



# SFSA CASTEEL REPORTER

Steel Founders' Society of America

a monthly publication  
serving SFSA steel casting industry Members

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## *December — 2012*

### **Casteel Commentary**

This month's Casteel Commentary focuses on the need that young people have to belong and the opportunity that gives us in steel casting to provide them with meaningful employment. This means that we need to be aware of their needs and interests but it also means that we can have an advantage over most other employees in recruiting and retaining key young people.

One note that may be of interest, UNI has initiated a program that will allow you to sponsor a student from your hometown to study foundry manufacturing. You would have the student as an intern and be able to recruit them to your business. Since they would be from your area, you would have an outstanding chance to add them to your staff. Attached is a flyer from UNI on this program.

### **Future Leaders**

The Future Leaders will meet Wednesday evening December 12<sup>th</sup> at the T&O Conference. The next meeting of the group is scheduled for February 21-22 at Bradken-Amite. The meeting will feature a mini-seminar on heat treatment and the microstructure of steel castings. For additional details, contact David Poweleit at [poweleit@sfsa.org](mailto:poweleit@sfsa.org).

### **Investment Casting**

The next Investment Casting Group meeting will be February 12-13 at Conbraco in Conway, SC. The tentative agenda includes: a tour of Conbraco, wax presentation by Von Richards (MS&T), an overview of the sand casting yield survey by Malcolm Blair, an update on the apprenticeship program and investment casting seminars, discussion on additional use of 3M Cubitron and alternatives to zircon flour and zircon stucco, roundtable discussion on Rapid Tooling, new I/C technologies, and show 'n discuss casting quality issues, and foundry statistics through presentations on Vivid software and upper/lower limit analysis. For additional details, contact David Poweleit at [poweleit@sfsa.org](mailto:poweleit@sfsa.org)

### **Safety/HR**

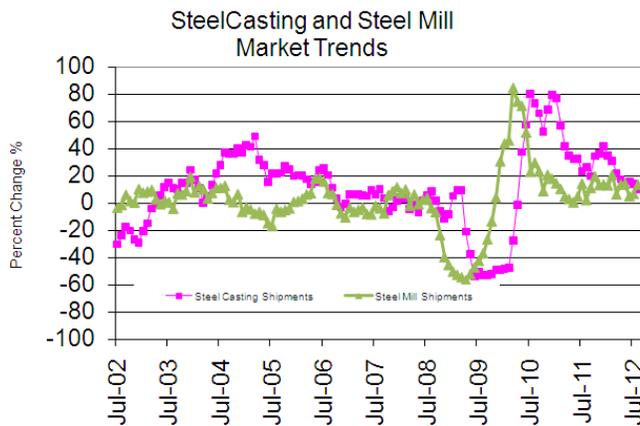
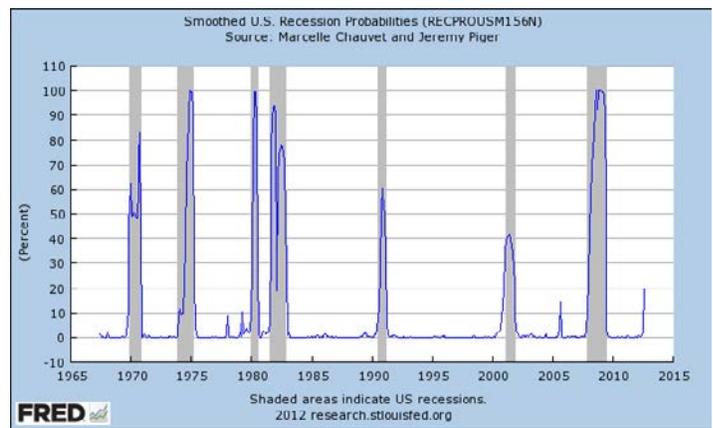
The Safety/HR meeting will be held in Longview, TX on February 19-20, 2013 and will include a tour of Southwest Steel Casting Company.

### **Market News**

As indicated in earlier newsletters, the probability is that the US has or will enter a recession for the balance of this year and the first part of next year. Below is the graph showing that the probability for a recession is well into the region where recessions normally result. The SFSA marketing committee will be reviewing the forecast this month for possible updating in light of the current economic conditions.

Bookings for steel and stainless steel castings took a decided drop in August. Shipments remain well above levels of a year ago for both types of castings.

This weakening of demand for steel castings is also noticeable in the iron and steel casting shipments from Commerce showing continued drops from February on. Iron casting demand is a leading indicator while steel casting demand is a following indicator. This is not a perfect leading indicator but does move sooner than steel castings in most cases. The Commerce data however includes steel and iron castings together. Iron castings are also more tied to consumer activity like auto production and home construction. Steel castings are used in capital equipment. Steel mill production also leads the steel casting production and that trend can be seen in the graph below.

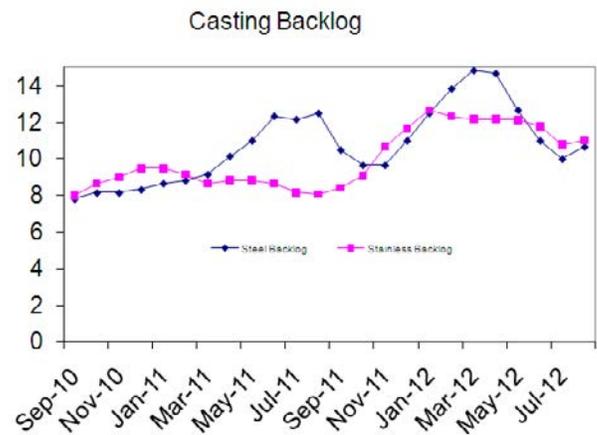


Capital equipment tends to follow closely the non-defense capital goods new orders without aircraft as reported by the Department of Commerce. This indicator like the iron and steel casting production numbers show continued weakening since earlier this year.

Casting backlog through August remained high showing no indication of softening in the market. However since the beginning of fall some major customers have been trimming orders and the market has slowed with some evidence on slowing across the markets. The price of oil has fallen below \$90 a barrel causing some reduction in demand there. In

the same way, copper prices have moderated. The financial situation in Europe and the slowdown in Asia are a drag on world economic conditions. The unwillingness to allow debt liquidation and restructuring is creating stagnant conditions locking in unsustainable positions.

Steel casting demand is likely to moderate and fall for the balance of the year and remain tepid for the first half of next year. An improvement in domestic and global financial conditions would provide some basis for new investment and increased production. The lack of infrastructure investment and growing global demand should result in strong steel casting markets in the medium term but it is not clear how deep the slowdown will be or how quickly we will see a recovery.



## **Welding as a part of the Steel Casting Process**

We have unfortunately adopted more than 50 year ago terminology from the welding fabrication industry to describe a fundamental part of our production process. Repair welding was originally the repair of a cracked or poor weld in fabrication. We used the term in steel casting production to describe production welding used by every plant to prepare the casting to meet the customer requirements. When we pour the casting it includes gates and risers necessary for the production process. In the as-cast state, the casting does not have the mechanical properties required by the specification. Often surface roughness or flask and fins are unacceptable.

These rough castings are not containing defects but are not in compliance with the customer's requirements. Defects, according to the ASTM E standards, are conditions that are prohibited in the purchase agreement with the customer. In producing the casting, we need to do finishing operations to meet the customer requirements. In every steel foundry, we include welding as an allowable process to meet customer requirements. In fact all ASTM casting standards need to conform to either A703 for pressure containing parts or A781 for structural parts. In both cases the producing foundry is allowed to weld the casting to meet the customer's requirements. In fact, welder and weld procedures are required to be in compliance with A488 for all grades covered in ASTM. The requirement for qualifying to A488 and the acknowledgement in A781 or A703 demonstrates that welding castings to conform with steel casting requirements is an ordinary part of the steel casting production process. In fact new alloy grades proposed for inclusion by A01.18 into the ASTM steel casting standards must be submitted with a weld procedure and filler material to be considered.

Good foundries plan their production to be efficient and this includes minimizing the welding necessary but many times the processing route developed by the foundry requires welding to make the casting. Welding is not a repair of the casting but an ordinary production step to meet the customer requirements. Upgrading a casting is not the production welding to meet the original customer casting requirements but is terminology developed for valves to describe taking a casting and upgrading it to a more stringent set of requirements after the casting has been finished and meets the original requirements. If customers are concerned about welding even with all the specification currently required they can further specify weld maps or major weld approval using the supplementary requirements of A781 or A703.

## **Casteele Commentary**

Belonging. I attended the Foundry Education Foundation Annual College-Industry Conference (FEF-CIC) this year. All of the speakers were good and one speaker hit a particular note to me. Mo Lynn at Fairmont Minerals listed some of the attributes of the metal casting industry that led her to make her career there. Much of what she said was true of many industries but the one she shared that struck me was the sense of belonging.

Our industry, in particular the steel casting industry, faces an existential challenge to recruit bright capable workers who will guide and move our industry forward into the future. We need both professionals and artisans. We will need skilled and talented professionals to run the business, oversee the production, manage the technology, etc. We will need talented artisans to make our castings. These castings will require increasingly difficult production processes and methods. For the professional, we are not the best-paid or most glamorous industry. We are no brand name industry that will impress. For the artisan, we are hard work at a unique skill not celebrated or known by most people. How can we succeed in attracting young people to become those professionals and artisans?

This is where Mo's talk hit a nerve with me. As I think about our developing apprenticeship program and how we will attract young skilled people to become our molders, melters, welders, etc., we face the challenge of attracting people who are not academically inclined or valued by our society and culture. Yet, one of the more compelling needs that we have as people and one of the more salient features of the steel casting industry is the ability to belong.

Often at our SFSA meetings, I hear the conversation about whether someone counts as a foundryman. I have had directors and even presidents of SFSA express joy in receiving an award

since it means that they belong as a steel foundryman. At the T&O conference and all the other meetings there is a palpable sense that we are a community, that I belong, that we are doing something important together.

Young people suffer from a sense of meaninglessness, lack of challenge, a concern about being worthwhile, and a lack of identity. This is particularly true of skilled people that are not academically inclined. Our industry is well suited to provide a place for these young people as recognized artisans.

To be successful not only to meet this need that young people have, but to recruit and attract them, we need to invite them to belong. Gone are the days when good pay would offset the difficult working environment. Gone are the days when any job was better than no job. Gone are the days when young people expected to find joy and meaning in working with their hands to create and produce. But not gone is the real human need to belong, to make and create things, to learn and be productive, to make a difference.

We cannot expect young people that we hire to endure to success and then earn their sense of belonging. Our plants need from the beginning of their interview, reach out and offer new employees the chance to belong and to make a difference. How do we make our new hires feel that sense of belonging, of being part of the team, of belonging to the community, of being valued and special? It seems to me our need for them and their needs for us match in a unique and compelling way. We need to bring new people into our community. We need them to become part of our industry and they need to belong.

Raymond

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

<b>SFSA Trend Cards</b> (%-12 mos. Ago)	12 Mo Avg	3 Mo Avg	Aug	Jul
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**Carbon & Low Alloy**

Shipments	22.3	9.7	6.7	9.1
Bookings	16.0	-18.8	-41.2	-5.4
Backlog (wks)	11.7	10.7	12.0	10.0

**High Alloy**

Shipments	21.8	7.5	9.7	1.0
Bookings	17.6	-15.3	-50.0	36.5
Backlog (wks)	11.5	11.0	12.5	10.0

**Department of Commerce  
Census Data**

**Iron & Steel Foundries (million \$)**

Shipments	1,821.2	1,787.3	1,766	1,792
New Orders	1,850.9	1,759.3	1,692	1,843
Inventories	2,107.0	2,151.0	2,157	2,144

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

Shipments	70.3	70.1	69.2	70.5
New Orders	74.2	68.8	57.8	75.9
Inventories	168.4	170.3	171.9	170.5

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

Shipments	64.6	63.9	63.1	63.8
New Orders	65.3	61.4	60.3	60.1
Inventories	117.7	120.7	121.4	121.1

Inventory/Orders		1.97	2.01	2.01
Inventory/Shipments		1.89	1.93	1.90
Orders/Shipments		0.96	0.96	0.94

**American Iron and Steel Institute**

Raw Steel Shipments (million net tons)	8.1	8.1	8.4	7.9
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## Scholarship Support for the UNI Department of Technology Metal Casting Majors

August, 2012

The University of Northern Iowa Foundation is honored to present this proposal to create a scholarship opportunity for UNI metal casting majors in the UNI Department of Technology.

### Imagine the Impact You Can Make - the Case for Support

Scholarship funds and grants are the backbone of support for our students. State support for our general education budget has declined dramatically in the past two decades. The effects of such actions have fallen largely on the shoulders of our students who have come to rely increasingly upon loans and scholarships to finance their education. UNI students graduate with an average loan indebtedness of \$25,000. The need for scholarship support quickly outstrips available funding.

### The Case for Need

During the past 15 years, the metal casting industry has struggled to find and employ university-educated foundry professionals. The potential growth of the metal casting profession has been limited by too few high school graduates seeking metal casting education at the university level, which in turn yields a limited number of qualified, skilled candidates to fill open metal casting industry positions.

Competition among employers for highly qualified metal casting graduates is tremendous. Additionally, industry leaders tell us that while graduates are attracted to high paying positions, they also desire a quality of life balance and for many, the privilege of starting a career in their home community figures in their decision to accept a position. They place a high value on family and community ties.



Scholarship programs may provide support to the few students who have already chosen a metal casting emphasis; little is available to recruit a graduating high school senior into the metal

casting industry. In fact, no such opportunity now exists at UNI. By creating the University of Northern Iowa Metal Casting Hometown Scholarship program we can accomplish two goals:

- it gives UNI the resources to offer recruitment scholarships to high school graduates intending to major in manufacturing technology with a metal casting emphasis, and
- it gives the scholarship donors an enhanced opportunity to support and recruit those students from their community who want to return after graduation.

## How You Can Make an Impact on UNI Students – Request for Support

The University of Northern Iowa Metal Casting Hometown Scholarship program allows businesses like yours to fund and target scholarship support to a future metal casting professional from your area. Your commitment to annually provide a half to full tuition scholarship for four years will create scholarship support for the UNI Department of Technology Metal Casting majors and will give you the following opportunities:

- you will have significant latitude in determining scholarship award criteria, which can address such things as stating a preference regarding the candidate's geographic residence, minimum high school or transfer GPA, minimum ACT/SAT scores, and minimum GPA at UNI after his/her freshman year
- in addition to incoming freshmen who are recent high school graduates, you may also include community college graduates/transfers or other college transfer students to UNI as eligible recipients
- the scholarship will be limited to students who have made a commitment to the manufacturing technology major with metal casting emphasis
- you will be given the opportunity to meet the pool of qualified students to discuss their interest in your scholarship and the metal casting field
- while scholarship awards cannot be made contingent upon students accepting internship and employment offers from scholarship donors, you will have enhanced opportunities to interact with your scholarship students. Benefits to your company include:
  - personal visits and communication by student and donor on campus and at your place of business
  - substantial interaction with your student during UNI's annual Scholarship Appreciation luncheon
  - announcement and recognition in collegiate/department newsletters
  - high visibility among well-educated graduates who are positively inclined toward returning to their home community
  - opportunities for enhanced collaboration with the UNI Metal Casting Center and Department of Technology faculty
  - association with a university and program greatly respected in Iowa and the Midwest.

The scholarship will be renewable as long as the student meets the award criteria. Your student will get to know you and your organization and after the completion of the student's education,

your company will be in the best possible position to offer the student full time employment within your organization.

Annual undergraduate tuition at the University of Northern Iowa is \$6,648 for Iowa residents and \$15,734 for non resident students; student debt is a national problem. Your tax deductible gift will significantly reduce debt and will make a lifetime impact upon a student. As importantly, you will be enhancing the quality and quantity of professionals in your industry.

The University of Northern Iowa Foundation and the Department of Technology respectfully requests your consideration of this proposal. You have our pledge to be faithful stewards of your gift and the legacy you will create. Your gift will play a vital role in helping the University of Northern Iowa to pursue its vision, "To be the nation's finest public comprehensive university, known for high quality learning environments and a genuine sense of community."

Thank you for giving us this opportunity to present our proposal.

Best regards,

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