

# St Marys Cement- Production Process

## Raw Material Processing

- Limestone is blasted from the face of the Thomas St. Quarry.
- Blasts occur 1-2x per week based on production needs.



- Limestone is combined with other raw materials to get the chemical composition required for clinker production.
- Full analysis is completed on the limestone and the other recycled raw materials feedstock to verify that they meet production requirements.

## Clinker Process

- Raw material mixture is fed counter-flow through a preheater tower into a rotary kiln which transforms the mixture into clinker. The counter-flow system promotes energy efficiency and reduces some air emissions by “scrubbing effect” of the raw feed.



- The primary reaction in the rotary kiln is the conversion of calcium carbonate ( $\text{CaCO}_3$ ) to Calcium Oxide ( $\text{CaO}$ ) under very high temperatures (over 1600 °C).
- Trace metals contained in the raw materials are retained in the clinker resulting in very low metal air emissions.

## Clinker to Cement

- The clinker is cooled and combined with gypsum in a grinding mill to make cement.
- SMC manufactures 8 different types of cement, which a range of strengths and set times.



- Cement is packaged in bags which can be purchased individually at hardware stores, or shipped in bulk trucks for large projects (e.g. the Pyramid Centre in St. Marys).
- Cement is essential to our way of life and key to the construction of durable infrastructure around us including buildings, bridges, and roads.

