BEFORE THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Application of TimkenSteel Corporation for Approval of a Unique Arrangement for the TimkenSteel Corporation's Stark County Facilities	**)** **)** **)** **)**	**Case No. 15-1857-EL-AEC**

DIRECT TESTIMONY OF THOMAS D. MOLINE

Q.1. **Please state your name, title and business address.**

My name is Tom Moline. I am Executive Vice President for Steel Manufacturing for TimkenSteel Corporation. My business address is 1835 Dueber Ave. SW, Canton, Ohio 44706.

Q.2. **Please describe your educational background.**

I earned my bachelor's degree in manufacturing engineering from Miami University in Oxford, Ohio.

Q.3. **What is your professional background?**

I joined The Timken Company in 1984 as an engineer on the team that built the Faircrest Steel Plant. I then served in a number of leadership positions, including managing the Harrison Steel Plant, before serving as executive vice president of operations for The Timken Company. Since the spin-off of TimkenSteel from The Timken Company, I have served as the Executive Vice President for Steel Manufacturing for TimkenSteel Corporation overseeing all of TimkenSteel's steelmaking operations, ensuring a focus on safety, quality and efficiency.

Q.4. **On whose behalf are you offering testimony?**

I am testifying on behalf of TimkenSteel Corporation in support of the Application filed in this proceeding.

Q.5. **What is the purpose of your testimony?**

The purpose of my testimony is to support the Application by describing the operations of TimkenSteel in Stark County, Ohio, including capital investments and our culture of continuous improvement.

Q.6. **What operations does TimkenSteel maintain in Stark County, Ohio?**

TimkenSteel maintains three manufacturing facilities in Stark County Ohio: the Faircrest Plant, the Harrison Plant and the Gambrinus Plant. TimkenSteel also maintains its worldwide corporate headquarters in Stark County. The three manufacturing facilities are near each other but each plant has a different configuration and capability.

Q.7. **Please describe the operations at the Faircrest Plant.**

The Faircrest Plant is used for steelmaking, ingot and continuous casting and solid bar rolling in sizes ranging from approximately 5 to 16 inches in diameter. It features more than 20 acres under roof on a 450-acre site in Perry Township. It is one of the most advanced alloy steel manufacturing facilities in the world and produces some of the cleanest and strongest carbon and alloy steels in the world. The plant is technologically advanced, and even the scrap selection is computer-assisted to optimize the proper chemistry and to minimize energy consumption. After scrap is selected, it is melted to 3000° F liquid metal in a 175-ton electric arc furnace. From there, it goes through several steps in the forming process, including being cast through in a 210 foot, $225 million jumbo bloom vertical caster. The jumbo caster has significantly improved yield, cleanliness and capacity and gives TimkenSteel broad capability to support its higher value special bar quality (SBQ) and seamless mechanical tube markets that are its focus. This yield improvement directly correlates to improved efficiency in electricity

consumption rates, effectively reducing the electricity consumed per ton of steel produced. Other recent and ongoing state-of-the-art investments at the Faircrest Plant include:

- A $25 million ladle refiner that became operational in May 2013 and has nearly doubled the refining capacity of the Faircrest Steel Plant, adding annual melt capacity of approximately [ ] tons; and
- A $35 million in-line forge press that, combined with TimkenSteel's recent investment in an ultrasonic test large-bar inspection line, reinforces its position as a premier provider of sound-center large bars of up to 16 inches in diameter.

Attached to my testimony as TDM-1 is an overview titled "Your Guide to the Faircrest Steel Plant" that provides additional detail on the Faircrest Plant as well as a basic overview of the plant.

Q.8. **What should the Commission know about the Harrison Plant?**

The Harrison Plant sits on an 80-acre site in Canton with 31 acres under roof. There, TimkenSteel produces carbon and alloy steel bars rolled to sizes ranging from approximately 1 to 7 inches using similar steelmaking, casting, and rolling methods to those used at our Faircrest Plant. Also, just like at the Faircrest Plant, scrap is selected with computer assistance to optimize proper chemistry and minimize energy consumption. It is then melted to 3000° F liquid metal in two 120-ton electric arc furnaces. From there, it goes through several steps in the bar forming process before being finished and loaded onto a truck for delivery.

Attached to my testimony as TDM-2 is an overview titled "Your Guide to the Harrison Steel Plant" that provides additional detail on the Harrison Plant as well as a basic overview of the plant.

Q.9. **Can you describe the operations at the Gambrinus Plant?**

At the 250-acre Gambrinus Plant in Canton Township, TimkenSteel produces seamless mechanical steel tubing in sizes ranging from 1.9 to 13 inches in diameter. This plant also completes steel finishing operations, including thermal treatment, of steel bars and tubing up to 13 inches in diameter. Nearly half of all of the steel shipped from TimkenSteel passes through the Gambrinus Plant. Recent and ongoing state-of-the-art investments at the Gambrinus Plant include:

- A $50 million steel tube intermediate finishing line (IFL) project that incorporates the latest technology and lean processes, which have improved employee safety and productivity, improved customer service by reducing steel tube finishing cycle time, and incorporates a more environmentally-friendly water jet de-scaling spray system that replaces the former pickling process; and
- A new $40 million quench-and-temper facility was also originally scheduled for completion in 2016, however it is currently on hold based upon market conditions. If completed, the new quench-and-temper facility will provide additional capacity for 4 to 13 inch bar and tubes.

Attached to my testimony as TDM-3 is an overview titled "Your Guide to the Gambrinus Steel Plant" that provides additional detail on the Gambrinus Plant as well as a basic overview of the plant.

Q.10. **How do TimkenSteel's operations affect its energy costs?**

Electric arc furnaces require large quantities of electric power to generate 9000° F arcs and heat steel to 3000° F or more. At normal operating levels, TimkenSteel uses almost 1 billion kilowatt-hours per year in its steel operations. For perspective, TimkenSteel's energy consumption is equivalent to approximately 83,300 homes using 1,000 kWh per month. Steelmaking is an energy-intensive business – meaning energy costs as a percentage of total operating costs are large compared to costs in other businesses. Also, electricity is the third largest manufacturing cost component of TimkenSteel's steel business, trailing only costs associated with scrap metal/alloy purchases and labor. In 2014, TimkenSteel spent over $60 million for electricity and, even though production is down significantly in 2015, we're still on pace to spend more than $[ ] for electricity this year.

Q.11. **How does TimkenSteel manage its energy costs in its operations?**

TimkenSteel is committed to an operational culture of continuous improvement, which is just what it sounds like. We challenge our entire organization to continuously improve operations. For example, as a result of our continuous improvement culture, we've made the operations significantly safer – reducing our lost-time incident rate by more than 90% in just the last ten years. At the same time, our employees have become more and more productive and it now takes us just one-third of the time to produce a shipped ton of steel as it took in 1985.

As part of our culture of continuous improvement, we are always looking for ways to reduce our energy consumption. Just as steelmaking is a capital intensive business – about 20 football fields could fit under the roof of the Faircrest Plant and the

concrete used to build the Faircrest Plant could build a sidewalk from Canton to Washington, D.C. – capital investment is also required to increase efficiency with upgraded, more efficient fixtures and equipment. TimkenSteel has a proven track record of reducing energy intensity. From 1994 to 2014 alone, TimkenSteel has reduced its energy intensity by approximately [ ]% as a result of continued strategic capital investments and process improvements. And, in the last five years, a total of $[ ] million has been invested in electrical energy efficiency and energy intensity reduction projects at the Stark County facilities. TimkenSteel is committed to building on these results. We also leverage operational opportunities like re-aligning work schedules and certain equipment use to align with our order book, using less when less is needed.

Q.12. **What are TimkenSteel's investment plans for the Stark County Facilities?**

TimkenSteel is committed to continuous improvement, including ongoing strategic capital investment in leading edge steelmaking technologies. If the Commission grants the Application, TimkenSteel will be better positioned to make those capital investments that are necessary to remain competitive and to reduce energy intensity. This includes the new $40 million quench-and-temper facility recently placed on hold due to poor market conditions. Continuing to put in place capital investment during down market conditions will best position TimkenSteel to compete when markets rebound and customer demands increase.

Q.13. **Does this conclude your direct testimony?**

Yes, it does.

CERTIFICATE OF SERVICE

The Public Utilities Commission of Ohio e-filing system will electronically serve notice of the filing of the public version of this document on the parties referenced in the service list of the docket card who have electronically subscribed to this case. In addition, the undersigned certifies that a courtesy copy of the foregoing document is also being served upon the persons below via electronic mail this 25th day of November, 2015.

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TDM-1

Welcome to the Faircrest Steel Plant

At the Faircrest Steel Plant, TimkenSteel develops some of the cleanest and strongest alloy steels in the world.

The plant features more than 20 acres under its roof on a 450-acre site near Canton, Ohio, and houses individual steelmaking, ingot and continuous casting and steel-processing facilities. Customers across the globe rely on this steel to strengthen their energy-drilling equipment, industrial machinery, rail axles, mining equipment, automotive drivelines and transmissions, agriculture machinery and more.

Since the plant's first 175-ton electric arc furnace poured its initial heat of steel on Aug. 5, 1985, the Faircrest Steel Plant became one of the industry's most advanced alloy steel manufacturing facilities in the world. We're proud to welcome you!

Making Your Visit Safe And Enjoyable

For the personal safety of our visitors, we insist that you stay within the approved tour route and away from operating equipment. We don't permit any food, drinks or smoking on the plant tour. A TimkenSteel team member will serve as your tour guide. Please stay with him/her at all times. Inform your tour guide if you have a pacemaker. For your protection, you must wear safety glasses and hard hats at all times. No photography and video taping is permitted.

High-Performance Steel: Pushing the Bounds of What's Possible

TimkenSteel customizes every product and service we deliver to meet customers' specific needs. Our focus is on improving performance by addressing the toughest challenges, whether that requires a special bar quality (SBQ) steel bar or seamless mechanical tube, a precision steel component, honing, drilling or thermal-treatment services or a supply chain solution.

Our engineers are experts in both materials and applications, so we can work closely with each customer to deliver flexible solutions related to our products as well as their applications and supply chains. We believe few others in our industry can consistently deliver that kind of customization and responsiveness.

We manufacture alloy steel, as well as carbon and microalloy steel, with an annual melt capacity of approximately two million tons.

TIMKENSTEEL

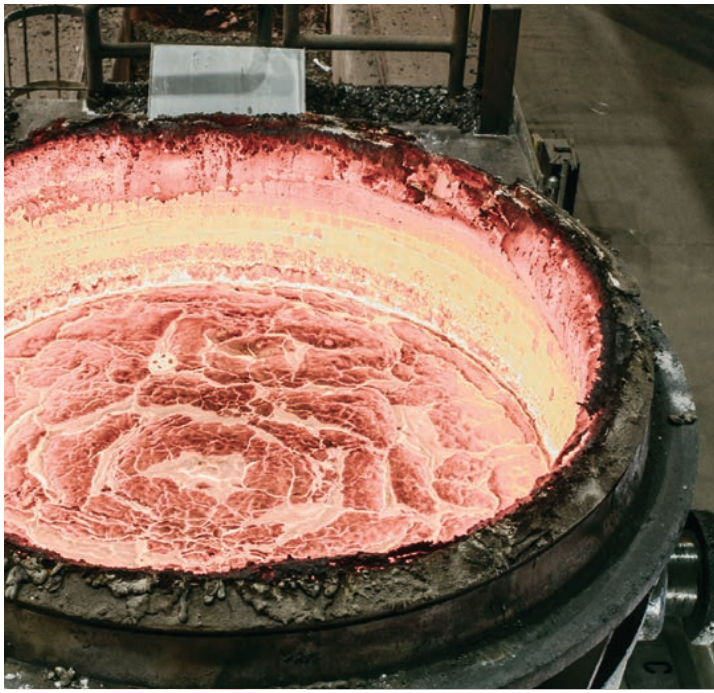
For more information on TimkenSteel and other value-added services and products, call 866.284.6536 (USA) or +44 1455 826320 (international).

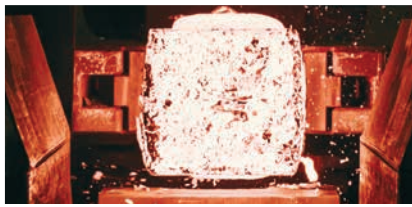
Also, please visit our website at **www.timkensteel.com.**

1M 07-14:29 Order No. 4165

TIMKENSTEEL

Your Guide to the Faircrest Steel Plant





Making Our Special Bar Quality Alloy Steel

1 Scrap Loading

The entire steelmaking process can be seen as a vast recycling enterprise since virtually all input to the furnace is from discarded materials such as old cars, appliances and scrap metal. A computer assists the scrap operator in selecting the optimum scrap mix, ensuring the proper chemistry and minimizing energy consumption. Dump trucks bring scrap into the plant. The scrap mix is then loaded into buckets and transferred to the furnace area.

2 Melting

In less than 60 minutes, scrap melts in the electric arc furnace to produce 175 tons of steel. When the molten steel reaches 3000° F, it is tapped (poured) into a refractory-lined ladle and transferred to the ladle refining station.

3 Refining

The ladle of molten steel then moves into a ladle refining station, where final alloys are added, unwanted gases removed and the steel bath heated to a proper pouring temperature. The ladle refining performed at Faircrest provides effective control of steel chemistry and results in a product tailored to meet exact requirements. The steel is now ready to be poured into ingot molds in the ingot-making facility or sent to the continuous caster.

4 Teeming

Here, liquid steel is teemed (poured) into ingot molds six at a time in a circular cluster. The molds connect at their bottoms by refractory tubes to a central trumpet, where the molten steel is poured. The trumpet fills all molds at the same time from the bottom up. "Bottom pouring" produces exceptionally clean steel and smooth ingot surfaces. Once solidified, the ingots are stripped and taken by rail car to the soaking pits.

5 Jumbo Bloom Vertical Caster

Rising 120 feet above ground and submerged 90 feet below ground, this is the biggest jumbo bloom vertical caster in the world and the only one of its kind in North America. Its advanced clean steelmaking technology is fully automated and designed to operate consistently, with process monitoring and control.

6 Mold Make-Up

Most molds are 28 inches (711.2 mm) square and approximately 7 feet (2.1 meters) tall. Three other sizes are also available, with the largest size being 32 inches (812.8 mm). The molds are prepared in this area with groupings of six placed on a 13.5-foot (4.1 meters) round stool plate with refractory tubes connecting the bottoms of each mold to a central trumpet.

7 Soaking Pits

Ingots or continuous cast blooms are placed into soaking pits. Computer-controlled, gas-fired soaking pits uniformly heat the ingots or blooms to a 2200° F rolling temperature. Heated ingots are removed by a crane and placed on the forge press tables.

8 Forge Press

Ingots or blooms are forged in-line to prescribed cross section and transferred to the 46-inch (1168.4 mm) mill.

9 46-inch Blooming Mill

Here, the forged bloom is passed back and forth through the mill until it is reduced – actually squeezed – to a bar of steel known as a "bloom." Each bloom ranges from 8 inches (203.2 mm) to 16 inches (406.4 mm) square.

10 Scarfer

As the bloom passes, gas torches remove a thin layer of surface scale on all four sides of the product. Called scarfing, this process provides a clean surface for further processing. We do not scarf all ingots or blooms.

11 Bloom Shear

The bloom shear cuts unwanted material from both ends of the product and cuts each piece in preparation for final sizing in the billet mill. Large buckets below the shear catch the cut ends, called "crops," which are returned and recycled in the melting operation.

12 36-inch Billet Mill

The Faircrest billet mill is a 36-inch (914.4 mm), two-high reversing mill that converts blooms to billets and bars ranging from 5.5-inch (139.7 mm) to 16-inch rounds or 5-inch (127 mm) to 12-inch (304.8 mm) squares. As the bloom passes back and forth between the grooved rolls, its entire crystalline structure is improved as it becomes longer and narrower on the way to its final dimension.

13 Billet Saws

Product is saw cut to 10-foot (3.0 meters) to 35-foot (10.6 meters) lengths, depending upon customer requirements. Below the saw, large buckets catch the cut ends for recycling and return to the melting operation.

14 Billet Identification and Cooling

To ensure center soundness, the end of each billet is automatically stamped with an identification number. Once cooled, the billets are ready for further processing at other facilities.

15 Roll Shop

This facility machines and assembles the rolls used throughout the TimkenSteel business. Three CNC lathes turn rolls from 12 inches (304.8 mm) through 50 inches (1270 mm) in diameter. Finished rolls are assembled into sets that are installed at various rolling and piercing mills.

16 Billet Conditioning

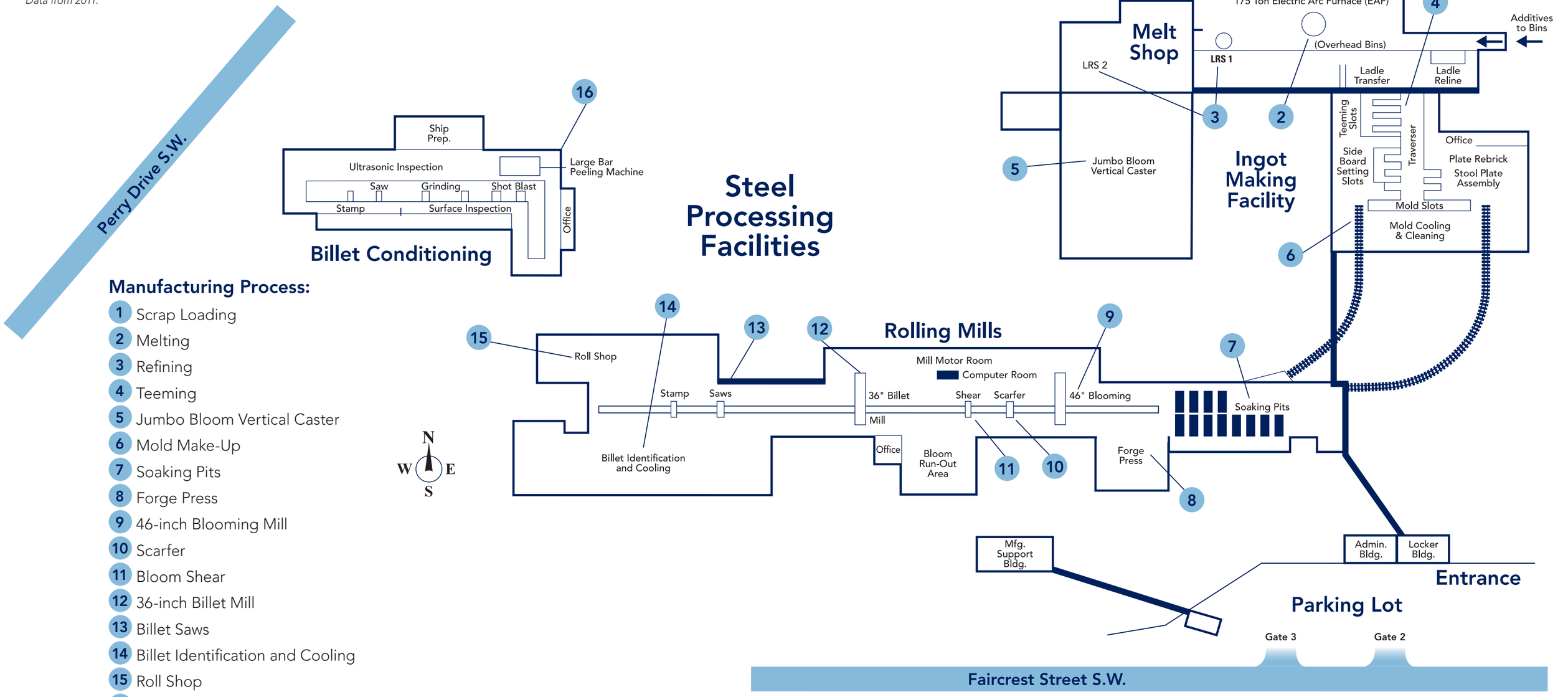
Here, bars and billets are conditioned, a process designed to clean, inspect and remove surface defects for each piece. Conditioning includes an in-line shotblaster, an Elkem nondestructive test inspection system, an Olympus ultrasonic test inspection system, a large bar peeling machine, two automated grinding systems and finishing saws. Individual piece identity is maintained through all operations. Bar orders are inspected to ensure that they meet all customer requirements and are prepared for shipment.

An electronic shipping system assigns a unique dispatch number to each shipment. Billet conditioning associates load customer material onto commercial trucks or railcars for transport to final destination.

Faircrest Steel Plant Overview

- Faircrest has more than 350 operational associates, producing more than one million melt tons of steel per year.
- The soaking pits use as much natural gas as the annual consumption of 8,500 homes.
- In a year, Faircrest melts the equivalent of 1.2 million scrap cars.
- About 20 football fields could fit under the roof of the Faircrest Steel Plant.
- The concrete used in the construction of Faircrest could build a 3½-foot-wide (1.1 meters) sidewalk from Canton to the White House.

**Data from 2011.*



Manufacturing Process:

1. Scrap Loading
2. Melting
3. Refining
4. Teeming
5. Jumbo Bloom Vertical Caster
6. Mold Make-Up
7. Soaking Pits
8. Forge Press
9. 46-inch Blooming Mill
10. Scarfer
11. Bloom Shear
12. 36-inch Billet Mill
13. Billet Saws
14. Billet Identification and Cooling
15. Roll Shop
16. Billet Conditioning

TDM-2

Welcome to the Harrison Steel Plant

TimkenSteel develops some of the cleanest and strongest specialty alloy steels in the world. We understand our customers' challenges, and we apply our metallurgical and application knowledge to develop solutions that consistently help improve product durability while reducing ownership costs.

The integrated facility melts, rolls, produces and finishes steel. We also produce billets, which we process into seamless mechanical tubing for bearing and cylinder components, as well as oilfield tubulars. Customers rely on our steel to strengthen their automotive transmission and powertrain components, drill collars and tool joints, and forgings for rings and gears used in the construction equipment industry.

Production starts with melting raw materials – including scrap steel – in two 120-ton electric arc furnaces. We design the steel to customized requirements in our ladle furnace and ladle refining facility. We sequence cast the steel on a four-strand, 11 in. x 14.75 in. bloom caster and roll it on billet and H-V bar mills to laser-measured size and length. At the end of production, we inspect the final bars and prepare them for shipment.

Making Your Visit Safe and Enjoyable

As a visitor, please stay within the approved tour route and away from operating equipment. Food, drinks and smoking are prohibited on the plant tour. We also prohibit the use of cameras and picture phones.

A TimkenSteel team member will serve as your tour guide. Please stay with him/her at all times. Inform your tour guide if you have a pacemaker.

For your protection, you must wear safety glasses, safety jackets, hard hats and ear plugs at all times. Hard-soled shoes must be worn. No tennis or athletic, open-toed, or open-heeled shoes are permitted. Steel-toed shoes are required only when leaving the designated tour path.

TIMKENSTEEL

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TIMKENSTEEL

Your Guide to the Harrison Steel Plant

Making Our Special Bar Quality Alloy Steel

1 Scrap Loading
Steelmaking starts with recycling. Discarded materials (such as old cars, appliances, steel cranes, stampings, as well as our scrap bar and tube ends) comprise virtually all furnace input. We load the scrap into buckets and transfer it – along with lime for slag making – to the melting area.

2 Melting
To melt steel scrap, 9000° F electric arcs alternate between three large graphite electrodes. In about two hours, scrap melts in the electric arc furnace to produce 120 tons of liquid steel. When the molten steel reaches approximately 3000° F, we tap (pour) it into a refractory-lined ladle.

3 Slag Raking Station
A mechanical paddle and raking arm removes the oxidized slag and impurities that float on top of the liquid steel.

4 Refining
At the ladle furnace, we add alloys to produce the customer-specified steel grade. We also use a small set of electrodes – similar to the melting process – to bulk reheat this "heat of steel." We then transfer the ladle of alloyed steel into the ladle refiner, where we add final alloys, remove unwanted gases and heat the steel bath to a proper pouring temperature.

5 Continuous Casting
We continuously cast most liquid steel into 11 in. x 14.75 in. blooms for subsequent rolling into bars. A refractory-line, preheated tundish receives the liquid-refined steel and separates it into four streams – or "strands" – of steel. We solidify it into a bloom shape by copper water-cooled molds equipped with electro-magnetic stirring. We straighten these strands at the bottom of this large casting machine. Traveling oxygen-acetylene torches cut through these blooms at the length needed for rolling.

6 Ingot Teeming
In this process, we teem (or pour) liquid steel into ingot molds in a circular cluster. "Bottom pouring" produces exceptionally clean ingot steel and smooth ingot surfaces. Once solidified, we strip and prep the ingots for forging. Ingot sizes range from 5 ton to 13.5 ton.

7 Bloom Reheating Furnace
We uniformly heat blooms to about 2200° F before discharging to the #2 billet mill.

8 #2 Billet Mill
This 28-inch two-high reversing mill converts blooms to re-roll billets from 5 in. to 9 in. squares. As the bloom rolls back and forth between the grooved rolls, its entire crystalline structure improves and strengthens.

9 Billet Transfer, Holding Furnace and Descaler
We weigh re-roll billets for the horizontal-vertical (H-V) mill and then transfer them to another smaller reheat furnace. There, the temperature of each billet equalizes. Upon discharge of the final rolling mill, we clean the surface of the billets with a 3000 psi water spray descaler.

10 Horizontal – Vertical (H-V) Mill
The H-V rolling mill uses alternating horizontal and vertical sets of rolls. This mill is used to roll all finished bars greater than 5 in. round and all squares. It also provides feeder bars to the precision sizing mill. A crop and divide shear is used to remove any damaged ends and adjust the final bar length. A measuring device using lasers is used to monitor the bar size.

11 Precision Sizing Mill (PSM)
The PSM rolls 1 in. to 5 in. diameter rounds. The PSM features five strands, each containing three rolls. The three-roll configuration facilitates the ability to achieve tighter tolerances down to half American Society for Testing and Materials (ASTM) size limits. A dynamic hydraulic gap control system gives the PSM the ability to achieve a very uniform diameter on each bar from end to end. This mill also uses a shear and laser to assist in manufacturing a uniform diameter.

12 Bar Length Saws and Identification
We cut bars from the H-V mill and PSM to customer-specified lengths using abrasive wheel saws in a two-step process with multiple laser gauges. We add identification to the bales and bolster bar loading for customer orders. With the help of this identification system and a separate computerized order tracking system, we monitor the orders through bar inspection and finishing.

13 Intermediate Bar and Billet Inspection (IBBI) Line
We inspect bars with 1.875 in. to 8 in. diameters and squares 2½ in. to 7 in. on this line. We prepare the bar surfaces for non-destructive testing (NDT) by an in-line shot blaster. We inspect the bar surface for any cracks or seams and perform an internal test as required. We paint or ground out imperfections – or we cut the bar to remove the imperfection. We then bundle and tag the bars at the end of the line before sending them to the shipping areas.

14 Small Bar Line (SBL)
We inspect bars with 1 in. to 3.25 in. diameters on this line. We prepare bar surfaces for NDT by a two-roll straightener. As with the IBBI, we inspect the bars, paint or ground out imperfections and bundle and tag. We send bundles to the shipping area. An electronic ship system assigns a unique dispatch number to each bar order shipment. Finally, we load the product onto a commercial truck for transportation to its final destination.

Harrison Steel Plant Overview

- Specialty carbon and alloy steels in the form of ingots, blooms or bars rolled to size ranging from 1 in. (25.4 mm) through 7½ in. (190.5 mm) rounds or squares 2½ in. (63.5 mm) through 7 in. (177.8 mm).
- Annual production capacities: 630,000 melt and 850,000 roll tons.
- Approximately 600 associates, 80 acres of plant area and 31 acres under roof.

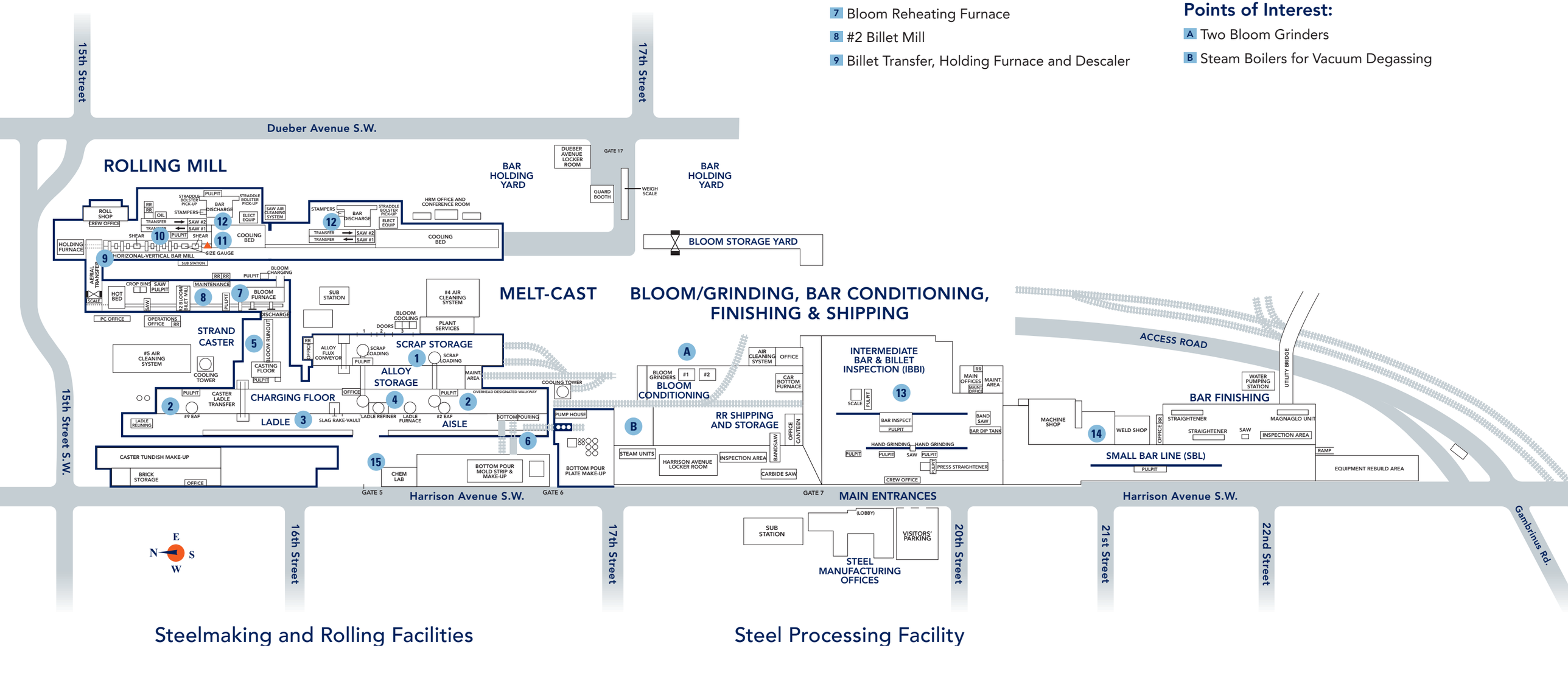
Manufacturing Process:

1. Scrap Loading
2. Melting
3. Slag Raking Station
4. Refining
5. Continuous Casting
6. Ingot Teeming
7. Bloom Reheating Furnace
8. #2 Billet Mill
9. Billet Transfer, Holding Furnace and Descaler
10. Horizontal-Vertical (H-V) Mill
11. Precision Sizing Mill (PSM)
12. Bar Length Saws and Identification
13. Intermediate Bar and Billet Inspection (IBBI)
14. Small Bar Line (SBL)
15. Chem Lab

Points of Interest:

A. Two Bloom Grinders

B. Steam Boilers for Vacuum Degassing



Steelmaking and Rolling Facilities

Steel Processing Facility

TDM-3

We develop some of the cleanest and strongest specialty alloy steels in the world. We understand our customers' challenges, and we apply our metallurgical and application knowledge to develop solutions that help improve product durability.

Our 250-acre Gambrinus Steel Plant in Canton, Ohio, produces seamless mechanical steel tubing ranging from 1.9 to 13 inches (48 to 330 mm) in diameter and processes alloy steel rounds up to 13 inches (330 mm) in diameter.

We began steel finishing operations at Gambrinus in 1929. This process provided the capability to alter the physical (size and shape) and metallurgical (hardness, strength and ductility) properties of steel. We later added a piercing mill – capable of converting round, solid steel billets into seamless steel tubes – as well as two additional piercing mills and a variety of steel finishing and inspection functions.

Today, the finishing operations include thermal treatment, cutting, straightening, and other functions. We use ultrasonic equipment, eddy current, magnetic particle testing, laser OD gauging, isotropic gauging and spectrometers to inspect product.

Nearly half of all our steel shipments pass through Gambrinus. This includes 350,000 tons of tube-making, 200,000 tons of tube and bar thermal treat and nearly 50,000 tons of bar inspection.

In 2013, we introduced our new intermediate finishing line (IFL) at Gambrinus – a more than $50 million investment that improves safety and reduces processing times. Key IFL benefits are:

- **Quality**. The line's automated testing and piece tracking helps improve our testing efficiency. It also provides information to help achieve up-stream process improvements as well as an enhanced surface for non-destructive test inspection by removing surface dirt and mill scale.
- **Processing times**. The line's single in-line testing and finishing processes can reduce processing time from days to hours.
- **Safety**. The line incorporates the latest technologies and employs lean processes each day, significantly eliminating product touches and miles in material movements.
- **Environmental stewardship**. The line incorporates an environmentally friendly water jet de-scaling spray system that replaces our existing pickling process. This new technology advances our waste minimization philosophy.

Customers use products that we produce at Gambrinus in bearings, energy drilling equipment, off-highway equipment, transmissions and other applications.

Making Your Visit Safe and Enjoyable

A TimkenSteel team member will serve as your tour guide. Please stay with that individual at all times on the approved tour route and away from operating equipment. We prohibit food, drinks and smoking on the plant tour as well as use of cameras and picture phones. Also, please inform your tour guide if you have a pacemaker.

For your protection, you must wear safety glasses, safety jackets, hard hats and earplugs at all times. We recommend wearing steel-toed shoes, and visitors must avoid wearing tennis or athletic, open-toed or open-heeled shoes.

We are proud to welcome you to the Gambrinus Steel Plant.

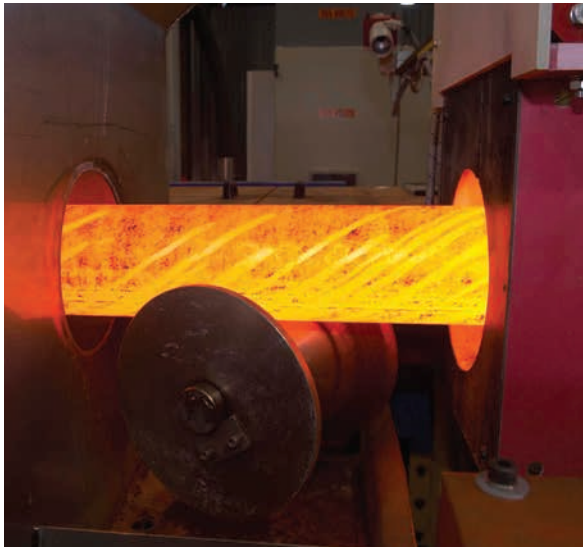
TIMKENSTEEL

For more information on TimkenSteel and other value-added services and products, call 866.284.6536 (USA) or +44 1455 826320 (international).

Also, please visit our website at **www.timkensteel.com**.

TIMKENSTEEL

Your Guide to the Gambrinus Steel Plant



Making TimkenSteel Seamless Mechanical Tubing

Tube Making Mills – 1, 2, 3

The process of providing customers with seamless mechanical tubing begins at one of the three piercing mills at Gambrinus. Before a solid round billet can become a tube, we heat it in a gas-fired rotary furnace at temperatures ranging from 2000-2300 degrees Fahrenheit.

In our piercing mills, two barrel-shaped rolls – driven by motors with up to 3,000 horsepower capacity – begin rotating the billet. These rolls force the billet over a point or plug that a mandrel rod holds in place. These forces, created by the turning rolls, form the billet into a hollow tube.

We further size the newly formed tube shell by rolling it through an elongator or plug mill to produce the correct wall thickness. We then adjust the final outside diameter and roundness by rolling the tube through a reduction mill and rotary sizing mill respectively. Finally, we cool the tubes – depending on the mechanical properties or microstructure – in a mill anneal furnace or on a cooling bed.

Thermal Treatment – 4, 5, 6

We control the strength, toughness, hardness and microstructure of steel to meet customer requirements by applying appropriate thermal or heat treating. We specially formulate heating and cooling cycles to:

- Make the desired tensile strength and hardness.
- Produce the best combination of strength and resistance to sudden impacts.
- Improve the productivity of metal cutting or cold forming.
- Remove residual stress.

The thermal treatment area uses batch furnaces, roller furnaces and three in-line treatment facilities.

Finishing & Inspection – 7, 8, 9, 10, 11, 12, 13, 14

Finishing

The finishing of bar and tube products to customer standards starts with straightening and cutting tubes to specified lengths. The process features our new intermediate finishing line, ending with final inspection and shipping preparation.

For straightening, we press or roll the entire length of each bar or tube in specialized machinery. This operation removes bows, hooks or bends from the product. For cutting, we use band saws and rotary cut-off machines to cut bars and tubes to customer- specified lengths.

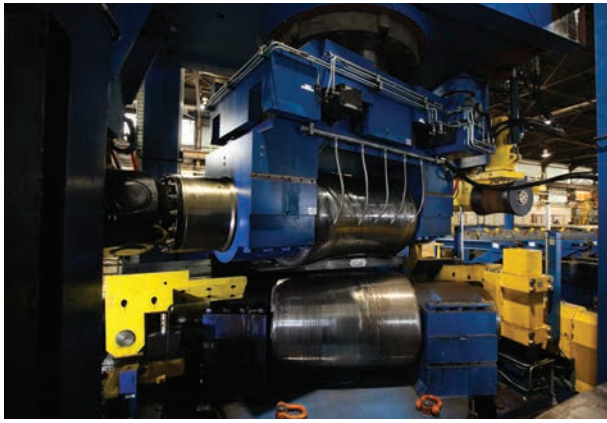
To provide our customers with additional tubing value, we inspect our tubing using electronic equipment that locates defects that the human eye can't see. We use in-line non-destructive eddy current testing to inspect tube surfaces.

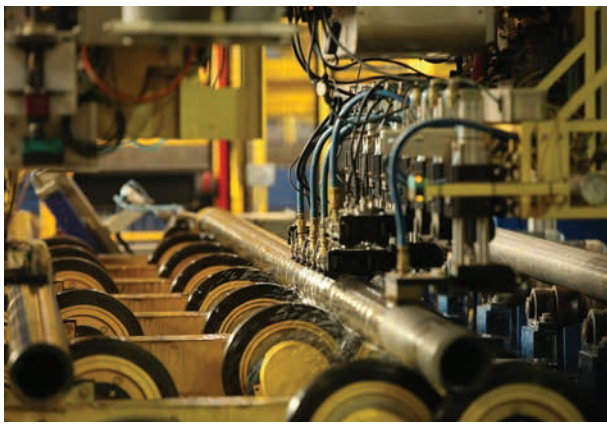
Ultrasonic equipment measures wall thickness and tests for internal defects. Off-line inspection includes visual inspection and magnetic particle testing to check for surface defects. We perform spectrometer testing to assure that our tubing is of the proper metallurgical grade. In addition, we check product dimensions with lasers or other gauges.

Inspection

Our tubing receives a final inspection through our ship preparation line. We calculate tubing length and weight, paint this and the order identity on the product. The line also stencils each tube according to customer specifications and sorts the tubing into bundles.

Upon completion of the piercing, thermal treat, finishing and inspection processes, we band the steel tubing and ship it to customers.

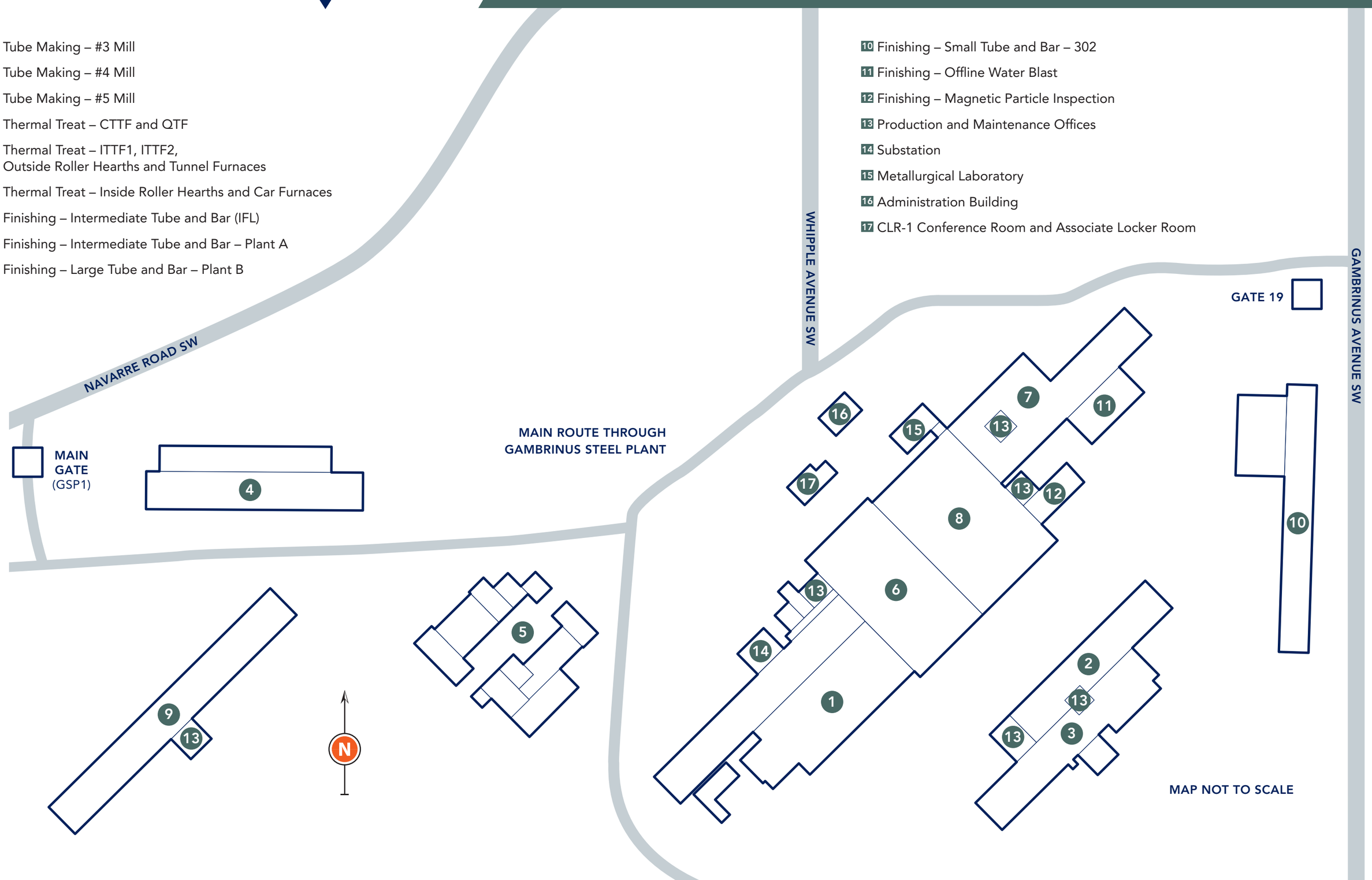




TIMKENSTEEL

Gambrinus Steel Plant Overview

1. Tube Making – #3 Mill
2. Tube Making – #4 Mill
3. Tube Making – #5 Mill
4. Thermal Treat – CTTF and QTF
5. Thermal Treat – ITTF1, ITTF2, Outside Roller Hearths and Tunnel Furnaces
6. Thermal Treat – Inside Roller Hearths and Car Furnaces
7. Finishing – Intermediate Tube and Bar (IFL)
8. Finishing – Intermediate Tube and Bar – Plant A
9. Finishing – Large Tube and Bar – Plant B
10. Finishing – Small Tube and Bar – 302
11. Finishing – Offline Water Blast
12. Finishing – Magnetic Particle Inspection
13. Production and Maintenance Offices
14. Substation
15. Metallurgical Laboratory
16. Administration Building
17. CLR-1 Conference Room and Associate Locker Room



Summary: Testimony of Thomas D. Moline electronically filed by Mr. Michael J. Settineri on behalf of TimkenSteel Corporation