1.01 MORTAR

A. Mortar Design: Mortar types shall be as recommended in the appendix to ASTM, “Selection and Use of Mortar for Unit Masonry.”

B. Mortar Ingredients: Mortar ingredients shall conform to applicable ASTM standards.

C. Mortar Color: To provide uniform mortar color in exposed masonry, the same brand and proportions of mortar ingredients, including coloring agent, shall be used throughout the project. The coloring agent shall be premixed with the cement ingredients.

1.02 - UNIT MASONRY

A. Industry Standards: Requirements for masonry materials, anchorage, reinforcement, flashing and laying shall comply with recognized industry standards, including ASTM, Brick Industry of America (BIA), National Concrete Masonry Association (NCMA), ACI530-04, ASI530.1-04, ASCE6-04 and others as applicable.

B. Quality Control

A. Contractor Quality Control: Prior to construction, the contractor shall provide test results that confirm mortar/masonry compatibility on all units.

B. The flexural bond strength using the ASTM standard testing method shall be no less than 80 psi unless the A/E specifically accepts another test method.

C. Structural Concrete Masonry Unit (CMU) Minimum Testing Requirements: Structural CMU shall be evaluated using non-grouted prisms or grouted prisms per ASTM standards as the A/E specifies.

D. The A/E shall specify if gross area or net area shall be used for CMU test calculations.

E. Grout shall be tested according to ASTM standards. Each test shall consist of three cylinders, of which one is tested after seven days and two are tested after 28 days.

F. The A/E shall specify the Non-Structural CMU Minimum Testing Requirements.

1.03 – FACE BRICK

Note: All products used on Edison State College projects must be in compliance with the most current applicable edition of the Florida Building Code.

A. PROHIBITED: Face brick for exterior horizontal or sloping applications such as windowsills, parapet caps, copings, top of screen walls and planter walls.

B. The A/E shall select the face brick and the college shall approve it prior to requesting bids. The Initial Rate of Absorption (IRA) for brick shall range from 4 gm/30 in. sqd./min. to 20 gm/30 in sqd./min. An acceptable variance in the IRA range of the brick tested shall be no more than 40 percent of the maximum rate.

C. Face brick shall comply with ASTM standards, Grade SW, and Type as the A/E selects.

D. The A/E shall specify that the contractor is to construct sample brick and mortar panels prior to ordering brick. The number and size of panels shall be appropriate to the scale of the project. Sample panels shall be subject to A/E and College approval. Use approved panels as a standard of workmanship for acceptance of construction. Approved panels shall be retained until final acceptance of masonry work. Panels shall include typical wall construction with unique details, including through-wall flashing.

E. Face brick shall be tested for compliance with minimum ASTM test requirements.

F. Bond wrench testing shall be specified to measure the bond strength per ASTM standards at a rate that the A/E specifies. The results shall meet the criteria specified for the pre-construction testing.

G. If the face brick is to be load bearing, make and test prisms in compression per ASTM standards at a rate that the A/E specifies.

1.04 – CONCRETE MASONRY UNITS

A. Concrete Units: CMU shall meet the requirements of the applicable industry standard. When required, the A/E shall specify the appropriate water-repellent surface coating for exterior applications. When used as an exterior veneer, horizontal joint reinforcement shall be installed in the bed joints at every other course.

B. Reinforcement and Anchors: Masonry anchors shall be corrosion resistant.

C. Control Joints and Expansion Joint Reinforcement: Drawings shall detail and indicate location and pattern of control and expansion joints, and joint reinforcement.

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D. Masonry walls and partitions shall have control joints in CMU and built-in expansion joints in brick/CMU to prevent cracking due to temperature, moisture and building frame-related movements. Joints in CMU walls shall divide the walls into panels as NCMA recommends. Joints in brick masonry shall divide the walls into panels as BIA recommends.

E. In multi-story construction, provide horizontal support steel as necessary to carry the masonry facing. The clear space between the top of the brick and bottom of the steel shall meet BIA requirements. Parapets shall have additional vertical joints to accommodate the additional thermal movement.

F. Mortar Joints: Exposed mortar joints shall be tooled in a concave direction.

G. Flashing

1. PROHIBITED: PVC flashing.

2. The A/E shall locate and detail flashing to prevent moisture intrusion into the wall or building. The flashing material for this purpose must be compatible with adjacent materials. Membrane flashing shall be a minimum of 40 mils thick. Flashing shall extend a minimum of 1/4 inch beyond the outside face of the exterior unit and be turned downward to form a drip. Flashing is to be adhered to the horizontal support below. Vertical termination of flashing shall be mechanically fastened with continuous termination bar. Water cut off mastic shall be installed between backup wall and flashing, and between flashing and termination bar. Details in contract documents shall include flashing end dam and prefabricated corner installation requirements.

3. At wall/roof junctions, including parapet walls, provide a flashing/counter flashing detail with adequate height to allow re-roofing without having to replace the through-wall flashing.

4. At the top of masonry walls, membrane flashing shall be adhered to the face of the masonry wall at the top of the exterior wythe and attached to the roof membrane on the building side.

5. Wall cavity vents shall be installed in the exterior wythe of masonry walls two courses above the base flashing and two courses below the top of the wall. The Facilities Planning Dept. shall review rain screen design walls.

1.05 – MASONRY VENEER

Note: All products used on Edison State College projects must be in compliance with the most current applicable edition of the Florida Building Code.

A. Masonry Veneer: Brick or block facing with steel stud backup shall not be used for Type I or Type II buildings. **When used for Type III structures, the studs shall be designed to meet the more stringent deflection standards of the Brick Industry, rather than the Steel Stud Institute. Also, pay special attention to protecting the ties from rusting by using corrosion-resistant ties, corrosion-resistant compatible screws, and adequate flashing and drains. The A/E shall provide complete details.**

1.06 - STONE

A. Industry Standards: Material and installation shall comply with recognized industry standards, including the American Institute of Steel Construction, Indiana Limestone Institute of America, Marble Institute of America, National Building Quarries Association, ASTM and others as applicable.

B. The A/E shall select and approve stone samples, along with the College's approval prior to requesting bids.

C. Stone used for remodeling projects or for additions to existing structures shall match the existing stone. The new stone shall be matched to a cleaned section of the existing stone.

D. The A/E shall specify the appropriate grade and quality of stone for each area of the project. Specifications shall include the requirement that the contractor provide stone samples and mockup panels to verify the design intent, including anchorage, joints, details and appearance. The number and size of the panels shall be appropriate to the scale of the project. Mockup panels shall be subject to College and A/E approval. Approved panels shall be used as a standard of workmanship for acceptance of construction.

1.09 - ANCHORS, SUPPORTS AND ACCESSORIES

A. Details shall account for the expected construction tolerances such as plumb and level of the supporting structure.

B. Consult industry standards for the physical characteristics and safety factors recommended for each type of stone that is used.

C. Anchors, supports, and accessories shall be stainless steel 304L.

D. Control Joints and Joint Reinforcement: Drawings shall indicate location and pattern of control joints and joint reinforcement.

E. Flashing

Note: All products used on Edison State College projects must be in compliance with the most current applicable edition of the Florida Building Code.

1. PROHIBITED: PVC flashing.

2. Flashing material shall be non-staining, non-corrosive and shall have a life span compatible with the stone.

3. The A/E shall locate and detail the flashing to prevent moisture intrusion into the wall or building. The flashing material for this purpose must be compatible with adjacent materials. The membrane flashing shall be a minimum of 40 mils thick. Flashing shall extend a minimum of 1/4 inch beyond the outside face of the exterior unit and be turned downward to form a drip. Flashing is to be adhered to the horizontal support below. Vertical termination of flashing shall be mechanically fastened with continuous termination bar. Water cut off mastic shall be installed between backup wall and flashing, and between flashing and termination bar. Details in contract documents shall include flashing end dam and prefabricated corner installation requirements.

4. At wall/roof junctions, including parapet walls, provide a flashing/counter flashing detail with adequate height to allow re-roofing without having to replace the through-wall flashing.

5. At the top of stone walls, membrane flashing is to be adhered to the face of the stone wall at the top of the exterior wythe and attached to the roof membrane on the building side.

6. Wall cavity vents shall be installed in the exterior stone wythe above the base flashing below the top of the wall. The Facilities Planning Dept. shall review rainscreen design walls.

7. Provide continuous stainless steel flashing between the stone cap and the top of the wall with drips on each side of the wall.

F. Coating/Staining

1. Non-absorbent stone shall be used where subject to staining, salts and other abrasives.

2. Specify damp-proofing on the backside of limestone where it is at or below grade.

3. Landscape the base of the building to minimize debris from splashing back and staining the stone.

Note: All products used on Edison State College projects must be in compliance with the most current applicable edition of the Florida Building Code.