


<p><b>SUPERSEDED BY EB 00-009</b> <b>EFFECTIVE 1/24/00</b></p>		<p>New York State Department of Transportation <b>ENGINEERING BULLETIN</b></p>	<p><b>EB</b> <b>99-048</b></p>
<p><i>Expires one year after issue unless replaced sooner</i></p>			
<p>Title: <b>REVISED SPECIFICATION FOR SEGMENTAL RETAINING WALL BLOCKS (704-07)</b></p>			
<p>Distribution:</p> <p><input type="checkbox"/> Manufacturers (18)      <input type="checkbox"/> Surveyors (33)</p> <p><input checked="" type="checkbox"/> Main Office (30)      <input type="checkbox"/> Consultants (34)</p> <p><input type="checkbox"/> Local Govt. (31)      <input type="checkbox"/> Contractors (39)</p> <p><input checked="" type="checkbox"/> Regions/Agencies (32)      <input type="checkbox"/> Approved List (138)</p>	<p>Approved: <i>Robert L. Sack</i> R. L. Sack, Director, Materials Bureau</p>	<p><u>6-8-99</u> Date</p>	
<p><i>J. Tyran</i> J. Tyran, Director, Construction Division</p>		<p><u>6-8-99</u> Date</p>	

**Purpose:** This EB transmits a revised Materials Specification, 704-07 Segmental Retaining Wall Block, and guidelines for its implementation on ongoing contracts.

**Effective Date:** The revised Materials Specification, 704-07 Segmental Retaining Wall Block will appear in proposals for contracts submitted for letting on or after July 8, 1999.

**Background:** When the Materials Specification for Retaining Wall Block was first issued, reference EI 96-018, the sampling and testing requirements for the block were derived from existing specifications for similar products such as concrete pavers. Recently there have been National Standards issued that specifically address Retaining Wall Block. These standards contain test methods that more closely represent the actual exposure conditions the block will see when in service. In order to stay current with these standards the Department's Sampling and Testing requirements for Retaining Wall Block have been revised.

**Summary Of Revisions:**

- 1) **Lot Size:** The definition of lot size has been changed from a maximum of 8000 blocks to a maximum equal to the number of blocks required to form 550 m<sup>2</sup> of finished wall face.
- 2) **Absorption:** The water absorption requirement has been changed from a maximum of 5.0% by weight to a maximum of 125 kg per cubic meter of block.
- 3) **Freeze Thaw:** The freeze thaw resistance test has been changed from a NYSDOT Test Method to ASTM C1262. Under ASTM C1262 samples will be tested in a 3% NaCl solution for 42 cycles with a maximum allowable weight loss of 1.0%.

**Cost Impact:** There are no cost increases or decreases anticipated relative to these revisions.

**Field Information:** This Bulletin authorizes use of the revised specification effective immediately on all ongoing construction projects. This substitution is to be allowed, at the contractor's option, with the condition that there is no change in the unit bid prices for the affected items. No Order-On-Contract is required. A copy of this Bulletin shall be made part of the project records on any project where the substitution is implemented, in accordance with the Department's Contract Administration Manual (CAM) Section 104-03 I.4.

**Main Office Actions:** The revised Materials Specification 704-07 Segmental Retaining Wall Block will be a Main Office insert into proposals containing the Segmental Block Retaining Wall Item 17632.15M, and will be incorporated into the next Addendum to the 1995 Standard Specifications.

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## 704-07 SEGMENTAL RETAINING WALL BLOCKS

**SCOPE.** This specification covers the materials details and quality requirements for precast concrete retaining wall blocks, machine manufactured with dry cast concrete.

**MATERIAL REQUIREMENTS.** Materials used in the manufacture of precast concrete retaining wall blocks shall meet the requirements of the following subsections:

Portland Cement	701-01
Coarse Aggregate	703-01
Mortar Sand	703-03
Grout Sand	703-04
Concrete Sand	703-07
Water	712-01

Coloring agents, when required, shall be formulated such that the blocks are colorfast, durable and resistant to alkali. Other materials may be used in the manufacture as approved by the Director, Materials Bureau.

The shapes, sizes and colors shall be as specified in the contract documents.

Blocks shall be sound and free from cracks or other defects that would interfere with the proper placing of the blocks.

**Pozzolans.** The manufacturer may substitute fly ash, meeting the requirements of §711-10, up to a maximum of 15%, by weight of the total amount of cement plus pozzolan in the mix.

**Sampling and Testing.** Precast concrete retaining wall blocks shall meet the following requirements:

**Lot Size.** The maximum lot size shall be equal to the number of blocks required to form 550 m<sup>2</sup> of finished wall face. All blocks in a lot shall be of the same dimensions, color and finish.

**Compressive Strength.** Testing shall be performed in accordance with ASTM C140. The minimum average compressive strength of five (5) precast concrete retaining wall block samples shall be 40 MPa at 28 days. The compressive strength of any individual unit shall not be less than 36 MPa at 28 days.

**Absorption.** Testing shall be performed in accordance with ASTM C140. The maximum average 24 hour absorption of five (5) precast concrete retaining wall block samples shall be 125 kg/m<sup>3</sup>. The absorption of any individual unit shall not exceed 160 kg/m<sup>3</sup>.

## 704-07 SEGMENTAL RETAINING WALL BLOCKS

**Freeze-thaw Resistance.** Testing shall be performed in accordance with ASTM C 1262. The maximum average loss of 5 precast concrete retaining wall block samples, subjected to 42 freeze-thaw cycles in 3 percent NaCl solution, shall be 1.0 percent. The maximum loss of any individual sample shall not exceed 1.5 percent.

**Dimension.** The formed dimensions of precast concrete retaining wall block units shall not differ more than  $\pm 5$  mm from the nominal dimensions shown on the approved Materials Detail Drawing.

**Materials Details.** At the time of application to the Approved List each manufacturer shall submit Materials Details Drawings to the Director, Materials Bureau for approval. Drawings shall be prepared and submitted in accordance with Department procedural directives. A unique drawing or drawings shall be submitted for each wall system under consideration.

**BASIS OF ACCEPTANCE.** Acceptance of the retaining wall blocks is based on the names of the manufacturer and retaining wall block appearing on the Department's Approved List, conformance to the approved Materials Details, and the sampling and testing of stock lot quantities in accordance with procedural directives of the Materials Bureau.