



*Florida Department of Transportation*

RICK SCOTT  
GOVERNOR

605 Suwannee Street  
Tallahassee, FL 32399-0450

ANANTH PRASAD, P.E.  
SECRETARY

December 31, 2014

Khoa Nguyen  
Director, Office of Technical Services  
Federal Highway Administration  
545 John Knox Road, Suite 200  
Tallahassee, Florida 32303

Re: State Specifications and Estimates Office  
Section **410**  
Proposed Specification: **4100603 Precast Concrete Box Culvert.**

Dear Mr. Nguyen:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.

The changes are proposed by Timothy Ruelke of the State Materials Office (SMO) to revise the language for consistency with changes proposed for Section 105. The Department is revising the Contractor Quality Control (QC) Plan requirements and deleting the narrative portion of the Contractor QC Plan. This change is being made in conjunction with the implementation of the Materials Acceptance and Certification system (MAC), which is replacing the current Laboratory Information Management (LIMS) application.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via email to SP965DS or daniel.scheer@dot.state.fl.us.

If you have any questions relating to this specification change, please call me at 414-4130.

Sincerely,

Signature on file

Daniel Scheer, P.E.  
State Specifications Engineer

DS/dt

Attachment

cc: Florida Transportation Builders' Assoc.  
State Construction Engineer

**PRECAST CONCRETE BOX CULVERT.**  
**(REV 10-29-14)**

SUBARTICLE 410-6.3 is deleted and the following substituted:

**410-6.3 Curing:** Perform the curing by any method prescribed in Sections 400 and 450, or by any other Department approved alternate curing method included in the approved *Producer* QC Plan, or combinations thereof that have provided satisfactory results.

SUBARTICLE 410-6.5 is deleted and the following substituted:

**410-6.5 Removal of Forms:** Remove forms after the concrete has attained the minimum compressive strength requirements included as part of the *Producer* QC Plan, but not less than the following:

Vertically cast walls and slabs for four-sided sections	1000 psi
Three-sided box culvert bottom section	2500 psi
Horizontally cast self-supporting slabs or walls	2500 psi

Products manufactured with dry-cast concrete, are exempt from these requirements.

SUBARTICLE 410-6.6 is deleted and the following substituted:

**410-6.6 Lifting and Removal From Casting Area:** Handle all products, including those manufactured with dry-cast concrete, after the concrete attains sufficient compressive strength as determined by the manufacturer but not less than the following, unless otherwise approved in the *Producer* QC Plan:

Vertically cast and stored elements (walls and slabs)	1000 psi
Form/pallet supported elements (walls or slabs)	1000 psi
Self-supporting four-sided sections	1000 psi
Self-supporting horizontal slabs or three-sided sections	2500 psi

Limit the flexural tension stresses from handling to a maximum allowable stress of three times the square root of the concrete compressive strength in psi, prior to the concrete attaining the required 28-day strength.

ARTICLE 410-8 is deleted and the following substituted:

**410-8 Repairs and Rejection.**

Evaluate cracks, spalls and other deficiencies in accordance with 450-12. Classify fractures and cracks passing through the wall or slab, except for a single end crack with a length

that does not exceed the depth of the joint, as major cracks. Walls and slab areas outside the middle half of the internal span will be considered non-critical locations for the purpose of evaluating cracks. Repair cracks and all other deficiencies in accordance with 450-13 or the plant's approved repair methods that are included as part of the *Producer* QC Plan. Ensure that the original performance and durability of the repaired box culverts are maintained.

Use materials for concrete repair that will meet or exceed the strength requirement of the class of concrete used. Materials meeting the requirements of Section 930 may be substituted for non-shrink grout when required by 450-13. Precast box culvert elements are subject to rejection if they fail to conform to any of the Specification requirements after repair or when damaged ends would prevent making a satisfactory joint.

ARTICLE 410-9 is deleted and the following substituted:

**410-9 Marking.**

Ensure each section of Precast Box Culvert has permanently and clear marking on an inside face by indentation, waterproof paint, or as specified in the *Producer* QC Plan, showing the manufacture date, serial number, project number, and manufacturer's name or symbol. The top of the box culvert must also be clearly indicated with waterproof paint or as specified in the *Producer* QC Plan.

**PRECAST CONCRETE BOX CULVERT.**  
**(REV 10-29-14)**

SUBARTICLE 410-6.3 is deleted and the following substituted:

**410-6.3 Curing:** Perform the curing by any method prescribed in Sections 400 and 450, or by any other Department approved alternate curing method included in the approved Producer QC Plan, or combinations thereof that have provided satisfactory results.

SUBARTICLE 410-6.5 is deleted and the following substituted:

**410-6.5 Removal of Forms:** Remove forms after the concrete has attained the minimum compressive strength requirements included as part of the Producer QC Plan, but not less than the following:

Vertically cast walls and slabs for four-sided sections	1000 psi
Three-sided box culvert bottom section	2500 psi
Horizontally cast self-supporting slabs or walls	2500 psi

Products manufactured with dry-cast concrete, are exempt from these requirements.

SUBARTICLE 410-6.6 is deleted and the following substituted:

**410-6.6 Lifting and Removal From Casting Area:** Handle all products, including those manufactured with dry-cast concrete, after the concrete attains sufficient compressive strength as determined by the manufacturer but not less than the following, unless otherwise approved in the Producer QC Plan:

Vertically cast and stored elements (walls and slabs)	1000 psi
Form/pallet supported elements (walls or slabs)	1000 psi
Self-supporting four-sided sections	1000 psi
Self-supporting horizontal slabs or three-sided sections	2500 psi

Limit the flexural tension stresses from handling to a maximum allowable stress of three times the square root of the concrete compressive strength in psi, prior to the concrete attaining the required 28-day strength.

ARTICLE 410-8 is deleted and the following substituted:

**410-8 Repairs and Rejection.**

Evaluate cracks, spalls and other deficiencies in accordance with 450-12. Classify fractures and cracks passing through the wall or slab, except for a single end crack with a length

that does not exceed the depth of the joint, as major cracks. Walls and slab areas outside the middle half of the internal span will be considered non-critical locations for the purpose of evaluating cracks. Repair cracks and all other deficiencies in accordance with 450-13 or the plant's approved repair methods that are included as part of the Producer QC Plan. Ensure that the original performance and durability of the repaired box culverts are maintained.

Use materials for concrete repair that will meet or exceed the strength requirement of the class of concrete used. Materials meeting the requirements of Section 930 may be substituted for non-shrink grout when required by 450-13. Precast box culvert elements are subject to rejection if they fail to conform to any of the Specification requirements after repair or when damaged ends would prevent making a satisfactory joint.

ARTICLE 410-9 is deleted and the following substituted:

**410-9 Marking.**

Ensure each section of Precast Box Culvert has permanently and clear marking on an inside face by indentation, waterproof paint, or as specified in the Producer QC Plan, showing the manufacture date, serial number, project number, and manufacturer's name or symbol. The top of the box culvert must also be clearly indicated with waterproof paint or as specified in the Producer QC Plan.