



COMPASS

ENGINEERING GROUP

Case Study: Brookstone

Mexico, MO Distribution Center

Compass Engineering Group needed to expand and update a distribution center, address needs pertaining to shipping, sorting, and error diagnostics.

11/13/2003

COMPANY OVERVIEW:

Brookstone is a nationwide specialty retailer offering an assortment of consumer products that are functional in purpose, distinctive in quality and design and not widely available from other retailers. Brookstone first introduced itself to the world in a small classified ad selling "hard-to-find tools" in Popular Mechanics Magazine. From the beginning, quality of product, quality of service, and quality of people have been a hallmark of Brookstone. The consistently unique line of products, the fun interactive shopping environment, and the detailed catalogs are the reason more and more people seek out Brookstone each year.ⁱ

**THE CHALLENGE:**

The Mexico, MO Distribution Center for Brookstone needed to be expanded and updated. With five different areas needing services, Compass Engineering Group needed to address issues concerning picking, packing, returns, slappers, and shipping. Additionally, Brookstone also sought after Compass Engineering Group's services for implementing power distribution and data conduits that were required by the peripherals in the conveyor system currently being installed in the Brookstone facility. Furthermore, Compass Engineering Group also needed to provide Brookstone with some form of graphical interface that could be used for system solutions diagnostics. Some of the system faults Brookstone wanted Compass Engineering Group to consider were:

- Active E-stop device and location by conveyor/area
- Motor overload by individual motor
- Lane full statuses (pick modules, ship lanes, etc.)
- Low air pressure fault
- Jams at all applicable divert points, sort points, and merge points
- Functional area running/stopped status

THE STRATEGY:

To provide a modern and reliable controls and software system solutions, Compass Engineering Group offered a sophisticated, yet simplistic, architecture plan and graphical monitoring system to provide Brookstone with solutions to address the above concerns. Some of the strategies implemented include:

- Compass Order Routing System (CORS) to provide supervisory control and system diagnostics in real-time
- Product routing control utilizing a PLC device
- CORS/Wonderware Integration to provide on-screen graphical systems information
- Electrical installation and wiring of all devices

THE SOLUTION:

A new controls architecture facilitated three levels of functionality—the warehouse management system, the order routing system, and the mechanization of control. The CORS control and PLC logic provided by Compass Engineering Group worked together to direct all product routing within the distribution center and assess these three different areas.

For the needs of Brookstone, the CORS system consisted of a series of computers connected via a local area network (LAN) to share information amongst the other computers. The CORS server provided real-time data to the PLC, providing a fast and accurate transmission of control system information. To deal with the error handling, the graphics provided by Compass Engineering Group depicted the physical conveyor layout as well as text based error logging to provide the user with an accurate and detailed analysis of the system error.

Compass Engineering Group provided Brookstone with controls hardware design, computer aided design (CAD) work, PLC programming, CORS design and programming, electrical installation and wiring of all field devices, commissioning of all the new and relocated conveyors, system acceptance testing, and customer training in order to guarantee Brookstone the upmost quality in all designs and products.

THE END RESULT:

Upon project completion, the warehouse center in Mexico, MO had a new solutions control system. With state of the art technologies and Compass Engineering Group's intuitive approach, Brookstone has been able to increase efficiency, production, and profits. With another affordable approach to warehousing needs, Compass Engineering Group successfully met their customer's needs on a timely and professional manner that adheres to the highest standards of control and software solutions.



¹ Information from www.brookstone.com