


**INTERNATIONAL CFI**  
CERTIFIED FLOORING INSTALLERS

# Ceramic Tile

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# Overview

- Types of Ceramic Tile
- What is a Professional Installation
- The Science of Thin-sets
- Proper Installation Methods
- Grout
  - Mixing
  - Application



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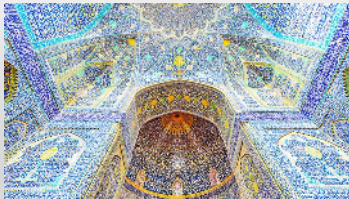
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# Types of Ceramic Tile



- Glazed Wall Tile
- Ceramic Mosaic Tile
- Pressed Floor Tile
- Quarry Tile
- Porcelain Tile



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## Substrate Flatness



**Tolerances**

- 1/4" in 10 feet
- 1/16" in 1 foot
- Tile with one side 15" or more is 1/8" in 10 feet and no more than 1/16" in 2 feet

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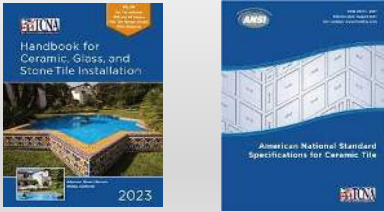
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## TCNA and ANSI STANDARDS



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## Absorption Rates Under ASTM C-373

**Classifications**

- **Impervious tile** - water absorption of 0.5% or less.
- **Vitreous tile** - absorption of more than 0.5%, but not more than 3.0%
- **Semi-vitreous** - absorption of more than 3.0%, but not more than 7.0%.
- **Non-vitreous** - absorption of more than more than 7.0%.

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## Porcelain Enamel Institute (PEI) Wear Ratings

0 - Decorative only with no use on floors.	3 - Normal residential areas and normal footwear and traffic.
1 - Light foot traffic without scratching dirt and direct outside access, such as in a residential bath.	4 - Commercial foot traffic such as entrances, kitchens, offices and sales room.
2 - Residential areas but without exposure to abnormal footwear or outside access.	5 - Areas subjected to severe pedestrian traffic such as airports, shopping centers, hotel foyers, public walkways, and industrial applications.

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## WOOD Subfloor REQUIREMENTS APA

- Minimum 19/32" (5/8") Thick
- Joists 16" on Center
- Tongue and Groove Exterior Grade Plywood/OSB (Where Applicable)
- ANSI A108.11
- Perpendicular to Joist
- No More Than 2 Panels Thick
- 8d Fasteners 12" in Field 8" on Edge with Adhesive
- 1/8" Spacing at Each End and Edge Joints



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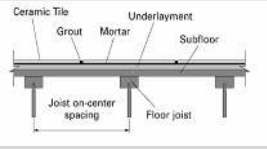
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## CERAMIC BASICS

- Thin-set goes underneath the backerboard and on top of the backerboard.
- Thin-set is not a leveling system.
- All board seams must be taped.
- The joist system is critical to the installation.
- Follow the manufacturer's mixing instructions!
- The TCNA is a great resource.
- The ANSI Standards pair with the TCNA.



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## Installation Tools

- Leveling System
- Multiple Buckets
  - Measuring
  - Mixing
  - Grout
- Tile Spacers
- Grout Sponges
- Doodle Bug Pad
- TCNA and ANSI Standards!

Mixing Drill

Tile Saw

Proper Trowel

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