



# 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<sup>1</sup>**



# 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 <sup>A</sup>	
	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

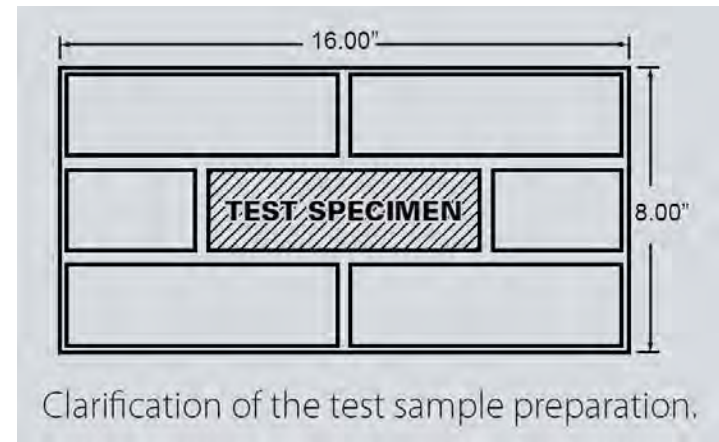
Property	Specification
Absorption (CWA)	6% Maximum
Efflorescence	“not effloresced”
Modulus of Rupture	250psi Minimum
Chemical Resistance (C650)	“not affected”
Surface Coloring (C67 F-T)	“no observable difference”





# Pre-Cast Panel Tests

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



# 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?

