ABOUT THE PROGRAM
Secondary steelmaking refractory maintenance is vital to both productivity and safety in a meltshop and caster. It is important for those involved to have a thorough understanding of the basic concepts of refractory system design. Consultants, suppliers and recognized industry experts have developed a curriculum to educate attendees on the following topics: refractory raw material selection; properties of refractories, application and limitations of refractories; theory and application of insulation; design and application of stir plugs, lances and slidgates; free opens, refractory handling, installation and pre-heating; ladle secondary steelmaking — LMF; and casting requirements and wear mechanisms. Presentations will provide data from steelmaking operations, and attendees will benefit from the practical experience of the presenters, including the application of the latest tools and techniques being used. Open discussions will allow participants to gather additional information and network with attendees and instructors.

WHO SHOULD ATTEND
This conference is intended for steelmaking operations personnel, maintenance and supervisory employees. Refractory suppliers and service suppliers should also attend. The AIST Ladle & Secondary Refining and Refractory Systems Technology Committees strongly believe that this course provides the basic knowledge for a better understanding of secondary steelmaking, refractory and insulating systems.

ORGANIZED BY
AIST’s Ladle & Secondary Refining and Refractory Systems Technology Committees.

REGISTRATION INCLUDES
Tuesday and Wednesday breakfast and lunch, Tuesday reception, Thursday breakfast, plant tour with bus transportation, and a course workbook or flash drive including presentations.

HOTEL ACCOMMODATIONS
A block of rooms has been reserved at the Holiday Inn Nashville Vanderbilt. Please call the hotel at +1.877.327.4707 by 14 September 2020 to secure the AIST discount rate of US$169 per night for single/double occupancy.

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**Monday, 5 October 2020**

4 p.m.
Registration

**Tuesday, 6 October 2020**

7 a.m.
Registration and Breakfast

8 a.m.
Keynote Presentation

8:30 a.m.
Introductions

8:45 a.m.
Raw Materials, Bricks and Shapes and Monolithics
Ruth Engel, Refractory Consulting Services

The seminar will begin by presenting the raw materials used in the manufacture of refractories, why they are used, their availability and expected characteristics. Using this information, the raw materials will be combined to make bricks or shapes and the role the different components play on their properties will be discussed. This discussion will extend to monolithics, where additional parameters like installation and dryout will be covered.

9:45 a.m.
Break

10 a.m.
Refractory Brick Production
Korey Skala, HarbisonWalker International
Production of refractory bricks from raw material to finished product.

10:45 a.m.
Break

11 a.m.
Ladle Construction Design and Insulation
Rob Doty, IMACRO Inc.
This presentation features a wide-ranging discussion about the many options in ladle refractory design. The basics of heat transfer will then be covered, from molten steel through refractories to ladle shells, followed by insulation choices, how they affect ladle shell temperatures and refractory expansion dynamics.

Noon
Lunch

**Wednesday, 7 October 2020**

7 a.m.
Breakfast

8 a.m.
Safety: Past/Present/Future
John Panconi, BISCO Refractories Inc.
A view of where were were with safety, how things are now and what the future holds.

8:30 a.m.
Refractory Materials Testing and Product Selection
Rakesh Dhaka, U. S. Steel Research and Technology Center
Standard test methods and their application in evaluating and selecting refractory materials will be discussed.

9:30 a.m.
Break

9:45 a.m.
Secondary Steelmaking Process — LMF
Helmut Oltmann, Nucor Steel–Berkeley
This presentation provides a review of the ladle metallurgy furnace processes to modify chemistry and temperature of the steel in the ladle and their impact on refractories.

10:45 a.m.
Break

11 a.m.
Advancements in Infrared Technology
John Lewis, Connors Industrials Inc.
This presentation will cover an examination of newly developed infrared technologies for practical secondary processing applications.

11:30 a.m.
Ladle Laser Program
Michel Bonin, Vesuvius
Advances in laser-based refractory thickness monitoring continue in our industry. The state of the art includes insertable scanners that can measure the entire vessel in one single comprehensive measurement. These advances as well as the general theory and approach to laser-based refractory monitoring will be addressed.

Noon
Lunch

1 p.m.
Ladle Pre-Heat and Handling
Jimmy Barrett, Allied Mineral Products Inc.
Steel ladles will be covered in detail, including pre-heating, refractory wear mechanisms and measuring options.

1:45 p.m.
Break

2 p.m.
Ladle Burner, Technical and Controls
Dale Smith, Honeywell Combustion Safety

3 p.m.
Break

3:15 p.m.
Principles of Mold Flux Technology
Harriet Dutka, SANGGRAF International
This presentation is a brief overview that focuses on answering the “whys” of certain practices and procedures in steelmaking. If you are new to steelmaking or are in a non-technical role, this presentation will answer many of the questions you would like to ask.

4 p.m.
Panel Discussion and Reception
Moderator: Jimmy Barrett, Allied Mineral Products Inc.
Panelist: Rob Doty, IMACRO Inc., Harriet Dutka, SANGGRAF International; and Helmut Oltmann, Nucor Steel–Berkeley

**Thursday, 8 October 2020**

7 a.m.
Breakfast

8 a.m.
Plant Tour of GKN-Hoeganaes Corp.
Return From Plant Tour and Adjourn