

RFID Could Cure Concrete Tracking Woes

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By [John Burnell](#)

Fabricated concrete structures are built to stay in one place for a long time, yet have proven difficult to track. Construction sites and materials storage areas are challenging environments for traditional asset tracking methods, and data collection is often an afterthought for busy construction crews. [International Coding Technologies](#) (ICT) is trying to remove the barriers to concrete identification with an RFID system it [announced](#) recently.

The system, called TrackCon, includes a patent-pending method of embedding durable RFID tags into concrete products during the pre-casting process. The embedded Cast-a-Code tags encode a unique serial number and other information to identify the product in a passive UHF RFID inlay, and also in a bar code that remains visible after the product is produced. The RFID inlay and bar code are encased in a plastic tag designed to provide lifetime identification.

"Pre-cast concrete products can be anything from septic tanks to parking garages," International Coding Technologies' CEO Tom Tilson told RFID Update. "They're like other manufacturers because they need to track their products for quality assurance, picking and shipping, inventory control, and delivery. The pre-fab industry has spent millions of dollars on new plants in the past few years, and very little on technology."

International Coding Technologies is a data collection solutions provider in the Boston area that has worked with the concrete and construction industries for years. Tilson said he has investigated bar code-based identification systems for several clients, but dirty usage conditions make it difficult to get accurate bar code reads. He turned to RFID to solve the challenge. The Cast-a-Code tag includes a [UPM Raflatac](#) "Dog Bone" passive UHF inlay that is sealed into a plastic case. The durable plastic also enables ICT to include a low-cost bar code label, which provides protection against damage. The bar code and RFID inlay are each encoded with a unique serial number, which the concrete product manufacturer can use to identify the item. The tags are molded into the concrete product during the production process.

ICT's TrackCon software supports several common tracking processes. Products are typically logged into the system by reading the RFID tag with

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a handheld reader after production and entering any desired batch or customer information to the record. The software supports tracking products through quality inspection operations, storage, shipping and delivery. Large items are often placed into storage with a forklift. The system automatically records the putaway location by prompting the forklift driver to read the RFID tag when the product is stored. Forklifts are tracked by GPS. System software marries the GPS location data with the RFID scan to record where the item was placed. Forklift drivers can then be directed to the appropriate location to pick up items for shipping.



"There are a lot of look-alike concrete structures that aren't exactly the same because they are produced for different customers' specifications," said Tilson. "There have been a lot of errors because the wrong product was picked and shipped to the customer. In construction, materials are often delivered to a staging site. The RFID tag can be scanned there to build a record of where things are. That's very valuable, because storage areas can cover acres and acres."

Tagged items can be read from about six feet away with forklift readers and three feet away with handhelds, according to Tilson. Tags can also be successfully read through one foot of concrete. Cast-a-Code tags are always embedded on the outside of an item, not buried within, but the ability to read through concrete is helpful because the tagged items may be stored behind other concrete material.

ICT recently launched the TrackCon system following its successful use at several beta sites. The system is currently running at three sites, with implementation planned for two more.

Concrete and construction appear to be growing areas for RFID use. An active RFID technology system is monitoring concrete conditions at the World Trade Center construction site in New York City (see [RFID Puts New World Trade Center on Solid Foundation](#)), and [Intellex](#) separately [announced](#) an RFID-based solution for monitoring asphalt.

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