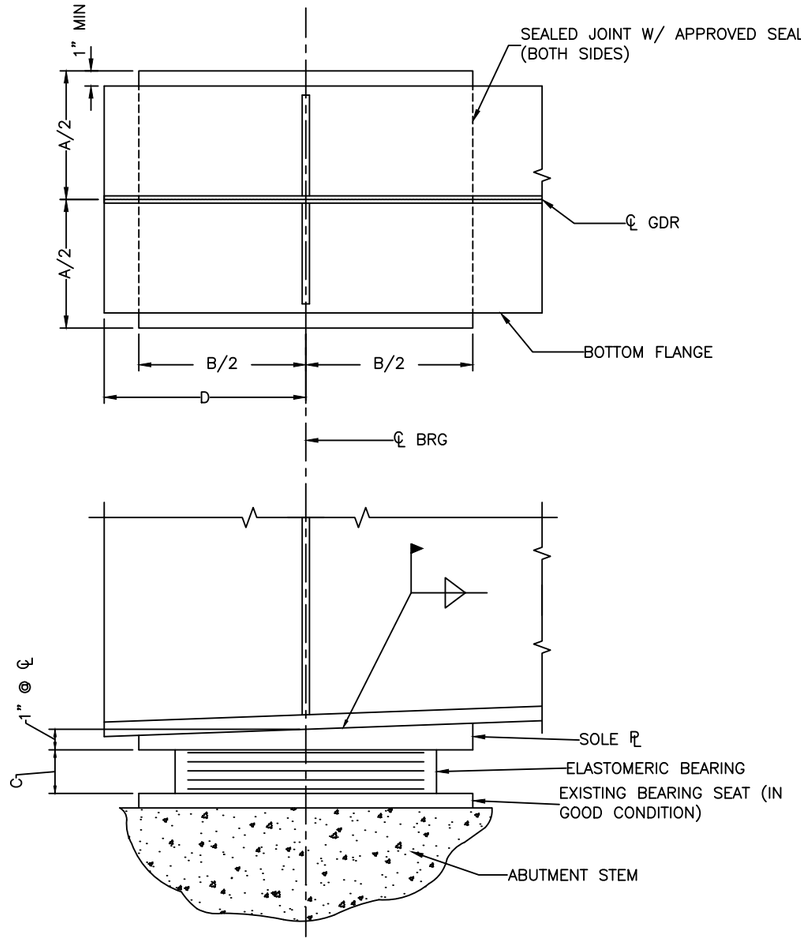
ROLLED BEAM & BENT PLATE DIAPHRAGM NOTES:

1. SLOPE DIAPHRAGM AND KEEP HOLES VERTICAL IN STIFFENER AT CONSTANT DIMENSIONS (TO KEEP ALL STIFFENERS THE SAME) AND CUT ENDS OF DIAPHRAGM SQUARE.
2. AT EXPANSION JOINT, ORIENT CHANNEL FLANGES AWAY FROM JOINT OPENING.
3. MINIMUM RADIUS AS PER AASHTO/NSBA FABRICATION S2.1 TABLE 4.3.2–1. PER SECTION 4.3.2, IF THE BEND IS PARALLEL TO DIRECTION OF ROLLING, MULTIPLY THE MINIMUM RADII BY 1.5.
4. ALL HOLES TO BE 15/16" ø FOR 7/8" ø HS BOLTS, ASTM A325 TYPE 3 W/ F436–3 WASHERS (RCT).
5. THREADS EXCLUDED FROM SHEAR PLANE.

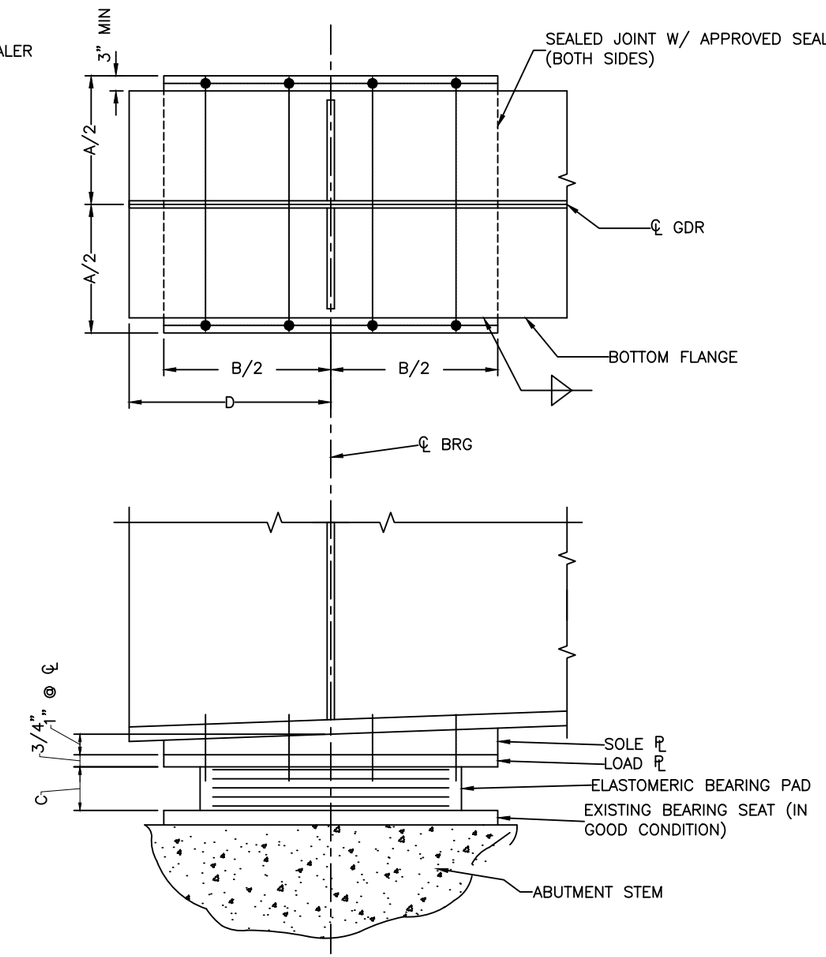
Steel Market Development Institute

ROLLED SHAPE & BENT PLATE DIAPHRAGM DETAILS

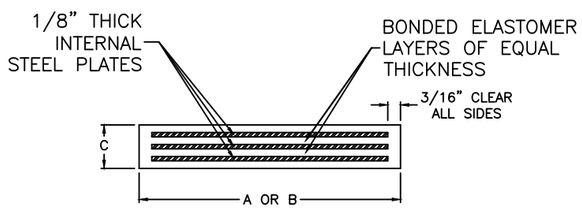
| DATE: | | | |
|---|---|---|---|
| 04/06/2012 | | DO NOT SCALE | |
| DRAFTED BY: | DESIGNED BY: | CHECKED BY: | SHEET NO: |
| GKM | ASB/SAM | KEB | 302 |




BEARING ELEVATION
OPTION "A"
(N.T.S.)




BEARING ELEVATION
OPTION "B"
(N.T.S.)




SECTION VIEW OF ELASTOMERIC BEARING
(N.T.S.)

NOTES:

1. BEVEL SOLE PL IF GRADE EXCEEDS ± 1%.
2. MAX GRADE IS ± 5%.
3. SOLE PL TO BE FACTORY VULCANIZED TO ELASTOMERIC BEARING PAD.
4. HOLES TO BE 1 1/16" ø IN SOLE PL FOR 7/8" ø BOLT.
5. DIMENSIONS FOR THESE BEARINGS FOUND ON SHEETS 304–307.
6. ALL ELASTOMERIC COVER LAYERS ARE 1/4" THICK.

COMMENTARY:

1. CARE MUST BE EXERCISED WITH THE FIELD WELDING. THE TEMPERATURE OF THE STEEL ADJACENT TO THE BEARING MUST BE KEPT BELOW 250°F (120°C). TEMPERATURE CRAYONS SHOULD BE USED TO MONITOR THE STEEL TEMPERATURE DURING WELDING.

Steel Market Development Institute

ELASTOMERIC BEARING DETAILS

| DATE: | | | |
|---|---|---|---|
| 04/06/2012 | | DO NOT SCALE | |
| DRAFTED BY: | DESIGNED BY: | CHECKED BY: | SHEET NO: |
| GKM | ASB/SAM | KEB | 303 |

# ELASTOMERIC BEARING DETAILS – COMPOSITE ROLLED BEAMS – LIGHTEST WEIGHT DESIGNS

| BEARING SCHEDULE – 6'–0" GIRDER SPACING | | | | | | |
|---|---|---|---|---|---|---|
| SPAN (L) – ft. | ELASTOMERIC BEARING DIMENSIONS – in. | | | | | |
| | A | B | C | D | INTERNAL ELASTOMER LAYERS | |
| | | | | | NO. OF LAYERS | THICKNESS – in. |
| 40 | 12 | 14 | 3.125 | 12 | 4 | 0.5 |
| 45 | 12 | 14 | 3.125 | 12 | 4 | 0.5 |
| 50 | 12 | 14 | 3.125 | 12 | 4 | 0.5 |
| 55 | 12 | 14 | 3.125 | 12 | 4 | 0.5 |
| 60 | 12 | 16 | 3.125 | 12 | 4 | 0.5 |
| 65 | 14 | 14 | 3.125 | 12 | 4 | 0.5 |
| 70 | 14 | 16 | 3.75 | 12 | 5 | 0.5 |
| 75 | 14 | 14 | 3.125 | 12 | 4 | 0.5 |
| 80 | 14 | 16 | 3.125 | 12 | 4 | 0.5 |
| 85 | 15 | 14 | 3.125 | 12 | 4 | 0.5 |
| 90 | 15 | 15 | 3.125 | 12 | 4 | 0.5 |
| 95 | 16 | 14 | 3.125 | 12 | 4 | 0.5 |
| 100 | 16 | 15 | 3.625 | 12 | 4 | 0.625 |

| BEARING SCHEDULE – 7'–6" GIRDER SPACING | | | | | | |
|---|---|---|---|---|---|---|
| SPAN (L) – ft. | ELASTOMERIC BEARING DIMENSIONS – in. | | | | | |
| | A | B | C | D | INTERNAL ELASTOMER LAYERS | |
| | | | | | NO. OF LAYERS | THICKNESS – in. |
| 40 | 12 | 14 | 3.125 | 12 | 4 | 0.5 |
| 45 | 12 | 14 | 3.125 | 12 | 4 | 0.5 |
| 50 | 12 | 14 | 3.125 | 12 | 4 | 0.5 |
| 55 | 12 | 16 | 3.125 | 12 | 4 | 0.5 |
| 60 | 12 | 16 | 3.125 | 12 | 4 | 0.5 |
| 65 | 14 | 14 | 3.125 | 12 | 4 | 0.5 |
| 70 | 14 | 16 | 3.125 | 12 | 4 | 0.5 |
| 75 | 14 | 16 | 3.125 | 12 | 4 | 0.5 |
| 80 | 14 | 16 | 3.125 | 12 | 4 | 0.5 |
| 85 | 15 | 15 | 3.125 | 12 | 4 | 0.5 |
| 90 | 15 | 15 | 3.125 | 12 | 4 | 0.5 |
| 95 | 16 | 14 | 3.125 | 12 | 4 | 0.5 |
| 100 | 16 | 17 | 4.375 | 12 | 5 | 0.625 |

| BEARING SCHEDULE – 9'–0" GIRDER SPACING | | | | | | |
|---|---|---|---|---|---|---|
| SPAN (L) – ft. | ELASTOMERIC BEARING DIMENSIONS – in. | | | | | |
| | A | B | C | D | INTERNAL ELASTOMER LAYERS | |
| | | | | | NO. OF LAYERS | THICKNESS – in. |
| 40 | 12 | 14 | 3.125 | 12 | 4 | 0.5 |
| 45 | 12 | 15 | 3.125 | 12 | 4 | 0.5 |
| 50 | 12 | 16 | 3.125 | 12 | 4 | 0.5 |
| 55 | 12 | 16 | 3.125 | 12 | 4 | 0.5 |
| 60 | 12 | 17 | 3.125 | 12 | 4 | 0.5 |
| 65 | 14 | 16 | 3.125 | 12 | 4 | 0.5 |
| 70 | 14 | 16 | 3.125 | 12 | 4 | 0.5 |
| 75 | 14 | 16 | 3.125 | 12 | 4 | 0.5 |
| 80 | 14 | 16 | 3.125 | 12 | 4 | 0.5 |
| 85 | 15 | 16 | 3.125 | 12 | 4 | 0.5 |
| 90 | 15 | 16 | 3.125 | 12 | 4 | 0.5 |
| 95 | 16 | 16 | 3.125 | 12 | 4 | 0.5 |
| 100 | 16 | 16 | 5 | 12 | 7 | 0.5 |

| BEARING SCHEDULE – 10'–6" GIRDER SPACING | | | | | | |
|---|---|---|---|---|---|---|
| SPAN (L) – ft. | ELASTOMERIC BEARING DIMENSIONS – in. | | | | | |
| | A | B | C | D | INTERNAL ELASTOMER LAYERS | |
| | | | | | NO. OF LAYERS | THICKNESS – in. |
| 40 | 12 | 16 | 3.125 | 12 | 4 | 0.5 |
| 45 | 12 | 16 | 3.125 | 12 | 4 | 0.5 |
| 50 | 12 | 17 | 3.125 | 12 | 4 | 0.5 |
| 55 | 12 | 18 | 3.125 | 12 | 4 | 0.5 |
| 60 | 12 | 18 | 3.75 | 12 | 5 | 0.5 |
| 65 | 14 | 18 | 3.75 | 12 | 5 | 0.5 |
| 70 | 14 | 18 | 4.375 | 12 | 6 | 0.5 |
| 75 | 14 | 18 | 3.75 | 12 | 5 | 0.5 |
| 80 | 14 | 18 | 3.75 | 12 | 5 | 0.5 |
| 85 | 15 | 18 | 3.75 | 12 | 5 | 0.5 |
| 90 | 15 | 18 | 3.75 | 12 | 5 | 0.5 |
| 95 | 16 | 18 | 3.75 | 12 | 5 | 0.5 |
| 100 | 18 | 18 | 5.875 | 12 | 7 | 0.625 |

NOTES:

1. DIMENSIONS LISTED ON THIS SHEET CORRESPOND TO THE DETAILS SHOWN ON SHEET 303.

Steel Market Development Institute

ELASTOMERIC BEARING DETAILS

| DATE: | | | |
|---|---|---|---|
| 04/06/2012 | DO NOT SCALE | | |
| DRAFTED BY: | DESIGNED BY: | CHECKED BY: | SHEET NO: |
| GKM | ASB/SAM | KEB | 304 |

# ELASTOMERIC BEARING DETAILS – COMPOSITE ROLLED BEAMS – LIMITED DEPTH DESIGNS

| BEARING SCHEDULE – 6'–0" GIRDER SPACING | | | | | | |
|---|---|---|---|---|---|---|
| SPAN (L) – ft. | ELASTOMERIC BEARING DIMENSIONS – in. | | | | | |
| | A | B | C | D | INTERNAL ELASTOMER LAYERS | |
| | | | | | NO. OF LAYERS | THICKNESS – in. |
| 40 | 12 | 14 | 3.125 | 12 | 4 | 0.5 |
| 45 | 12 | 14 | 3.125 | 12 | 4 | 0.5 |
| 50 | 12 | 14 | 3.125 | 12 | 4 | 0.5 |
| 55 | 12 | 14 | 3.125 | 12 | 4 | 0.5 |
| 60 | 12 | 16 | 3.125 | 12 | 4 | 0.5 |
| 65 | 14 | 14 | 3.125 | 12 | 4 | 0.5 |
| 70 | 14 | 16 | 3.75 | 12 | 5 | 0.5 |
| 75 | 14 | 14 | 3.125 | 12 | 4 | 0.5 |
| 80 | 14 | 16 | 3.125 | 12 | 4 | 0.5 |
| 85 | 15 | 14 | 3.125 | 12 | 4 | 0.5 |
| 90 | 15 | 15 | 3.125 | 12 | 4 | 0.5 |
| 95 | 16 | 14 | 3.125 | 12 | 4 | 0.5 |
| 100 | 16 | 15 | 3.625 | 12 | 4 | 0.625 |

| BEARING SCHEDULE – 7'–6" GIRDER SPACING | | | | | | |
|---|---|---|---|---|---|---|
| SPAN (L) – ft. | ELASTOMERIC BEARING DIMENSIONS – in. | | | | | |
| | A | B | C | D | INTERNAL ELASTOMER LAYERS | |
| | | | | | NO. OF LAYERS | THICKNESS – in. |
| 40 | 12 | 14 | 3.125 | 12 | 4 | 0.5 |
| 45 | 12 | 14 | 3.125 | 12 | 4 | 0.5 |
| 50 | 12 | 14 | 3.125 | 12 | 4 | 0.5 |
| 55 | 12 | 16 | 3.125 | 12 | 4 | 0.5 |
| 60 | 12 | 16 | 3.125 | 12 | 4 | 0.5 |
| 65 | 14 | 14 | 3.125 | 12 | 4 | 0.5 |
| 70 | 14 | 16 | 3.125 | 12 | 4 | 0.5 |
| 75 | 14 | 16 | 3.125 | 12 | 4 | 0.5 |
| 80 | 14 | 16 | 3.125 | 12 | 4 | 0.5 |
| 85 | 15 | 15 | 3.125 | 12 | 4 | 0.5 |
| 90 | 15 | 15 | 3.125 | 12 | 4 | 0.5 |
| 95 | 16 | 14 | 3.125 | 12 | 4 | 0.5 |
| 100 | 16 | 17 | 4.375 | 12 | 5 | 0.625 |

| BEARING SCHEDULE – 9'–0" GIRDER SPACING | | | | | | |
|---|---|---|---|---|---|---|
| SPAN (L) – ft. | ELASTOMERIC BEARING DIMENSIONS – in. | | | | | |
| | A | B | C | D | INTERNAL ELASTOMER LAYERS | |
| | | | | | NO. OF LAYERS | THICKNESS – in. |
| 40 | 12 | 14 | 3.125 | 12 | 4 | 0.5 |
| 45 | 12 | 15 | 3.125 | 12 | 4 | 0.5 |
| 50 | 12 | 16 | 3.125 | 12 | 4 | 0.5 |
| 55 | 12 | 16 | 3.125 | 12 | 4 | 0.5 |
| 60 | 12 | 17 | 3.125 | 12 | 4 | 0.5 |
| 65 | 14 | 16 | 3.125 | 12 | 4 | 0.5 |
| 70 | 14 | 16 | 3.125 | 12 | 4 | 0.5 |
| 75 | 14 | 16 | 3.125 | 12 | 4 | 0.5 |
| 80 | 14 | 16 | 3.125 | 12 | 4 | 0.5 |
| 85 | 15 | 16 | 3.125 | 12 | 4 | 0.5 |
| 90 | 15 | 16 | 3.125 | 12 | 4 | 0.5 |
| 95 | 16 | 16 | 3.125 | 12 | 4 | 0.5 |
| 100 | 16 | 16 | 5 | 12 | 7 | 0.5 |

| BEARING SCHEDULE – 10'–6" GIRDER SPACING | | | | | | |
|---|---|---|---|---|---|---|
| SPAN (L) – ft. | ELASTOMERIC BEARING DIMENSIONS – in. | | | | | |
| | A | B | C | D | INTERNAL ELASTOMER LAYERS | |
| | | | | | NO. OF LAYERS | THICKNESS – in. |
| 40 | 12 | 16 | 3.125 | 12 | 4 | 0.5 |
| 45 | 12 | 16 | 3.125 | 12 | 4 | 0.5 |
| 50 | 12 | 17 | 3.125 | 12 | 4 | 0.5 |
| 55 | 12 | 18 | 3.125 | 12 | 4 | 0.5 |
| 60 | 12 | 18 | 3.75 | 12 | 5 | 0.5 |
| 65 | 14 | 18 | 3.75 | 12 | 5 | 0.5 |
| 70 | 14 | 18 | 4.375 | 12 | 6 | 0.5 |
| 75 | 14 | 18 | 3.75 | 12 | 5 | 0.5 |
| 80 | 14 | 18 | 3.75 | 12 | 5 | 0.5 |
| 85 | 15 | 18 | 3.75 | 12 | 5 | 0.5 |
| 90 | 15 | 18 | 3.75 | 12 | 5 | 0.5 |
| 95 | 16 | 18 | 3.75 | 12 | 5 | 0.5 |
| 100 | 18 | 18 | 5.875 | 12 | 7 | 0.625 |

NOTES:

1. DIMENSIONS LISTED ON THIS SHEET CORRESPOND TO THE DETAILS SHOWN ON SHEET 303.

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ELASTOMERIC BEARING DETAILS

| DATE: | | | |
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| GKM | ASB/SAM | KEB | 305 |

# ELASTOMERIC BEARING DETAILS – COMPOSITE PLATE GIRDERS – HOMOGENEOUS DESIGNS

| BEARING SCHEDULE – 6'–0" GIRDER SPACING | | | | | | |
|---|---|---|---|---|---|---|
| SPAN (L) – ft. | ELASTOMERIC BEARING DIMENSIONS – in. | | | | | |
| | A | B | C | D | INTERNAL ELASTOMER LAYERS | |
| | | | | | NO. OF LAYERS | THICKNESS – in. |
| 60 | 14 | 14 | 3.125 | 12 | 4 | 0.5 |
| 65 | 14 | 14 | 3.125 | 12 | 4 | 0.5 |
| 70 | 14 | 16 | 3.75 | 12 | 5 | 0.5 |
| 75 | 14 | 16 | 3.75 | 12 | 5 | 0.5 |
| 80 | 16 | 16 | 4.375 | 12 | 5 | 0.625 |
| 85 | 16 | 16 | 4.375 | 12 | 5 | 0.625 |
| 90 | 16 | 16 | 5.125 | 12 | 6 | 0.625 |
| 95 | 16 | 16 | 5.125 | 12 | 6 | 0.625 |
| 100 | 16 | 16 | 5.125 | 12 | 6 | 0.625 |
| 105 | 16 | 16 | 5.125 | 12 | 6 | 0.625 |
| 110 | 16 | 16 | 5.125 | 12 | 6 | 0.625 |
| 115 | 16 | 18 | 5.125 | 12 | 6 | 0.625 |
| 120 | 16 | 18 | 5.125 | 12 | 6 | 0.625 |
| 125 | 16 | 18 | 5.125 | 12 | 6 | 0.625 |
| 130 | 16 | 18 | 5.125 | 12 | 6 | 0.625 |
| 135 | 16 | 18 | 5.125 | 12 | 6 | 0.625 |
| 140 | 16 | 18 | 5.125 | 12 | 6 | 0.625 |

| BEARING SCHEDULE – 7'–6" GIRDER SPACING | | | | | | |
|---|---|---|---|---|---|---|
| SPAN (L) – ft. | ELASTOMERIC BEARING DIMENSIONS – in. | | | | | |
| | A | B | C | D | INTERNAL ELASTOMER LAYERS | |
| | | | | | NO. OF LAYERS | THICKNESS – in. |
| 60 | 14 | 14 | 3.125 | 12 | 4 | 0.5 |
| 65 | 14 | 14 | 3.125 | 12 | 4 | 0.5 |
| 70 | 14 | 16 | 3.75 | 12 | 5 | 0.5 |
| 75 | 14 | 16 | 3.125 | 12 | 4 | 0.5 |
| 80 | 16 | 16 | 4.375 | 12 | 5 | 0.625 |
| 85 | 16 | 16 | 4.375 | 12 | 5 | 0.625 |
| 90 | 16 | 16 | 5.125 | 12 | 6 | 0.625 |
| 95 | 16 | 16 | 5.125 | 12 | 6 | 0.625 |
| 100 | 16 | 16 | 5.125 | 12 | 6 | 0.625 |
| 105 | 16 | 18 | 5.125 | 12 | 6 | 0.625 |
| 110 | 16 | 18 | 5.125 | 12 | 6 | 0.625 |
| 115 | 16 | 18 | 5.125 | 12 | 6 | 0.625 |
| 120 | 16 | 18 | 5.125 | 12 | 6 | 0.625 |
| 125 | 16 | 18 | 5.125 | 12 | 6 | 0.625 |
| 130 | 18 | 18 | 5.125 | 12 | 6 | 0.625 |
| 135 | 18 | 18 | 5.125 | 12 | 6 | 0.625 |
| 140 | 18 | 18 | 5.125 | 12 | 6 | 0.625 |

| BEARING SCHEDULE – 9'–0" GIRDER SPACING | | | | | | |
|---|---|---|---|---|---|---|
| SPAN (L) – ft. | ELASTOMERIC BEARING DIMENSIONS – in. | | | | | |
| | A | B | C | D | INTERNAL ELASTOMER LAYERS | |
| | | | | | NO. OF LAYERS | THICKNESS – in. |
| 60 | 14 | 14 | 3.125 | 12 | 4 | 0.5 |
| 65 | 14 | 16 | 3.125 | 12 | 4 | 0.5 |
| 70 | 14 | 16 | 3.125 | 12 | 4 | 0.5 |
| 75 | 14 | 16 | 3.125 | 12 | 4 | 0.5 |
| 80 | 16 | 16 | 4.375 | 12 | 5 | 0.625 |
| 85 | 16 | 18 | 4.375 | 12 | 5 | 0.625 |
| 90 | 16 | 18 | 5.125 | 12 | 6 | 0.625 |
| 95 | 16 | 18 | 5.125 | 12 | 6 | 0.625 |
| 100 | 16 | 18 | 5.125 | 12 | 6 | 0.625 |
| 105 | 16 | 18 | 5.125 | 12 | 6 | 0.625 |
| 110 | 18 | 18 | 5.125 | 12 | 6 | 0.625 |
| 115 | 18 | 18 | 5.125 | 12 | 6 | 0.625 |
| 120 | 18 | 18 | 5.125 | 12 | 6 | 0.625 |
| 125 | 18 | 18 | 5.125 | 12 | 6 | 0.625 |
| 130 | 18 | 18 | 5.125 | 12 | 6 | 0.625 |
| 135 | 18 | 18 | 5.125 | 12 | 6 | 0.625 |
| 140 | 18 | 20 | 5.875 | 12 | 7 | 0.625 |

| BEARING SCHEDULE – 10'–6" GIRDER SPACING | | | | | | |
|---|---|---|---|---|---|---|
| SPAN (L) – ft. | ELASTOMERIC BEARING DIMENSIONS – in. | | | | | |
| | A | B | C | D | INTERNAL ELASTOMER LAYERS | |
| | | | | | NO. OF LAYERS | THICKNESS – in. |
| 60 | 14 | 16 | 3.125 | 12 | 4 | 0.5 |
| 65 | 14 | 16 | 3.125 | 12 | 4 | 0.5 |
| 70 | 16 | 16 | 3.75 | 12 | 5 | 0.5 |
| 75 | 16 | 16 | 3.75 | 12 | 5 | 0.5 |
| 80 | 16 | 18 | 4.375 | 12 | 5 | 0.625 |
| 85 | 16 | 18 | 4.375 | 12 | 5 | 0.625 |
| 90 | 18 | 18 | 5.125 | 12 | 6 | 0.625 |
| 95 | 18 | 18 | 5.125 | 12 | 6 | 0.625 |
| 100 | 18 | 18 | 5.125 | 12 | 6 | 0.625 |
| 105 | 18 | 18 | 5.125 | 12 | 6 | 0.625 |
| 110 | 18 | 18 | 5.125 | 12 | 6 | 0.625 |
| 115 | 18 | 18 | 5.125 | 12 | 6 | 0.625 |
| 120 | 18 | 20 | 5.875 | 12 | 7 | 0.625 |
| 125 | 18 | 20 | 5.875 | 12 | 7 | 0.625 |
| 130 | 18 | 20 | 5.875 | 12 | 7 | 0.625 |
| 135 | 18 | 20 | 5.875 | 12 | 7 | 0.625 |
| 140 | 18 | 20 | 5.125 | 12 | 6 | 0.625 |

NOTES:

1. DIMENSIONS LISTED ON THIS SHEET CORRESPOND TO THE DETAILS SHOWN ON SHEET 303.

Steel Market Development Institute

ELASTOMERIC BEARING DETAILS

| DATE: | | | |
|---|---|---|---|
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| GKM | ASB/SAM | KEB | 306 |

# ELASTOMERIC BEARING DETAILS – COMPOSITE PLATE GIRDERS – HYBRID DESIGNS

| BEARING SCHEDULE – 6'–0" GIRDER SPACING | | | | | | |
|---|---|---|---|---|---|---|
| SPAN (L) – ft. | ELASTOMERIC BEARING DIMENSIONS – in. | | | | | |
| | A | B | C | D | INTERNAL ELASTOMER LAYERS | |
| | | | | | NO. OF LAYERS | THICKNESS – in. |
| 80 | 14 | 14 | 3.125 | 12 | 4 | 0.5 |
| 85 | 14 | 14 | 3.125 | 12 | 4 | 0.5 |
| 90 | 14 | 16 | 3.75 | 12 | 5 | 0.5 |
| 95 | 14 | 16 | 3.125 | 12 | 4 | 0.5 |
| 100 | 16 | 16 | 4.375 | 12 | 5 | 0.625 |
| 105 | 16 | 16 | 4.375 | 12 | 5 | 0.625 |
| 110 | 16 | 16 | 5.125 | 12 | 6 | 0.625 |
| 115 | 16 | 16 | 5.125 | 12 | 6 | 0.625 |
| 120 | 16 | 16 | 5.125 | 12 | 6 | 0.625 |
| 125 | 16 | 16 | 5.125 | 12 | 6 | 0.625 |
| 130 | 16 | 18 | 5.125 | 12 | 6 | 0.625 |
| 135 | 16 | 18 | 5.125 | 12 | 6 | 0.625 |
| 140 | 16 | 18 | 5.125 | 12 | 6 | 0.625 |

| BEARING SCHEDULE – 7'–6" GIRDER SPACING | | | | | | |
|---|---|---|---|---|---|---|
| SPAN (L) – ft. | ELASTOMERIC BEARING DIMENSIONS – in. | | | | | |
| | A | B | C | D | INTERNAL ELASTOMER LAYERS | |
| | | | | | NO. OF LAYERS | THICKNESS – in. |
| 80 | 14 | 16 | 3.75 | 12 | 5 | 0.5 |
| 85 | 14 | 16 | 3.125 | 12 | 4 | 0.5 |
| 90 | 14 | 16 | 3.125 | 12 | 4 | 0.5 |
| 95 | 14 | 16 | 3.125 | 12 | 4 | 0.5 |
| 100 | 16 | 16 | 4.375 | 12 | 5 | 0.625 |
| 105 | 16 | 18 | 5.125 | 12 | 6 | 0.625 |
| 110 | 16 | 18 | 5.125 | 12 | 6 | 0.625 |
| 115 | 16 | 16 | 5 | 12 | 7 | 0.5 |
| 120 | 16 | 18 | 5.125 | 12 | 6 | 0.625 |
| 125 | 16 | 18 | 5.125 | 12 | 6 | 0.625 |
| 130 | 18 | 18 | 5.125 | 12 | 6 | 0.625 |
| 135 | 18 | 18 | 5.125 | 12 | 6 | 0.625 |
| 140 | 18 | 18 | 5.125 | 12 | 6 | 0.625 |

| BEARING SCHEDULE – 9'–0" GIRDER SPACING | | | | | | |
|---|---|---|---|---|---|---|
| SPAN (L) – ft. | ELASTOMERIC BEARING DIMENSIONS – in. | | | | | |
| | A | B | C | D | INTERNAL ELASTOMER LAYERS | |
| | | | | | NO. OF LAYERS | THICKNESS – in. |
| 80 | 14 | 16 | 3.125 | 12 | 4 | 0.5 |
| 85 | 16 | 16 | 3.125 | 12 | 4 | 0.5 |
| 90 | 16 | 16 | 3.75 | 12 | 5 | 0.5 |
| 95 | 16 | 16 | 3.75 | 12 | 5 | 0.5 |
| 100 | 16 | 18 | 4.375 | 12 | 5 | 0.625 |
| 105 | 16 | 18 | 4.375 | 12 | 5 | 0.625 |
| 110 | 18 | 18 | 5.125 | 12 | 6 | 0.625 |
| 115 | 18 | 18 | 5.875 | 12 | 7 | 0.625 |
| 120 | 18 | 18 | 5.125 | 12 | 6 | 0.625 |
| 125 | 18 | 18 | 5.125 | 12 | 6 | 0.625 |
| 130 | 18 | 18 | 5.125 | 12 | 6 | 0.625 |
| 135 | 18 | 18 | 5.125 | 12 | 6 | 0.625 |
| 140 | 18 | 20 | 5.875 | 12 | 7 | 0.625 |

| BEARING SCHEDULE – 10'–6" GIRDER SPACING | | | | | | |
|---|---|---|---|---|---|---|
| SPAN (L) – ft. | ELASTOMERIC BEARING DIMENSIONS – in. | | | | | |
| | A | B | C | D | INTERNAL ELASTOMER LAYERS | |
| | | | | | NO. OF LAYERS | THICKNESS – in. |
| 80 | 16 | 16 | 3.75 | 12 | 5 | 0.5 |
| 85 | 16 | 16 | 3.125 | 12 | 4 | 0.5 |
| 90 | 16 | 16 | 3.125 | 12 | 4 | 0.5 |
| 95 | 16 | 16 | 3.125 | 12 | 4 | 0.5 |
| 100 | 18 | 18 | 5.125 | 12 | 6 | 0.625 |
| 105 | 18 | 18 | 5.125 | 12 | 6 | 0.625 |
| 110 | 18 | 18 | 5.125 | 12 | 6 | 0.625 |
| 115 | 18 | 18 | 5.875 | 12 | 7 | 0.625 |
| 120 | 18 | 20 | 5.875 | 12 | 7 | 0.625 |
| 125 | 18 | 20 | 5.875 | 12 | 7 | 0.625 |
| 130 | 18 | 20 | 5.875 | 12 | 7 | 0.625 |
| 135 | 18 | 20 | 5.875 | 12 | 7 | 0.625 |
| 140 | 18 | 20 | 5.875 | 12 | 7 | 0.625 |

NOTES:

1. DIMENSIONS LISTED ON THIS SHEET CORRESPOND TO THE DETAILS SHOWN ON SHEET 303.

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ELASTOMERIC BEARING DETAILS

| DATE: | | | |
|---|---|---|---|
| 04/06/2012 | DO NOT SCALE | | |
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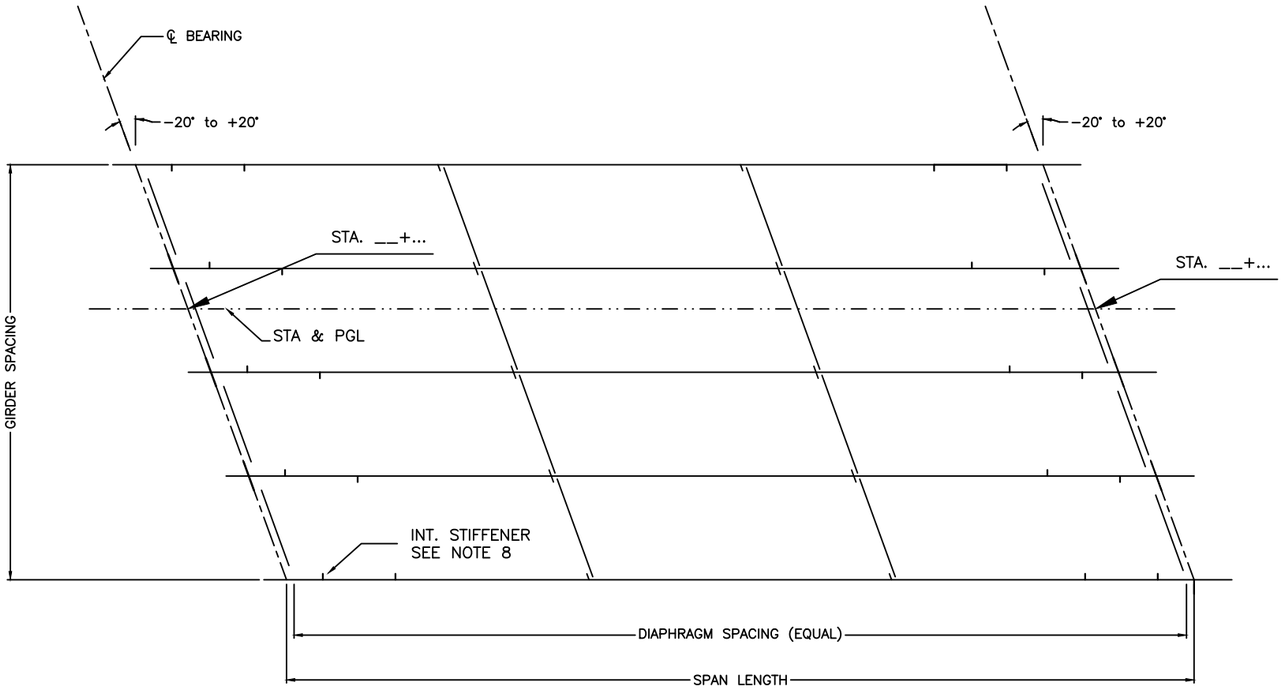


NOTES:

1. SUPERSTRUCTURE MAY SIT ON EXISTING BRIDGE SEATS. CONTRACTOR TO VERIFY SPACING IN FIELD.
2. DESIGN WILL ACCOMMODATE SKEWS UP TO 20° FROM ⊥, BUT ARE INTENDED TO BE PARALLEL.
3. STATION LINE IS INTENDED TO BE ON A TANGENT ALIGNMENT.
4. MAX GRADE AT BEARINGS IS ±5%.
5. ORIENT TOES OF CHANNEL DIAPHRAGM DOWN GRADE.
6. DIAPHRAGMS MAY BE PLACED ON EITHER SIDE OF CONNECTION PLATE AT THE CONTRACTOR'S DISCRETION.
7. KEEP DIAPHRAGM LINES PARALLEL TO BEARING LINES.
8. INT. STIFFENERS ARE REQUIRED ON ONE SIDE OF WEB ONLY. ON FASCIA GIRDERS, ORIENT STIFFENERS TO THE INSIDE OF THE GIRDER. ON INTERIOR GIRDERS, STIFFENERS SHOULD ALTERNATE SIDES. SEE DRAWINGS 101–108 & 202 FOR SPACING.

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FRAMING PLAN

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|---|---|---|---|
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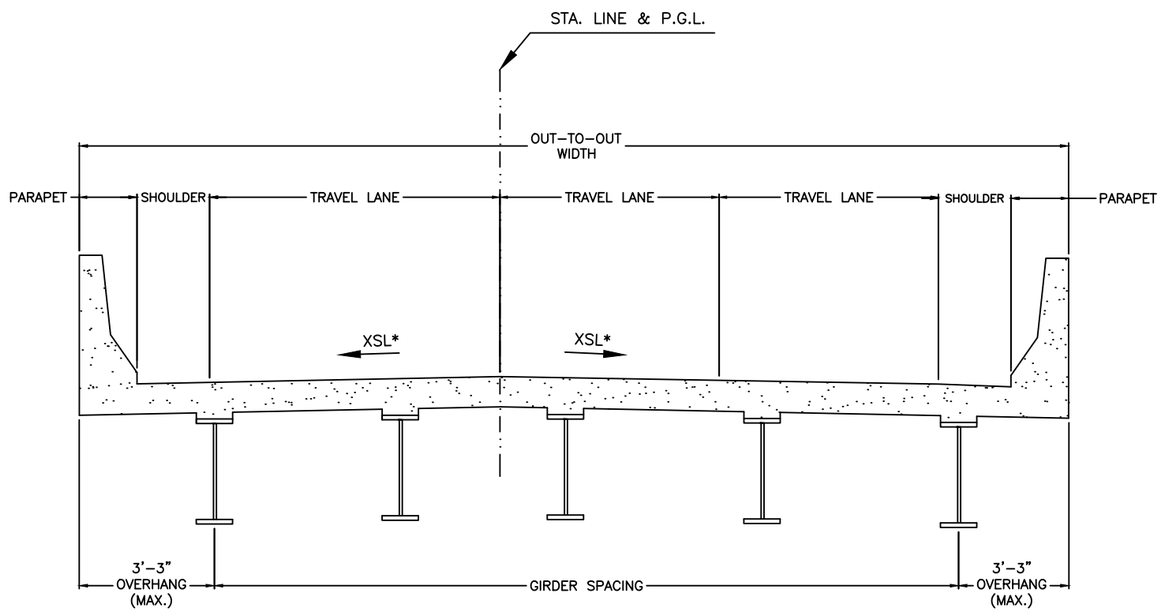
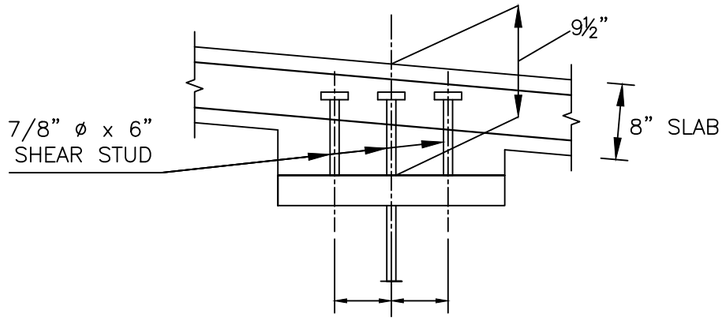
| GKM | ASB/SAM | KEB | 401 |




TYP. SECTION
(N.T.S.)
LOOKING STATIONS AHEAD

*NOTE: XSL– CROSS SLOPE CAN VARY FROM –.06% TO +.06%




DETAIL A

NOTES:

1. FOR SHEAR STUD SPACING, SEE SHEETS 101–108 & 201–202.
2. PARAPETS PER STATE DOT REQUIREMENTS, IF CAST IN PLACE, PROVIDE 2'–0" LAP WITH TRANSVERSE BARS.

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TYPICAL SECTION

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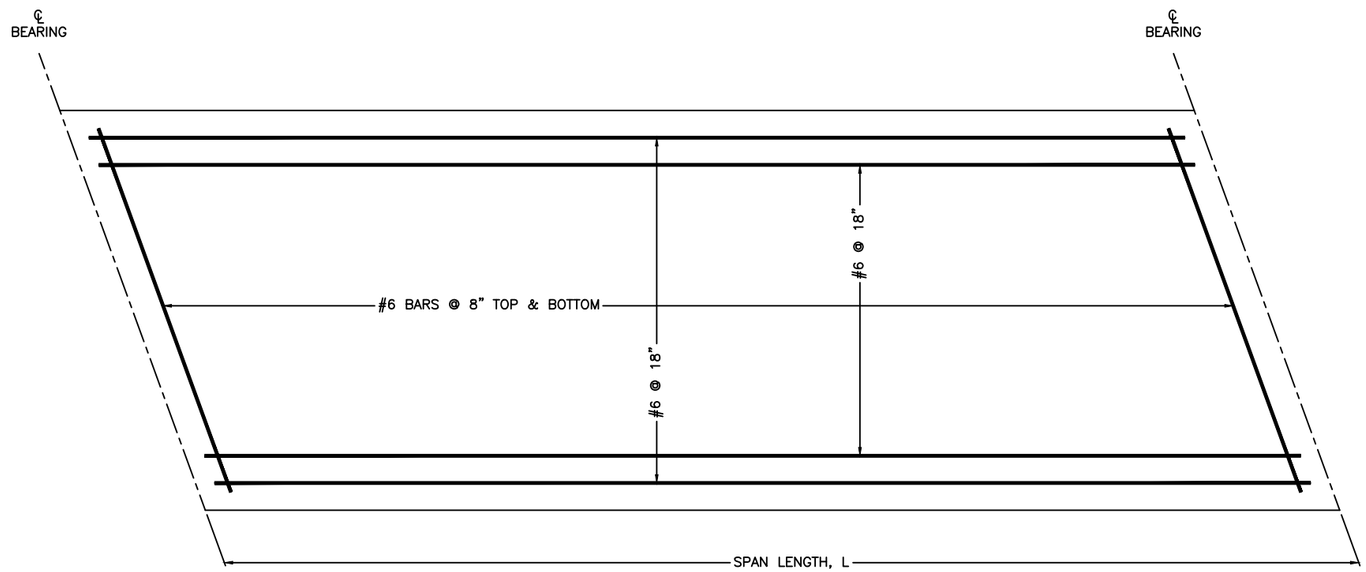
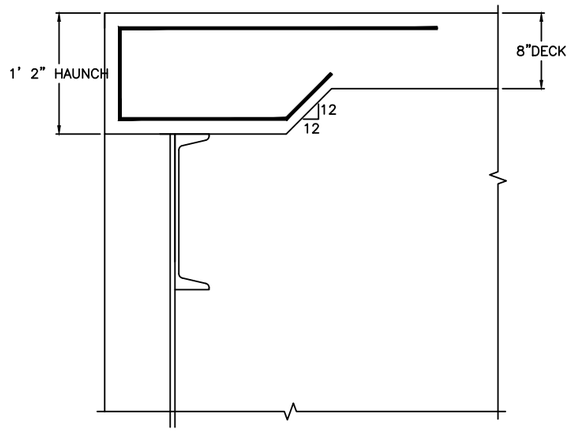



REINFORCING PLAN
(N.T.S.)




HAUNCH DETAIL
(N.T.S.)

NOTES:

1. FORMING BRACKETS MUST EXTEND TO BOTTOM FLANGE.

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Institute

DECK DESIGN

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