

# Claytile redesigns for quality & sustainability with new rotary kiln



Claytile recently revamped its entire production process. This included the replacement of its tunnel kiln with a rotary kiln and the installation of variable speed drives in factory equipment.

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The revamp provided the opportunity for Claytile to reconsider its material flows, and streamline its clay milling process for efficiency, dematerialisation and sustainability.

## Benefits achieved

- The rotary kiln is more efficient at using thermal energy. It relies on natural convection, this means fewer fans which has in turn led to a significant decrease in electricity use.
- The energy efficient variable speed drives in its conveyer belts and other factory equipment have also increased overall energy efficiency.
- Because the rotary kiln is carless, maintenance is reduced.
- A scrubber was installed to capture 90 % of the sulphur dioxide and particulate matter, reducing air pollutants.

## Milling & extrusion

Clay milling operations were changed to screen before and after crushing."

By screening **before** crushing, we discovered that that about 30% of our raw material was already small enough to be used in production," reports Julian de la Hunt.

"This resulted in significant electricity savings. Claytile's screening must be particularly fine for its multi-perforated products. I really recommend pre-screening because it I believe most operations would find similar benefits."

By streamlining the building layout, green brick handling was minimised. Three-day souring was applied to improve water penetration, leading to increased wetting.

The result is energy savings at extrusion, reduced waste and improved brick quality.

## Heat recovery & drying

As part of Claytile's recent production process overhaul, the company also implemented ambient drying and heat recovery measures.

Natural drying is less common with tunnel kilns, due to kiln car expenses and space issues,.

With the rotary kiln, Claytile was able to implement ambient drying. The bricks are packed on the ground inside the factory's semi-open building which protects them from rain. The extra 2-day drying time reduced moisture content from 17% to 10%.

By reconfiguring its production process, Claytile achieved full recovery of both exhaust gas heat from firing and waste heat from cooling, providing enough energy to power the dryer.

This cut overall energy use by 40% for drying and firing.

