

Section 67 Structural Metal Plate Pipe

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4-6701 General

Structural metal plate pipe includes steel and aluminum pipes, arches, and pipe arches and is assembled in the field. The plans and specifications designate the number and thickness of plates in each installation.

4-6701 General

4-6702 Before Work Begins

Before work begins, take the following steps:

- Sufficiently in advance of the contractor's start of operations to prevent conflicts in scheduling or errors in ordering materials, review the contract plans, *Standard Plans* (sheets A62F, D88A, and B14-1, as appropriate), and specifications. Inspect the site of each planned installation. Note any unsolved drainage problems.
- As soon as final locations and lengths are determined, furnish the contractor a revised pipe list.
- Verify the receipt and proper distribution of Form CEM-3101, "Notice of Materials to Be Used," which lists all fabricated materials.
- Before assembling the structural plates, ensure the receipt of the manufacturer's assembly instructions. Ensure the instructions conform to the plans and specifications.

4-6702 Before Work Begins

4-6703 During the Course of Work

Once work begins, do the following:

- Upon delivery, determine whether Form TL-0624, "Inspection Tags," identifies the pipe.
- Also, upon delivery, note the condition of the pipe. Require the repair of minor damage to galvanizing or bituminous coatings. Prohibit the repair of serious damage, such as buckled, bent, cracked, or torn plates. Reject plates with damage of this extent.
- Double-check to ensure the proper type, size, and strength of pipe at each location.
- If mastic for protective coating will be field applied, ensure an inspector from the Office of Materials Engineering and Testing Services (METS) has inspected the material.
- Normally, the METS inspector will have obtained the certificates of compliance or mill test reports. If materials are properly identified as previously inspected, project personnel do not need these documents.
- Before structure excavation, require that embankments be constructed as specified. Note the requirement on the plans for shaped bedding.

4-6703 During the Course of Work

- Require assembly according to the manufacturer’s instructions. The following items must comply with instructions and specifications:
 1. Sequence of placing plates
 2. Longitudinal and circumferential joints and laps
 3. Types and sizes of bolts and nuts to be used
 4. Manner of bolt placement
 5. Number of bolts to be placed before tightening
 6. Bolt-tightening sequence and torques
 7. Type of end treatment
- Check maximum as well as minimum torque to ensure they comply with the requirements in Section 67-1.05, “Placing,” of the *Standard Specifications*. During the checking of torque, insist on an adequate working platform and safety devices to prevent injury in case of the shearing of a bolt or the breaking or slipping of a torque wrench.
- Refer to the *Standard Plans* for the design of required strutting and for the minimum cover for construction loads. Require that minimum fill conditions, as shown on the plans, be met for construction loads on culverts.
- When bituminous coating is required, determine that all bolts on the outside of the pipe are coated with mastic before backfill. When coating is field applied, require the sealing of all joints before backfill.
- Prohibit the use of slurry cement backfill with aluminum structural metal plate pipe. Refer to Section 4-19, “Earthwork,” of the *Construction Manual* (manual) for instructions on inspecting backfill. Refer to Section 4-65, “Reinforced Concrete Pipe,” of the manual regarding slurry cement backfill.
- Throughout the progress of the work, periodically inspect installed pipes and arches. If you discover any structural deficiencies, ensure these are corrected before the start of base or surfacing, where pipes or arches underlie pavements.
- Before you recommend acceptance of the contract or make a recommendation to grant relief from maintenance, require the contractor to clean all pipes and arches if necessary.

4-6704 Measurement and Payment See the discussion of measurement of pipe in Section 4-65, “Reinforced Concrete Pipe,” of this manual.

