

R.T. Patterson Company, Inc.

Engineers and Consultants

CLIENT

Gerdau
Monroe, MI

PROJECT

Steel Mill Melt Shop Optimization



PROJECT SCOPE

Gerdau Special Steel Facility in Monroe, MI implemented a capacity expansion program over a 24-month period.

The program included the installation of:

- Twin Station Ladle Furnace (TLF)
- Alloy Material Handling System (MHS)
- Upgrades to the Water Treatment Plan (pump house) for Non-Contact Cooling Water Supply and Return to TLF
- Pre-heaters
- Upgrades to the stirring gas (argon) delivery to ladles in the transfer cars, vacuum tank degasser, and Ladle Turret
- An upgraded 110 MVA EAF transformer in the existing EAF transformer vault
- Complete replacement of EAF
- EAF Lime injection system
- TLF Carbon injection system
- TLF Liqui-Rob Units (2)
- EAF Liqui-Rob Unit (1)
- EAF Slag Pusher

RTP SCOPE OF WORK

RTP provided the following engineering services:

- **Facility Planning** including crane clearances, development of Molten Metal Path w/ Cooling Water Emergency Shut-off locations and development of 3D model for facility using the RTP supplied point 3D, OEM 3D, and RTP discipline 3D dwg files.
- **Structural Engineering Services** including LMF Vault Structure and access, EAF Vault Removable Roof and Tap Hole maintenance platform.
- **Civil/Architectural Engineering Services** including LMF Transformer Vault (two stories) and existing EBT Pumphouse Extension.
- **Foundation Engineering Services** including LMF Vault (including transformer oil containment), two (2) LMF Ladle Transfer Car Tracks including cable drum and ladle car festoon system, Material Handling System, Ladle Pre-heaters, One (1) Vertical Ladle Pre-heater.
- **Electrical Engineering Services** including Room lighting, weld receptacles, and convenience receptacle drawings, Communications and Data System (fiber optic and Ethernet) drawings for the LMF, EAF, and Material Handling System, Grounding, conduit, cable trays, cable schedules and equipment lists for installation of the 480 volt power and control cables for the LMF, Dust Collectors, EAF, Ladle Pre-heaters.
- **Mechanical Piping and HVAC Engineering Services** including HVAC system for the LMF Transformer Vault (two stories) and EAF Transformer Vault, Interconnecting process piping design for the LMF, Material Handling System, EAF, and Ladle Pre-heaters.

