



Improving Precast Business Results Using AutoID Based Real Time Data Collection and Product Tracking

WHITE PAPER

Executive Summary

Today, many precasters are struggling to find new ways to drive business performance. During the last several years, as projects have dwindled, precasters across the country have tightened their belts. Today's precaster is leaner and more efficient than ever before. However, after cutting costs, reducing headcount, renegotiating with suppliers, etc. there are very few "new" strategies to help gain an advantage on a very competitive playing field. So, forward thinking and innovative precasters are adopting lean manufacturing principles, introducing new technologies, and re-purposing strategies from other industries to drive their results and improve their bottomline. As the market recovers, these organizations will find themselves ahead of the curve and better able to grow marketshare while controlling costs.

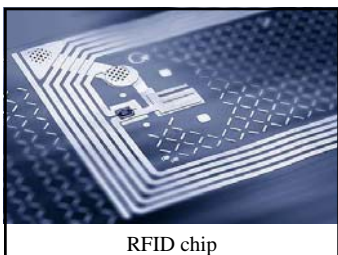


This White Paper explains how one of these new tools, AutoID, works, what to look for in a solution, and how it will ultimately revolutionize the way precasters run their businesses.

What is AutoID?



Auto-Identification uses bar coding and/or radio frequency identification (RFID) technology to associate data with individual products or assets. AutoID has been commercially available for years and is widely used in office buildings to track IT assets, hospitals to track medical equipment and devices, and warehouses to track inventory. AutoID streamlines business process, reduces manual labor, and improves organizational efficiency and productivity.



Historically, AutoID has been difficult to deploy in rugged industries like concrete, steel, and construction. Today, AutoID technology has matured to a level where these rugged industries are now able to leverage this revolutionary technology and realize the same incredible business results.

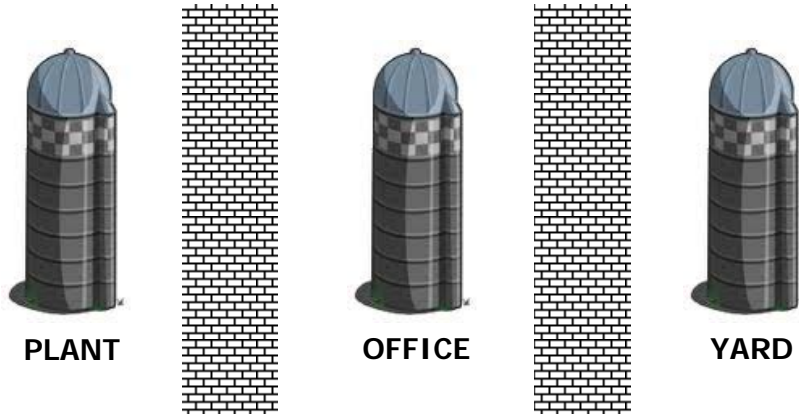


The World Leader in RFID Technology for the Manufactured Concrete Industry



The Universal Precast “Challenge”

There are 3 main components to a manufactured concrete operation: the office, the plant, and the yard. While each of these often function well on their own, precast business results improve dramatically when they work together seamlessly. Unfortunately, this is rarely the case.



The illustration above shows how most precast operations function. The three components that make up the business are in what are commonly referred to as “silos”. This model does not facilitate the efficient flow of data or information, unless of course you consider 2-way radios or face-to-face communications efficient. This disconnect, what we call “the universal precast challenge”, is costing plants around the world millions of dollars every year.



Every manufactured concrete business struggles with this challenge to one degree or another, and when there are sometimes hundreds of daily communications, it does not take long to see the value of a solution that breaks down these silos and dramatically improves access to data and information.



The net result of this challenge is that everyday, you are paying people to do things that can be done faster or, in some cases, eliminated all together. You have bottlenecks, duplicated efforts, mistakes being made, and hours of wasted time, that are eliminated with AutoID technology.

So, why does this continue to happen in plants throughout to world? Two reasons:

1. A solution has not existed.
2. A “that’s the way we’ve always done it” culture common in the precast industry.

Those innovative, forward thinking companies that choose to deploy AutoID technology, will revolutionize their business process, get more done with less, and beat their competition.

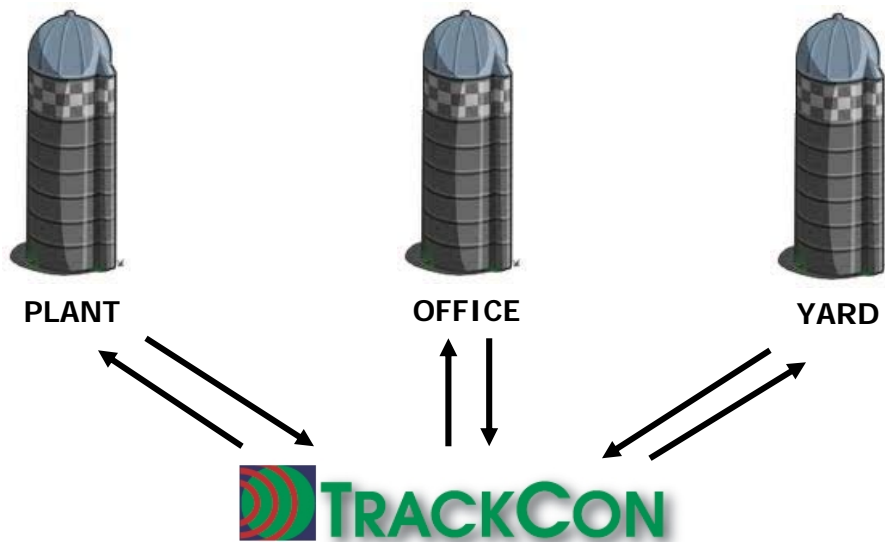


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A Solution to “The Challenge”



Using solutions proven in plants throughout North America, precasters “un-silo” their business and seamlessly integrate previously disconnected business units. Across the entire organization, everyday tasks which used to take hours to complete now get done in a few mouse clicks. Adopters of AutoID technology:

- Gain a competitive advantage by adding *real* value to their customer relationships
- Are able to control & manage inventory in real-time
- Have 100% shipment validation
- Take their QC process paperless and eliminate wasted man hours
- Benefit from electronic “cradle-to-grave” tracking of every piece they make
- Remove data entry choke points and costly “human error” mistakes
- Reduce fuel consumption and overtime pay

Statistics show that, on average, AutoID technology yields a 2%-5% productivity increase in the industries that have adopted it. Given that the manufactured concrete industry is a \$15-\$20B industry, the impact of AutoID technology is on the order of 150-200 millions dollars! Right now, municipalities and DOT’s are specifying AutoID technology in their RFQ’s...it is only a matter of time before it becomes a standard industry practice.



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The 3 parts of an AutoID system

RFID Tag or Barcode Label

Goals for the system and requirements drive which method of identification is most appropriate. While there are some differences, tags and labels accomplish the same thing— they give the precaster a way to uniquely identify individual structures/products. While there are principally two types of RFID tags (passive and active), passive tags are preferred because they are inexpensive (< \$1.00) and they maintain a strong ROI as a single use item. Active tags are considerably more expensive and are typically deployed in a reusable way to identify assets of a much higher value. Barcodes come in a variety of sizes and are attached via an adhesive backing. For some applications barcode labels will do the trick, but it is important to note several limitations like limited read range, line of sight is required, as well as a dirty or dusty barcode can result in a failed scan. We strongly suggest that whatever solution you select, you test it to make sure it will withstand the rigors of the manufactured concrete environment.

Hardware

There are a variety of readers and antennas used to collect data in the field and plant. Some precasters require fixed reader arrays to accomplish unique data collection goals, however, most common is the use of rugged handheld RFID/ barcode scanners. These devices allow the operator to do everything they do now (and more) electronically. They can record production and QC history, resources used (i.e. a mill cert., batch numbers, lift devices, specialty fittings, etc.), track piece locations, validate shipments against pick lists, and many other routine tasks. The mobile computer, via wireless hotspots or cell phone connection, automatically updates a main database giving real time data and production information to people throughout the entire organization.

Software

Data collection software is the “brains” of the system. It manages all of the collected data, makes it available to those who need it, and most importantly, needs to be designed around the precast business process. Frequently, precasters make large investments for ERP, MRP, and other systems only to find that they need endless tweaks and customization to “fit” the unique precast production process. Not only this, but some systems consume vast resources simply to maintain. Simplicity and “purpose designed” are keys to success with data collection software.



Barcode labels can be attached to the outside surface of a concrete structure



RFID tags can be embedded in a concrete structure



Rugged handheld scanner with GPS, RFID and barcode reader, digital camera, and wifi/cell phone connectivity



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AutoID at work in the plant



Everyday, AutoID technology is helping plants throughout North America drive leaner business process and more efficient operations. It's very simple...out in the plant, the handheld scanners pick up, from existing scheduling systems (the integration is simple and painless) the products being poured that day. RFID tags or barcode labels are then scanned and associated with each piece being produced. The handheld device takes the operator through pre-set (defined by you) quality control and production steps for each individual piece (from pre-pour through finishing and repairs). The system allows production and quality control personnel to do everything they are doing today (stressing values, dimensions, slump, temps, etc.), faster and more efficiently without any paperwork or end of day data entry. It's important to note that every time a piece is scanned ("pre-pour complete", "piece available", "defect found- needs repair", etc.) that information is wirelessly transmitted back to the main database allowing anyone to see exactly what is happening out in production *in real time*.

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AutoID benefits in the plant:

Cradle-to-grave traceability: With an RFID tag embedded in a product, you and your customers now have the ability to store the entire life cycle of a product electronically and access that information, at anytime, with a few mouse clicks.

Real time Production data: AutoID technology gives the precaster a view into production without having to be in the plant. Depending on the size of the operation, production supervisors receive 15-40 calls a day from dispatchers, CSRs, and salespeople looking for piece/job status reports. While it may take only 10 minutes to get the answer to the question, that is still 2000-6000 hrs. a year that are given back to that supervisor with AutoID technology. Because the information is now available in a couple of mouse clicks, your improved responsiveness becomes a powerful competitive advantage as your customer doesn't have to wait for critical information.

Time stamps with every scan: Many precasters are turning to lean manufacturing principles to improve business performance and drive greater profitability. One of the benefits AutoID offers is the ability to benchmark and measure the time it takes for pieces to move through production. Every time a piece is scanned a time stamp is recorded giving you valuable insight into bottlenecks and areas of inefficiency.

Resource Tracking:

In addition to quality control and production data, precasters can track what resources were used in the production of specific pieces (i.e. rebar heat numbers, lift devices, batch numbers, plates, etc.) electronically. This eliminates more man hours and data entry.

Paperless quality control:

AutoID *eliminates* the massive amounts of quality control paperwork and data entry dragging down plant efficiency. DOT and other custom reports are generated in a fraction of the time it now takes.



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AutoID at work in the yard

A precast yard is often an inventory nightmare! Very few companies have a handle on what's out there, where it is, and how many pieces are on hand. Depending on the size of your operation, this problem could be costing your organization hundreds of thousands of dollars every year. Your people are spending hours looking for product and counting inventory, your salespeople are selling product that isn't in stock, your shipments are delayed, wrong product gets shipped, and the list goes on.



With AutoID, each product has a unique ID number ("license plate") and the software keeps track of all the unique data on that piece. Using the handheld scanners, your yard workers can pick product for shipment, change the state of a product from "available" to "picked/ready for shipment" or, in the case of a damaged piece, "needs repair" and again, all this information is readily available to customer service, sales, and administrative personnel at the click of a mouse.



AutoID benefits in the yard:

Product locating: Handheld scanners can be equipped with GPS technology, so scanning a product when it is dropped or moved automatically records the last known location of that product within several feet. This eliminates the daily "product wild goose chases" and immediately increases productivity. When a company is running several crane crews at once, the savings is nothing short of extraordinary when you consider the man hours and fuel it takes to run a crew for just 1 hour.

Piece verification: While many products may look the same, obviously they can be very different. A handheld scanner makes verifying a piece (by customer, job, or piece number) a simple, error free process. Picking and moving the wrong piece is a costly mistake that AutoID eliminates.

Pick and ship validation: Making sure that the right the pieces are on the right trucks is something that every precaster works very hard at on a daily basis. AutoID makes this a 100% certainty by validating (scanning) pieces against a bill of lading or pick list. Eliminating just a few shipping mistakes a year is often enough to pay for an entire system. Not only this, but when a piece leaves the yard, you now have a simple way to remove it from inventory thereby improving your inventory management and product on-hand levels.

Inventory management: Putting handheld scanners into the hands of lower paid yard workers a couple of times a month is far more cost-effective than getting the whole yard team together and counting piece by piece on a yearly or quarterly basis. A simple scan beats hash marks on a clipboard every time, and with the real-time updates, a salesperson knows that when they say "Yes" to a customer, they can do it with confidence.



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AutoID Return on Investment

The impact of AutoID technology on a precast operation can be significant because of its potential to “touch” so many different facets of the operation. From QC through to tracking products at the jobsite, the payback on an AutoID system is often in excess of 3X in the first 12 months. The improvements in efficiency and productivity can be exceptional!

Below you will see “Impact Areas” and some questions you ought to consider as you evaluate the overall benefit AutoID technology can have on your operations.



IMPACT AREAS

Quality Control:

- How much time is spent creating QC forms and who is tasked with this function?
- On a daily basis, how much time is spent collecting, organizing, and filing QC data?
- How much time do your QC people spend writing down data daily?
- How often do you need to look up or retrieve QC documents and how long does this take?
- Do you prepare and submit customer QC reports (i.e. DOT)? If so, how long does this take? For how many people?

Yarding & Inventory:

- On a daily basis, how much time is spent locating products in the yard? How many people?
- How often do you count inventory, how long does it take, and how many people are involved?
- How often do you ship the wrong product and what does this cost the business?
- Do customers ever call and say that a product was never delivered, they can't find it, or that it was damaged?

Production:

- How much time is spent entering production data and/or running reports daily? And who is involved?
- How many piece/status calls does your production manager receive a day and how long does it take to resolve each one?

An average size precast operation spends 8-12 man hours a day engaged in the above activities.



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About International Coding Technologies, Inc.

International Coding Technologies, Inc. was started in 2006 with a simple goal: *Revolutionize* the manufactured concrete industry using AutoID technology. ICT founder, Tom Tilson, has spent the better part of the last 15 years working in the precast industry, first as a manufacturers' rep and later as a boot manufacturer with a company he founded in 2000. After thoroughly understanding the precaster's challenge, and knowing that there had to be a better way, he founded ICT. In the years since, ICT has developed a turnkey AutoID solution that is hard at work in precast plants across North America today. The entire system has been based, from the very beginning, on the unique precast business process. This system is tested and proven in plants just like yours.

ICT's team of AutoID experts and software programmers have decades of experience solving the toughest tracking challenges in the harshest environments on earth. We take great pride in our ability to consistently meet and often exceed our customer's requirements and expectations.



ICT is a proud member and supporter of industry associations. We regularly attend national and regional conventions and trade shows.

Our Solutions:

We are the experts in AutoID technology for the precast industry.

We consult with our customers to define system requirements and objectives to deliver the "right solution." The various components we deploy to solve our customers' challenges have all been thoroughly tested and proven in the precast industry. From our patented Cast-A-Code® RFID tags that can be embedded in concrete structures to our best-in-class data collection software built on the precast business model, we consistently deliver results.

Software



RFID Tags



Hardware



AutoID Consulting



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