

## Florida Rock Industries, Inc.

Pavilion's Cement Grinding Control Application optimizes plant operations through more stable production process, increased production and decreased energy consumption.

*Florida Rock Industries, Inc., whose predecessors began business in 1929, was incorporated in Florida in 1945. Florida Rock and its subsidiaries are principally engaged in three business segments: construction aggregates, concrete products and cement and calcium products. The company produces and sells portland and masonry cement and handles the import of cement and slag to be sold, ground or blended and then sold. Florida Rock's cement segment operates a cement plant located in Newberry, Florida.*

### Key Benefits

- > Increased production by 4.8 percent
- > Reduced specific power consumption by 4.7 percent
- > Achieved controller utilization of over 90 percent
- > Improved consistency in operations across shifts
- > Anticipated ROI in less than 6 months

### The Challenge

In the pursuit to provide the highest quality product, cement producers are constantly faced with a spectrum of challenges including increased customer demand, fluctuating energy costs, strict environmental regulations and increasing process complexity. To meet these challenges, Florida Rock Industries searched for a way to make the best use of its existing equipment and technology infrastructure, rather than investing in costly capital investments. At its Newberry, Florida plant, the company focused on the finish mill as a key area in the production process that could benefit the most from added efficiencies and tighter control of the process.

Specifically, Florida Rock wanted a solution to better maintain product quality specifications, reduce product quality variability and energy consumption while maximizing production (subject to equipment constraints). The overall goal being to provide a more stable operation of plant processes.

### Adding Pavilion to the Mix

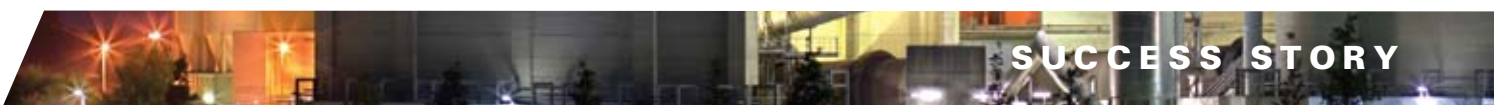
Florida Rock had been using standard plant control technology, but became aware of Pavilion Technologies' Cement Control and Optimization software solution as a way to truly maximize the manufacturing process. The solution, used successfully by many leading cement manufacturers across

the world, addresses the most difficult challenges facing cement manufacturers.

Based on Pavilion's Model Predictive Control (MPC) Technology, the cement solution delivers optimization across key areas of the production process including raw material preparation, pyroprocessing and cement grinding, to help provide customers with faster time to value and greater long-term value than alternative solutions.

Florida Rock chose Pavilion's Cement Grinding Control Application to optimize the finish mill process. Leveraging MPC, the application continuously assesses current and predicted operational data, compares them to desired results and computes new control targets to reduce in-process variability and improve process performance. In this way, the plant is now equipped with a persistent controller/optimizer to improve production and specific power consumption at a more consistent Blaine.

Florida Rock worked with Pavilion through its proven implementation process – the ValueFirst<sup>®</sup> customer engagement methodology – to determine a uniform set of performance metrics and to help ensure customer satisfaction. Following this process, Florida Rock and Pavilion identified the numerous variables that can affect the production process within the finish mill and developed the controller to fully utilize the mill's potential under existing system limitations.



*“Pavilion’s MPC-based solution for our finish mill has exceeded our expectations of increasing production while decreasing product variability and power consumption. The results of this project have given us the confidence to look at optimizing other areas of the process with Pavilion. Pavilion Technologies is viewed as a partner in our ongoing efforts to provide the best quality products while increasing profits for our company and its shareholders.”*

**Chris Homer**

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**Florida Rock Industries, Inc.**

The ValueFirst process helped identify that the Newberry plant’s specific control and optimization system objectives were to:

- > Maintain product quality (Blaine and 325 mesh) within specifications;
- > Reduce variability and improve operational stability;
- > Maximize fresh clinker feed rate subject to equipment constraints.

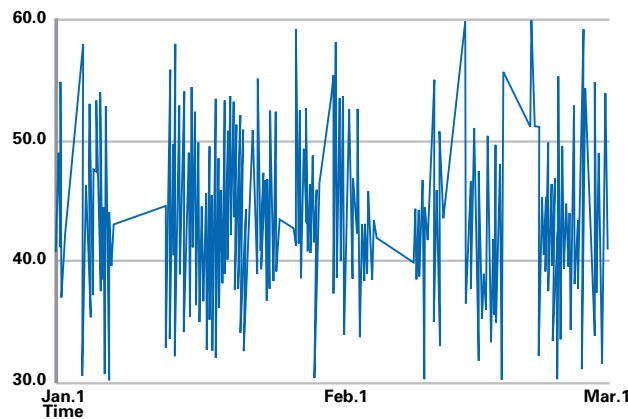
**Pavilion Delivers Rock-Solid Performance**

Once implemented, Pavilion’s Cement Grinding Control Application quickly helped Florida Rock stabilize and optimize its finish mill production processes, improve product quality and increase yield—all while reducing energy and operating costs.

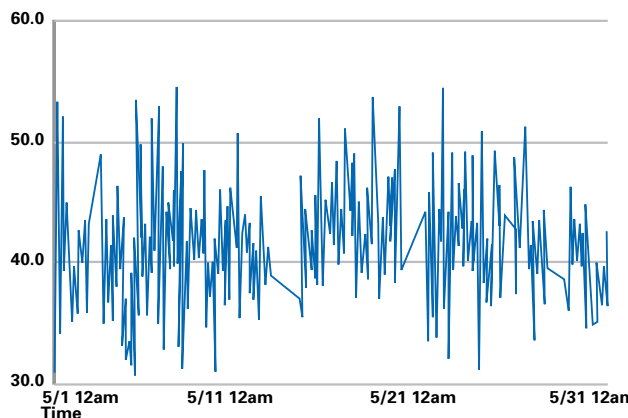
In fact, the application achieved the following results:

- > Increased production by 4.8 percent
- > Reduced specific power consumption by 4.7 percent
- > Achieved controller utilization of over 90 percent
- > Improved consistency in operations across shifts
- > Anticipated ROI in less than 6 months

Based on the success of the deployment, plant management is pursuing opportunities to expand the use of Pavilion’s solutions throughout other areas of its operations to maximize plant performance and improve overall profitability.



**Figure 1**  
Specific Power Consumption during baseline (01/01 to 02/28).



**Figure 2**  
Specific Power Consumption during evaluation (05/01 to 05/31).

For more information, visit [www.pavtech.com](http://www.pavtech.com) or call 800.880.5432.

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