

During February our family was closely watching the Olympic Winter Games from Torino, Italy. We were repeatedly awed by the athletic accomplishments of these great athletes. We also were inspired by the great spirit and attitude they displayed both on and off the field of play. Who can't love Apolo Anton Ohno's spirit as he wins gold in short track speed skating, or the beauty of figure skating?

In our quest to be different and better, and to provide our customers a positive experience when they work with us, we are constantly searching for new ideas and initiatives that will help us create separation between us and our competitors. That endless quest requires constant openness to change. It also requires a total commitment to doing business on the basis of trust and long-term relationships, as well as a total commitment to avoiding the "commoditization" that frequently plagues our business. Unfortunately we constantly see examples of the commoditization paradigm at work (see "Why We Don't Like Apples" from our previous issue).

Ultimately if we are going to change the commoditization paradigm we have to commit to providing the value necessary to cause the paradigm to change. That requires a non-traditional approach, non-traditional language and non-traditional thinking.

The feedback we receive from the marketplace regarding our non-traditional approach is not always positive.

"Subcontractors don't have the right to that information." "Why are you asking so many questions?" "Just do what I say," are some of the responses we receive. Maintaining our commitment requires courage—courage to forge ahead in the face of others who believe the paradigm is unchangeable.

I am proud of our team for many things, one of which is their courage to push forward and work each day to change the paradigm—to show our customers and colleagues that there is a better way to work together.

Congratulations to all the courageous athletes who competed in the Olympic Winter Games. Their example of pushing forward through obstacles, in relative anonymity but for every four years, is a great example for us all.

Paul Grunau  
President, Grunau Company



## METALS

## GRUNAU METALS' EXPERTISE LEADS TO SMOOTH SAILING FOR DISCOVERY WORLD AT PIER WISCONSIN

Grunau Metals is helping Discovery World set sail on Milwaukee's lakefront by giving life to the metal design and structure of the state's groundbreaking new education center.

Discovery World, set to open to the public in September 2006, will introduce children and adults to the wonders of science, the Great Lakes and life underwater. The complex consists of two buildings—a rectangular facility that will house Discovery World, the museum of science, technology and economics currently based in the Milwaukee Public Museum, and a round building to the east built over the water, which will feature aquarium exhibits and interactive displays about freshwater resources.

The two buildings are connected by an enclosed breezeway. Pier Wisconsin also will play host to the *S/V Denis Sullivan*, a real Wisconsin schooner anchored off the pier that will act as a floating classroom. In addition to the major attractions, Discovery World at Pier Wisconsin features public grounds, a café, and observation decks overlooking Lake Michigan.

The nearly \$60 million Pier Wisconsin project is extremely large-scale and complicated. The project's numerous aspects had to be merged seamlessly to unite the final education center under one design scheme. Grunau Metals assisted this process by fabricating structural steel supports and ornamental metals on many different project levels.

*Grunau Metals' technicians fabricated and mounted halo-shaped support steel on the east building's exterior. Later, they will install designer sunshades to the supports.*



### Structural Supports

Grunau Metals' expertise in structural supports kept the Discovery World project afloat both figuratively and, in some cases, literally.

Discovery World will feature an amphitheater located in the waters of Lake Michigan. Grunau Metals fabricated the steel substructure for the amphitheatre, which is elevated above the waterline with support piles.

Grunau Metals' technicians also provided structural support for the double-wide Grand Staircase in the east building. The staircase splits to go around a full-scale replica of a Great Lakes schooner, nicknamed the *Challenge*, which will be open to the public for walk-through tours. The metals team fabricated and will install the staircase, and they also produced the main steel framework for the schooner.

In addition to the *Challenge*, the east building also will house tanks featuring aquatic life from around the country. Grunau Metals fabricated four of the tanks, which will hold exhibits from the Florida Keys, the north Atlantic and the Great Lakes, as well as a Remotely Operated Vehicle tank where visitors can drive a remote-controlled underwater vehicle from a platform above.

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*Grunau Metals fabricated the framework and three support beams for the Pier Wisconsin schooner model, Challenge. A walkway will connect the nearly 75-foot schooner to the east building's Grand Staircase.*



## Grunau Getting Lean and Gaining Results

Grunau Company has implemented a number of lean principles across all aspects of its business since September of 2003 when a 5S event (sorting, simplifying, sweeping, standardizing and self-discipline) revolutionized its tool room, resulting in a \$40,000 initial savings in tool utilization. Lean construction philosophies seek to minimize waste and maximize value by creating better work flow and increasing productivity.

One of Grunau's biggest office lean accomplishments was reconfiguring its service and maintenance department. The service and maintenance team spent nine months on its lean process, utilizing the value stream mapping principle and a 5S event. Unlike a 5S event which examines physical steps, value stream mapping creates a flow chart that visually examines every step in a process and analyzes how time is spent. The goal is to eliminate needless steps. Their results included an increase in department floor space that can now accommodate 20 percent growth.

Grunau employees currently are developing value stream maps for all of their office processes. They have a preliminary value stream map completed for every aspect of the business, including engineering, accounting, sales and insurance. Each office process is assigned a team composed of individuals from the field and across departments who are working together to create the future value stream map and implement it.

According to Ted Angelo, Grunau's executive vice president, it's important not to make a process more complicated when doing a value stream map. "We don't want people to come up with elaborate systems because we've found it doesn't eliminate waste, it actually creates more waste," said Angelo.

Since 2003, Grunau also has accomplished the following:

- Completed 5S events in its warehouse, yard, weld shop, plumbing shop, and sheet metal shops
- Conducted two 5S events in the Grunau Metals' shop
- Completed a value stream map for the office operations of the sheet metal shop
- Incorporated the lean principles of the Last Planner and Just-In-Time delivery of materials

This year, Grunau also is applying 5S to its fleet of vans and trucks as new vehicles are added to the fleet, and will conduct 5S events in other areas of the Grunau Metals shop and weld shop.



## GRUNAU SAVES MONEY, WATER AT WELLS FARGO

Grunau recently provided Wells Fargo with a more efficient water cooling system for its newly-purchased building located near Milwaukee.

Grunau had a three-fold advantage coming into the project. Not only had Grunau teams done the original work for the building and serviced the existing equipment for nearly 20 years, they also had long-lasting relationships with both the previous owner and Wells Fargo. As a result of their familiarity with the systems, executives at Wells Fargo relied heavily on Grunau teams to provide recommendations and work out the technical specifications for the project.

The biggest concern for Wells Fargo was the water cooling system for the building's main data center, which housed important computer systems, data collection software and sensitive fiber optic cables running just beneath the floor. Two Liebert climate-control systems monitored the room's environment, including heating, cooling, humidification and dehumidification. Unfortunately this system was very costly, because Wells Fargo paid a city water surcharge and a city sewer surcharge to operate it.

The Liebert systems also relied on one water drain positioned in the middle of the floor amongst the expensive computer equipment to accommodate the condenser water discharge. If the sewer ever backed up, water would flood the data center and destroy its equipment.

To solve the dilemma, Grunau devised a strategy for installation of a closed-loop water cooling system that would more effectively and safely regulate the data center's environment without relying on an outside water source. The closed-loop system circulates fluid continuously throughout the loop, utilizing fans in exterior coolers to keep the liquid cool. The fluid never has to leave the system. Grunau recommended that Wells Fargo keep the old city water connection in place as a back-up system to minimize potential down-time if the closed-loop system ever failed.

*Grunau installed a 20-ton Liebert unit and exterior liquid coolers to accommodate for a shortage of cooling capacity in Wells Fargo's data center.*

The data center also had a shortage of cooling capacity with the water-cooling system. Grunau corrected this by installing another 20-ton Liebert unit and exterior liquid coolers that could accommodate an additional 40 tons of cooling capacity. Since property regulation required that nothing mechanical could be seen by the naked eye, Grunau positioned the exterior coolers in a remote location away from the building and dug a 300-foot trench to bury the electrical conduit that carried power to the coolers.

During their time on the job, Grunau teams went out of their way to protect the sensitive equipment in the data center. They refrained from doing any torch work or soldering that might cause damage to the machines. Grunau also worked closely with on-site personnel from Wells Fargo to build the new climate control system around the HALON fire protection measures that already were in place and without interfering in the fiber optic system below the data center floor.

Through careful collaboration, Grunau service technicians kept the two existing Liebert units running until they could switch over to the new system. The building continued to function normally from project start to completion. The expertise of Grunau's teams allowed them to execute all aspects of the project themselves, from design and installation to trenching and pouring of the foundation for the exterior liquid coolers. Only one additional contractor was needed to insulate the piping. Grunau's diversity of capabilities was a huge benefit to Wells Fargo, because it allowed the project to be completed sooner, eliminating the hassle associated with multiple-contractor jobs.

Since the initiation of the closed-loop system that Grunau installed, water consumption at the building has decreased significantly. Not only has this saved Wells Fargo money, but Grunau also estimates that the system saves anywhere from 50,000 to 100,000 gallons of water each quarter.





## MECHANICAL

# GRUNAU INSTALLED HVAC SYSTEMS AT RESEARCH PARK

Grunau Company recently completed HVAC design and construction work for GE Healthcare’s new 506,000 square-foot facility in the Milwaukee County Research Park in Wauwatosa, Wis. The building will house GE’s Clinical Systems, Global IT Function, and Interventional, Cardiology & Surgery business.

Several areas in the building required special attention from Grunau because their higher-than-average cooling loads means it takes more energy to cool them. Grunau studied the facility room-by-room to determine the appropriate cooling specifications needed in each space.

Originally, GE’s HVAC plan called for 12 equal-sized rooftop units, but Grunau recommended using a combination of eight smaller units and four larger units instead. The recommended equipment had the same capacity as the original design, but cost less.

GE also requested a back-up cooling system for the facility’s main telecom room and a few computer server rooms to avoid problems with overheating if the main system failed. GE project leaders relied on Grunau technicians to advise them in the creation of the back-up system—a testament to the client’s level of trust in Grunau.

Although the facility is new, GE anticipated future expansions and asked Grunau for advice on how best to prepare. Grunau recommended installing additional equipment to accommodate for future growth, including two sets of chilled water risers that run from the first floor to the fourth floor. GE can easily tap into these risers if it decides to add equipment on the top floors.

*Using the Just-In-Time lean principle to improve job-site efficiency, Grunau had several rooftop HVAC units delivered directly to GE.*

To provide GE with the best possible service, Grunau focused on job-site efficiency and utilized the Just-In-Time lean principle to cut out unnecessary middle steps with deliveries. For example, in a two-day period, Grunau had 13 rooftop units, delivered directly to the site, instead of delivering the pieces to Grunau and then trucking them separately to the new facility.

Throughout the project, Grunau provided GE with true value engineering solutions—achieving the exact same result for less money—that never compromised on quality or performance.

Mark Lillesand, senior project manager at CG Schmidt, the project’s general contractor, was most impressed with Grunau’s interest in finding value engineering opportunities even after they were awarded the project.

“Grunau made recommendations at bid time to add value,” said Lillesand, “but even after they had been awarded the job they still were interested in finding value engineering options, a lot of which GE ended up taking. It’s just another example of how Grunau continues to add value.”

Grunau technicians worked within GE’s budget and timeframe and implemented the best, most cost-effective solutions for today and for the future.



# Grunau Metals Adds Beam Drill Line

Grunau Metals recently added a Peddinghaus Mitre Saw/Beam Drill Line, complete with transfer conveyors, to its equipment selection. The new machine will increase Grunau Metals’ efficiency and accuracy.

The Beam Line’s capabilities include: material transferring, cutting, drilling and parts-identification engraving.

The automated capabilities of the Beam Line can do approximately four times the amount of work that a normal human can and requires only one person to operate it. Grunau Metals’ technicians won’t handle beams as often, which reduces the likelihood of accidents and ultimately increases shop safety. As human error is eliminated, quality control improves. Grunau Metals will utilize the machine to its highest capacity, which will result in cost savings for customers.

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## Ornamental Design

Grunau Metals’ support system may have given Pier Wisconsin a secure base, but its ornamental metal work truly gives the center a personality all its own.

One of Grunau Metals’ main ornamental contributions is the ornate helical staircase that runs 22 feet between the two floors of Discovery World. The stair’s helical design, like that of a DNA strand, reflects Pier Wisconsin’s emphasis on science and discovery. The metals team fabricated the challenging curved helix shape and pre-fit sections of the stair in the shop to facilitate installation in the field.

Grunau Metals’ technicians also worked on the building’s exterior, fabricating and mounting halo-shaped support steel for the elaborate sunshades on the east building’s Observation Deck. Grunau Metals also will install the designer aluminum shades.

## Bringing Dreams to Life

Throughout the project, Grunau Metals adapted quickly to constant design changes as details always were in flux. The project also was very fast-paced and often required Grunau Metals’ shop to make last minute adjustments. The reliability of the shop allowed Grunau Metals to react immediately to changes or additions in metal fabrication. The teams also adjusted their schedules to complete some sections of the building before others, which allowed other construction crews to move forward with their individual aspects of the work. Grunau Metals’ expertise helped make Discovery World at Pier Wisconsin a reality.

*Grunau Metals pre-fit sections of Discovery World’s ornate, helical staircase in the shop to facilitate installation in the field.*





## CENERGY, BUCYRUS TRUST GRUNAU WITH ENERGY CONSERVATION MEASURES

When representatives of CEnergy Services, an energy conservation company focusing on industrial heating and improving industrial air quality, formulated a plan for South Milwaukee-based Bucyrus to save money on energy costs, they turned to Grunau Company to carry out the project's recommendations. CEnergy built a trusted relationship with Grunau during a previous project, so Grunau was the first choice for the Bucyrus job.

Bucyrus, a manufacturer of surface mining equipment, had 50-year-old piping in its heating system that leaked and wasted a large amount of energy each year. Grunau and CEnergy developed a new heat management system equipped with more than 50 gas-fired and 40 electric unit heaters, and 30 direct-fire make-up air units. Instead of concentrating the heat in one area, the new system spreads it evenly throughout the building and allows for more control over the heaters.

Grunau also designed, engineered and installed two low-pressure boilers to service six of Bucyrus' office buildings where the old system could not be converted to gas-fired or electric units.



Bucyrus gave CEnergy and Grunau a 10-week window in which to complete the work or CEnergy would incur monetary penalties. The project required excellent coordination to meet the deadline, and CEnergy trusted Grunau's ability to oversee and manage the four other subcontractors on the job.

◀ *Grunau designed, engineered and installed two low-pressure boilers at Bucyrus as part of the energy-conservation program implemented by CEnergy.*

"Grunau's rapid response was a tremendous benefit to everyone involved," said CEnergy Services President Bill McGreevy. "It really streamlined the project."

Bucyrus runs two to three shifts continuously, so in addition to the compressed timeline, Grunau also had to coordinate its work around the several hundred employees working at all times. To avoid complications and lost time, Grunau collaborated closely with Bucyrus personnel to manage when and where the teams would be working. Grunau went out of its way to work over, around and underneath Bucyrus employees, using cranes and exterior lifts to safely install the heating units without interfering with their work.

In an effort to increase project efficiency, Bucyrus and the subcontracting teams met regularly with Grunau's foremen. These meetings, held daily and, more formally, once a week, utilized the Last Planner principle of lean construction. This is a method of pinpointing the exact work that is being done, reviewing the coordination schedule and confirming that everyone has the right tools and equipment to get their jobs done correctly. It allowed Grunau to control as many aspects of the project as they could. At each weekly meeting, Grunau drew up a plan for that week, as well as one that looked ahead six weeks to plan for future needs.

In the 10-week period allotted by Bucyrus, Grunau put in more than 10,000 man hours to provide Bucyrus with an updated, more cost-effective heating system. Grunau's outstanding relationship with CEnergy Services and the management skills of the on-site teams helped the project run smoothly and efficiently.



▲ *Within the 10-week project deadline, Grunau installed 30 direct-fire make-up air units that helped form a new, cost-effective heating system for Bucyrus.*

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