KANSAS DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION TO THE
STANDARD SPECIFICATIONS, 2007 EDITION

Delete SECTION 707 and replace with the following:

SECTION 707

EXPANSION DEVICE (FINGER PLATE, SLIDING PLATE AND MODULAR)

707.1 DESCRIPTION

Install finger plate, sliding plate and modular expansion devices as designated in the Contract Documents.

BID ITEMS	**UNITS**
Expansion Device (*)	Linear Foot
*Type: Finger Plate, Sliding Plate or Modular	

707.2 MATERIALS

Provide fabric troughs for finger plate or sliding plate expansion devices that comply with **DIVISION 1700**.

Provide modular expansion devices that comply with **DIVISION 1700**.

707.3 CONSTRUCTION REQUIREMENT

a. General. The Contractor is responsible for preparing shop drawings and coordinating the fabrication of the joint assemblies.

Submit shop drawings, for each location, type and model of expansion device used, according to **subsection 105.10**. Include a table of temperature corrections, required for installation, for each expansion device on the shop drawings. Do not perform any fabrication until the approved shop drawings are in the hands of the Inspector and fabricator, and the Engineer has authorized fabrication. Any purchase of materials before fabrication authorization is at the Contractor's risk. Changes to approved shop drawings are subject to the approval of the Engineer. Submit revised sheets of the same size as those originally approved.

Fabricate expansion devices according to **SECTION 705**. After fabrication, hot-dip galvanize all carbon steel components of modular expansion devices. Shop paint or hot-dip galvanize steel components of finger plate or sliding plate expansion devices, except support angles and finger plate or sliding plates, which must be shop painted.

- Galvanize according to ASTM A 123.
- Prepare steel surfaces and apply inorganic zinc according to **SECTION 714**, except provide a nominal dry film thickness of 3 mils.

The Contractor is responsible for coordinating the fabricator of the expansion device with the fabricator of the structural steel members for the bridge superstructure.

Complete the final sealing of the finished expansion joint as soon as possible after installation. Fill all bolts, exposed ends, joints between units and other areas of possible leakage with sealant. Scrape excess sealant away before it has set.

b. Expansion Device (Finger Plate or Sliding Plate). Place alignment marks on the anchor plates and finger plates or sliding plates on each side of the expansion gap to facilitate accurate installation.

Align the finger plate or sliding plate joint assemblies in position and check the expansion opening. The expansion opening must be adjusted for temperature prior to bolting, welding or placing concrete on each side of the joint. To adjust for the effects of sunlight on the girders, place reference marks on the bridge prior to sunrise.

Use these reference marks to set the expansion opening using the table on the plans and the average ambient temperature over the previous 24 hours.

Test fit the finger plates or sliding plates with all the armoring and anchorages in place. Install the finger joint centered over the expansion gap, for both finger plates and sliding plates. Verify that the joint is in plane and sloped per the roadway. For fingers plates, make sure the fingers do not rub during the full range of temperature movement.

The Engineer will confirm the procedure, opening and alignment prior to concrete placement. After confirmation, remove the finger plates or sliding plates before concreting. Place concrete around the joint and vibrate so the concrete paste comes up through the air vents and no voids exist under the anchor unit. Start concrete placement at the low end of the joint and work toward the high end. If the bridge has a normal crown, start at the edge and work toward the center from both sides.

Three days after concrete placement, the Engineer will check for voids and loose bolts by sounding the anchor plate. Fill any voids by drilling through the anchor plate and pumping in an approved epoxy mortar at a minimum pressure of 75 psi. This work will be subsidiary to the bid item "Expansion Device (Finger Plate or Sliding Plate)".

Install the fabric trough and the finger or sliding plates according to the Contract Documents.

Thoroughly clean the top of the anchor plates to remove dried concrete paste before final assembly. Lubricate anchor bolts with bee's wax or equivalent and torque the nut according to **TABLE 707-1**.

TABLE 707-1: FINGER PLATE or SLIDING PLATE TORQUES (ft-lbs.)

Size (inches)	⅞	15/16	1	1 ⅛
AASHTO M 314 Grade 36	176	218	264	387
AASHTO M 314 Grade 55	277	342	415	608

After installation of the finger plates or sliding plates, the Engineer will inspect the plates for alignment. Any plates that the Engineer determines are misaligned so that they may be struck by a snow plow, shall be ground as directed by the Engineer. This work will be subsidiary to the bid item "Expansion Device (Finger Plate or Sliding Plate)".

Install fabric troughs below the finger plate or sliding plate and clean the trough of all foreign material after the completion of all superstructure work.

c. Expansion Device (Modular). Place the adjacent concrete deck before installing modular expansion devices. When placing the concrete, block-out for the modular expansion devices according to the Contract Documents.

Install expansion devices according to the Contract Documents, and the manufacturer's recommendations. Do not field cut expansion devices. The manufacturer of modular expansion devices shall have a technical service representative on the project site to review the fabrication of the devices and supervise the installation of the devices.

If the expansion devices are installed within 10°F above or below the mean temperature shown in the Contract Documents, place the modular type in a "relaxed" or "free" condition with the distance between anchor bolts as shown in the Contract Documents.

If the installation temperatures are outside the range specified, expand or contract the device before it is anchored in place, making temperature corrections for distance between anchor bolts according to the manufacturer's table of temperature corrections shown on the expansion device shop drawings or on the general plans.

707.4 MEASUREMENT AND PAYMENT

The Engineer will measure expansion devices by the linear foot, along the centerline of the expansion joint.

Payment for "Expansion Device (*)" at the contract unit price is full compensation for the specified work.