BAR PLACEMENT
(Applies to all joints unless otherwise detailed.)

DETAIL A
(Saw cut formed by conventional concrete sawing equipment.)

DETAIL B
(Saw cut formed by approved early concrete sawing equipment.)

DETAIL C

BAR SIZE TABLE FOR CONTRACTION JOINTS

<table>
<thead>
<tr>
<th>T</th>
<th>Solid Dowel Diameter</th>
<th>Tubular Dowel Diameter</th>
<th>Tie Bar Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 8&quot;</td>
<td>3(\frac{3}{4})</td>
<td>7(\frac{8}{16})</td>
<td>#6</td>
</tr>
<tr>
<td>≥ 8&quot; but &lt; 10&quot;</td>
<td>1(\frac{1}{2})</td>
<td>1(\frac{5}{8})</td>
<td>#10</td>
</tr>
<tr>
<td>≥ 10&quot;</td>
<td>1(\frac{1}{2})</td>
<td>1(\frac{5}{8})</td>
<td>#11</td>
</tr>
</tbody>
</table>

Tubular Dowel Bars will not be allowed for RD joints.

SECTION A-A
(Detail at Edge of Pavement)

TRANSVERSE CONTRACTION

JOINTS

LEGEND

Existing Pavement
Proposed Pavement

FIGURE 7010.101
STANDARD ROAD PLAN
PV-101

SHEET 2 OF 8

REV 04-19-22

REVISIONS: Modified circle new 32.

SUDAS
TOWADOT
**Joint Bars**

- **'BT'**
  - Joint: BT-1, BT-2
  - Bars: #4, #5
  - Length: 36'' Long at 30'' Centers, 24'' Long at 30'' Centers
  - Spacing: 12'' Centers

- **'KT'**
  - Joint: KT-1, KT-2, KT-3
  - Bars: #4, #5
  - Length: 30'' Long at 30'' Centers, 30'' Long at 15'' Centers
  - Spacing: 12'' Centers

- **'KS-1'**
  - Bars: #5 at 12'' Centers
  - Length: 21½''

- **'KS-2'**
  - Bars: #5 at 12'' Centers, #6 at 12'' Centers
  - Length: 21½''

**Keyed Joint for Adjacent Slabs**

- **'K'**
  - Hole Dia.: 4'', 5'', 8''
  - Hole Location: BT-3, BT-4, BT-5

**PLAIN JOINT**

- **'B'**
  - Joint: B
  - Bars: #5
  - Length: 30'' Long at 12'' Centers

**ABUTTING PAVEMENT JOINT - RIGID TIE**

- **'BT'**
  - Joint: BT-1, BT-2
  - Bars: #4, #5
  - Length: 36'' Long at 30'' Centers, 24'' Long at 30'' Centers
  - Spacing: 12'' Centers

- **'KT'**
  - Joint: KT-1, KT-2, KT-3
  - Bars: #4, #5
  - Length: 30'' Long at 30'' Centers, 30'' Long at 15'' Centers
  - Spacing: 12'' Centers

**ABUTTING PAVEMENT JOINT - KEYWAY TIE**

- **'K'**
  - Hole Dia.: 4'', 5'', 8''
  - Hole Location: BT-3, BT-4, BT-5

**ABUTTING PAVEMENT JOINT - RIGID TIE (Drilled)**

- **'BT'**
  - Joint: BT-5, BT-3
  - Bars: #4, #5
  - Length: 24'' Long at 30'' Centers, 24'' Long at 15'' Centers
  - Spacing: 12'' Centers

**CONTRACTION JOINT**

- **'L'**
  - Joint: L-1, L-2, L-3
  - Bars: #4, #5
  - Length: 36'' Long at 30'' Centers, 36'' Long at 15'' Centers
  - Spacing: 12'' Centers

**LEGEND**

- Existing Pavement
- Proposed Pavement

**Sawing or Sealing of Joint Not Required.**

**The Following Joints Are Interchangeable, Subject to the Pouring Sequence:**

- "BT-1", "L-1", and "KT-1"
- "KT-2" and "L-2"
- "KT-3" and "L-3"
TIE BAR PLACEMENT
(Appplies to all joints unless otherwise detailed.)

DETAIL D-1
(Required when specified in the contract documents.)

DETAIL D-2
(Required when the Department of Transportation is not the Contracting Authority, or when specified in the contract documents)

DETAIL D-3
(Required when the Department of Transportation is the Contracting Authority, or when specified in the contract documents)

KEYWAY DIMENSIONS

<table>
<thead>
<tr>
<th>Keyway Type</th>
<th>Pavement Thickness</th>
<th>T</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>8&quot; or greater</td>
<td>1(\frac{3}{4})</td>
<td>2(\frac{3}{4})</td>
<td></td>
</tr>
<tr>
<td>Narrow</td>
<td>Less than 8&quot;</td>
<td>1&quot;</td>
<td>2&quot;</td>
<td></td>
</tr>
</tbody>
</table>

LEGEND
- Existing Pavement
- Proposed Pavement

LONGITUDINAL CONTRACTION

When tying into old pavement, \(T\) represents the depth of sound PCC.

Sealant or cleaning not required.
FIGURE 7010.101

Dowel Placement
(Appplies to all joints unless otherwise detailed.)

See Detail H

CF JOINT

1" EXPANSION JOINT

E' JOINT IN CURB
(View at Back of Curb)

EE JOINT IN CURB
(View at Back of Curb)

ES' JOINT IN CURB
(View at Back of Curb)

DETAIL F

DETAIL G

DETAIL H

18" Long Dowel at 12" Centers

Tire Buffings

Joints

Legend

Existing Pavement

Proposed Pavement

Doweled Expansion Joints

Type | Width | Filler Material
--- | --- | ---
ED | 1" | Resilient (Detail F)
EE | 2" | Flexible Foam (Detail F)
EF | 3 1/2" | Flexible Foam (Detail G)

Bar Size Table for Doweled Expansion Joints

Dowel Diameter | Aspect Ratio | Spacing
--- | --- | ---
< 8" | 2 1/4" | 1 1/4"
8" but < 10" | 3 1/2" | 1 1/4"
≥ 10" | 6 1/2" | 1 1/4"

Tubular Dowel Bars will not be allowed for expansion joints.

See Bar Size Table for Doweled Expansion Joints.

Edge with 1/4 inch tool for length of joint indicated if formed; edging not required when cut with diamond blade saw.

See Dowel Assemblies for fabrication details and placement limits. Coat the free end of dowel bar to prevent bond with pavement. At intake locations, dowel bars may be cast-in-place.

Predrill or preform holes in joint material for appropriate dowel size.

Compact tire buffings by spading with a square-nose shovel.
CONTRACTION JOINTS

Spaces between dowel bars are nominal dimensions with a \( \frac{3}{4} \) inch allowable tolerance.

Per lane width, install a minimum of 8 anchor pins evenly spaced (4 per side), to prevent movement of assembly during construction. Anchor assemblies placed on pavement or PCC base with devices approved by the Engineer.

If dowel basket assemblies are required for curbed pavements, the assembly length is based on the jointing layout. See PV-101, sheet 8.

Ensure dowel basket assembly centerline is within 2 inches of the intended joint location longitudinally and has no more than 1/4 inch horizontal skew from end of basket to end of basket.

Tie Wire

Leg

Anchor Pins

Top of Pavement

Contraction Joint and Assembly

Dowel Assemblies

Dowel Height and Diameter for Doweled Contraction Joints

<table>
<thead>
<tr>
<th>T</th>
<th>DH</th>
<th>Diameter (Solid)</th>
<th>Diameter (Tubular)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7&quot;</td>
<td>3&quot;</td>
<td>( \frac{3}{4} )</td>
<td>( \frac{3}{8} )</td>
</tr>
<tr>
<td>8&quot;</td>
<td>3\textsuperscript{1/2}&quot;</td>
<td>( \frac{3}{4} )</td>
<td>( \frac{3}{8} )</td>
</tr>
<tr>
<td>10&quot;</td>
<td>4\textsuperscript{1/4}&quot;</td>
<td>( 1\frac{3}{4} )</td>
<td>( \frac{1}{2} )</td>
</tr>
<tr>
<td>12&quot;</td>
<td>6\textsuperscript{1/4}&quot;</td>
<td>( 1\frac{3}{4} )</td>
<td>( 1\frac{5}{8} )</td>
</tr>
</tbody>
</table>

Tubular Dowel Bars will not be allowed for RD joints.
Spaces between dowel bars are nominal dimensions with a \( \frac{1}{4} \) inch allowable tolerance.

Use 18 inch long dowel bars with a tolerance of ±1/8 inch. Ensure the centerlines of individual dowels are parallel to the other dowels in the assembly within ±1/8 inch.

Use wires with a minimum tensile strength of 50 ksi.

Details apply to both transverse contraction and expansion joints.

Weld alternately throughout.

0.306 inch diameter wire. Wire sizes shown are the minimum required.

Maximum 0.177 inch diameter wire, welded or friction fit to upper side rail, both sides.

Measured from the centerline of dowel bar to bottom of lower side rail + 1/4 inch.

Per lane width, install a minimum of 8 anchor pins evenly spaced (4 per side), to prevent movement of assembly during construction. Anchor assemblies placed on pavement or PCC base with devices approved by the Engineer.

If dowel basket assemblies are required for curved pavements, the assembly length is based on the jointing layout. See PV-101, sheet 8.

Ensure dowel basket assembly centerline is within 2 inches of the intended joint location longitudinally and has no more than 1/4 inch horizontal skew from end of basket to end of basket.

Clip and remove center portion of tie during field assembly.

1/4 inch diameter wire.

Joint Opening and Expansion Tube Extension

<table>
<thead>
<tr>
<th>Joint Type</th>
<th>Minimum Tube Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;ED&quot;</td>
<td>1&quot;</td>
</tr>
<tr>
<td>&quot;EE&quot;</td>
<td>2&quot;</td>
</tr>
<tr>
<td>&quot;EF&quot;</td>
<td>( \frac{3}{4} )&quot;</td>
</tr>
</tbody>
</table>

Dowel Assemblies

Tubular Dowel Bars will not be allowed for expansion joints.

Dowel Height and Diameter for Doweled Expansion Joints

<table>
<thead>
<tr>
<th>Joint Type</th>
<th>T</th>
<th>DH</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;ED&quot;</td>
<td>7&quot; to 7( \frac{1}{2} )&quot;</td>
<td>3( \frac{1}{2} )&quot;</td>
<td>3( \frac{3}{4} )&quot;</td>
</tr>
<tr>
<td>&quot;EE&quot;</td>
<td>8&quot; to 9( \frac{1}{2} )&quot;</td>
<td>4( \frac{1}{4} )&quot;</td>
<td>1( \frac{1}{4} )&quot;</td>
</tr>
<tr>
<td>&quot;EF&quot;</td>
<td>10&quot; to 11( \frac{1}{2} )&quot;</td>
<td>5( \frac{1}{4} )&quot;</td>
<td>1( \frac{1}{4} )&quot;</td>
</tr>
<tr>
<td>&quot;ED&quot;</td>
<td>12&quot; to 13&quot;</td>
<td>6( \frac{1}{4} )&quot;</td>
<td>1( \frac{1}{4} )&quot;</td>
</tr>
</tbody>
</table>

Use wires with a minimum tensile strength of 50 ksi.

Use 18 inch long dowel bars with a tolerance of ±1/8 inch. Ensure the centerlines of individual dowels are parallel to the other dowels in the assembly within ±1/8 inch.

Weld alternately throughout.

0.306 inch diameter wire. Wire sizes shown are the minimum required.

Maximum 0.177 inch diameter wire, welded or friction fit to upper side rail, both sides.

Measured from the centerline of dowel bar to bottom of lower side rail + 1/4 inch.

Per lane width, install a minimum of 8 anchor pins evenly spaced (4 per side), to prevent movement of assembly during construction. Anchor assemblies placed on pavement or PCC base with devices approved by the Engineer.

If dowel basket assemblies are required for curved pavements, the assembly length is based on the jointing layout. See PV-101, sheet 8.

Ensure dowel basket assembly centerline is within 2 inches of the intended joint location longitudinally and has no more than 1/4 inch horizontal skew from end of basket to end of basket.

Clip and remove center portion of tie during field assembly.

1/4 inch diameter wire.

Joint Opening and Expansion Tube Extension

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<td>1&quot;</td>
</tr>
<tr>
<td>&quot;EE&quot;</td>
<td>2&quot;</td>
</tr>
<tr>
<td>&quot;EF&quot;</td>
<td>( \frac{3}{4} )&quot;</td>
</tr>
</tbody>
</table>
OPTIONAL LEG SHAPES

ANCHOR PIN

1. Use 18 inch long dowel bars with a tolerance of ± 1/8 inch. Ensure the centerlines of individual dowels are parallel to the other dowels in the assembly within ± 1/8 inch.

2. Use wires with a minimum tensile strength of 50 ksi.

3. Details apply to both transverse contraction and expansion joints.

4. Diameter of bend around dowel is dowel diameter + 1/8 to 3/16 inches.

5. For uniform lane widths: 3 to 6 inches. For taper and variable width pavements: 3 to 12 inches.

PLACEMENT LIMITS

(Rural Section)

LONGITUDINAL JOINT

EDGE OF PAVEMENT

TOP OF PAVEMENT

PLACEMENT LIMITS

(Curb and Gutter - Gutterline Jointing)

PLACEMENT LIMITS

(Curb and Gutter - 1/4 or 1/3 Point Jointing)

BEND AROUND DOWEL

1. Use wires with a minimum tensile strength of 50 ksi.

2. Details apply to both transverse contraction and expansion joints.

3. Diameter of bend around dowel is dowel diameter + 1/8 to 3/16 inches.

4. For uniform lane widths: 3 to 6 inches. For taper and variable width pavements: 3 to 12 inches.