

Portland Walling & Decking

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Portland Builders was founded in 1988. The company has since been transformed into one of the leading suppliers of aggregates, ready-mix and hollow core in the Western Cape, operating under the name of Portland Group.

Portland Hollowcore manufactures their precast panels in a state-of-the-art factory situated on the Portland Quarry premises on the Vissershok Road, just outside Durbanville.

Hollow core panels are manufactured using either an extrusion or slipforming process. Both of these methods only cast the soffit part of the panel in a mold, where small chamfers are included on each side. The panels are reinforced with prestressed cables put between abutments at each end of the casting bed.

Portland's hollow core panels are manufactured using an Elematic Extrusion machine. This extrusion process involves feeding dry mix concrete onto rotation screws by means of a moving hopper. The screws force the concrete through shaping plates and out of the rear of the extrusion machine, while holes are forced into the concrete panels by circular mandrills, trailing behind the screws.

The extrusion machine is propelled by the back pressure of the concrete and together with various vibrating plates it produces the extremely well compacted concrete panel.

Slipformed hollow core panels on the other hand, are manufactured using a two or three stage process. The slipform machine is propelled by drive wheels and electronic motors. It feeds a layer of dry mix concrete onto the casting bed while moving along the bed with the hopper. This process is followed by an upper layer of concrete fed from another hopper above and around void formers which moves back and forth, forming longitudinal holes in the panels. The concrete is compacted by vibrating plates on the slipform machine.

Because of the smaller size of the holes, formed in the slipform process, more concrete is needed per panel than needed when making use of extrusion. For the extrusion process this causes weight saving, reduces transport costs and causes the more efficient usage of the prestressing cable. The larger hole also makes it easier to accommodate service pipes conduits including down lights and transformers. In addition, the extrusion process also results in a more compact and dense concrete product.

Most manufacturers in the Western Cape make use of the slipform method, while Portland is the only manufacturer to extrude their hollow core slabs. Several other companies manufacture rib and block systems for decking purposes. This process, however, requires propping, the addition of structural concrete and skimming of the ceiling.

Portland's extrusion machines are state-of-the art Elematic machinery imported from Finland. The hollow core panels created by these machines have longitudinal voids which reduces the volume of concrete used when compared to a solid concrete slab of the same depth.

The manufacturing process also ensures that the undersides of the deck panels are perfectly smooth and level. This unique feature eliminates the need for further skimming, making only a textured paint finish necessary to finish the job.

Hollow core panels are installed into load bearing support (usually brick walls, steel or concrete beams) by means of mobile, tower or truck mounted cranes. After installation, small key joints between each panel are filled with concrete, and building work above the deck can continue with minimal delay having occurred.

Hollow core decks require no propping, thus allowing full unrestricted access for finishing trades to continue working below the deck. Portland manufactures panels - 160mm thick, which can accommodate spans of up to 7 meters. It also manufactures 200mm thick panels to accommodate spans of up to 9.5 meters between load bearing support.

Portland's wall panels are manufactured using the same process as their floor panels, but with a tongue and groove profile to accommodate the correct seating of each panel. Wall panels are 160mm thick and are generally slotted into steel or concrete columns.

Hollow core decks and walling offers many benefits to the constructor. The panels are easily hoisted of the back of a truck and placed into position with a lower crane, making it a quick and dry process. The slabs are placed as soon as the supporting brickwork has been built to the correct height. The filling of V-joints with concrete can take place immediately and construction can continue without any delays.

The Portland Hollowcore production plant, situated at Durbanville, can easily produce an average of 350 square meters pre cast slabs per day, without extended working hours, and we are expanding by the day.