



ARCHITECTURAL DIVISION • TECHNICAL BULLETIN SERIES

TEC BULLETIN 001

Afyon Cloud® Natural Stone — Wet-Set Installation: Mortar Selection & Moisture Migration Control

Bulletin No.	TEC-001 (First issue in this series)
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Subject	Afyon Cloud stone — recommended wet-set (thin-bed) installation method
Applies To	Installers, general contractors, project architects, and specification writers

1. Purpose

This is the first Technical Bulletin issued by the Architectural Division. This bulletin series is intended to give installers, contractors, and design teams a single, current reference for recommended installation methods for the stone products we manufacture. TEC Bulletin 001 addresses the recommended wet-set installation method for Afyon Cloud stone, with emphasis on mortar selection and moisture control at the setting bed.

2. Material Overview — Afyon Cloud

Afyon Cloud is a natural marble quarried in the Afyon–İşeyhisar region of Turkey, characterized by a low-absorption, high-density body and a blended light-to-dark gray coloration. Independent testing on MarmiRO Stones technical data sheet reports water absorption on the order of 0.16–0.17% and a dry unit weight of approximately 162–164 lb/ft³, consistent with a dense, tightly crystalline marble.

Fine-grained, tightly crystalline marbles of this density can exhibit a degree of semi-translucency at the surface and along edges, though this characteristic varies by lot, finish, and slab thickness. Because translucency is not a value reported on the standard technical data sheet, it should be confirmed on the specific approved lot — via a submitted sample or job-site mock-up — before it is relied upon for design intent (e.g., backlit applications).

3. Recommended Installation Method: Wet-Set (Thin-Bed)

When installing Afyon Cloud using a wet-set (thin-bed) method, the stone must be back-buttered in addition to combing the setting bed. Back-buttering means applying a skim coat of mortar to the back of each piece of stone, in addition to the trowelled mortar on the substrate, before setting the piece and keying it into the trowel ridges.

The mortar used must be a polymer-modified (“improved”) dry-set cement mortar complying with ANSI A118.15, Improved Modified Dry-Set Cement Mortar — part of the ANSI A108/A118 series of installation material standards published by the Tile Council of North America (TCNA). ANSI A118.15 mortars carry higher bond-strength

requirements than standard ANSI A118.4 modified thin-sets and are the appropriate minimum standard for dense, low-absorption natural stone of this type.

Please refer to Marmiro Stones recommended Installation Guidelines, Volume 5 for the most current installation practices which includes the entire Wet-Set installation system from excavation to finish. The purpose of this update is specific to mortar interface and Afyon Cloud.

4. Why This Matters: Moisture Migration & Bond Mechanics

Controlling moisture at the setting bed is critical for Afyon Cloud and similar dense marbles. If excess moisture from the mortar is allowed to migrate up through the stone, dissolved minerals (iron and other trace minerals present in the mortar or the stone itself) can be carried to the surface and oxidize as the moisture evaporates, producing surface staining or discoloration. A properly formulated ANSI A118.15 polymer-modified mortar, applied at the correct thickness with full coverage, gives the best available protection against this moisture migration and the resulting surface oxidation.

It is equally important to understand how this stone bonds. Traditional thick-bed (“mud-set”) mortar systems rely in part on capillary action — the setting bed and the stone exchange moisture, and the stone's absorbency contributes to how it keys and seats into the bed. Afyon Cloud's low absorption means it cannot rely on capillary action to attach itself the way a more porous stone would in a traditional mortar-bed installation. Instead, the bond depends entirely on mechanical and adhesive contact between the stone and the mortar — which is exactly why full-coverage back-buttering with an ANSI A118.15 polymer-modified thin-set is required, rather than optional, on this material.

5. Installation Checklist

- Use a polymer-modified (“improved”) dry-set mortar complying with ANSI A118.15 for all wet-set installations of Afyon Cloud.
- Back-butter every piece of stone; do not rely on the trowelled setting bed alone.
- Comb the substrate and key the stone into the ridges to collapse voids and achieve full, continuous contact.
- Target full mortar coverage under the stone — per the TCNA Handbook, wet areas, exteriors, and stone installations generally require a higher coverage standard of 95%, rather than the 80% minimum used for interior dry ceramic tile; confirm the applicable coverage requirement for the specific TCNA method and installation classification (e.g., dry, wet, exterior) being used.
- Do not use unmodified (dry-set) mortar or traditional sand/cement mortar-bed methods as a substitute for a compliant ANSI A118.15 thin-set on this stone.
- Verify moisture/vapor conditions of the substrate before setting; consult the mortar manufacturer's current technical data sheet for cure and moisture-tolerance limits.
- Submit a sample or install a job-site mock-up to confirm color, finish, and translucency characteristics of the approved lot prior to full installation.
- Follow the TCNA Handbook for Ceramic, Glass, and Stone Tile Installation method applicable to the substrate, exposure, and application (floor, wall, pool, exterior paver, etc.).

6. References

1. Tile Council of North America (TCNA), Handbook for Ceramic, Glass, and Stone Tile Installation, current edition — method selection, coverage requirements, and moisture/exposure classifications.

2. ANSI A108/A118/A136.1 series, American National Standards for the Installation of Ceramic Tile / Installation Materials (published by TCNA).
3. ANSI A118.15, American National Standard Specifications for Improved Modified Dry-Set Cement Mortar.
4. Natural Stone Institute (NSI), Dimension Stone Design Manual — guidance on moisture-sensitive and low-absorption stone installation.
5. Setting-material manufacturer's current Technical Data Sheet (TDS) for the specific ANSI A118.15 product selected, including coverage, open time, and moisture-cure guidance.
6. Marmiro Stones, Afyon Cloud Technical / Specification Data Sheet — water absorption, density, and physical property data.

This bulletin provides general guidance for the Architectural Division's standard specifications and does not supersede project-specific specifications, local building code requirements, or the current published technical data sheet of the selected setting-material manufacturer. Installers should always confirm mortar selection and coverage requirements against the applicable TCNA method and manufacturer TDS prior to installation. Questions should be directed to the Architectural Division.