

# Maximizing Ceramic Tile Installation with Trim Profiles

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The development and proliferation of trim profiles has echoed two major shifts in the ceramic tile industry, including the transition from mud-set to thin-set installation and the change from multiple-fire to single-fire ceramic tile production techniques. Trim profiles are valuable tools for tile setters, with the benefits ranging from simply improving the aesthetics and durability of tile assemblies to making other tile assemblies possible. This article will discuss the development of trim profiles and how they can benefit specific applications.

## The Origin of Ceramic Tile Trim Profiles

Until the advent of thin-set mortar around 1960, the only way to set tile was to set it in a fresh mortar bed. Since these assemblies were relatively thick, tile setters typically had to address height transitions to adjacent surface coverings. Common practice was to use marble thresholds that provided a sloped transition and protected the edge of the tile. Thin-set mortar was originally developed to eliminate having to soak tiles before installing them over mortar beds (this is where the term “dry-set” originated), but tile setters began using it to bond tiles directly to the structure using what came to be known as the thin-set method. Without the mortar bed, height differences between the tile and adjacent surface coverings were decreased and the use of traditional marble thresholds declined, leaving tile edges exposed.

Despite the fact that ceramic tile is a very durable floor covering, tile edges are brittle and prone to cracking and chipping when left unprotected. In 1975 a German tile setter named Werner Schlüter tiled a bathroom floor with multiple door thresholds using the thin-set method. Soon thereafter, he became frustrated when he had to repeatedly return to the home to repair the tiles that were cracking at these door thresholds. Mr. Schlüter wanted a permanent solution and decided to ask of friend of his who worked with metals to mill an L-shaped profile to be installed at the perimeter of his installations to protect the tile edges. The solution worked and local tile setters began asking him for profiles for their jobs. Mrs. Schlüter recognized the business opportunity, and together Mr. and Mrs. Schlüter formed a new company that shared its name with the recently christened profile, Schlüter®-SCHIENE. The addition of new products to the line eventually led to the company being renamed Schlüter®-Systems.

## Anatomy of a Trim Profile



Schluter®-SCHIENE profile

In general, trim profiles for ceramic and stone tile applications feature two primary elements. The first is a perforated anchoring leg, which allows the profile to become an integral component of the tile assembly. Thin-set mortar is combed over the substrate and the profile is fully embedded. Additional mortar is combed over the profile and the tile is installed. The perforations in the anchoring leg allow the thin-set mortar bond coat to mechanically lock the profile in place and support the tile. The second primary element of the trim profile is the “body,” which forms the visible surface of the profile and finishes and protects the tile. These two elements together help maintain the integrity of the installation where the profile is used. Thus, it is important when using trim profiles to select products that are specifically designed for ceramic and stone tile applications.

## Applications: Floors



Schluter®-DILEX-EHK stainless steel cove-shaped profile used to provide an easy to clean, maintenance-free floor to wall transition.

There are various trim profiles designed for tiled floor applications. The most common use in these applications is to finish and protect tile edges at transitions between the tile and adjacent floor coverings, such as hardwood, carpet, and vinyl. Sloped profiles are available to address height differences between the tile layer and other floor coverings. In fact, many of these profiles provide slopes that comply with the guidelines in the Americans with Disabilities Act. Trim profiles may also be used to provide decorative features or accents within the tile covering.

Tiled floors are easy to clean and promote a hygienic environment. Poorly designed floor/wall transitions, however, can collect dust and dirt and are difficult to keep clean. Where hygiene is of the utmost concern, e.g., hospitals, commercial kitchens, bathrooms, etc., a cove base is often required in specification documents. Cove base is a ceramic base that provides a rounded transition between the floor and wall, thus making cleaning easier.

Not every tile line includes cove base or other ceramic trim pieces (see section on wall applications). However, there are various cove-shaped profiles that the tile setter can integrate with field tile to create a cove base. Even when cove base is not specified, cove-shaped profiles are of great benefit, as they can replace sealant joints and create easy-to-clean, maintenance-free floor/wall transitions.

## Applications: Walls

The availability, or lack, of ceramic trim pieces has a significant impact on various tile applications. In general, the manufacture of matching ceramic trim is very challenging. Ceramic tile production requires a significant amount of energy, as the tile is essentially baked at high temperatures to form the hardened final product. As a result of the oil crisis of the 1970s, tile manufacturers moved from multiple-fire to single-fire production in order to reduce energy consumption and cost. The change to the single-fire technique (monocottura) produced stronger tiles, but the glaze application techniques used in the field tile production were not readily adaptable to uniquely-shaped trim pieces. Furthermore, the variety of tile lines has exploded in the last thirty years, making it difficult for manufacturers and distributors alike to forecast demand and stock appropriate levels of ceramic trim. Finally, it is important to realize that the majority of ceramic tile consumed in the United States is imported from Europe, where the use of ceramic trim is limited. For example, tiled walls in Europe are commonly continued to the ceiling and tile bases are often left unfinished. Thus, many European tile lines simply do not feature ceramic trim.

Wall applications are another area where the shift from mud-set to thin-set installation has impacted how assemblies can be finished. There was a time when radius ceramic trim, used to finish the top of wainscotings, for example, was designed specifically to accommodate the thickness of the mortar bed. These trim pieces couldn't be used in thin-set applications; thus the change to surface bullnose tile.

Wall trim profiles can be used as an alternative to surface bullnose or, when no ceramic trim is available, to finish and protect tile edges at outside wall corners and at the top of tile bases and wainscotings. A variety of accessories, including inside and outside corners, are available for most wall profiles. Wall trim profiles are also used to produce decorative accents in tile fields and other features such as chair rails.

## Applications: Movement Joints

Tile coverings expand and contract with changes in moisture, temperature, and loading. Thus, movement joints are an essential component in any tile assembly. Prefabricated movement joint profiles can replace sealant joints in tile fields and at restraining surfaces (e.g., floor/wall and wall/wall transitions). These profiles provide a maintenance-free alternative to sealant joints that typically require periodic replacement. They also protect tile edges and improve the integrity of the tile assembly as a whole. The use of movement joint profiles in bonded waterproofing applications is especially beneficial since cutting out sealant joints can compromise the waterproof membrane.

## Applications: Countertops



Schluter®-RONDEC-CT profile used to finish the sink rail. Schluter®-DILEX-AHK profile used to provide a cove-shaped countertop/backsplash transition.



Schluter®-RONDEC profile with sink corners used to create a tiled-under sink.

Tiled countertops produced using the traditional mortar or “mud-set” method of installation and ceramic trim had many desirable traits. First, working with mortar beds allowed the tile setter to create flat, plumb, level, and square surfaces. Further, there were specific ceramic trim pieces available for tiled-under sinks, sink rails, and clean countertop/backsplash transitions. All these elements combined to form a water-resistant, durable, aesthetically pleasing, and clean assembly, meeting the service requirements for any countertop.

The widespread shift from mud-set to thin-set applications affected countertops significantly. Without the mortar bed, it became very difficult to produce the same flat, plumb, level, and square surfaces. Furthermore, the ceramic trim pieces for countertops, which had become more difficult to produce with modern tile manufacturing techniques, were designed for mortar applications and did not integrate well in thin-set applications. Top-mounted sinks and wood sink rails became common and made countertops more difficult to clean, as dirt and food were trapped by the lips they created. The devolution of the tiled countertop caused many homeowners to seek out alternative surface coverings.

Trim profiles have been developed to give the tile setter the tools to produce the essential components of tiled countertops, including sink rails, tiled-under sinks, cove-shaped countertop/backsplash transitions, and finished backsplashes when using the thin-set method without the need for ceramic trim. Thus, profiles have opened the door for tile setters to reclaim countertops.

## Note on Materials and Finishes Selection:

Trim profiles are available in a wide variety of materials, finishes, and colors to suit different applications from a design standpoint. It is also important to consider the expected service conditions (e.g., mechanical stresses, chemical exposure, etc.) when selecting profiles. For example, stainless steel profiles sustain high levels of mechanical stress and are suitable for use on floors in heavy-duty applications where plastic profiles would not be a wise choice. Consult product literature and contact manufacturers with any questions to help ensure proper design and installation for successful applications.

The development and proliferation of trim profiles has echoed major shifts in the ceramic tile industry and improved the durability and aesthetics of tile installations in general. Field tile can be combined with trim profiles to create a wide range of finished applications, thus reducing dependence on ceramic trim and increasing design options. Trim profiles are fantastic tools to help maximize ceramic tile installation.