

Reliable Systems Help USG Build on Leadership.

CASE STUDY

UNITED STATES GYPSUM COMPANY - For more than 100 years, Chicago-based USG has been a leader in producing innovative products and systems to build the environments in which we all live, work and play. As the inventor of wallboard and ceiling tile, USG created North America's building materials industry. USG products are used in everything from major commercial developments and residential housing to simple home improvements. USG flagship brands include SHEETROCK® Brand gypsum panels and DUROCK® Brand cement board, which are recognized around the world.



There's an excellent chance that a product from the USG Corporation or its subsidiaries is in the walls or ceiling around you right now. USG (United States Gypsum Company) is the largest manufacturer of gypsum products in North America and the largest producer of wallboard in the U.S., including the popular SHEETROCK® brand. USG is building on its leadership with a major strategic initiative to improve customer service that relies on rugged LXE mobile computers and Zebra Technologies bar code printers to make processes more responsive.

USG and its subsidiaries, which also produce and distribute ceiling panels, cement board and other building materials, have more than 50 production facilities throughout North America. A major company-wide program to be the easiest building products company to do business with has led USG to invest substantially to improve its processes. That includes modifying materials management, warehousing and tracking operations to take advantage of real-time bar code data collection and a new enterprise resource planning (ERP) system. USG is installing wireless networks, rugged mobile computers and Oracle® Mobile Supply Chain Applications (MSCA) for the first time at multiple facilities, as part of its ambitious Linking Operational Excellence to the Customer Experience (LinX) project.

"This is the largest customer satisfaction project the company has ever done," says Pedro Menendez, vice president of global supply chain for USG. "It is driven by improving the total customer experience, not just improving how we manage our products."

Improved customer service is the motivation for the multimillion dollar project, and replacing manual record keeping and lookups with wireless bar code data capture is key to success. Key components include handheld and vehicle-mounted wireless computers from LXE, wireless LAN access points from Cisco Systems and high-performance bar code printers

from Zebra Technologies.

"The new system enables us to trace materials throughout the warehouse and through to when orders are shipped to the customer," says Al Zucco, USG's director of the LinX supply chain management implementation and a leader on the LinX project. "Our inventory control, fill rates, shipping and ASN generation have all improved greatly."

IT & Physical Challenges

The physical environment, IT environment and project scale all provided special challenges for USG to make the transition from manual, paper-based operations to automated materials tracking. From start to finish, the project called for USG to go from having no wireless, bar code or ERP infrastructure in place to implementing Oracle applications and real-time data collection, with minimal disruption to operations and no delays to customer shipments.

"The scope was our biggest concern," says Zucco. "We are essentially impacting every business process at each plant."

The specific challenges included:

- Having a vendor whose products and supporting ergonomic processes, especially for fork truck operators, could work in USG's plant environment - where safety comes first;
- Finding mobile computers that could meet sophisticated Oracle and Cisco integration requirements while also performing reliably in high-volume production operations;
- Finding a vendor with proven expertise in these environments with the resources and experience to provide implementation and support services to more than dozens of facilities, with new rollouts starting every few months for several years until installation was complete;
- Connecting printers to Oracle so bar code labels could be generated on demand for accurate material



and order identification. The high duty cycle and environmental conditions made many bar code printers inappropriate for the project.

"We need rugged, reliable equipment that will work consistently in our manufacturing plants," says Creighton Warren, USG's director of information technology applications, architecture and operations and an IT leader on the LinX project. "They're not like grocery stores, so we needed equipment that was proven to work in this environment."

Beyond the Ordinary

USG selected a mixture of LXE's handheld and vehicle-mount computers for its operations. LXE's proven integration and support abilities were big factors in the selection. LXE was the first automatic identification and data collection (AIDC) company to integrate Cisco radios into its mobile computers, and was recently certified for compatibility with Cisco Compatible Extension (CCX) Version 3, which includes WPA2 and EAP-FAST 802.1x security support.

USG could also take confidence in the fact that LXE has proven experience supporting large-scale operations. Thousands of LXE mobile computers connect to mission-critical ERP applications, and LXE has specific expertise in real-time integration with Oracle Mobile Supply Chain Applications.

"LXE's got a very rugged product line that fits in quite well with our ERP, wireless network and security standards," says Warren. "LXE has more than lived up to their service and support commitment, which has been outstanding."

Ease of integration also set apart the bar code label printers USG selected and resulted in lower implementation costs. USG chose Zebra Technologies' high-performance printers, which have a no-charge XML option that allows the printers to integrate directly with Oracle. That way, label requests and print jobs generated from the enterprise application can be sent directly to the printer in real-time for output. Typically, to print bar code labels from Oracle applications, a separate print server or middleware is used to translate Oracle commands for output, which can be expensive to install and support for organizations with multiple facilities.

"Zebra's direct connection, XML-based solution gives you a lot of degrees of freedom and makes printing a heckuva lot easier," says Warren. "We think our TCO will be much lower by connecting the printer directly to the application."

Success from the Start

The LXE and Zebra solutions proved themselves in a pilot that set the foundation for a wide-scale rollout. The project got off to a great start on both the technical and human sides, where smooth implementation and excellent performance have helped gain employee acceptance.

"We thought it would be a major transition for our plant employees," says Zucco. "Instead, it's been a short learning curve and our workers have adopted very quickly. With a little training they're off and running."

USG - and its customers - are already seeing the benefits of the first implementations.

"Now we have material and order traceability throughout the warehouse to shipment to the customer. As a result, the accuracy of our inventory, shipments and ASNs (advance ship notices) have all improved greatly," says Menendez.

The LinX project was organized around and motivated by improving service levels for customers. Key metrics include improved fill rates, increased shipment accuracy, and complete order visibility so USG customer service representatives can immediately access any information they need to answer customer inquiries. USG is meeting these goals at the facilities where the new wireless mobile computing and data collection applications have been implemented.

"Unless you completely ignore the system, it's impossible to load a truck wrong now," says Zucco. "Customers are getting exactly what they expect."

The new systems are giving USG exactly what it expects - reliability, responsiveness and efficiency in busy production environments. That performance is helping USG build on its leadership and service, and helps the customers who build with USG.



About LXE Inc. LXE Inc. improves supply chain performance by applying over 36 years' experience developing wireless products and solutions. From wireless computers, advanced auto-ID technologies, and wireless network infrastructure, to our award-winning customer support - LXE's easy-to-use products are as reliable as the people who install and support them.

Based in Norcross, Georgia, LXE also offers a full range of turnkey services, including radio integration, project and installation management, network design, technical support, and repair services. LXE is a wholly-owned subsidiary of EMS Technologies, Inc. (NASDAQ: ELMG), and has offices worldwide. For more information, visit www.lxe.com.