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ANSI A108, A118, and A136

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American National Standard Specifications for the Installation of Ceramic Tile

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American National Standard Specifications for the Installation of Ceramic Tile

Secretariat

Tile Council of North America, Inc.

Approved

American National Standards Institute, Inc. (ANSI)

Abstract

This publication is a compilation of voluntary standards for the installation of ceramic tile. American National Standard specifications A108.01, .02, .1A, .1B, .1C, .4, .5, .6, .8, .9, .10, .11, .12, .13, .14, .15, .16, and .17 define the installation of ceramic tile. A118.1, .3, .4, .5, .6, .7, .8, .9, .10, .11, .12, .13, .15, and A136.1 define the test methods and physical properties for ceramic tile installation materials. These standards are intended to be referenced or included in the ceramic tile sections of project specifications.

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TCNA Production Staff

Eric Astrachan, *Executive Director*

Bill Griese, *Director of Standards Development and Sustainability Initiatives*

Katelyn Simpson, *Laboratory Manager and ASC A108 Committee Secretary*

Ryan Marino, *Standards Development and Research Manager*

Cynthia Faber Smith, *Content and Creative Manager*

Kathy Meyer, *Director of Marketing*



100 Clemson Research Blvd.
Anderson, SC 29625
USA

Ave. Batallón de San Patricio #109-627.
Colonia Valle Oriente, San Pedro Garza García
Nuevo León, México. CP 66269

www.TCNAtile.com

(864) 646-8453

52 (81) 8625-3306

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Foreword

This foreword is not part of American National Standard A108, A118, or A136.

These voluntary standards define the installation of ceramic tile as well as the test methods and physical properties for ceramic tile installation materials. They are intended to serve as a guide to the general public, manufacturers, distributors, specifiers, architects, tile contractors, testing laboratories, and other businesses and professionals in the tile industry.

While the existence of these standards does not in any respect preclude anyone, including those who have accepted them, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to this standard, producers of ceramic tile installation materials made in conformance with these standards are encouraged individually to indicate such conformance in advertising, promotion, and labeling.

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American National Standard Specifications for Installation of Ceramic Tile ANSI A108.01, .02, .1A, .1B, .1C, .4, .5, .6, .8, .9, .10, .11, .12, .13, .14, .15, .16, and .17

The following Introduction and Notes are not part of American National Standards A108, A118, or A136.1 which are included herein.

1.0 Introduction

- 1.1** The applicable ANSI specifications for ceramic tile installed with portland cement mortar, dry-set or latex-portland cement mortar, organic adhesive, epoxy adhesive, chemical resistant water cleanable tile-setting and -grouting epoxy, chemical resistant furan mortar and grout, modified epoxy emulsion mortar, and the ANSI specifications for the installation of ceramic tile grouts should be made a part of a project specification by reference or by copying the applicable parts of the ANSI specification and including into the ceramic tile sections of a project specification. In either case, augment the ANSI specifications and modify the specific project conditions.

NOTE: *If ceramic tiles irregular in size and/or thickness (not conforming to ANSI A137.1) are specified and specialized methods are required for installation, labor and material costs will be increased.*

- 1.2** American National Standard specifications A118.1, .3, .4, .5, .6, .7, .8, .9, .10, .11, .12, .13, and .15 and A136.1 for ceramic tile installation materials are included with these ANSI specifications as separate documents and should also be referenced or included in project specifications.
- 1.3** The term “thin-set” is not specific. “Thin-set” describes a family of products manufactured to be used as setting and/or bonding coats. When a thin-set method is desired for which there is a specification, the appropriate ANSI specification should be referenced by both number and title.

2.0 Notes for tile material, accessories, and definitions

- 2.01** Include a full description of each type of tile to be used in project specification. Refer to A108.02–3.1.1 of the standard specifications herein in addition to grade markings on tile containers. When specified by the architect, Master Grade Certificates will be issued at the time of shipment. The covering order is required to show the names of the architect and owner and the name and location of the project. Specimens of the Master Grade Certificate and applicable labels are shown in ANSI A137.1.

- 2.02** For each specialty tile being chosen, review installation guidelines supplied by the manufacturer/distributor of the specialty tiles and/or adhesive manufacturer. Specialty tiles include but are not limited to tiles made from non-ceramic materials.

2.1 Exteriors

On exteriors, use only tile recommended by the manufacturer as suitable for the climatic conditions of the locality.

2.2 Interiors

Use only tile types recommended by the manufacturer as suitable for walls and/or floors (traffic areas).

- 2.2.1 CAUTION:** *Although organic adhesives provide a good bond for floor tile to substrate, they may*

provide insufficient support under nonresidential loads, resulting in the cracking of tile. ANSI A118.1 Dry-set Portland Cement Mortars, ANSI A118.4 Latex-portland Cement Mortars, ANSI A118.3 Epoxy Mortars, and ANSI A118.11 EGP (Exterior glue plywood) Latex-portland Cement Mortars are preferable setting systems for floor tile installations.

2.3 Inspection

If desired, specify inspection or approval of the tile as in A108.02–3.1.1 of the standard specifications herein and the procedure that is to be followed to inspect and approve tile before installation.

2.4 Tile accessories

Show location of accessories such as towel bars, paper, soap, and tumbler holders and grab rail on drawings and specify types in project specifications.

2.5 Specifying organic adhesive

Specify type of adhesive in accordance with ANSI A136.1 Standard Specifications for organic adhesives for installation of ceramic tile Type I or Type II. This American National Standard is included herein.

2.6 Specifying dry-set mortar

Specify dry-set mortar in accordance with ANSI A118.1 Standard Specifications for Dry-set Portland Cement Mortar. This American National Standard is included herein.

2.6.1 Specialized mortars covered by ANSI A118.1 include the following types: 1) fast setting dry-set mortar, 2) non-sagging dry-set mortar. If a specialized mortar is required, specify dry-set mortar in accordance with ANSI A118.1 Standard Specifications for Dry-set Portland Cement Mortar and the type of specialized mortar to be used. This American National Standard is included herein.

2.7 Specifying latex-portland cement mortar

Specify latex-portland cement mortar in accordance with ANSI A118.4 Standard Specifications for Latex-portland Cement Mortar. This American National Standard is included herein.

2.7.1 Specialized mortars covered by ANSI A118.4 include the following types: 1) Fast setting latex-portland cement mortar 2) Non-sagging latex-portland cement mortar. If a specialized mortar is required, specify latex-portland cement mortar in accordance with ANSI A118.4 Standard Specifications for Latex-portland Cement Mortar and the type of specialized mortar to be used. This American National Standard is included herein.

2.8 Specifying EGP (exterior glue plywood) latex-portland cement mortar

EGP latex-portland cement mortar is specified in accordance with ANSI A118.11 Standard Specifications for EGP (Exterior glue plywood) Latex-portland Cement Mortar. This American National Standard is included herein.

2.9 Specifying tile-setting and -grouting epoxy and epoxy adhesive

Specify chemical resistant, water cleanable tile-setting and -grouting epoxy or epoxy adhesive in accordance with ANSI A118.3 Standard Specifications for Chemical Resistant, Water Cleanable Tile-setting and -grouting Epoxy and Water Cleanable Tile-setting Epoxy Adhesive. This American National Standard is included herein.

2.91 Where chemical exposure is not critical, chemical resistant epoxy grout may be sufficient. In such case, specify particular setting method desired and refer to appropriate ANSI Standard Specifications.

2.10 Specifying chemical resistant furan mortars and grout

Specify chemical resistant furan mortars and grouts in accordance with ANSI A118.5 Standard Specifications for Chemical Resistant Furan Mortars and Grouts. This American National Standard is included herein.

2.11 Specifying modified epoxy emulsion mortar and grout

Specify modified epoxy emulsion mortar and grout in accordance with ANSI A118.8 Standard Specifications for Modified Epoxy Emulsion Mortar and Grout. They are not designed for chemical resistance. This American National Standard is included herein.

2.12 Specifying grouts

Specify grouts not covered in 2.8 – 2.10 in accordance with ANSI A118.6 or ANSI A118.7. This American National Standard is included herein.

2.12.1 CAUTION: *Exterior vertical surfaces in climates involving freeze-thaw conditions and high annual precipitation may require silicone rubber grout as joint filler between tiles, in lieu of cementitious grout.*

2.13 Specifying cementitious backer units

Cementitious backer units are fiber glass mesh-reinforced concrete construction units usually 7/16 in. minimum (11 mm) thickness. Follow manufacturer's directions. Specify in accordance to ANSI A118.9. This American National Standard is included herein.

2.14 Specifying waterproof membranes

Waterproof membranes for thin-set ceramic tile and dimension stone installations function as barriers to positive liquid water migration. Waterproof membranes are bonded to a variety of manufacturer approved substrates and may be trowel, liquid or sheet applied. Follow manufacturer's directions. Specify in accordance to ANSI A118.10. This American National Standard is included herein.

2.15 Specifying crack isolation membranes

Crack isolation membranes for thin-set ceramic tile and dimension stone installations isolate tile or stone from minor in-plane substrate cracking. Crack isolation membranes are bonded to a variety of manufacturer-approved substrates and may be trowel, liquid or sheet applied. Follow manufacturer's directions. Specify in accordance to ANSI A118.12. This American National Standard is included herein.

2.16 Specifying sound reduction membranes

Sound reduction membranes for thin-set ceramic tile installations lower the transmission of sound from one room to the room below. Sound reduction membranes are bonded to a variety of manufacturer-approved substrates and may be trowel, liquid or sheet applied. Follow manufacturer's directions. Specify in accordance to ANSI A118.13. This American National Standard is included herein.

2.17 Install and cure grout in accordance with appropriate ANSI Standard Specifications

A108.6 chemical resistant epoxy grout, A108.8 modified epoxy emulsion grout or A108.10 installation of grout.

2.18 Wet areas

Tile surfaces that are either soaked, saturated, or subjected to moisture or liquids (usually water) such as in gang showers, tub enclosures, showers, floors adjacent to curbless showers, laundries, saunas, steam rooms, swimming pools, or exterior areas.

3.0 Guide for referencing American National Standard specifications for installation of ceramic tile

Description Method	Reference Method
I. Portland Cement Mortar Bed:	
A. Ceramic tile set on a mortar bed which is still workable (Wet-Set Method). See Note.	ANSI A108.1A — Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar
B. Ceramic tile set on a cured mortar bed with dry-set or latex-portland cement mortar.	ANSI A108.1B — Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex-Portland Cement Mortar
C. Ceramic tile set on a mortar bed by either of the above methods. Industry practice has resulted in a large majority of mortar bed installations being installed according to ANSI A108.1B. It is reasonable and economical to give the tile contractor the option to choose either method, each of which are recognized in the industry as equivalent methods for walls, ceilings, and floors.	ANSI A108.1C — Contractor's Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex-Portland Cement Mortar
II. Thin-Set Installations:	
D. Tile set with organic adhesive or epoxy adhesive on smooth, sound interior surfaces.	ANSI A108.4 — Installation of Ceramic Tile with Organic Adhesives or Water Cleanable Tile-Setting Epoxy Adhesive
E. Tile set with dry-set portland cement mortar or latex-portland cement mortar on prepared concrete, masonry, cementitious backer units, or other cementitious underlayment and backer units certified by the manufacturer as suitable for intended use.	ANSI A108.5 — Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar
F. Tile set with modified epoxy emulsion mortar.	ANSI A108.9 — Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout
G. Tile set on prepared Exterior or Exposure 1 plywood with EGP (Exterior Glue Plywood) latex-portland cement mortar certified by the manufacturer as suitable for intended use.	ANSI A108.12 — Installation of Ceramic Tile with EGP (Exterior Glue Plywood) Latex-Portland Cement Mortar

Description Method	Reference Method
H. Tile set over a waterproof membrane.	ANSI A108.13 — Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone
I. Tile set over a crack isolation membrane.	ANSI A108.17 — Installation of Crack Isolation Membranes for Thin-Set Ceramic Tile and Dimension Stone
III. Chemical Resistant Installations:	
J. Tile set and grouted with water cleanable, chemical-resistant tile-setting epoxy mortar.	ANSI A108.6 — Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy
K. Tile set and grouted with chemical-resistant furan.	ANSI A108.8 — Installation of Ceramic Tile with Chemical Resistant Furan Resin Mortar and Grout
IV. Glass Tile Installations:	
L. Paper-faced glass tile mosaic thinner than 3/16 in. set using the wet-set method.	ANSI A108.14 — Installation of Paper-Faced Glass Mosaic Tile
M. Paper-faced glass tile mosaic thinner than 3/16 in. installed on cured mortar bed.	ANSI A108.15 — Alternate Method: Installation of Paper-Faced Glass Mosaic Tile
N. Paper-faced, back-mounted, edge-mounted, or clear film-face mounted glass mosaic tile thicker than 3/16 in. using the direct bond method over cured portland cement mortar beds and cementitious backer units (CBU's).	ANSI A108.16 — Installation of Paper-Faced, Back-Mounted, Edge-Mounted, or Clear Film Face-Mounted Glass Mosaic Tile

NOTE: *Wet-Set Method* – the practice of setting ceramic tile in a thin bond coat on a portland cement mortar bed that is still workable.

END OF INTRODUCTION AND NOTES

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ANSI
A108

**American National Standard
Specifications for the Installation of
Ceramic Tile—Installation Standards**

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A108.01

General Requirements: Subsurfaces and Preparations by Other Trades — 2018

1.0 Introduction

These ANSI specifications are intended to describe the general requirements for substrates and subsurfaces and general guidelines for preparation by other trades. Guidelines for installation of tile are specified separately for each of the following standards: A108.01, A108.02, A108.1A, A108.1B, A108.1C, A108.3, A108.4, A108.5, A108.6, A108.8, A108.9, A108.10, A108.11, A108.12, A108.13, A108.14, A108.15, A108.16, and A108.17. General requirements for tile installation outlined in A108.01–2.0 through 3.9) are part of each of the A108 standards.

2.0 General requirements for subsurfaces

2.1 General

The quality and cost of ceramic tile installations are influenced by the stability, permanence, and precision of installation of the backing or base material. Make the materials and recommendations included under “Related Work Specified in Other Sections,” part of the appropriate section of the project specifications by inclusion or reference.

2.1.1 Specific operations that may be performed by one or more trades are clearly assigned to one trade in these standard specifications to permit uniform bidding. When the tile contractor is to perform any of the work included in “Related Work Specified in Other Sections,” indicate this in the scope and include the appropriate specifications from “related” sections in the tile section of the project specification.

2.2 Floor drains

Specify floor drains to comply with ANSI A112.21. Slope in subfloor shall be specified in sections such as concrete or carpentry and not with the mortar setting bed. Mortar bed to be of uniform thickness.

2.3 Deflection

Floor systems, including the framing system and subfloor panels, over which tile will be installed shall be in conformance with the IRC for residential applications, the IBC for commercial applications, or applicable building codes.

NOTE: *The owner should communicate in writing to the project design professional and general contractor the intended use of the tile installation, in order to enable the project design professional and general contractor to make necessary allowances for the expected live load, concentrated loads, impact loads, and dead loads including weight of the tile and setting bed. The tile installer shall not be responsible for any floor framing or subfloor installation not compliant with applicable building codes, unless the tile installer or tile contractor designs and installs the floor framing or subfloor.*

2.4 Backing surfaces

Ceramic tile can be installed over horizontal and vertical building surfaces by one or more methods described in these documents. Tile can be installed directly over sound, clean, and dimensionally stable surfaces with one of the thin-set methods, or with a mortar bed method.

2.4.1 Some backing materials are subject to deterioration when subjected to moisture. When a tile installation is subjected to frequent wetting, backing materials of concrete, portland cement