BEARING NOTES

All bearings are symmetrical about \( \sigma \) of girder and \( \sigma \) of bearing.

For use of large steel plates, fabrication may increase thickness of masonry plate \( t \) by the same plate thickness.

The values in the tables are for the use of beveled rocker plate \( t \) on grades greater than 3\% and also clearance requirements.

For bearings greater than 3\% or grades greater than 3\% and also clearance requirements.

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For bearings greater than 3\% or grades greater than 3\% and also clearance requirements.
**Steel Girder with Fixed Seat**

- 96 bars at 3" centers
- Paving notch 1/2" deep
- Cut 1/3 flange along skew
- 6" bars
- Top of deck
- Place one pad under each stem.

**Steel Girder with Semi-Expansion Seat**

- 44 bars at 3" centers
- Paving notch 1/2" deep
- Cut 1/3 flange along skew
- 6" bars
- Top of deck
- Place one pad under each stem.

**Notes**

- PRECAST DOUBLE TEE OR MULTI-STEM SECTION
- PAVING NOTCH
- 110" X 23" X STEM WIDTH
- PLACE ONE PAD UNDER EACH STEM.

**Preformed Joint Filler**

- 4" X : T" PREFORMED JOINT
- FILLER LENGTH OF ABUT.
- WEARING SURFACE

**Design Notes**

- SEE STANDARD 12.01 FOR PRECAST GIRDER BEARING DETAILS.
- CONCRETE OR RUBBERIZED MEMBRANE WATERPROOFING
- BARS PLACED PERPENDICULAR TO GIRDER, SPACING PARALLEL TO GIRDER.

**Standard 27.05**

**Approved by**

Bill Oliva

Date: 7-18
END VIEW

SECTION THRU ELASTOMERIC BEARING

PLAN VIEW

DESIGNER NOTES

FOR BEARINGS USED IN BEARING REPLACEMENT PROJECTS, THE STEEL TOP PLATE THICKNESS MAY BE REDUCED TO A MINIMUM OF 1/16" TO MATCH THE OVERALL EXISTING BEARING HEIGHT. SHOULD THE TOP PLATE THICKNESS BE REDUCED TO LESS THAN 1/16" IT MUST BE STATED IN THE SPECIFICATIONS. WHEN THIS TOP PLATE THICKNESS IS REDUCED, THE FOLLOWING NOTE SHALL BE ADDED TO THE PLANS:

"BEARING (TOP PLATE NOT LAMINATED) SHOWN FOR CLARITY"

NOTE:

ALIAS PLATES ASTM A1011 GRADE 36 TO 50, 1/4" THK.

BEARING PLATES ASTM A709 GRADE 50W OR A588, 1/4" THK.

ALL STRUCTURAL STEEL PLATES SHALL BE FLAT FROM WARP AND ALL EDGES SMOOTH, STRAIGHT, AND VERTICAL.

ALL MATERIAL USED FOR BEARINGS SHALL BE FLAME CUTS.

ALL PLATE CUTS SHALL BE MACHINE OR MACHINE AND VERTICAL.

ALL STRUCTURAL STEEL PLATES SHALL BE FLAT FROM WARP AND ALL EDGES SMOOTH, STRAIGHT, AND VERTICAL.

ALL MATERIAL USED FOR BEARINGS SHALL BE FLAME CUTS.

ALL PLATE CUTS SHALL BE MACHINE OR MACHINE AND VERTICAL.

ALL STRUCTURAL STEEL PLATES SHALL BE FLAT FROM WARP AND ALL EDGES SMOOTH, STRAIGHT, AND VERTICAL.

ALL MATERIAL USED FOR BEARINGS SHALL BE FLAME CUTS.

ALL PLATE CUTS SHALL BE MACHINE OR MACHINE AND VERTICAL.

ALL STRUCTURAL STEEL PLATES SHALL BE FLAT FROM WARP AND ALL EDGES SMOOTH, STRAIGHT, AND VERTICAL.

ALL MATERIAL USED FOR BEARINGS SHALL BE FLAME CUTS.

ALL PLATE CUTS SHALL BE MACHINE OR MACHINE AND VERTICAL.

ALL STRUCTURAL STEEL PLATES SHALL BE FLAT FROM WARP AND ALL EDGES SMOOTH, STRAIGHT, AND VERTICAL.

ALL MATERIAL USED FOR BEARINGS SHALL BE FLAME CUTS.

ALL PLATE CUTS SHALL BE MACHINE OR MACHINE AND VERTICAL.

ALL STRUCTURAL STEEL PLATES SHALL BE FLAT FROM WARP AND ALL EDGES SMOOTH, STRAIGHT, AND VERTICAL.

ALL MATERIAL USED FOR BEARINGS SHALL BE FLAME CUTS.

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ALL MATERIAL USED FOR BEARINGS SHALL BE FLAME CUTS.

ALL PLATE CUTS SHALL BE MACHINE OR MACHINE AND VERTICAL.

ALL STRUCTURAL STEEL PLATES SHALL BE FLAT FROM WARP AND ALL EDGES SMOOTH, STRAIGHT, AND VERTICAL.
### Expansion Bearing Assembly

#### Designer Notes
- **Method of Bearing Loads**: The table includes 1/2" bearing pad and 1/4" stainless steel pad and Teflon surface. 
- **Detail**: Sheets plates as designed in notes on standard 24.02. 
- **Design**: See standard 27.01 for use of these details. 
- **Steel**: AASHTO LRFD Service I Load Combination. 
- **Materials**: Stainless steel, masonry, and Teflon finishes. 
- **Dimensions**: See note Z for dimensions. 
- **Materials**: Stainless steel, masonry, and Teflon finishes. 
- **Welds**: Provided for welding. 
- **Anchor Bolts**: Nuts and washers. 
- **Steel**: For all materials, see note Z for dimensions. 
- **Bolts**: Type I or II masonry plate for all materials. 
- **Horizontal Anchors**: Provided for all materials. 

#### Bolt Notes
- **Anchor Bolt**: Provided for all materials. 
- **Steel**: Provided for all materials. 
- **Bolts**: Type I or II masonry plate for all materials. 
- **Materials**: Stainless steel, masonry, and Teflon finishes. 
- **Welds**: Provided for welding. 

#### Bearing Notes
- **Materials**: Stainless steel, masonry, and Teflon finishes. 
- **Welds**: Provided for welding. 
- **Anchor Bolts**: Nuts and washers. 
- **Steel**: Provided for all materials. 

---

**STAINLESS STEEL - TFE EXPANSION BEARING DETAILS TYPE A-T**

**BUREAU OF STRUCTURES**

**APPROVED**

**Bill Oliva**

**DATE:**

**STANDARD 27.08**
ANCHOR BOLTS
3†" OF BEARING
EXPANSION BEARING ASSEMBLY

BEARING NOTES
ALL BEARINGS ARE SYMMETRICAL ABOUT †" OF GIRDER AND †" OF BEARING.
ALL MATERIALS IN BEARINGS, BUT EXCLUDING STAINLESS STEEL PLATE, TEFLOM SURFACE,
PRE-PURCHASED BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A500 GRADE 50.
STAINLESS STEEL PLATE SHALL CONFORM TO ASTM A449 OR ASTM A709 GRADE 50W.
STEEL PLATES SHALL CONFORM TO ASTM A490 OR ASTM A572 GRADE 50.
ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A193 GRADE B7 OR
MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION. ALL BEARINGS
SHALL BE SHOP PAINTED. DO NOT PAINT TEFLOM SURFACE.

MASONRY PLATE "D", ROCKER PLATE "C", ANCHOR BOLTS, NUTS AND WASHERS SHALL
CONFORM TO THE BEARING CAPACITIES IN THE TABLE BELOW. CONSIDER ONLY DEAD LOADS (DC + DW)
AND HL-93 LIVE LOADS (LL), CHECK TO SEE IF THE REACTIONS EXCEED THE BEARING CAPACITIES IN THE TABLE
"DEAD LOADS" ONLY. USE THE AASHTO LRFD SERVICE LOAD COMBINATION AND
CALCULATE THE REACTIONS AT THE BEARINGS DUE TO "TOTAL LOADS" AND ALSO
MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.
ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM F1554 GRADE 50,
OR STEEL PLATES SHALL CONFORM TO ASTM A449 OR ASTM A572 GRADE 50.
STAINLESS STEEL PLATE SHALL CONFORM TO ASTM A240, TYPE 304.
ALL BEARINGS ARE SYMMETRICAL ABOUT †" OF GIRDER AND †" OF BEARING.
ALL MATERIALS IN BEARINGS, BUT EXCLUDING STAINLESS STEEL PLATE, TEFLOM SURFACE,
PRE-PURCHASED BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A500 GRADE 50.
STAINLESS STEEL PLATE SHALL CONFORM TO ASTM A449 OR ASTM A709 GRADE 50W.

STANDARD 27.09
**EXPANSION BEARING ASSEMBLY**

For Steel Girder
Show Offset Due to Expansion

**BEARING OFFSET TABLE**

<table>
<thead>
<tr>
<th>Ambient Temperature</th>
<th>Unit</th>
<th>Top Plate &quot;A&quot; Length</th>
<th>Bearing Pad &quot;D&quot; Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>-20°C</td>
<td>6&quot;</td>
<td>70&quot;</td>
<td>40&quot;</td>
</tr>
<tr>
<td>0°C</td>
<td>6&quot;</td>
<td>70&quot;</td>
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</tr>
<tr>
<td>20°C</td>
<td>6&quot;</td>
<td>70&quot;</td>
<td>40&quot;</td>
</tr>
</tbody>
</table>

**DESIGNER NOTES**

- For Steel Expansion Bearings:
  - Use temperature setting table rather than centering bearings beneath bearing stiffeners for all temperatures.
  - For Prestressed Concrete Bearings:
    - Place bearings as shown on the structural plan, providing adjustments for structural location discrepancies. Place each anchor centered between its given bearings.

**PROCEDURE FOR SIZING ANCHOR PLATE:**

- Add 1" for thermal movement and construction tolerance. (Use greater of value from procedure below or top from standard value.
- Procedure for using Top Plate "A":
  - Thermal Movement + Construction Tolerance + 1" Construction Tolerance + 1" Construction Tolerance
  - Top Plate "A" Length Double this for Plate "A" Length

**Anchor Plates in Prestressed Girders to be designed to account for thermal movement, shrinkage, and construction tolerance.**

**BEARING DETAIL**

- Expansion Bearing at Abutment
- Expansion Bearings at Pier

**STANDARD 27.10**

**BUREAU OF STRUCTURES**

Approved: Bill Oliva

Date: 1-17