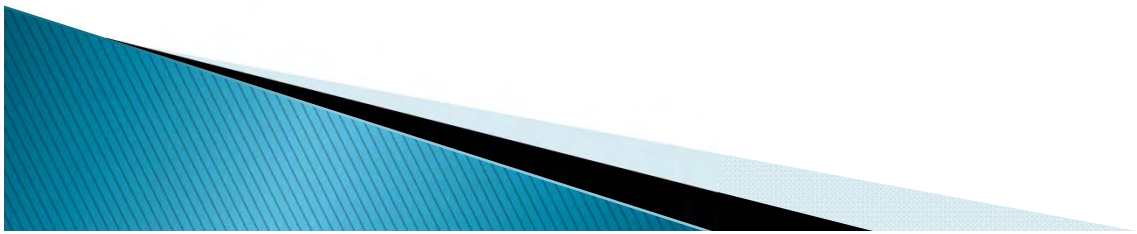
Thin Brick Testing

Parker Stroble
The National Brick Research Center

Overview

- ASTM C1088

- PCI Standard
  - Thin Brick Units
  - Pre-Cast Concrete Panels



Designation: C1088 – 12

Standard Specification for Thin Veneer Brick Units Made From Clay or Shale[1]

Tests

- Absorptions
  - Cold Water Absorption
  - Boiled Water Absorption
  - C/B Ratio
- Efflorescence
- Dimensions/Distortion

*All according to ASTM C67

Specifications

- Absorptions

TABLE 1 Physical Requirements

Designation	Maximum Water Absorption by 5-h Boiling, %		Maximum Saturation Coefficient[A]	
	Average of 5 units	Individual	Average of 5 units	Individual
Grade Exterior	17.0	20.0	0.78	0.80
Grade Interior	22.0	25.0	0.88	0.90

  - Same limits as C216, C652

PCI Standard for Thin Brick

- Methods and Specifications

Thin Brick Unit Tests

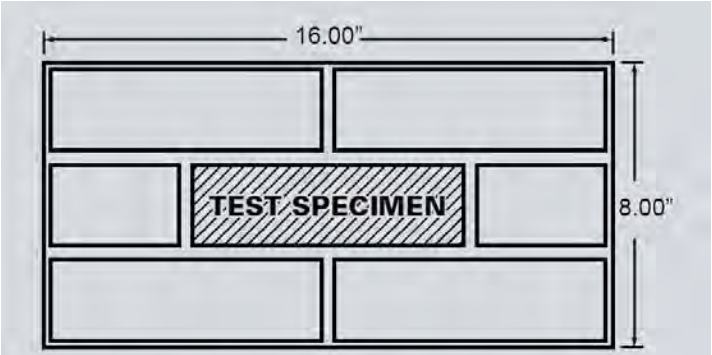
- *Dimensions & Distortion
- Absorption (CWA)
- Efflorescence
- Modulus of Rupture
- Chemical Resistance (ASTM C650)
- Surface Coloring (F/T)

Thin Brick Unit Specs

Property	Specification
Absorption (CWA)	6% Maximum
Efflorescence	“not effloresced”
Modulus of Rupture	250psi Minimum
Chemical Resistance (C650)	“not affected”
Surface Coloring (C67 F-T)	“no observable difference”

Pre-Cast Panel Tests

- 10 samples
  - First 5: ASTM E488 (Modified) Tensile Strength
  - Second 5: ASTM C666 Rapid Freeze-Thaw
    - then E488 Tensile Strength



Clarification of the test sample preparation.

Pre-Cast Panel Specs

Property	Specification
Tensile Bond Strength	150psi Minimum (both before and after F-T)
Freeze-Thaw Resistance (C666 A)	“no detectable deterioration”

Samples before Tensile Testing

Sample during Tensile Testing

Sample after Tensile Testing

Summary

- ASTM C1088
  - Tests, Specs
- PCI Standard
  - Thin Brick Units
  - Pre-Cast Concrete Panels
  - Tests, Specs

Questions?