

Verti-Crete, LLC, Sandy UT, 84091, USA

Strengthening Concrete and Credibility with Solid Concrete Walls

Headquartered in Kerrville, Texas, C&M got its start producing precast products for the growing cities of the state's Hill Country. Septic tanks, burial products, and waste water treatment systems for residential customers and small municipalities helped make a name for the company. But as the business grew, owner Bob Barker saw the opportunity to move precast products above ground and make C&M more noticeable as well.

Barker began investigating architectural precast walls as a new product offering. At first, C&M designed its own system for producing textured walls and columns. Then the company came across Verti-Crete. "We were really impressed by the exterior finishes, installation process, and quality of the end product," says General Manager Chris Barker. "The system was far superior to what we were doing independently, so we became a Verti-Crete licensee."

From walls to wider opportunities

C&M initially sold Verti-Crete walls as an aesthetic complement to surround electrical substations. "These were going in people's back yards," explains Barker. "The walls offer a way to hide the substation in an attractive way and with a material that won't need maintenance for a very long time." Verti-Crete walls mimic the look of real masonry (C&M customers like the Stucco and Ledge Stone finishes), and are easily stained to complement the local

architecture and landscapes. Although Barker was confident the Verti-Crete walls would be well received, he admits being surprised at the opportunities their new product opened up.

Not only did residents of Texas enjoy the precast walls, a natural gas and electric provider for a major municipality took a liking to C&M's Verti-Crete products as well. The company requested a bid for decorative precast fencing, and also asked C&M to bid on other concrete work it needed. "The Verti-Crete products got us in doors we wouldn't have before," says Barker. C&M now provides retaining walls, concrete drainage channels, and other products for the city. "The new projects have turned into three times the amount of work from our original precast fence bid."

Finding new support for growth

Success with Verti-Crete brought a new set of challenges to C&M, however. The company needed to adjust in order to keep up

with the increased work. At the same time, the Barkers demanded that the company's reputation for quality remain as strong as their products.

Adding Forta Fiber to the mix

In order to meet the wind resistance needs that would withstand Texas-size weather, C&M had been using rebar with a welded wire mat in their Verti-Crete walls. Demonstrating a wall's strength to public utility entities was crucial, yet the company needed to keep its own cost benefit analysis in mind – the more steel added to a wall, the more expensive it was to produce. In addition, C&M wanted to be able to definitively state a wall's strength in engineering terms. To do so, C&M partnered with Forta® Corporation, a leading producer of synthetic fiber additives for concrete reinforcement. Together, they tested several different ratios of steel and fiber in wall construction and had an independent third-party engineering team, Delta Engineers, measure their strength.



C&M customers like the Stucco (left) and Ledge Stone finishes (right) of Verti-Crete walls



Forta-Ferro fibres are used to reduce plastic and hardened concrete shrinkage, improve impact strength, and increase fatigue resistance and concrete toughness.

Originally, C&M had produced its precast walls using a perimeter of #4 bar (13mm) with a welded wire mat in the middle and no fiber additives. The structure had always proven strong, but the test results of walls reinforced with fiber and less steel were surprisingly impressive. A wall built with a perimeter of #4 bar and a structural mixture of Forta-Ferro fiber withstood wind loads in excess of 200 mph. By eliminating the material and labor expenses of wire mesh and tying steel together, C&M found Forta-Ferro fiber to be a very cost effective way to deliver even greater strength.

"With these tests, we are able to demonstrate to customers that we've taken the time



The Mixer Systems planetary mixer is manufactured and serviced in The United States and uses All American made components.

and the pains to find the best ways to produce our products. Engineers and construction-savvy contractors really appreciate that." C&M now uses synthetic fiber reinforcement in approximately 80% of its products.

Bigger orders needed better batching

Besides their investigations into fiber, C&M took another innovative move to grow the business: the purchase of a planetary batch mixer. "We were using an archaic batch system that, although it filled our needs, it took one of our top guys all day to be mixing. We spent another good part of the day cleaning trucks." Barker noted that "it was

hard to be precise and get a good consistency while accommodating larger orders."

"We knew that we had to change the way we batched because our old system was fairly wasteful, and there was only so much we could produce per day. We had reached our maximum. For us to continue to grow, we had to do something." That something turned out to be the purchase of a planetary mixer from Mixer Systems. C&M selected the planetary mixer for its capabilities, and also because they appreciated the background and credibility of the Mixer Systems brand.

"Our system needed improvement," says Barker, "so we took this one big step and improved it a whole lot. We definitely increased the consistency of our mix which enabled us to do more testing on our products." The nature of the planetary mixer allows a much greater level of control and maximizes hydration of the cement powder. In fact, C&M is now reaching strengths of 5000 psi at their 7-day break tests - and doing it with less cement powder than ever. C&M credits the new mixing system with tremendous savings, a stronger product with fewer imperfections, and smoother finishes with less patching required.

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Tests were performed on a fence line that was installed with footings to demonstrate the behavior in the real world. The test results of walls reinforced with fiber and less steel were surprisingly impressive.

Perhaps the greatest advantage, however, has been the efficiencies achieved. Barker explains, "With our old batch plant, we used to clean the wash-out material once every one to two weeks. It was a lot of labor and downtime for the business. We've had the Mixer Systems plant for about seven months now, and haven't had to clean the containment area yet. We now have the ability to mix almost exactly what we need and have very, very little waste."

Opening doors to the future

Barker acknowledges that it's not easy to put a monetary amount to the reductions in waste and labor. However, the overall cost savings achieved through fiber reinforcement and planetary mixing have been significant to the company's profitability. "Our investments in Verti-Crete, Forta products, and the Mixer Systems plant not only help us produce better products for our customers, we're doing it in less time and with significantly less waste."

C&M added two new product offerings last year and in Barker's words, the company is "always looking for new ways to grow. We anticipate making a bigger push in marketing this year and expect our Verti-Crete fencing and other products to be big." With improved quality control and testing results in hand, C&M also hopes to soon become both NPCA and PCI certified. "A lot of doors open with those certifications," says Barker. And judging from the company's expansion, C&M knows just how to make those doors open wide. ■

FURTHER INFORMATION



C&M Precast
P.O. Box 2144
Kerrville, TX 78029-2144, USA
T +1 830 3675988 · F +1 830 3673343
info@candmprecast.com · www.candmprecast.com



Verti-Crete, LLC
PO Box 2347
Sandy UT, 84091, USA
T +1 801 5712028 · F +1 801 6067786
sales@verti-crete.com · www.verti-crete.com



FORTA Corporation
100 Forta Drive
Grove City, PA 16127-6399, USA
T +1 724 4585221 · F +1 724 4588331
sales@fortacorp.com · www.fortacorp.com



Mixer Systems, Inc.
190 Simmons Avenue
Pewaukee, WI 53072-0010, USA
T +1 262 6913100 · F +1 262 6913184
info@mixersystems.com · www.mixersystems.com