

(May 1995, Rev. Feb. 2005)

NC Department of Administration

Office of State Construction

Masonry Mortar Policy

For State Construction Projects

I. INTRODUCTION

When issued in May 1995, this policy replaced the "Guide Specifications For Masonry Mortar For Use On State Construction Projects" dated August 1988.

The superseded 1988 guide specification permitted only portland cement-lime (PCL) mortars for job-mixed and prepackaged mortar. The use of masonry cement (MC) mortars was prohibited. Prepackaged mortars were limited to those appearing on a list of "Pre-approved Masonry Mortar Cements" as maintained by the State Construction Office.

The 1995 policy expanded Designer options, permitting the use of either PCL or MC mortars. The overall philosophy was that the material contents of the mortar were less significant than the end results.

Since 1995, significant changes have occurred in the North Carolina State Building Code (NCSBC) and its referenced masonry standards, the "Building Code Requirements for Masonry Structures" (ACI 530/ASCE 5/TMS 402) and the companion "Specifications for Masonry Structures" (ACI 530.1/ASCE 6/TMS 602). In response to these changes, this policy is revised to address or amplify only specific items not adequately dealt with by the current Code documents.

II. MATERIALS

- A. Masonry mortar materials shall comply with the standards referenced by ASTM C 270.
- B. The Designer's attention is directed to Part 4.1.4 of ASTM C 270 for discussion of admixtures. Calcium chloride may not be used as an admixture.

III. SELECTION AND SPECIFICATION OF MORTAR TYPE

- A. Mortar may be portland cement lime (PCL) mortar or masonry cement (MC) mortar, selected by the Designer to suit the specific project.
- B. Mortar may be proportioned either by the Proportion Specification method or by the Property Specification method described by ASTM C 270. The requirements of the two methods shall not be mixed. See also NCSBC Sections 2103.7 & 2105.2.2.

- C. The basic mortar types shall be Type N and Type S. Should the Designer wish to use both mortar types in a given project, he/she bears the burden of insuring that each type is used only where appropriate. Both the specifications and drawings must explicitly define the limits of use for each mortar type.
- D. The State Construction Office discourages the aggressive use of Type M mortar for its higher compressive strength. When the Designer deems the higher strength of Type M mortar necessary for structural design purposes, he/she shall submit justification no later than the Design Development phase of the project. The Designer must obtain state Construction Office approval of the Type M mortar usage before beginning the Construction Document Phase of the project.

In contrast, the use of Type M mortar for appropriate nonstructural applications (e.g., added durability for below-grade use) does not require prior State Construction Office approval.

- E. Type O mortar should be used only in non-structural applications (tuck-pointing, etc.).

IV. TESTING

- A. The cost of testing required to document submittals and certify the compliance of materials prior to use in construction shall be paid for by the Contractor.
- B. The Designer shall not arbitrarily require the field sampling and testing of masonry mortar and related materials. Mortar specified in compliance with the Proportion Specification method of ASTM C 270 does not necessarily require field verification of compressive strength. Specify testing only when justified on a project-specific basis.

VI. RELATED ISSUES

- A. Cold or Hot Weather Masonry Construction
 - 1. Placement of masonry during cold or hot weather must be specified per the related provisions of ACI 530.1. See NCSBC Sections 2104.3 & 4. Please see the National Concrete Masonry Association (NCMA) publication TEK 3-1C, "All-Weather Concrete Masonry Construction" for further discussion.
 - 2. The use of non-chloride accelerating or decelerating admixtures in masonry is not prohibited by this office. However, the Designer and Contractor must recognize that, although such admixtures may be used as a supplement to the procedures discussed in the above paragraph, they do not supplant these procedures or diminish their importance.
- B. The project masonry specification shall address the cleaning of masonry. Ensure that the specified or referenced cleaning procedures are project-specific. Emphasize that any acid solutions shall not be stronger than specified.