

Tile and Stone Installation

Pete Fowler Construction Services, Inc.
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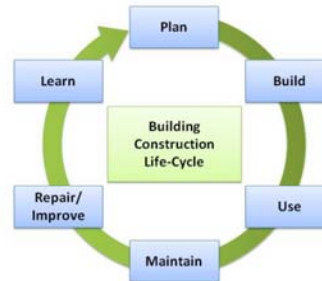
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Who We Are: The Building Life-Cycle Experts

Pete Fowler Construction Services, Inc. (PFCS) is a team of consultants with expertise in all phases of building construction.

Services:

- Construction Cost Estimating
- Construction Management
- Property Analysis
- Construction Claims Consulting
- Construction Defect Consulting
- Expert Witness Testimony
- Training & Education



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Program Outline

1. *Introduction*
2. *History*
3. *Terminology*
4. *Horror Stories*
5. *Products*
6. *Codes, Standards and Resources*
7. *Execution*
8. *Inspection*
9. *Repairs*

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1. Introduction

A. *Why Are We Here?*

Tile and Stone Installation is an introduction to the subject for anyone who needs to be able to understand the myriad options in application, appearance, construction techniques, durability and costs of tile and stone assemblies. It is not only architects, engineers and builders who need to know about these details. Owners, agents and users of buildings can acquire an understanding of the vast differences and the ramifications different choices can have on the performance of the final products.

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B. Learning Objectives

1. Introduce and orient the attendee to the most common application locations of tile and stone.
2. Review the most popular products.
3. Describe design and construction standards and criteria for proper execution of a tile or stone installation.
4. Show how projects can go bad, causing terrible problems.

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C. How People Learn (Particularly Adults)

According to The Business Literacy Institute, after three days of training people remember:

- 10% of what they read
- 20% of what they hear
- 30% of what they see
- 50% of what they see and hear
- 70% of what they say
- 90% of what they say and do

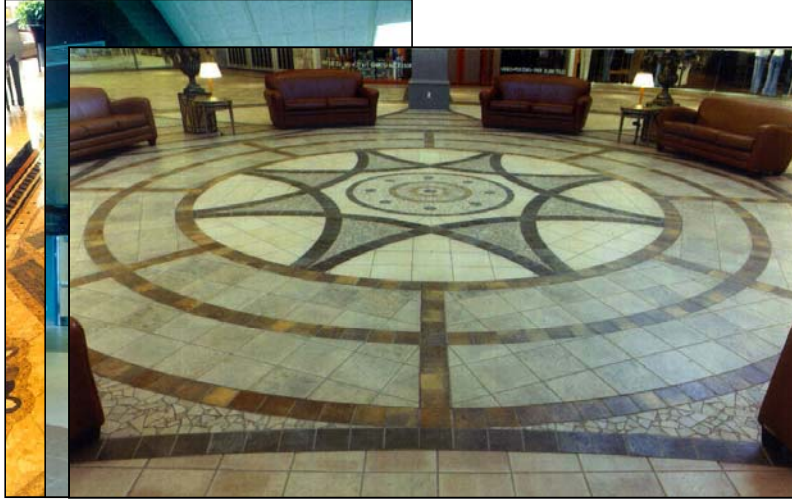
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D. Installation Locations

- Floors
- Walls
- Counters
- Tubs & Showers
- Other

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D. Installation Locations: Floors



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D. Installation Locations: Walls



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D. Installation Locations: Counters



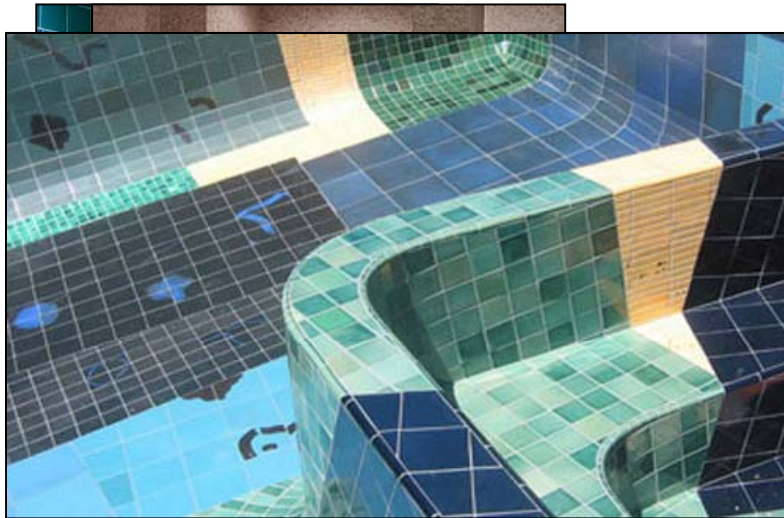
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D. Installation Locations: Tubs & Showers



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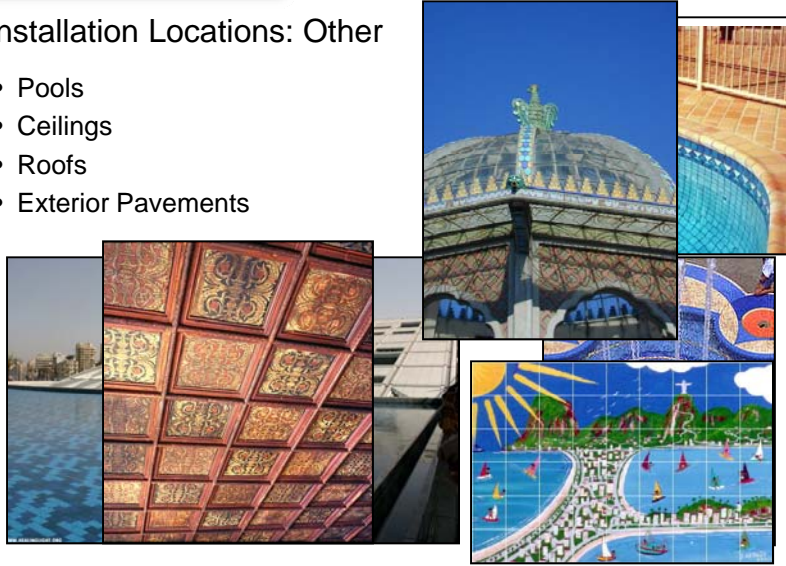
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D. Installation Locations: Other

- Pools
- Ceilings
- Roofs
- Exterior Pavements



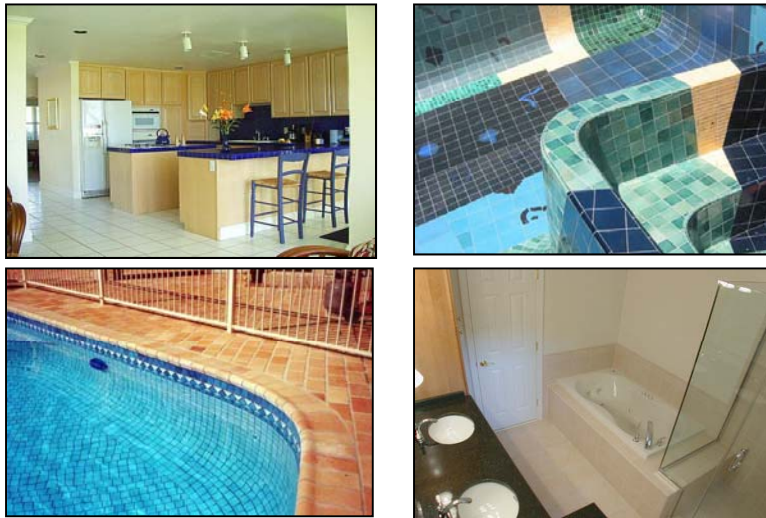
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2. History



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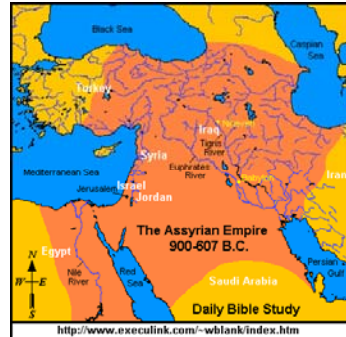
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2. History

- All Recorded History
- 4,000 B.C.E. Egypt
- 1,900 B.C.E. Babylonia (now Iraq)
- 700 B.C.E. Assyrians (now Israel, Jordan, Syria, Iraq, etc...)
- 300 B.C.E. Romans invent cement
- 1,000 C.E. Earliest tile manufacture in Europe



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2. History

- 1824: Portland Cement is invented in England
- 1800's: Mass production of tile begins in Europe.
- 1900's: Modern methods evolve for manufacturing, rapidly decreasing cost.
- 1940's: Virtually all tile installed in the old fashioned mud-set method.
- 1950's: Tiles begin to be applied to GWB



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2. History

- 1970-80's: Green-board showers become common.
- 1990's: Recognition that Greenboard showers don't work.
- 1999 Ceramic tile industry finally GWB in wet areas.
- 2005 GWB not allowed by Plumbing Code



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2. History – Floors



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2. History – Walls



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2. History – Counters



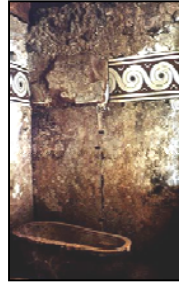
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2. History – Tubs & Showers



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3. Terminology



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3. Terminology

Cementitious Backer Unit (CBU): A backer board designed for use with ceramic tile in wet areas. It can be used in place of metal lath, portland cement scratch coat and mortar bed.

Enclosure: An enclosure of glass or plastic mounted on a bathtub rim with sliding, folding, or swinging door panels, to keep shower spray in the compartment.

Fiberglass Pan: A prefabricated assembly to provide a bottom for a shower made of fiberglass.

Flange (Tub / Tile): A rib or rim on an object for strength, for guiding, or for attachment to another object.

Greenboard: Water Resistant Gypsum Wallboard / Drywall

Grout: A rich or strong cementitious or chemically setting mix used for filling tile joints.

Hot Mop Pan: A type of shower pan made of alternating layers of hot asphalt and tar paper.

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3. Terminology

Marble: Marble cut into tile sizes twelve (12) inches squares or less, usually 1/2 inch to 3/4 inch thick. Several types of finishes are made, polished, honed, split faced, etc.

Mortar Bed: A mixture of cement paste and fine aggregate; in fresh concrete, the material occupying the interstices among particles of coarse aggregate; in masonry construction, mortar may contain masonry cement, or may contain hydraulic cement with lime (and possibly other admixtures) to afford greater plasticity and workability than are attainable with standard hydraulic cement mortar.

Roman Tub: Roman tubs are named for the original baths built by the Romans, such as over the mineral springs in Bath, England.

These were bathing pools that one stepped down into, so floor-mounted sunken tubs came to be called Roman tubs.

Today, the term is used for any type of tub where the filler spout rises off the deck rather than through the walls of the tub or of the room. Roman tubs tend to be deeper than the typical American Bathtub and they do not have integrated showers or jets, but are for soaking only.

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3. Terminology

Sealer: (1) A continuous film or penetrant to prevent the passage of liquids or gaseous media; a high-bodied adhesive generally of low cohesive strength to fill voids of various sizes to prevent passage of liquid or gaseous media. (2) A coating used to seal the sand-scratched surface of a primer in order to obtain a smooth uniform paint base over rough metal. Sealers are products of low pigmentation.

Shower Pan: Terminology used in some areas for waterproof membrane.

Stone: Earthy or mineral matter of indeterminate size or shape such as rock.

Substrate: The underlying support for the ceramic tile installation.

Thin Set: A term used to describe the bonding of tile with suitable materials applied approximately 1/8 inch thick.

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4. Horror Stories



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4. Horror Stories - Floors



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4. Horror Stories – Walls



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4. Horror Stories - Counters



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4. Horror Stories – Tubs & Showers



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