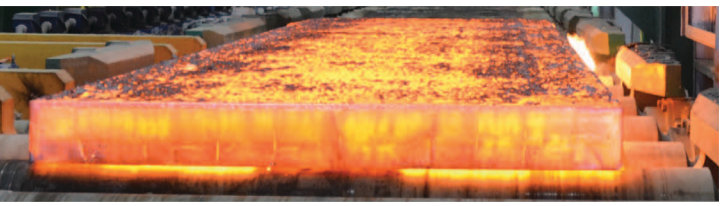


HOT FLAT ROLLING FUNDAMENTALS

A PRACTICAL TRAINING SEMINAR

IN CONJUNCTION WITH PLATE ROLLING FUNDAMENTALS TRAINING

02–06 MARCH 2014

THE FRANCIS MARION HOTEL

CHARLESTON, S.C., USA

ABOUT THE COURSE

This seminar provides a comprehensive overview of both strip and plate hot rolling. The course covers fundamentals, metallurgical and quality requirements, equipment, rolling theory, control, rolls, temperature control, measurement, safety and new technology. Attendees will leave this course with a better understanding of the basic metallurgy involved, the different types of products and product attributes, the types of mills used and equipment involved with the mills, the theory of rolling, the latest technologies involved in hot rolling, safety aspects, production measures and much more. There will be opportunities to discuss issues and problem-solving during the panel discussions. A full-day parallel session will be devoted to discrete plate and Steckel rolling.

WHO SHOULD ATTEND

Anyone who would like to expand his or her knowledge and understanding of hot strip mills, Steckel mills, plate mills and hot rolling. This includes electrical, mechanical, lubrication and metallurgical engineers; maintenance personnel; operators; and those responsible for quality assurance. Equipment manufacturers and service suppliers would also benefit from this course.

SCHEDULE OF EVENTS

SUNDAY, 2 MARCH 2014

4 p.m.
Registration

5:30 p.m.
Reception

MONDAY, 3 MARCH 2014

7 a.m.
Registration and Continental Breakfast

8:15 a.m.
Safety
John Purdy, Nucor Steel–Indiana

9:45 a.m.
Break

10 a.m.
Overview and History of Hot Rolling

11 a.m.

Review of Metallurgical Basics

John Speer, Colorado School of Mines

Noon

Lunch

1 p.m.

Application of Fundamentals to Hot Rolled Processing/Products

John Speer, Colorado School of Mines

2:15 p.m.

Break

2:30 p.m.

Reheat and Tunnel Furnace

Paul Debski, Andritz Bricmont Inc.

Proper heat transfer in the reheat furnace provides the best opportunity for the rolling mill to provide prime product. The role of furnace temperature and combustion ratio in heating quality, fuel rate and surface quality will be discussed. Furnace pressure control, air pollutants and new trends in reheat furnaces will be visited.

3:30 p.m.

Roughing Mill Area Equipment

Frank Beddings, Mitsubishi-Hitachi Metals Machinery USA Inc.

Presentation will include an overview of roughing mill equipment from the exit of the reheat furnaces to the entry of the finishing mill.

4:30 p.m.

Question and Answer Session

TUESDAY, 4 MARCH 2014

7 a.m.

Continental Breakfast

8:15 a.m.

Finishing Mill Equipment

Frank Beddings, Mitsubishi-Hitachi Metals Machinery USA Inc.

Presentation will include an overview of finishing mill equipment from the entry of the finishing stands through the downcoiler.

9:45 a.m.

Break

11 a.m.

Flatness With Profile Control

Eugene Nikitenko, United States Steel Corporation

Presentation covers the following topics: flatness — definitions, measurement and ASTM standard; fundamentals of strip buckling under applied compressive stress — buckling conditions for center buckles and buckling conditions for wavy edges; relationship between flatness and strip profile; plain strain hypothesis; flatness as a function of strip unit crown change; profile and flatness control; roll stack deformations; mill actuators and flatness sensors.

Noon

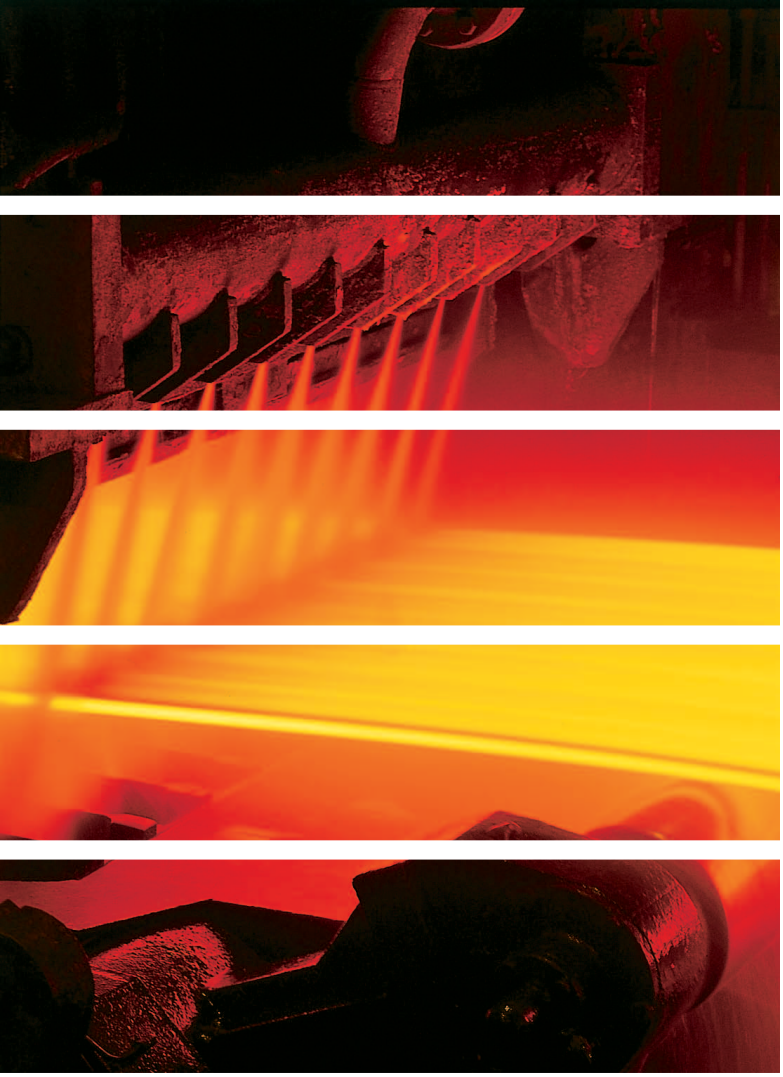
Lunch

1 p.m.

Gauge and Width Control

Wlodzimierz Filipczyk, TMEIC Corp.

Presentation includes an overview of strategies and setup functionality, including adaptation techniques, for thickness and width control. Automatic gauge control and width control functions, special control strategies for a semi-continuous rolling process, and actual performance levels for thickness and width tolerances will be discussed.



WEDNESDAY, 5 MARCH 2014

HOT SHEET ROLLING TRACK

7 a.m.
Continental Breakfast

8:15 a.m.
Mini-Mills
Brendan Brophy, Steelscape
An overview of mini-mill operations, contrasting with integrated mill operations, as well as a look at the difference in operating a hot mill that is coupled to a caster.

9:45 a.m.
Break

10 a.m.
Coilbox Technology
Darryl Metcalfe, Hatch Ltd.
The coilbox is located in the hot strip mill between the roughing mill and the finishing mill, used to coil and uncoil intermediate transfer bars. This presentation will discuss the application, process, commercial and environmental benefits, as well as recent technological advances.

11:15 a.m.
Finishing Mill Operations and Temperature Control
Brendan Brophy, Steelscape

Noon
Lunch

1 p.m.
Attributes

2 p.m.
Break

2:15 p.m.
Strip Defect Identification

3:15 p.m.
Developments in Hot Rolling Mills, Castrip and ESP
Mike Peretic, SMS Siemag

4:45 p.m.
Question and Answer Session

2:30 p.m.
Descaling, Roll Cooling and Spray Issues
Christy Hofherr, Spraying Systems Co.
The basics of hydromechanical descaling and work roll cooling will be discussed. Definitions of impact, parameters for effectiveness and potential pitfalls of a system will be included, along with preventive maintenance and possible performance issues.

3:30 p.m.
Runout Cooling
Mike Peretic, SMS Siemag

4:30 p.m.
Question and Answer Session

5:30 p.m.
Reception

PLATE ROLLING TRACK

7 a.m.
Continental Breakfast

8:15 a.m.
Steckel Rolling — Process
Ermin Erman, ArcelorMittal Conshohocken

This session will provide a comprehensive overview of Steckel rolling. The history, purpose and concept, advantages, typical layouts, operational differences and product mix will be discussed. The session will cover all the processing aspects of a slab, starting from the slab yard all the way to the finished plate. Particular attention will be provided on gauge making and plate flatness control.

9:45 a.m.
Break

9:15 a.m.
Steckel Rolling — Equipment
Jennifer Grzyb, Siemens

An introduction into the operation and functionality of Steckel mill equipment. Providing an overview of equipment and process design requirements.

10:15 a.m.
Discrete Plate Rolling — Process
Charlie Romberger, ArcelorMittal

The session will include an overview of discrete plate processing equipment, practices and control, with particular focus on differentiation from hot strip and Steckel rolling technologies. Topics include slab design, width making, gauge control and thermomechanical processing strategies to achieve desired dimensional as well as metallurgical properties.

11:15 a.m.
Discrete Plate Mill Equipment
Eric Thokar, Siemens Industry Inc.

Description of equipment specifically required for discrete plate rolling, including: turntables, feed rolls, universal spindles and long screwdowns.

Noon
Lunch

1 p.m.
Plate Finishing Equipment
Eric Thokar, Siemens Industry Inc.

Description of equipment traditionally located after the plate mill or Steckel mill downcoiler. Major equipment discussed includes: cooling beds, dividing shears, plate markers, side trimmers, surface inspection equipment, plate pilers and plate transfers.

2:15 p.m.
Break

2:30 p.m.
Precision Plate Roller Leveling
Dave Withrow, Allor Manufacturing

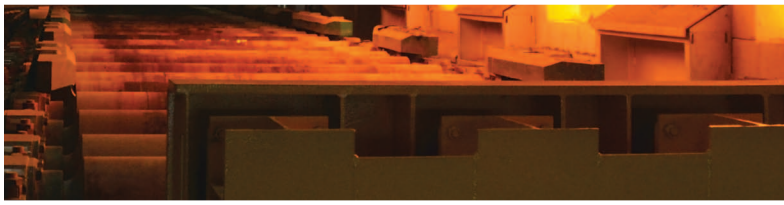
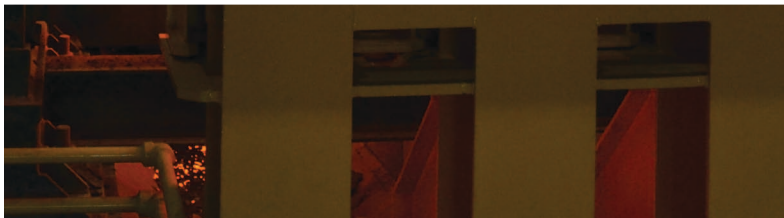
The theory of roller leveling is developed from basic strength of materials principles, followed by how those principles apply to today's various leveler designs, and concludes with optimum operating and maintenance practices.

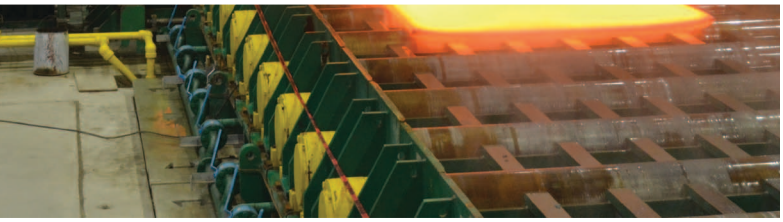
3:30 p.m.
Plate Heat Treatment
Holger Kehler, LOI Thermprocess

The key for optimized plate properties is heat treatment. Different heat treatment processes will be discussed.

4:30 p.m.
Question and Answer Session





THURSDAY, 6 MARCH 2014

7 a.m.
Continental Breakfast

8 a.m.
Hot Strip Mill Downcoilers — Practical Considerations for Operation and Maintenance
Jose de Jesus, Xtek Inc.

A discussion of the practices and parameters for attaining successful and reliable coiling operations, along with important maintenance criteria for achieving coiling consistency.

9 a.m.
Roll Design
George Ott, Union Electric Steel Corp.

Roll design is determined by the roll manufacturer in terms of alloy system, heat treatment and selection of the manufacturing process. Proper selection of these parameters can optimize roll performance. Roll performance can be further enhanced by the implementation of an effective roll maintenance program.

10 a.m.
Break

10:15 a.m.
Roll Shop Practices
John LaBelle, Akers National Roll Co.

This presentation will cover basic roll shop measuring devices, grinding and lathe equipment, an explanation of different roll types, work roll and backup roll grinding practices, work roll/backup roll chocks and bearings.

11 a.m.
Managing Roll Surface Quality
Ron Webber, Akers National Roll Co.

To produce high-quality product in a hot strip mill, it is essential to control the quality of the roll surface. This presentation will discuss the types of roll used, the characteristics of each type and the variables that affect both the strip quality and the roll surface quality. Practical recommendations are made regarding how to manage the performance of the roll. These will cover equipment, process and testing methods.

Noon
Lunch

1 p.m.
Plant Tour of Nucor Steel–Berkeley

4:30 p.m.
Return From Plant Tour and Adjourn

REGISTRATION FEES

Advance registration by 20 January 2014: Member US$995, Non-member US$1,210. Registration after 20 January 2014: Member US$1,095, Non-member US$1,310. Registration includes Monday–Thursday continental breakfast, lunch and continuous breaks, Sunday and Tuesday receptions, plant tour and a course workbook.

>> REGISTER NOW

COMPANY DISCOUNT

Three or more individuals from the same facility attending any one seminar can receive a 10% discount per person. All registrations must be received together along with payment to qualify for the discount. Not applicable with any other discount.