See dowel assemblies for fabrication details.

Locate 'DW' joint at a mid-panel location between future 'C' or 'CD' joints. Place no closer than 5 feet to a 'C' or 'CD' joint.

Place bars within the limits shown under dowel assemblies.

Edge with 1/8 inch tool for length of joint. For HT joint, remove header block and board when second slab is placed.

Unless specified otherwise, use 'CD' transverse contraction joints in mainline pavement when T is greater or equal to 8 inches. Use 'C' joints when T is less than 8 inches.

'RT' joint may be used in lieu of 'DW' joint at the end of the days work. Remove any pavement damaged due to the drilling at no additional cost to the Contracting Authority.

See Bar Size Table for Contraction Joints on Sheet 2.

PLAIN JOINT
(Abutting Pavement Slabs)

CONTRACTION JOINT

DOWELED CONTRACTION JOINT

TIED CONTRACTION JOINT

DAY'S WORK JOINT (Non-working)

HEADER JOINT
(End Rigid Pavement)

DAY'S WORK JOINT

CURB AND GUTTER UNIT

LEGEND

Existing Pavement

Proposed Pavement

PV-101

REVISION

04-12-22

PV-101

SHEET 1 of 8

JOINTS
9

BAR PLACEMENT
(Appplies 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>3/4</td>
<td>7/8</td>
<td>#6</td>
</tr>
<tr>
<td>≥ 8&quot; but &lt; 10&quot;</td>
<td>1 1/4</td>
<td>1 3/8</td>
<td>#10</td>
</tr>
<tr>
<td>≥ 10&quot;</td>
<td>1 1/2</td>
<td>1 5/8</td>
<td>#11</td>
</tr>
</tbody>
</table>

Tubular Dowel Bars will not be allowed for RD joints.

8 Saw 'CD' joint to a depth of T/3 ± 1/4"; saw 'C' joint to a depth of T/4 ± 1/4".

9 When tying into old pavement, T represents the depth of sound PCC.

'C' JOINT IN CURB
(Match 'CT', 'CD', or 'C' joint in pavement.)

SECTION A-A
(Detail at Edge of Pavement)

TRANSVERSE CONTRACTION
FIGURE 7010.101

**PLAIN JOINT** (Abutting Pavement Slabs)

- **B**
  - #5 Bars, 30" Long at 12" Centers
  - See Detail E

**ABUTTING PAVEMENT JOINT - RIGID TIE**

- **BT**
  - Joint Bars Bar Length and Spacing
  - < 8" 'BT-1' #4 36" Long at 30" Centers
  - ≥ 8" 'BT-2' #5 36" Long at 30" Centers

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

- **BT**
  - Joint Bars Bar Length and Spacing
  - < 8" 'BT-5' #4 24" Long at 30" Centers
  - ≥ 8" 'BT-3' #5 24" Long at 15" Centers

**KEYED JOINT FOR ADJACENT SLABS** (Where T is 8" or more)

- **K**
  - See Detail E

**CONTRACTION JOINT**

- **L**
  - Joint Bars Bar Length and Spacing
  - < 8" 'L-1' #4 36" Long at 30" Centers
  - ≥ 8" 'L-2' #5 36" Long at 30" Centers
  - 'L-3' 36" Long at 15" Centers

**LONGITUDINAL CONTRACTION**

- **KT**
  - Joint Bars Bar Length and Spacing
  - < 8" 'KT-1' #4 30" Long at 30" Centers
  - ≥ 8" 'KT-2' #5 30" Long at 30" Centers
  - 'KT-3' 30" Long at 15" Centers

Bar supports may be necessary for fixed form paving to ensure the bar remains in a horizontal position in the plastic concrete.

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'

See Detail E

See Detail D-1, D-2, or D-3

See Detail C
FIGURE 7010.101

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

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

DETAIL E

KEYWAY DIMENSIONS

<table>
<thead>
<tr>
<th>Keyway Type</th>
<th>Pavement Thickness</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>
</tr>
<tr>
<td>Narrow</td>
<td>Less than 8&quot;</td>
<td>1&quot;</td>
<td>2&quot;</td>
</tr>
</tbody>
</table>

When tying into old pavement, represents the depth of sound PCC.
Sealant or cleaning not required.

LONGITUINAL CONTRACTION

JOINTS
**Dowel Placement**

(Applies to all joints unless otherwise detailed.)

**'CF' Joint**

See Detail H

**Width (See Table Below)**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>WIDTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>CF-1</td>
<td>2&quot;</td>
</tr>
<tr>
<td>CF-2</td>
<td>2 1/2</td>
</tr>
<tr>
<td>CF-3</td>
<td>3&quot;</td>
</tr>
<tr>
<td>CF-4</td>
<td>3 1/2</td>
</tr>
</tbody>
</table>

**'EE' Joint**

(View at Back of Curb)

**Joint in Curb**

Top of Curb

Top of Slab

**Resilient Joint Filler**

**Flexible Foam Joint Filler**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>WIDTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED</td>
<td>1&quot;</td>
</tr>
<tr>
<td>EE</td>
<td>2&quot;</td>
</tr>
<tr>
<td>EF</td>
<td>3 1/2</td>
</tr>
</tbody>
</table>

**DETAIL F**

**Joint Sealant Material**

1" Nominal

**DETAIL G**

1/4" Plywood or Pressed Wood Spacer Required for 'EF' Joint

**DETAIL H**

Tire Buffings

**Detail F or Detail G**

(See Bar Size Table for Doweled Expansion Joints)

**Joint Filler Material**

(See Bar Size Table for Doweled Expansion Joints)

**18" Long Dowel at 12" Centers**

**Width (See Doweled Expansion Joints Table)**

**ED, EE, EF**

Doweled Expansion Joint

**SECTION B-B**

**JOINT IN CURB**

(View at Back of Curb)

Top of Curb

2" Thru Curb

Resilient Joint Filler

Top of Slab

1" Nominal

See Detail F

**Joint Sealant**

1/2 Joint Sealant Material

1/2" Diameter Dowel Bar

Coat the free end of dowel bar to prevent bond with pavement. At intake locations, dowel bars may be cast-in-place.

**Preshave or preform holes in joint material for appropriate dowel size.**

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

**Tubular Dowel Bars will not be allowed for expansion joints.**

**Tire Buffings**

**1 1/2" Joint Sealant Material**

**1" Nominal**

**1 1/2" Joint Sealant Material**

**3 1/4" Diameter Dowel Bars**

**LEGEND**

- Existing Pavement
- Proposed Pavement

**Table Below**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>WIDTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED</td>
<td>1&quot;</td>
</tr>
<tr>
<td>EE</td>
<td>2&quot;</td>
</tr>
<tr>
<td>EF</td>
<td>3 1/2</td>
</tr>
</tbody>
</table>

**Bar Size Table for Doweled Expansion Joints**

- < 8"
- ≥ 8" but < 10""
- ≥ 10""

**Dowel Diameter**

3/4" 1 1/4" 1 1/2"
CONTRACTION JOINTS

Spaces between dowel bars are nominal dimensions with a \( \frac{3}{16} \)" allowable tolerance.

Longitudinal Section

Dowel Assemblies

11'-0" ± \( \frac{1}{2} \)" for 12'-0" Pavement

Plan

Elevation

12" 12" 12" 12" 12" 12" 12" 12" 12" 12" 12"

Top of Pavement

Contraction Joint and Assembly

Anchor Pins

Tie Wire

Side Rails

Leg

Dowel Height and Diameter

For Doweled Contraction Joints

<table>
<thead>
<tr>
<th>T</th>
<th>DH-25</th>
<th>Diameter (Solid)</th>
<th>Diameter (Tubular)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7&quot; to 7( \frac{1}{2} )&quot;</td>
<td>3( \frac{3}{4} )&quot;</td>
<td>( \frac{3}{4} )&quot;</td>
<td>7( \frac{1}{8} )&quot;</td>
</tr>
<tr>
<td>8&quot; to 9( \frac{1}{2} )&quot;</td>
<td>4( \frac{1}{4} )&quot;</td>
<td>1( \frac{1}{4} )&quot;</td>
<td>1( \frac{3}{8} )&quot;</td>
</tr>
<tr>
<td>10&quot; to 11( \frac{1}{2} )&quot;</td>
<td>5( \frac{1}{4} )&quot;</td>
<td>1( \frac{1}{2} )&quot;</td>
<td>5( \frac{5}{8} )&quot;</td>
</tr>
<tr>
<td>12&quot; to 13&quot;</td>
<td>6( \frac{1}{4} )&quot;</td>
<td>1( \frac{1}{2} )&quot;</td>
<td>6( \frac{1}{4} )&quot;</td>
</tr>
</tbody>
</table>

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

DIN

Tubular Dowel Bars will not be allowed for RD joints.
**Expansion Joints**

Spaces between dowel bars are nominal dimensions with a 1/8" allowable tolerance.

**Dowel Height and Diameter for Doweled Expansion Joints**

<table>
<thead>
<tr>
<th>Joint Type</th>
<th>Minimum Tube Length</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;ED&quot;</td>
<td>1&quot;</td>
<td>3/4&quot;</td>
</tr>
<tr>
<td>&quot;EE&quot;</td>
<td>2&quot;</td>
<td>1&quot;</td>
</tr>
<tr>
<td>&quot;EF&quot;</td>
<td>3 1/2&quot;</td>
<td>1 1/2&quot;</td>
</tr>
</tbody>
</table>

Tubular Dowel Bars will not be allowed for expansion joints.

**Dowel Assemblies**

- 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 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.
- Clip and remove center portion of tie during field assembly.
- 1/4 inch diameter wire.
**Dowel Assemblies**

**Optional Leg Shapes**

- #1/0 Gauge Wire (0.306" diameter)
- Anchor Pin

**Anchor Pin**

- 2" min.
- 12" min.
- 45°

**Placement Limits (Rural Section)**

- Longitudinal Joint
- Edge of Pavement
- Top of Pavement

**Placement Limits (Curb and Gutter - Gutterline Jointing)**

- Centerline Joint
- Gutterline Joint

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

- 1/4 or 1/3 Point
- Longitudinal Joint

**Bend Around Dowel**

- D + 2" max.

**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.

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

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

**Modifications**

- Back of Curb
- Top of Pavement
- Edge of Pavement
- Centerline Joint
- Gutterline Joint

**Joint Details**

- For contraction joints, ensure the edges of the dowel and wire are parallel to the other dowels in the assembly within ± 1/8 inch.

- For expansion joints, ensure the centerlines of individual dowels are parallel to the other dowels in the assembly within ± 1/8 inch.

**Use Wires**

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

**Dowel Assemblies**

- PLACEMENT LIMITS
- (Rural Section)
- (Curb and Gutter - Gutterline Jointing)
- (Curb and Gutter - 1/4 or 1/3 Point Jointing)