

# Aleris, LLC Six3Tile Installation Time Study

## Introduction

As housing construction picks up and labor shortages impact project schedules, builders and contractors must grasp how material choices impact installation speed.

Six3Tile approached Home Innovation Research Labs (HI) to conduct a comparative time study demonstrating time savings that tile installers experience with the Six3Tile product compared to standard ceramic tiles installed individually.

## Methodology and Design

The study encompassed a comparative installation time analysis conducted over a simulated kitchen backsplash and shower surround environment. This examination pitted ceramic tiles against the innovative Six3Tile Backsplash Pro Kit and Shower Surround Pro Kit. This mock-up installation took place within the controlled premises of HI's observational research house.



**Figure 1: Study Kitchen at HI's Study House**

**Study Kitchen Specs:** Two kitchen and two shower mockups were constructed on the second floor of the HI Study House, with an approximate floor area of 26' x 26'. In the kitchens, standard Base and Wall cabinets were set up, providing space for range, range hood, and dishwasher placement. The distance between the countertop and bottom of wall cabinets measured 17.5". A laminate countertop, without an integrated backsplash, was installed, complete with a sink and faucet. Common for all installations was the initial use

of regular drywall with taped seams for the Backsplash installation. Each install covered approximately 25 sq. ft. of flat area, with no turns or corners to consider. Furthermore, a 2-gang box was positioned according to code requirements for switches, accompanied by the installation of three 1-gang boxes with receptacles.



**Figure 2: Study Shower at HI's Study House**

**Study Shower Specs:** The shower surround walls featured a pre-installed fiberglass base measuring 60" x 32". The ceramic tile installations commenced from the bare studs, necessitating the crew to affix cement board. Conversely, Six3Tile installations began with mold-resistant drywall. The manufacturer's guidelines permitted Six3Tile to be placed on existing drywall, over existing tile, or any flat and dry surface. Each shower covered an area of approximately 82 sq. ft., with walls reaching a height of 8 feet. Mixing valve and shower head stubs were conventionally positioned at a standard height.

**Crew Selection and Installation Schedule:** The study was executed by engaging two seasoned production ceramic tiling crews - a 1-person crew and a 2-person crew - selected for their alignment with market dynamics. Both crews used installation

practices, techniques, tools, and equipment consistent with current trade practices. Prior to the Six3Tile installation, these crews underwent a one-day training to familiarize themselves with the Six3Tile product.

The installation phase was conducted from June 26th to June 28th, with both crews executing installations concurrently. Tile installers installed each product system according to each manufacturer’s recommendations, building code minimum requirements, and common practice for their companies working in the Washington, D.C. metro area.

**The Group Timing Technique (GTT)** was employed by HI researchers to capture detailed installation times, including average productive person-minutes and mortar or grout set time - which collectively determined the total installation time. HI researchers recorded each worker’s specific activity at 60 second intervals, and installations were recorded using multiple stationary video cameras.

## Findings

**Overview** The outcomes of the study were significant and endorsed the efficiency of Six3Tile products across both kitchen and shower settings. Six3Tile products demonstrated remarkable time savings, outperforming ceramic tiles in various facets of the installation process.

	Backsplash		Shower	
	Ceramic	Six3 Tile	Ceramic	Six3 Tile
<b>Crew Average Productive Minutes*</b>	274	123	456	164
<b>Mortar or Grout Set Time (Non-productive Person-minutes)</b>	76	10	76	40
<b>Crew Average Person-minutes (including set time)**</b>	350	133	532	204

**Figure 3: Table of crew average person-minutes by product and setting**

\*A Person-Minute is the amount of work one person completed in a minute of time. The total Productive time for each installation is a combined total of the number of person-minutes of the crew, regardless of size. Non-productive time (breaks, rework) were excluded from the productive time summaries.

\*\*Set time of mortar and grout describes non-productive time the crew was waiting while mortar or grout was setting, and not simultaneously doing other productive work

**Productive Minutes:** The installation of Six3Tile backsplash resulted in an average of 123 productive person-minutes, showcasing a **55% time savings** in contrast to ceramic tile (274 person-minutes). Similarly, the installation of Six3Tile shower incurred an average of 164 productive person-minutes, reflecting a **64% time savings** compared to ceramic tiles (456 person-minutes).

There are also notable differences for crew average person-minutes between 1-person vs. 2-person crews. For the Six3Tile product, the 1-person crew installed the backsplash in 89 minutes (2-person crew: 157 person-minutes), and the shower surround in 121 minutes (2-person crew: 206 person-minutes).



**Figure 4: Installation of ceramic backsplash with 2-person crew**

The findings indicate that Six3Tile offers greater efficiency when installed by a 1-person crew, thanks to its faster installation time compared to using a 2-person crew. A similar efficiency pattern was observed for both 1-person and 2-person crews when installing ceramic tiles. However, it's worth noting that the traditional practice is to employ a two-person crew for ceramic tile installations in the region where the study took place.

### Time Savings Summary:

In a backsplash application, Six3Tile installed **55% faster** than ceramic tile.

In a shower application, Six3Tile installed **64% faster** than ceramic tile.

Breakdowns of individual activities during the active installation are listed in Figure 5:

	Backsplash		Shower	
	Ceramic	Six3 Tile	Ceramic	Six3 Tile
<i>1-person / 2-person</i>				
<b>Mix and apply thin-set mortar or adhesive</b>	9 / 16	4 / 4	32 / 44	11 / 13
<b>Measure and cut tiles or panels</b>	26 / 99	31 / 73	49 / 84	36 / 58
<b>Cut and install trim</b>	5 / 12	3 / 5	4 / 7	5 / 8
<b>Install tile</b>	50 / 143	9 / 18	81 / 169	9 / 19
<b>Clean-up area</b>	9 / 25	3 / 9	11 / 70	11 / 18

**Figure 5: Table of crew average person-minutes for individual activity by product**

**Note:** 1-person and 2-person crews minutes are separated by [ / ]



**Figure 6: Spacers in-between ceramic tiles during setting period**

**Mortar or Grout Set Time** Additionally, Six3Tile products displayed substantial time savings in set times. Installers experienced a remarkable **87% time reduction** when installing the Six3Tile backsplash and a commendable **47% time reduction** during Six3Tile shower installations.



**Figure 7: 1-person crew installation of Six3Tile shower kit**

**Additional Considerations** As previously mentioned, it is customary for ceramic-tile installations to be handled by 2-person crews in the region where this study was conducted. Another significant factor to highlight is the difference in preparation required to install ceramic tiles versus Six3Tile. Building codes require cement board or an equivalent moisture-resistant backing material on walls behind tub and shower enclosures composed of tile, while Six3Tile is already waterproof and can often be applied directly to most existing backing (see Figure 7).

### Application and Recommendation

The findings of this study underscore the significant time-saving benefits offered by Six3Tile products. These benefits are not confined solely to active installation time but extend to the process of preparation as well as the waiting periods associated with setting materials. Beyond the efficiency gained in overall installation and setup time, Six3Tile products provide a substantial time savings by eliminating the need for cement board installation and additional waterproofing measures – which simplify the preparation for installation – and with shorter set times – which shorten the waiting period. Consequently, the study recommends the adoption of Six3Tile as a practical strategy to enhance installation efficiency, mitigate labor constraints, and optimize project schedules, thus contributing to the evolution of the housing construction landscape.