GENERAL NOTES:

COMPRESSION SEAL: SEAL MATERIAL SHALL CONFORM TO 705.11. SEAL CONFIGURATION SHALL BE SIMILAR TO THE DETAILS SHOWN HEREIN. ACCEPTED MANUFACTURERS ARE: D.S. BROWN (MODEL CV4000), WATSON-BOWMAN-ACME (MODEL WJ400) OR AN APPROVED EQUIVALENT. SEAL INSTALLATION PROCEDURE AND LUBRICANT ADHESIVE SHALL AS BE PER THE MANUFACTURER'S SPECIFICATIONS WITH SUPERVISION BY THE MANUFACTURER OR HIS DESIGNATED REPRESENTATIVE.

JOINTS IN COMPRESSION SEALS: SEALS SHALL BE FURNISHED IN ONE CONTINUOUS PIECE UNLESS APPROVED BY THE DIRECTOR.

ARMOR STEEL: ALL STEEL PARTS OF THE EXPANSION JOINT ASSEMBLY SHALL BE ASTM A709, GRADE 50.

JOINTS IN ARMOR STEEL: SHOP OR FIELD JOINTS IN THE ARMOR SHALL BE COMPLETE PENETRATION WELDS GROUND FLUSH WHERE IN CONTACT WITH THE SEAL AND THE RETAINER.

ARMOR COATING: ALL STEEL PARTS OF THE JOINT ASSEMBLY REQUIRE METALIZING WITH 100% ZINC WIRE. SURFACE PREPARATION AND APPLICATION OF THE COATING SHALL BE AS PER THE SOCIETY FOR PROTECTIVE COATINGS SSPC-CS-23.00(1). THE COATING THICKNESS SHALL BE 6 MILS MINIMUM. METALIZED SURFACES EMBEDDED OR PARTIALLY EMBEDDED IN CAST-IN-PLACE CONCRETE REQUIRE SEALING. THE SEALER SHALL BE THE INTERMEDIATE EPOXY COATING MEETING THE REQUIREMENTS OF SS910.03. THE SEALER SHALL COVER ALL PEAKS, VALLEYS AND SURFACE ROUGHNESS ATTRIBUTED TO METALIZING.

COATING REPAIRS: COATINGS DAMAGED DURING FABRICATION SHALL BE REPAIRED BY COMPLETE REMOVAL AND RE-METALIZING PER THE ARMOR COATING NOTES ABOVE. COATINGS DAMAGED IN SHIPMENT, BY CONSTRUCTION OR BY FIELD WELDING SHALL BE REPAIRED PER ASTM A780 ANNEX A1, "REPAIR USING ZINC BASED ALLOYS." THIS PROCESS INVOLVES REMOVAL OF SURFACE CONTAMINATES, PREHEAT TO 600°F AND APPLICATION OF ZINC COATING BY RUBBING WITH A PURE ZINC STICK OR SPRINKLING ZINC POWDER ON THE PREHEATED SURFACE. THE REPAIRED COATING SHALL BE 6 MILS MINIMUM THICKNESS.

TEMPORARY SUPPORTS: FABRICATOR DESIGNED AND INSTALLED TEMPORARY SUPPORTS ARE REQUIRED TO SUPPORT SHIPPING, ERECTION AND CONSTRUCTION FORCES WITHOUT DAMAGE TO THE STEEL ARMOR OR COATING. THESE SUPPORTS SHALL BE ADJUSTABLE IN THE FIELD TO ACCOUNT FOR VARIABLE TEMPERATURE SETTINGS. THE SUPPORTS SHALL BE INSTALLED AFTER THE FABRICATION AND COATING IS COMPLETE.

STEEL DEFLECTORS SHALL BE 22 GAGE STAINLESS STEEL MEETING THE REQUIREMENTS OF ASTM A240, TYPE 304 OR EQUIVALENT, WITH A NO. 1 FINISH

NON-SHRINKING GROUT OR MORTAR SHALL BE AS PER CMS 705.22 WITH THE BATCH SIZE LIMITED SO PLACEMENT CAN BE COMPLETED WITHIN 30 MINUTES. WATER SHALL NOT BE ADDED TO INCREASE FLOWABILITY WHICH HAS BEEN DECREASED BY DELAYED USE OF MORTAR. INCLUDE WITH SUPERSTRUCTURE CONCRETE FOR PAYMENT.

THREADED RODS: THE $\frac{5}{8}$"ϕ THREADED RODS AND NUTS SHALL BE A36 OR A307 STEEL GALVANIZED AS PER 711.02. INCLUDE WITH THE BOX BEAMS FOR PAYMENT.

MEASUREMENT: MEASUREMENT AND PAYMENT PER ITEM 516 SHALL INCLUDE ALL LABOR, MATERIALS, COATINGS AND EQUIPMENT NECESSARY TO COMPLETE THE JOINT IN PLACE.

CONCRETE PLACED IN THE BOX BEAM NOTCH SHALL BE PAID FOR UNDER ITEM 511, 842 OR 844 AS APPROPRIATE.

CONSTRUCTION PROCEDURE:

1. PLACE JOINT ASSEMBLY SO THE TWO (2) L7x4x$\frac{1}{2}$" ANGLES REMAIN PARALLEL TO EACH OTHER AND PERPENDICULAR TO THE ROADWAY GRADIENT.
2. FOR STRUCTURES WITH A COMPOSITE CONCRETE WEARING SURFACE, THE SUPERSTRUCTURE CONCRETE SHALL BE PLACED IN THE SPAN ADJACENT TO THE ABUTMENT PRIOR TO THE PLACEMENT OF ABUTMENT BACKWALL CONCRETE.
3. ⊙ NOT MORE THAN FOUR HOURS PRIOR TO THE DAY'S PEAK AMBIENT TEMPERATURE, SET ABUTMENT EXPANSION JOINT WIDTH TO DIMENSION "A" WHICH SHALL BE DETERMINED AS FOLLOWS:

   $A = 2\frac{1}{4}" \pm D_{TA}$, WHERE:
   A = JOINT WIDTH (INCHES) MEASURED NORMAL TO JOINT
   D_{TA} = ADJUSTMENT (INCHES) FOR A PEAK AMBIENT TEMPERATURE OTHER THAN 60°F (SEE CHART).

4. PLACE THE BACKWALL CONCRETE DURING STABLE OR RISING AMBIENT TEMPERATURES. CONCLUDE PLACEMENT AT OR IMMEDIATELY BEFORE THE DAY'S PEAK AMBIENT TEMPERATURE.
5. HAND PLACE AND VIBRATE CONCRETE UNDER JOINT ARMOR TO ACHIEVE COMPLETE CONSOLIDATION.
6. LOOSEN ANY TEMPORARY JOINT ARMOR SUPPORTS AFTER INITIAL SET OF THE CONCRETE, PREFERABLY NOT LATER THAN TWO HOURS AFTER CONCLUSION OF THE CONCRETE PLACEMENT.
7. FOR STRUCTURES WITH A NONCOMPOSITE ASPHALT WEARING SURFACE, PLACE THE CONCRETE IN THE BOX BEAM NOTCH PER STEP 5 AFTER THE BACKWALL CONCRETE HAS BEEN PLACED. THE SURFACE TEXTURE SHALL BE PARALLEL WITH THE JOINT. CONCRETE SHALL BE CLASS "S" UNLESS OTHERWISE SPECIFIED IN THE PLANS.

NOTES TO DESIGNER:

DESIGN LIMITS: THIS DESIGN IS INTENDED FOR STRUCTURES WITH SKEW ANGLES NOT GREATER THAN 15°, ROADWAY GRADES OF 2% OR LESS AND D_M (SEE CHART ON THIS SHEET) NOT LARGER THAN 150 FEET.

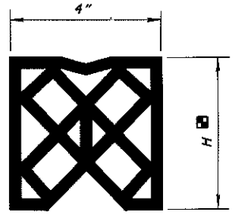
THE DESIGNER SHALL SUPPLY DETAILS FOR STRUCTURES WITH ROADWAY GRADES GREATER THAN 2%.

ANCHOR BAR HOLES IN ABUTMENT SEATS SHALL BE 2" ϕ UNLESS OTHERWISE SHOWN ON PROJECT PLANS.

COMPRESSION SEALS AT FIXED BEARINGS SHALL BE AS SHOWN WHERE DIMENSION "A" = $2\frac{1}{4}$" AT ANY AMBIENT TEMPERATURE.

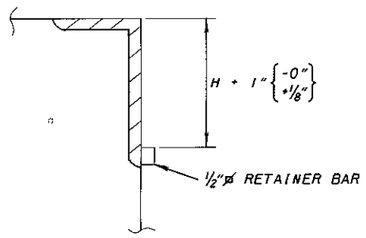
PRESTRESSED CONCRETE BOX BEAMS SHALL BE MODIFIED AS FOLLOWS FOR COMPRESSION SEAL INSTALLATION:

1. STIRRUP REINFORCING STEEL IN NOTCHED AREAS AT ENDS OF COMPOSITE BEAMS SHALL NOT PROJECT ABOVE THE TOP OF CONCRETE.
2. ENDS OF FASCIA BEAMS SHALL BE NOTCHED FULL WIDTH OF BEAMS.
3. 12 INCH DEEP BEAMS REQUIRE A SPECIAL DESIGN.
4. HOLES FOR ANCHOR BARS SHALL BE $2\frac{1}{2}$" DIAMETER.
5. BEAM ENDS FOR STRUCTURES ON GRADES OVER 2% SHALL BE MADE VERTICAL.

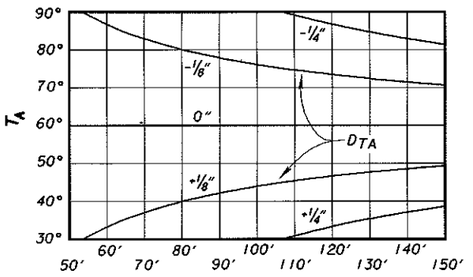


COMPRESSION SEAL DETAIL

■ SEE THE MANUFACTURER'S CATALOGUE FOR THE SEAL ACTUALLY CHOSEN FOR USE.



LOCATION OF SEAL RETAINER BARS



$D_M = D_A \cos \Theta$

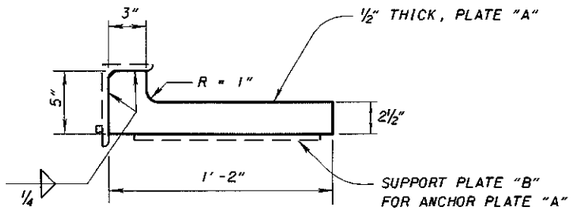
T_A = ANTICIPATED PEAK AMBIENT TEMPERATURE (°F).

D_A = ACTUAL DISTANCE, IN FEET, TO THE THERMAL NEUTRAL EXPANSION POINT OF THE SUPERSTRUCTURE ALONG THE CENERLINE OF THE ROADWAY. THE THERMAL NEUTRAL POINT OF THE SUPERSTRUCTURE IS THE POINT THAT HAS ZERO HORIZONTAL MOVEMENT DURING TEMPERATURE CHANGES.

D_M = MODIFIED DISTANCE FOR DETERMINING JOINT ADJUSTMENT (FEET).

Θ = SKEW ANGLE OF EXPANSION JOINT.

DIMENSION "A" ADJUSTMENT D_{TA}



ARMOR ANCHOR PLATE "A"

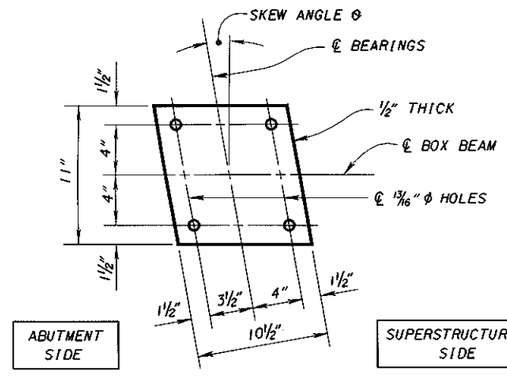


PLATE "B" PLAN

DESIGN AGENCY
OFFICE OF STRUCTURAL ENGINEERING

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
ENGINEER OF BRIDGES — 11-15-82 DATE

REVISIONS	DESIGNED	CHECKED	REVIEWED
8-1-84	RLD/AJM	JS/MPB	WTL/RLD
2-14-97	DRAWN		EXJ-3-82
04-20-01	AJM		

STANDARD
COMPRESSION SEAL EXPANSION JOINTS AT ABUTMENTS FOR PRESTRESSED BOX BEAM STRUCTURES

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