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## Malcolm Baldrige National Quality Award 1992 Recipient Granite Rock Company

Vying for customers in a commodity industry that typically buys from the lowest-bid supplier, Granite Rock Company, a California producer of construction materials, is expanding the terms of competition to include high quality and speedy service.

The strategy is working for the Watsonville-based firm. Since 1980, the regional supplier to commercial and residential builders and highway construction companies has increased its market share significantly. Productivity also has increased, with revenue earned per employee rising to about 30 percent above the national industry average.

Most of the improvement has been realized since 1985, when Granite Rock started its Total Quality Program. The program stresses satisfying two types of customers: the contractor who normally makes the purchasing decisions and the end point customer who ultimately pays for the buildings or roads made with Granite Rock materials. By emphasizing the hidden costs associated with slow service and substandard construction materials, such as rework and premature deterioration, the company is convincing a growing number of contractors of the value of using their high-quality materials and unmatched service. To spread its quality message, Granite Rock sponsors seminars for contractors, developers, architects, and suppliers.



As a result of its investments in computer-controlled processing equipment and widespread use of statistical process control, Granite Rock can assure customers that its materials exceed specifications. Customers also can be confident that the materials will arrive when they need them. Granite Rock's record for delivering concrete on time, a key determinant of customer satisfaction, has risen from less than 70 percent in 1988 to 93.5 percent in 1991. That record tops the on-time delivery average of a prominent national company that Granite Rock benchmarked to improve its process.

### Granite Rock: A Snapshot

Founded in 1900, Granite Rock produces rock, sand, and gravel aggregates; ready-mix concrete; asphalt; road treatments; and recycled road-base material. It also retails building materials made by other manufacturers and runs a highway-paving operation. It competes in a six-county area extending from San Francisco southward to Monterey. Most of its major competitors are firms owned by multinational construction-material companies.

A vertically integrated company, Granite Rock employs 400 people, who are distributed among branch offices, several quarries, 15 batch plants, and other facilities. Approximately 250 of the employees are members of five unions.

### "Total Quality"



Nine complementing corporate objectives, distilled from analyses of customers' requirements, are the cornerstone of Granite Rock's quality program. During the annual integrated business and quality planning process, senior executives systematically evaluate company-gathered data and develop measurable "baseline goals" to help the company advance toward each objective.

Charts for each product line help executives assess Granite Rock's performance relative to competitors on key product and service attributes, ranked according to customer priorities. By 1995, the company aims to build a 10-percent lead over its nearest competitor for each indicator of customer satisfaction. After annual improvement targets are set, the executive committee expects branches and divisions to develop their own implementation plans. Coordination across divisions is fostered by 10 Corporate Quality Teams that oversee and help align improvement efforts across the entire organization. Although committees are chaired by senior executives, members include managers, salaried professional and technical workers, and hourly union employees. Teams carry out quality improvement projects as well as many day-to-day activities and operations. In 1991, nearly all workers took part in at least one of the company's 100-plus quality teams.

In 1987, the company introduced the Individual Professional Development Plan, a voluntary program in which 74 percent of Granite Rock people now participate. At least once a year, workers meet with supervisors to define their job responsibilities, review accomplishments, assess their skills, and set

skill- and career-development goals.

Granite Rock encourages all employees to continue learning and sponsors a series of classes and speakers on technical topics. In 1991, Granite Rock employees averaged 37 hours of training at an average cost of \$1,697 per employee, three times more than the mining-industry average and 13 times more than the construction-industry average.

As part of Granite Rock's effort to reduce process variability and increase product reliability, many employees are trained in statistical process control, root-cause analysis, and other quality-assurance and problem-solving methods. This workforce capability helps the company exploit the advantages afforded by investments in computer-controlled processing equipment. Its newest batch plant features a computer-controlled process for mixing batches of concrete, enabling real-time monitoring of key process indicators. With the electronically controlled system, which Granite Rock helped a supplier design, the reliability of several key processes has reached the six-sigma\* level. The new system and real-time data collection will be adopted by the company's other concrete plants, where control of product variability either approaches or exceeds the three-sigma level.

Applying statistical process control to all product lines has helped the company reduce variable costs and produce materials that exceed customer specifications and industry-and government-set standards. For example, Granite Rock's concrete products consistently exceed the industry performance specifications by 100 times.

Innovative applications of technology have helped the company enhance its service offerings. Granite Rock's Arthur R. Wilson Quarry may be the most advanced aggregate production facility in the country. Heavy investments in recent years have improved production efficiency, quality control, and customer service. Responding to customer concern over rising trucking costs, the company developed GraniteXpress, the construction industry's version of an automatic teller machine. With the automated system for loading aggregate, a driver inserts the equivalent of a credit card into a terminal, keys in the type and amount of aggregate, and proceeds to the loading facility where the truck is accurately filled over an electronic scale. The service, which operates 24 hours a day, 7 days a week, has reduced the time a trucker spends at the quarry to 9 minutes, as compared with 24 minutes before GraniteXpress was installed.

Granite Rock uses an annual survey that allows buyers to match up the company with its competitors. Every 3 to 5 years, more detailed surveys are conducted. Customer complaints are handled through product/service discrepancy reports that require analysis of the problem and identification of the root cause. Ultimate customer satisfaction is assured through a system where customers can choose not to pay for a product or service that doesn't meet expectations. Dissatisfaction is rare, however. Costs incurred in resolving complaints are equivalent to 0.2 percent of sales, as compared with the industry average of 2 percent.

\* Six sigma is a statistical term indicating a defect rate of 3.4 per million.

**Baldrige Website comments:**

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