

**PCI Specification for Embedded Clay Thin Brick**  
**Effective May 4, 2016**

**A. Thin Brick**

1. Thickness not less than ½ in. (13mm) nor more than 1 in. (25mm)
2. Face size: Modular: 2-1/4 in. (57mm) high by 7-5/8 in. (190mm) long  
Norman: 2-1/4 in. (57mm) high by 11-5/8 in. (290mm) long  
Closure modular: 3-5/8 in. (90mm) high by 7-5/8 in. (190mm) long  
Utility: 3-5/8 in. (90mm) high by 11-5/8 in. (290mm) long
3. Size, color, texture: **[Match Architect's approved samples] [Match existing adjacent brickwork]**
4. **[Insert information on existing brick if known]**
5. Special shapes: Include corners, edge corners, and end edge corners
6. Back surface texture: **[Scored] [Combed] [Wire roughened] [Ribbed] [Keybacked] [Dovetailed]**

**B. Dimensional Tolerances – measure in accordance with ASTM C67**

1. Thickness: Plus 0 in., minus 1/16 in. (+0, -1.6mm)
2. Face size: Plus 0 in., minus 1/16 in. for dimensions 8 in. (200mm) or less  
Plus 0 in., minus 3/32 in. (+0, -2.4mm) for dimensions greater than 8 in. (200mm)
3. Warpage: not more than 1/16 in. (1.6mm) either concave or convex from a consistent plane
4. Out of square: Plus or minus 1/16 in. (±1.6mm)
5. Shape angle: Plus or minus 1 degree from specified angle

**C. Properties**

1. Breaking strength: Not less than 250 psi (1.7 MPa) tested in accordance with ASTM C67
2. Cold water absorption: Maximum 6% at 24 hours tested in accordance with ASTM C67
3. Efflorescence: Rated “not effloresced” when tested in accordance with ASTM C67
4. Freeze thaw resistance:
  - a. Uncoated brick: No detectable deterioration (spalling, cracking, or breaking) after 300 cycles tested in accordance with ASTM C666, Method A or B on assembled specimens
  - b. Surface coloring: No observable difference in the applied finish when viewed at a distance of 20 ft (6m) after 50 cycles tested in accordance with ASTM C67. In addition, the brick shall undergo ASTM C666 test described above
5. Pull-out strength: Not less than 150 psi (1.0 MPa) from base concrete before and after freeze thaw testing tested in accordance with specified modification to ASTM E488.

6. Chemical resistance: Rated “not affected” when tested with a 10% hydrochloric acid solution in accordance with ASTM C650.

D. Testing requirements:

1. Minimum number of test specimens: In accordance with appropriate ASTM specifications except as specified in D.1.a.
  - a. Exception for freeze thaw and pull-out strength tests: Ten (10) assembled specimens measuring 8 in. by 16 in. (200mm by 405mm) long with the brick embedded into the concrete substrate (assembled specimens). The ten (10) assembled specimens are divided into five (5) Sample A assemblies and five (5) Sample B assemblies. The precast concrete substrate shall have a minimum thickness of 2-1/2 in. (63mm) plus the embedded brick thickness. The precast concrete shall have a minimum compressive strength of at least 5000 psi (34.5 MPa) and 4 to 6% entrained air. The embedded brick coursing pattern for testing purposes shall be modular size brick on a half running bond pattern with a formed raked joint geometry of no less than 3/8 in. (9mm) wide and a depth no greater than 1/4 in. (6mm) from the exterior face of the brick.

One brick from the center of each sample assembly shall be tested for pull-out strength. Each Sample B assembly shall first be tested for freeze thaw resistance. In place of anchor specified in ASTM E488, use 3/8 in. (9mm) minimum thickness steel plate of same size as single brick face bonded with epoxy to a single brick face for each pull-out strength test. The steel plate shall have a centrally located pull-rod welded to the plate.
2. Back surface texture of samples for pull-out strength and freeze thaw resistance testing shall be the same.
3. Frequency of testing:
  - a. Dimensional tolerances shall be checked prior to shipping on each run of brick supplied to the project.
  - b. Cold water 24 hour absorption testing shall be conducted on every clay body/color of project specific brick prior to each shipment. Submit written documentation. The buyer reserves the right to conduct the same test prior to first shipment.
  - c. All other tests specified shall be conducted for each clay body at an accredited laboratory at least every six years.