

The construction industry is often described as being “slow”. Often this refers to how long it takes to complete a project, especially when multiple industry specialists are involved. However, more and more the construction industry has been referred to as “[slow to adopt new technology.](#)”

This is especially true when testing the compressive strength of concrete. Currently, the most common practice is to use cylinder break tests. However, this process is not exactly [accurate and reliable](#). Many factors, such as curing conditions, the size of the cylinders compared to the onsite slab, and improper handling and transportation of field-cured cylinders from a jobsite to a testing facility can [skew the strength data of the specimen](#). This results in a weak concrete element. Despite that, engineers, contractors, and project managers are reluctant to adopt new technological advancements on their jobsite, such as wireless maturity sensors.

What Are Wireless Maturity Sensors?

Using cylinder break tests to monitor the strength of your concrete requires some patience. Not only does it take time to cast the cylinders and arrange for a lab to test their strength, it takes an additional three days before you receive any results. But, with wireless sensors, like [SmartRock™](#), you are updated in real-time on the early-age strength of your concrete based on the maturity method. Once secured on the formwork and embedded in the concrete, these sensors measure the temperature of your slab and correlate this data to the concrete’s strength based on the maturity equation, [according to ASTM C1074](#). This data is easily and quickly updated in the SmartRock™ app on your mobile device so you always know the temperature and strength of your in-situ element.

| [Read more about the pros and cons of cylinder break tests Here](#)

Why You Should Use Wireless Maturity Sensors on Your Jobsite

Engineers

Adopted by numerous DOTs and building codes, wireless maturity sensors have been proven to be extremely beneficial in over 4,000 projects worldwide. With these sensors, concrete temperature and strength is continuously logged, making the data more accurate than ever.

Having this information available to you at all times allows you to better track and control the quality of your structure. Therefore, if a problem occurs regarding the concrete's curing conditions, you and your team will be notified immediately. This allows for quick and well-informed decision-making. In cases of structural failure, this constant logging of information can reduce liability. Additionally, generating reports that are easy to understand and share also allows for this data to be sent to any stakeholders right from your mobile device through the [Giatec360 cloud](#).

Project Managers

When using cylinder specimens to monitor the strength of your concrete, break tests are performed by the lab at specific ages, i.e. after three days, seven days, and twenty-eight days of curing. Having to wait for this data to come back often results in unnecessary delays on your project. This risks your ability to meet your contractually obligated deadlines as processes often need to be repeated or extended. With wireless maturity sensors you get this critical information right away, whether it's in twelve hours, two and a half days, or even five days, so you know when your concrete has reached 75% compressive strength. Workers can then act immediately and start tensioning or stripping forms. This can save days, even weeks, on your project. Fully optimizing your jobsite in this way also saves significant costs, both in materials and labor.

Learn more about how the maturity method can save you costs [Here](#)

Field Personnel



Forget having to untangle, cut, or fuss with wires. With concrete maturity sensors, wires are a thing of the past! Going wireless means no longer having to rely on break tests for concrete strength data. This makes the testing process much easier and faster as specimens don't have to be cast. Once you've installed these user-friendly sensors, all you have to do is pull out your phone, walk around the jobsite to connect to the sensors, and the data is automatically collected and shared with all team members. This also means you don't have to be an expert in concrete strength gain to get these results. And, with the SmartHub™, our remote monitoring system, you can even eliminate this task and instead have updates sent to your phone automatically. Cutting this time down means that the project can move along faster, and you won't feel like your time is being wasted waiting for lab results.

Learn more about our remote monitoring system, SmartHub™ [Here](#)

See What These Experts Have to Say About SmartRock™



Jon Belkowitz, PhD

Head of R&D at Intelligent Concrete

“The Giatec SmartRock™ device is the next wave in concrete maturity technology. This new and cutting-edge concept puts quality control and quality assurance back into the hands of the concrete manufacturer and for the first-time ever, in the hands of the contractor.

Operating the SmartRock™ sensor is intuitive and the confidence it provides is priceless.”

**Walter H. Flood, P.E.**

Principal Engineer at Flood Testing Labs

“Monitoring the real time strength [of concrete] using SmartRock™ has allowed us to advise airport personnel when to open a runway for use on a critical 56-hour closure. Their ability to remain below the top slab elevation allows workmen to place and finish the concrete without disturbing the sensors. The software has been excellent in strength estimation.”

**Allan Hayes**

Construction Quality Manager at Regional Rail Partners

“The SmartRock™ has been a good investment in that it’s extremely user friendly, convenient, and saves us time. I especially love that it’s wireless, because now we don’t have to go looking under blankets to find sensors or worry about making a physical connection. This alone saves us about an hour every time we record temperature.”

**Editors Note: This post was originally published in March 2016 and has been updated for accuracy and comprehensiveness.*