



## CONSTRUCTION

# Building Quality At Veridian Homes

by **Denis Leonard**

**V**eridian Homes has found the use of several quality methods, including a Baldrige self assessment system, is critical to the success of the company's improvement initiatives. Using best quality practices to increase customer focus and satisfaction, it has improved productivity

while reducing impact on the environment.

Veridian began in June 2003, when Don Simon Homes and Midland Builders, two of Wisconsin's oldest home builders, merged. The family owned and operated company dedicated itself to quality home building, community involvement and environmental stewardship. With 100 employees, Veridian Homes now builds 500 single-family and condominium homes each year in Madison, WI, and the surrounding area.

The goal at Veridian Homes is to promote, educate on and coordinate quality throughout the company. Specifically, the structure and systems employed to achieve this goal, from a strategic and operational mindset, include the National Housing Quality Award (NHQA), Malcolm Baldrige National Quality Award self assessment, builder certification and the Six Sigma define, measure, analyze, improve, control (DMAIC) methodology.

Veridian Homes integrated these tools (see Figure 1, p. 50) to earn the 2006 NHQ Gold Award. The National Assn. of Home Builders Research Center (NAHBRC) introduced the NHQA program in 1993. Based on the Baldrige award, the program provides applicants expert evaluation and feedback on their organizations' quality management practices.

### In 50 Words Or Less

- **Veridian Home uses several quality methods—including self assessments, customer surveys, Six Sigma and process mapping—in its strategic planning process.**
- **Leveraging these approaches, Veridian, a family owned company, earned the 2006 National Housing Quality Gold Award.**

Unlike the Baldrige award, the NHQA process includes a third-party survey of the applicants' customers on their satisfaction with their homes and the home building process. The NHQA also includes a self-assessment, which helps identify opportunities for improvement (OFIs) and allows these efforts to be strategically implemented.

**Self Assessments**

Veridian treats self-assessment as an integral part of its strategic planning process (SPP) rather than just a supplement to it. Self-assessment is where the SPP starts and ultimately ends as part of the two-way communication between senior management and employees to ensure effective strategic planning and implementation.

Senior managers lead regular companywide self assessments against Baldrige criteria. The resulting data are used to identify strategic and operational OFIs while monitoring corporate performance through a balanced scorecard. This drives continuous improvement and forms the basis of Veridian's strategic planning structure.

Self-assessments are conducted annually using Baldrige Express, an employee survey based on the Baldrige criteria. The National Council for Performance Excellence offers Baldrige Express surveys in association with state quality award organizations.

These online or hard copy self-assessments are organized into sections that match the Baldrige criteria categories. Employees rate the company on a Likert scale in each criterion and can provide detailed comments on strengths, weaknesses and OFIs. A report provides a detailed analysis for management to conduct annual measuring and monitoring and to identify and prioritize weaknesses.

**Strategy Coordination**

Veridian uses this strengths, weaknesses, opportunities and threats (SWOT) analysis to drive its annual SPP, placing Baldrige at the heart of the organizational strategy formation cycle (see Figure 2). The SPP involves senior managers meeting off site to evaluate the SWOT analysis and develop a strategic environmental scan. They use the company's values, vision and mission statements (see "Veridian's Vision, Mission and Values," p. 53) to evaluate and direct the process.

The senior managers communicate the key decisions made during the strategic planning sessions to the rest of the management team at a larger off-site meeting. Here the managers, focusing on two-way communication, further discuss goals and timelines. Managers then present this information to their departments to ensure all employees understand the company's strategy and to gain feedback to further refine the strategy.

Managers obtain feedback on leadership effectiveness through various mechanisms, including regular meetings, a more in-depth employee satisfaction survey and a leadership 360 evaluation. These employee surveys systematically collect feedback on management and leadership effectiveness, as well as satisfaction with all aspects of work.

After determining the strategic objectives and aligning them with success drivers, managers create the departmental goals, timelines and action plans to ensure proper strategy rollout. Action plans dictate how the objectives will be implemented, the target completion dates and who is assigned to each goal (see Figure 3).

**FIGURE 1** Strategic Coordination Of Quality Initiatives via Baldrige





Strategic goals are linked to each employee via the performance planning and development (PPD) process. This process helps an employee understand his or her role, priorities, resources, accomplishments and professional development as they relate to the company's vision, mission, strategic drivers and departmental strategic goals. The employees also take part in a profit sharing program, motivating and rewarding employees based on measured and sustained improvements in cost, quality, cycle times, customer service and profits.

Veridian employees also have input to the SPP at monthly and weekly departmental meetings, biweekly company meetings and weekly one-on-ones (see Figure 4, p. 52). The company's president, David Simon, leads the biweekly companywide meetings. During each meeting, the vision and mission are reviewed, departments provide updates and quality is discussed. The weekly one-on-ones are structured meetings between employees and their managers, usually lasting 30-60 minutes.

Further communication includes weekly production meetings with trade contractors to review schedules and address hot spots or trending problems that are emerging in the production process. This highlights the production process as a team effort, not a series of disjointed activities. These trade contractor meetings have improved commu-

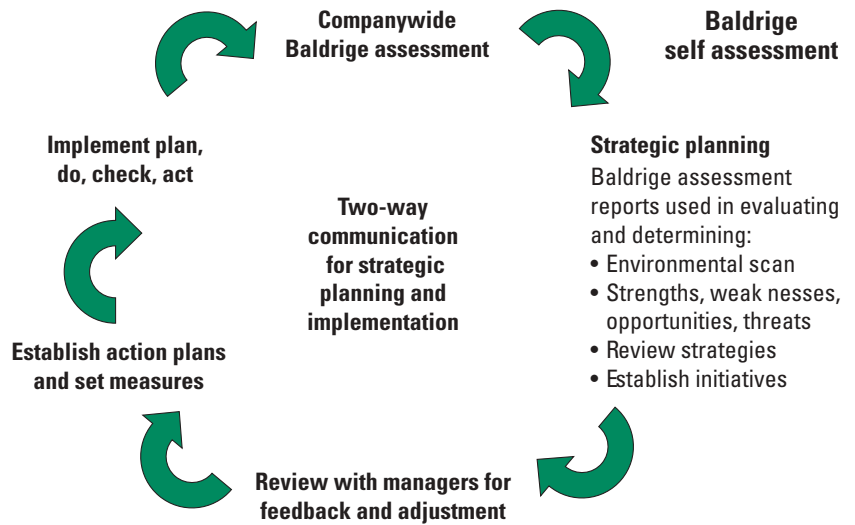
nication and cooperation and reduced cycle time and defects.

### Integrated Management Systems

In fall 2004, Veridian Homes earned NAHBRC builder certification status for quality and safety management systems. The certification, based on ISO 9000, is third-party audited and included Veridian's construction, sales and customer relations departments. Since earning certification, the land development, purchasing, estimating and design departments have been incorporated into the certification.

Veridian has expanded its management system

**FIGURE 2** Strategic Planning Cycle Driven By Baldrige Assessment



**FIGURE 3** Strategic Plan Directly Linked to Individual Employee Impact

Success drivers	Strategic objectives	Tactical/operational plans (action items)	Target date	Assigned	
					Performance planning and development • Work plan, priorities and time frame • Resources required • Accomplishments • Support of Veridian Homes vision, mission and values

to include an environmental management system (EMS) that focuses on improving activities such as erosion control and recycling. This has formed an integrated quality, environmental, health and safety (QEHS) management system, which provides a tactical level methodology to structure, document, disseminate, implement and manage Veridian's QEHS requirements.

At an operational level, the QEHS system uses tools such as DMAIC, value stream mapping, problem solving, 5S (sort, straighten, shine, systemize and sustain) and 8D (eight disciplines of problem solving).<sup>1</sup> This QEHS system has allowed Veridian to participate in a voluntary state program called Green Tier, in which Veridian annually commits to improving, through measurable results, its environmental impact.

Together, the NHQA criteria and builder certification QEHS system provide the means for Veridian to design, manage and improve its business processes.

## Quality Tools For Improvement Teams

Veridian uses various improvement tools and techniques to support quality implementation.

**Toolbox.** On the Veridian intranet, which is available to all employees, a quality toolbox provides templates, PowerPoint based training, videos and other materials covering topics such as trade

partner certification, builder certification, NHQA criteria, Baldrige criteria; DMAIC, plan-do-check-act, value stream mapping, failure mode effects analysis (FMEA), 5S, 8D, international team excellence tools, TRIZ (innovative problem solving), and other improvement tools and techniques.

Veridian is a sustaining member of ASQ, which provides resources to all employees, significantly supporting the toolbox.

**Improvement teams.** Since late 2003, 36 cross-functional improvement teams have completed projects to reduce cycle times or create new customer materials. Currently 15 improvement teams are active. A total of 76 employees have been involved in team projects.

Each team has a team leader, facilitator and sponsor, and Veridian has one Six Sigma Black Belt and two Green Belts to provide support and expertise.

The construction and customer relations departments have launched 10 improvement teams focusing on issues raised through warranty and customer feedback and directly linked to the strategy for the operations department. Each of these teams, along with a trade partner, participated in 16 hours of communications and quality management training before developing charters to focus and launch their improvement teams.

Improvement teams also have implemented the EMS and have used tools such as FMEA and detailed fishbone charts to identify root causes. The teams also have created and implemented long-term plans for corrective and preventive actions. This will have direct positive impact on the environment, customers and the community.

**Process improvement.** The company has developed more than two dozen process maps to create and improve consistent processes and help develop departmental action plans.

One improvement process is the red line review. In the construction industry, this is the stage when building plans are reviewed for errors, OFIs or changes in specifications or dimensions. It's called a red line review because the plans get marked with red ink.

Veridian has combined this with the *kaizen* blitz, in which a group of people focuses on improving a process within a concentrated timeframe. The result is a *kaizen* red line review blitz: A cross func-

**FIGURE 4** Strategic Plan Linkage and Communication





## Veridian's Vision, Mission and Values

**Vision:** We build homes that enrich lives and realize dreams—one customer at a time, one home at a time. We achieve this with innovation, integrity, pride and passion.

**Mission:** We build great homes by never losing sight of what is important: our customers, our employees, our communities and the environment in which we live.

**Values:** To guide decision and behavior, Veridian Homes has articulated 27 values, which have been divided into six key drivers: customer delight, innovative environments, unparalleled quality, lasting relationships, best practices and community commitment.

tional team reviews several home plans at the same time during a concentrated improvement session.

The construction, customer relations and drafting departments regularly conduct *kaizen* red line review blitzes with trade partners. These blitzes not only identify OFIs in the building plans, but they also provide opportunities to improve customer satisfaction and the efficiency and effectiveness of the construction process.

Blitzes are conducted on all new plans and regularly throughout the year on existing plans.

**Green building.** Veridian's green building practices address the corporate social responsibility aspect of quality management and are reflected in the leadership criteria of the NHQA and the Baldrige award. In Wisconsin, green building practices are certified by Green Built Homes through the Wisconsin Environmental Initiative.

Green Built certified builders undergo reviews of building plans, specifications and on-site visits to ensure the criteria are met. The criteria cover waste reduction, recycling and disposal of materials, energy efficient insulation and air sealing, storm water management and water conservation, landscape conservation, energy efficient mechanical systems, and use of recycled materials and energy efficient materials and construction products.

Veridian also builds homes to meet Wisconsin Energy Star certification. Homes that are Wisconsin Energy Star certified are 25% more energy efficient

on average than those built to the Wisconsin Uniform Dwelling Code.

The benefits of having a Wisconsin Energy Star and Green Built certified home include reduced energy bills, improved indoor air quality, and a healthier, safer and more durable home than homes built to standard building code. Homeowners also have the comfort of knowing their homes have a reduced impact on the environment due to the recycled materials used in building their homes.

In June 2001, Veridian (Don Simon Homes at that time) became the first production builder in Wisconsin to have 100% of its homes certified as Green Built and Wisconsin Energy Star. From 2003-2004, Veridian recycled more than 950 tons of materials, such as cardboard and wood.

**Customer feedback.** Veridian obtains feedback on customer satisfaction through surveys that address the customer's first visit to Veridian Homes, the interior design process, closing, post closing (45 days) and final warranty (11 months). Additional feedback is collected after closing via maintenance and warranty requests. Customer feedback is then shared with all Veridian employees and trade partners by e-mail and online databases.

### Promoting Quality With Partner Organizations

Veridian Homes provides free quality training, materials and consulting to its trade partners to

support them as they earn certification of their quality management systems or trade certification through the NAHBRC.

Services Veridian has provided include 14 hours of on-site training and materials to 80 trade partners, question and answer sessions, manual reviews, dry run audits, and phone and on-site advice and support. Currently 13 partners are certified trade contractors through the NAHBRC, and another 55 have developed quality systems and are preparing for certification.

Veridian holds an annual celebratory dinner and conference that includes presentations by Veridian representatives and trade partners on topics such as trade certification, best practices, safety, environmental management and problem solving. In 2005, 130 trade partners attended the conference.

## Even Flow Production

Veridian's quality improvement efforts contribute to its even flow production system. Rather than sometimes having little or no work and sometimes too much work, Veridian evens the work out through good project management and planning, and adhering to a consistent, predictable construction schedule.

Using techniques such as balanced scheduling of trade partners in a given neighborhood and just-in-time delivery of materials, the company's even flow system has improved quality in numerous ways, including fewer return trips needed by trade partners, fewer callbacks and more reliable availability of materials. Ultimately, the system means the day a customer buys a home, he or she knows exactly what day it will be ready for move-in.

The goal of the system is to start and finish two and a half homes every working day, a best practice in the industry. Veridian has maintained this for more than six years.

## Real Results

Veridian's quality initiatives have resulted in several performance improvements, including:

- Model homes sold cycle times reduced from 32 to 15 days.
- Drafting time on models reduced by more than an hour.
- Estimating time on model homes reduced by 32%.

- Material variance (difference between ordered and required, perhaps due to damage on site) down by 20% for lumber, 24% for siding and 38% for trim.
- Paperwork processing reduced by 208 hours per year, with a total estimated savings across Veridian of \$200,000 through performance increases by implementing a production scheduler software system called Builder MT.
- Person hours down by 200 per year through escrow and warranty process improvements.
- Defects cut in half by using ten defect reduction teams in cooperation with trade partners.

In national surveys conducted by NRS Corp., a consulting firm that specializes in research for the home building industry, Veridian customer satisfaction measures are consistently in the top 10% of the 333 builders reviewed. Satisfaction with Veridian's warranty is in the top 5% of all builders on the 30-day customer satisfaction survey and is in the top 15% of all builders on the annual customer satisfaction survey.

In a 2004 survey of Veridian buyers, 75% did not consider a builder other than Veridian.

All of this success is the result of Veridian's aligning self-assessment, QEHS management systems, and quality tools and techniques at appropriate strategic, tactical and operational levels. This alignment has created a lasting integrated application of quality.

## REFERENCE

1. [www.isixsigma.com/dictionary/8\\_d\\_process-170.htm](http://www.isixsigma.com/dictionary/8_d_process-170.htm)

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