



# Steel Mill Achieves Consistent Quality and Increased Output

A North American steel mill and manufacturer with six production sites was working to implement an advanced tool set and struggling to meet the precise process controls required. These quality control issues created delays in production, increases in re-work, and excessive waste. They turned to DB&A for help to improve consistency, quality of work, and on-time delivery.



## DB&A Analysis

During an in-depth analysis, DB&A Consultants observed the management culture and employee engagement, including:

- Existing processes
- Shift changes
- Communication
- Employee training and development
- Scheduling and Utilization of employees and equipment

The team of consultants uncovered significant opportunities to improve productivity and quality that could be achieved with a shift in management culture, implementing standard processes, and improving organizational planning and communication.

A lack of consistency in work processes was impacting the quality of the steel while also contributing to productivity concerns. Because the chemistry marks in the steel production process must be consistent to achieve certain standards for different grades of steel, the lack of consistency in standard work between shifts resulted in the inability to achieve and maintain quality and increased waste.

## The DB&A Difference

### Analysis Financial Proposal

- Project Cost: \$1,100,000
- Annualized Savings: \$2,500,000
- ROI: 2.3:1

### Actual Financial Results

- Actual Project Cost: \$1,100,000
- Total Project Savings: \$2,500,000
- Actual ROI: 2.3:1

### Project Results

- Improved utilization of employees from 35% to 65%
- Added 5 shifts of production to the schedule by reducing maintenance downtime
- Improved throughput by 8%

In addition, the company was working to implement an advanced tool set and the leadership needed support to complete the installation. The Analysis Team was confident that shifts in management culture, enhanced communication, and process improvements would accelerate the implementation efforts.

The Analysis Team also noted:

- Lack of interaction between supervisors and front-line employees
- Employees were not being developed
- Planning for maintenance was non-existent

Furthermore, the client was having to supplement steel from outside suppliers to meet manufacturing production demands.

## Implementation Actions

DB&A worked with front-line supervisors to develop a standard of work, which was then executed across all shifts. This helped create uniformity and consistency across all four shifts operating around the clock, 7 days a week. Supervisors worked with front-line employees to train them, where needed, to meet the standards implemented.

Quality standards were adopted as well as processes for attaining each grade of steel. Supervisors worked with front-line employees to track adherence to quality standards.

In addition to addressing issues on productivity and quality, DB&A worked with Supervisors to identify safety issues. The company empowered front-line supervisors to own and correct issues before they escalated to a safety incident.

Data from the client's maintenance ERP software was used to support planning and tracking of maintenance activities. Planning meetings were implemented along with dictated processes and procedures, overhauling how maintenance was performed. Productivity of maintenance employees could now be tracked to those standards. This, along with the weekly meetings, decreased down times, increased work loading, and improved efficiency.

Every three months the furnace must be completely shut down for maintenance so it can be relined. This is a major event that impacts all employees. Pre-event and post-event meetings were implemented to improve planning and productivity.



## Management Culture Results

Once a standard of work was adopted and consistent processes and procedures were rolled out to front-line employees, the alloy conformance quality improved. In addition, productivity increased, and waste and re-work decreased.

The mill was able to reduce the overall backlog of steel and the company was able to end its reliance on outside sources.

With maintenance procedures in place, the company experienced a month with the lowest percentage of maintenance downtime in years. With proper planning for the quarterly furnace maintenance, the process went from requiring 48 hours of downtime to only 38 hours, resulting in 5 shifts of production being added back to the schedule annually.

Overall, the company realized an 8% improvement of throughput, depending on the grade of steel. This was a significant improvement for this type of manufacturing environment. A second engagement in a different facility focused on reducing labor costs due to overtime, allowing the company to remain competitive in the rail industry.

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