



SFSA CASTEEL REPORTER

Steel Founders' Society of America

a publication serving
SFSA steel casting industry Members

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March — 2016

Casteel Commentary

The development of the future workforce is challenging in good conditions and becomes daunting in these poor times. To help, SFSA is hosting training webinars monthly to help members train their employees. These webinars are recorded and available on our website. We also think it will be helpful to recognize Master Craftsmen in our industry. This month's Casteel Commentary asks each SFSA member to consider nominating one of their highly skilled workers for this honor.

Your SFSA Membership

When times are tough, minimizing costs is key. One of the first costs cut is travel. SFSA has two resources available that do not require a travel budget. The first is our webinar series. The initial focus of these has been on metallurgy but the topics will range the gamut related to steel foundry operations. If you do not receive notices for the webinars, please contact Ryan Moore at rmoores@sfsa.org. After the webinar is held live, a recording is made available through the wiki. Thus, the second opportunity to maximize the value of your SFSA membership is to sign-up for a wiki account (go to http://wiki.sfsa.org/index.php/Get_an_account). In addition to the webinars, the wiki features a treasure trove of SFSA technical material including: almost 1,000 Journal of Steel Casting Research articles, over 2,000 Steel Foundry Facts papers, over 1,000 T&O papers, and two editions of the SFSA Steel Casting Handbook. Each and every employee at a foundry location that is a member is eligible for a wiki account. We encourage you to put this tool in their hands.

SFSA Service Recognition

One of the privileges we have as an industry is to recognize our friends and peers for their service to our industry. SFSA has established three top honors to recognize these contributions:

- The Frederick A. Lorenz Memorial Medal for an employee of a member who has provided outstanding service to the industry
- The Charles W. Briggs Memorial Technical & Operating Medal for an employee of a member who has provided outstanding contribution toward the technical or operating advancement of the industry
- Thomas E. Barlow Award of Honor for a person (or persons if a joint effort) who has made distinguished contributions to the industry

One selection may be made for each annually by the Board of Directors. These are the highest distinction for service that SFSA bestows. Nominations may be sent to Raymond Monroe at monroe@sfsa.org.

SFSA Members Lunch at CastExpo

SFSA is hosting dutch treat lunch for members and invited guests at the AFS Cast Expo on Monday, April 18. Lunch will be at the Minneapolis Convention Center at 12noon. The cost per participant is \$35. We are also planning a roundtable discussion after lunch. This will be an opportunity to catch up with other SFSA members in attendance. If you will be joining us, please RSVP to Diana David at ddavid@sfsa.org.

Sand Control and Future Leaders Meetings

The SFSA Sand Control (North-Central Division) T&O meeting will be held on Thursday, March 31st and Friday, April 1st near Muskegon, MI. Thursday afternoon will be for the traditional "North-Central Division" T&O meeting, which will feature topics on sand control; including: sand issues at Eagle, influence of binders, understanding compaction and sand shear, silica rule update, and molder artisan program. There will be a group foundry tour of Eagle Alloy Friday morning. This meeting will be held in conjunction with a Future Leaders meeting that will begin prior to this. The Future Leaders group will tour Cannon Muskegon, learn from SME Glen Greta and participate in a knowledge exchange roundtable. To RSVP, please contact David Poweleit at poweleit@sfsa.org.

EAF and Heavy Section Meetings

Please save the date for the SFSA Electric Arc Furnace (Eastern Division) T&O and Heavy Section Product Group (HSPG) meetings that will be held on Thursday, May 12th and Friday, May 13th in Bay City, MI. Thursday morning will be the HSPG meeting on the featured topic of heavy section heat treatment. Thursday afternoon will be for the traditional "Eastern Division" T&O meeting, which will feature topics on EAF operations. In addition to the two meetings, we will take a tour of Bay Cast. There is no cost for the meeting. To RSVP, please contact David Poweleit at poweleit@sfsa.org.

Research Review Meeting

The annual SFSA Research Review will be on July 19-20 in Chicago. The Review covers the latest steel casting research, and is your opportunity to interact with the researchers and provide industry steering. The event features both Carbon & Low Alloy and High Alloy topics. With strong support from Federal programs, SFSA manages a large portfolio of R&D. Through industry support, these projects will enable the growth of our industry on out into the future. To RSVP, please contact David Poweleit at poweleit@sfsa.org.

Research Highlight

The University of Iowa recently concluded their Riser Sleeve project. Riser sleeves have been used for decades to insulate risers and aid in the feeding of steel castings. Many foundries use computer casting simulation to design the risering system for steel castings. To accurately model the effect of riser sleeves in a simulation, the thermophysical properties of the sleeves are needed. Property datasets for the most popular types of sleeves used in the North American steel casting industry are now available to members through the SFSA website. It was further found that using sleeves in rangy casting applications to increase casting yield might be unnecessary; however, there are reasons other than yield for using sleeves, such as increasing casting soundness, quality improvement and addressing difficulties in feeding a particular casting. The maximum achievable casting yield was found to be highly dependent on sleeve thickness. It was found that many riser sleeve products have below the optimum thickness for maximizing casting yield, particularly for larger risers in the range of 10" to 30" diameter. To maximize the value obtained from a riser it would be worthwhile to discuss this with you vendor. For further information please contact David Poweleit at poweleit@sfsa.org.

Specifications

The Specification Committee met in November at the ASTM A01 meeting. The next meeting will be at the ASTM A01 meeting on May 3rd; contact David Poweleit at poweleit@sfsa.org for more information. The committee discussed obtaining samples to develop a hardness conversion for duplex stainless steels. UAB continues to support the Telebrineller hardness gage R&R. The committee discussed a new requirement in Tech Pub 300 for solidification simulation; however, there is no current industry need for a standard for this. The new standard for C12A is working through the last negatives. The committee recognizes the challenges of Practice E under A262 for corrosion testing. It plans to follow suit with the ILS being done on wrought material to substantiate this concern. The committee will continue to monitor new specifications for performance radiography (and ultrasonic testing), digital visual inspection (Frank Peters R&D effort), and riser sleeves (material/performance insurance). ISO TC17/SC11, steel castings, will tentatively meet in September. The US delegation recently completed reviews for:

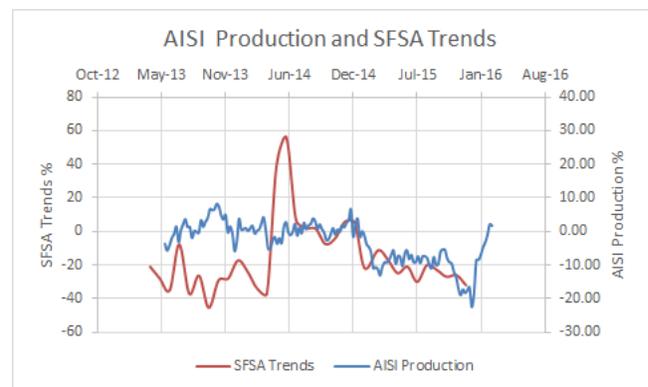
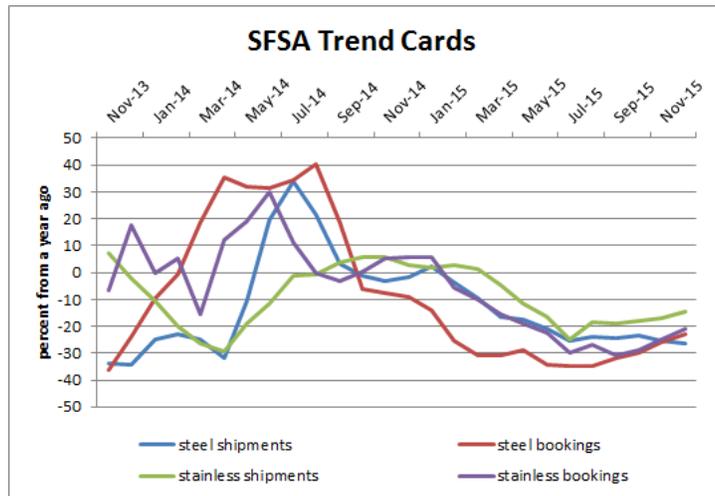
- ISO 19959: Visual examination of the surface condition of investment castings -- Steel, nickel alloys and cobalt alloys
- ISO 4992-1: Steel castings -- Ultrasonic examination -- Part 1: Steel castings for general purposes
- ISO 4992-2: Steel castings -- Ultrasonic examination -- Part 2: Steel castings for highly stressed components

SFSA met with AFS to discuss the proposal from China to develop a new ISO subcommittee for foundry machinery. ANSI, representing the US delegation, abstained but initially registered as an observing (O) member of this new ISO technical committee.

Market News

Steel casting business conditions remain painfully difficult with demand off significantly in December. As can be seen in the SFSA trend charts, the steel casting shipments peaked at the end of 2011 were off over 22% at the end of 2012, off an additional 28% at the end of 2013, recovered 6% at the end of 2014, and fell another 32% in December 2015. Business conditions are down between 30 and 70% depending on your market profile. Stainless castings have not seen the same strong downturn although there have been some periods of slower demand in 2013 through 2015 as seen on the trends graph. Backlogs are low below 8 weeks. Bookings are also off considerably compared to the end of 2014 in December of 2015, over 20%. Shipments for iron and steel castings as well as steel products are down since the beginning of 2015.

While the downturn to date has been persistent and dramatic, recent activity in the steel markets and in the price of copper and oil give some reason for improving market conditions. Weekly steel production after falling to lows below 1.5 million tons a week has recently risen to over 1.7 million tons for weekly production. Copper prices after flirting with levels below \$2 a pound are above \$2.2 a pound. Oil that fell below \$30 a barrel has climbed to over \$35 a barrel. These moves suggest that we are now past the bottom in our markets and should see at least a modest improvement in the second half of 2016. New orders for capital goods now exceed shipments suggesting a recovery.



Casteel Commentary

SFSA recognizing the dire conditions in the steel casting industry is seeking to support and prepare our members for future opportunities. In line with the identification by our Board that workforce development is a critical strategic challenge, SFSA has at their direction initiated two programs to meet this challenge. We are hosting webinars for training each month and promoting the recognition of SFSA Masters.

Webinars are a good way to provide training to members for their staff at low cost. We surveyed our HR group and selected basic steel metallurgy as the first series. Three webinars have been hosted, *“What is steel?”*, *“What makes steel strong?”*, and *“Heat Treating Steel”*. These were recorded and are available on our website for members to use anytime. The next webinar will cover *“What makes steel stainless?”* and is scheduled for Tuesday, March 29th.

SFSA in creating an artisan program to develop the skills we need in the new workforce has implemented a Masters’ recognition. One way we can demonstrate the value and raise the profile of the critical skills needed to make steel castings is to recognize the craftsmen responsible. To aid our members in their plants, the SFSA board has chosen to accept nominations for Master recognition from members.

We are encouraging each SFSA member this year to nominate one of their highly skilled workers for this honor. These nominations will be reviewed by the SFSA Board who award this title to nominees. These individuals will be recognized by SFSA at the T&O conference. This award will be announced in a press release that will allow the member to distribute it to the local media like newspapers and to the trade publications like Modern Castings. This will create good publicity for the company in the industry and in the community. It will also raise the status and value of the skilled workers in the plant. These Masters will be able to guide the training and qualifications for future artisans. They will be instrumental in identifying the skills and knowledge needed to become a skilled artisan in the industry.

In 2014, we recognized our first Master Foundryperson, Zed Howell, of Howell Foundry. We want to recognize others and so we are asking every member to consider nominating at least one employee for a Master’s recognition:

- Master Foundryperson have a wide range of foundry skills.
- Master Artisans have highly developed skills in one area of steel foundry production. Categories include: Patternmaker, Melter, Molder, Core Maker, Rigging Engineer, Finisher, Heat Treater, Welder, Maintenance Technician, Investment Caster.

We ask that each SFSA member to please send at least one nomination letter to Raymond Monroe at monroe@sfsa.org and include:

- Full name and contact information for the nominee and person submitting the nomination
- Master’s category and brief work history for the nominee
- Major achievements of the candidate:
- Contributions and major career accomplishments that demonstrate their qualifications and skill.
- Endorsements and recommendations from peer and foundry colleagues.

Additional details on the Knowledge and Skills expected for each category may be found at http://wiki.sfsa.org/index.php/SFSA_Artisan_Program or contact Raymond Monroe.



**STEEL FOUNDERS' SOCIETY OF AMERICA
BUSINESS REPORT**

SFSA Trend Cards (%-12 mos. Ago)	12 Mo Avg	3 Mo Avg	January	December	November
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Carbon & Low Alloy

Shipments	-23.0	-26.8	-22.5	-32.0	-26.0
Bookings	-29.6	-22.8	-25.0	-24.0	-19.4
Backlog (wks)	8.0	7.2	6.1	8.0	7.5

High Alloy

Shipments	-13.8	-7.5	-20.0	-5.0	2.5
Bookings	-24.3	-22.6	-25.0	-25.0	-17.9
Backlog (wks)	7.3	6.5	7.0	6.5	6.0

**Department of Commerce
Census Data**

Iron & Steel Foundries (million \$)

Shipments	1,612.2	1,600.0	1,558	1,625	1,617
New Orders	1,570.3	1,577.0	1,566	1,701	1,464
Inventories	1,987.1	1,993.7	2,024	2,003	1,954

Nondefense Capital Goods (billion \$)

Shipments	78.8	77.7	78.0	75.1	79.9
New Orders	77.2	73.3	78.9	65.2	75.8
Inventories	176.1	175.1	175.3	175.4	174.6

**Nondefense Capital Goods
less Aircraft (billion \$)**

Shipments	69.1	68.5	68.5	68.8	68.4
New Orders	68.5	68.1	68.8	66.5	68.9
Inventories	120.3	118.9	118.3	119.3	119.1
Inventory/Orders	1.8	1.7	1.72	1.79	1.73
Inventory/Shipments	1.7	1.7	1.73	1.73	1.74
Orders/Shipments	1.0	1.0	1.00	0.97	1.01

American Iron and Steel Institute

Raw Steel Shipments (million net tons)	7.2	6.7	7.0	6.6	6.5
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Spring Leadership Meeting

Please plan to attend the SFSA Spring Leadership Meeting scheduled for May 4-5 in St. Louis, Mo at the River City Casino and Hotel. RSVP to Ryan Moore by e-mail: rmoore@sfsa.org

This year's program will begin with a tour of MetalTek Carondelet the morning of the 4th followed by presentations of interest to foundry senior management and marketing personnel on the afternoon of the 4th and the morning of the 5th. In addition to an industry roundtable session and economic update, presentations topics also include:

- Denise Swink – Smart Manufacturing Leadership Coalition, Smart Manufacturing and the Steel Casting Industry
- Jerrod Weaver, Non-Ferrous Founders' Society – Sourcing business opportunities with Integrated Casting Order Network (ICON)
- Warner, Norcross & Judd - Regulatory Update
- Jiten Shah, Product Development of Analysis, Adaptive Machining for Complex Castings
- Bill McCann, Strategic Marketing Innovations – Congressional Support Efforts for SFSA Technology Development

The SFSA board will meet the day prior on May 3rd and the Marketing committee will meet on the afternoon of May 5th. We invite everyone to stay after the program on Thursday morning to participate in the marketing committee meeting.

AGENDA	HOTEL
Tuesday May 3 10am-12pm - executive committee meeting 12pm-5pm - board of directors lunch and meeting 6pm - dinner TBD	Steel Founders' Society of America Group Room Block River City Casino & Hotel 777 River City Casino Blvd St. Louis, MO 63125 888-678-7289 Group Room Rate: \$119 May 2-5, 2016 Reservation Cutoff Date: April 8, 2016
Wednesday May 4 8am-12pm - MetalTek tour 1-5pm - Spring Leadership Meeting 6pm - dinner TBD	
Thursday May 5 8-11:30am- Spring Leadership Meeting 12:30-4pm - Marketing Committee Meeting	

Safety & HR Group Meeting

The SFSA HR & Safety Group Meeting will be held May 17-18, 2016 at American Foundry Group in Muskogee, OK. This meeting is a great opportunity to learn from your peers on many topics including how to improve safety training and practices, communication, and the latest HR topics. In addition, a roundtable discussion is the perfect forum to get answers to your safety and human resource questions. There is no registration cost for the meeting - travel, hotel, meals, etc. are the attendees' responsibility. Please RSVP to Ryan Moore - rmoore@sfsa.org. Health & Safety Topics to include: Silica, CO explosions in EAF. HR Topics to include: FMLA, overtime regulations.

Hotel: Holiday Inn Express & Suites Group rate: \$99/night

Monday, May 16, 2016

6:00pm Dinner (meet in hotel lobby)

Tuesday, May 17, 2016

8:00am Safety Meeting & Roundtable

12:00pm Lunch

1:00pm Tour American Foundry Group

6:00pm Dinner – Okies Steak House

Wednesday, May 18, 2016

8:00am HR Meeting & Roundtable

12:00pm Conclude

Fall Leadership Conference

Please save the date for the Fall Leadership Meeting to be held **September 10-13, 2016 in Santa Fe, New Mexico**. We will have another great program for members this year. We look forward to your attendance and participation in this educational and networking meeting and welcome the opportunity to share new developments in the steel casting industry with you.