STEEL GIRDER WITH FIXED SEAT

STEEL GIRDER WITH SEMI-EXPANSION SEAT

NOTES
- FOR SKewed STRUCTURES CAST END OF PRECAST TEE ALONG SKEW.
- DIMENSION IS TAKEN NORMAL TO % SUBSTRUCTURE UNLESS OTHERWISE SPECIFIED.
- 1" RUBBERIZED MEMBRANE WATERPROOFING
- BARS PLACED PARALLEL TO GIRDERS, SPACING 1'-6" RUBBERIZED MEMBRANE WATERPROOFING

DESIGNER NOTES
- SEE STANDARD 19.55 FOR PRESTRESSED BOX GIRDER BEARING DETAILS.
- THE USE OF THIS OPT. CONST. JOINT IS NOT RECOMMENDED FOR SKEWS OVER 15° WHEN LARGE DEADLOAD END ROTATION IS ANTICIPATED.
- THE USE OF THIS OPT. CONST. JOINT IS NOT RECOMMENDED FOR SKEWS OVER 15° WHEN LARGE DEADLOAD END ROTATION IS ANTICIPATED.
- PAVING NOTCH IS CENTERED BY PAVEMENT PLATE STRUCTURAL APPROACH PLATE (NOT SHOWN) USED.

SEE STANDARD 12.01 STRUCTURAL APPROACH SLAB (STD. 12.10) IS USED.

PAVING NOTCH 1'-0" WIDE BY 1'-4" DEEP IF CONCRETE APPROACHES.

BRIDGE DETAILS FOR STEEL GIRS. AND PRECAST UNITS ON A1 ABUTMENTS (SEE STD. 12.01)

FILLER THK. = BRG. HEIGHT OF BRG. PAD. (3" MIN.) UNDER GIRDER FLANGE IN FRONT OF PREFORMED JOINT FILLER (SEE STD. 12.01)

PRECAST DOUBLE TEE OR MULTI-STEM SECTION
END VIEW

SECTION THRU ELASTOMERIC BEARING

PLAN VIEW

STRAIN GAGES TO MEASURE VERTICAL DISPLACEMENTS

APPROVED:

DATE: 1-19

Bureau of Structures

Standard 27.07

Design Notes

See Chapter 19 standards for use of elastomeric bearings on new and rehabilitated steel girder bridges.

For all new bridges, the steel top plate shall have a minimum thickness of 1/4".

For bearings used in bearing replacement projects, the steel top plate thickness must be reduced to a minimum of 1/8" to match the overall existing bearing height.

Elastomeric laminated bearings are to be located on the plans.

when the thickness is reduced, the following note shall be included:

STEEL TOP PLATE THICKNESS MAY BE REDUCED TO A MINIMUM THICKNESS OF 1/8" TO MATCH THE OVERALL EXISTING BEARING HEIGHT.

Temperature Indicating Wax Pencils or other suitable means approved by the engineer shall be used to control temperatures of surfaces in contact with elastomer to ensure they do not exceed 200°F (93°C) or reach 19.34°F (5°C) when the thickness is reduced.

Clearance Diagram

at skewed pier

AT SKewed Pier

DETAIL SHOWN IS FOR AN EXPANSION PIER.

FLAME CUTS.

ALL PLATE CUTS SHALL BE MACHINE OR MACHINE AND VERTICAL.

FROM WARP AND ALL EDGES SMOOTH, STRAIGHT, ROLLED WITH ALL SURFACES SMOOTH AND FREE OF SCALE AND OTHER SURFACE DEFECTS.

ALL STRUCTURAL STEEL PLATES SHALL BE FLAT AND true.

ELASTOMERIC BEARINGS FOR PRESTRESSED CONCRETE GIRDERS

NOTES

BEARINGS SHALL NOT BE PLACED AT A TEMPERATURE GREATER THAN 85° F.

ALL MATERIALS USED FOR BEARINGS SHALL BE SUITABLE FOR USE IN CONCRETE ELLATOMERIC LAMINATED ELASTOMER.

FOR ALL NEW BRIDGES, THE STEEL TOP PLATE SHALL HAVE A MINIMUM THICKNESS OF 1/4".

IF PIER CAP WIDTH BECOMES EXCESSIVE, CONSIDER USING STEEL BEARINGS.

DETAIL SHOWN IS FOR A CONTINUOUS DECK AT AN EXPANSION PIER.
**BEARING NOTES**

- All bearings are symmetrical about \( x \) of girder and \( y \) of bearing.
- Adjust the supports to avoid the inversion of \( x \) of girder.
- Anchor bolts, nuts, and washers shall be sized in accordance with the material used for the bearing.

**ANCHOR BOLT NOTES**

- For span lengths up to 200\( ^\prime \), use a Type A masonry plate of \( \frac{1}{2} \) in. - 5/8 in. thickness, plus long anchor bolts.
- For span lengths between 200\( ^\prime \) and 200\( ^\prime \), use a Type A masonry plate of \( \frac{1}{2} \) in. - 5/8 in. thickness, plus long anchor bolts.
- For span lengths greater than 200\( ^\prime \), use a Type A masonry plate of \( \frac{1}{2} \) in. - 5/8 in. thickness, plus long anchor bolts.

**DETAILS TYPE A**

All plate cuts shall be machine or machine by an automatic process.

**STAINLESS STEEL - TFE**

- Stainless Steel - TFE EXPANSION BEARING
- Details Type A
- Bureau of Structures

**Bill Oliva**  
**Date:**
ANCHOR BOLTS

STEEL PLATE "B" SHALL BE 1/8" THICK BEARING PAD. SAME MOVEMENT ON PLATE "B".

TEFLON SURFACE

1/2" THICK BEARING PAD. SAME MOVEMENT ON PLATE "B".

EXPANSION BEARING ASSEMBLY

SECTION BI-BI

TEFLON SURFACE STEEL PLATE "B"

STEEL PLATE "B"

ANCHOR BOLTS

TEFLON SURFACE

ON PLATE "B"

ROCKER PLATE "C"

MASONRY PLATE "D"

EXPANSION BEARING
**Design Details for Expansion Bearings**

**Steel Expansion Bearing Assembly**

For Steel Girder

- Bearing Pad
- Steel Plate "B" (in inches)
- Teflon Surface
- Stainless Steel Anchor Plate
- Bearing Stiffener
- A.

**Expansion Beams Details**

- Bearing Offset Table
- Ambient Temperature During Short Installation

**Steel Expansion Bearing Details**

- Stainless Steel Anchor Plate
- Bearing Offset Due to Expansion
- Bearing Offset Due to Expansion or Contraction

**Notes**

- For Steel Expansion Bearings:
  - Use temperature setting table ranging from 0.0003/’ to 0.0006/’ shrinkage of bearing spacers for all temperatures.
  - Beams and saddles to be designed for bending and construction tolerances. Use greater of value from procedure below or from sample bridge.

- Procedure for Size Anchor Plate:
  - Size Bearing Plate Length
  - Thermal Movement (Use Sample Bridge)
  - Construction Tolerance
  - ± Construction Tolerance
  - Use sample bridge length.

- Anchor plates in Prestressed Girder to be designed to account for thermal movement and construction tolerances. (Use greater of value from procedure below or 0.25/’.

**Design Details for Expansion Bearings**

- For Prestressed Girder:
  - Use temperature setting table ranging from 0.0003/’ to 0.0006/’ shrinkage of bearing spacers for all temperatures.
  - Beams and saddles to be designed for bending and construction tolerances. Use greater of value from procedure below or from sample bridge.

- Procedure for Size Anchor Plate:
  - Size Bearing Plate Length
  - Thermal Movement (Use Sample Bridge)
  - Construction Tolerance
  - ± Construction Tolerance
  - Use sample bridge length.

- Anchor plates in Prestressed Girder to be designed to account for thermal movement and construction tolerances. (Use greater of value from procedure below or 0.25/’.

**Bearing Offset Table**

<table>
<thead>
<tr>
<th>Temperature Setting</th>
<th>Length 'X'</th>
<th>Top Plate &quot;A&quot;</th>
<th>Top Plate &quot;C&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0006</td>
<td>3.24</td>
<td>0.3</td>
<td>0.5</td>
</tr>
<tr>
<td>0.0005</td>
<td>2.60</td>
<td>0.5</td>
<td>0.7</td>
</tr>
<tr>
<td>0.0003</td>
<td>1.60</td>
<td>0.5</td>
<td>0.7</td>
</tr>
</tbody>
</table>

**Expansion Beams at Pier**

- Prestressed Girder (Short Span Not Shown for Clarity)
- Bearing Offset Table

**Expansion Beams at Abutment**

- Prestressed Girder (Short Span Not Shown for Clarity)
- Bearing Offset Table

**Approved by:**

Bill Oliva

Date:

1-17

**Standard 27,10**