



By Shawn Hickey
Image courtesy of SiteCast Construction

Understanding Tilt-Up

Tilt-up, one of the newer ways to construct a facility, is fast, cost-effective and rapidly gaining a share of the building marketplace.

Building owners must consider multiple factors including energy efficiency, architectural appeal and durability when constructing a facility. Their goal is to find a building system that will meet all these requirements and more. On-site Tilt-Up construction – a method in which concrete wall panels are cast on-site and tilted into place – has gained tremendous market share in recent years for its ability to satisfy needs while remaining cost-effective and fast.

With more than 753 million sq. ft. of buildings constructed, primarily in the U.S., using Tilt-Up in 2005, and approximately 664 million sq. ft. of buildings (approximately 265 million sq. ft. of wall panels) constructed in 2004, the industry experienced a growth rate of 13 per cent in 2005.

According to Ed Sauter, executive director of the Tilt-Up Concrete Association, Mt. Vernon, Iowa, the Tilt-Up construction method continues to gain market share for several reasons: speed of construction, advances in architectural treatments, and adaptability.

“Exposure of what is possible with Tilt-Up today is clearly shown in the diversity of architectural expression and quality of projects submitted as part of the Tilt-Up Achievement Awards competition each year,” said Sauter. “The growth of site-cast Tilt-Up construction as a preferred building method will continue to grow as more and more owners are exposed to the benefits.”

Ideal for a variety of building types, Tilt-Up construction has been used for auto dealerships, schools, industrial and manufacturing facilities, distribution and warehouse centres, religious facilities and retail centres. The method offers owners a variety of cost-effective architectural finish options including brick, block and various coatings; even company logos can be cast into panels.

The thermal mass properties of concrete, reduced air-infiltration and

higher efficiency insulation systems allow Tilt-Up construction to be an optimum energy-efficient solution. The large, solid concrete panels add to the efficiency of a Tilt-Up structure since the panel size reduces infiltration or air leakage into and out of the building and air infiltration is a large source of heat loss. Further, Tilt-Up concrete sandwich panels – with as much as 10-inches of insulation – boost material R-values as high as 50, while surface-applied insulation options garner material R-values between 5 and 15.

Canadians have been using Tilt-Up construction successfully for decades. For example, SiteCast Construction, an Ottawa-based developer, is currently utilizing the method for the construction of two buildings. The first, Smith Induspac, is a manufacturing warehouse facility for cardboard boxes and packaging supplies. The 85,000-sq.-ft. building should be completed this December. The second, Virtucom, is a manufacturing facility used to make metal cases primarily utilized in computer cases, and its new 20,000-sq.-ft. facility will be ready for occupancy in November. Tilt-Up was selected for both because of the speed of construction and quality of the product provided. Both projects are lease deals, which created tight schedules and budgets. By constructing the buildings with Tilt-Up, SiteCast provided the owner with the versatility of being able to expand both facilities. The buildings feature a maintenance-free, exposed aggregate insulated Tilt-Up panel.

In an industry that is notoriously slow to adopt changes, be they in policy or technology, Tilt-Up has spent a long time proving itself. But as this construction era of quicker/better/more efficient heats up, expect to see more of that unusual sight of cranes pulling concrete walls into place.

Shawn Hickey is vice president of SiteCast Construction, and can be reached at www.sitecast.ca

Above • Modern tilt-up construction consists of lifting concrete panels that have been cast on the building's floor slab or on nearby casting slabs.