

# **RESUMEN N° 5 BLOQUE B**

## **CRITICAL POINTS OF TILE DESIGN AND INSTALLATION**

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### SUMMARY

With the advent of larger tiles, advanced setting materials and grouts, marginally acceptable substrate conditions, and accelerated construction schedules, tile contractors and installers are faced with increasing challenges to deliver high quality and permanent tile installations. Specialty applications like large format tile with intricate bonding patterns, the strict material handling requirements of ultra-large units, and the potential liability associated with watertight assemblies pose new challenges to installers of tile. This paper examines the critical points of today's complex tile assemblies from preliminary design through the finished installation, resulting in a successful tile project.

Using the framework of the evaluation criteria of the Advanced Certifications for Tile Installers (ACT) applied to real projects and case studies, the paper examines the critical requirements of ACT's specialty areas of large format tile, membranes, mud floors and walls, shower receptors, gauged porcelain tile, and grouts. In addition to architectural drawings and construction photos, the paper examines the implementation of pre-constructed physical mockups to test tile installers on their knowledge and ability to properly construct the most critical conditions of complex tile assemblies.

The paper addresses general design and installation requirements applicable to all ceramic tile projects as set forth in ANSI A108 Installation Standards for Ceramic Tile, the Tile Council of North America (TCNA) Handbook for the Installation of Ceramic, Glass and Stone Tile, and the Advanced Certifications for Tile Installers.

The paper addresses critical points unique to large format tile (LFT) and gauged porcelain tile (GPT) and GPT panels/slabs, including substrate preparation, layout techniques, grout joint width, uniformity, and alignment, mortar coverage requirements, allowable lippage including lippage mitigation techniques, material handling requirements, as well as design opportunities and limitations of large unit sizes. It also looks at the effect of architectural lighting on the quality of the finish work.

The paper also addresses critical points unique to tiled shower assemblies and other waterproof assemblies including types of waterproof membranes and their relative advantages and disadvantages, how membrane thickness is gauged, ASTM flood testing standards, how membranes are terminated at vertical surfaces, curbs, inside and outside corners, proper pitches and slopes for wet areas, and how membranes are handled at drains and pipe penetrations for watertight installations.

The paper also addresses critical points unique to mortar bed (mud) walls and floors including required composition and thickness of mortar beds, required cure times, appropriate specification and installation of cleavage membrane including details at laps and splices, treatment of inside and outside corners of vertical surfaces for accommodation of movement, and floating walls and floors to achieve requirements for flatness, plumbness, and square.

Finally, the paper addresses quality assurance procedures and specification language that design professionals can implement to ensure that each of these critical points are achieved in the field.

*Keywords:* Design, Installation, Specifications, Installer Qualifications