**ASCE-INDOT**
**STRUCTURAL SUBCOMMITTEE**
**MEETING NO. 43 MINUTES**
**May 14, 2009**

The meeting was called to order at 9:10 am by Steve Weintraut. Those in attendance were:

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| Anne Rearick | INDOT, Structural Services |
| Tony Uremovich | INDOT, Structural Services |
| Ron McCaslin | INDOT, Structural Services |
| Greg Klevitsky | INDOT, Structural Services |
| Naveed Burki | INDOT, Structural Services |
| Bill Dittrich | INDOT, Program Development |
| Tony Zander | INDOT, Materials and Tests Division |
| Mike McCool | Beam Longest & Neff, LLC. |
| Mike Wenning | American Structurepoint, Inc. |
| Mike Halterman | USI Consultants, Inc. |
| Burleigh Law | HNTB Corp. |
| Don Bosse | Prestress Services, Inc. |
| Michael Eichenauer | Butler, Fairman and Seufert, Inc. |
| Steve Weintraut | Butler, Fairman and Seufert, Inc. |

In addition to the attendees, these minutes will be sent to the following:

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| George Snyder | INDOT, Structural Services |
| Brian Harvey | INDOT, Program Development |
| Ron Heustis | INDOT, Construction Management |
| Jim Reilman | INDOT, Construction Management |
| Keith Hoernschmeyer | Federal Highway Administration |
| Dick O'Connor | RQAW Corporation |
| Troy Jessup | R. W. Armstrong |
| Jason Yeager | Gohman Asphalt Company |

A meeting agenda had previously been distributed and the following items were discussed:

1. The October 23, 2008, meeting minutes were approved as written, and have been placed on the INDOT website.

2. Steve Weintraut passed out a handout on a pavement ledge detail with a high density plastic bearing strip for comments (see Attachment No. 1). Anne Rearick will pass along to the Construction Committee.

3. The specifications and details for the adhesive and semi integral end bent have been posted.

4. The torsion requirements for pier reinforcement is not an issue.

5. Tony Zander and Tony Uremovich will put together a conceptual proposal for semi lightweight concrete as a recurring special provision and present it to the Standards Committee.

6. The finalized hybrid Bulb-T standards will be posted when Chapter 63 of the Indiana Design Manual is posted.

7. Anne Rearick presented her research on the use of 0.6"Ø strand in prestressed concrete beams. Illinois DOT does not allow it. Michigan DOT and the Federal Highway do allow their use. It was decided to be designer choice in Bulb-T's.

8. The overhang criteria that should be followed for hybrid Bulb-T's are 0.45 X the beam spacing or 5 feet maximum. The 0.85 X beam depth is not critical. However, the designer needs to check the overhang criteria for construction loads. Burleigh Law and Troy Jessup will investigate various beam types and overhangs for construction loadings and present to the group.

9. Tony Zander and Tony Uremovich will put together a conceptual proposal for self consolidating concrete as a recurring special provision and present it to the Standards Committee.

10. Mike McCool discussed using 8" maximum spacing of reinforcement in concrete decks in both the longitudinal and transverse direction. The committee was asked to review the attachments from Meeting No. 39 and provide comments at the next meeting.

11. LRFD training is on hold.

12. The concrete box beam (vented voids) is in the 2010 Standard Specifications.

13. The 400 kip collision load will be discussed at the next meeting.

14. Mike McCool will provide an update on construction loadings at the next meeting.

15. Integral end bent design examples will be discussed at the next meeting.

16. A handout was distributed illustrating a comparison of approach slabs from other State DOTs (see Attachment No. 2). It was suggested to use a 9" pavement ledge in lieu of 6". This will be passed along to the Construction Committee for their comments.

17. Steve Weintraut passed out a handout from the West Virginia DOT illustrating their stay-in-place form details. This will be discussed at the next meeting.

18. Hydrodemolition will be discussed at the next meeting.

19. U-beams will be discussed at the next meeting

The next meeting for the INDOT Structural Subcommittee is scheduled for 9:00 am on July 23, 2009, in a room to be determined.

This meeting was adjourned at 11:20 a.m.

Respectfully submitted,
BUTLER, FAIRMAN and SEUFERT, INC.

Michael Eichenauer, P.E.
meichenauer@bfsengr.com

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Attachments

# ATTACHMENT NO. 1

## HIGH DENSITY PLASTIC BEARING STRIP

**Desciption:** This work shall consist of furnishing and installing the high density plastic bearing strip in accordance with the manufacturer's recommendations and the contract plans.

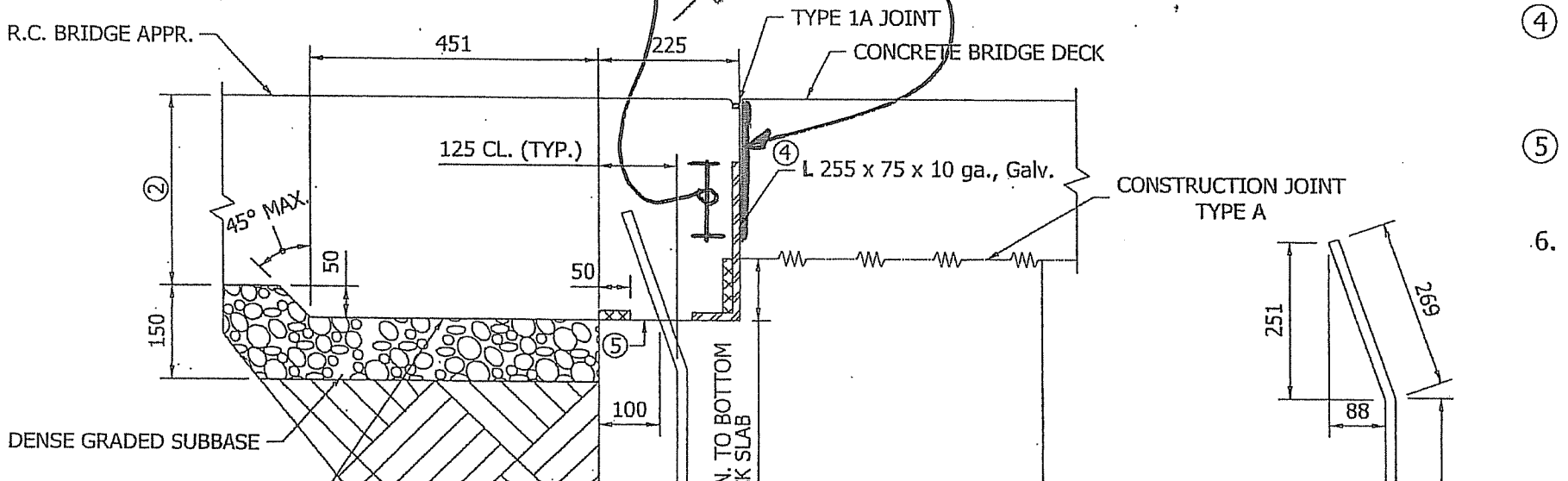
**Materials:** The high density multipolymer plastic bearing strip shall be KOROLATH® NS (Non-Slip) or equal. The plastic strip shall be 1/8" thick and have the following physical properties.

Compressive Strength of 8000 to 9000 psi.
Non toxic.
Cold Flow Characteristics of less than 1% at 1000 psi and 73° F.
Coefficient of Linear Expansion of 3 to 5 X $10^{-5}$ Inches/Inch/°C.

1/8" THICK HIGH DENSITY MULTI POLYMER PLASTIC BEARING STRIP. STRIP TO BE EPOXY GLUED TO GALV. ANGLE AND TOP OF STRIP SHALL BE FLUSH WITH TOP DECK.

LAP 4" MIN.

8.86"



# ATTACHMENT NO. 2

| Approach Slab Comparison | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| State DOT | Length | Thickness | Reinforcing Steel | Pavement Ledge | Design Criteria | Overall Comment | Construction Requirements | Website links |
| Ohio | Varies from 15' to 30' (not sure what governs length) irregardless of skew, meaning both ends of the approach slab follow the skew. | A function of the length. Varies from 12" to 17" | #5 (Top) @ 1'-6" CTC and #10 (Bottom) @ spacing that depends on the length. #10's in the bottom mat go from 10" to 6.5" spacing. Dowel that connects appr. slab and backwall is a #8 @ 1'-6" spacing with a hooked end in the backwall and a bent leg that ties into the top mat of the approach slab. | May vary from 6" to 11" (not sure what governs dimension since all abutment and end bent Std. Dwg.'s show 6") | 1996 AASHTO Standard Specifications with interims through 1999. Loading: 60 psf future wearing surface and HS-25 live load. | ODOT has clearly designed the approach slab to be structural and act as a simply supported beam. | | http://www.dot.state.oh.us/Divisions/HighwayOps/Structures/standard/Bridges/Standard%20Drawings/as181.pdf |
| Illinois | Standard 30' length, again irregardless of skew. | Standard 1'-3" | Transverse #4's @ 15" in top, transverse #5's @ 8" in bottom, longitudinal #9's @ 5" in bottom, and longitudinal #4's @ 15" in top. It's not apparent what size and spacing is required for the vertical dowel bar connecting the backwall to the approach slab. | 10" per Design Manual figures of typical integral and semi-integral end bents. Minimum 6" for other less typical abutments. | | IDOT has clearly designed the approach slab to be structural and act as a simply supported beam. | | http://www.dot.state.il.us/bridges/Br_Appr_Slab_Index.pdf |
| Missouri | Standard 25' length, again irregardless of skew. | Standard 12" Min. at gutter line, but gets thicker toward crown line. | Transverse #4's @ 18" in top, transverse #6's @ 15" in bottom, longitudinal #8's @ 5" in bottom, and longitudinal #7's @ 12" in top. #5 horizontal dowel bars @ 12" connecting the backwall to the approach slab. | 6" per Design Manual figures on end bents. | | MoDot has clearly designed the approach slab to be structural and act as a simply supported beam. | Contractor required to pour approach slab after bridge deck. | http://www.modot.org/business/standard_drawings2/approachslab_new_title_block.htm |
| West Virginia | Standard 20' length, again irregardless of skew. | Standard 12" of concrete topped with 2" of hot laid bituminous skid resistant overlay. | Transverse #5's @ 12" in top and bottom, longitudinal #8's @ 6" in bottom, and longitudinal #5's @ 12" in top. Dowel that connects appr. slab and backwall is a #5 @ 12" spacing with a hooked end in the backwall and a bent leg that ties into the top mat of the approach slab. | 9" | AASHTO LRFD | WVDOH has clearly designed the approach slab to be structural and act as a simply supported beam. | | http://www.wvdot.com/engineering/files/WVBDML.pdf |
| Michigan | Standard 20' length, again irregardless of skew. However, for structures with MSE walls a 27' length shall be used to reduce voids under approaches. | Standard 9" Min. at gutter line, but gets thicker toward crown line. Longitudinally gets thicker as it approaches bridge end bent starting at 10 feet from pavement ledge. | Transverse EA06 bars @ 12" top and bottom, longitudinal EA06 bars @ . Bottom mat of longitudinal bars in deck to extend 2' minimum into approach slab. Extra bars are added over beams and should extend 2' minimum into approach slab and 2' minimum into deck (basically a 4' long bar). | | | | Contractor required to pour from sleeper slab toward bridge end bent. | http://mdotwas1.mdot.state.mi.us/public/design/englishbridgeguides/ |

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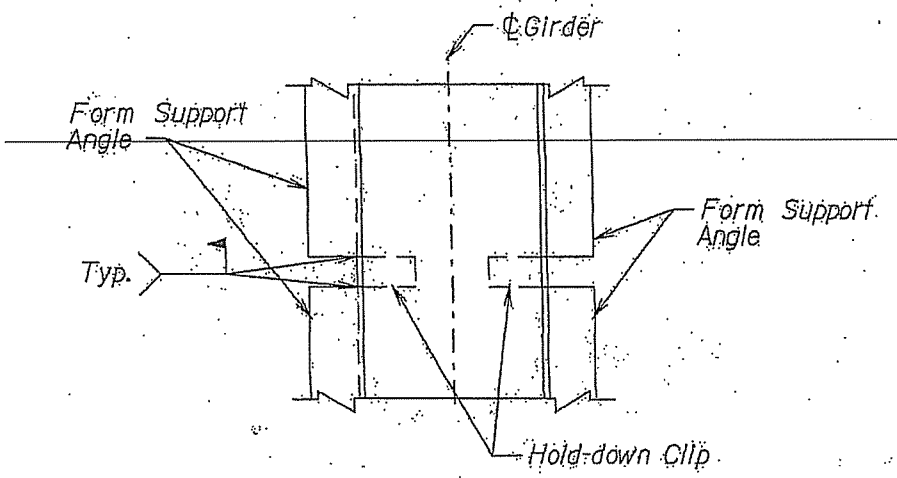
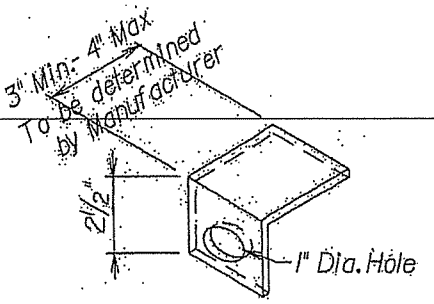
| Kentucky | Standard 25' length, again irregardless of skew. | Standard 1'-5"; however, is placed 12" below top of pavement. | Only a bottom mat with transverse #5's @ 6" for first 3' near end bent and #5's @ 10" the rest of the length and longitudinal #8's @ 6". Vertical 1.5" diameter dowels connecting approach slab and end bent backwall. | 9" | AASHTO Standard Spec.s | KYTC rarely uses approach slabs, so probably not a good state to use as an example. | | http://www.kytc.state.ky.us/design/standard/pdf2008/STRUCTURE-SERIES2008.PDF#bgx017-00 |
| Minnesota | Standard 20' length, again irregardless of skew, up to a 40 degree skew. For a skew greater than 40 degrees is a standard 15' length. There are some slightly different details that then get used depending on whether the pavement is concrete or asphalt. | | Transverse #4's @ 12" in top, transverse #5's @ 12" in bottom, longitudinal #6's @ 6" in bottom, and longitudinal #4's @ 12" in top. It's not apparent what size and spacing is required for any bars connecting the backwall to the approach slab. | 8" per 11.1.4 of Design Manual | AASHTO LRFD | | | http://www.dot.state.mn.us/design/standard-plans/eng/pdf/plans-200.pdf#223 |
| Iowa | | | | | | | | |
| Wisconsin | | | | | | | | |

ATTACHMENT NO. 3

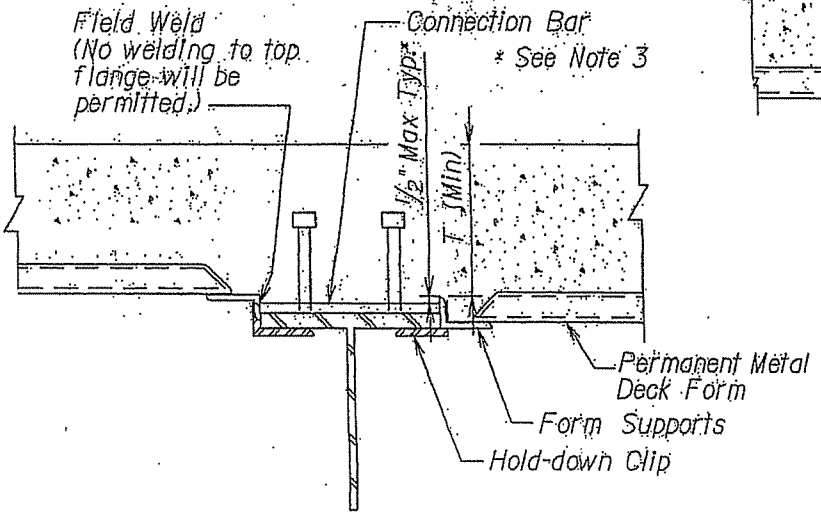
# WEST VIRGINIA DIVISION
# HAUNCH DETAIL AND STAY-IN-PLACE FORM DETAILS



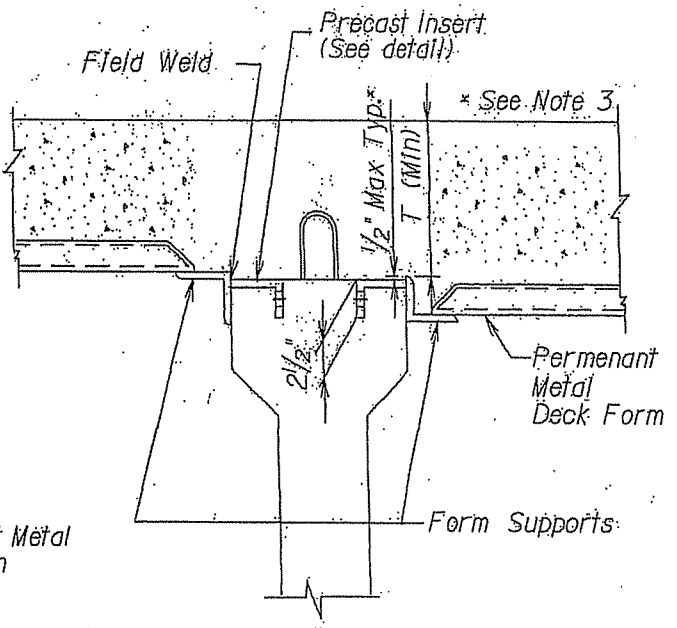

PLAN
STEEL BEAM



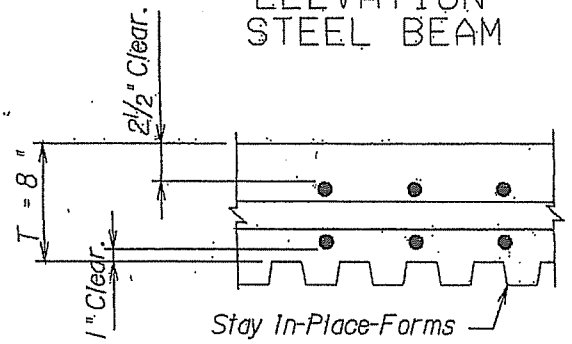

PRECAST INSERT



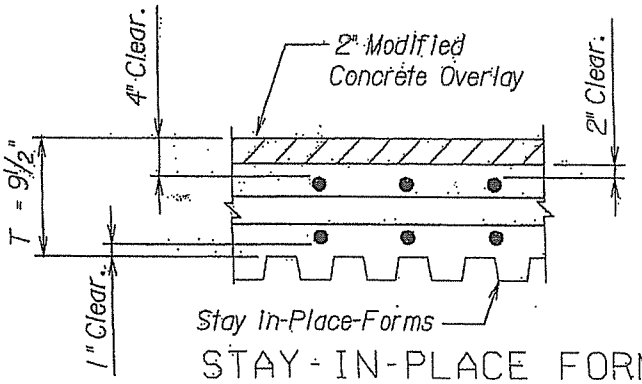

ELEVATION
STEEL BEAM




ELEVATION
PRESTRESSED I BEAM




STAY-IN-PLACE FORM
(WITHOUT OVERLAY)




STAY-IN-PLACE FORM
(WITH 2" OVERLAY)

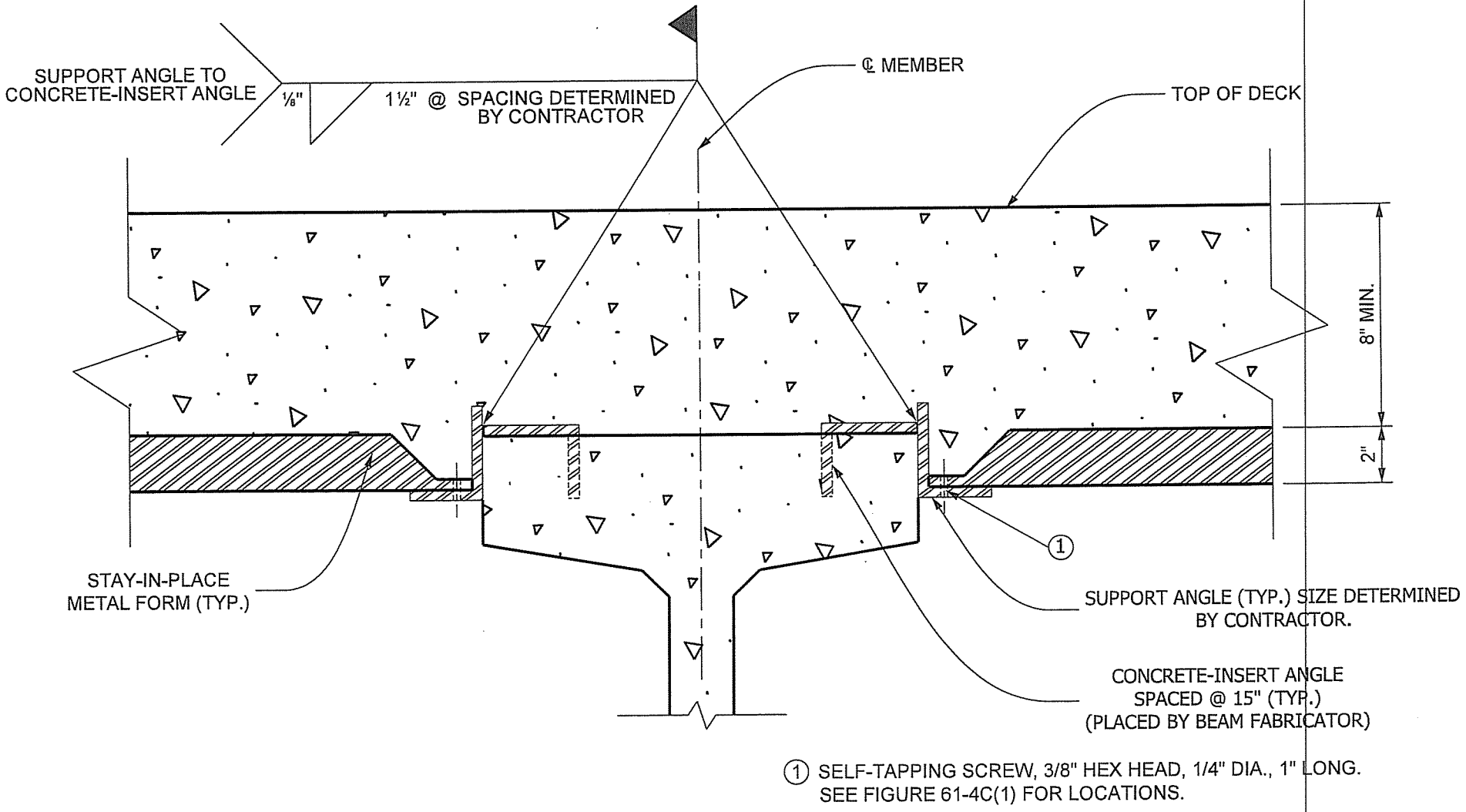
Notes:

1. For the purpose of estimating the quantity of Class K or H Concrete in the flutes of permanent metal deck forms assume a uniform thickness of one inch over the area of the stay-in-place forms. The width used shall be measured from edge of flange to edge of flange.

2. The steel haunch detail shown is only applicable to composite design.

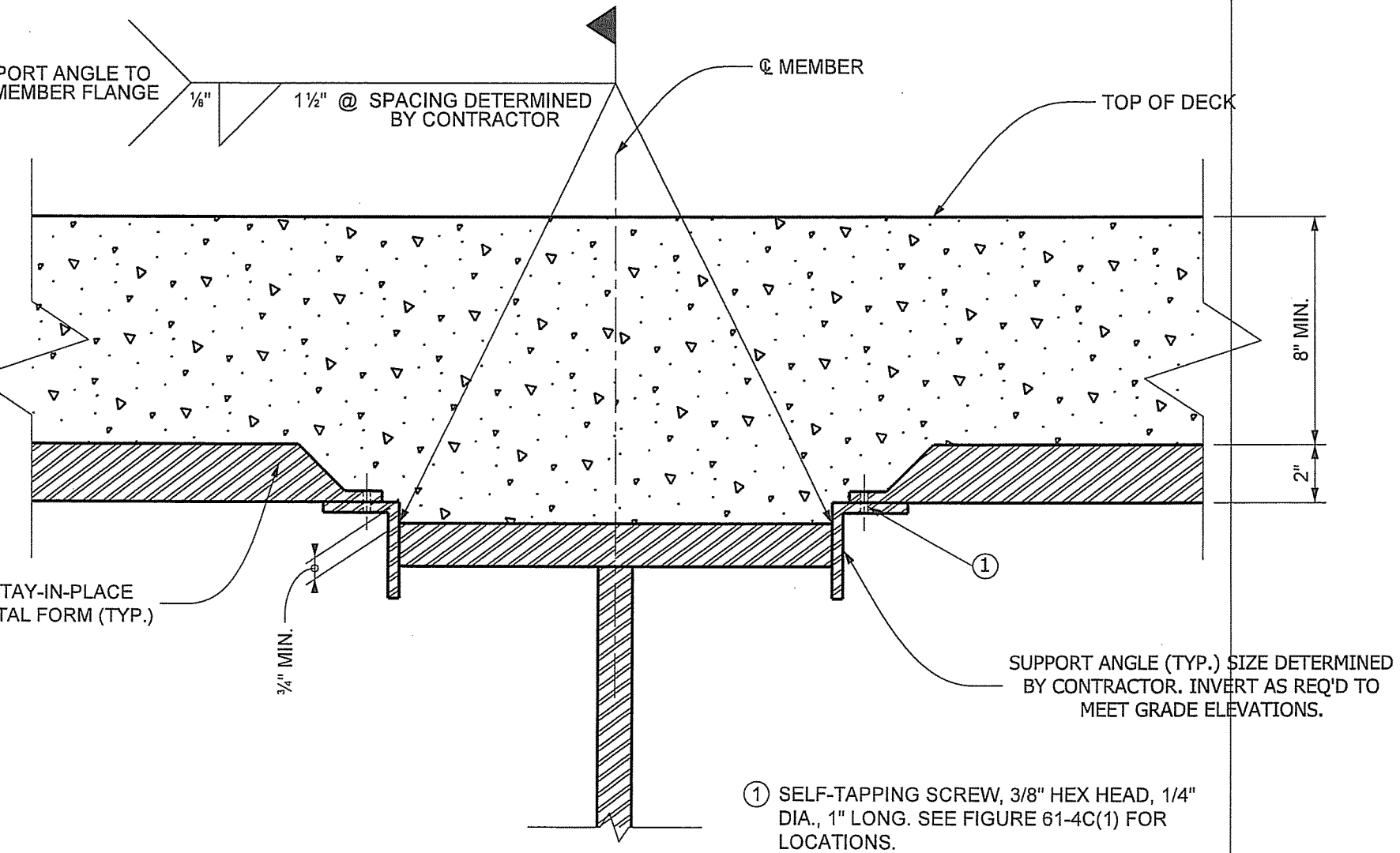
3. The form supports shall not protrude into the deck more than ½" above the top of the connection bar or precast insert nor shall it interfere with the nominal slab thickness.

11-07-05




# FILLET TREATMENT FOR PRESTRESSED-CONCRETE MEMBER

Figure 61-4C




# FILLET TREATMENT FOR STRUCTURAL-STEEL MEMBER

Figure 61-4B