

Division 4 – Masonry

Section Title

Name

04000 MASONRY - GENERAL

04100 MORTAR

Mortar Coloring Materials

04150 MASONRY ACCESSORIES

Anchors and Tie Systems

Control Joints

Joint Reinforcement

Flashing

Weepholes

Caulking and Sealants

Admixtures

04200 UNIT MASONRY

04210 Brick Masonry

04220 Concrete Unit Masonry

Pedway Construction

04255 Masonry Veneer

Mechanically Supported

04270 Glass Unit Masonry

04400 CUT STONE

04500 MASONRY RESTORATION AND CLEANING

04510 Masonry Cleaning

Restoration

04600 CORROSION RESISTANT MASONRY

04605 Chemical Resistant Brick

Section Title
Name

04000 MASONRY - GENERAL

Any masonry work constructed on campus shall conform, at a minimum to the requirements set forth in Section 01065 of these specifications. In general when the ambient temperature is less than forty degrees F. masonry work shall not be constructed without heat, heated materials, and/or protection.

Inspections required per Section 01065 of these specifications

Every effort should be taken by the DP to properly specify and detail masonry veneers, applications, joints and fastening systems to protect against moisture infiltration, efflorescence, cracking caused by improper structural back-up materials and excessive maintenance. The DP should pay special attention to the fact that the intent of NAU is to construct buildings that are permanent structures, i.e., have a useful lifetime of 100 years. A low cost design approach in areas that cannot be "seen" undermines the philosophy of building at NAU, and in the end, are usually much more costly in remedial corrective action.

04100 MORTAR

Mortar: Portland cement, ASTM C150, normal-Type 11, low alkali. Hydrated lime: ASTM C 207, Type S. Sand to conform with ASTM C144.

Mortar mix design shall be based on an alkali free or low alkali cement (no more than 0.1 percent) in order to reduce the potential for efflorescence.

Mortar Coloring Materials

Mortar colorants may be used as desired. Final color selection shall be determined from review of a selection of mock-up panels to be constructed by the contractor. Mock-up panels shall remain on-site for job duration.

04150 MASONRY ACCESSORIES

Anchors and Tie Systems

Any anchors or ties embedded within masonry systems shall be coated or of corrosion resistant materials.

Control Joints

Control joints shall be incorporated into straight wall masonry construction which exceeds forty feet. Spacing of control joints shall be at the discretion of the Design Professional.

Joint Reinforcement

Joint reinforcement is required and shall meet the zone specific seismic requirement detailed in the International Building Code.

Horizontal wire reinforcing: No.9 gauge wire, Class 1 mil galvanized.

Veneer back-up: 8" wide concrete masonry units, or structural steel studs with a 3/4" substrate (equal to or better than "Wonderboard").

Division 4 – Masonry

Section Title
Name

Flashing

Through-wall concealed flashing at all shelf angles, lintels, ledges and other obstructions to downward flow of moisture within the wall. Inspection required prior to covering over flashing.

Flashing above doors, mechanical room louvers, and windows to be seamless and end dammed. Detail all through wall flashing to prevent contact with sealant.

Weepholes

Polyethylene plastic tubing, 1/4" dia. x 4" long. _

Caulking and Sealants

Sealer: waterproofing sealer, guaranteed performance minimum 5 years from UV breakdown.

Control & expansion joints: 20' minimum in run.

All joints that require a caulking should receive special attention during construction. To be filled as soon as possible and maintenance program established within four years of completion of project.

Admixtures

Most admixtures compositions are not disclosed. Unknown composition may cause mortar breakdown and possible efflorescence.

04200 UNIT MASONRY

General

In all cases severe weather (SW) brick or waterproofed concrete masonry units shall be specified for new construction. For additions to, or renovation work on existing buildings, DP shall specify a brick that is the closest possible match with no less than a moderate weather rating. The DP shall specify certain precautions to ensure that finished unit masonry is, and shall remain, free from efflorescence and discoloration. These precautions shall include: sealants such as blocktite or mortar mixes, washing and waterproofing of finished water panels, and specification of ASTM Test E-67 (efflorescence test) on large projects. DP shall specify that brick and concrete unit installations shall carry a 2 year warranty against efflorescence.

Design

Provide cavity or airspace behind exterior masonry walls.

Direct water away from wall tops and horizontal surfaces.

Special attention to workmanship, detailing, flashing, drips, and weepholes.

Workmanship

All mortar joints should be full joints.

Partially completed walls should be covered at the end of each working day, or when work is not in progress, with a strong weather resistant material to prevent contamination.

Division 4 – Masonry

Section Title Name

Cold weather construction shall comply with IBC. Covers shall drape over both sides and be securely fastened.

04210 Brick Masonry

All brick walls, parapets etc. shall have metal caps or caps of approved materials.

Brick masonry construction is the preferred method for a majority of buildings on campus. Brick will be selected during project design and specified in the bid documents. Consideration shall be given to select units with low efflorescence potential.

Each project utilizing brick masonry as an architectural finish material shall include a requirement in the specifications for a sample panel to be constructed as specified. Such panel shall be a minimum of 36 square feet and shall be constructed at and remain on the jobsite until project completion. The panel shall be representative of both brick and mortar type and color.

Brick: conforming to ASTM C216-75a, Grade SW, (for new buildings) Type FBX. ASTM C67-85, compressive strength 3,000 psi, no efflorescence. Color, size and texture: similar to the predominant brick material on campus.

DP shall specify an appropriate amount of product extra of each color to be turned over to Owner for future repairs prior to job closeout.

04220 Concrete Unit Masonry

Concrete unit masonry is an accepted method of construction. Decorative CMU's, splitface, or founders block are some types of concrete units currently in use.

Concrete products contain two to seven times as much soluble material as the fired clay units so efflorescence potential shall be mitigated in all ways possible.

An alkali free cement should be specified. No more than a 0.1 percent alkali.

All materials should be stored in a dry area. To prevent ground water contamination masonry units, cements, limes and sand should not be stored on the ground.

DP shall specify an appropriate amount of product extra to be turned over at job completion.

Pedway Construction

Concrete unit paving stones are preferred for flat work in traffic areas (see section 02515 for details), especially for pedway construction. Colors and unit type shall be consistent with those currently in use.

DP shall specify a minimum of 100 sq.ft. of product extra.

04255 Masonry Veneer

A 2" minimum air space shall be maintained between face brick and cavity insulation. Cavity shall be unobstructed, free from mortar drippings.

Mechanically Supported

04270 Glass Unit Masonry

Section Title
Name

04400 CUT STONE

General

Usually the budget will preclude major use of cut stone as a veneer on projects, however as design detail i.e., for lintels, cornices, parapet caps, inlays, etc. cutstone is a desired element. The same care in design and specification should be exercised by the DP as with brick masonry.

Mortar: Portland Cement, ASTM C150, Type I, low alkali, staining requirements conforming to ASTM C91.
Masonry cement: conforming to ASTM C91.H.

Sand: conforming to ASTM C144.

Anchors: conforming to latest edition of the IBC. All anchors shall be mechanically set, stainless steel.

Veneer back-up: 8" concrete masonry units where possible.

Type: designer option, although native materials are encouraged (Arizona Sandstone). Pavers: 1/2" minimum thickness, thick-set. A material should be chosen that is relatively impervious to moisture absorption and has a high degree of slip coefficient. Polished or honed finishes as a major field finish is not acceptable.

04500 MASONRY RESTORATION AND CLEANING

04510 Cleaning

All masonry work shall be cleaned and sealed before final inspection and acceptance. Acid wash is **not** usually an acceptable method of cleaning. Contractor shall be required to submit proposed procedures.

Restoration

Masonry restoration on any building in the designated historic district must comply with Arizona Historical Society requirements. Special attention shall be paid to match existing bonds.

04600 CORROSION RESISTANT MASONRY

04605 Chemical Resistant Brick

***** END OF SECTION *****