



Charter Dura-Bar achieves campus-wide coverage with Cel-Fi QUATRA



Headquartered in Woodstock, Illinois, Charter Dura-Bar focuses on continuous cast iron bar products that are used as alternatives to carbon and alloy steel for industrial applications such as drilling and hydraulic fracturing in oil and gas. The company is comprised of two divisions. Dura-Bar is the world's largest producer of engineered cast iron bar products—and the only continuous cast iron bar foundry in the United States. Dura-Bar Metal Services is Dura-Bar's largest distributor, serving more than 3,000 global customers from locations in Illinois, Pennsylvania, Texas, and North Carolina.

Charter Dura-Bar boasts a picturesque campus. A lake and plenty of green space surround its three main buildings, which house administrative functions, metal services, and an iron foundry. Its somewhat rural location, coupled with the large amount of steel and cinder block walls in the foundry, made it difficult for cellular signals to penetrate indoors. As the company's 10 small cells began to reach the end of their lifecycle and the carrier no longer supported the offering, Charter Dura-Bar was on the hunt for a new solution.

Ease of management was a key criterion. "Each small cell could only hold 15 numbers, so we were constantly having to make updates as employees moved around or phone numbers changed," says Wendy Zeitler, a senior telecommunications technician at Charter Dura-Bar. "We also had to prioritize based on seniority, so it was very disheartening to tell employees we weren't able to give them cellular coverage at work."

THE CHALLENGES: Manufacturing

- Within a rural area: 35,000 square foot, brick-exterior administrative building, 57,000 square foot shop area used to cut metal
- A large amount of steel and cinder block walls in the foundry
- 10 small cells began to reach the end of their lifecycle
- Constantly having to assign available phone numbers to a set number of employees due to limitations of how many each small cell could support
- Need secure machine-to-machine communications moving from the network to a cellular network.

USING CELLULAR TO POWER IOT

In addition to wanting to provide typical voice and data services over the cellular network—for example, enabling employees to communicate with one another between buildings, or for personal reasons—the metal services building, and the iron foundry feature industrial-sized vending machines that contain various tools and supplies. Employees working on the factory floor must enter a personalized code to access, for instance, protective gloves or specific parts they need to operate a piece of machinery. The company's credit card is then processed in real-time for these purchases.

Payment processing was running over Charter Dura-Bar's network. But because the vending machines were operated by a third-party company, the security team wanted to separate this function from the company's IT network to mitigate security risks in the event of a breach.

"By moving to a cellular network," explains Trent Bruha, a service desk technician at Charter Dura-Bar, "we would gain peace of mind while enabling secure, machine-to-machine communication."



Charter Dura-Bar also wanted to improve the cellular experience for employees taking part in the company's BYOD program, and more generally to eliminate the inconvenience of having to run out to the parking lot whenever they wanted to use their phones.

CONNECTING WITH KONECTAUSA AND CEL-FI QUATRA

On the recommendation of their carrier, Charter Dura-Bar turned to KonectaUSA, a leading provider and installer of indoor cellular solutions. KonectaUSA decided to use the Cel-Fi QUATRA active DAS hybrid from Nextivity to build out Charter Dura-Bar's cellular network.

"When we tell customers that we can support applications such as credit card vending machine transactions over cellular, they love it because we don't have to touch their IT network," explains Mike Shortridge, a partner at KonectaUSA. "Cel-Fi QUATRA is a cost-effective solution that can provide reliable, multi-carrier coverage in places that have traditionally proved to be a challenge."

Shortridge began his work in the iron foundry, a 596,000 square-foot building that runs 24 hours a day in three shifts totalling 300 employees. A cafeteria, as well as administrative and engineering offices are located in the foundry. The vending machines are situated in an office next to the cafeteria because it is too hot in the foundry itself to make calls.

A Cel-Fi QUATRA Network Unit (NU – the head-end of the active DAS hybrid) was installed to deliver Verizon and AT&T signals to four Coverage Units (CUs – the internal antennas that rebroadcast the signal inside the building). Three CUs provide coverage to the offices, including one CU that is cabled to two passive dome antennas for a cost-effective solution to feed signal to the cafeteria where the vending machines were located. The fourth CU was used to cover the large engineering area (50 x 100 square feet) with cinder block walls.

"With other products, we would definitely have needed two, maybe even three, coverage units for the engineering area," says Shortridge. "But Cel-Fi QUATRA performed really well with just the one coverage unit. It was impressive."

KonectaUSA

- Founded in 2015, with headquarters in Minneapolis, Minnesota
- Leading cellular live-inside provider installations and service provider
- Services include design, installation, and maintenance
- Customers include education, hospitality, healthcare, and FORTUNE 500 companies

THREE BUILDINGS IN EIGHT DAYS

Next up was the 35,000 square foot, brick-exterior administrative building predominantly made up of offices, meeting rooms, and a cafeteria. There, KonectaUSA installed one NU and four CUs that were placed in a typical square configuration to ensure coverage in each corner of the building. A wideband directional antenna on the roof provided the donor signal.



Once this was complete, Shortridge turned his attention to the metal services building. The 57,000 square foot shop area is used to cut metal, with 30 employees split over two shifts to do this work. It also housed a vending machine. Here, one NU and four CUs also did the trick. Now, employees working in shipping and receiving can communicate more easily with truck drivers trying to pick up or deliver materials.

In total, it took Shortridge's cabling crew only eight days to complete the installation in all three buildings.

"It was a seamless and non-disruptive installation process," says Bruha. "We were able to continue production without interruption."

REALIZING BUSINESS BENEFITS ACROSS THE BOARD

Charter Dura-Bar now has a separate, secure network to handle vending machine orders. Operationally, the company has seen a number of operational benefits. Pre installation readings went from -120 and -110 to post installation readings of -85 and -75 throughout the different buildings, and capacity is no longer an issue—every employee now enjoys coverage. This has come with some unexpected, but welcome, benefits.

“One of our employees received a text from her child’s school while she was at work, and she was able to see it and deal with it immediately,” says Bruha. “That simply wasn’t possible before. Our employees are very much enjoying this soft benefit, and morale has definitely improved.”

It has also eased the burden of IT management on the Charter Dura-Bar team, who estimate they’ve saved several hours a month from not having to manage the previous solution, or employees’ expectations around coverage.

“Our president was behind this 120% and is beyond thrilled with Cel-Fi QUATRA,” says Zeitler. “He understands the impact it has on the business and is so very appreciative.”



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