



PRECAST TECHNOLOGY CREATES HIGH QUALITY, TWO-SIDED MOLDED PANELS

Product helps meet growing demand in residential, municipal and transportation markets

CREATING PRECAST CONCRETE PANELS that resemble real stone has traditionally been a one-sided proposition, because manufacturers lacked a technique to efficiently produce a two-sided, identically patterned wall. With technology pioneered by Verti-Crete, that double-sided capability is now a reality.

After considerable investment in research and development, Verti-Crete developed an innovative mold-and-form system for pre-casting multiple walls in a vertical gang form. The result: a molded stone pattern on both sides of the wall and a production system that turns out more walls in less time and at a lower cost than traditional methods. Ideally suited to surround individual homes or businesses, or create an attractive entrance for parks, communities and neighborhood associations, the panels can be scaled to meet a variety of project sizes and are engineered to meet the building codes of almost any area.

The growing demand for double-sided wall patterns prompted Verti-Crete to begin licensing its technology. As a result, precasters such as Fabcon can now use the mold-and-form system to produce identically-sided decorative concrete panels for use as highway barriers, sound walls and privacy fences.

A Stand-Up Process

Creating a stone-like finish on a single-sided panel requires just a liner and a steel-casting bed, but reproducing the same decorative effect on the other side requires more effort. As a result, many manufacturers settle for simply rolling or stamping a pattern on the back, but the non-molded side lacks the aesthetic appeal of the “stone” side.

Developers of Verti-Crete panels realized the only way to get the same molded finish on both sides was to stand the form up on edge and pour the concrete in vertically.

At the core of this manufacturing process is a full-size gang form called a Panel Stacker System. The system uses a series of vertical divider sheets placed in-series and contained in a steel frame structure. Each divider sheet is made of steel with molded polyurethane permanently mounted to each side. Con-

crete is then poured between each divider sheet from the top of the mold, which means that each panel is cast between two molded surfaces. This gives each wall a high-quality molded stone pattern on both sides.

The panels are poured at the same time, allowing the pressure to be evenly distributed and then captured ultimately by the outside frame. This removes the need for tie rods (common in pour-in-place walls) that leave unsightly holes that require patching afterward.

The form is self-supporting, with the strength coming from the heavy-duty steel frame around the perimeter. The steel and polyurethane divider sheets provide the molded stone pattern, while a proprietary seal makes it water tight.

To support the panels on site, the company developed a Post Stacker System on a similar premise. Pouring a precast post in a vertical mold creates a stone pattern on both sides. The company, however, went one step further. It developed a proprietary method of wrapping the polyurethane liner all the way around the corners, creating a column that looked and felt like real stone all the way around.

The ease of installation and the aesthetic appeal of the panels have captured the interest of state and local transportation departments as well as residential developers. Fabcon, headquartered in Minnesota, has learned that the durability advantages of the wall panels are of particular interest to local DOT officials across its entire multi-plant service area. With its seamless solid design, Verti-Crete walls contain no cracks or cavities like many block walls, which can allow water, mud and salt to penetrate into the interior sections and cause premature decay and loss of structural integrity.

A Model of Efficiency

While the initial objective was to create double-sided walls, the system dramatically reduced production space and labor cost. Unlike traditional methods of casting two sided panels, which involve the labor-intensive process of preparing and finishing rows of steel beds, casting vertically requires less labor and reduces opportunity for error. Consequently, in the time it takes to prepare, pour and finish just one panel in a steel bed with a



liner, precasters can produce eight to 10 panels with the Verti-Crete system. Moreover, the streamlined precast construction process uses about half the labor than traditional horizontal casting methods.

The mold-and-form system is ideal for precasters who have limited production space, want to produce in a remote area, or just need to conserve space and resources for other projects. For many precasters, the space savings alone can provide a crucial competitive edge.

The unique vertical stacker system design outperforms other two-sided casting methods by dramatically improving product quality and functionality. The precast panels are manufactured in a controlled environment to help ensure uniform quality and structural integrity. The tongue-and-groove joints connecting each column and panel serve as natural expansion joints throughout the fence, making the walls less vulnerable to the destructive effects of freeze-thaw cycles and also contributing to the wall's structural integrity. The result is seamless solid panels that are more durable than walls constructed using wood, vinyl, brick, block or natural stone.

Fast, efficient installation is another major advantage of the panels. The unique panel design streamlines the installation process and allows for flexible configuration. Unlike traditional methods that require precisely digging, maneuvering and setting traditional H-posts, the mold-and-form posts are installed over footings with rebar anchors. Two pieces of rebar cast into the footing protrude up through a hollow center within each column.

After the footings are set, the hollow-core posts are set over the rebar to rest firmly on each concrete base. Each panel then spans from footing to footing and fits within a groove cast into either side of each column. Once a section of wall is assembled and leveled, each column is filled with concrete, thus anchoring the panels to the column and footing.

Standard heights for the double-sided concrete walls are 4, 6 and 8 feet tall. Each panel is 12 feet long and 4 to 5 inches thick, depending on the design. Each concrete column is 20 inches by 20 inches square and up to 12 feet tall. Wall columns can be stacked to achieve a total wall height of up to 24 feet.

Detail Makes a Difference

The final appearance of any textured concrete depends on the coloring and finish. To achieve an authentic look, Fabcon has developed a quick and cost-efficient technique that allows it to color-tint the base concrete mix integrally on a per-batch basis. Accent colors can then be applied to individual stones as needed to create the subtle yet realistic look of real stone.

While aesthetics are highly valued, the balancing act in any concrete production project involves quality and cost. The conventional wisdom has been that higher quality requires higher cost. With the addition of the innovative mold-and-form system to its extensive precast concrete wall offering, Fabcon is showing its customers that's not always the case.

For more information, contact Fabcon at 1-800-727-4444.