

## Quality Masonry Practices

### Architectural Colored Concrete Masonry Units (CCMU)

#### A. DELIVERY, STORAGE, AND HANDLING

1. Pallets of Colored Concrete Masonry Units (CCMU) should not be stacked on top of each other.
2. CCMU should be laid in wall ASAP to minimize the introduction of moisture into the units.
3. Keep CCMU covered at all times to prevent rain penetration that will cause efflorescence to be visible. Efflorescence is primarily calcium that is released when concrete cures. Moisture enables the calcium to leach to the surface when moisture is present.
4. Nettleton Concrete recommends the erection of sample panels that are representative of materials and workmanship. The size of the panel should be of sufficient size to demonstrate the architectural style/design of the project.

#### B. INSTALLATION

1. Keep walls covered at the end of each day and/or during rain to prevent efflorescence and color variation caused by moisture entering the wall cavity.
2. Lay units from more than one pallet a time during installation and using the best concrete masonry practices.
3. A water repellent mortar admixture should be used in mortar to ensure the highest level of water repellency of CCMU masonry wall.
4. Nettleton Concrete uses water repellent in the manufacturing of all CCMU. Use proper flashing to prevent moisture penetration.
5. Flashing must be located properly, wherever moisture vapor or water can potentially move into CCMU.
6. Exterior Insulation Finishing Systems (EIFS) must be flashed.
7. Weep holes must be located 16' on center.
8. All head joints and bed joints must be full to restrict water penetration into the CCMU.
9. Use only concave or (V) configuration of mortar jointing. Raked joints are not recommended because they collect moisture.
10. It is generally recommended that joints be tooled when the mortar reaches "thumbprint hardness". Tooling the mortar too soon lightens the color and shrinkage cracks may occur. Tooling it too late may cause the mortar not to seal properly against the masonry units and the color will be darker.
11. Concrete grout used in the CCMU should be low slump. Concrete should not contain excessive water that can "bleed through" the interior and exterior of the masonry wall causing efflorescence. If a higher slump, more flow-able mix is required, Nettleton Concrete recommends the use of a super plasticizer admixture.
12. Precautions must be taken when sawing CCMU. Please consult our SDS sheets on the materials and use the appropriate Personal Protection Equipment, (PPE). CCMU may be stained by masonry dust and pigments from sawing. Units should be properly cleaned before installing.
13. Brush walls down daily with stiff bristled nonmetallic brush to prevent mortar from drying on the face.
14. Control and Expansion Joints must be properly located to allow provisions for expansion, contraction, and other typical movements to prohibit cracking.

#### C. CLEANING

1. CCMU must be cleaned properly including mortar droppings, mortar splatters and efflorescence. Improper cleaning materials and/or methods will also harm water repellency.

2. DO NOT USE WATER PRESSURES HIGHER THAN MUNICIPAL WATER PRESSURE – Using high pressure will most likely cause efflorescence, streaking, and color variation. USE OF PRESSURE HIGHER THAN MUNICIPAL WATER PRESSURE RELIEVES NETTLETON CONCRETE OF ANY LIABILITY.
3. Nettleton Concrete recommends that you use masonry cleaner to clean CCMU within 72 hours of installation. Your Nettleton Concrete representative can help supply you with a cleaning agent and it can ship with your CCMU to your jobsite.
4. Consistent application of water and cleaner on the wall system will ensure consistent color after completion of cleaning. Inconsistent application will cause color variation.

#### **D. EFFLORESCENCE STAINING**

1. Keep all sprinklers from causing water to contact CCMU.
2. Wet mud or bark will cause efflorescence staining of CCMU – Nettleton Concrete recommends hay or straw placed at foundation to help prevent this.
3. Staining below window sills, metal brackets, and vents that attach to the walls, etc., can be avoided by having projections extruding at least one inch from the face of the wall with a drip notch or groove on the underside in order to keep water from running back under sill and down the face of the wall and onto metal devices or other stain producing items attached to wall. These items should be insulated from the visible portion of the wall by a non-staining gasket material having a drip to divert potential staining material away from the wall.

#### **E. COLOR VARIATION**

1. Nettleton Concrete uses economical yet high-quality consistent aggregates available for manufacturing. These are all natural mined materials and are subject to variation.
2. Solid units, due to moisture, may appear darker than cored units.
3. Large segments of smooth block units will accent color and texture variation of the natural materials more than split-face units.
4. Special care should be taken to lay CCMU in the same direction/orientation to maintain proper shade and texture appearance.
5. Due to changes in mined material, color variation should be expected in CCMU produced at different times. Ex: additions, change order, etc.
6. Nettleton Concrete does not manufacture each order at the same time, but will generally produce the order during a 1 week period, depending on size, weather permitting.

#### **F. WATER REPELLENCY**

1. Water Repellency should not be confused with water proofing. Nettleton Concrete CCMU have integral water repellent added at the time of production. Generally West and Southwest facing walls are more subject to extra moisture because of the natural flow of the JET stream. Therefore, Nettleton Concrete recommends that all exterior walls be treated with a sealer to provide the highest level of water repellency.

#### **G. SEALER**

1. . The use of any sealer on block surface should be carefully considered. If the sealer is applied to a wall that still contains the basic ingredients for efflorescence (moisture) the resulting problems could be severe. As the salt solution attempts to migrate toward the surface, most of the salts become trapped in the concrete pores just inside the sealer. The result is an interior crystalline buildup called sub florescence which can exert considerable pressure and spall the unit face.
2. If required the following should be considered:
  - i. Block sealer shall not be applied until the wall has dried out a minimum of 72 hours without rain and there is no visible sign of efflorescence on the wall.
  - ii. Make sure to apply materials in accordance with manufacturer's printed instructions.
  - iii. Sealers should be applied evenly without overlapping. Uneven application of sealers can discolor CCMU.
  - iv. Apply a second coat of sealer to masonry surfaces that are porous.
  - v. All windows must be covered and all cars removed before spraying as glass and finished metal can be damaged. Sealers are extremely hard if not impossible to remove from glass.