



CON/STEEL
TILT-UP SYSTEMS

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Tilt-up bridges the continental divide

Tilt-up construction continues to gain ground in the United States, Canada and Mexico, but its reach is much broader. With award winning projects in the Dominican Republic, South Africa, New Zealand and Australia, the international market for tilt-up construction is growing every year.

Several areas in the Middle East and North Africa (MENA) region like United Arab Emirates, Qatar and Saudi Arabia are experiencing tremendous growth, building entire cities at a time. With housing units by the hundreds and supporting facilities like schools, office buildings and retail, construction needs to be fast, durable and cost effective.

Concrete is the preferred construction material in MENA for low-rise warehouses, office buildings and residential homes because of the harsh environment. The majority of construction is a combination of cast-in-place concrete and masonry infill. Site cast tilt-up construction is relatively unknown, but the opportunities in these developing areas are ideal for this cost-effective building method.

“The area is ripe for our value proposition,” says David Tomasula, sales manager for the CON/STEEL Building Program. “Tilt-up construction is better, faster and more cost effective than cast-in-place concrete and masonry.”

Tomasula recently had the opportunity to co-facilitate a training session in Dubai to educate contractors, developers and designers about the benefits of tilt-up construction. But, Tomasula says the education goes both ways.

“We can take our expertise and proven means and methods for tilt-up construction to train them,” says Tomasula. “But we are learning from them too. We expect to learn new technology, techniques and products that we can bring back to the the Western hemisphere for our CON/STEEL Alliance members to leverage.”

Some examples of the shared learning include alternatives to steel reinforcing because of durability issues, new approaches to concrete mix design and how to reach new markets, such as residential, with tilt-up in a more cost-effective way.

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SiteCast Construction, a CON/STEEL Alliance member, recently completed an officers residence on a military base in Jordan. According to Shawn Hickey, VP of Construction, every aspect of construction is different – water quality, cement mixing ratios, sands, rebar sizes, etc. But, the most difficult barrier is the cultural differences.

“You can’t take Western values or culture and just import it,” says Hickey. “Everything is different from how they live and their personal priorities to when they eat and when they work. It’s important to learn their culture and respect it. In many ways, we (Westerners) could learn from their family values and priorities. We have been fortunate to find the right partners to bridge these gaps.”

Technology in the MENA region hasn’t caught up to Western culture yet. Hickey says there is a need for better techniques in construction and that’s their focus.

“It’s as simple as a hammer, concrete shovel or laser level,” says Hickey. “They are eager for new technology and are sponges for new ideas. When they saw a tilt-up building go up for the first time, they were beyond excited. They see the value and want to learn.”

Tilt-up construction benefits go beyond the rapid rate of construction and need for better techniques in the Middle East. The United States Department of Defense has also shown interest in tilt-up construction for military installations in places like Afghanistan. In war zones, speed of construction and the safety of soldiers are top priorities.

“The military prefers to build inside their gates to keep soldiers safe during inspections,” says Tomasula. “Site cast tilt-up construction allows them to perform inspections on-site, rather than off-site at a pre-cast plant. It also provides better protection to building occupants from open fire and grenades that may penetrate less robust wall systems.”



This 2,000-square-foot officers residence has 24 panels (insulated exterior, interior and roof slabs) and demonstrated to Jordanian government officials the benefits of tilt-up – speed, quality and security.

The old adage “it’s all about who you know” rings particularly true when charting into new waters.

“CON/STEEL has strategically decided to develop an international presence in the next five years. The opportunities in the MENA region have been more immediate than expected and we are excited to see what’s next,” says Tomasula. These opportunities are a result of good old-fashioned networking, organizational involvement and industry partnerships combined with a reputation as a tilt-up industry leader. For instance, LJB was introduced to opportunities in the MENA countries of the United Arab Emirates, Qatar and Saudi Arabia by Master Mason CPM, a fellow member of the Tilt-Up Concrete Association.

Similarly, LJB’s opportunities in Afghanistan have grown from LJB’s involvement in the Society for American Military Engineers (SAME). Grant Bartee, federal sales manager for LJB, attended a recent industry day event for SAME in Virginia and was introduced to a large Turkish construction firm through a mutual contact.

“You never know what people will remember and pass along to others,” says Bartee. “It’s important to be memorable even when there aren’t opportunities. Any conversation can turn into a lead when you least expect it.”

Bartee says it’s important to add value whenever you can and return the favor. If you help people network, they are more likely to do the same for you.

The staying power of tilt-up construction in the MENA region is uncertain, but the opportunities to share knowledge, methods, resources and products now will benefit the CON/STEEL Alliance well into the future.

Unique panel adds to versatility of tilt-up design

CON/STEEL Alliance members continue to find creative ways to do more with tilt-up wall panels. SiteCast Construction Corp. did just that on a recent project in Kemptville, Ontario. The new Staples Business Depot store was designed with a front entry that featured recessed doors. Rather than constructing the exterior alcove walls and soffit with less durable metal studs and exterior drywall, SiteCast used a unique monolithic panel design at the front entry.

“Our Alliance members are finding creative ways to get more out of the tilt-up wall panels.”

—Matt Bell, LJB structural engineer

“I knew we should be able to make the front entry out of one panel if we put our heads together,” said Shawn Hickey, VP of Construction for SiteCast. “Matt Bell with LJB came up with a great design that saved a lot of time.”

By casting one panel, SiteCast saved time and money by eliminating extra trades to finish the entry.



Crane size and panel weight distribution added challenges to this unique panel.

This unique panel came with many challenges. The entry projected four feet from the face of the building and needed to be cast as one panel. But, the panel couldn’t weigh more than 100,000 lbs. due to lifting beam restrictions.

“To lighten the panels, we hollowed each panel leg by encasing steel tubes with headed studs, turning these legs into a composite section,” says Matt Bell, LJB structural engineer. Also, the parapet was eight feet tall and the outer fascia wythe had to be thickened above the roof line for lifting.

“When the panel was erected, it was leaning backwards into the building based on weight distribution, which made the tilt-up crew a little nervous,” said Bell. But, Bell reassured them that it would work and he was right.

“Our Alliance members are becoming more comfortable with concrete all the time and are finding creative ways to get more out of the tilt-up wall panels,” says Bell. “As their design engineer, we need to support their creativity with innovative design solutions.”