Beyond the Glitz and Glamour

Design teams are constantly pushing boundaries to craft a unique brand expression in the built environment. They create innovative new dining experiences which redefine how consumers shop for food. The lines have been blurred between QSR and fast-casual as everyone is vying to become the next "it" brand.

Floor tile is arguably one of the most important elements of design in a restaurant, from the standpoint of aesthetics, performance, and cost. Focus during design development is typically on front-of-house (FOH) tile. Back-of-house (BOH) tile is almost an afterthought and most brands default to using quarry tile due to its cost and functionality.

What design teams may not realize is that advancements in manufacturing efficiency have made certain porcelain tiles a cost-saving option for the back-of-house. The savings realized by using these porcelain tile BOH options are not intuitively obvious because the difference in product cost between quarry tile and these porcelain products is fundamentally neutral. The significant savings are realized in the reduction of another product: Epoxy Grout.

The Challenge: Reducing Costs in Commercial Kitchens

The restaurant industry was relatively quick to adopt large format porcelain tiles in the dining room. Sizes such as 12"x24", 24"x24", and plank formats such as 6"x24" and 6"x36" are the new norm. In addition to better visual impact, a further benefit of larger format tiles is fewer grout joints. Dimensional tolerances have gotten tighter and edges are minimally cushioned or square, allowing for joints as small as 1/8". As a result, less grout is required in the FOH. However, the grout required in the FOH is typically inexpensive cementitious grout, therefore, reducing grout does not yield significant cost savings.

For all of the innovations and options in FOH floor tile, much has remained stagnant in terms of BOH floor tile specifications. For decades, a 6"x6" quarry tile has been the standard for the BOH due to its slip resistant qualities and cost practicality. Unlike porcelain tile which is pressed, allowing for tighter dimensional tolerances, quarry tile is produced through the extrusion method (think Play-Doh Fun Factory). The facial dimensions of an extruded product are less precise than a pressed product, therefore, a wider grout joint is required. In the case of quarry tile, a 3/8" grout joint is required compared to a 3/16" grout joint for standard porcelain tile products. In addition, quarry tile is thicker than standard porcelain tile, the former measuring at typically 1/2" thick as opposed to the latter which is typically 5/16" thick.

Why does the precision of facial dimension and tile thickness matter? As alluded to in the introduction, the answer is epoxy grout. In a commercial kitchen environment, the only type of epoxy grout suitable is industrial grade, 100% solids epoxy grout (exceeds ANSI A118.5). Industrial grade epoxy grout is required due to the food soils found in a commercial kitchen environment (for more information on why industrial grade epoxy grout is required in commercial kitchens, see "Avoiding Grout Deterioration in Commercial Kitchens"). According to the Tile Council of North America (TCNA), industrial grade epoxy grout can cost three to eight times as much as cementitious grout[1]. The amount of grout required to finish a floor is a simple calculation dependent upon the tile thickness and joint size. Therefore, achieving tighter grout joints and having a thinner, yet equally as durable product, results in meaningful reductions in grout usage. Given the noticeable difference in cost between industrial grade epoxy grout and standard cementitious grout, it behooves specifiers to consider ways in which to reduce grout usage in order to save on cost.

The Answer: BOH Porcelain Tile

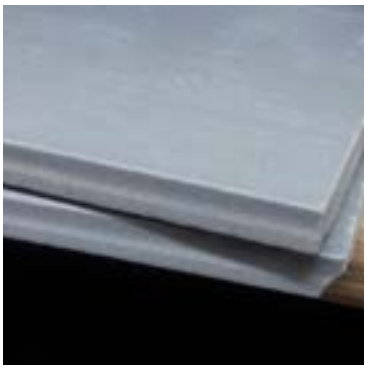
Advancements in porcelain tile production have increased over the last decade. Factories have modernized and today offer endless aesthetics and formats. This means that the small speckle, large speckle, and solid color thru-body porcelain tiles (which were cutting edge back in the late 80's and early 90's) are now offered at very affordable price points.

By utilizing an 8"x8" porcelain tile instead of a 6"x6" quarry tile for the kitchen floor, specifiers are able to achieve up to a 70% reduction in grout usage in the kitchen as a result of:

- Tighter facial dimension tolerances of porcelain tile allowing for a 50% reduction in joint size
- Reduced product thickness from 1/2" on quarry to 5/16" on porcelain (a 37.5% reduction)
- Less overall joints by utilizing a larger product (8"x8" vs. 6"x6")

1 https://www.tcnatile.com/faqs/37-epoxy-grout.html





The result is a dramatic savings on epoxy grout as demonstrated in the following table:

	Quarry Tile	Porcelain Tile
Specification	Grey Quarry 6" x 6" Abrasive	Grey Porcelain 8"x8" Textured
Cost	Equal to porcelain tile	Equal to quarry tile
Dimensions	6" x 6" x ½"	8" x 8" x 5/16"
Grout Joint Size	3/8"	3/16"
Average Kitchen Size	1,500 SF	1,500 SF
Grout Usage/Restaurant	15 Units @ $250/EA = $3,750	4 Units @ $250/EA = $1,000
Savings/Restaurant	**-**	**$2,750**
Grout usage determined using Mapei grout calculator for usage of Mapei Kerapoxy IEG. Industrial grade, 100% solids epoxy grout cost is an estimate and dependent upon market and product used.		

Conclusion

While the standard for commercial kitchen flooring has remained the same for decades, specifiers would be wise to rethink the type of flooring they are using in this environment. By making a simple replacement in your prototype specification from 6"x6" quarry tile to 8"x8" BOH porcelain tile, significant cost savings can be achieved through the substantial reduction in the amount of epoxy grout required.