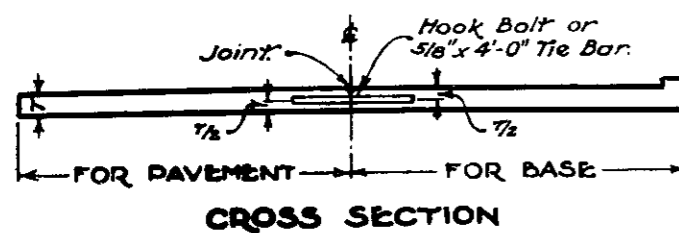
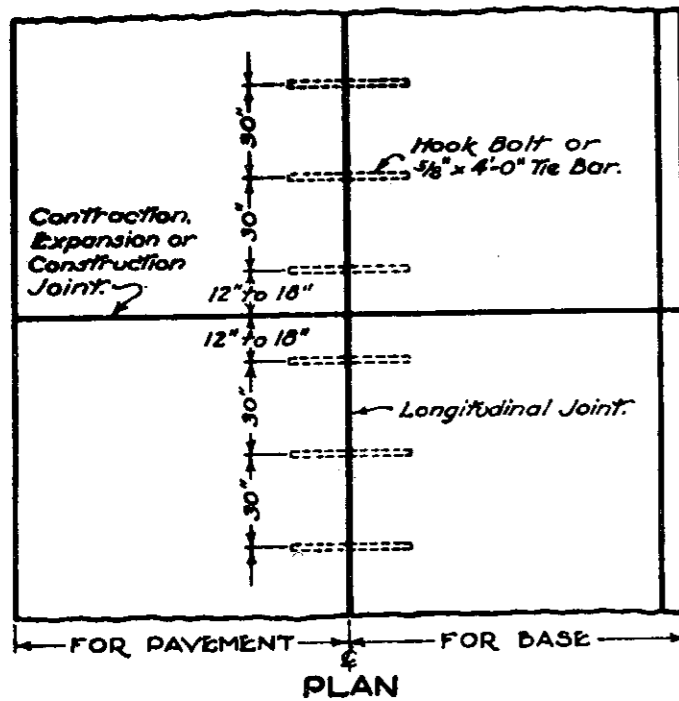
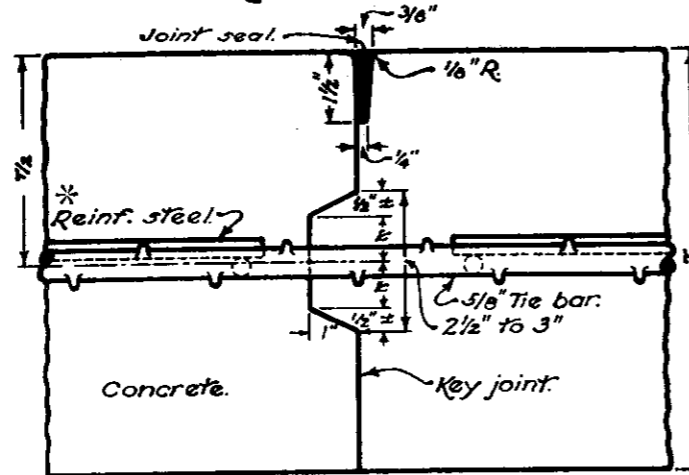


LONGITUDINAL JOINTS

TIE BAR OR HOOK BOLT SPACING

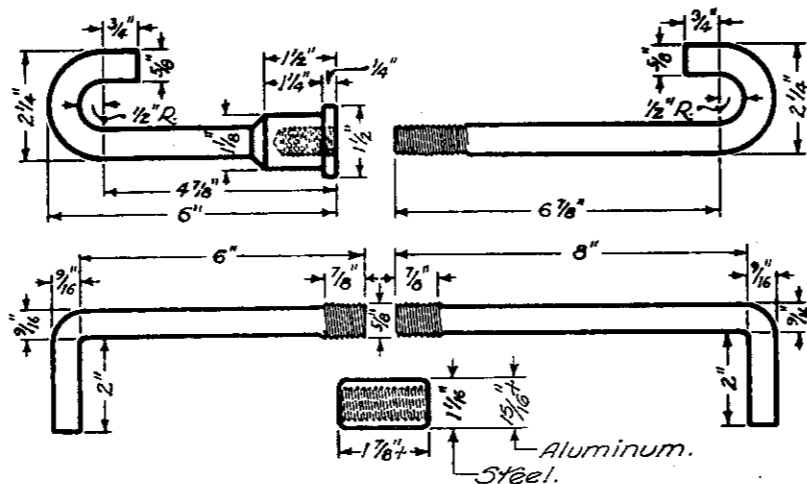


KEY JOINT

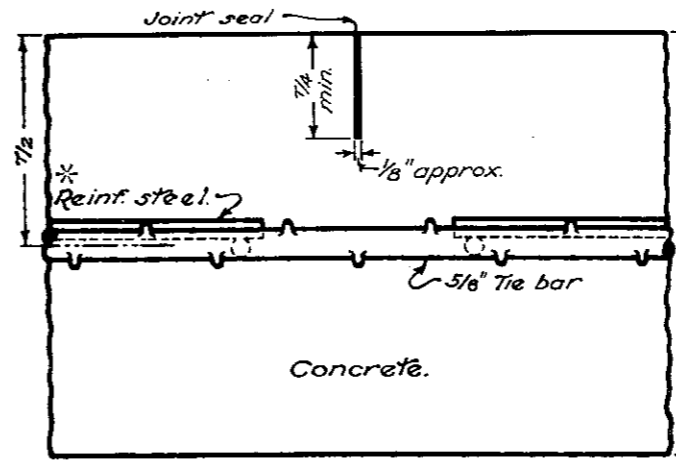


DETAIL OF JOINT

HOOK BOLTS

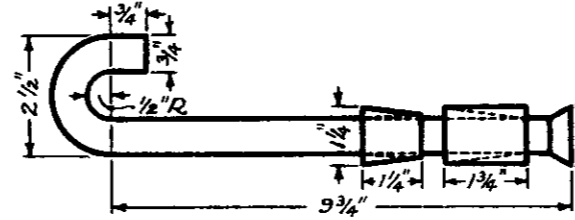


SAWED JOINT

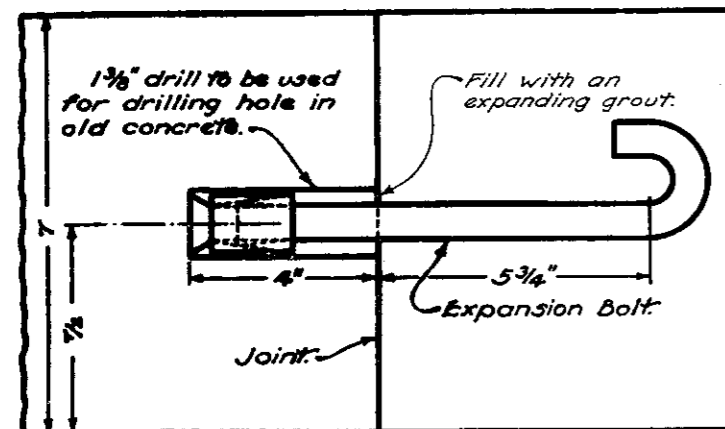


DETAIL OF JOINT

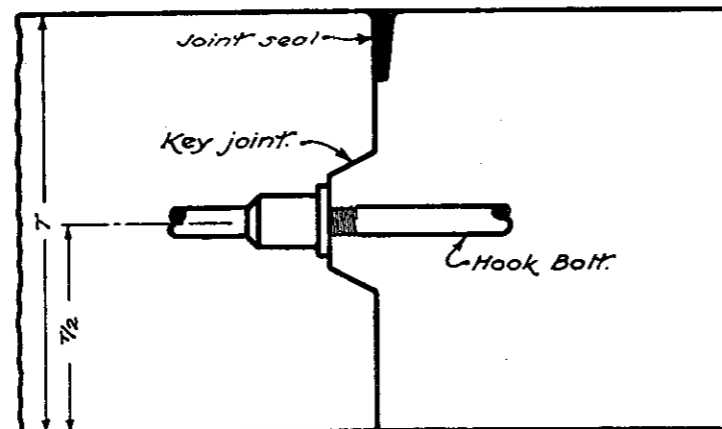
EXPANSION BOLT



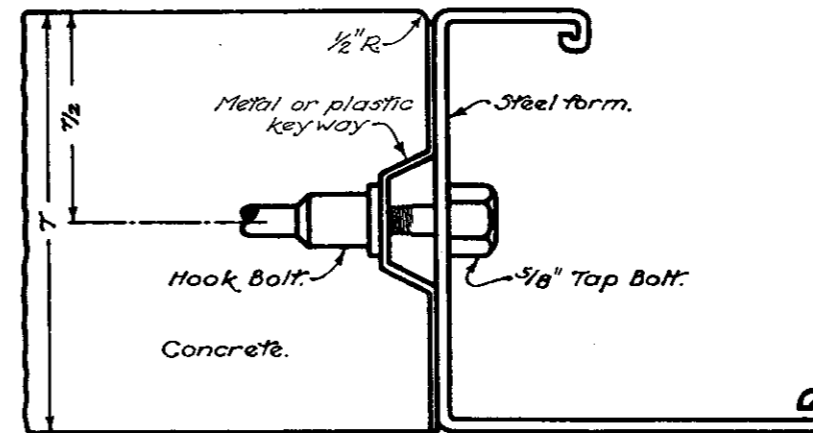
EXPANSION BOLT JOINT



HOOK BOLT AND KEY JOINT



ACCEPTABLE METHOD OF FORMING JOINT



NOTES

GENERAL: Longitudinal joints shall be used when called for on the typical section and shall be constructed as shown on this drawing, in 451 and 452 pavements and in 305 base.
 Tie bars to be 3/8 inch round, deformed bars.
 A satisfactory device shall be used to hold the tie bars in proper position, or they shall be installed by a mechanical installing device.
 The longitudinal joint between adjoining slabs poured in separate operations shall be a key joint with hook bolts or tie bars, unless otherwise shown on plans.
 If tie bars are bent they shall be of structural grade steel, and no portion of the bend shall extend into the first slab poured.
 Immediately prior to placing the second slab, bent tie bars shall be straightened by means of a pipe slipped over the free end of the bar.
 The joint shall be on the centerline of the pavement unless otherwise shown on the plans.
 Any impression left in the surface of the pavement by the flat part of the edging tool shall be eliminated.

SAWED JOINT: This joint shall be sawed not later than three days after the concrete has been placed.
 Joints where joints are sawed shall be sealed with 705.11 joint sealer, provided the saw kerf is not less than 1/8 inch wide, in lieu of 705.01 or 705.02 sealer.
 Sealing of longitudinal joints will not be required in 305 base.

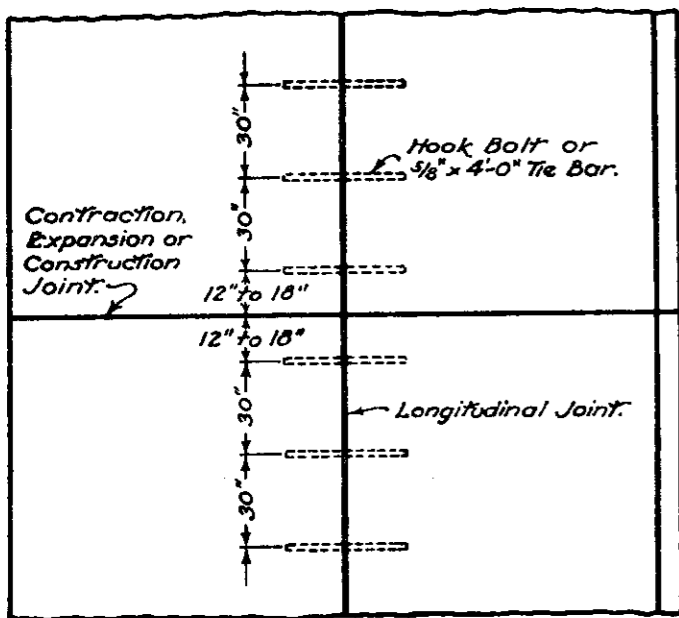
KEY JOINT: A groove for sealing shall be formed by impressing a device or bar into the newly deposited concrete adjacent to the previously poured lane. The device or bar shall be removed as soon as the concrete is in such condition as to preclude distortion or injury to the concrete.
 In lieu of the above method the longitudinal joint may be sawed to a depth of 1/2 and a minimum width of 1/8.
 Adjoining slabs adjacent to the longitudinal key joint shall be edged with a thin metal edger having an eighth inch radius.
 After the joint is formed it shall be protected from dirt and foreign matter until the joint seal is placed.
 Keys shall be discontinued approximately 12 inches from transverse joints, if the joint is not tied with hook bolts or tie bars.
EXPANSION BOLT JOINT: This joint is designed for abutting new concrete construction to old when a tie is required. The tie is effected by the use of expansion bolts.
COUPLINGS: Aluminum couplings for hook bolts may be substituted for steel, provided that the specified strength requirements for steel assemblies are met.

BUREAU OF LOCATION AND DESIGN
 OHIO DEPARTMENT OF HIGHWAYS
PAVEMENT JOINTS
 STANDARD CONSTRUCTION DRAWING **BP-3**
 APPROVED *[Signature]* ENGR. L. & D.
 DATE 6-1-55

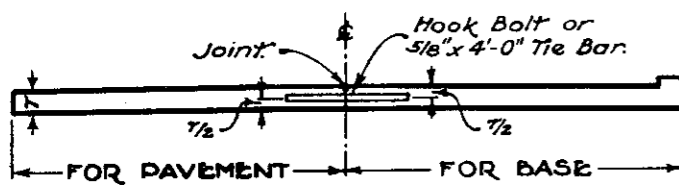
For 1967 specifications

LONGITUDINAL JOINTS

TIE BAR OR HOOK BOLT SPACING

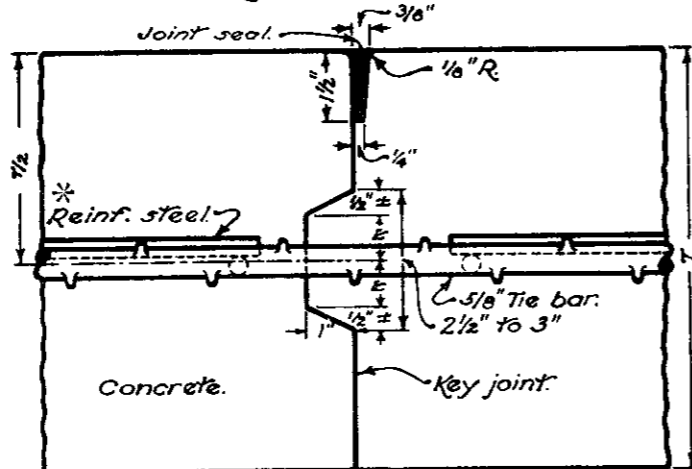


FOR PAVEMENT FOR BASE
PLAN



CROSS SECTION

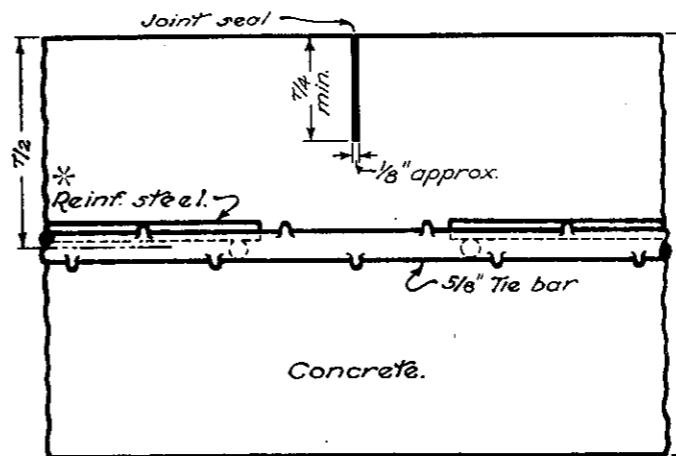
KEY JOINT



DETAIL OF JOINT

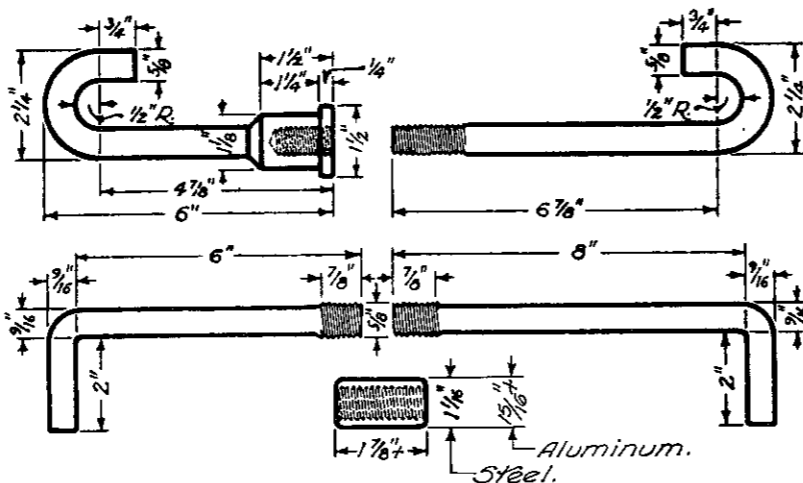
* For 451 only.

SAWED JOINT

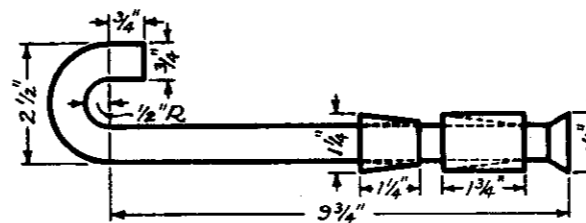


DETAIL OF JOINT

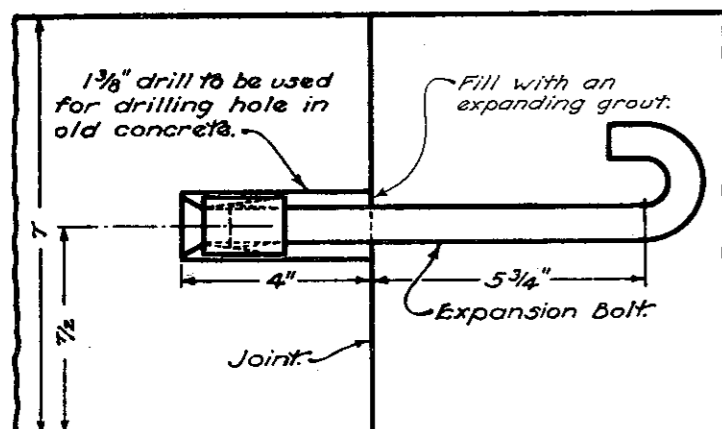
HOOK BOLTS



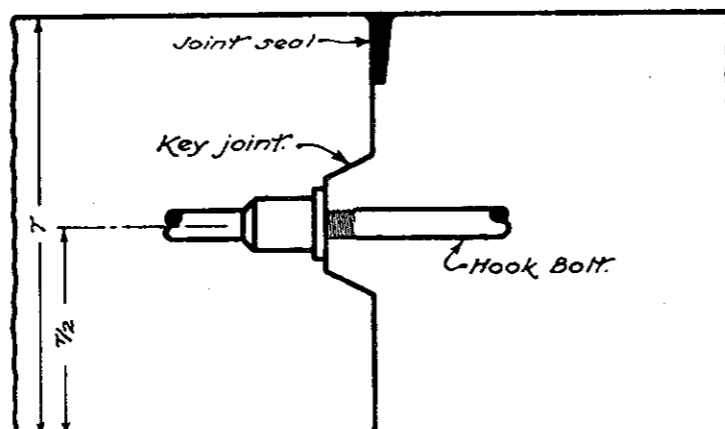
EXPANSION BOLT



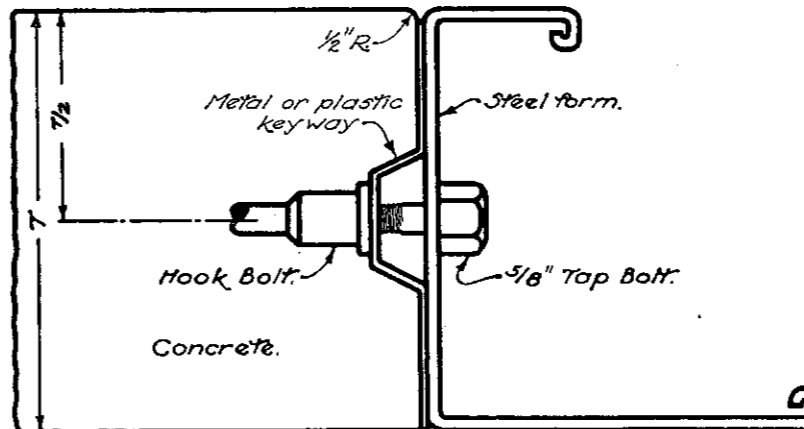
EXPANSION BOLT JOINT



HOOK BOLT AND KEY JOINT



ACCEPTABLE METHOD OF FORMING JOINT



NOTES

GENERAL:—Longitudinal joints shall be used when called for on the typical section and shall be constructed as shown on this drawing, in 451 and 452 pavements and in 305 base.

Tie bars to be 3/8 inch round, deformed bars. A satisfactory device shall be used to hold the tie bars in proper position, or they shall be installed by a mechanical installing device.

The longitudinal joint between adjoining slabs poured in separate operations shall be a key joint with hook bolts or tie bars, unless otherwise shown on plans.

If tie bars are bent they shall be of structural grade steel, and no portion of the bend shall extend into the first slab poured.

Immediately prior to placing the second slab, bent tie bars shall be straightened by means of a pipe slipped over the free end of the bar.

The joint shall be on the centerline of the pavement unless otherwise shown on the plans.

Any impression left in the surface of the pavement by the flat part of the edging tool shall be eliminated.

SEALING JOINTS:—Sawed joints may be sealed with 705.11 joint sealer, in lieu of 705.01 or 705.02 sealer, provided the saw kerf is not less than 1/8 inch wide.

Sealing of longitudinal joints in 305 base is not required.

KEY JOINT:—A groove for sealing shall be formed by impressing a device or bar into the newly deposited concrete adjacent to the previously poured lane. The device or bar shall be removed as soon as the concrete is in such condition as to preclude distortion or injury to the concrete.

In lieu of the above method the longitudinal joint may be sawed to a depth of 1/2 inch and a minimum width of 1/8 inch.

Adjoining slabs adjacent to the longitudinal key joint shall be edged with a thin metal edger having an eighth inch radius.

After the joint is formed it shall be protected from dirt and foreign matter until the joint seal is placed.

Keys shall be discontinued approximately 12 inches from transverse joints, if the joint is not tied with hook bolts or tie bars.

EXPANSION BOLT JOINT:—This joint is designed for abutting new concrete construction to old when a tie is required. The tie is effected by the use of expansion bolts.

COUPLINGS:—Aluminum couplings for hook bolts may be substituted for steel, provided that the specified strength requirements for steel assemblies are met.

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

PAVEMENT JOINTS

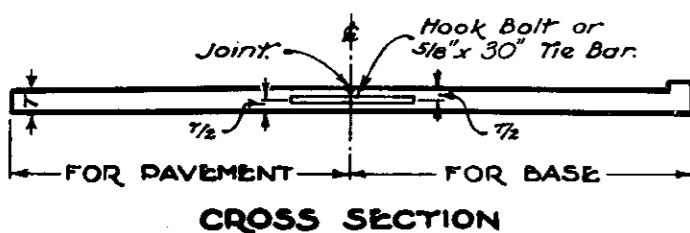
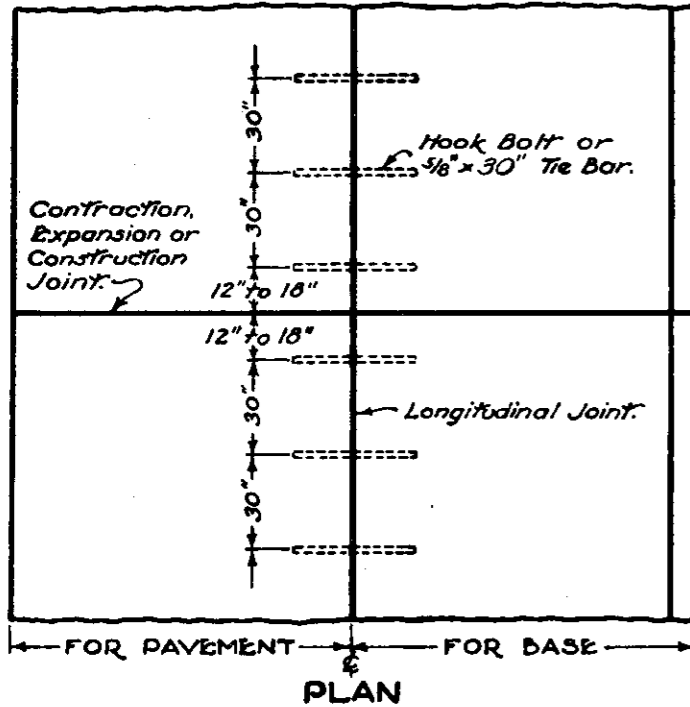
STANDARD CONSTRUCTION DRAWING BP-3

APPROVED *[Signature]* ENGR. L. & D.

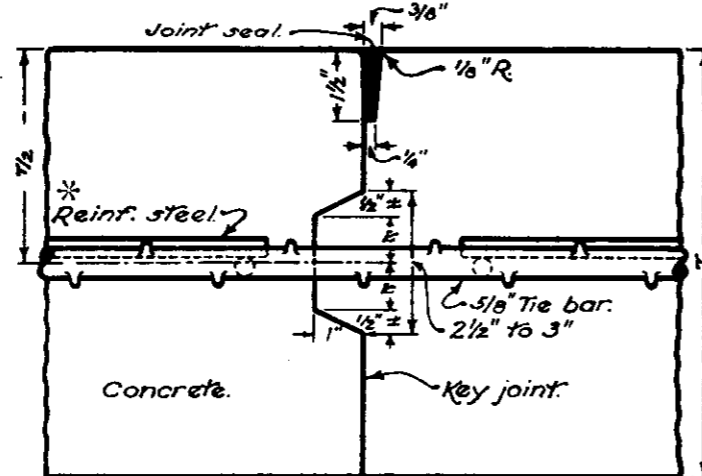
DATE
6-1-65
12-20-66

LONGITUDINAL JOINTS

TIE BAR OR HOOK BOLT SPACING



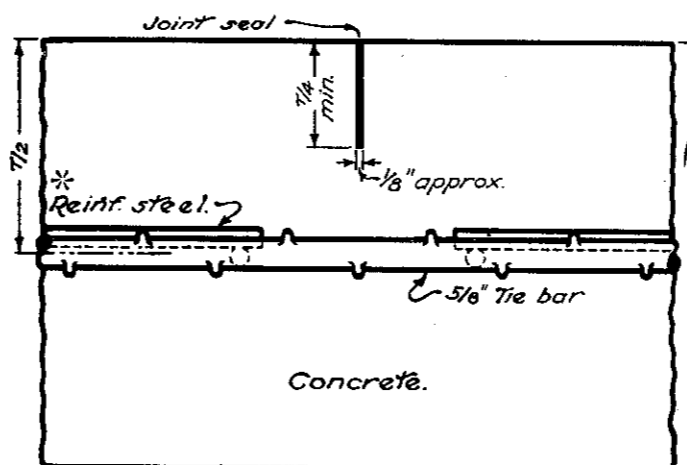
KEY JOINT



DETAIL OF JOINT

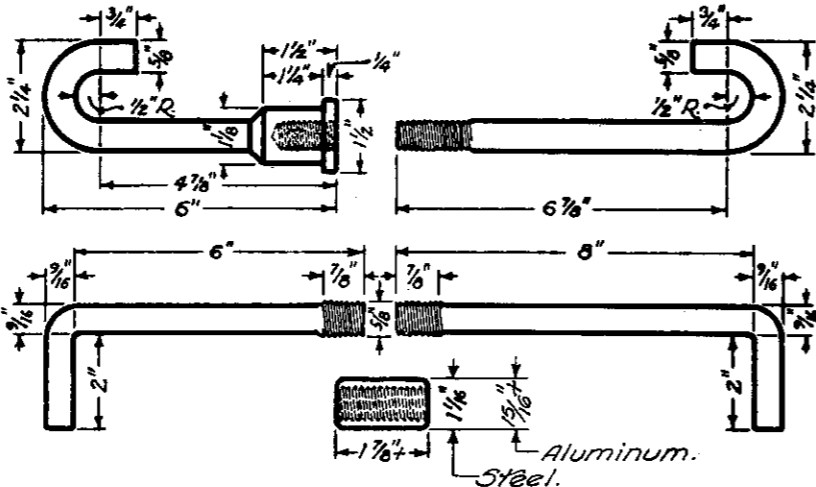
* For 451 only.

SAWED JOINT

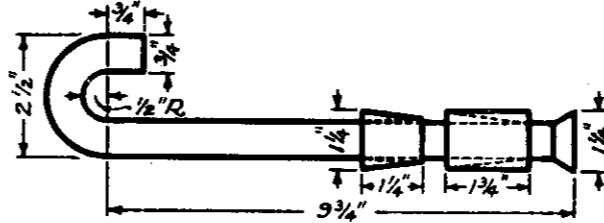


DETAIL OF JOINT

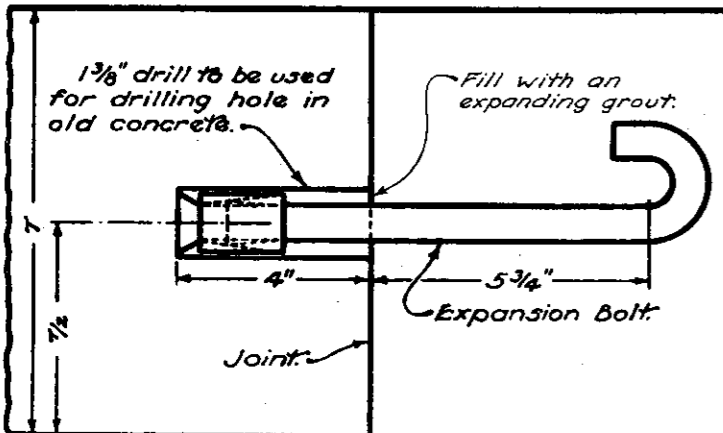
HOOK BOLTS



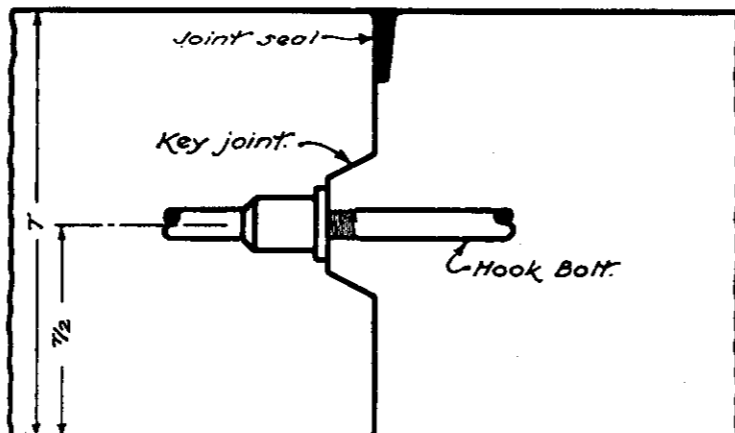
EXPANSION BOLT



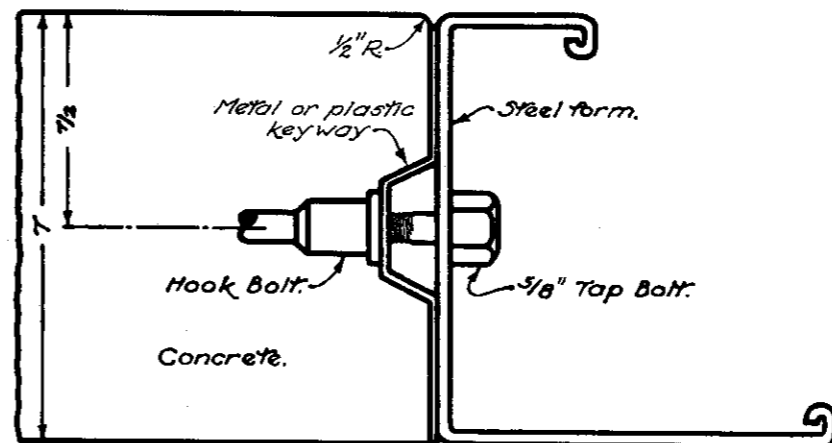
EXPANSION BOLT JOINT



HOOK BOLT AND KEY JOINT



ACCEPTABLE METHOD OF FORMING JOINT



NOTES

GENERAL:—Longitudinal joints shall be used when called for on the typical section and shall be constructed as shown on this drawing, in 451 and 452 pavements and in 305 base.
Tie bars to be 5/8 inch round, deformed bars.
A satisfactory device shall be used to hold the tie bars in proper position, or they shall be installed by a mechanical installing device.
The longitudinal joint between adjoining slabs poured in separate operations shall be a key joint with hook bolts or tie bars, unless otherwise shown on plans.
If tie bars are bent they shall be of structural grade steel, and no portion of the bend shall extend into the first slab poured.
Immediately prior to placing the second slab, bent tie bars shall be straightened by means of a pipe slipped over the free end of the bar.
The joint shall be on the centerline of the pavement unless otherwise shown on the plans.
Any impression left in the surface of the pavement by the flat part of the edging tool shall be eliminated.

SEALING JOINTS:—Sawed joints may be sealed with 705.11 joint sealer in lieu of 705.01 or 705.02 sealer, provided the saw kerf is not less than 1/8 inch wide.
Sealing of longitudinal joints in 305 base is not required.

KEY JOINT:—A groove for sealing shall be formed by impressing a device or bar into the newly deposited concrete adjacent to the previously poured lane. The device or bar shall be removed as soon as the concrete is in such condition as to preclude distortion or injury to the concrete.
In lieu of the above method the longitudinal joint may be sawed to a depth of 1/2 inch and a minimum width of 1/8 inch.
Adjoining slabs adjacent to the longitudinal key joint shall be edged with a thin metal edger having an eighth inch radius.
After the joint is formed it shall be protected from dirt and foreign matter until the joint seal is placed.
Keys shall be discontinued approximately 12 inches from transverse joints, if the joint is not tied with hook bolts or tie bars.
EXPANSION BOLT JOINT:—This joint is designed for abutting new concrete construction to old when a tie is required. The tie is effected by the use of expansion bolts.
COUPLINGS:—Aluminum couplings for hook bolts may be substituted for steel, provided that the specified strength requirements for steel assemblies are met.

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

DATE
6-1-65
12-20-66
1-10-67

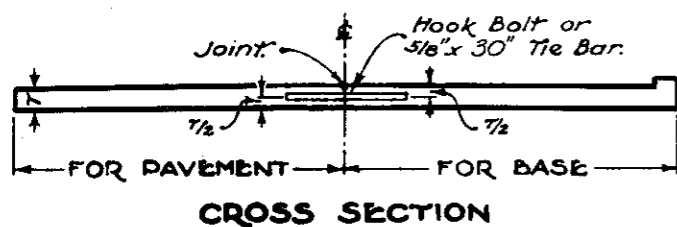
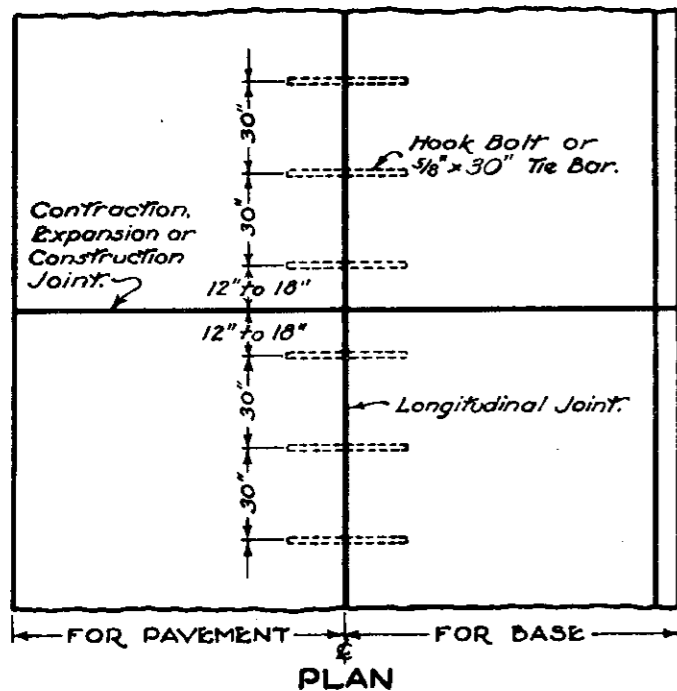
PAVEMENT JOINTS

STANDARD CONSTRUCTION DRAWING BP-3

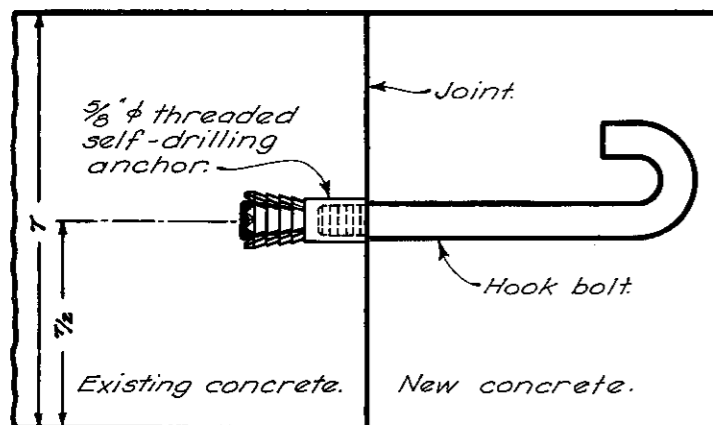
APPROVED *K.E. Goble* ENGR. L. & D.

LONGITUDINAL JOINTS

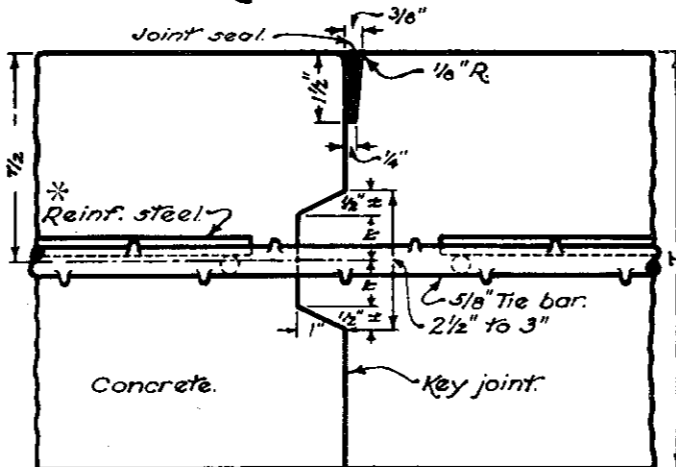
TIE BAR OR HOOK BOLT SPACING



EXPANSION BOLT JOINT



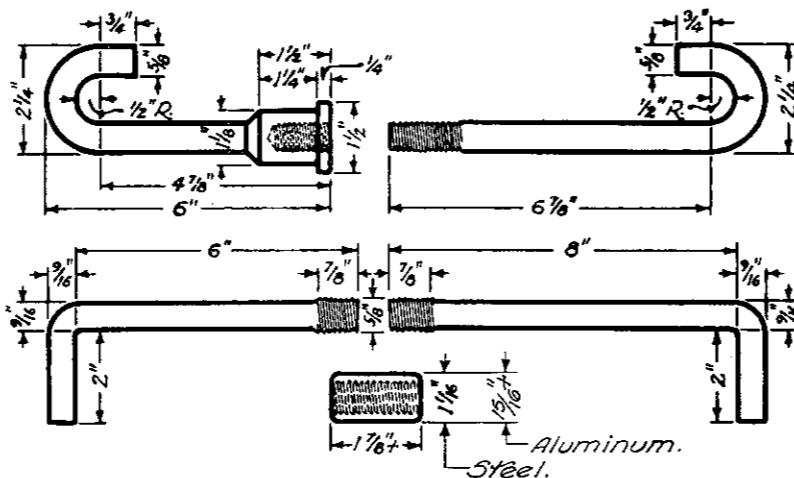
KEY JOINT



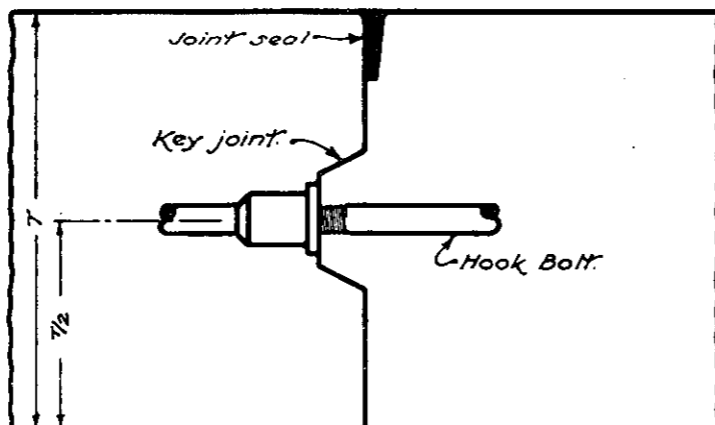
DETAIL OF JOINT

* For 4.51 only.

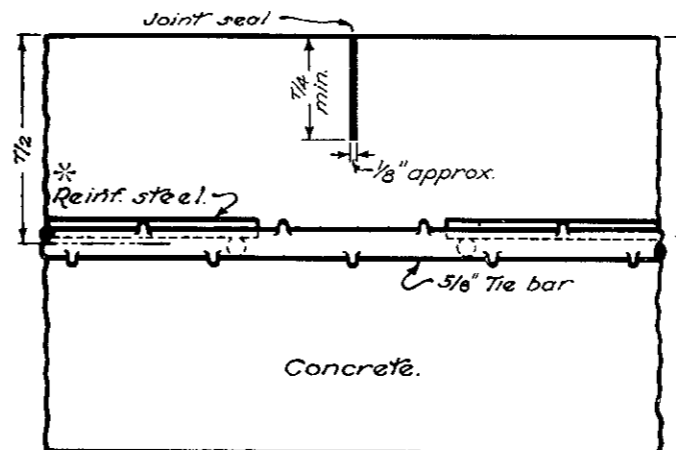
HOOK BOLTS



HOOK BOLT AND KEY JOINT

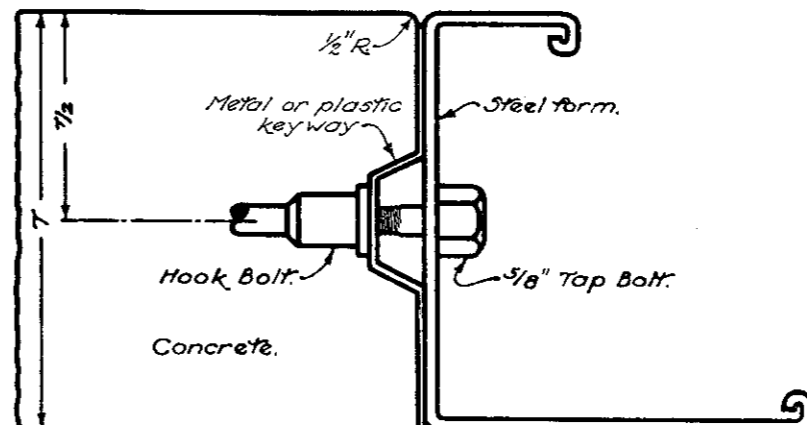


SAWED JOINT



DETAIL OF JOINT

ACCEPTABLE METHOD OF FORMING JOINT



NOTES

GENERAL: Longitudinal joints shall be used when called for on the typical section and shall be constructed as shown on this drawing, in 4.51 and 4.52 pavements and in 305 base.

Tie bars to be 3/8 inch round, deformed bars.

A satisfactory device shall be used to hold the tie bars in proper position, or they shall be installed by a mechanical installing device.

The longitudinal joint between adjoining slabs poured in separate operations shall be a key joint with hook bolts or tie bars, unless otherwise shown on plans.

If tie bars are bent they shall be of structural grade steel, and no portion of the bend shall extend into the first slab poured.

Immediately prior to placing the second slab, bent tie bars shall be straightened by means of a pipe slipped over the free end of the bar.

The joint shall be on the centerline of the pavement unless otherwise shown on the plans.

Any impression left in the surface of the pavement by the flat part of the edging tool shall be eliminated.

SEALING JOINTS: Sawed joints may be sealed with 705.11 joint sealer, in lieu of 705.01 or 705.02 sealer, provided the saw kerf is not less than 1/8" wide.

Sealing of longitudinal joints in 305 base is not required.

COUPLINGS: Aluminum couplings for hook bolts may be substituted for steel, provided that the specified strength requirements for steel assemblies are met.

KEY JOINT: A groove for sealing shall be formed by impressing a device or bar into the newly deposited concrete adjacent to the previously poured lane. The device or bar shall be removed as soon as the concrete is in such condition as to preclude distortion or injury to the concrete.

In lieu of the above method the longitudinal joint may be sawed to a depth of 1/2" and a minimum width of 1/8".

Adjoining slabs adjacent to the longitudinal key joint shall be edged with a thin metal edger having an eighth inch radius.

After the joint is formed it shall be protected from dirt and foreign matter until the joint seal is placed.

Keys shall be discontinued approximately 12 inches from transverse joints, if the joint is not tied with hook bolts or tie bars.

EXPANSION BOLT JOINT: Self-drilling anchors may be of the flush-end type or of the snap-off chuck-end type conforming to Federal Specification No. FF-5-325, Group III, Type 1 (a) or (c). Any of the three hook bolts may be used to complete the assembly. Unless otherwise required by the plans expansion anchors and bolts shall be spaced at 30 inches where pavement widening is 6 feet or less in width and at 60 inches where widening exceeds 6 feet in width. Cost of expansion bolt joint shall be included in the unit price bid for new pavement and no separate payment will be made.

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

PAVEMENT JOINTS

STANDARD CONSTRUCTION DRAWING BP-3

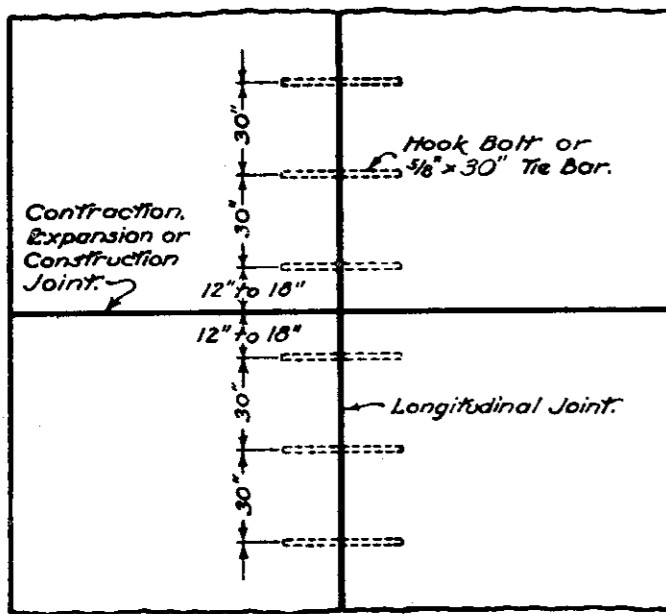
APPROVED *R. E. Batts* ENGR. L. & D.

DATE
6-1-65
12-20-66
1-10-67
5-1-68

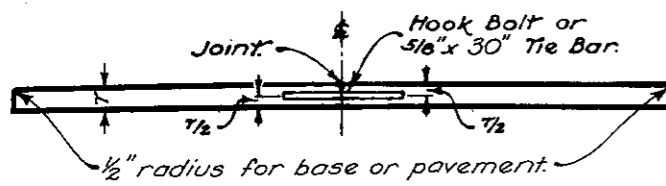
LONGITUDINAL JOINTS

NOTES

TIE BAR OR HOOK BOLT SPACING

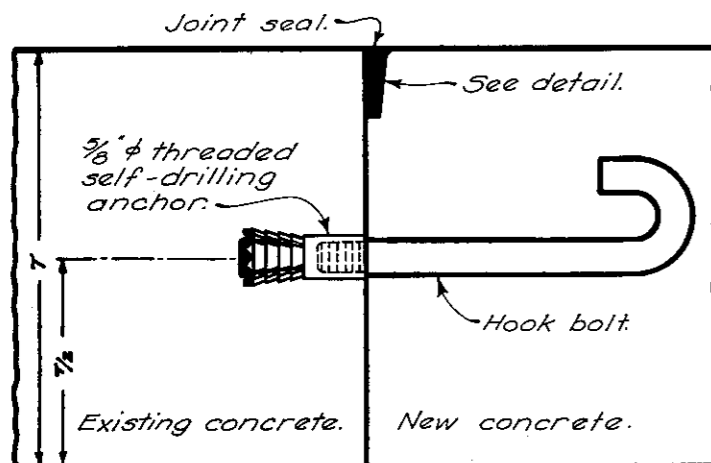


PLAN

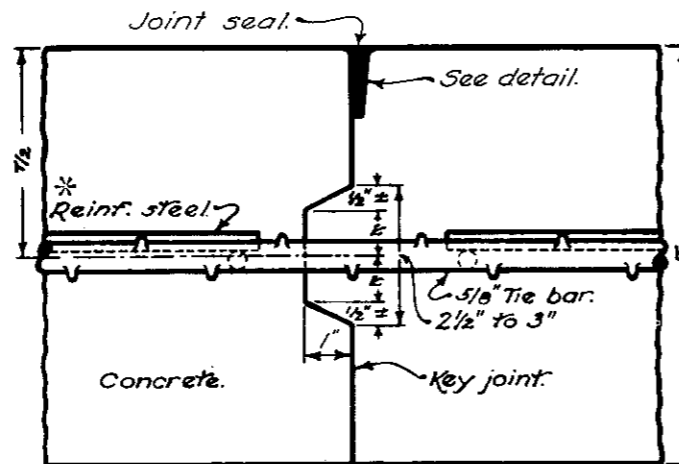


CROSS SECTION

EXPANSION BOLT JOINT

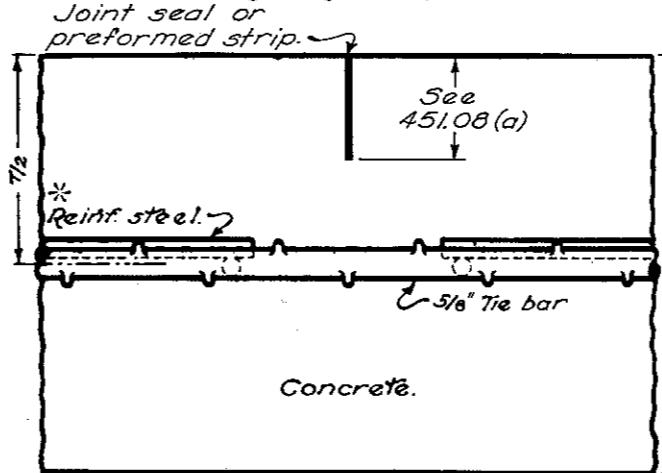


KEY JOINT



DETAIL OF JOINT

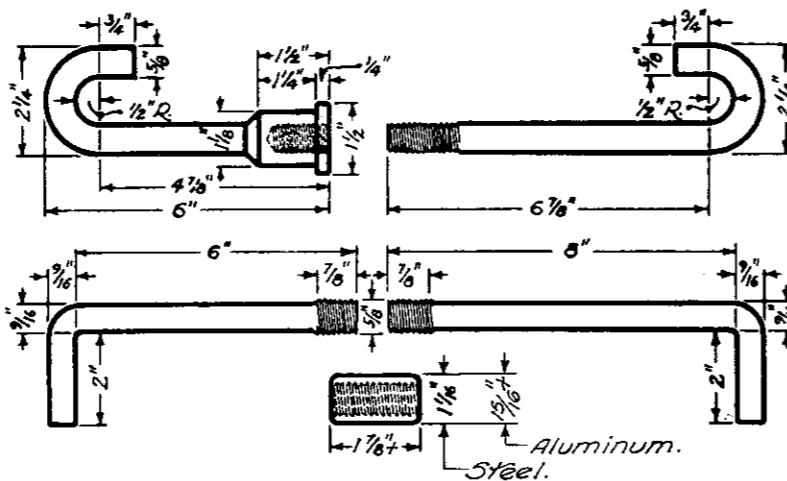
SAWED OR PREFORMED JOINT



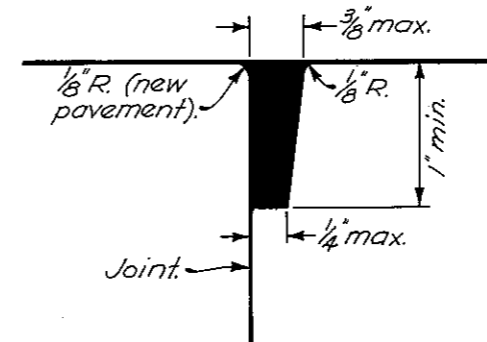
DETAIL OF JOINT

HOOK BOLTS

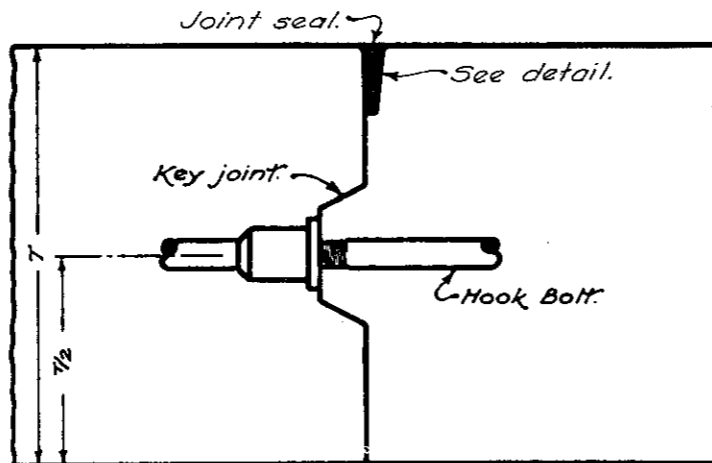
* For 451 only.



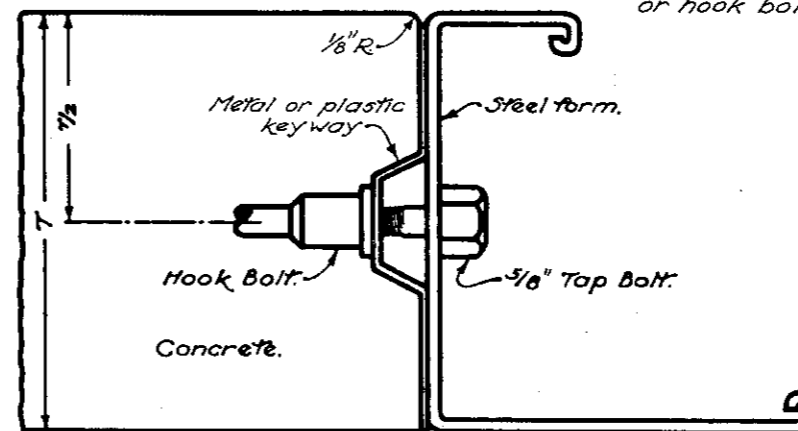
GROOVE AND SEAL DETAIL



HOOK BOLT AND KEY JOINT



ACCEPTABLE METHOD OF FORMING JOINT



GENERAL: Longitudinal joints shall be used when called for on the typical section and shall be constructed as shown on this drawing in 451 and 452 pavement and 305 base. The joint shall be on the centerline of the pavement unless otherwise shown on the plans. Tie bars shall be 3/8 inch round, deformed bars. A satisfactory device shall be used to hold the tie bars in proper position or they may be installed by a mechanical installing device.

KEY JOINT: The longitudinal joint between adjoining slabs poured in separate operations shall be a key joint with hook bolts or tie bars, unless otherwise shown on plans. If tie bars are bent they shall be of structural grade steel, and no portion of the bend shall extend into the first slab poured. Immediately prior to placing the second slab bent tie bars shall be straightened by means of a pipe slipped over the free end of the bar. Aluminum couplings for hook bolts may be substituted for steel, provided that the specified strength requirements for steel assemblies are met. Keys shall be discontinued approximately 12 inches from transverse joints, if the joint is not tied with hook bolts or tie bars.

EXPANSION BOLT JOINT: Self-drilling anchors may be of the flush-end type or of the snap-off chuck-end type conforming to Federal Specification No. FF-5-325, Group III, Type 1(a) or (c). Any of the three hook bolts may be used to complete the assembly. Unless otherwise required by the plans expansion anchors and bolts shall be spaced at 30 inches where pavement widening is 6 feet or less in width and at 60 inches where widening exceeds 6 feet in width. Cost of expansion bolt joint shall be included in the unit price bid for new pavement and no separate payment will be made.

GROOVES: Grooves for sealing expansion bolt or key joints in 451 or 452 pavements shall be formed by impressing a device or bar into the newly deposited concrete adjacent to the existing or previously poured lane. The device or bar shall be removed as soon as the concrete is in such condition as to preclude distortion to the concrete.

Adjoining slabs adjacent to grooved joints shall be edged with a thin metal edger having a radius of 1/8 inch. Any impression left in the surface of the pavement by the flat part of the edging tool shall be eliminated. In lieu of the above method the longitudinal joint may be sawed to a depth of one inch and an approximate width of 1/8 inch. After the joint is formed it shall be protected from dirt and foreign matter until the joint seal is placed.

SEALING JOINTS: Sawed joints may be sealed with 705.11 joint sealer, in lieu of 705.01 or 705.02 sealer, provided the saw kerf is not less than 1/8 inch wide. Sealing of longitudinal joints in 305 base is not required.

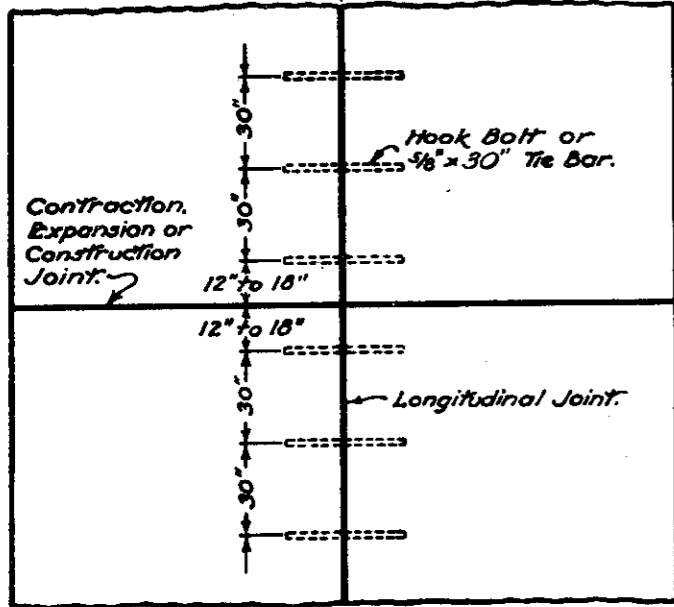
HOOK BOLTS: Hook bolt inserts shall be turned to a tight fit when installed in threaded anchor shields or hook bolts.

BUREAU OF LOCATION AND DESIGN OHIO DEPARTMENT OF HIGHWAYS	
PAVEMENT JOINTS	
STANDARD CONSTRUCTION DRAWING BP-3	
APPROVED <i>R.E. Batts</i> ENGR. L. & L. D.	DATE 6-1-65 12-20-66 1-10-67 5-1-68 12-1-68

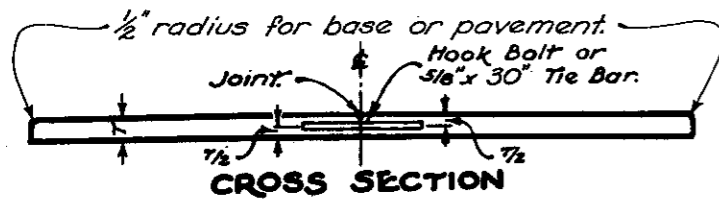
LONGITUDINAL JOINTS

NOTES

TIE BAR OR HOOK BOLT SPACING

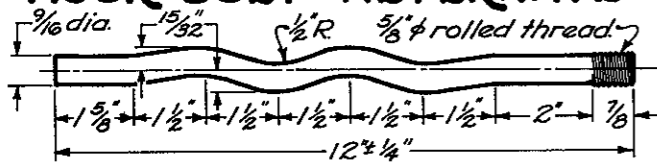


PLAN

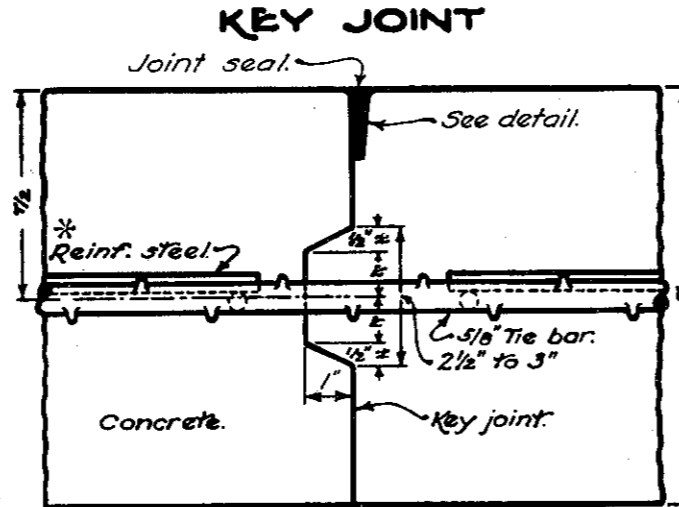
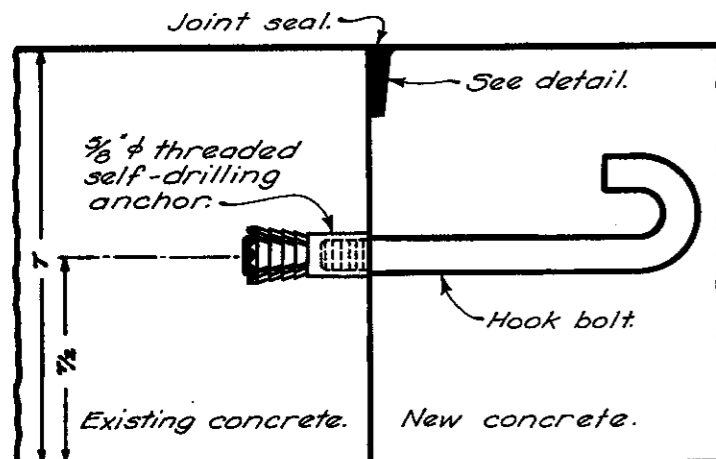


CROSS SECTION

HOOK BOLT ALTERNATE

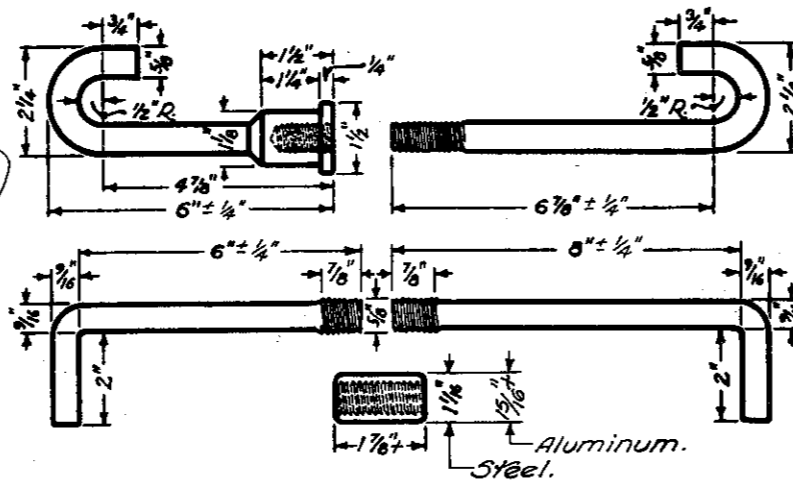


EXPANSION BOLT JOINT

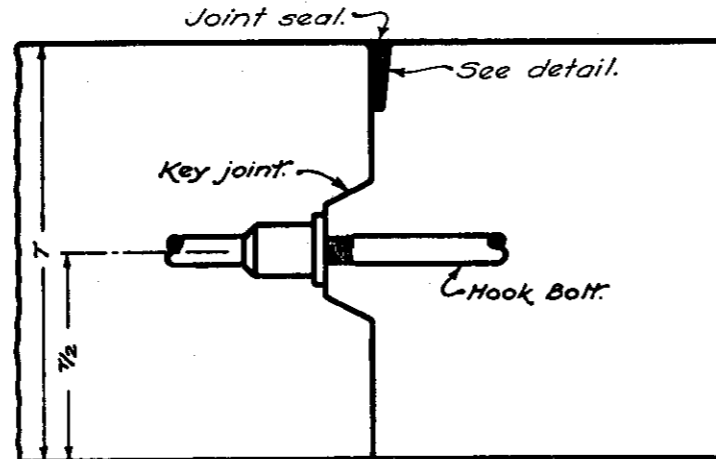


DETAIL OF JOINT

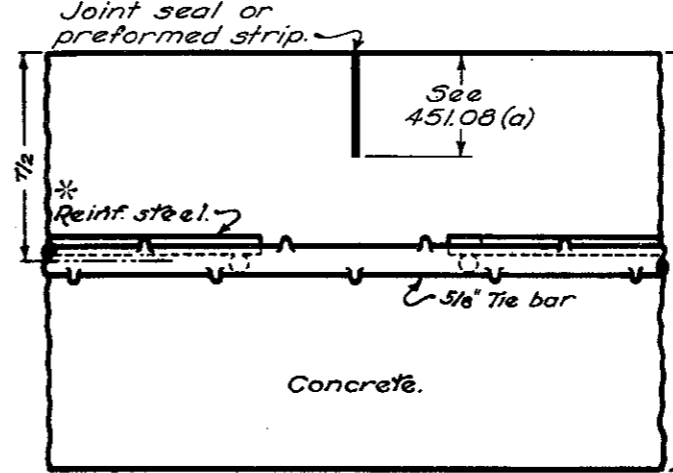
HOOK BOLTS



HOOK BOLT AND KEY JOINT

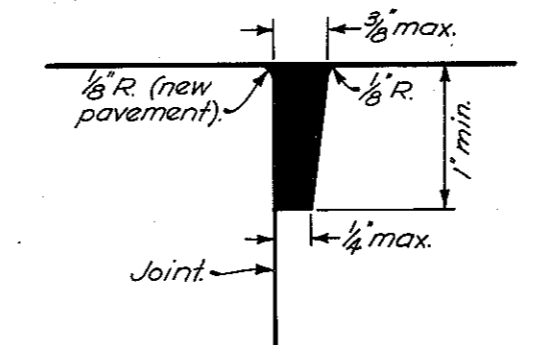


SAWED OR PREFORMED JOINT

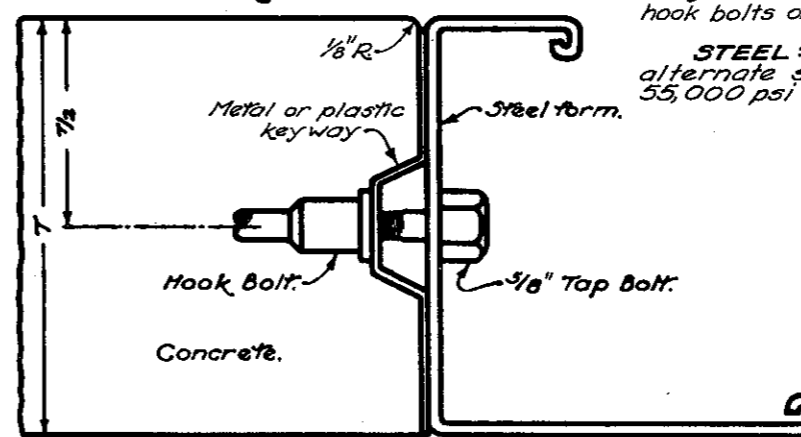


DETAIL OF JOINT

GROOVE AND SEAL DETAIL



ACCEPTABLE METHOD OF FORMING JOINT



GENERAL: Longitudinal joints shall be used when called for on the typical section and shall be constructed as shown on this drawing in 451 and 452 pavement and 305 base. The joint shall be on the centerline of the pavement unless otherwise shown on the plans. Tie bars shall be 3/8 inch round, deformed bars. A satisfactory device shall be used to hold the tie bars in proper position or they may be installed by a mechanical installing device.

KEY JOINT: The longitudinal joint between adjoining slabs poured in separate operations shall be a key joint with hook bolts or tie bars, unless otherwise shown on plans. Tie bars shall not be bant.

Aluminum couplings for hook bolts may be substituted for steel, provided that the specified strength requirements for steel assemblies are met.

EXPANSION BOLT JOINT: Self-drilling anchors may be of the flush-end type or of the snap-off chuck-end type conforming to Federal Specification No. FF-5-325, Group III, Type 1(a) or (c) except for the outside diameter of the anchor. Any of the hook bolts may be used to complete the assembly. Unless otherwise required by the plans expansion anchors and bolts shall be spaced at 30 inches where pavement widening is 6 feet or less in width and at 60 inches where widening exceeds 6 feet in width. Cost of expansion bolt joint shall be included in the unit price bid for new pavement and no separate payment will be made.

GROOVES: Grooves for sealing expansion bolt or key joints in 451 or 452 pavements shall be formed by impressing a device or bar into the newly deposited concrete adjacent to the existing or previously poured lane. The device or bar shall be removed as soon as the concrete is in such condition as to preclude distortion of the concrete.

Adjoining slabs adjacent to grooved joints shall be edged with a thin metal edger having a radius of 1/8 inch. Any impression left in the surface of the pavement by the flat part of the edging tool shall be eliminated.

In lieu of the above method the longitudinal joint may be sawed to a depth of one inch and an approximate width of 1/8 inch.

After the joint is formed it shall be protected from dirt and foreign matter until the joint seal is placed.

SEALING JOINTS: Sawed joints may be sealed with 705.01, 705.02 or 705.11 joint sealer.

Sealing of longitudinal joints in 305 base is not required.

HOOK BOLTS: Hook bolt inserts shall be turned to a tight fit when installed in threaded anchor shields, hook bolts or coupling.

STEEL: Steel for tie bars, hook bolts or hook bolt alternate shall have a minimum tensile strength of 55,000 psi and minimum yield point of 33,000 psi.

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

PAVEMENT
JOINTS

STANDARD
CONSTRUCTION
DRAWING

BP-3

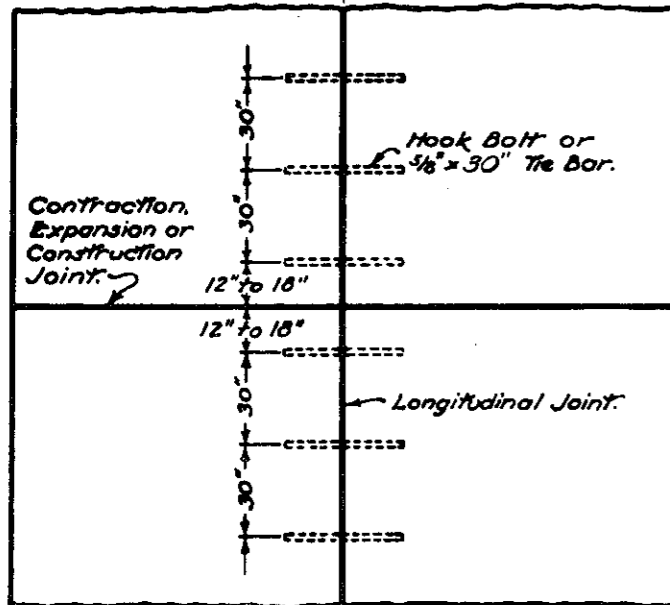
APPROVED *R.E. Lott* ENGR. L. & D.

DATE
6-1-63
12-20-63
5-1-66
12-1-68
1-1-71

LONGITUDINAL JOINTS

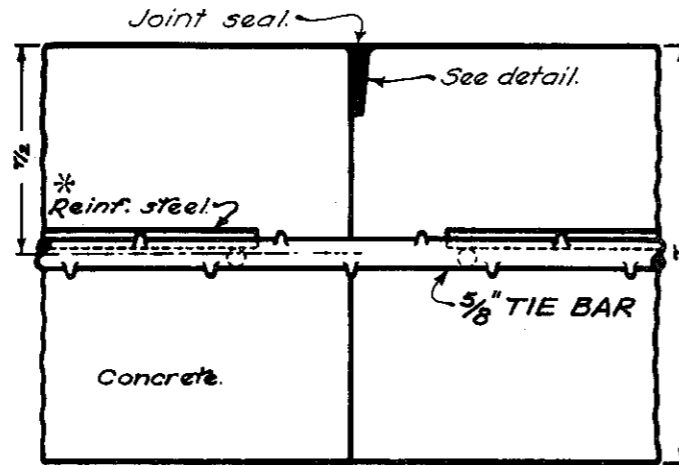
NOTES

TIE BAR OR HOOK BOLT SPACING



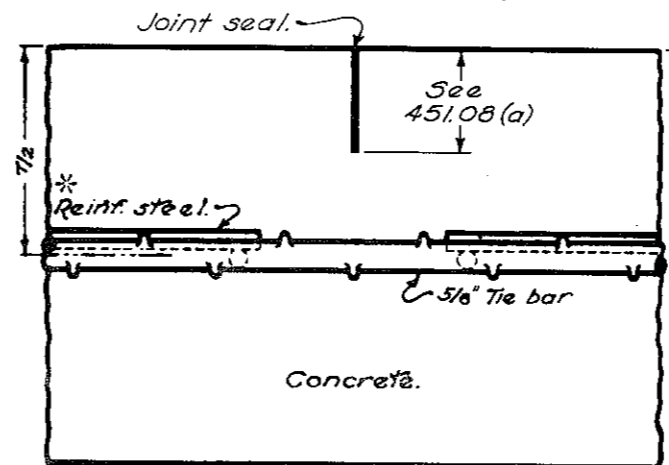
PLAN

BUTT JOINT



DETAIL OF JOINT

SAWED JOINT



DETAIL OF JOINT

* For 451 only.

GENERAL: Longitudinal joints shall be used when called for on the typical section and shall be constructed as shown on this drawing in 451 and 452 pavement and 305 base. The joint shall be on the centerline of the pavement unless otherwise shown on the plans. Tie bars shall be 3/8 inch round, deformed bars. A satisfactory device shall be used to hold the tie bars in proper position or they may be installed by a mechanical installing device.

BUTT JOINT: The longitudinal joint between adjoining slabs poured in separate operations shall be a butt joint with hook bolts or tie bars unless otherwise shown on plans. If tie bars are to be bent they shall be of billet grade steel and no part of the bend shall extend into the first slab poured.

Aluminum couplings for hook bolts may be substituted for steel, provided that the specified strength requirements for metal assemblies are met.

EXPANSION BOLT JOINT: Self-drilling anchors may be of the flush-end type or of the snap-off chuck-end type conforming to Federal Specification No. FF-5-325, Group III, Type 1(a) or (c) except for the outside diameter of the anchor. The hook bolt or alternate may be used to complete the assembly. Unless otherwise required by the plans expansion anchors and bolts shall be spaced at 30 inches where pavement widening is 6 feet or less in width and at 60 inches where widening exceeds 6 feet in width. Cost of expansion bolt joint shall be included in the unit price bid for new pavement and no separate payment will be made.

GROOVES: Grooves for sealing expansion bolt or butt joints in 451 or 452 pavements shall be formed by impressing a device or bar into the newly deposited concrete adjacent to the existing or previously poured lane. The device or bar shall be removed as soon as the concrete is in such condition as to preclude distortion of the concrete.

Adjoining slabs adjacent to grooved joints shall be edged with a thin metal edger having a radius of 1/8 inch. Any impression left in the surface of the pavement by the flat part of the edging tool shall be eliminated.

In lieu of the above method the longitudinal joint may be sawed to a depth of one inch and an approximate width of 1/8 inch.

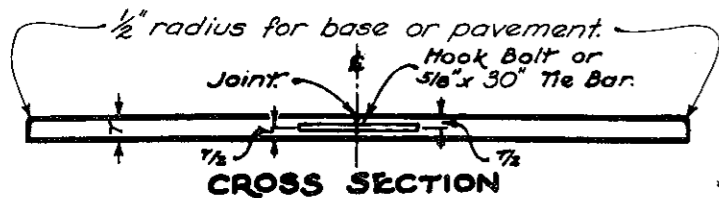
After the joint is formed it shall be protected from dirt and foreign matter until the joint seal is placed.

SEALING JOINTS: Sawed joints may be sealed with 705.01, 705.02 or 705.11 joint sealer.

Sealing of longitudinal joints in 305 base is not required.

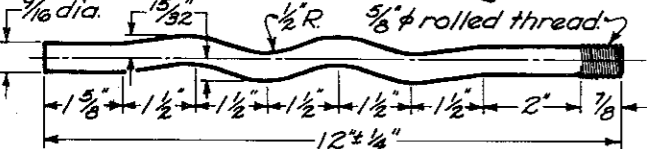
HOOK BOLTS: Hook bolt inserts shall be turned to a tight fit when installed in threaded anchor shields, hook bolts or coupling.

METAL STRENGTH: Tie bars, hook bolt assemblies and hook bolt alternate shall have a minimum strength of 11,000 pounds.



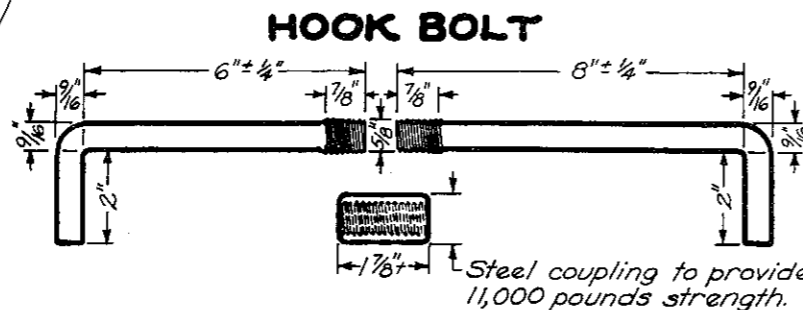
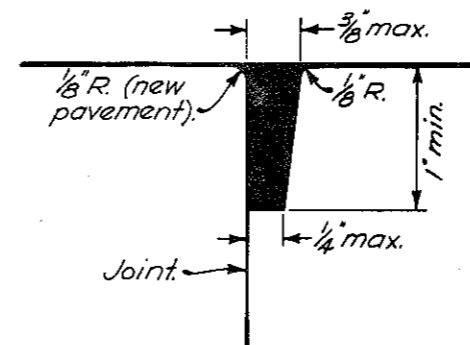
CROSS SECTION

HOOK BOLT ALTERNATE

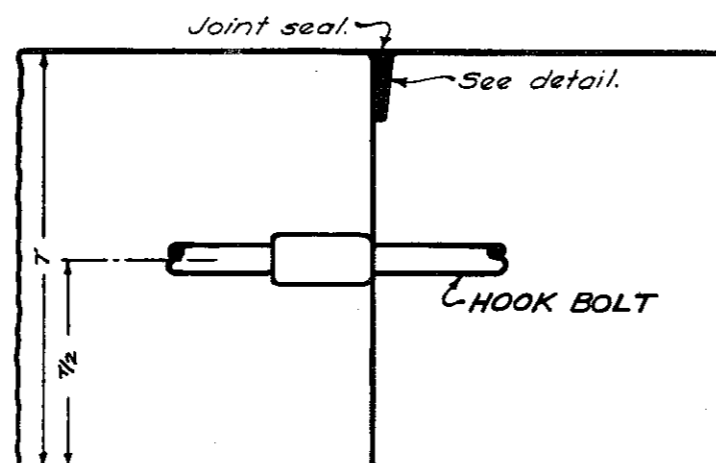


EXPANSION BOLT JOINT

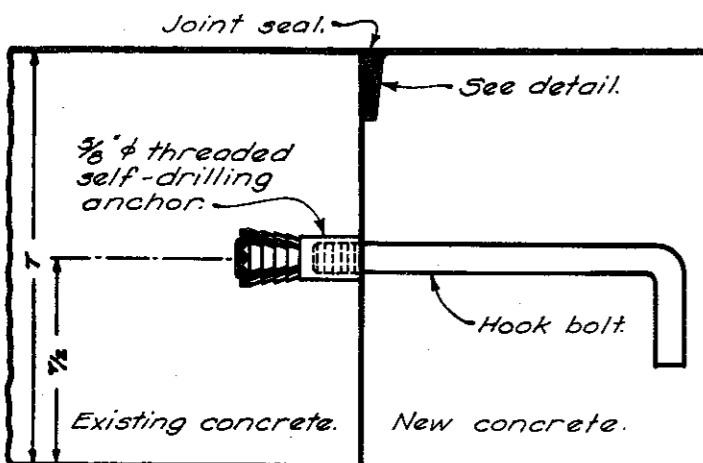
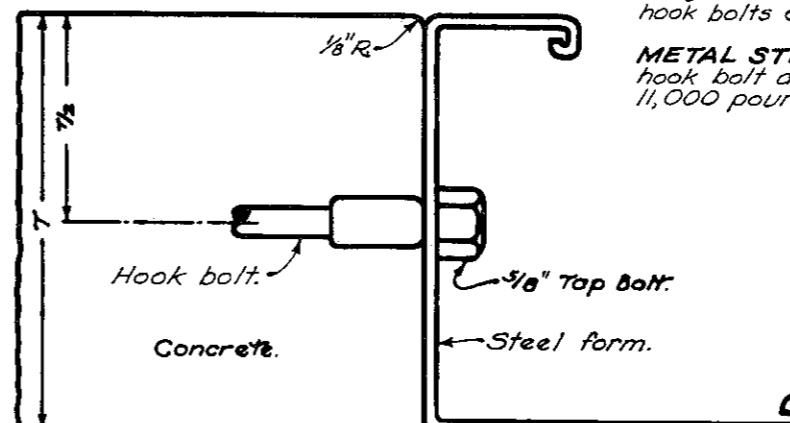
GROOVE AND SEAL DETAIL



BUTT JOINT



ACCEPTABLE METHOD OF FORMING JOINT



BUREAU OF LOCATION AND DESIGN OHIO DEPARTMENT OF TRANSPORTATION	
LONGITUDINAL PAVEMENT JOINTS	
DATE 6-1-65 12-20-66 1-10-67 5-1-68 12-1-68 1-1-71 12-6-76	
STANDARD CONSTRUCTION DRAWING	BP-3
APPROVED <i>M. J. Cunningham</i>	ENGR., L. & D.