

## Case Study

# CONCRETE COLOSSUS

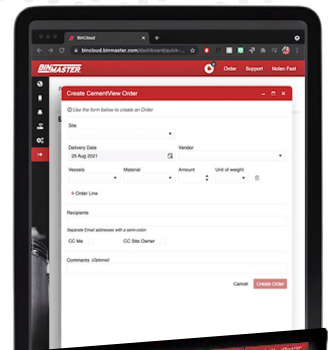
## Non-stop silo climbing stops with BinMaster

Sometimes stories illustrate solutions. A major concrete company reduced material shortages and simplified life for drivers and dispatchers using sensors and cloud software called CementView®. Read the story of how a company with 10 ready mix plant locations automated monitoring of 58 silos containing cement powder, IPF, and fly ash. CementView® keeps dispatchers informed. Using a PC, tablet, or phone dispatchers can monitor inventory for each silo and plant location by material. Text and email messages automatically alert to low levels.

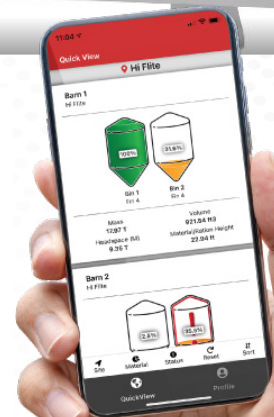


## **CEMENT VIEW**

**ORDER CREATION**  
place orders directly with suppliers and manage delivery routes and schedules



**DASHBOARD**  
sort inventory by silo, material, or plant location



# CONCRETE COLOSSUS & BINMASTER

A mega Midwest-based concrete and construction corporation was dealing with limited visibility of inventory control at their central dispatch. There was non-stop silo climbing and dropping of tape measures, which resulted in an inaccurate and time-consuming process for the concrete suppliers' workers, not to mention the potential safety hazards this presented.

## CENTRALIZED MONITORING

Dispatch needed real-time inventory oversight of ten local plants and several other remote plant locations, to keep up with the demand for cement powder and fly ash. Improved logistics between the cement plant and the batch plants were essential to ensure all locations are running efficiently. The two workers whose full-time job was to schedule and route trucks for the ten local plants situated around the metropolitan area, as well as the remote plants, were overwhelmed. BinMaster was up for the challenge of providing a solution for the company's complexities.

## LOGISTICAL CHALLENGES

Each batch plant location has between five and eight silos containing Type I cement powder, IPF, and fly ash that need to be filled with these raw materials. The fly ash for all ten plants is supplied primarily by a local power plant, while the Type I powder/IPF is ordered from a single cement plant. Their trucks can hold about 32 tons of material per load. It is critical all material fits into the silos when the trucks make a delivery, ensuring there is enough space for the entire truckload to empty into the silo. Coordinating all these variables is crucial to prevent the company from losing time and money.

## NON-CONTACT RADAR RELIEF






To continuously measure silo levels without climbing, Nathan Grube of BinMaster recommended the use of 80 GHz non-contact radar level sensors. The plant's maintenance staff did the pre-wiring of their silos and had them ready to go for sensor configuration. BinMaster technical services was able to get commissioning done in a day or two per location. Over time, 58 silos were outfitted with NCR-80 sensors along with rotary level indicators that are used as a redundant high-level alert. Since the silos fill up very quickly, in as little as four to five hours, DPM-100 digital panel meters were put into play to report headspace. A BinCloud® gateway was used to communicate data from the sensors to the panel meters without extensive wiring. Custom cabinets house multiple digital panel meters to access silo data from a centralized location. The two primary truck drivers, or anyone at the plant, can check head space in the silos at any time. The drivers can now load silos and empty trucks with confidence knowing the material will fit.

## SOFTWARE TAKES SOLUTION FULL CIRCLE

Real-time visibility of inventory levels at every batch plant was essential to keeping up with the rapid-fire pace at the plants. Access to a BinView® remote monitoring website was provided to the corporate headquarters dispatch location as well as made available at each plant. With everyone looking at the same data, inventory discrepancies are a thing of the past. With everyone on the same page, dispatchers, drivers, and plant managers can set priorities and reduce out-of-stock and delivery emergencies, all which waste time and can impact schedules and profits. The BinView® software allows the dispatchers to monitor and order materials for multiple locations, while plant managers have access to inventory information for just their location. Users are able to view and sort bins by material, set automated alerts, look at trends, and generate usage reports

## ROCK SOLID RESULT

The concrete company stated they "couldn't afford to run out or risk messy overfills." They no longer have to deal with the risk of climbing in the weather which can be very cold, hot, or windy in the Midwest. The cement supplier also expressed they "really like the visualization of what's going on. They can look at data for all locations, just one location, or just bins that need to be filled," stated Nathan Grube. "And since the plants are so active, they get updates every 10 minutes. Younger people recognize the value of technology, while plants are faced with trying to do more work with fewer people."

Industry	Bulk Material	Sensors	Software	Applications
 Agriculture Farming Livestock	Grain Flour Beans Fertilizer Seed Liquids  Bins, silos, tanks, piles, domes	Rotary level indicator Capacitance probe Vibrating rods Diaphragm switch Tilt switch Radar SmartBob 3D sensors Ultrasonic Flow detector	BinCloud BinView AgriView Binventory FeedView 3D Multivision	Prevent overflows Process control Inventory management Remote monitoring Monitor piles Flow detection Bin aeration Dust detection Aeration Ag Chemical Storage
 Bioenergy	Corn DDG Biomass Wood pellets Wood fiber Forest residue  Bins, silos, tanks, piles, domes	Rotary level indicator Capacitance probe Vibrating rods Diaphragm switch Tilt switch Radar SmartBob 3D level scanner Ultrasonic Flow detector	BinCloud BinView Binventory 3D Multivision ResinView	Prevent overflows and outages Process control Inventory management Remote monitoring Flow detection Slurry tank detection Measure DDGS
 Cement	Sand Gravel Clinker Rock Powder  Bins, clinker silos, tanks, piles, domes, chutes, crushers	Rotary level indicator Capacitance probe Vibrating rods Diaphragm switch Tilt switch Radar SmartBob 3D level scanner Ultrasonic sensor Flow detector Plugged chute detector Airbrator Diffuser air pad	BinCloud BinView Binventory 3D Multivision CementView	Prevent overflows and outages Process control Inventory management Remote monitoring Monitor piles and bunkers Inventory domes Plugged chutes Measure crusher levels ESPs or clinker silos Prevent conveyor overloads Silo aeration
 Food processing	Brewing Foodstuffs Solids Slurries So much more...  Silos, mixers, batching tanks, conveyors, pipelines	Rotary level indicator Capacitance probe Vibrating rods Diaphragm switch Tilt switch Radar SmartBob 3D level scanner Ultrasonic sensor Flow detector Airbrator Diffuser air pad	BinCloud BinView AgriView Binventory 3D Multivision	Prevent overflows Inventory management Remote monitoring and VMI Process control Sanitary level measurement Detect levels in mix or slurry tank Detect levels on conveyors Flow detection Silo aeration
 Mining	Lump coal Ores Aggregates Fine alumina powder  Silos, crushers, conveyors, domes	Rotary level indicator Capacitance probe Vibrating rods Diaphragm switch Tilt switch Radar SmartBob 3D level scanner Ultrasonic sensor Flow detector Airbrator Diffuser air pad	BinCloud BinView Binventory 3D Multivision CementView	Inventory management Monitor piles Prevent overfills or outages Detecting plugged chutes Measuring inventory in domes Level measure in crushers or bins Prevent overloading Process tanks Remote monitoring Silo aeration Dust detection
 Plastics	Resins Flakes Powders Granules Regrind  Silos, bins, containers, hoppers, tanks	Rotary level indicator Capacitance probe Vibrating rods Diaphragm switch Tilt switch Radar SmartBob 3D level scanner Ultrasonic sensor Flow detector Airbrator Diffuser air pad	BinCloud BinView ResinView Binventory 3D Multivision	Prevent silo overflow Eliminate outages Inventory management Remote monitoring Vendor managed inventory Flow detection Bin Aeration Dust Detection

