

## Tunnel Form Construction

Tunnel form CIP is a modern method of construction (MCC) of building cellular structures using reinforced concrete. The method combines the quality, speed, and accuracy of factory production with the flexibility of on-site building.

Most useful in hotel, condo, apartments, and office buildings that require repetitive units, the method allows the placement of walls and decks simultaneously. As much as 4000 square feet of single-story can be built per day.

The formworks panels can be re-used 500 to 1000 times



and can accommodate box-outs for windows, doors, stairwells, and utility ducts. A tower crane is necessary to assemble the formwork.

The major incentive is very fast-paced construction and 20 to 35% reduction in building cost for large projects. Even small buildings such as

homes and mixed-use retail have been built using this technique.

Seeing is believing; watch the videos below.

Learn more → [cement.org](http://cement.org);  
[currentbuilders.com](http://currentbuilders.com);  
[researchgate.net](http://researchgate.net);  
[youtube.com](http://youtube.com);

## Drones provide Hi-Res 3D Mapping

Just in time for Easter, Pix4D and Aeroyrn Labs has given us the only 3D digital record of the iconic Christ The Redeemer statue in Rio, Brazil. What makes it interesting is that it was completely mapped using aerial drones.

Combining very accurate GPS locating and hi-res cameras with drones makes for a cost-effective and safe way to quickly map structures of any size and shape.

In addition to the famous Christ monument in Rio, other structures mapped by drones include Quaisne Tower, New



Jersey; Francis Scott Key Monument in Baltimore; and the Sabanci Merkez Mosque in Adana, Turkey.

Learn more → [constructionindex.co](http://constructionindex.co);  
[technologyreview.com](http://technologyreview.com); [technical.ly](http://technical.ly)

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Strength, Safety  
and Success of our  
Community*

## The Science of Salt

For those of you who found last year's deicer information useful, we have prepared a single document that summarizes the information contained in the last two bulletins regarding the effects of deicing chemicals on concrete.

The southwest Idaho climate is a harsh environment, in which only properly batched, placed, and maintained concrete can

survive. A substantial number of concrete failure is caused by the improper use of deicing chemicals.

MTI believes the design, construction, and maintenance communities in the Boise area would benefit from the distribution of this information.

For a PDF copy of this document for your use click the link → [The Science of Salt](#)

## Flat-Pack PC Concrete Arch Bridge



Segmented-arches are an ancient form of construction. But after centuries of limited use, they are making a come-back. The example shown above is installed in sections to achieve the desired width of the bridge. After the foundation, abutment, and wing walls are built, the bridge portion itself can be placed in a day or so without the need for shoring, bracing, or formwork.

Known generally as a "flat-pack" the arch/beam is transported flat and falls into an arch under gravity when lifted. Each arch is a composite of pre-cast, trapezoidal, unreinforced concrete blocks or *voussoirs*, connected along the top by a high-tensile polymer membrane.

The spandrel above the arch is backfilled with rock or concrete and the finally the deck constructed on top. The longest crossing to-date is 53 feet, but longer spans, skew-spans, and double-arch radius spans are planned.

The cost of construction is about equal to conventional beam-and-span systems, but because there is no reinforcement, flat-packs are much more durable and have an anticipated service-life of 2 to 3 times a traditional bridge. Precast units typically make for shorter construction schedules as well.

Learn more → [asce.org](http://asce.org); [youtube.com](http://youtube.com); [gizmag.com](http://gizmag.com); [engineering.com](http://engineering.com); [bridgeweb.com](http://bridgeweb.com);

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