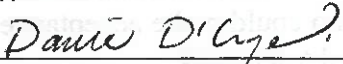


SUPERSEDED BY EB 15-031 EFFECTIVE 9/28/15		New York State Department of Transportation ENGINEERING INSTRUCTION	EI 06-035
Title: REVISIONS TO STANDARD SPECIFICATIONS §606, §704-03, §706-04 AND §706-17			
Distribution: ☒ Manufacturers (18) ☒ Local Govt. (31) ☒ Agencies (32) ☒ Surveyors (33) ☒ Consultants (34) ☒ Contractors (39) ☐ _____ ()		Approved:  Daniel D'Angelo, P.E. Deputy Chief Engineer, Design 12/12/06 Date	

ADMINISTRATIVE INFORMATION:

- **Effective Date.** This Engineering Instruction (EI) is effective with projects submitted for the letting of **September 6, 2007**.
- **Superseded Issuances.** This EI does not supersede any other issuance.
- **Disposition of Issued Materials.** The attached shelf notes will be incorporated into a future revision of the Standard Specifications.

PURPOSE: To revise Standard Specifications §606, §704-03, §706-04, and §706-17.

TECHNICAL INFORMATION:

- Existing dimensional tolerances have been revised and/or new ones added to the following Standard Specifications:
 - §606-3.05 Concrete Barrier (precast, cast-in-place and machine formed).
 - §704-03 Precast Concrete – General.
 - §706-04 Precast Concrete Drainage Units.
 - §706-17 Precast Concrete Box Culverts.
- Standard Specification §704-03 Precast Concrete – General has been revised to allow the use of galvanized reinforcing steel in lieu of epoxy coated reinforcing and to add reference to general reinforcing requirements of Standard Specification §556 Reinforcing Steel For Concrete Structures.
- There will be no additional cost associated with the implementation of this EI.
- The precast concrete standard specifications complement information provided on Standard Sheet M604-5R2 issued with EB 06-055.

IMPLEMENTATION:

- The Design Quality Assurance Bureau will insert the transmitted shelf notes into contract proposals beginning with projects submitted for letting of September 6, 2007.

TRANSMITTED MATERIALS:

- The following shelf notes are attached to this EI:
 - §606-3.05 Concrete Barrier (precast, cast-in-place and machine formed).
 - §704-03 Precast Concrete – General.
 - §706-04 Precast Concrete Drainage Units.
 - §706-17 Precast Concrete Box Culverts.

BACKGROUND:

Dimensional tolerance revisions being made by this EI are the result of a joint committee made up of representatives of the Materials Bureau and the Precast Concrete Association of New York. Current dimensional tolerances, developed by the Department, are conservative and difficult for manufactures to achieve on a routine basis. These tolerances worked in the past because there was a full time Department inspector at the plant who could make acceptance decisions on precast units that were marginally outside the specified dimensional tolerances.

With the implementation of Precast QC/QA there is no longer full time Department inspection at precast plants. Precasters now provide personnel to do the inspections previously done by the Department. In order to maintain uniformity at all precast plants making the same or similar products, it is important that specification tolerances be strictly adhered to by all. The tolerance revisions being made by this EI represent industry standards and should be achievable by all precasters on a routine basis. The application of these tolerances should not adversely affect the performance of the finished precast products.

CONTACT:

Direct questions regarding this EI to Jim Reidy (Materials Bureau) (518) 457-4591 (jreidy@dot.state.ny.us) or Donald Smithgall (Materials Bureau) (518) 457-4683 (dsmithgall@dot.state.ny.us).

Make the following changes to; STANDARD SPECIFICATIONS of May 4, 2006;

§606-3.05, A. Precast Concrete Barrier, page 504, line 52. **Delete** Paragraph 3. Dimensional Tolerance and **replace** it with the following:

3. Dimensional Tolerance.

- a. Cross-sectional dimensions shall not vary from the dimensions shown by more than 6 mm.
- b. The barrier shall not be out of plumb by more than 6 mm.
- c. Longitudinal dimensions shall not vary from the dimensions shown by more than 6 mm per 3.0 m of the barrier.
- d. When checked with a 3.0 m straight edge, irregularities shall not exceed 6 mm.

§606-3.05, B. Cast-in-Place Concrete Barrier, page 506, line 9. **Delete** Paragraph 9. Dimensional Tolerance and **replace** it with the following:

9. Dimensional Tolerance.

- a. Cross-sectional dimensions shall not vary from the dimensions shown by more than 6 mm.
- b. The barrier shall not be out of plumb by more than 6 mm.
- c. Longitudinal dimensions shall not vary from the dimensions shown by more than 6 mm per 3.0 m of the barrier.
- d. When checked with a 3.0 m straight edge, irregularities shall not exceed 6 mm.

§606-3.05, C. Machine Formed Concrete Barrier, page 508, line 3. **Delete** Paragraph 10.b. Dimensional Tolerance and **replace** it with the following:

b. Dimensional Tolerance

- (1) Cross-sectional dimensions shall not vary from the dimensions shown by more than 6 mm.
- (2) The barrier shall not be out of plumb by more than 6 mm.
- (3) Longitudinal dimensions shall not vary from the dimensions shown by more than 6 mm per 3.0 m of the barrier.
- (4) When checked with a 3.0 m straight edge, irregularities shall not exceed 6 mm.

§704-03 PRECAST CONCRETE - GENERAL, Subsection MATERIAL REQUIREMENTS, page 744, line 42. **Insert** the following:

The use of galvanized reinforcing in place of specified epoxy coated reinforcing is allowed. If galvanized reinforcing is used, all reinforcing in the unit must be galvanized. The use of galvanized dowels to attach secondary pours, requires all reinforcing in secondary pours to be galvanized. When galvanized wire fabric for concrete reinforcement is used, it shall be galvanized in accordance with ASTM A123. Fabrication, including bending of fabric, shall be performed prior to galvanizing.

Make the following changes to; STANDARD SPECIFICATIONS of May 4, 2006;

§704-03 PRECAST CONCRETE - GENERAL, Subsection MATERIAL REQUIREMENTS, page 744, line 51.

Insert the following:

Galvanized Bar Reinforcement

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§704-03 PRECAST CONCRETE - GENERAL, Subsection FABRICATION, page 745, line 45.

Delete Paragraph Reinforcing and **replace** it with the following:

Reinforcing. Shall meet the requirements in §556, Reinforcing Steel for Concrete Structures; §556-3.01B and C, §556-3.02A and §556-3.03A through §556-3.03C. Unless noted otherwise in approved fabrication drawings or item specification, the minimum concrete cover over reinforcing steel shall be 38 mm. Reinforcing steel shall be tied and supported to keep it in position during the concrete placement. The ends of chairs or spacers, used to support or locate reinforcing steel, that bear on the faces of forms, shall be made of, or coated with, non-corrosive material so that no discoloration will show on the face of the units. Chairs, tie wires and other devices used to support, position or fasten epoxy coated or galvanized reinforcement shall be made of or coated with a dielectric material. Tack welding or any other welding of specified steel reinforcement will not be allowed. Welding for cage stability will be permitted provided that redundant steel is added in each direction and tied to the cage. The redundant steel shall be thirty (30) bar diameters, minimum, in length and shall be positioned so that the midpoint is located at the weld.

§704-03 PRECAST CONCRETE - GENERAL, Subsection FABRICATION, page 746, line 40.

Delete Paragraph Dimensional Tolerances and **replace** it with the following:

Dimensional Tolerances. The following tolerances shall apply, unless noted otherwise in the contract documents, approved fabrication drawings or item specification:

- Unit dimensions ±10 mm
- Variations in required spacing of reinforcing steel, not cumulative. ±50 mm
- Concrete cover over reinforcing steel +15 mm
-5 mm
- All reinforcing steel fabrication tolerances shall conform to ACI 117 sec 2.1.
- All reinforcing steel embedded and lap length tolerances shall conform to ACI 117 sec 2.2.8.

The application of fabrication tolerances shall not impact the proper fit, alignment or function of the assembled precast item, nor shall it negatively impact the appearance of precast items which are exposed to view after installation.

Make the following changes to; STANDARD SPECIFICATIONS of May 4, 2006;

§706-04 PRECAST CONCRETE DRAINAGE UNITS, Subsection FABRICATION, page 780, line 44. **Delete** Paragraph Dimensional Tolerances and **replace** it with the following:

Dimensional Tolerances.

A. Drainage Units (Rectangular / Square).

- Internal dimensions +15 mm, -10 mm
- Wall thickness
 - 150 mm +20 mm, -5 mm
 - ≥200 mm +20 mm, -10 mm
- Reinforcing steel cover
 - Walls (inside face) 50 mm (min), 100 mm (max)
 - Base (inside face) 50 mm (min), 80 mm (max)
 - Roof (all faces) +15 mm, -5 mm
 - Pipe openings (50 mm) ±25 mm
- Step spacing and alignment ±20 mm

B. Drainage Units (Round).

- Internal diameter
 - ≤1525 mm ±15 mm
 - >1525 mm & ≤2440 mm ±20 mm
 - >2440 mm ±35 mm
- Wall thickness
 - Internal diameter ≤1525 mm +15 mm, -5 mm
 - Internal diameter >1525 mm & ≤2440 mm +20 mm, -10 mm
 - Internal diameter >2440 mm +25 mm, -15 mm
- Reinforcing steel cover
 - Base, Roof and Walls +15 mm, -5 mm
 - Pipe openings (50 mm) ±25 mm
- Step spacing and alignment ±20 mm

Make the following changes to; STANDARD SPECIFICATIONS of May 4, 2006;

§706-17 PRECAST CONCRETE BOX CULVERTS, Subsection FABRICATION, page 787, line 20. **Delete** Paragraph Dimensional Tolerances and **replace** it with the following:

Dimensional Tolerances

- Internal Dimensions
 - <1200 mm: ± 10 mm
 - ≥ 1200 mm & ≤ 2440 mm: ± 20 mm
 - >2440 mm: ± 25 mm
- Wall & Slab Thickness
 - <250 mm: +15 mm, -5 mm
 - ≥ 250 mm: +20 mm, -5 mm
- Design Laying Length
 - +25 mm, -13 mm
- Variation in Laying Length of Opposite Faces
 - Span / Rise ≤ 2135 mm: ± 15 mm
 - Span / Rise >2135 mm: ± 20 mm
- Surface Irregularities on Mating Surface of Joint
(when checked with a 1m straight edge) ± 5 mm