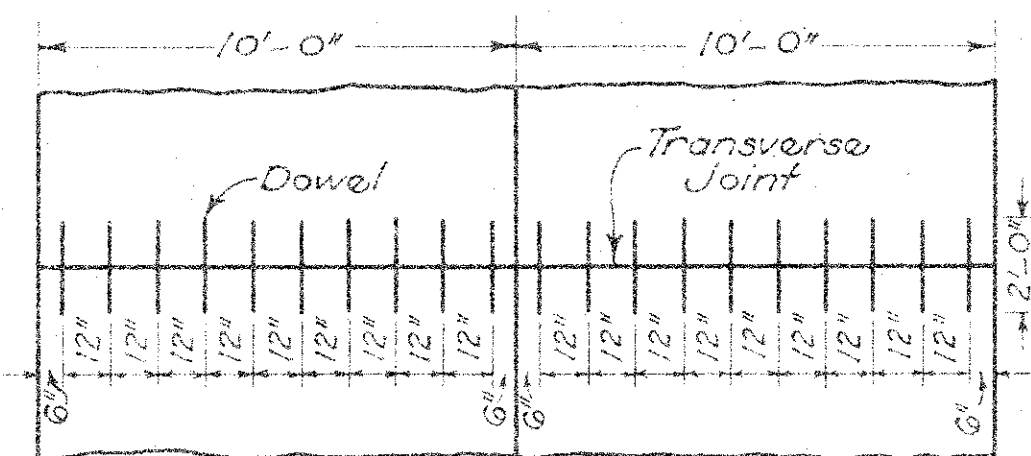


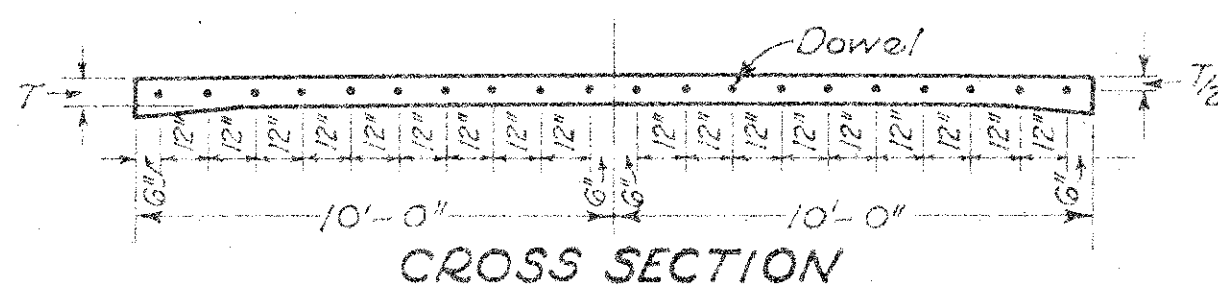
# TRANSVERSE JOINTS CONSTRUCTION JOINT

FED. RD. DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR	4-E 39
10	OHIO	666-1(1) 5(3)	1938	
ASHTABULA COUNTY		LAKE COUNTY		
S.H. 2 SEC. M(P)		LAKE COUNTY		
S.H. 2 SEC. Q(P)		LAKE COUNTY		

## DOWEL SPACING

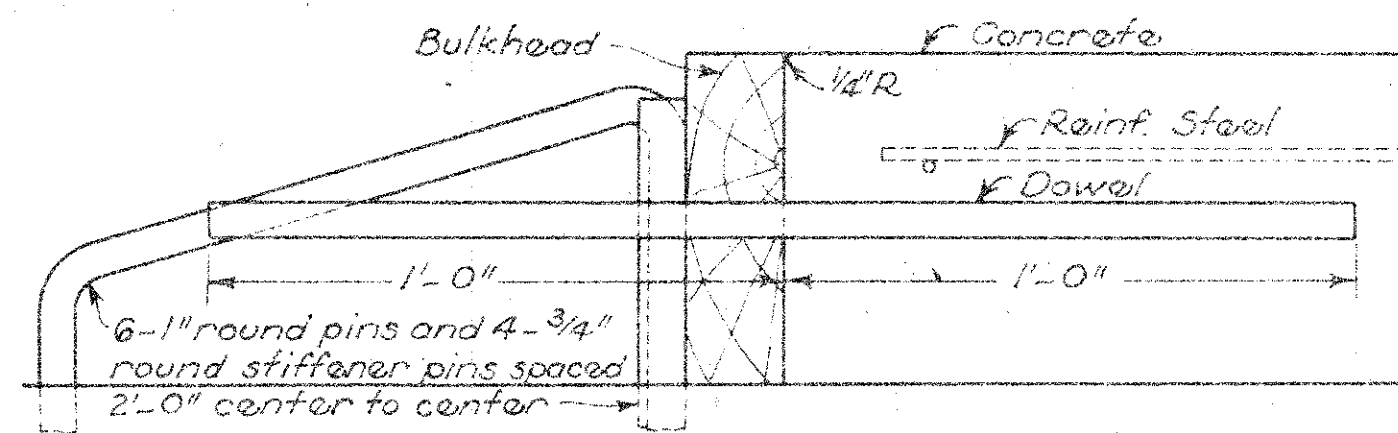
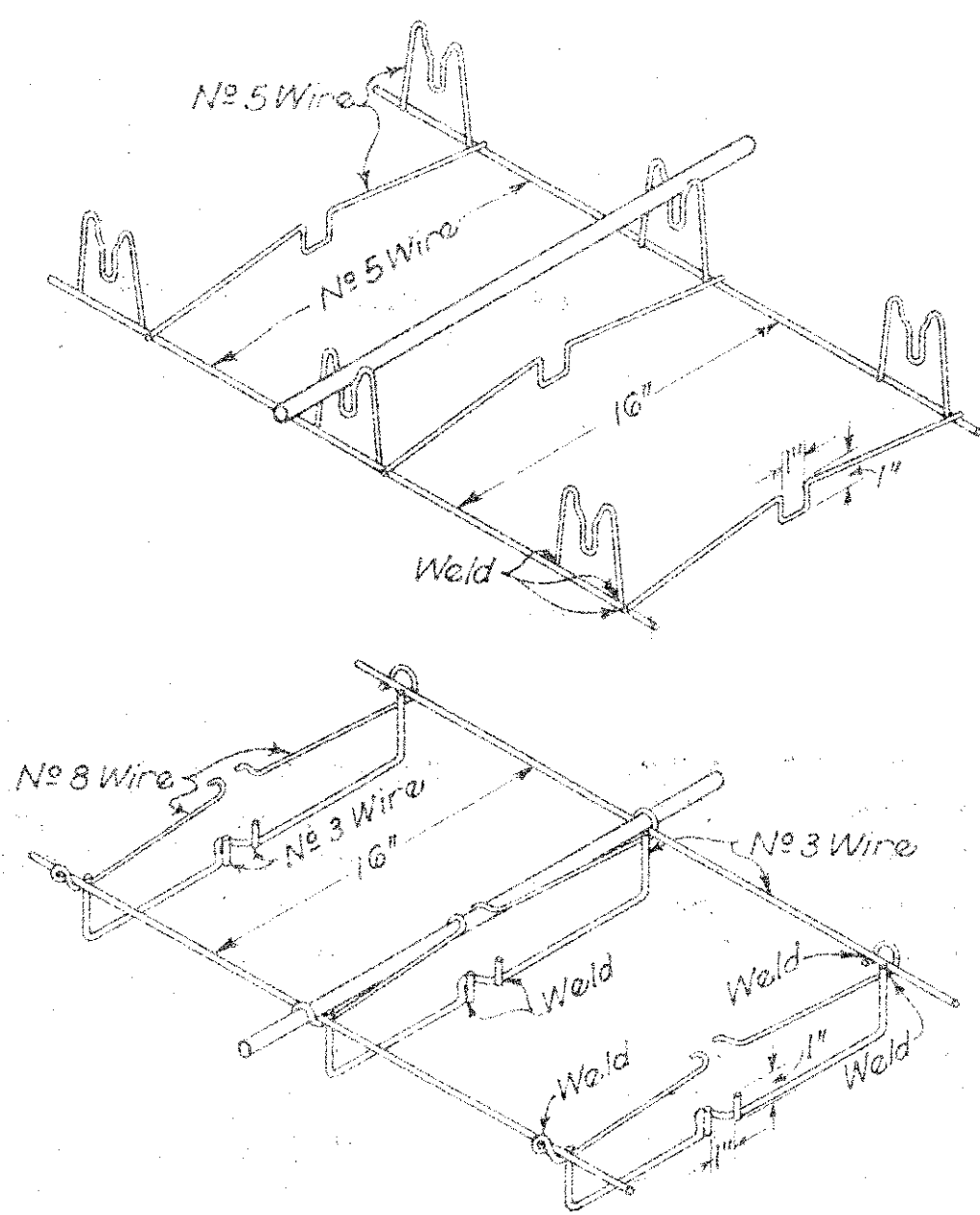


PLAN

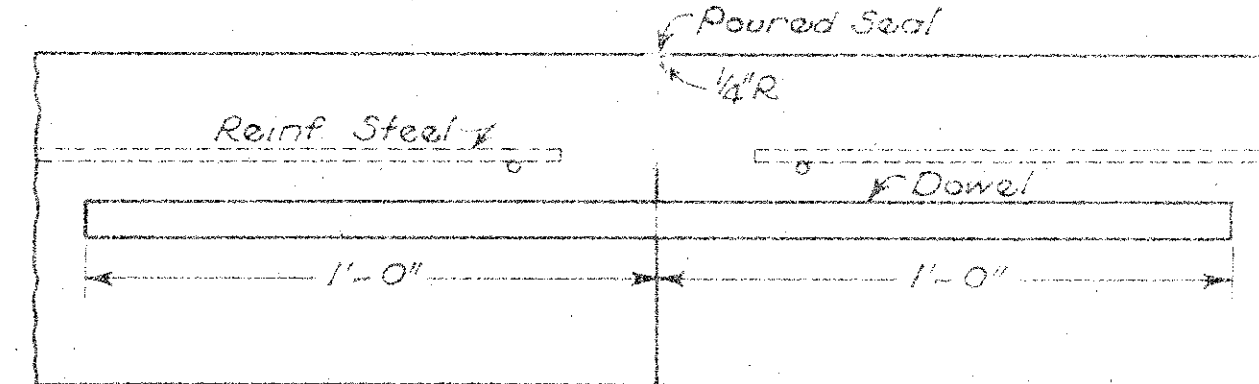


CROSS SECTION

## DOWEL SUPPORT UNITS

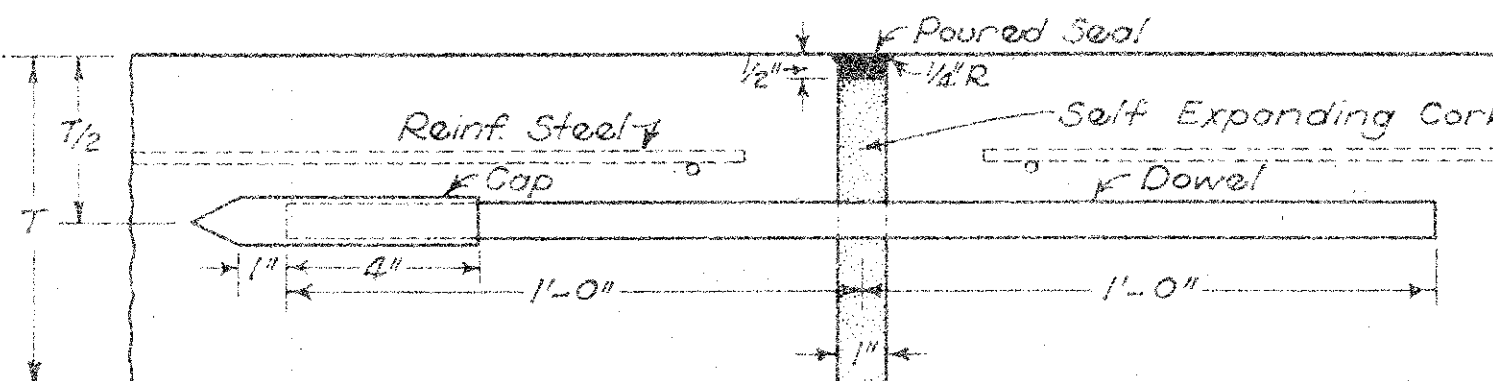


DETAIL OF BULKHEAD

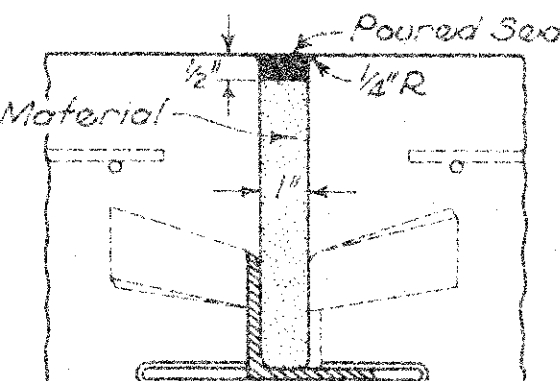


DETAIL OF DOWEL JOINT

## SELF EXPANDING CORK EXPANSION JOINT

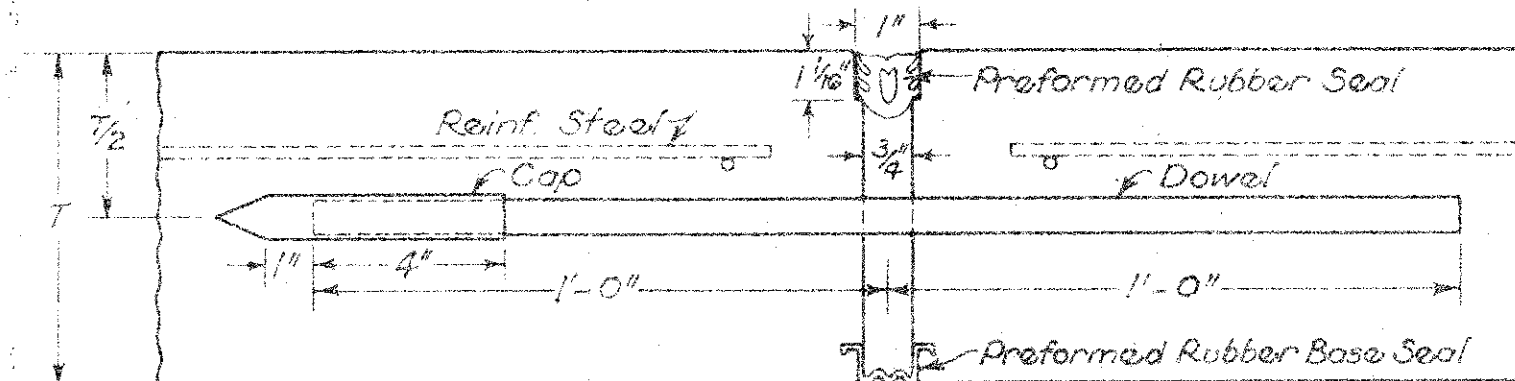


TRANSFER OF LOAD BY DOWEL

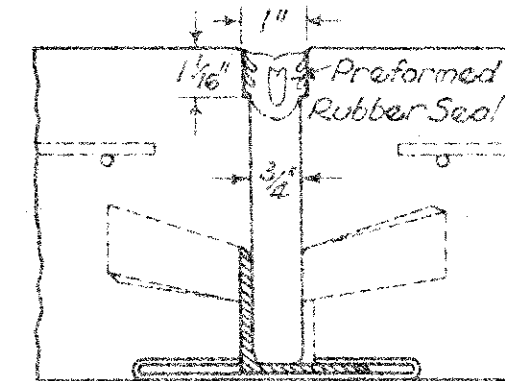


TRANSFER OF LOAD WITH TRANSLUDE BASE

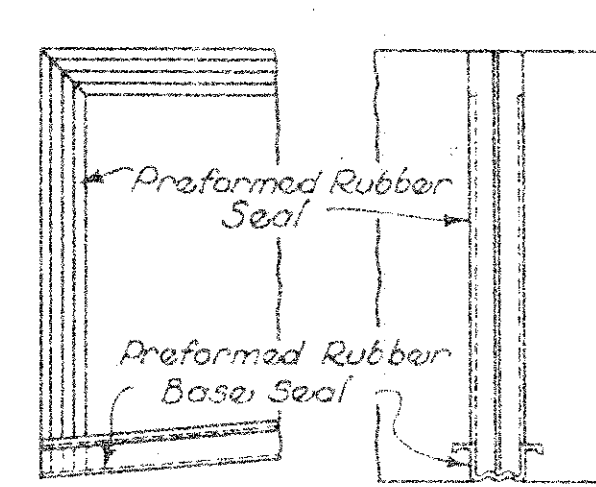
## EXTRUDED RUBBER EXPANSION JOINT



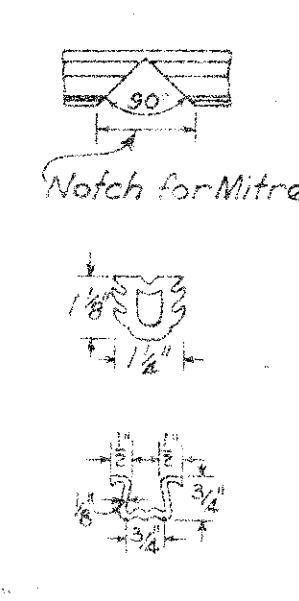
TRANSFER OF LOAD BY DOWEL



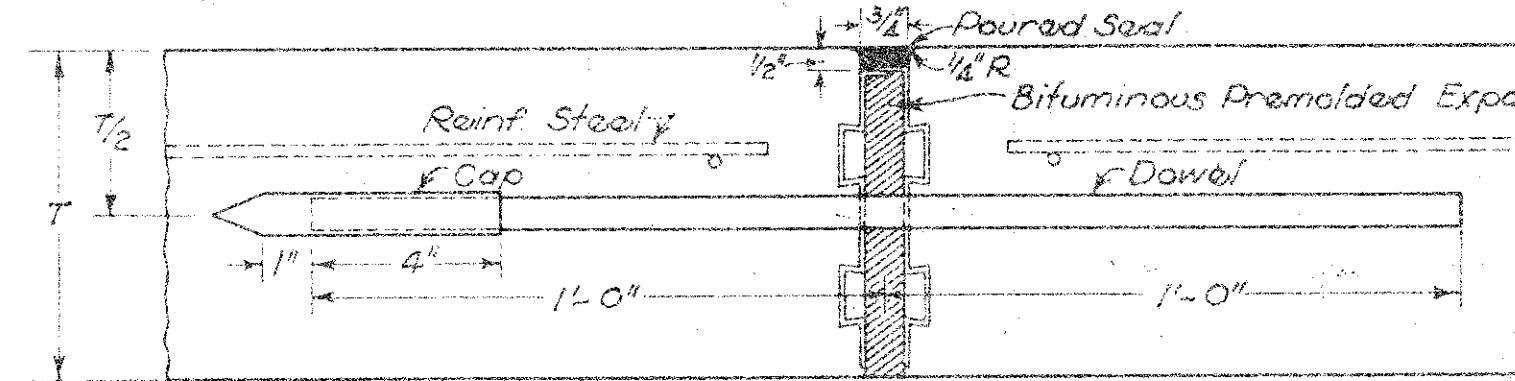
TRANSFER OF LOAD WITH TRANSLUDE BASE



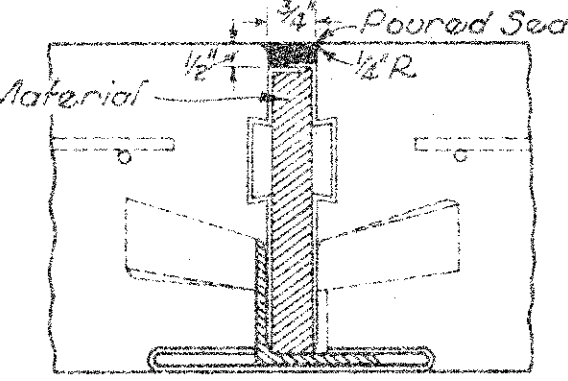
SIDE VIEW  
END VIEW  
DETAIL OF END SEAL



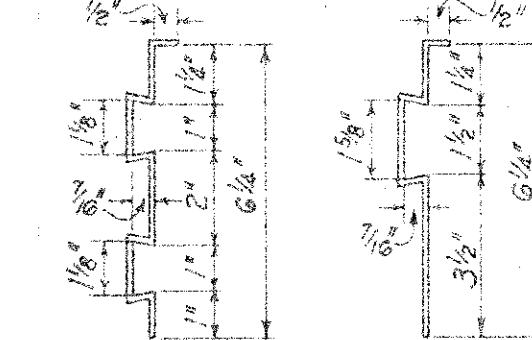
## NON-EXTRUDING BITUMINOUS PREMOLDED EXPANSION JOINT



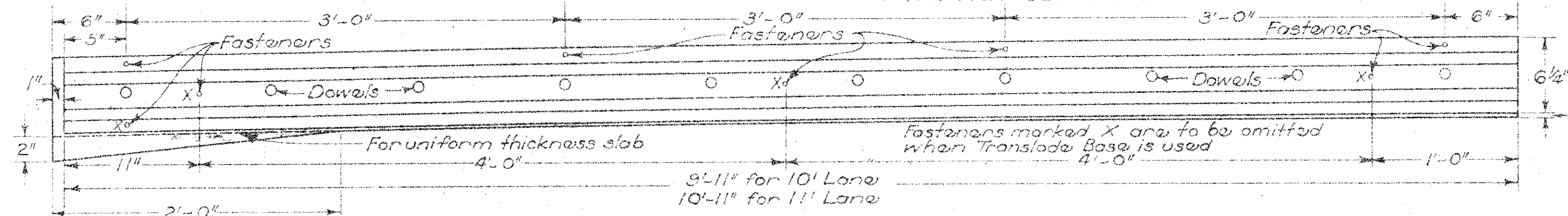
TRANSFER OF LOAD BY DOWEL



TRANSFER OF LOAD WITH TRANSLUDE BASE



DETAILS OF SIDE PLATES



ELEVATION OF EXTRUSION CHAMBER PLATES SHOWING LOCATION OF FASTENERS

## NOTES

**GENERAL.** Expansion joints shown are to be considered as alternatives; the type to be used on any project shall be optional with the contractor. The type of joint selected by the contractor and all operations and materials for assembling and installing the joints shall be approved by the engineers.

**DOWELS.** All dowels shall be 3/4 inch round, smooth bars. The entire dowel shall be thoroughly coated before placing in the pavement, using either bituminous material meeting the requirements of Section M-5.8 CO2 or heavier, or an oil such as 800 W or equal.

Prior to placing, all dowels shall be assembled in a unit which is to remain in place for either construction or expansion joints. The length of the unit shall be not less than the distance between longitudinal joints and sufficient support shall be provided to hold the dowels accurately perpendicular to the joint. Expansion joint material shall be forced over the lower cross wires so as to fit snugly on the subgrade. The design of the dowel support unit may be as shown herewith or may be an approved equal, and it shall be shop assembled. When the width between longitudinal joints varies from 10 feet, the spacing of the dowels shall not exceed 12 inches.

**CONSTRUCTION JOINTS.** A bulkhead shall be constructed to permit dowels to extend through the joint. Care shall be taken in removing bulkhead and placing adjacent concrete to see that dowels are embedded in the concrete without being bent.

**EXPANSION JOINTS.** Expansion joints shall be constructed as shown herewith. The spacing of the expansion joints shall not exceed sixty (60) feet. The type and arrangement of expansion joints at intersections shall be as specifically shown on the plan.

Each dowel bar shall be equipped with a neat fitting metal cap on one end. The surface width of expansion joints shall not be greater than the width shown herewith. The bituminous material for the poured seal shall meet the requirements of Supplemental Specification No. 78.

The top edge of the extrusion chamber plates, and also the top edge of all expansion joint materials shall be shaped to fit the surface of the pavement.

Joints in monolithic curbs shall be constructed with the same type of filler material as used in the expansion joints. When preformed material is used in curbs over 3 inches in height, sufficient holes shall be provided in the material to prevent extrusion.

**SELF EXPANDING CORK JOINT.** The filler material for this joint shall meet the requirements of Supplemental Specification M-110.11, and shall be accurately held in place by means of approved steel bulkheads. Dowel holes shall be 3/8 inch in diameter.

**EXTRUDED RUBBER JOINT.** The seal material for this joint shall meet the requirements of Supp. Spec. M-110.13. The joint opening shall be constructed by means of an approved collapsible form, having a clip or other suitable closing device under each dowel. The form shall be left in place until, in the opinion of the engineer, concrete has hardened sufficiently to permit withdrawal without damage to the pavement.

**NON-EXTRUDING BITUMINOUS PREMOLDED JOINT.** The filler material shall meet the requirements of Sec. M-10.1. The extrusion chamber plates shall be constructed of 24 gauge metal rolled to true section. When assembled in the field, a template and protected bench shall be provided for the workmen to insure accuracy in assembling.

Dowel holes shall be punched in the filler material, and shall be 1/16 inch round holes to insure tight fitting dowels.

Dowel holes in the side plates shall be 7/8 inch in diameter. In no case shall dowels interfere with the extrusion chambers. At each end of the assembly the extrusion chambers shall be bent down to seal the ends of the chambers. The joint shall at all times be protected from heat and other agencies which tend to cause distortion. The assembled joint shall be securely fastened together by 1/2 inch stove bolts or other approved fasteners. The holes for the fasteners may be made in the plates of the factory; when made in the field, they shall be drilled after the joint is assembled. The stove bolts shall be fastened with thin nuts, speed nuts, or rubber tubing screwed on. In order for this joint to function properly, the plates must be fitted snugly against the filler material, and held in position while concrete is being deposited so that no mortar enters between the plate and filler, after which the fasteners must function in such a manner as will permit the plates to move with the concrete slab. The use of clinched nails or any such fasteners as would prevent the movement of the plates will not be permitted. The joint shall then be staked rigidly to the subgrade.

### SUPPLEMENTAL SPECIFICATIONS

- M-110.11 (Revised 9-18-36)
- M-110.13 (Revised 4-15-38)