

# Nucor in 2005

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Nucor Corp. took first place in the 2005 *Business Week* 50 list of the best performers of S&P 500 companies. Not bad for a company in an industry often considered unexciting and low tech! In 2004 sales were up 82 percent, from \$6 to \$12 billion, and earnings went from \$0.40 to \$7.02 per share. In a little over a year the stock price tripled. Longtime employees with \$300,000 in their retirement stock saw it rise to more than \$1 million. The tons shipped increased 9 percent with the average selling price up 66 percent. However, scrap prices were up 74 percent. At the beginning of 2005 prices seemed to be holding up because of the mergers in the United States and the state control of supply in China. And Nucor expected the first quarter of 2005 to double the 2004 results. This was a reasonable expectation since Nucor began the year with 70 percent of its flat-rolled steel output for all of 2005 sold, compared to just 25 percent a year earlier. Furthermore, in 2005 Nucor had two joint ventures with global partners to find alternatives to the use of scrap steel. In Brazil the company was working on an environmentally friendly way to produce pig iron. With Mitsubishi and the Chinese steelmaker Shougang, Nucor was building a facility in Western Australia to use the new HIs melt process to produce iron from iron ore finds and cold fines with less energy and pollution.

The previous three years had been among the worst down cycles in the steel industry's history. During those years Nucor acquired failing competitors, increased its steel capacity, and achieved a profit in every quarter. The world economy and demand had improved recently as prices went from \$300 a ton to \$640 a ton. Thus, Nucor expected profits to continue to

grow for a while. While bankruptcies had eliminated some excess capacity in the United States, and state-controlled China could hold back capacity to maintain prices, global competitors were consolidating, suppliers were raising their prices on iron ore and scrap, and buyers were considering alternatives to steel. Nucor, and its new president Dan DiMicco, faced a challenge in continuing Nucor's reputation for excellence.

## BACKGROUND

Nucor can be traced back to the company that manufactured the first Oldsmobile in 1897 and became the Reo Truck Company. As the company declined into bankruptcy in the postwar years, a 1955 merger created Nuclear Corp. of America. Following the "conglomerate" trend of the period, Nuclear acquired various "high-tech" businesses, such as radiation sensors, semi-conductors, rare earths, and air-conditioning equipment. However, the company lost money continually, and a fourth reorganization in 1966 put 40-year-old Ken Iverson in charge. The building of Nucor had begun.

Ken Iverson had joined the Navy after high school in 1943 and had been transferred from officer training school to Cornell's Aeronautical Engineering Program. On graduation he selected mechanical engineering/metallurgy for a master's degree to avoid the long drafting apprenticeship in aeronautical engineering. His college work with an electron microscope earned him a job with International Harvester. After five years in its lab, his boss, and mentor, prodded him to expand his vision by going with a smaller company.

Over the next 10 years, Iverson worked for four small metals companies, gaining technical knowledge and increasing his exposure to other business functions. He enjoyed working with the presidents of these small companies and admired their ability to achieve outstanding results. Nuclear Corp., after failing to buy the company Iverson worked for, hired him as a consultant to find another metals business to buy. In 1962, the firm bought a small joist plant in South Carolina (Vulcraft) that Iverson found, with the condition that he would be in charge of the plant.

Over the next four years Iverson built up the Vulcraft division as Nuclear Corporation struggled. The president, David Thomas, was described as a great promoter and salesman but a weak manager. A partner with Bear Stearns actually made a personal loan to the company to keep it going. In 1966, when the company was on the edge of bankruptcy, Iverson, who headed the only successful division, was named president and moved the headquarters to Charlotte, North Carolina, where he focused the company business first on the joist industry and then on steel production.

He immediately began eliminating the esoteric, but unprofitable, high-tech divisions and concentrated on the steel joist business he found successful. The company built more joist plants and in 1968 began building its first steel mill in South Carolina to "make steel cheaper than they were buying from importers." By 1984 Nucor had six joist plants and four steel mills, all using the new "mini-mill" technology.

From the beginning, Iverson had the people running the various plants, called divisions, make all the major decisions about how to build and run Nucor. The original board was composed of Iverson; Sam Siegel, his financial chief; and Dave Aycock, who had been with the South Carolina joist company before Nuclear acquired it. Siegel had joined Nuclear as an accountant in 1961. He had quit Nuclear but in its crisis agreed to return as treasurer if Iverson was named president. Aycock and Siegel were named vice presidents at the time Iverson was named president.

Dave Aycock had been very impressed with the original owner of Vulcraft, Sanborn Chase. Aycock had started his career as a welder there. He described Chase as "the best person I've ever known" and as "a scientific genius." He said he was a man of great compassion, who understood the atmosphere necessary for people to self-motivate. Chase, an engineer by training, invented a number of things in diverse fields. He also established the incentive programs for which Nucor later became known. With only one plant, he was still able to operate with a "decentralized" manner. Before his death in 1960, while still in his 40s, the company

was studying the building of a steel mill using newly developed mini-mill technology. His widow ran the company until it was sold to Nucor in 1962.

Aycock met Ken Iverson when Nuclear purchased Vulcraft, and they worked together closely for the next year and a half. Located in Phoenix at the corporate headquarters, Aycock was responsible to Iverson for all the joist operations and was given the task of planning and building a new joist plant in Texas. In late 1963 he was transferred to Norfolk, Nebraska, where he lived for the next 13 years and managed a number of Nucor's joist plants. Then in 1977 he was named the manager of the Darlington, South Carolina, steel plant. In 1984, Aycock became Nucor's president and chief operating officer, while Iverson became chairman and chief executive officer.

Aycock had this to say about Iverson: "Ken was a very good leader, with an entrepreneurial spirit. He was easy to work with and had the courage to do things, to take lots of risks. Many things didn't work, but some worked very well." There is an old saying, "failure to take risk is failure." This saying epitomizes a cultural value personified by the company's founder and reinforced by Iverson during his time at the helm. Nucor was very innovative in steel and joists. Its plant at Norfolk was years ahead in wire rod welding. In the late 1960s it had one of the first computer inventory management systems and design/engineering programs. The company was very sophisticated in purchasing, sales, and managing, and beat its competition often by the speed of its design efforts.

Between 1964 and 1984 the bankrupt conglomerate became a leading U.S. steel company. It was a fairy-tale story. Tom Peters used Nucor's management style as an example of "excellence," while the barons of old steel ruled over creeping ghettos. NBC featured Nucor on television and *The New Yorker* magazine serialized a book about how a relatively small American steel company built a team that led the whole world into a new era of steelmaking. As the NBC program asked: "If Japan Can, Why Can't We?" Nucor had! Iverson was rich, owning \$10 million in stock, but with a salary that rarely reached \$1 million, compared to some U.S. executives' \$50 million or \$100 million. The 40-year-old manager of the South Carolina Vulcraft plant had become a millionaire. Stockholders chuckled, and unionized hourly workers, who had never seen a layoff in the 20 years, earned more than the unionized workers of old steel and more than 85 percent of the people in the states where they worked. Many employees were financially quite secure.

Nucor owed much of its success to its benchmark organizational style and the empowered division

managers. There were two basic lines of business, the first being the six steel joist plants which made the steel frames seen in many buildings. The second line included four steel mills that utilized the innovative mini-mill technology to supply first the joist plants and later outside customers. Nucor was still only the seventh-largest steel company in America. Over its second 20 years, Nucor was to rise to become the second-largest U.S. steel company. A number of significant challenges were to be met and overcome to get there, and once that horizon was reached, even greater challenges would arise. The following are the systems Nucor built and its organization, divisions, management, and incentive system.

## NUCOR'S ORGANIZATION

In the early 1990s, Nucor had 22 divisions (up to 30 by 2005), one for every plant, each of which had a general manager, who was also a vice president of the corporation. The divisions were of three basic types: joist plants, steel mills, and miscellaneous plants. The corporate staff consisted of fewer than 45 people (25 in the 1990s). In the beginning Iverson had chosen Charlotte "as the new home base for what he had envisioned as a small cadre of executives who would guide a decentralized operation with liberal authority delegated to managers in the field," according to *South* magazine.

Iverson gave his views on keeping a lean organization:

*Each division is a profit center and the division manager has control over the day-to-day decisions that make that particular division profitable or not profitable. We expect the division to provide contribution, which is earnings before corporate expenses. We do not allocate our corporate expenses, because we do not think there is any way to do this reasonably and fairly. We do focus on earnings. And we expect a division to earn 25 percent return on total assets employed, before corporate expenses, taxes, interest or profit sharing. And we have a saying in the company—if a manager doesn't provide that for a number of years, we are either going to get rid of the division or get rid of the general manager, and it's generally the division manager.*

A joist division manager commented on being in an organization with only four levels:

*I've been a division manager four years now and at times I'm still awed by it: the opportunity I was given to be a Fortune 500 vice president. . . . I think we are successful because it is our style to pay more attention to our business than our competitors. . . . We are kind of a "no nonsense" company.*

The divisions did their own manufacturing, selling, accounting, engineering, and personnel management. A steel division manager, when questioned about Florida Steel, which had a large plant 90 miles away, commented, "I expect they do have more of the hierarchy. I think they have central purchasing, centralized sales, centralized credit collections, centralized engineering, and most of the major functions."

Nucor strengthened its position by developing strong alliances with outside parties. It did no internal research and development. Instead, it monitored other's work worldwide and attracted investors who brought it new technical applications at the earliest possible dates. Although Nucor was known for constructing new facilities at the lowest possible costs, its engineering and construction team consisted of only three individuals. They did not attempt to specify exact equipment parameters, but asked the equipment supplier to provide this information and then held the manufacturer accountable. Nucor had alliances with selected construction companies around the country who knew the kind of work the company wanted. Nucor bought 95 percent of its scrap steel from an independent broker who followed the market and made recommendations regarding scrap purchases. It did not have a corporate advertising department, a corporate public relations department, or a corporate legal or environmental department. It had long-term relationships with outsiders to provide these services.

The steel industry had established a pattern of absorbing the cost of shipment so, regardless of the distance from the mill, all users paid the same delivered price. Nucor broke with this tradition and stopped equalizing freight. It offered all customers the same sales terms. Nucor also gave no volume discounts, feeling that with modern computer systems there was no justification. Customers located next to the plant guaranteed themselves the lowest possible costs for steel purchases. Two tube manufactures, two steel service centers, and a cold rolling facility had located adjacent to the Arkansas plant. These facilities accounted for 60 percent of the shipments from the mill. The plants were linked electronically to each other's production schedules, allowing them to function in a just-in-time inventory mode. All new mills were built on large enough tracks of land to accommodate collaborating businesses.

Iverson didn't feel greater centralization would be good for Nucor. Hamilton Lott, a Vulcraft plant manager, commented in 1997, "We're truly autonomous; we can duplicate efforts made in other parts of Nucor. We might develop the same computer program six times. But the advantages of local autonomy make it

worth it." Joe Rutkowski, manager at Darlington steel, agreed. "We're not constrained; headquarters doesn't restrict what I spend. I just have to make my profit contribution at the end of year."

*South* magazine observed that Iverson had established a characteristic organizational style described as "stripped down" and "no nonsense." "Jack Benny would like this company," observed Roland Underhill, an analyst with Crowell, Weedon and Co. of Los Angeles. "So would Peter Drucker." Underhill pointed out that Nucor's thriftiness didn't end with its "spartan" office staff or modest offices. "There are no corporate perquisites," he recited. "No company planes. No country club memberships. No company cars."

*Fortune* noted, "Iverson takes the subway when he is in New York," a Wall Street analyst reports in a voice that suggests both admiration and amazement." The general managers reflected this style in the operation of their individual divisions. Their offices were more like plant offices or the offices of private companies built around manufacturing rather than for public appeal. They were simple, routine, and businesslike.

### Division Managers

The corporate personnel manager described management relations as informal, trusting, and not "bureaucratic." He felt there was a minimum of paperwork, that a phone call was more common than memos, and that no confirming memo was thought to be necessary.

A Vulcraft manager commented: "We have what I would call a very friendly spirit of competition from one plant to the next. And of course all of the vice presidents and general managers share the same bonus systems so we are in this together as a team even though we operate our divisions individually." He added, "When I came to this plant four years ago, I saw we had too many people, too much overhead. We had 410 people at the plant and I could see, from my experience at the Nebraska plant, we had many more than we needed. Now with 55 fewer men, we are still capable of producing the same number of tons as four years ago."

The divisions managed their activities with a minimum of contact with the corporate staff. Each day disbursements were reported to the corporate office. Payments flowed into regional lock-boxes. On a weekly basis, joist divisions reported total quotes, sales cancellations, backlog, and production. Steel mills reported tons-rolled, outside shipments, orders, cancellations, and backlog.

Each month the divisions completed a two-page (11" × 17") "Operations Analysis," which was sent to all the managers. Its three main purposes were (1) financial consolidation, (2) sharing information among the

divisions, and (3) corporate management examination. The summarized information and the performance statistics for all the divisions were then returned to the managers.

The general managers met three times a year. In late October they presented preliminary budgets and capital requests. In late February they met to finalize budgets and treat miscellaneous matters. Then, at a meeting in May, they handled personnel matters, such as wage increases and changes of policies or benefits. The general managers as a group considered the raises for the department heads, the next lower level of management for all the plants.

### Vulcraft—The Joist Divisions

One of Nucor's major businesses was the manufacture and sale of open web steel joists and joist girders at seven Vulcraft divisions located in Florence, South Carolina; Norfolk, Nebraska; Ft. Payne, Alabama; Grapeland, Texas; St. Joe, Indiana; Brigham City, Utah; and Chemung, New York. Open web joists, in contrast to solid joists, were made of steel angle iron separated by round bars or smaller angle iron. These joists cost less, were of greater strength for many applications, and were used primarily as the roof support systems in larger buildings, such as warehouses and shopping malls.

The joist industry was characterized by high competition among many manufacturers for many small customers. With an estimated 40 percent of the market, Nucor was the largest supplier in the United States. It utilized national advertising campaigns and prepared competitive bids on 80 to 90 percent of the buildings using joists. Competition was based on price and delivery performance. Nucor had developed computer programs to prepare designs for customers and to compute bids based on current prices and labor standards. In addition, each Vulcraft plant maintained its own engineering department to help customers with design problems or specifications. The Florence manager commented, "Here on the East Coast we have six or seven major competitors; of course none of them are as large as we are. The competition for any order will be heavy, and we will see six or seven different prices." He added, "I think we have a strong selling force in the market place. It has been said to us by some of our competitors that in this particular industry we have the finest selling organization in the country."

Nucor aggressively sought to be the lowest-cost producer in the industry. Materials and freight were two important elements of cost. Nucor maintained its own fleet of almost 150 trucks to ensure on-time delivery to all of the states, although most business was regional due to transportation costs. Plants were

