



All images courtesy BSW International

Wal-Marts designed to reflect local tastes: Belmont, North Carolina.



Wal-Mart meets Architect

A Powerful Owner Drives Design Process Change

MOST ARCHITECTS LOOK AT A WAL-MART AND SEE ONLY THE "BIG BOX" of "low-cost retail," an industry segment that long ago abandoned the use of design-oriented architects. However, when "construction owners" look at the same building they see the value inherent in this aesthetically simple but almost functionally perfect structure, a structure that is being continually improved and replicated throughout the world.

Mary E. Kell, Client Services Manager for BSW International, received the email notifying the A/E firm of another project. The Owner has assigned a regional civil engineer and environmental consultant to work with BSW. The site has been selected; the Owner has listed specific requirements. The clock starts. Construction documents will be complete in less than 5 weeks. If necessary, they can be ready in hours.

Wal-Mart has become the leading retail company in the world largely because it understands processes. The retail giant uses these processes to serve almost 140 million people weekly in more than 4500 Wal-Mart Stores and Supercenters, nationally and internationally. Long the subject of business school case studies, the chain has carefully designed and continually improves upon its supply chain management, distribution, and pricing. Wal-Mart knows how to serve its customers by developing processes and facilities that place products in front of the customer at the right place, the right time, and the right price. The Wal-Mart stores—the sites, the buildings, the fixtures—are detailed responses to company needs. Wal-Mart is a sophisticated construction owner, applying its same genius for delivering products to the development of the Wal-Mart store, a critical component of its business plan.



Woodland Park, Colorado.



Avon, Colorado (front elevation below).



BY BARBARA WHITE BRYSON

Twenty years ago, Wal-Mart knew what it wanted from architects but just couldn't get it. The retailer wanted quality, utilitarian stores delivered quickly for a price that matched its business plan. A common response from architects and contractors was that this was not possible. If it wanted quality buildings quickly, Wal-Mart would have to give up price. If it wanted a low price, it would have to give up schedule or quality. Wal-Mart refused to accept that outdated industry premise so they sought out an architect that was ready for change. They found Bob Workman of BSW International.

Tracy Bruffett, Prototype and Change Team Manager for BSW International, examines the project information spreadsheet, looking for requirements that will require a change to the prototype and those that would be required due to site conditions. This "change triage" process helps him immediately identify those changes that will be completed based on a pre-determined lump sum fee and what changes will be charged by the hour. This cost information is forwarded to the client for final decisions almost instantly on a web-based system. Changes are accepted or rejected electronically and then forwarded quickly.

Workman saw the possibilities: "There are thousands of good projects out there, he says, not just projects published in *Architectural Record*. I looked at the retail world, which was rampant with inefficiencies, architect community inefficiencies, and lots of opportunities. What if, in that environment, we focused on what we did in the design process...that little bitty part? It could have a vast effect and it would impact clients' ability to improve their business models and compete more effectively."

"Years ago," he continued, "I wondered what would happen if architect's egos weren't getting in the way of having more of an effect on the world ...So [BSW] focused on the programs nobody else was interested in—Wal-Marts, gas stations, Montgomery Wards—where more variables could be controlled." These simple "low-design" projects, driven by clearly defined owner expectations, provided an opportunity to redesign the project delivery process.

Bob Workman had studied Deming, the famous process engineer who brought Japanese principles to the United States. Workman strove to understand how these principles could be applied to the architectural design industry, a service industry that commonly accepts imperfection as a standard rather than the Deming goal of a "Zero Defect Process."

Tony Sabello, Graphics Illustrator for BSW International, reviewed the 15-page questionnaire that had been taken to the local building official. It covered every aspect of the project, clarifying every potential grey area including graphics/signage restrictions and requirements.

Deming placed a high value on information that is accurate, timely, complete, and relevant. "We started by forcing the worry curve forward in time," says Workman. "Instead of letting ill-timed information come in whenever it surfaced, we proactively determined what was pertinent information. We collected all that information, put it in front of the decision maker, made sure he made a decision, then made him live with it." Workman's team asked Wal-Mart general contractors what they needed. Then the A/E



Beautiful only in their effectiveness (left to right): Prototype Wal-Mart Supercenter; stores in Anthem, Arizona, and Grand Blanc, Michigan.

In many ways, the Wal-Mart Supercenter resembles the Model T of Henry Ford: simple, effective, and built by a process still in its infancy.

asked the same question of the building officials and other key members of the process. "Boy, did we learn a lot!" says Workman. This knowledge enabled BSW to focus on and measure things that mattered; things that could change what the architect did. They documented items like bid questions and RFIs. If they had two pointing to the same problem, they made a change.

The production of Construction Documents starts with the "Automation Process," AutoCAD 2005, using Xdata to manipulate the characteristics of the building. Basic information is fed into the system, including code requirements, dock location, and utility access points. The drawings, then 95 percent correct, are produced entirely by the system, ready for final review and adjustment.

Workman observed that less than 20 percent of every traditional project is really spent on design. More than 80 percent of the effort goes to develop "an error filled set of customized working drawings." He wanted to flip that condition so that 80 percent of the time is dedicated to design. He did that by rotating as much of the process as he could out of the single project into an overall program. He fixed and controlled everything possible from cash registers to contracts. Ninety-five percent of every project became automated or standardized. Seventy-five percent of the project drawings were reused, coming straight from the prototype.

Mary pulls the detailed sequential checklist for project production to determine next steps. Since it is Thursday, she also checks for prototype changes that may have been approved during the weekly meeting between the project team and the owner. Mary has no problem determining how to proceed. The process has been well defined.

It was an experiment that paid off. Workman helped make Wal-Mart successful by providing designs at comparatively high speed, giving Wal-Mart an even more cost effective place to conduct their business. While perfecting the prototype, the architect was able to deliver stores that are safe, well lit, attractive, clean, and flexible. Surprisingly, Wal-Mart doesn't want to stop there. More recently, the giant retailer has taken advantage of the extended time available to focus on design. At the behest of its neighbors, Wal-Mart has developed an increased understanding of the impact that its stores have on communities, and so the retailer is challenging BSW and a select group of other architects to develop designs that reflect local architectural needs and tastes. Specifically responsive designs have been generated for unique communities like Avon, Colorado; Woodland Park, Colorado; and Belmont, North Carolina. "Wal-Mart continues to be a great client," Workman says, "They are willing to learn, to press the envelope, and to improve."

Recent media attention focused on Wal-Mart indicates the super retailer may be using the 80 percent design time to address market and environmental changes as well. When you have a nearly perfect retail delivery prototype, you can tweak it as needed. A September 17, 2005, article in the *Wall Street Journal* says, "In early June, Wal-Mart opened a prototype supercenter in Rogers, Arkansas, that targets the new [more well-rounded income level] demographic. Among the changes: wider aisles, mock hardwood floors, and skylights." Wal-Mart is also pressing the envelope in the area of sustainable design. The September/October 2005 *Texas Architect* features the "Eco-Friendly Design" of the new supercenter in McKinney, Texas, a prototype store enhanced by more than "29 environmentally focused experiments."

The final merchandizing plan arrives 60 days prior to the owner taking possession of the project from the contractor. This is "show time" or, rather, "stress time," evaluating the impacts, determining required changes and getting the changes to

the contractor. Tracy Bruffett knows that Wal-Mart values this part of the process highly. They have to be able to shape the interior of the store to meet current retail trends. This is the heart of their mass customization process.

According to Bob Workman, this is only the beginning of experimentation for BSW International. He believes strongly that these same processes can enhance design aesthetics as well as function. As he sees it, the Wal-Mart store projects are in the "first arc" of experimentation. After mastering these processes and refining these tools in the low-cost retail environment, BSW was ready to move up to the next arc, to projects requiring more sensitive and creative design. In fact, the architect has already incorporated these processes into the next arc, taking on hotels (Marriott), restaurants (Applebee's) and a wide variety of other clients. He believes it is only a matter of time (and research) until he can apply many of these "mass customization" processes to unique projects at the most demanding levels of design.

So much about creating buildings can be examined, perfected, and duplicated, over and over again. Most owners are serial builders, having programs of more than one building. Most projects have vast similarities in foundation, structure, and systems. Processes, people, and design can all be rotated out of the individual project environment to be focused on and improved. Each rotation and subsequent improvement is an opportunity to change, to improve, to be inspired.

Tracy closely examines the data from the completed project. He scans the subject line of each of the twenty-two RFIs from the project. It's getting harder and harder these days to find prototype problems to be addressed. Customization problems are only a little easier to track down. But Tracy still looks at all the data on every job, like a detective, searching out the villain. Eureka! That new connection detail needs some work...You get what you look for.

By choosing to deal with process opportunities and defining a simple palette of materials, details, and ideas, an architect could become a masterful service provider as well as a craftsman, an artist, and, most importantly, a 21st century professional. As Workman states, "Just look at the level of design that can be found in the car industry. That comes from confidence in the process. Not until the industry understood the process could they address style. It is the same in architecture. [By addressing and improving the process] architects will be freed. They will be more creative. They will be better designers. They will be more valuable to the world and they will [have the opportunity to] take on more responsibility [in the project delivery process]." Bob Workman focuses on projects that don't excite most architects. But his efforts have gleaned important information, systems, and tools that can inform the entire architectural community. He responded to the needs of a focused construction owner and, for that, he has been successful. This is not, however, a classic case of "selling out". It is instead one of the most interesting areas of industry exploration we have seen in decades.

The automobile analogy can be extended here. In many ways, the Wal-Mart Supercenter resembles the Model T of Henry Ford: simple, effective, and built by a process still in its infancy. There is little about these structures that we would ordinarily call beautiful except, possibly, in their effectiveness. But one can't help wondering what incredible new forms and variations might someday grow from this new set of processes. It is just possible that the most significant change coming to the design industry, in function and form, will be from projects that, by the nature of their simplicity, permit experimentation...projects like Wal-Mart. ■