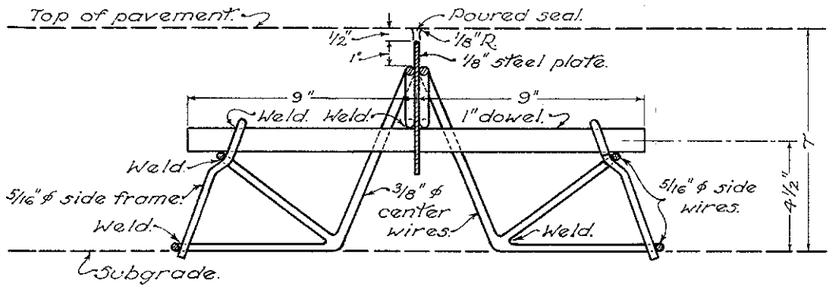
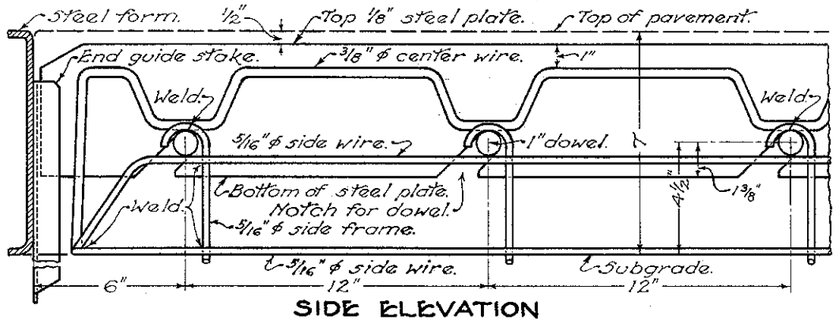
TRANSVERSE JOINTS

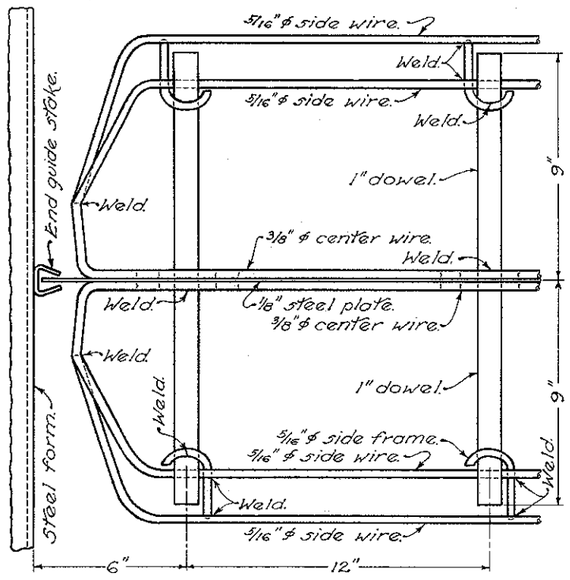
CONTRACTION JOINT



SECTION THROUGH JOINT



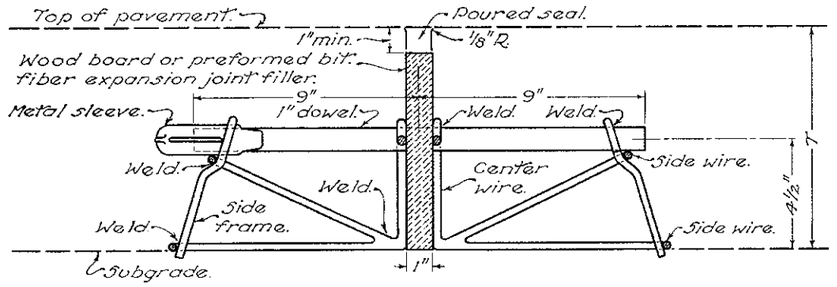
SIDE ELEVATION



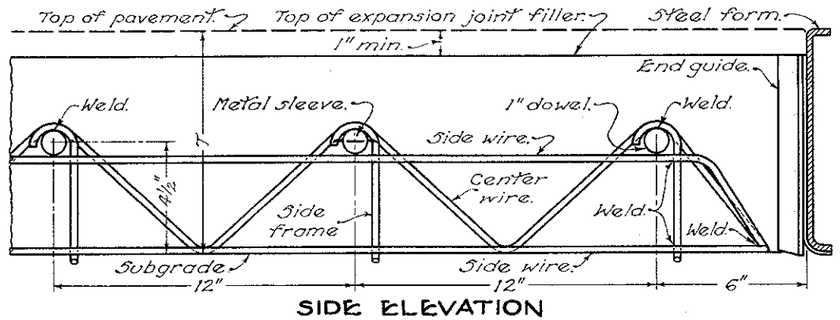
The junction of all wires shall be welded.

PLAN

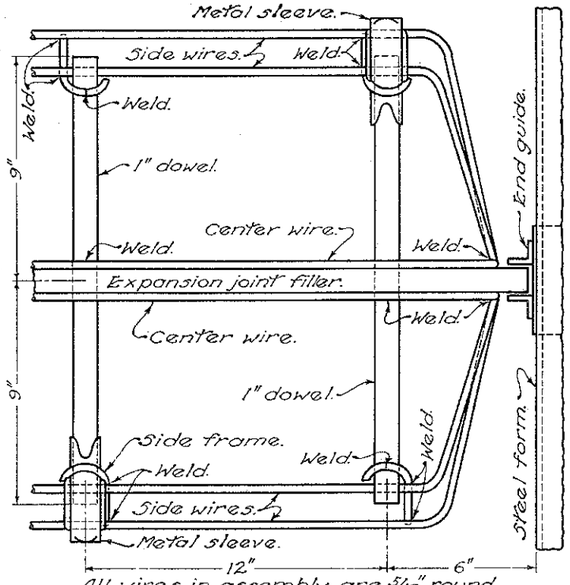
EXPANSION JOINT



SECTION THROUGH JOINT

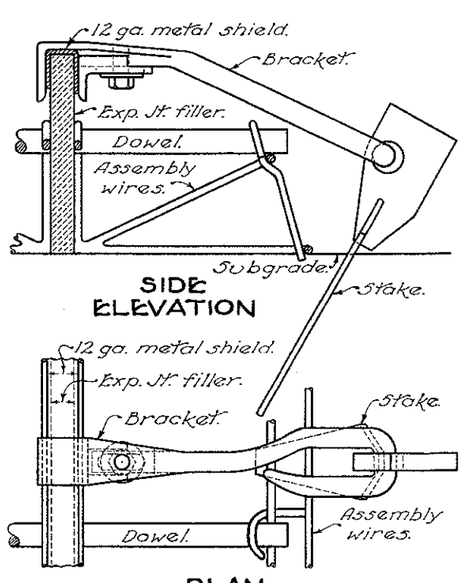


SIDE ELEVATION



All wires in assembly are 5/16" round.
The junction of all wires shall be welded.

PLAN



SIDE ELEVATION

PLAN
ACCEPTABLE DEVICE FOR HOLDING EXPANSION JOINT

NOTES

GENERAL:—The welded dowel assembly shall be shop fabricated in such a manner as to form a rigid truss-like framework with sufficient strength to hold the dowels and joint material in proper position during concrete placing and finishing operations. The dowels shall be parallel to the surface and centerline of the pavement.

The base tie wires of the dowel assembly and the bottom of the expansion material shall be shaped to the section of the pavement.

DOWELS:—Load transfer device shall consist of 1" round, smooth, straight steel dowel bars. The free ends of the dowels shall be thoroughly coated with either bituminous material SC-2 or 3 or an oil such as SAE 140 or equal just prior to assembling the joint.

ASSEMBLY:—Alternate dowels shall be welded to wire framework at center and one end to form a half-unit in such a manner that when two sections are assembled in the field with the joint material, the complete assembly will be ready for installation.

The joint assembly shall be continuous between longitudinal joints and shall be held in place by end guides as shown and by at least 8 steel pins 1/2" in diameter by 15" minimum length staggered on each side of the assembly and spaced as directed by the engineer. The brace pins shall be located at the welded end of the dowel bars.

EXPANSION JOINTS:—Wood board, Sec. M-10.03, and preformed bituminous fiber, Sec. M-10.02, shall be considered as alternates. The type used on any project is optional with the contractor.

Expansion joints shall be used only at intersections as designated on the plan, and at structures against which the pavement abuts. Two expansion joints shall be placed on each side of each structure at approximately 15' and 65' intervals from the end of the approach slab or in the case of a skewed approach slab, approximately 15' and 63' from the point of the approach slab farthest from the structure.

Expansion material shall be held rigidly in position by the use of a 12 gage metal cap or shield and brackets equipped with flat pins or stakes as detailed spaced at intervals not to exceed 3'-0". The metal caps and brackets shall be removed immediately after the final pass of the finishing machine. When two adjacent lanes are poured simultaneously, the metal cap shall be continuous across the longitudinal joint.

The free ends of the dowels shall be equipped after greasing with a metal sleeve approximately 3" long, designed with a crimped end and overlapping seam which fits closely around the dowel. Provision shall be made by a depression or interior projection in the sleeve to act as a stop for the dowel 1" from the crimped end to allow for longitudinal dowel movement with pavement expansion.

Dowel holes 5/16" in diameter shall be punched or drilled into the expansion material to insure tight fitting dowels.

Joints in monolithic curbs shall be constructed of the same type of filler material as used in the expansion joints.

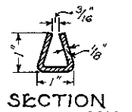
CONTRACTION AND CONSTRUCTION JOINTS:—A steel plate 1/8" thick shall be used in contraction and construction joints. The plate shall have 1 1/8" width slots at approximately 45 degree angles in the bottom of the plate to accomodate the 1" dowels. The plate shall be held rigidly in place by a removable metal cap which fits over the plate and adjacent assembly wires. The cap shall be removed immediately after the final pass of the finishing machine. The number of brace pins may be reduced for contraction joints if it is demonstrated that the joint assembly can be held in place as prescribed during placing of concrete. When two adjacent lanes are poured simultaneously the metal cap shall be continuous across the longitudinal joint. The ends of the steel plate shall be held in place by end guide stakes as detailed. A satisfactory device shall be used to assure that the end guide stakes are driven perpendicular to the grade of the form line.

The steel plate shall be held rigidly in place for construction joints in a manner that will provide a full depth joint perpendicular to the surface. A plate of sufficient stiffness and slotted to fit over the dowel bars shall be used adjacent to the metal plate and sufficiently well staked to hold the metal plate in correct position. This plate shall be removed prior to resumption of concreting operations.

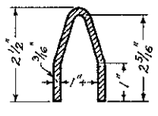
Contraction joints shall be spaced at intervals of 99'-4" in reinforced Portland cement concrete pavement. Contraction joints will not be permitted in concrete base courses.

JOINT FINISHING:—Care shall be exercised in edging joints that the proper radius is maintained. Any impression left in the surface of the pavement by the flat part of the edging tool shall be eliminated, but in no case will the addition of grout be permitted for this purpose. Final belt finish shall be applied to the pavement surface adjacent to joints as is required for the balance of the pavement area and particular attention shall be given to straight edging the pavement across joints to insure no difference in the elevation of the pavement surface on opposite sides of the joints.

POURED SEAL:—The material for poured seal shall meet the requirements of Supplemental Specification M-110.23.



SECTION
END GUIDE STAKE
CONTR. JOINT



SECTION
REMOVABLE CAP
CONTR. JOINT

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

DATE 2-7-50

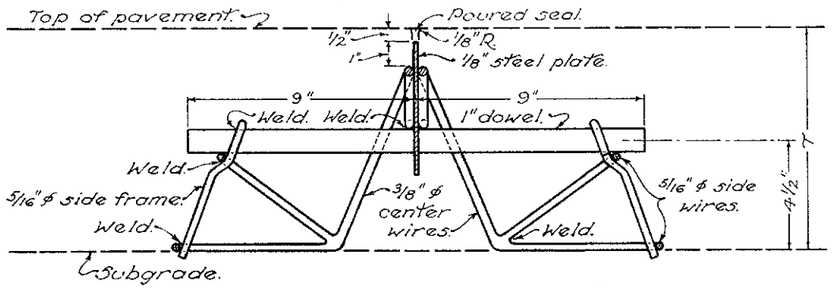
PAVEMENT JOINTS

STANDARD CONSTRUCTION DRAWING T. J. No. 1

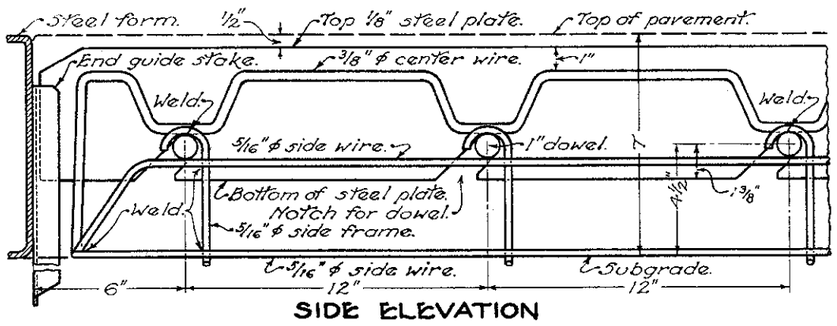
APPROVED K.H. CHIEF ENGINEER

TRANSVERSE JOINTS

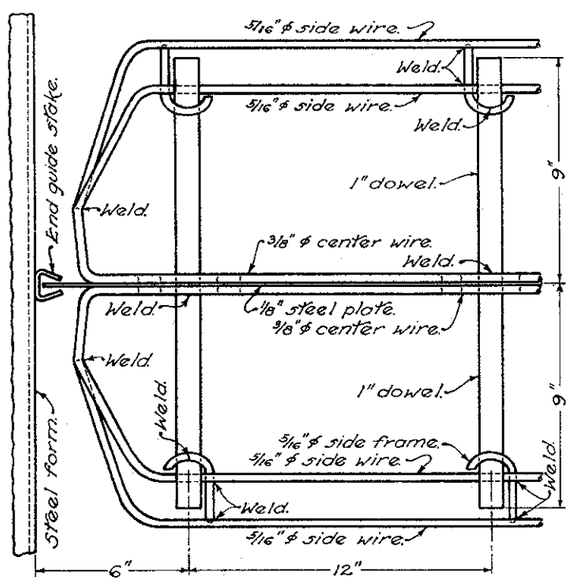
CONTRACTION JOINT



SECTION THROUGH JOINT



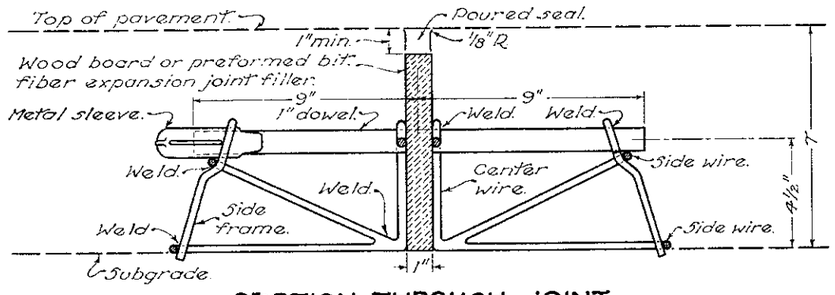
SIDE ELEVATION



The junction of all wires shall be welded.

PLAN

EXPANSION JOINT



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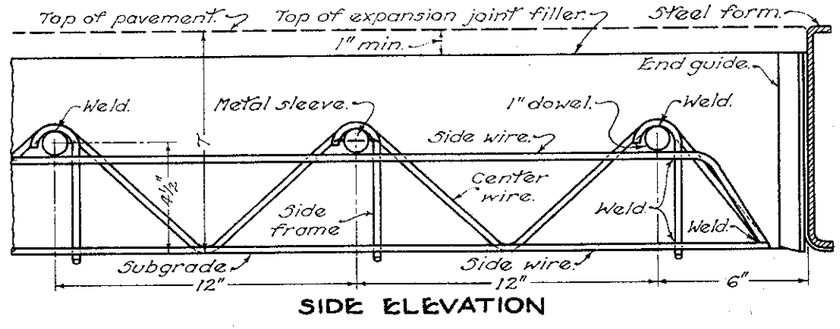
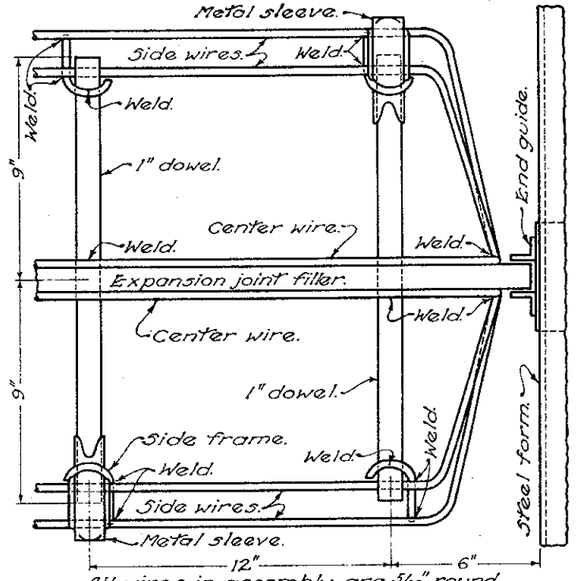
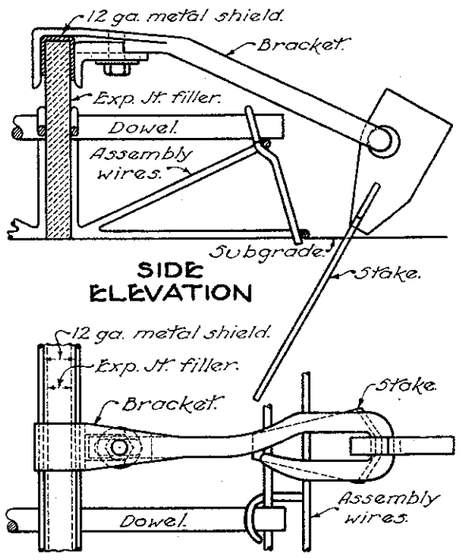


SIDE ELEVATION



All wires in assembly are 5/16" round.
The junction of all wires shall be welded.

PLAN



SIDE ELEVATION

PLAN
ACCEPTABLE DEVICE FOR HOLDING EXPANSION JOINT

NOTES

GENERAL:— The welded dowel assembly shall be shop fabricated in such a manner as to form a rigid truss-like framework with sufficient strength to hold the dowels and joint material in proper position during concrete placing and finishing operations. The dowels shall be parallel to the surface and centerline of the pavement.

The base tie wires of the dowel assembly and the bottom of the expansion material shall be shaped to the section of the pavement.

DOWELS:— Load transfer device shall consist of 1" round smooth straight steel dowel bars. The free ends of the dowels shall be thoroughly coated with either bituminous material SC-2 or 3 or an oil such as SAE 140 or equal just prior to assembling the joint.

ASSEMBLY:— Alternate dowels shall be welded to wire framework at center and one end to form a half-unit in such a manner that when two sections are assembled in the field with the joint material, the complete assembly will be ready for installation.

The joint assembly shall be continuous between longitudinal joints and shall be held in place by end guides as shown and by at least 8 steel pins 1/2" in diameter by 15" minimum length staggered on each side of the assembly and spaced as directed by the engineer. The brace pins shall be located at the welded end of the dowel bars.

EXPANSION JOINTS:— Wood board, Sec. M-10.03, and preformed bituminous fiber, Sec M-10.02 shall be considered as alternates. The type used on any project is optional with the contractor.

Expansion joints shall be used only at intersections as designated on the plan, and at structures against which the pavement abuts. Two expansion joints shall be placed on each side of each structure at approximately 15' and 65' intervals from the end of the approach slab or in the case of a skewed approach slab, approximately 15' and 65' from the point of the approach slab farthest from the structure.

Expansion material shall be held rigidly in position by the use of a 12 gage metal cap or shield and brackets equipped with slot pins or stakes as detailed spaced at intervals not to exceed 3'-0". The metal cap and brackets shall be removed immediately after the final pass of the finishing machine. When two adjacent lanes are poured simultaneously, the metal cap shall be continuous across the longitudinal joint.

The free ends of the dowels shall be equipped after greasing with a metal sleeve approximately 3" long, designed with a crimped end and overlapping seam which fits closely around the dowel. Provision shall be made by a depression or interior projection in the sleeve to act as a stop for the dowel 1" from the crimped end to allow for longitudinal dowel movement with pavement expansion.

Dowel holes 13/16" in diameter shall be punched or drilled into the expansion material to insure tight fitting dowels.

Joints in monolithic curbs shall be constructed of the same type of filler material as used in the expansion joints.

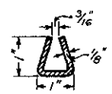
CONTRACTION AND CONSTRUCTION JOINTS:— A steel plate 1/8" thick shall be used in contraction and construction joints. The plate shall have 1/8" width slots at approximately 45 degree angles in the bottom of the plate to accomodate the 1" dowels. The plate shall be held rigidly in place by a removable metal cap which fits over the plate and adjacent assembly wires. The cap shall be removed immediately after the final pass of the finishing machine. The number of brace pins may be reduced for contraction joints if it is demonstrated that the joint assembly can be held in place as prescribed during placing of concrete. When two adjacent lanes are poured simultaneously, the metal cap shall be continuous across the longitudinal joint. The ends of the steel plate shall be held in place by end guide stakes as detailed. A satisfactory device shall be used to assure that the end guide stakes are driven perpendicular to the grade of the form line.

The steel plate shall be held rigidly in place for construction joints in a manner that will provide a full depth joint perpendicular to the surface. A plate of sufficient stiffness and slotted to fit over the dowel bars shall be used adjacent to the metal plate and sufficiently well staked to hold the metal plate in correct position. This plate shall be removed prior to resumption of concreting operations.

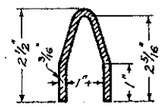
Contraction joints shall be spaced at intervals of 100' in reinforced Portland cement concrete pavement. Contraction joints will not be permitted in concrete base courses.

JOINT FINISHING:— Care shall be exercised in edging joints that the proper radius is maintained. Any impression left in the surface of the pavement by the flat part of the edging tool shall be eliminated, but in no case will the addition of grout be permitted for this purpose. Final belt finish shall be applied to the pavement surface adjacent to joints as is required for the balance of the pavement area and particular attention shall be given to straight edging the pavement across joints to insure no difference in the elevation of the pavement surface on opposite sides of the joints.

POURED SEAL:— The material for poured seal shall meet the requirements of Supplemental Specification M-110.23.



SECTION
END GUIDE STAKE
CONTR. JOINT



SECTION
REMOVABLE CAP
CONTR. JOINT

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

PAVEMENT JOINTS

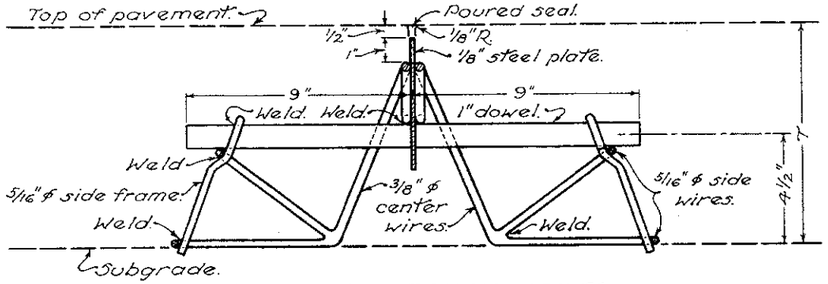
DATE
8-7-50
7-1-50

STANDARD CONSTRUCTION DRAWING T. J. No 1

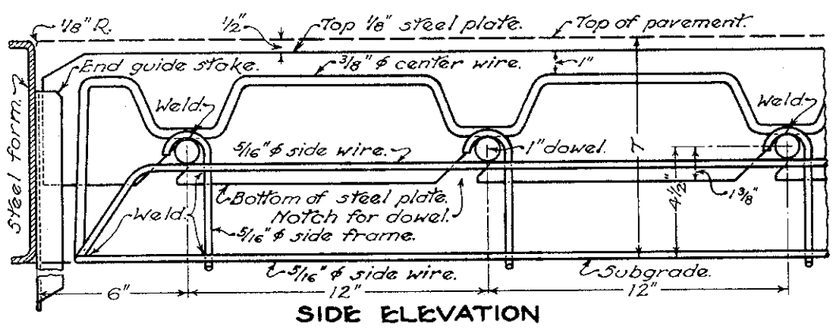
APPROVED R.H.H. CHIEF ENGINEER

TRANSVERSE JOINTS

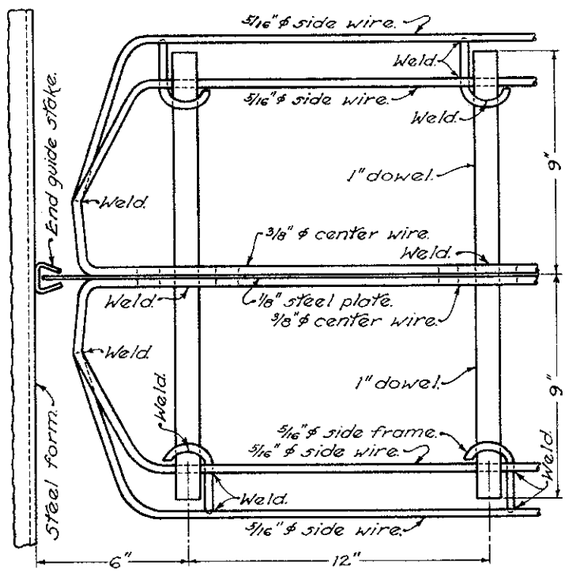
CONTRACTION JOINT



SECTION THROUGH JOINT

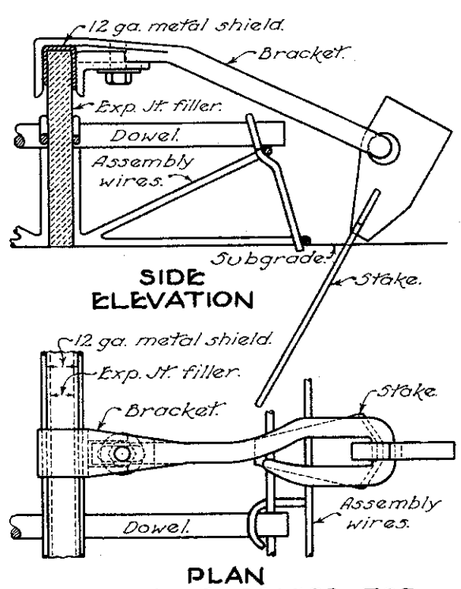


SIDE ELEVATION



The junction of all wires shall be welded.

PLAN

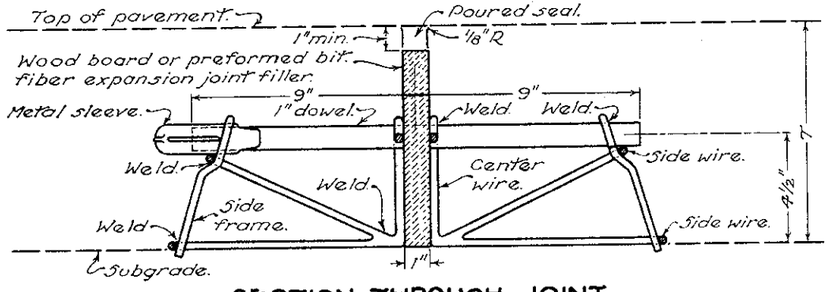


SIDE ELEVATION

PLAN

ACCEPTABLE DEVICE FOR HOLDING EXPANSION JOINT

EXPANSION JOINT



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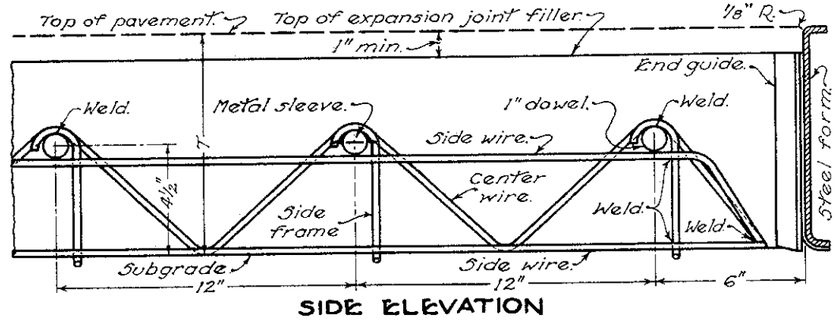
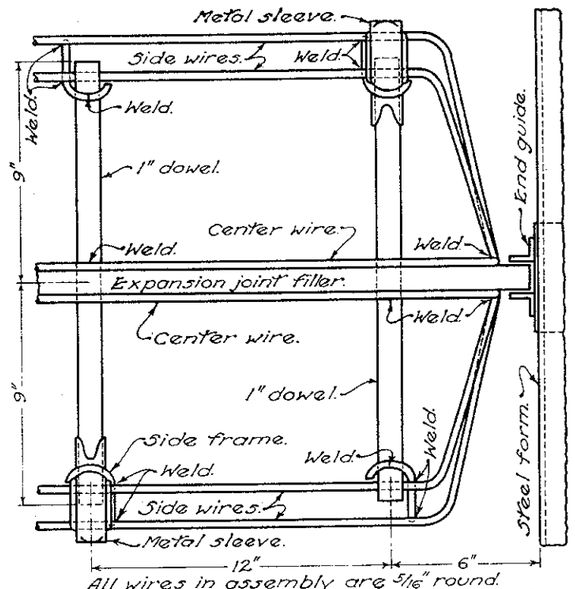


SIDE ELEVATION



All wires in assembly are 5/16" round.
The junction of all wires shall be welded.

PLAN

NOTES

GENERAL:— The welded dowel assembly shall be shop fabricated in such a manner as to form a rigid truss-like framework with sufficient strength to hold the dowels and joint material in proper position during concrete placing and finishing operations. The dowels shall be parallel to the surface and centerline of the pavement.

The base tie wires of the dowel assembly and the bottom of the expansion material shall be shaped to the section of the pavement.

DOWELS:— Load transfer device shall consist of 1" round, smooth, straight steel dowel bars. The free ends of the dowels shall be thoroughly coated with either bituminous material SC-2 or 3 or an oil such as SAE 10 or equal just prior to assembling the joint.

ASSEMBLY:— Alternate dowels shall be welded to wire framework at center and one end to form a half-unit in such a manner that when two sections are assembled in the field with the joint material, the complete assembly will be ready for installation.

The joint assembly shall be continuous between longitudinal joints and shall be held in place by end guides as shown and by at least 8 steel pins ½" in diameter by 15" minimum length staggered on each side of the assembly and spaced as directed by the engineer. The brace pins shall be located at the welded end of the dowel bars.

Dowel cages are dimensioned for pavement lanes of even foot widths. Where other widths are specified, standard cages may be used with dowel spacings adjusted as follows:—

The 6 inch dowel spacing shall be maintained at the longitudinal joint. The spacing at the outer edge of the lane may be increased up to 12 inches. Where an odd width of lane occurs and the dowel spacing at the outside edge of the lane, when using a standard cage, would exceed 12 inches, a dowel shall be placed 6 inches from the outer edge of the lane and held rigidly in proper position by a method satisfactory to the Engineer, or a dowel cage of greater length than required may be used by cutting the assembly and splicing to attain the required length.

In all cases the steel plate or joint material shall be full length for the width of the lane to engage the end guide.

The joint assembly shown hereon is for use with uniform depth pavement. The joint assembly for variable depth pavement shall be in accordance with the design shown on the plan.

EXPANSION JOINTS:— Wood board, Sec. M-10.03, and preformed bituminous fiber, Sec M-10.02 shall be considered as alternates. The type used on any project is optional with the contractor.

Expansion joints shall be used only at intersections as designated on the plan, and at structures against which the pavement abuts. Two expansion joints shall be placed on each side of each structure at approximately 15' and 65' intervals from the end of the approach slab or in the case of a skewed approach slab, approximately 15' and 65' from the point of the approach slab farthest from the structure.

Expansion material shall be held rigidly in position by the use of a 12 gage metal cap or shield and brackets equipped with flat pins or stakes as detailed spaced at intervals not to exceed 3'-0". The metal cap and brackets shall be removed immediately after the final pass of the finishing machine. When two adjacent lanes are poured simultaneously, the metal cap shall be continuous across the longitudinal joint.

The free ends of the dowels shall be equipped after greasing with a metal sleeve approximately 3" long, designed with a crimped end and overlapping seam which fits closely around the dowel. Provision shall be made by a depression or interior projection in the sleeve to act as a stop for the dowel 1" from the crimped end to allow for longitudinal dowel movement with pavement expansion.

Dowel holes 15/16" in diameter shall be punched or drilled into the expansion material to insure right fitting dowels.

Joints in monolithic curbs shall be constructed of the same type of filler material as used in the expansion joints.

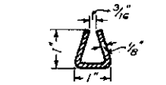
CONTRACTION AND CONSTRUCTION JOINTS:— A steel plate 1/8" thick shall be used in contraction and construction joints. The plate shall have 1⅛" width slots at approximately 45 degree angles in the bottom of the plate to accomodate the T dowels. The plate shall be held rigidly in place by a removable metal cap which fits over the plate and adjacent assembly wires. The cap shall be removed immediately after the final pass of the finishing machine. The number of brace pins may be reduced for contraction joints if it is demonstrated that the joint assembly can be held in place as prescribed during placing of concrete. When two adjacent lanes are poured simultaneously the metal cap shall be continuous across the longitudinal joint. The ends of the steel plate shall be held in place by end guide stakes as detailed. A satisfactory device shall be used to assure that the end guide stakes are driven perpendicular to the grade of the form line.

The steel plate shall be held rigidly in place for construction joints in a manner that will provide a full depth joint perpendicular to the surface. A plate of sufficient stiffness and slotted to fit over the dowel bars shall be used adjacent to the metal plate and sufficiently well staked to hold the metal plate in correct position. This plate shall be removed prior to resumption of concreting operations.

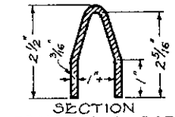
Contraction joints shall be spaced at intervals of 100' in reinforced Portland cement concrete pavement. Contraction joints will not be permitted in concrete base courses.

JOINT FINISHING:— Care shall be exercised in edging joints that the proper radius is maintained. Any impression left in the surface of the pavement by the flat part of the edging tool shall be eliminated, but in no case will the addition of grout be permitted for this purpose. Final belt finish shall be applied to the pavement surface adjacent to joints as is required for the balance of the pavement area and particular attention shall be given to straight edging the pavement across joints to insure no difference in the elevation of the pavement surface on opposite sides of the joints.

POURED SEAL:— The material for poured seal shall meet the requirements of Section 711-10.23.



SECTION
END GUIDE STAKE



SECTION
REMOVABLE CAP

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

DATE
2-1-50
1-1-50
1-2-51

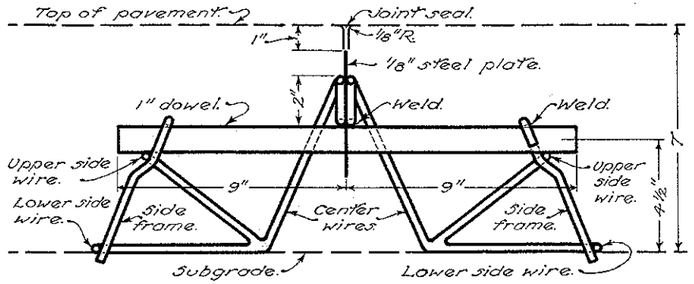
PAVEMENT JOINTS

STANDARD CONSTRUCTION DRAWING T. J. Nº 1

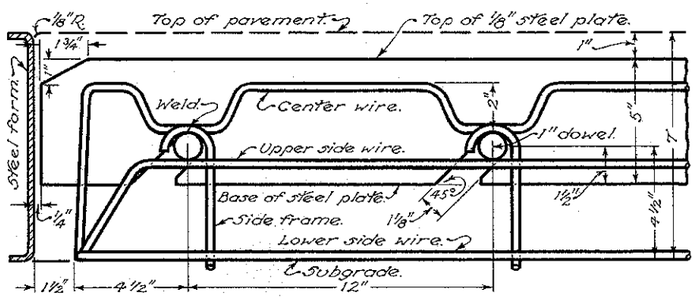
APPROVED R.H.H. CHIEF ENGINEER

TRANSVERSE JOINTS

CONTRACTION JOINT

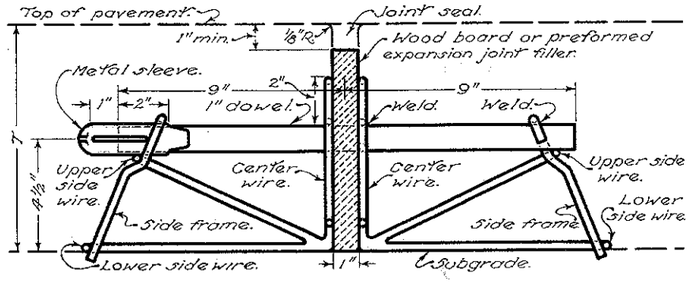


SECTION THROUGH JOINT

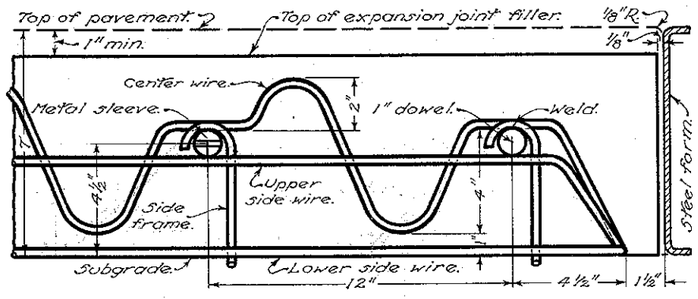


SIDE ELEVATION

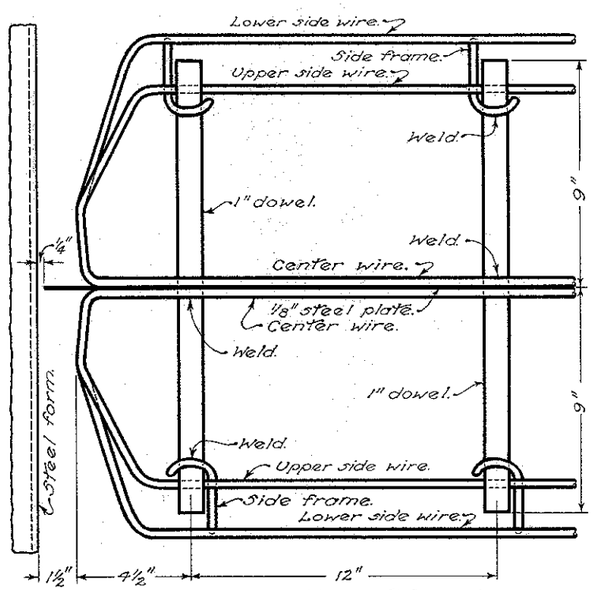
EXPANSION JOINT



SECTION THROUGH JOINT

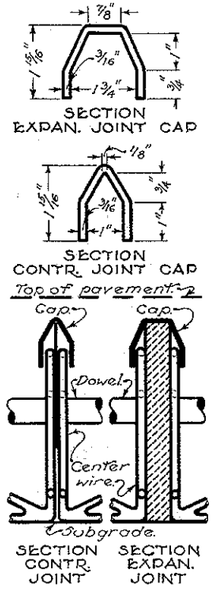


SIDE ELEVATION

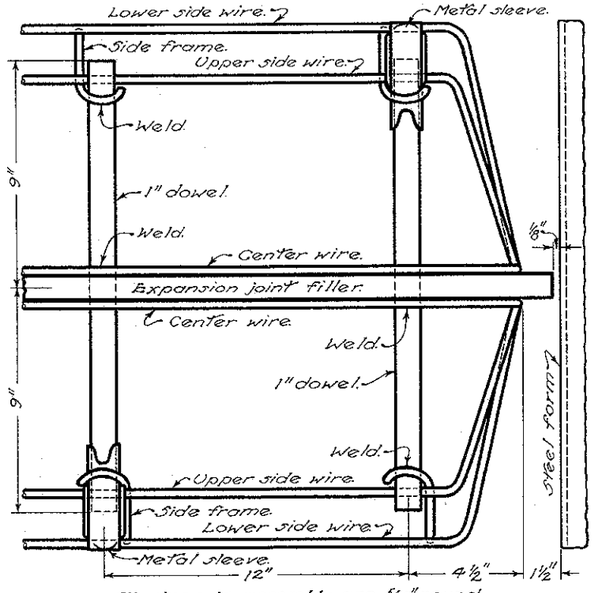


All wires in assembly are 5/16" round.
The junction of all wires shall be welded.

PLAN



INSTALLING CAPS



All wires in assembly are 5/16" round.
The junction of all wires shall be welded.

PLAN

NOTES

GENERAL:- The welded dowel assembly shall be shop fabricated in such a manner as to form a rigid truss-like framework with sufficient strength to hold the dowels and joint filler or steel plate in proper position during concrete placing and finishing operations. The dowels shall be parallel to the surface and centerline of the pavement.

The entire joint assembly shall be shaped to fit the section of the pavement.

DOWELS:- Load transfer device shall consist of 1" round, smooth, straight steel dowel bars. The free ends of the dowels shall have a coating of either bituminous material SC-2 or 3, or an oil such as SAE 140 or equal, just prior to placing the concrete.

ASSEMBLY:- Dowels shall be welded to wire framework at center and one end of each dowel to form a half unit in such a manner that when the two sections are assembled in the field, the complete assembly will be ready for installation.

The joint assembly shall be continuous between longitudinal joints or between longitudinal joint and pavement edge and shall be held in place by at least 8 steel pins 1/2" in diameter by 18" minimum length staggered on each side of the assembly and spaced as directed by the Engineer. The brace pins shall be located at the welded end of the dowel bars.

Dowel cages are dimensioned for pavement lanes of even foot widths. Where other widths are specified standard cages may be used with dowel spacings adjusted as follows:-

The 6" dowel spacing shall be maintained at the longitudinal joint. The spacing at the outer edge of the lane may be increased up to 12 inches where an odd width of lane occurs and the dowel spacing at the outside edge of the lane, when using a standard cage, would exceed 12 inches a dowel shall be placed 6 inches from the outer edge of the lane and held rigidly in proper position by a method satisfactory to the Engineer or a dowel cage of greater length than required may be used by cutting the assembly and splicing to obtain the required length.

In all cases, the steel plate or joint filler shall be full length for the width of the lane.

The joint assembly shown hereon is for use with uniform depth pavement. The joint assembly for variable depth pavement shall be in accordance with the design shown on the plan.

EXPANSION JOINTS:- Wood board, Sec. M-10.03, and preformed expansion joint filler, Sec. M-10.02 shall be considered as alternates. The type used on any project is optional with the contractor.

Expansion joints shall be used only at intersections as designated on the plan, and at structures against which the pavement abuts. Two expansion joints shall be placed on each side of each structure at approximately 15 ft. and 65 ft. from the end of the approach slab or, in the case of a skewed approach slab, approximately 15 ft. and 65 ft. from the point of the approach slab farthest from the structure.

Expansion joints in concrete bases shall be used only when required by the plans.

Joint filler shall be held rigidly in position by the use of a 1" inch metal cap as detailed. The metal cap shall be removed at such a time in the finishing operation that will enable the best workmanship in finishing the joint to the dimensions specified.

The free ends of the dowels shall be equipped after greasing with metal sleeves approximately 3" long, designed with crimped ends and overlapping seams and which fit closely around the dowels. Provision shall be made by a depression or interior projection in the sleeve to act as a stop for the dowel sufficiently distant from the crimped end to allow 1" for longitudinal dowel movement with pavement expansion.

Dowel holes shall be punched or drilled into the joint filler of the proper size to insure tight fitting dowels.

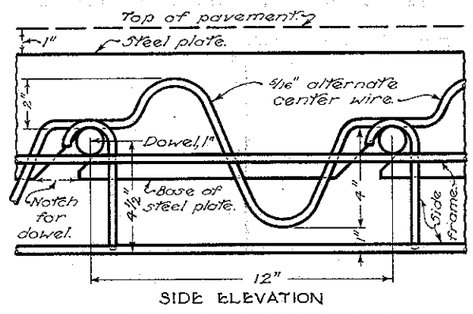
Joints in monolithic curbs shall be constructed of the same type of filler material as used in the expansion joints.

CONTRACTION JOINTS:- A steel plate 1/8" thick shall be used in contraction joints. The plate shall have 1/8" width slots at approximately 45 degree angles in the bottom of the plate to accommodate the 1" dowels. The plate shall be held rigidly in place by a removable metal cap which fits over the plate and adjacent assembly wires. The cap shall be removed at such a time in the finishing operation that will enable the best workmanship in finishing the joint to the dimensions specified. The number of brace pins may be reduced for contraction joints if it is demonstrated that the joint assembly can be held in place as prescribed during placing of concrete.

Contraction joints shall be spaced at intervals of 60 ft. in reinforced Portland cement concrete pavement. Contraction joints will not be permitted in concrete base courses.

JOINT FINISHING:- Care shall be exercised in edging joints that the proper radius is maintained. Any impression left in the surface of the pavement by the flat part of the edging tool shall be eliminated, but in no case will the addition of grout be permitted for this purpose. Final belt finish shall be applied to the pavement surface adjacent to joints as is required for the balance of the pavement area. Particular attention shall be given to straight edging the pavement across joints to insure no difference in the elevation of the pavement surface on opposite sides of the joints.

JOINT SEAL:- The material for joint seal shall meet the requirements of Sec. M-10.23 or Sec. M-10.26.



SIDE ELEVATION

ALTERNATE CENTER WIRE FOR CONTRACTION JOINT

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

PAVEMENT JOINTS

STANDARD CONSTRUCTION DRAWING T. J. No 1

APPROVED [signature] CHIEF ENGINEER

DATE:
2-7-50
7-1-50
1-2-51
8-1-51
3-2-53