

CTU Online Anytime Module 2.1 – Traditional Cement Mortars

Key Takeaways

- Mastics (Type I and II) are covered under ANSI A136.1
 - Used for light duty, residential installations
 - Usually used for small wall tile
 - Interior dry areas (and limited water exposure possible)
 - Custom Building Products' OmniGrip[®] exceeds ANSI A136.1
 - Flexible, lightweight high-polymer adhesive for stone and tile
 - Does not sag when placed on walls
- Cement-based bonding mortars are comprised of sand, cement, retentive compounds and polymer agents
 - Sand (aggregate) – size and shape play a key role in feel and performance of mortar
 - Angled aggregate offers greater compaction but reduced handling feel
 - Rounder aggregate offers smooth and creamy feel
 - Aggregate replacement materials may be lightweight materials
 - Mortars are typically made from two types of cements
 - Portland Cement and Calcium Aluminate Cement (for rapid setting formulations)
 - Cement is the primary means of bonding within a mortar
 - Cement's structure develops mechanical bonds to substrate and back of tile
 - Retentive compounds
 - Retentive compounds retain water in mortar to control pot life and working time
 - Mortars need to slake to allow time for retentive compounds to absorb water into the mixture and transition from powder to gel. At that point, water will remain in mortar mix, rather than be directly absorbed by the substrate.
 - Polymers help provide:
 - Chemical bonding mechanism
 - Improved flexibility
 - Resistance to shock and impact
 - Reduced water absorption into mortar (important in exterior, thermal cycling and freeze thaw environments)
 - Multiple mortars exist to match each application. The ANSI specifications are as follows:
 - A118.1 – Dry Set Cement Mortar (no polymer modification)
 - Open pore structure tiles
 - A118.3 – Tile Setting Epoxy Adhesive

- A118.4 – Modified Dry-Set Cement Mortar
 - Designed for non-porous tiles
 - 28-day porcelain shear strength >200psi
- A118.11 – Exterior Glue Plywood (EGP) Cement Mortar
 - Mortars improved from A118.4 category for shock and flexing capacity
 - For bonding to plywood must be >150psi
 - Versabond® Fortified Thinset Mortar meets ANSI 118.1, A118.4, A118.11
- A118.15 – Improved Modified Dry-Set Cement Mortar
 - See 2.2 module for details

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