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New York State  
Department of  
Transportation  
**ENGINEERING  
INSTRUCTION**

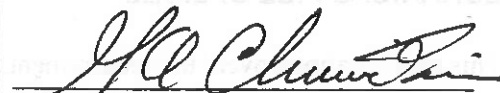
**EI**  
**03-011**

Title: **MECHANICAL PILE SPLICES**

**Distribution:**

- |                                                           |                                                      |
|-----------------------------------------------------------|------------------------------------------------------|
| <input type="checkbox"/> Manufacturers (18)               | <input type="checkbox"/> Surveyors (33)              |
| <input checked="" type="checkbox"/> Main Office (30)      | <input checked="" type="checkbox"/> Consultants (34) |
| <input checked="" type="checkbox"/> Local Govt. (31)      | <input checked="" type="checkbox"/> Contractors (39) |
| <input checked="" type="checkbox"/> Regions/Agencies (32) | <input type="checkbox"/> _____ ( )                   |

**Approved:**

  
G. A. Christian, Acting Deputy Chief  
Engineer (Structures)

8/26/03  
Date

**ADMINISTRATIVE INFORMATION:**

- Effective date: This EI is effective with projects submitted for the letting of 01/15/04.
- Superseded issuances: None.
- Disposition of issued materials: The specification revisions will be incorporated in the next edition of the Standard Specifications.

**PURPOSE:** To issue a shelf note that revises Materials Specification 720-06 Steel Splices and renames it as 720-06 Mechanical Pile Splices. This specification establishes criteria under which mechanical pile splices are accepted by the Department. Mechanical Pile Splices are used with special specification Item 551.12XX 16 M.

**TECHNICAL INFORMATION:**

- Policy: Mechanical pile splices are allowed under the same conditions as full penetration welded splices, except that mechanical pile splices are not allowed for piles that are designed for uplift. When piles are designed for uplift, designers must place a note in the Plans prohibiting the use of mechanical pile splices.
- Use: Use of mechanical pile splices requires permission of the DCES.
- Cost Impact: Allowing mechanical pile splices substantially reduces the time necessary to splice an "H" pile. This should result in a reduced cost for "H" pile foundations that require splices since the pile driving equipment will be sitting idle for a shorter time.

**IMPLEMENTATION:**

- The special specification will be approved on a project by project (PIN) basis. Designers intending to use the item(s) should submit a request for approval to DQAB. Design Quality Assurance Bureau will insert the shelf note in all projects that include Item 551.12XX 16 M Splices for Steel Bearing Piles.

**TRANSMITTED MATERIALS:** Shelf note revising Materials Section 720-06, special specification

**BACKGROUND:** Mechanical pile splices have been allowed by many agencies, including the Federal Highway Administration, many railroads, and most private construction. The splices speed construction because:

1. The splice can be attached to the second pile while the first pile is being driven.
2. The splice accurately aligns the two sections of pile.
3. Alignment lugs do not need to be attached and then removed.
4. The amount of "in the air" welding is reduced.

**CONTACT:** Paul LaSalle at 518-485-5947 or by e-mail [plasalle@gw.dot.state.ny.us](mailto:plasalle@gw.dot.state.ny.us)

Make the following changes to the **STANDARD SPECIFICATIONS of January 2, 2002.**

In Volume 3 of 3, on Page 7-208, *delete* lines 32-35 and *replace* with the following:

## **720-06 MECHANICAL PILE SPLICES**

**SCOPE.** This specification covers the requirements for mechanical splices for steel bearing piles.

**GENERAL.** Steel used in the mechanical pile splices shall meet the requirements of §715-01.

**BASIS OF ACCEPTANCE.** The product will be accepted at the job site based on its appearance on the Approved List. The Contractor shall provide the Engineer with an installation drawing approved by the DCES showing the sizes and types of welds that are required. In addition, the Contractor shall provide manufacturer certification that the supplied product has the same chemical composition and mechanical properties as the product used in the testing.

At the Department's discretion, the material will be evaluated for conformance to the stated specifications, and product samples may be required to be submitted for testing.

Manufacturers may submit their product for evaluation to the DCES. The submission shall include copies of installation drawings, specifications, welding procedures meeting the requirements of the Steel Construction Manual, engineering calculations, test results, and quality control procedures for the splice manufacture.

Stamped engineering calculations, performed by a New York State Licensed Professional Engineer with current registration, shall show that the spliced pile has a theoretical bending capacity of at least 95% of the unspliced pile.

Test results by an independent testing agency shall show that the bending strength on both the strong and weak axes of the spliced pile is at least as great as the calculated capacity of the splice. The tests shall be third point loadings of a spliced pile with the splice in the middle of the span. The tests shall be continued to failure. A minimum of two pile sizes shall be tested in each direction to prove the engineering calculations.

If the submission is acceptable, the installation drawings will be stamped approved, returned to the manufacturer and the product will be placed on the Approved List. Any changes to the product, product manufacturing, or installation procedure will require re-submission and re-approval.

ITEM 551.1201 16 M - MECHANICAL SPLICES FOR STEEL PILES (HP 250 X 62)  
ITEM 551.1202 16 M - MECHANICAL SPLICES FOR STEEL PILES (HP 250 X 85)  
ITEM 551.1203 16 M - MECHANICAL SPLICES FOR STEEL PILES (HP 310 X 79)  
ITEM 551.1204 16 M - MECHANICAL SPLICES FOR STEEL PILES (HP 310 X 110)  
ITEM 551.1205 16 M - MECHANICAL SPLICES FOR STEEL PILES (HP 360 X 108)  
ITEM 551.1206 16 M - MECHANICAL SPLICES FOR STEEL PILES (HP 360 X 132)  
ITEM 551.1207 16 M - MECHANICAL SPLICES FOR STEEL PILES (HP 360 X 152)  
ITEM 551.1208 16 M - MECHANICAL SPLICES FOR STEEL PILES (HP 360 X 174)

#### **DESCRIPTION**

Provide a mechanical connection for steel piles according to the provisions of Section 551 pertaining to splices for piles, and as required below.

#### **MATERIALS**

The mechanical pile splice shall be one appearing on the Department's Approved List, which meets the requirements of section §720-06.

#### **CONSTRUCTION DETAILS**

Mechanical pile splices shall be welded according to the approved installation drawings.