

TABLE A

GENERAL NOTES

MATERIALS : A588 OR A36 WITH PAINT AS SPECIFIED FOR THE MAIN STRUCTURAL STEEL, EXCEPT THAT SYSTEM OZEU SHALL BE USED WHEN THE MAIN STRUCTURAL STEEL IS TO REMAIN UNPAINTED. PAINTING SHALL BE DONE IN THE FIELD EXCEPT THAT A WASH COAT OF PRIMER SHALL BE APPLIED IN THE SHOP TO ALL SURFACES, INCLUDING THOSE TO BE EMBEDDED IN CONCRETE, TO PREVENT RUSTING AND RUST RUN-OFF. THE WASH COAT SHALL BE REMOVED FROM ALL SURFACES BY SANDBLASTING DURING SURFACE PREPARATION FOR THE FIELD PAINTING. THE FIELD PAINT SHALL CONSIST OF ONE PRIME COAT FOR SYSTEMS A & OZEU OR TWO PRIME COATS FOR SYSTEM B, ONE INTERMEDIATE COAT FOR SYSTEM OZEU, AND ONE FINISH COAT FOR THE SYSTEM USED. A CLOSED CELL BACKER ROD OR SIMILAR MATERIAL SHALL BE INSERTED INTO THE RETAINER GROOVES TO MASK THEM OFF DURING THE PAINTING. STEEL PORTIONS OF THE JOINTS THAT ARE TO BE ENCASED IN CONCRETE OR SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE MAY REMAIN UNPAINTED.

THE PREFORMED STRIP SEAL GLAND SHALL BE EXTRUDED POLYCHLOROPRENE MATERIAL MEETING THE REQUIREMENTS OF ASTM D2628. DUE TO THE CONFIGURATION OF THE STRIP SEAL, THE RECOVERY TEST IS NOT APPLICABLE. PHYSICAL PROPERTIES SHALL MEET THE REQUIREMENTS SPECIFIED IN TABLE 'E' ON THIS SHEET.

EACH LOT OF STRIP SEAL GLANDS SHALL BE TESTED BY THE MANUFACTURER OR AN ACCREDITED LABORATORY TO ENSURE COMPLIANCE WITH THESE PROVISIONS. TWO CERTIFIED COPIES OF THE QUALIFICATION TEST DATA INDICATING THAT THE TESTED MATERIALS COMPLY WITH THESE PROVISIONS SHALL BE SUBMITTED TO THE TESTING LABORATORY.

EACH STRIP SEAL GLAND DESIGN, SHAPE, WIDTH, DEPTH AND THICKNESS SHALL BE APPROVED BY THE DIRECTOR. MATERIAL ACCEPTANCE WILL BE BASED UPON LABORATORY EVALUATION OF CERTIFIED TEST DATA AND THE TE-30 FIELD INSPECTION REPORT.

LUBRICANT - ADHESIVE USED TO INSTALL THE PREFORMED STRIP SEALS SHALL BE A POLYURETHANE AND HYDROCARBON SOLVENT MIXTURE AS SPECIFIED BY THE SEAL MANUFACTURER. IT SHALL HAVE SUITABLE CONSISTENCY AT THE TEMPERATURE AT WHICH THE SEALS ARE INSTALLED AND SHALL BE COMPATIBLE WITH THE SEALS AND THE STEEL RETAINERS.

TABLE E (PHYSICAL PROPERTIES OF SEAL ELEMENT)		
PROPERTY	REQUIREMENT	ASTM METHOD
TENSILE STRENGTH, MIN. P.S.I.	2000	D412
ELONGATION AT BREAK, MIN. PERCENT	250	D412
HARDNESS, TYPE A DUROMETER	50 MIN. 65 MAX.	D2240 (MODIFIED)
OVEN AGING, 70 HR. AT 212° F TENSILE STRENGTH, LOSS, MAX. ELONGATION, LOSS, MAX. HARDNESS, TYPE A DUROMETER (POINTS CHANGE)	20 PERCENT 20 PERCENT 0 TO +10	D573
OZONE RESISTANCE 20 PERCENT STRAIN, 300 PPHM, IN AIR AT 104° F (WIPED WITH TOLUENE TO REMOVE SURFACE CONTAMINATION)	NO CRACKS	D1149

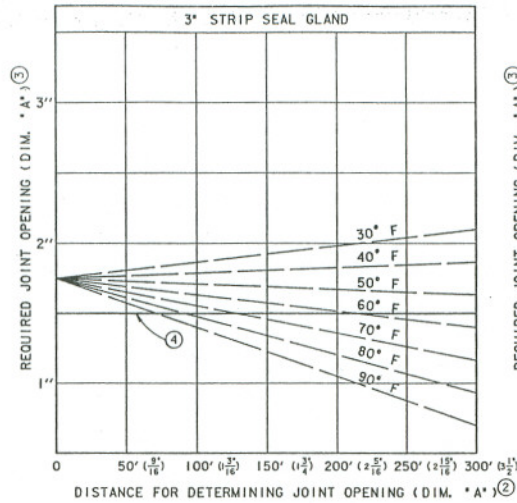


TABLE B

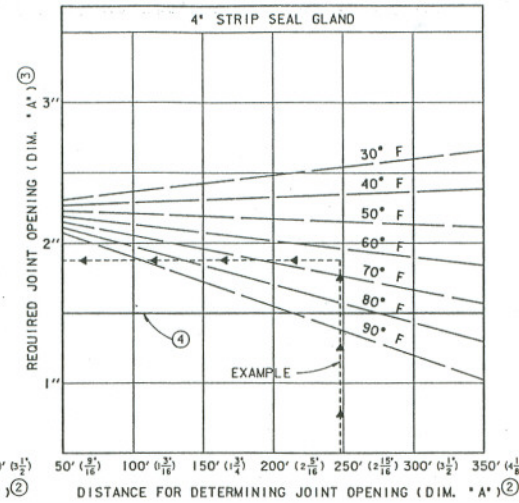


TABLE C

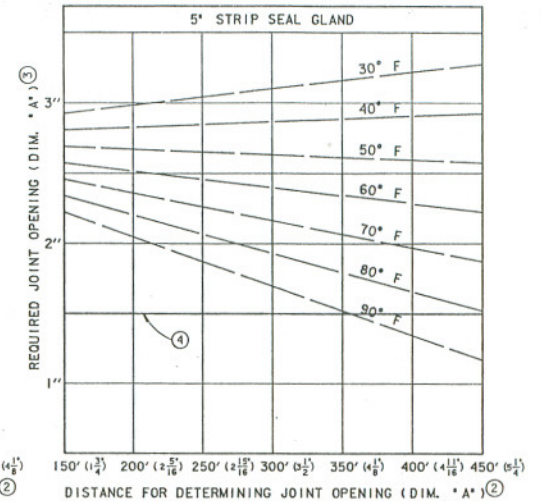


TABLE D

SPLICE OR JOINT IN SEAL GLAND : SEAL GLANDS FOR BRIDGE DECK JOINTS SHALL BE FURNISHED IN ONE CONTINUOUS PIECE UNLESS A SHOP FABRICATED SPLICE, FIELD SPLICE OR FIELD BUTT JOINT IS INDICATED ON THE PLANS OR APPROVED BY THE ENGINEER.

COMPLETED SPLICES SHALL HAVE NO OFFSETS ON EXTERIOR SURFACES, AND AFTER INSTALLATION, THERE SHALL BE NO EVIDENCE OF BOND FAILURE AT THE SPLICES.

FOR OTHER THAN STRAIGHT SEALS WITHOUT INTERMEDIATE SPLICES, SEAL GLANDS SHALL BE SHOP FABRICATED IN ACCORDANCE WITH APPROVED SHOP DRAWINGS. SHOP DRAWING DIMENSIONS FOR EXISTING JOINTS OR FOR JOINTS WHICH ARE BEING MODIFIED SHALL BE BASED ON FIELD MEASUREMENTS PROVIDED BY THE CONTRACTOR.

PREPARATION FOR INSTALLATION : TO AVOID THE SUBSEQUENT CONTAMINATION OF THE PREPARED SURFACES, ALL SURFACES OF ELASTOMERIC STRIP SEAL GLANDS SHALL BE CLEANED WITH METHYL ETHYL KETONE (MEK), TOLUENE (T) OR ANOTHER APPROVED SOLVENT USING CLEAN DISPOSABLE CLOTHS.

THE BONDING SURFACES OF THE STEEL RETAINERS (THE INTERIOR OF THE ANCHOR GROOVES) SHALL BE PREPARED TO GRADE SA 3, ASTM D2200. PREPARATION SHALL BE ACCOMPLISHED NOT MORE THAN 24 HOURS PRIOR TO ADHESIVE BONDING.

INSTALLATION : IMMEDIATELY PRIOR TO APPLICATION OF LUBRICANT-ADHESIVE, BONDING SURFACES SHALL BE CLEAN, DRY AND WARMER THAN 45 DEGREES F, AND THEY SHALL BE MAINTAINED AT OR ABOVE THIS TEMPERATURE UNTIL THE ADHESIVE HAS CURED. LUBRICANT-ADHESIVE SHALL BE APPLIED LIBERALLY TO BOTH STEEL AND ELASTOMERIC BONDING SURFACES USING A STIFF BRUSH IF NECESSARY TO ACHIEVE A COMPLETE AND RELATIVELY UNIFORM COATING. THEN THE BULBED EDGES OF THE ELASTOMERIC SEAL SHALL BE INSERTED INTO THE ANCHOR GROOVES. AFTER INSTALLATION, EXCESS LUBRICANT-ADHESIVE SHALL BE REMOVED FROM THE EXPOSED SEAL SURFACES.

SEAL GLANDS SHALL BE INSTALLED WITH EQUIPMENT DESIGNED OR SPECIFICALLY ADAPTED FOR THE INSTALLATION OF ELASTOMERIC JOINT SEAL GLANDS. THIS EQUIPMENT SHALL NOT ELONGATE THE SEAL GLAND OR CAUSE STRUCTURAL DAMAGE TO THE COMPLETED INSTALLATION.

MEASUREMENT FOR PAY PURPOSES SHALL BE BASED ON THE LINEAR FEET OF SEALED JOINT SYSTEM, MEASURED HORIZONTALLY ALONG THE JOINT CENTERLINE AND BETWEEN THE OUTER LIMITS OF THE FABRICATED JOINT, FURNISHED AND PLACED, INCLUDING ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO COMPLETE THE JOINT IN PLACE, WHICH INCLUDES THE JOINT ARMOR, RETAINERS, GLANDS, ANCHORING DEVICES, TEMPORARY SUPPORTS AND END CROSSFRAME GUSSET PLATES. PAYMENT WILL BE MADE PER LINEAR FOOT FOR ITEM 516 'STRUCTURAL EXPANSION JOINTS, INCLUDING ELASTOMERIC STRIP SEALS'.

LEGEND

- ① - THIS IS THE ACTUAL DISTANCE FROM THE CENTERLINE OF JOINT TO THE THERMAL NEUTRAL POINT OF THE SUPERSTRUCTURE MEASURED ALONG THE CENTERLINE OF ROADWAY. THIS DIMENSION SHALL BE A MAXIMUM OF 342' FOR 45 DEGREE SKEWS, 385' FOR 30 DEGREE SKEWS AND 427' FOR 0 DEGREE - 15 DEGREE SKEWS.
- ② - THIS DISTANCE FOR EXPANSION JOINTS HAVING SKEW ANGLES OF 15 DEGREES OR LESS IS THE ACTUAL DISTANCE TO THE THERMAL NEUTRAL POINT OF SUPERSTRUCTURE ALONG CENTERLINE OF ROADWAY. THIS DISTANCE FOR EXPANSION JOINTS HAVING SKEW ANGLES OVER 15 DEGREES BUT NOT GREATER THAN 45 DEGREES IS ARRIVED AT BY MULTIPLYING THE ABOVE DEFINED DISTANCE ALONG CENTERLINE OF ROADWAY BY THE COSINE OF THE EXPANSION JOINT SKEW ANGLE. DIMENSIONS SHOWN IN PARENTHESIS REPRESENT THE TOTAL JOINT MOVEMENT NORMAL TO THE CENTERLINE OF BEARINGS.
- ③ - THIS IS THE JOINT OPENING (DIMENSION 'A') REQUIRED, AT THE TIME OF ABUTMENT BACKWALL CONCRETE PLACEMENT, BASED ON THE DAY'S ANTICIPATED PEAK AMBIENT TEMPERATURE.
- ④ - MINIMUM JOINT OPENING (DIMENSION 'A') AT TIME OF SEAL GLAND INSTALLATION SHALL NOT BE LESS THAN 1 1/2". IF THE JOINT OPENING IS LESS, THE INSTALLATION SHALL BE POSTPONED UNTIL THE TEMPERATURE DROPS A SUFFICIENT AMOUNT TO ALLOW THE MINIMUM 1 1/2" OPENING.
- ⑤ - THE NEUTRAL POINT OF THE SUPERSTRUCTURE IS THAT POINT WHICH HAS ZERO HORIZONTAL MOVEMENT DURING TEMPERATURE CHANGES.

CONSTRUCTION PROCEDURE

1. ABUTMENT BACKWALL CONCRETE SHALL NOT BE PLACED UNTIL AFTER SUPERSTRUCTURE CONCRETE IN THE SPAN ADJACENT TO THE ABUTMENT HAS BEEN PLACED.
2. PLACE BACKWALL CONCRETE DURING STABLE OR RISING AMBIENT TEMPERATURES AND CONCLUDE PLACEMENT AT OR IMMEDIATELY BEFORE THE DAY'S PEAK AMBIENT TEMPERATURE.
3. NOT MORE THAN FOUR HOURS PRIOR TO THE DAY'S PEAK AMBIENT TEMPERATURE, SET ABUTMENT EXPANSION JOINT WIDTH TO DIMENSION 'A'. (SEE DIMENSION 'A' TABLE ON PROJECT PLANS).
4. LOOSEN TEMPORARY JOINT ARMOR BOLTS AFTER INITIAL SET OF CONCRETE, PREFERABLY NOT LATER THAN TWO HOURS AFTER CONCLUSION OF CONCRETE PLACEMENT.

EXAMPLE

GIVEN - DISTANCE TO THERMAL NEUTRAL POINT OF SUPERSTRUCTURE ALONG CENTERLINE OF ROADWAY IS 287.5 FT. ; SKEW ANGLE OF EXPANSION JOINT IS 30 DEGREES; ANTICIPATED AMBIENT TEMPERATURE AT TIME OF JOINT INSTALLATION IS 65 DEGREES F.

FIND - REQUIRED STRIP SEAL GLAND SIZE AND JOINT OPENING (DIMENSION 'A') AT TIME OF JOINT ARMOR INSTALLATION.

SOLUTION -

(A) ENTER TABLE A AT ① WITH 287.5 FT. AND FIND THAT THE REQUIRED STRIP SEAL GLAND SIZE IS 4 INCHES.

(B) ENTER TABLE C AT ② WITH 287.5 X COSINE OF 30 DEGREES = 248.98 FEET AND FIND REQUIRED JOINT OPENING AT 65 DEGREES F IS 1.86 INCHES.

NOTE: STEP (B) REQUIRED ONLY AT TIME OF CONSTRUCTION.

REVISIONS		STATE OF OHIO DEPARTMENT OF TRANSPORTATION BUREAU OF BRIDGES AND STRUCTURAL DESIGN		5 / 5
STANDARD				
STRIP SEAL EXPANSION JOINT AT ABUTMENTS FOR STEEL STRINGER STRUCTURES				
APPROVED	DATE 1-5-99			DRAWING NO.
DESIGNED	DRANK	TRACED	CHECKED	REVIEWED
AJM	REF	RLD	WTF	EXJ-4-87