ANCHORAGE ZONE REINFORCING STEEL

401 BARS NOT SHOWN FOR CLARITY

SECTION A-A

SECTION B-B

SECTION C-C

OPTIONAL SHIPPING HOLES

401 BARS NOT SHOWN FOR CLARITY

TOP FLANGE FINISHING

APPLIES TO MODIFIED AASHTO AND WF GIRDERS ONLY
TYPICAL FRAMING PLAN

SOLE PLATE DIMENSIONS

A SECTION
BEARING AND LOAD PLATE NOT SHOWN

DETAIL B

STEEL LOAD PLATES: ALL LAMINATED ELASTOMERIC BEARINGS SHALL INCLUDE A 1/8" THICKENED LOAD PLATE. A LOAD PLATE SHALL BE DEPLETED WHEN THE ROTATIONAL CAPACITY OF A BEARING IS EXCEEDED UNDER ANY LOADING CONDITION. THE FABRICATOR SHALL INSTALL THE THICKENED SOLE PLATE TO ALLOW FOR FIELD INSTALLATION OF THE BEARING. DURING FIELD WELDING, CONTROL THE TEMPERATURE AT THE EMBEDDED SOLE PLATE TO A MAXIMUM OF 300° F AS DETERMINED BY THE USE OF PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES.

SOLE PLATE DIMENSIONS

PLAN FOR SKEW ANGLES ≤ 10°

PLAN FOR SKEW ANGLES > 10°
FLANGE (TYP.)
EDGE OF LARGER FLANGE (TYP.)
MIN. 6"

T = THICKNESS OF WEB
WIDTH
W = LARGER OF TOP OR BOTTOM FLANGE
PLACED PARALLEL TO BEAMS.

ALL VERTICAL BARS SHALL BE
@ 1'-0" C/C (MAX.)
#4 BARS SPACED
2-#6 BARS

BEARING ORIENTATION AT PIERS
BEAM NOT SHOWN

SKEW ANGLE £ TYP.
SHALL NOT BE CLIPPED CORNERS
STEEL LOAD PLATE

DIAPHRAGM FACE OF DIAPHRAGM FACE OF
BEARING (TYP.) BEARING (TYP.)

DIAPHRAGM FACE OF

BEARING (TYP.) (MIN.)
1'-0"

DIAPHRAGM FACE OF

BEARING (TYP.) (MIN.)
1'-0"

NONSHRINK, NON-METALLIC GROUT, 705.20.)
ACCORDING TO ITEM 510 DOWEL HOLES WITH
GRADE 1018, WITH SLEEVE.  (INSTALL DOWEL
1" DIA. SMOOTH DOWEL BAR, ASTM A311 CLASS A,
FIXED PIER ONLY:

4-#6 BARS (TYP.) (a)
4-#8 BARS.
(a) - FOR BEAM SPACINGS EXCEEDING 9'-0",
USE 4-#8 BARS.
(b) - ADDITIONAL 302 OR 405, AND 401 BARS
IN PLANS.
(b) - FIXED PIER ANCHOR ROD SPACING SHALL
BE DETERMINED BY ANALYSIS AND SHOWN
IN PLANS.
(c) - FIXED PIER ANCHOR ROD SPACING SHALL
BE DETERMINED BY ANALYSIS AND SHOWN
IN PLANS.

PIER DIAPHRAGM ELEVATION

SECTION

SECTION

PIER PARTIAL PLAN

PIER PARTIAL PLAN
1. All vertical bars shall be placed parallel to beams.

2. When the skew angle is 10° or less, all precasting strands. The minimum clear distance shall be 1".

3. Locate bolt holes in the I-beam webs to avoid precasting.

4. All bolts, nuts and washers shall be galvanized according to 711.02.

5. All structural steel shall be ASTM A709, Grade 36 or 50, galvanized according to 710.2.

6. The department will consider these costs to be incidental to Item 515, Intermediate Diaphragms.

7. All bolts, nuts and washers shall be galvanized according to 710.2.

8. Locate bolt holes in the I-beam webs to avoid precasting precasting strands. The minimum clear distance shall be 1".

9. All vertical bars shall be placed parallel to beams.
**DESIGN STRESSES**

- Prestressed concrete - F'c * = 60 days - F'c ** = 28 days - F'c *** = Release.

**ABUTMENT, INTERMEDIATE, AND PIER DIAPHRAGM CONCRETE**

- Prestressing strand - Furnish material conforming to T19 test ASTM standard, uncoated, seven wire strands.
- Strands shall be 0.6 inch diameter with a total cross-sectional area of 0.217 in².***

**STRUCTURAL STEEL**

- ASTM A490, Grade 36 or Grade 50

- The designer shall specify a 28-day compressive strength in the range of 5500 psi minimum to 7000 psi maximum and list the value in the structure's general notes.

- The designer shall specify the strand area in the structure's general notes.

- The designer shall specify more than one release strength and one 28-day strength in a single structure.

**DECK REINFORCING**

- The designer shall design the deck reinforcing over the piers to resist the negative moments induced by any superimposed live loads and live loads, assuming the deck reinforcing is fully continuous.

- Lap splices for reinforcing in I-beams and diaphragms shall be:
  - 2'-0" in length for #4 bars
  - 2'-0" in length for #3 bars
  - 2'-0" in length for #2 bars
  - 2'-0" in length for #1 bars

**FABRICATION AND CONSTRUCTION REQUIREMENTS**

- Erection procedure/fabricator shall submit plans for erection and handling procedures according to PCI manual, 2005.

- Erection and lifting devices:
  - The designer is responsible for the design of a lifting system for handling I-beams. As a minimum, the fabricator shall use two lift points: one within 5' of each end, the fabricator shall also use the lifting system on the shop drawings and use a factor of safety of four in the design. Refer to the PCI handbook.

- Temporary stability for deck placement:
  - The erection procedure shall include any additional temporary diaphragms or supports needed to assure the I-beams will remain stable before, during, and after completion of the placement of the concrete deck.
  - The placement of deck concrete shall not proceed until all intermediate diaphragms have been properly installed. Concrete Intermediate diaphragms shall be completed at least 48 hours before deck placement begins.

**CAST-IN-PLACE DECK CONCRETE**

- Thoroughly clean the top surface of the beams of all dirt, dust, latex paint or other foreign materials with water, air under pressure or any other method that produces satisfactory results. Thoroughly clean the surface with clean water, before placing the concrete, allow the surface to dry to a damp condition.

- The designer shall include a deck pour sequence in the plans for multi-span, continuous bridges. Two construction joints spaced at 8'-0", parallel to and centered about the piers are required. Do not place concrete between these construction joints prior to the placement -ment of concrete in each adjacent span. Upon completion of the concrete in the adjacent spans, place the diaphragm and deck concrete between the construction joints. Seal the joints with high molecular weight methylsilicone resin according to PCI 52.22.

**CONTINUOUS DECK CONCREETE PROCEDURES**

- Which proceed from end to end of the bridge and placement of the diaphragm concrete concurrently throughout the deck concrete, may be approved by the engineer if the placement submittal can assure that the diaphragm concrete in one span will be placed before the PIER DIAPHRAGM concrete has reached its initial set.

**GALVANIZING**

- Galvanize all structural steel, I-beams, bars, pipe sleeves, bolts, studs, inserts, threaded rods, nuts and washers, embedded sole plates and bearing load plates according to PCI 512.10.

**SEALING OF FASCIA BEAMS**

- Seal the fascia I-beam with an epoxy/methylene sealer as shown on sheet #10. The department will not accept quantities separate from sealing of concrete surfaces.

**SEALING OF BEAM END**

- Seal all strands at beam end with a type 1 waterproofer per CWS 52.08. Waterproofer shall extend a minimum of 2 inches surrounding each beam location.

**DIAPHRAGMS**

- All I-beams and piers diaphragms shall be cast-in-place. The intermediate diaphragms for 60', 80', and 100' deep beams may be cast-in-place or galvanized steel as shown on sheet #9 of the design. Use strand for beams less than 60' deep and 0.10" DOWEL STRAND for beams less than 60' deep shall be cast-in-place as shown on sheet #9 of the design. Only one type of intermediate diaphragm may be used in the design. Use the concrete deck after completing of the concrete deck. The fabricator shall show locations of inserts or holes for the i-beams for all intermediate connections and details for galvanized steel diaphragms in the shop drawings.

All structural steel, including bolts, nuts, washers and plate washers for intermediate diaphragms shall conform to the requirements of T19. Concrete for intermediate diaphragms shall conform to the requirements of PCI 4.3.5.10.

**SHIPPING STRANDS**

- The fabricator may add shipping strands at the locations shown on this standard. These shipping strands shall be bonded for the entire length of the beam except for the last 5'-0" at either end. Additional reinforcing steel shall be placed in the top flange at shipping strand locations to meet AASHTO 510.10.21 at each end of the 10'-0" of bonded strand and 5'-0" above the entire bonded length of the shipping stand. The strands shall be cut across to CWS 512.18 after all handling operations are complete.