

THE CRUCIBLE

July/August 2005

PUBLISHED BY THE NON-FERROUS' FOUNDERS SOCIETY



United States International Trade Commission

Foundry Products: Competitive Conditions in the U.S. Market

*“What does this mean
for your foundry?”*

Investigation No. 332-460
USITC Publication 3771
May 2005





Complete Solutions for

CPU



Copper, bronze and brass were melted with fuel-based furnaces until well into the 20th century, when the clear advantages of induction melting technology have made it the modern solution for melting these metals.

Inductotherm is the leading manufacturer of induction melting and automatic pouring systems used by companies worldwide to melt and cast copper and copper alloys. From removable crucible furnaces, used to melt just a few pounds of brass for custom castings, to an 80 metric ton tilting furnace, used to cast giant bronze ship propellers, Inductotherm builds furnaces and complete melt shop systems for virtually every copper and copper alloy application. It also offers reliable and accurate, inductively heated, stopper-rod automatic pouring systems for copper alloys.

For more information, please contact us or visit our Web site today.



ISO9001:2000
Certified 

INDUCTOTHERM[®]
An Inductotherm Group Company

Service Worldwide

Total Service - 24 hours a day, 7 days a week

10 Indel Avenue, P.O. Box 157, Rancocas NJ 08073-0157

1-609-267-9000 • Toll Free 1-888-INDUCTO • 1-800-257-9527 • FAX 1-609-267-3537

Email: sales@inductotherm.com • www.inductotherm.com



Non-Ferrous Founders' Society
2004/2005 Executive Committee

PRESIDENT

Mel Kman
Avalon Precision Casting Company

VICE PRESIDENT

Robert Beard
Sloan Valve Company

TREASURER

J.D. Claffey
Non-Ferrous Casting Company

DIRECTOR

Stan Bass
Ft. Worth Aluminum Foundry, Inc.

DIRECTOR

Ryan Beck
Beck Aluminum

HEADQUARTERS

staff@nffs.org

EXECUTIVE DIRECTOR/EDITOR

James L. Mallory, CAE
jlm@nffs.org

CONTRIBUTING EDITORS

Jerrold A. Weaver - Quality/Safety
NQS9000@nffs.org

Ryan J. Moore - Member Services
ryanm@nffs.org

LAYOUT & DESIGN

Michael Barron
Barron Layout & Design
barron1@ameritech.net

NFFScope

It's here. The ITC's 368-page report on the year-long Section 332 investigation of the *Competitive Conditions in the U.S. Market for Foundry Products* was released to the public on May 27th.

NFFS has gone on record commending the ITC for the thorough job and the comprehensive and unbiased presentation of the investigation results contained in the report. While some people in the industry may be disappointed at the lack of specific policy recommendations contained in the report, NFFS has known all along that a 332 investigation isn't meant to solve problems. Rather, its purpose is to present an undistorted assessment of the market factors affecting domestic producers. Armed with this report, it is now up to the industry and our Congressional allies to come up with specific legislation and/or policy decisions to try to resolve any unfair or non-competitive conditions which the 332 investigation identified.

NFFS is already taking steps to do just that. First, our Board and Government Affairs Committee began analyzing the report. Next, we decided to reproduce the final chapter of the report (at least the parts dealing with non-ferrous foundries) in this special issue of *The Crucible*. But more importantly, we've structured the entire program for this year's NFFS Annual Meeting (see the centerspread insert) to provide some frank and **Open Discussions** of the report and of the challenges and issues confronting domestic metalcasters and other small manufacturers.

To open the program, we've lined up a stellar list of speakers, including **Congressman Don Manzullo**, Chairman of the House Small Business Committee, **Tom Sullivan**, Chief Counsel for Advocacy at the Small Business Administration, and **Fletcher Steele** of the Pine Hall Brick Company, Chairman of the NAM Small & Medium Manufacturers Division to focus on the on-going need to reinvigorate manufacturing in America. **Judith-Anne Webster** the USITC Project Leader for (and one of the principal authors of) the Foundry Products report will summarize its findings, and the Society will review the NFFS/CCMA Foundry Tour to China. To wrap up the program, we'll be presenting two special workshops on **Competing on Value** and **Making Work Flow**.

I frankly believe that this year's meeting offers the strongest and the most important program that NFFS has offered members in my 20 years with the Society. If you intend to stay in the foundry business - if you want to continue making castings in this country - then you need to decide what to do to prepare your foundry to meet the continuing challenges that are so correctly identified in the 332 report.

Read the concluding section of the ITC report. Take a look at the program for the Annual Meeting in October. Then decide. But you'd better be prepared to do *something*.

Editor's Note: Due to a printers error (May/June 2005 issue), the pages for the article entitled "The Alarming Erosion of the Foundry Industry in the U.S." by Professor Frank Clemente of Penn State University were in fact printed out of sequence. A corrected version of the article can be found at the NFFS website at www.nffs.org. The Crucible staff apologizes to the author and the readers for any confusion that this error may have caused.

The **CRUCIBLE** is published six times each year in February, April, June, August, October and December by the Non-Ferrous Founders' Society 1480 Renaissance Drive, Suite 310, Park Ridge, IL 60068 (847) 299-0950. Copyrighted 2005 by the Non-Ferrous Founders' Society. All rights reserved. Statements of fact and opinion are made on the responsibility of the authors and do not necessarily imply an opinion on the part of the officers or membership of the Non-Ferrous Founders' Society.

CHAPTER 10

Competitive Conditions in the U.S. Foundry Market

This chapter provides an assessment of the competitive environment that the U.S. foundry products industry faced from 1999-2003 based on analysis in the previous chapters. This chapter provides a summary of the condition of the U.S. foundry industry, evaluates the advantages and disadvantages of the U.S. foundry industry compared with its major foreign competitors, and discusses the outlook for the U.S. industry.

The Commission received producer questionnaires from 465 establishments containing extensive quantitative and qualitative information on the U.S. foundry industry during 1999-2003. Data from the questionnaires indicate that the responding producers account for approximately 75 percent of the industry's production of castings.¹ An additional 463 questionnaires were received from companies reporting purchases of castings, of which 254 indicated purchases of the 10 product groups.² These questionnaires were used to identify purchaser trends in the U.S. market during 1999-2003.³ Questionnaire responses were supplemented by information collected through a Commission hearing, fieldwork interviews with domestic producers and foreign competitors (including those in China, Brazil, and India), telephone discussions with domestic and foreign industry sources, literature review, and information obtained by the Commission from other sources, including foreign embassies and the U.S. and Foreign Commercial Service.

The U.S. foundry products industry experienced a highly competitive and changing marketplace during 1999-2003. While the U.S. economic downturn in 2001 negatively affected demand for many cast products, the industry also faced pressures from materials substitutions; for example, polyvinyl chloride increasingly replaced copper for valves and fittings, and aluminum replaced iron for many automotive applications. At the same time, many high-volume, commodity-type castings were increasingly sourced from foreign suppliers. Concerns about product pricing increased; producers indicated that their customers, particularly large automotive manufacturers, dictated

prices and controlled contract terms in part because they could source certain castings at lower cost offshore.

During the 5-year period, virtually all performance indicators for the foundry products industry, including production, shipments, employment, and net sales, trended downward. Profit margins tightened as rising raw materials, energy, and labor costs cut into decreased sales. In this environment, many firms consolidated and closed. To stay competitive, remaining U.S. producers expanded customer services, shortened lead times, and shifted to more complex cast products. Information reported by producers and gathered throughout the course of this investigation suggests that the competitiveness of the industry is significantly impacted by higher U.S. labor costs and a more stringent regulatory environment than its leading competitors.

Summary of U.S. Foundry Industry Condition

The production, shipment, employment and financial condition of the rough foundry products industry deteriorated during 1999-2003.⁴ The decline in the financial performance of many foundries is represented by the increase in firms showing operating losses across industry segments (figure 10-1).

Information collected during the course of this investigation suggests a number of factors contributed to the decline. First, the U.S. economic slowdown during 2000 and 2001 affected the foundry industry as demand from key market segments decreased, and there was little evidence of significant improvement in the industry during subsequent years, except for aluminum foundries.⁵

Additionally, U.S. import statistics show increasing imports of downstream products containing the foundry product

¹ The coverage for each metal type varies. See ch. 1 for added detail on how the Commission's questionnaire responses are represented by metal type.

² The Commission, in consultation with the Committee on Ways and Means of the U.S. House of Representatives and the American Foundry Society, selected 10 product groups, believed to be representative, for a detailed competitive evaluation. See "Study Approach" section in ch. 1 for additional information on the selection process. The 10 groups include cast products used in the following downstream products: ductile iron crank shafts/camshafts; aluminum engine components; aluminum suspension/steering systems; gray iron motor vehicle gear boxes; copper valves; steel valves; ductile iron bearing housings; gray iron compressor housings; gray iron pump parts; and gray iron non-motor vehicle gear boxes.

³ The purchaser questionnaires represent responses from companies buying domestic and foreign castings in each of the 10 product groups but there is no basis to estimate the share of total castings purchases these responses represent because benchmark data do not exist that cover the universe of purchasers.

⁴ For the purposes of this chapter, the iron foundry industry has been separated into gray and ductile iron industries. The information in this section is based on producer questionnaire responses and fieldwork interviews with domestic producers. Detailed data on production, shipments, financials, etc. for each type of metal foundry were presented in chs. 5-8.

⁵ For more details, see chapter 7: U.S. Aluminum Foundry Industry.

groups during 1999-2003,⁶ which suggests that purchases of downstream products containing foreign metal castings replaced use of U.S. foundry products.⁷ Finally, downward pressure on price affected the foundry product industry's financial condition during 1999-2003 as it limited the ability of producers to raise prices to a level that covered the increase in costs over the period. More than 79 percent of producers indicated that they had either reduced prices or suppressed price increases to maintain customers. However, producers and purchasers have divergent views on how substantially the pricing pressure affected prices over the period (table 10-1). There was a significant disparity in the responses, as 42 percent of producers reported that their prices had decreased during 1999-2003, but only 13 percent of purchasers indicated that producers' domestic castings prices had decreased during the period. Additionally, producers indicated that they have offered their customers other concessions that are not reflected in the price of the castings, such as providing discounts and rebates, and maintaining inventories for customers.

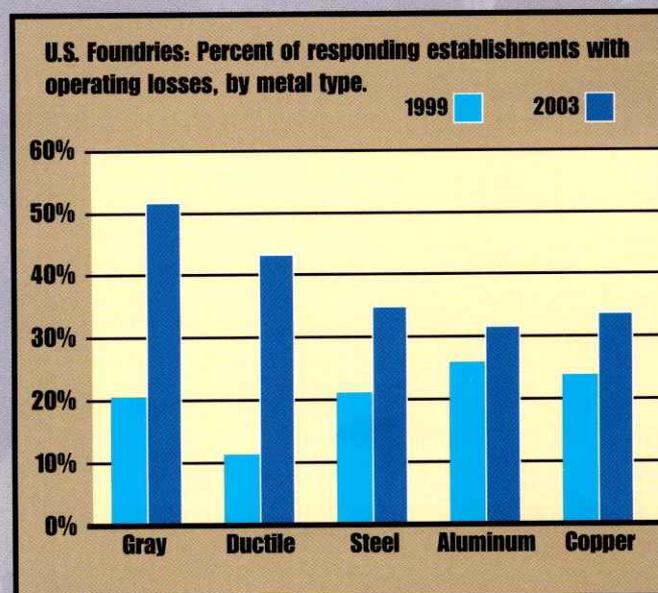


figure 10-1

Domestic producers' and purchasers' comparison of relative price changes for domestic and foreign castings in the U.S. market.

Price change in U.S. market		Producer response for U.S. castings	Purchaser response for U.S. castings	Purchaser response for foreign castings
% Increased:	0-10	59	137	94
	11-20	42	78	38
	21-30	9	27	9
	31 or more	11	1	1
	Unspecified amount	3	17	9
Stayed the same	63	84	144	
% Decreased:	0-10	74	40	35
	11-20	36	6	10
	21-30	14	2	1
	31 or more	3	3	1
	Unspecified amount	0	3	1
Source: Compiled from data submitted in response to producer and purchaser questionnaires of the U.S. International Trade Commission.		The total number of responses was 304	The total number of responses was 407	The total number of responses was 343

table 10-1

⁶ See the product group sections in chs. 5-9 for these data.

⁷ As U.S. foundries export only 7 percent of reported shipments (based on producer questionnaire responses), cast components in these imported downstream products likely did not originate principally from U.S. suppliers.

All foundries: Selected financial results for responding U.S. producers by metal type, fiscal years 1999-2003

Item	1999	2000	2001	2002	2003
Aluminum foundry industry:					
Rough casting operations:					
Net sales (1,000 dollars)	3,999,485	4,651,149	4,490,857	5,031,837	5,187,109
Operating income (1,000 dollars)	255,812	267,107	77,610	211,581	286,921
Unit value (dollars per short ton):					
Net sales	3,854	4,022	4,319	4,189	4,251
Cost of goods sold	3,412	3,581	4,010	3,820	3,824
Machining operations:					
Net sales (1,000 dollars)	2,397,938	2,684,394	2,378,836	2,687,200	2,588,568
Operating income (1,000 dollars)	298,655	285,594	224,391	265,259	180,768
Copper foundry industry:					
Rough casting operations:					
Net sales (1,000 dollars)	368,032	378,422	364,312	394,957	376,711
Operating income (1,000 dollars)	45,377	37,437	28,956	43,935	42,977
Unit value (dollars per short ton):					
Net sales	4,542	4,644	4,871	5,178	5,123
Cost of goods sold	3,494	3,700	3,969	4,065	4,031
Machining operations:					
Net sales (1,000 dollars)	313,478	323,364	309,271	303,858	304,902
Operating income (1,000 dollars)	29,924	29,492	29,212	21,303	17,996

Note.—Calculations based on unrounded data.

Source: Compiled from data submitted in response to producer questionnaires of the U.S. International Trade Commission.

table 10-2

Product groups: Selected financial results for responding U.S. producers for their rough casting operations, fiscal years 1999-2003

Item	1999	2000	2001	2002	2003
Aluminum engine component castings:					
Net sales (1,000 dollars)	744,355	1,031,054	849,784	994,923	1,055,376
Operating income index ¹	100	116	1	122	137
Establishments reporting operating income losses (number)	3	4	8	9	8
Aluminum suspension/steering part castings:					
Net sales (1,000 dollars)	643,483	722,869	737,651	878,692	848,961
Operating income index ¹	100	88	(²)	105	109
Establishments reporting operating income losses (number)	4	5	10	5	6
Copper valve castings:					
Net sales (1,000 dollars)	197,629	202,355	192,918	205,162	195,694
Operating income index ¹	100	87	53	85	94
Establishments reporting operating income losses (number)	1	1	3	1	2

¹ Operating income for product groups is expressed as an index for this table for purposes of comparison.

² Operating income is less than zero.

Note.—See chs. 5-8 for additional financial results.

Source: Compiled from data submitted in response to producer questionnaires of the U.S. International Trade Commission.

table 10-3

Domestic producers' comparison of the factors of competition (Number of responses)¹

Factor of competition	Total responses	Compared with developing countries, advantage goes to:			Compared with developed countries, advantage goes to:		
		U.S. producer	Foreign producer	Neither	U.S. producer	Foreign producer	Neither
Overall competitiveness	1,107	38	817	101	12	59	80
Cost of raw materials	986	154	259	435	18	18	102
Availability of materials	955	197	143	481	23	11	100
Energy costs	856	147	431	154	37	31	56
Labor costs	1,130	12	958	16	24	61	59
Transportation to U.S. customer	1,075	739	56	130	99	6	45
Level of technology	1,024	433	54	393	16	27	101
Environmental regulations	1,066	14	886	29	12	41	84
Investment policies	688	37	466	87	6	37	55
Tax policies	711	19	544	52	19	35	42
Loan guarantees	550	29	353	91	10	24	43
Government R&D support	651	36	425	97	8	45	40
Import policies	717	35	493	89	8	45	47
Export policies	757	19	552	90	8	44	44
Castings price in U.S. market	1,077	22	835	76	17	74	53
Castings quality	1,071	464	34	430	22	14	107
Lead time to serve U.S. customers	1,060	690	60	166	67	14	63
Exchange rates	784	49	480	133	29	19	73
Technical advice and service to U.S. customer	963	636	41	151	43	19	73
Worker health and safety regulations	998	46	797	30	9	41	75

¹ The bold underlined figures noting the number of responses, such as **817**, highlight meaningful distinctions discussed in the text for the referenced tables.

Note.—The number of establishments responding was 389. Most of these respondents rated 2 or more countries.

Developing countries include China, India, Indonesia, Korea, Mexico, Taiwan, Thailand, Turkey, Vietnam, and South American and Eastern European countries.

Developed countries include Australia, Canada, Japan, and Western European countries.

Source: Compiled from data submitted in response to producer questionnaires of the U.S. International Trade Commission.

table 10-4

Price and cost pressures for rough casting operations are illustrated by the comparison of sales unit values with unit costs (table 10-2). The gray and ductile iron foundries are experiencing a squeeze, as sales unit values decreased as unit costs increased. Although sales unit values increased for the steel, aluminum, and copper foundries, the rate of increase for unit costs was greater.

Gray iron experienced the greatest decline of any product segment. Financial conditions in the rough castings segment deteriorated to the extent that operating losses occurred in 2002 and 2003, although conditions improved for machining operations in 2003. Gray iron was the segment most affected by the movement of production of high-volume commodity type castings offshore as many of the key competitor countries dominate this segment of the market.⁸ Additionally, gray iron was affected by the shift to aluminum in automotive applications.

The gray and ductile iron foundry industries reported increased sales of machined castings from 1999-2003, in contrast to the downward trend in rough casting sales for those metal types. These foundries report that they have been expanding their machining operations to add more value to their products and improve profitability. There were no operating losses during 1999-2003 for the gray iron foundries' machining operations, in contrast to their rough casting operations.

The financial results for the 10 product groups covered in this report mirror the results for the metal type foundries (table 10-3). Sales and operating incomes have declined for most product groups. Ductile iron crankshaft/camshaft castings experienced the largest decline, mostly as a result of substitution of forged steel shafts by automobile producers. Sales for the aluminum product groups have increased substantially, largely reflecting aluminum substitution in the automobile industry. The number of establishments reporting operating income losses increased for all product groups except steel valve castings during 1999-2003.

⁸ For example, production of gray iron castings in key competitor countries was 87 percent of total production in Brazil, 60 percent in China, 70 percent in India.

Domestic purchasers' comparison of the factors of competition (Number of responses)¹

Factor	U.S. producers have:			Foreign producers have:		
	Major advantage	Minor advantage	Neither has advantage	Minor advantage	Major advantage	Do not know
Compared with developing countries:						
Purchase price (delivered)	2	15	9	93	315	18
Product availability	73	120	177	25	35	20
Lead time	116	113	139	51	22	15
Delivery time	242	118	49	15	6	17
Discount offered	7	12	297	29	31	60
Minimum order size	52	92	208	52	19	19
Product quality	15	118	243	35	17	17
Product design	28	61	297	14	5	36
Range or variety of products	31	68	266	33	12	35
Reliability of supply	44	175	173	28	7	20
Payment terms	36	65	264	38	23	20
Warranty terms	13	44	330	8	3	40
Technical support/service	64	182	156	13	5	25
Transportation costs	185	177	43	12	5	15
Packaging	25	69	287	24	5	16
Compared with developed countries:						
Price (delivered)	6	38	59	54	37	15
Product availability	17	48	101	15	16	12
Lead time	39	53	91	10	6	12
Delivery time	83	65	41	4	5	11
Discount offered	2	6	159	8	5	25
Minimum order size	7	36	124	13	4	19
Product quality	4	13	145	20	14	11
Product design	3	12	138	23	12	18
Range or variety of products	4	30	124	19	14	17
Reliability of supply	8	55	113	17	6	10
Payment terms	10	22	131	13	9	12
Warranty terms	2	13	169	5	3	14
Technical support/service	11	52	99	18	13	12
Transportation	83	84	28	3	1	9
Packaging	14	31	141	2	1	10

¹ The bold underlined figures noting the number of responses, such as **242**, highlight meaningful distinctions discussed in the text for the referenced tables.

Note.—Developing countries include China, India, Indonesia, Korea, Mexico, Taiwan, Thailand, Turkey, Vietnam, and South American and Eastern European countries. Developed countries include Australia, Canada, Japan, and Western European countries.

Source: Compiled from data submitted in response to Commission Purchaser questionnaires.

table 10-5

Competitive Comparisons⁹

In assessing whether domestic or foreign producers have the advantage among various factors of competition, U.S. producer respondents overwhelmingly consider foundries in developing countries as having an advantage in overall competitiveness (table 10-4). Far fewer cited developed country producers as having an overall competitive advantage. These results also reflect the concern over competition from low-cost producers expressed by foundry industry officials and are consistent with hearing testimony and results of fieldwork and telephone interviews. According to responding U.S. producers, the producers providing the principal competition in the U.S. market are from China, Mexico, India, Korea, and Brazil. U.S. producers reported that the developing-country producers' advantage is mainly attributed to their low U.S. market prices, labor costs, level of enforcement of environmental regulations, and less onerous worker health and safety regulations. However, significant competitive advantages accruing to foreign producers in developing countries also were reported to include export, tax, import, exchange rate, and investment policies. The perceived exchange-rate advantage for China,

however, was noted as a particularly significant concern by U.S. producers. In contrast, U.S. producers considered themselves as having clear advantages compared with developing country competitors in transportation costs, lead times, and technical services, although domestic purchasers considered technical support/service as only a minor advantage for U.S. producers (table 10-5).

Domestic producers ranked price, product quality, and delivery time as the three most important factors affecting their ability to compete with other domestic producers and foreign producers (table 10-6). Domestic purchasers also ranked these factors as most important when purchasing from domestic or foreign foundries. However, in contrast to domestic producers who ranked price highest, domestic purchasers ranked product quality as the most important factor in their purchasing decisions for both domestic and foreign castings. This is consistent with interviews by USITC staff with certain purchasers who indicated the importance of quality over price. However, this viewpoint likely depends on the casting application—the more critical the part (e.g., a brake component), the more important quality is relative to

price. Additionally, many purchasers indicated that for simple or commodity-type castings, the quality of leading competitor countries is most often the same.

Domestic purchasers also assessed the relative advantages among domestic and foreign producers (both in developing or developed countries), reporting that none held a distinct advantage in most of the factors (see table 10-5). However, U.S. producers were considered by purchasers to have a clear major advantage among developing country competitors in delivery time, which also was ranked in the top-five factors that purchasers considered most important. The price of castings was reported by purchaser respondents as by far the major and only measurable advantage for foreign, developing-country producers, which is consistent with all other information gathered in this investigation.

Transportation costs were considered by purchasers as either a major or minor advantage of U.S. producers compared with both developing and developed country foundry competitors (see table 10-5). Although many purchasers assessed U.S. producers as having at least a minor advantage in technical support and services, reliability of supply, and product quality, more than one-half to nearly twice as many other purchasers considered neither U.S. nor foreign producers as having an advantage in any of these three competitive factors. However, based on producer questionnaire responses, telephone interviews, and fieldwork by Commission staff, producers indicated a clear U.S. advantage in each of these factors.

The following sections compare and contrast competitive advantages based on these producer and purchaser questionnaire responses, and provide supplemental information supporting the assessment conferring an existing competitive edge to foreign or domestic producers.

Competitive Advantages for Foreign Producers

Pricing

The increasing pressure by customers for lower prices has made price an overwhelming competitive factor in the foundry industry.

Purchasers indicate that although quality is often a primary consideration, given a comparable level of quality (which most foundries have), price is the determining factor. Both U.S. producers and purchasers indicated that the lower purchase price was an advantage for foreign producers (see tables 10-5). The Commission measured relative prices by gathering pricing data for 10 product groups.¹⁰ These data indicate that foreign casting price levels for the major competing countries in the U.S. market are substantially less than U.S. prices, for both rough and machined castings. Additionally, purchasers noted that in some cases machined castings could be purchased from foreign sources for about the same price as domestically-produced rough castings.

Labor Costs

Foundries in developing countries are reported to have a substantial labor cost advantage.¹¹ Although this factor may be mitigated slightly by lower productivity in some competitor countries,¹² the competitive advantage accruing to foreign foundries resulting from the difference in wage rates is further compounded by other costs, including health benefits and pension costs, that are often higher for U.S. foundries than for their foreign competitors.¹³

Managing labor costs, one of the largest cost component for U.S. foundries, has been problematic. For example, total employee costs for all respondents increased by 6 percent, whereas the total number of employees has declined by 12 percent during 1999-2003. Not only have wages increased by over \$2 per hour, but there has been a significant rise in workers compensation costs and health benefit costs. Workers compensation costs reportedly have increased because of concern over exposure to materials detrimental to employee health, such as silica dust in the air or lead in the copper castings. Increases in health benefits costs correspond to growth in these costs for the United States as a whole.

National laws regarding the dismissal of employees may partially offset the disparity in total labor costs; staffing flexibility in some countries reportedly may be more regulated and impose higher costs. In China, state-owned foundries essentially cannot layoff or fire employees, according to interviews with Chinese foundry officials. Whether these

NFFS SUPPLIER PARTNERS

The Non-Ferrous Founders' Society is pleased to welcome the following companies to its new Supplier Partner program:

ASHLAND

B & L
Information Systems

50 Years of Continuous Service
INDUCTOTHERM
An Inductotherm Group Company
ISO 9001 Certified Since 1993

MORGANITE
MELTING SYSTEMS

Nabertherm
MORE THAN HEAT 30-3000 °C

THERMTRONIX
THE FUTURE IN ALUMINUM MELTING

YELLOW

⁹ The information in this section is based on producer and purchaser questionnaire responses.

¹⁰ Representative products covering each of the four metal types—iron, steel, aluminum, and copper—are specified in chs. 5-8

¹¹ For U.S. foundry workers, the average wage is almost \$19 per hour based on questionnaire responses. This compares, for example, with foundry workers that earn approximately \$2 to \$3 per hour in the eastern region of China, less than \$1 per hour in the western regions of China, \$4.60 an hour in Brazil, and \$1 to \$3 for an 8-hour day in India.

¹² For example, the Chinese Foundry Association asserts that overall Chinese foundry productivity is one-fifth of U.S. productivity (although the productivity of the foreign-invested foundries is likely better than the overall Chinese productivity). Fieldwork interviews also indicate that Indian productivity is lower than any other country with which they compete.

¹³ These costs add approximately \$6 per hour to U.S. wages, \$1.00-\$1.50 per hour to eastern Chinese wages, and \$1 per day to Indian wages. Brazil's foundry workers also receive extensive benefits, but their cost is not readily available.

employees are working or not, the foundry must continue to pay their wages until retirement age. According to fieldwork interviews, dismissing a permanent employee in Brazil unless there is a good cause is considered difficult and incurs a financial penalty.¹⁴

Environmental Regulations

U.S. producers reported that environmentally related capital expenditures averaged over 5 percent of operating income per year during 1999-2003, reaching a peak of 11 percent in 2003. Costs to maintain equipment, monitor factory environment, and maintain records add to operating costs, although no figures are available to document the magnitude of such costs. Fieldwork interviews in China, Brazil, and India indicated that these countries have environmental regulations that are consistent with world standards. The key difference appears to be enforcement, which reportedly is often lax. However, foundries in both China and India find it increasingly difficult to operate in certain urban and residential areas where they were originally established, due to opposition of local authorities. This is especially prevalent in the Shanghai area, which has historically been a major foundry region. Foundries in this city are closely monitored and are fined for environmental violations. Many foundries in China and India are relocating their operations outside urban areas, reflecting some level of environmental enforcement.

Worker Health and Safety Regulations

Worker safety laws in the United States are reported by producer respondents as being extensive, frequently expanded and tightened, and stringently enforced by the U.S. Occupational Health and Safety Administration. For example, dust is typically a significant problem, and foundries must invest in dust collecting systems. Little comprehensive information on foundry worker safety is available for the foreign industries under study. Similar to environmental regulations, laws are in place to protect the safety of employees but enforcement is reportedly inconsistent. The U.S. Department of State reports that Brazil, China, and India have high rates of industrial accidents and death attributable to poor enforcement of health and safety regulations.¹⁵ In China, the level of safety in some cases depends on the ownership structure of an enterprise, according to an industry source. Foreign-invested enterprises are expected to abide by safety rules comparable to world standards, with lower expectations for state-owned foundries.¹⁶

Energy

Nearly two-thirds of responding U.S. producers consider foreign producers to have an advantage with regard to energy costs. Although U.S. prices can fluctuate depending on the time of day and area of the country,¹⁷ average U.S. electricity costs were roughly 4.5 cents per kilowatt-hour (kwh) for industrial customers during 1999-2003. Most of Brazil's electrical energy is supplied by hydroelectric plants and prices are considered to be the world's lowest.¹⁸ According to fieldwork interviews, Chinese electricity costs are 5-7 cents per kwh, slightly higher than the average U.S. cost. Based on fieldwork interviews, energy costs in India are

higher than in competing nations, because the industrial sector has grown faster than the ability of the Indian Government to supply energy and there are no private providers.

A current data series showing natural gas prices in domestic and foreign markets is not available. No known price series exist that compare domestic and foreign metallurgical coke prices.

The cost advantages of energy in many foreign countries may be offset by uncertainties over supply. In China, for example, electrical generating capacity is insufficient and in urban areas electricity curtailments can disrupt foundry operations. Brazil's electrical energy supply remains vulnerable to disruption because of dependence on sufficient rainfall to power hydroelectric facilities and a lack of investment in power generation and distribution systems.

VAT Rebates

The treatment of value-added taxes (VATs) benefits the foundry industry in many key developing countries and was cited as a concern by many U.S. producers. In China and Brazil, for example, foundries are subject to payment of a VAT on the castings they produce but a portion of this tax is remitted if the product is exported. Foundries in China also are subject to payment of a VAT on imported input purchases; this tax also can be remitted when such inputs are used in downstream products that are exported. In India, foundries qualify for import tariff refunds on any imported inputs used to make castings.

Competitive Advantages for Domestic Producers

Lead Times

Lead times are an advantage for the domestic foundry industry, according to both U.S. producers and purchasers. Responses to producer questionnaires indicate that the U.S. foundry industry has reduced average lead times during 1999-2003 by more than 30 percent for castings with an existing pattern, and more than 10 percent for castings that require a pattern to be made. Comprehensive data for lead-time improvement by developing countries is not readily available. During fieldwork, several large foreign foundries indicated they have established sales and technical support operations in the United States that also help them reduce lead times. Certain foreign companies have established warehouses in the United States to decrease lead times for their U.S. customers.

The U.S. lead-time advantage is likely eroding to some extent because electronic communication of product designs and integrated computer systems can transform a design into a pattern quickly on automated, computer-controlled machines. The time to develop product designs is also improving for the same reasons, as rapid prototyping can be aided by electronic communication. Some Chinese foundries also have these capabilities.



Open to Change

The Carolina Hotel
at Pinehurst Resort

October 16-19, 2005



Open Discussions

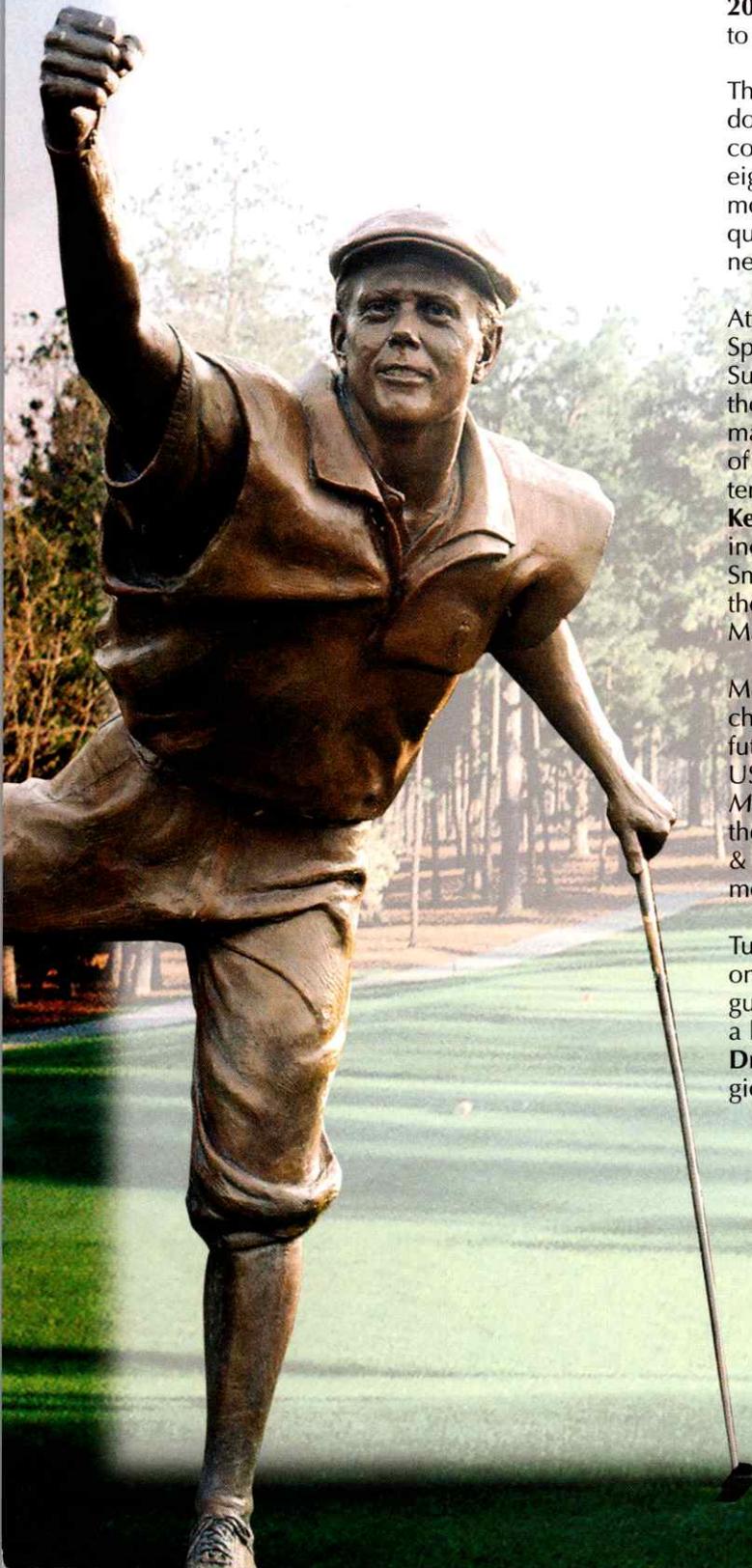
Stories of champions and the traditions of championship golf have been created at Pinehurst since 1898. As the site of more championships than any other golf course in the country, it is no surprise the historic North Carolina resort once again played host to the U.S. Open in 2005. But perhaps more importantly, it is also the site of the **2005 Non-Ferrous Founders' Society Annual Meeting** October 16th to 19th.

The economic slowdown of 2000 and 2001 adversely affected domestic non-ferrous foundries. Additionally, many high volume commodity-type castings are increasingly being sourced from foreign suppliers. Aside from the intense global competition, the foremost problem facing many domestic foundries is the inability to adequately increase prices to compensate for significantly rising business costs. What's a foundry to do?

Attending the **2005 NFFS Annual Meeting** at the Pinehurst Resort & Spa may provide some critical insights and possible answers. Sunday's General Business Session features an Open Discussion of the challenges and issues confronting America's small and medium manufacturers. **Congressman Donald A. Manzullo** (R-IL), Chairman of the House Small Business Committee has been invited (and has tentatively accepted) the Society's invitation to deliver the meeting's **Keynote Address**. Other confirmed speakers for the Opening Session include **Thomas M. Sullivan**, Chief Counsel for Advocacy at the U.S. Small Business Administration and **W. Fletcher Steele**, President of the Pine Hall Brick Company and Chairman of the Small & Medium Manufacturers Division of the NAM.

Monday's program begins with an Open Forum on the challenges and opportunities facing foundries today and in the future. The 2 1/2 hour opening session will include a review of the USITC Section 332 Report on the *Competitive Conditions in the U.S. Market for Foundry Products*, as well as a report to the members on the NFFS/CCMA Foundry Tour to China. After the break, NFFS Safety & Environmental Consultant **Martha Guimond** returns to the official meeting program to discuss Avoiding Compliance Problems.

Tuesday's General Session offers two more open discussions focused on strengthening your business. First, noted author and marketing guru **Phil Krone** of Productive Strategies Inc. will engage attendees in a lively conversation on Open Competition- Value, Not Price. Next, **Drew Locher** of Change Management Associates will discuss strategies for companies *Open to Change - Making Work Flow*.



The 2005 NFFS Annual Meeting will again feature extended breaks in the Tabletop Display area. On both Monday and Tuesday, the tabletop displays will be open for business to provide foundry owners and managers who are open to new ideas an excellent opportunity to discuss the latest technologies and services for non-ferrous foundries. NFFS staff will also be available to discuss how to take advantage of the Society's various programs and services.

Use the Meeting Registration Form to sign up to attend the 2005 NFFS Meeting at the Pinehurst Resort & Spa. **The registration deadline is September 5th.**

The Pinehurst Resort & Spa

Majestic pines towering over the historic Village of Pinehurst rustle and softly whisper the legends of golfers like Ben Hogan, Jack Nicklaus, and Payne Stewart. Nestled among the sandhills of North Carolina, the Pinehurst Resort has a storied history that demonstrates the epitome of southern hospitality, elegant accommodations, luxury spa facilities, family recreational activities, and of course, eight pristine world-class golf courses.

Historic Charm — The Village and Area surrounding the Pinehurst Resort is rich in history and culture. Located in the mid-South of North Carolina, it is surrounded by attractions ranging from exquisite shopping in Raleigh to Furniture Country to the Northwest. The immediate area is replete with Southern Hospitality, antebellum and turn of the century homes, Revolutionary and Civil War sites. The Sandhills Horticultural Gardens offer the best displays of regional flora year-round, and the resort's award winning grounds management team creates topiary and floral displays that are true works of art.

Elegant accommodations — Step back in time and discover the elegance and old world charm that defines the luxury accommodations at Pinehurst golf and spa resort — from the historic Holly, a warm and inviting luxury hotel that has hosted presidents, to the grand Carolina that has invited guests through its stately columns and into its gracious lobby for over a century. Both of these award-winning, Four-Diamond hotels offer a seamless blend of southern hospitality and charm, attention to the finest details and just enough modern luxury to remind you that you are really in the 21st century.

Relaxing Activities — With eight championship courses to rival any in the world, golf is certainly a strong attraction of the Pinehurst Resort, but it certainly isn't the only one. But whether you spend your time reading from a porch rocker, kayaking on Lake Pinehurst or enjoying the world-famous spa amenities, your best Pinehurst experience is the one you'll create on your own.

Dinning & Entertainment

Exquisite options prepared exactly to your liking. Award-winning wine lists. Four-Diamond service. And a staff of over 100 culinarians ready to create the entrée of your dreams. At Pinehurst, you have nine different dining venues from which to choose - but these things all remain the same throughout. Be prepared to overindulge - and enjoy.

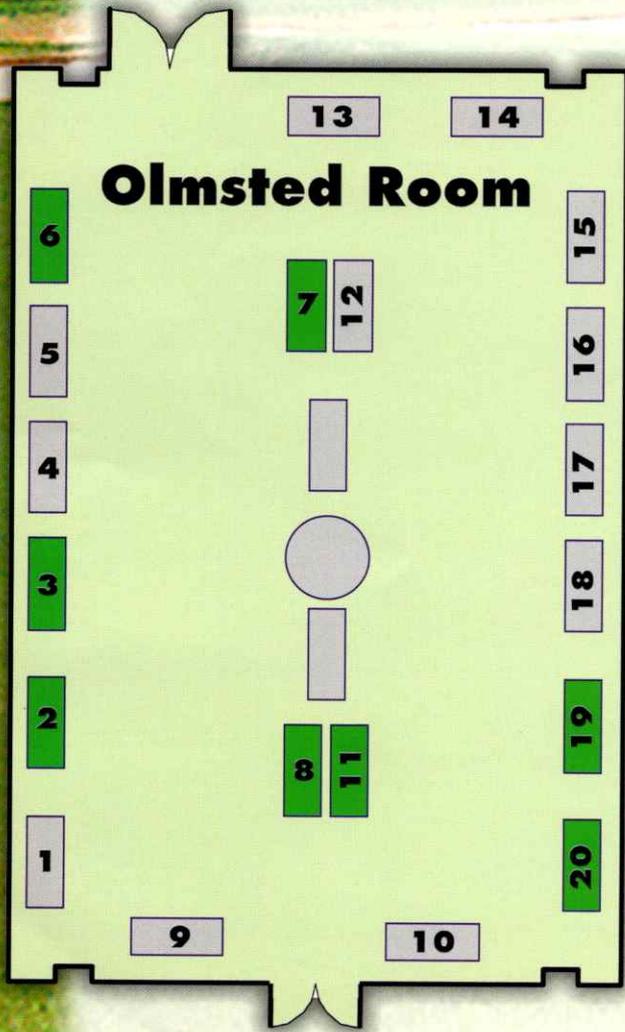
The 1895 Grille — With its casual atmosphere, relaxed dress code and fabulous Southern-influenced food, the 1895 Grille puts a new spin on dining at Pinehurst. From the Blue Ridge Mountain trout to bacon-wrapped Filet with stone-ground grits, the new a la carte menu will continue to draw. Award-winning chefs prepare two nightly specials of their choice, making the experience new each time a guest visits. Expect the best, offering breakfast seasonally as well. Advance reservations are highly suggested in this popular venue.

The Carolina Dining Room — Step back in time in Pinehurst's most expansive dining room. Imagine it when it first opened in 1901 - and find yourself dancing each evening to the tune of live music. The indulgent breakfast buffet is the very best life can offer; each evening select from a menu of steaks and chops, fresh seafood and more. Offering breakfast, lunch and dinner daily, but don't forget to bring your **dinner jacket - required** at this place for special moments.

The Tavern — The Tavern at The Holly features an authentic Scottish oak bar is the centerpiece of this casual, pub-style eatery. Outdoor patio eating is also available seasonally. The Tavern serves lunch and dinner daily, as well as full beverage service. The menu features daily special sandwich wraps, quiches and pasta entrees, as well as a variety of salads, beef and seafood selections.

Hackers Bar and Grill — Enjoy the relaxed atmosphere of this popular eatery that carries a sports theme. Big screen televisions broadcast the most popular sporting events as guests enjoy casual fare from its set menu and a full-service bar. Hackers carries popular dishes such as homemade specialty salads, sandwiches and daily specials. Open daily for dinner.





Tabletop Displays

For the eighth consecutive year, the NFFS Annual Meeting provides attending aluminum and brass & bronze foundry owners and managers who are Open to New Ideas with the chance to meet and interact with a variety of foundry industry suppliers. The tabletop display room is Open for Business during the continental breakfasts and extended morning breaks on both Monday and Tuesday give meeting attendees relaxed opportunities to visit with exhibitors. While the list of exhibitors continues to grow, the advance reservation list includes **B & L Information Systems, DISA Industries, Engineered Foundry Systems, Inductotherm, Morganite Melting Systems, Nabertherm, Thermtronix Corporation, and Yellow Transportation.**

Spouse Program

Spend Monday at your leisure exploring the picturesque Village of Pinehurst. Shop the brick-lined streets. Take a carriage ride, or borrow a bike from the concierge and discover what waits for you just around the bend. If you prefer, realign your body, mind and spirit at the luxurious Spa at Pinehurst. Treat yourself to a personal training session, or indulge in a relaxing full body massage.

On Tuesday, Ladies can take an optional tour to nearby Southern Pines. The day's activities includes a hands-on pottery painting/glazing workshop (where you'll get to keep your creation), lunch at the Sweet Basil Café, and a tasting session at the Wine Cellar. Cost per person (including lunch): \$98.00, based on a minimum of 24 persons.

Recreation & Social Activities



Pinehurst's eight challenging courses – including the renowned Donald Ross-designed #2 course (site of the 2005 U.S. Open), give golfers of all skills the chance to follow in the footsteps of some of the world's greatest golf legends. Beyond golf, the recreational facilities at the Pinehurst Resort are equipped to handle a variety of sports, including croquet, lawn bowling, volleyball and tennis.

Located just minutes from the heart of Pinehurst (complimentary shuttle service provided), the Pinehurst Beach Club sits on a 200-acre private freshwater lake (regularly stocked with regional fish - tackle and bait available) and offers a fleet of over 20 rental boats, from pontoon to fishing, sailboats to kayaks and canoes.

It isn't surprising that a world-class golf resort would offer an extraordinary luxury spa experience as well. The Spa at Pinehurst's indoor pool with cascading whirlpool, 28 deluxe spa treatment rooms and suites and private steam, sauna and hot tub enclave are all designed to delight the senses and rejuvenate the body.

As always, your Annual Meeting registration fee includes all of the planned banquets, parties, and social activities. On Sunday, the annual **Welcome Reception** features the presentation of the Founders' Classic golf tournament awards. Monday's **Annual Business Luncheon** is the Society's centerpiece of the NFFS Annual Meetings, but Monday night's unique area-specific functions have become the meeting's signature event. This year's **FairBarn Hoedown** certainly continues that tradition. On Tuesday evening, the Pinehurst Resort's Cardinal Ballroom hosts the **President's Reception & Dinner** (coat & tie for the gentlemen, if you please) and brings the NFFS Meeting to its proper end.

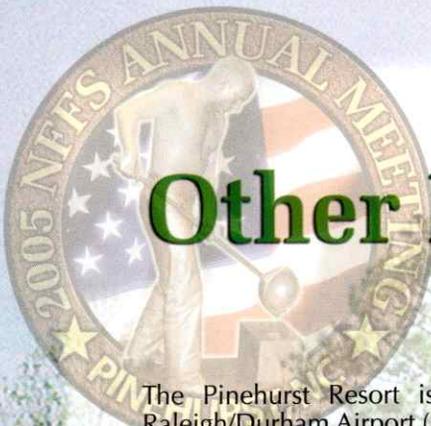
Optional Programs & Activities

Advance sign-up is required for these activities. Each requires payment of an additional registration fee. These fees should be added to the meeting registration fee and submitted with your registration form. If an event is cancelled because minimum participation requirements are not met, fees paid in advance will be refunded.

Golf – The 9th Annual **Founders' Classic** Golf Tournament offers men's and Ladies' prizes for the Low Net and Low Gross, including the Ed Wyrwas Low Gross Award for the Men. Skills Contests again include longest drive, straightest drive, and closest to the pin. Back by popular demand, the special "team ball" contest gives everyone a chance to win. Pairings will be assigned by the golf pro-shop. A hosted beverage cart will be provided on the course. **Cost: \$ 245.00 per player.** Please note: Pinehurst Resort has a soft spike policy and a strict dress code for all of its courses.

Prancing Horse Equestrian Tour – Horse-owners, horse lovers, non-golfers and appreciative tourists will all enjoy a trip through Moore County 's beautiful horse country. This year's self-guided tour will showcase the recently restored Fair Barn, a Standardbred training stable at the Harness track, and at least four other Pinehurst/Southern Pines area farms and barns representing a variety of equine disciplines. Exhibits showcasing the history of the Harness Track, the Fair Barn, and Harness Racing are also planned. Transportation and a box lunch are included. **Cost: \$75.00 per person** (Minimum 24 people).

Southern Pines Pottery Painting and Wine Tasting Tour – The day begins with a hands-on pottery painting/glazing workshop (where you'll actually get to keep your creation), followed by lunch at the Sweet Basil Café. Later, enjoy a tasting session at the Wine Cellar before returning to the hotel. The sommelier promises to have 8 different wines available for the tasting. **Cost: \$98.00 per person** (minimum 24 people).



Other Information

The Pinehurst Resort is located 74 miles from Raleigh/Durham Airport (RDU). Drive time from the airport to the hotel is approximately 1 hour, 20 minutes. Raleigh Durham Airport is served by major air carriers including American, Delta, Southwest, and United.

Rates for the NFFS room block at the Carolina Hotel at Pinehurst for the 2005 Annual Meeting are \$195.00, single or double. Rates are subject to the North Carolina sales tax (7%) and Moore County occupancy tax (3%). The Society can provide information on the cost and availability of villas and/or suites upon request.

A 10% resort service fee will be added to each rate on a nightly basis. This fee covers complimentary use of the Fitness center, on-site transportation, tennis courts, beach club, bicycles, driving range and putting greens, afternoon tea in the Carolina Business Center, incoming faxes, and gratuities for bell and door staff.

All rooms are on the European Plan. Check-in time is 3:00 PM. Guests arriving earlier than that are assigned rooms as they become available. The hotel will attempt to fulfill all special accommodation requests (location, type of bed, etc.) as available at check in, however specific rooms cannot be reserved in advance. Check-out time is before 12:00 Noon.

The cutoff date for hotel reservations (and the early registration discount deadline) is September 5th. Thereafter, accommodations can only be reserved on a space-available basis. A one-night deposit is required to guarantee your reservation request. You may use any major credit card to secure your hotel reservation. (Be sure to include your card number and expiration date on the meeting registration form.)

The optional tours and activities (Prancing Horse Equestrian Tour [\$75] and the Founders' Classic Golf Tournament [\$245]) on Sunday 10/16 are not included in the registration fee. The 10/18 Ladies' Southern Pines Tour also requires an additional fee of \$98/person. Payment for these activities must also be added to the registration fee payment. If an event is cancelled due to minimum participation requirements, fees paid in advance will be refunded.

Confirmation letters will be sent on receipt of registration, including information on car rentals and shuttle service to and from Raleigh-Durham Airport. Additional information or specific requests relative to the meeting should be directed to NFFS at 847-299-0950. The Society's staff will be happy to assist you in any way they can.

Meeting Registration

Meeting Registration includes all program activities, indicated meals and social functions. Optional Activity Fees (golf, tours, horseback riding) or hotel accommodations are not included. Registration and Activity fees may only be paid via Visa or MasterCard and will be billed separately from hotel deposit upon receipt of registration. Late fees apply if registration is not received by September 5th.

Registration fee:	Before 9/5	After 9/5
Attendee	\$ 1,375.00	\$ 1,475.00
Spouse	\$ 550.00	\$ 600.00

Optional Activity Fees:

10/16

9th Annual Founders' Classic Golf Tournament

- Course #8, "The Centennial"

\$ 245.00

10/16

Prancing Horse Equestrian Tour.

Box lunch included.

Minimum 24 participants.

\$ 75.00

10/18

Southern Pines Shopping, Pottery Painting & Wine Tasting Tour, including lunch.

Minimum 24 participants.

\$ 98.00

MEETING REGISTRATION FEE

CANCELLATION/REFUND POLICY:

Cancellations **received**
on or before September 23rd **FULL REFUND**

After September 23rd
but before September 30th **50% REFUND**

Cancellations
on or after October 7th **NO REFUND**

Substitute meeting registrations will be accepted any time prior to the meeting without penalty. Hotel reservations must be cancelled at least 10 days prior to avoid loss of the first night's deposit.

OPEN DISCUSSIONS Registration Form

Village of Pinehurst, North Carolina • October 16 - 19, 2005



Name _____

Spouse _____

Company _____

Business Address _____

City _____ State _____ Zip _____

Business Phone _____

Business Fax _____

Business Email _____

Home Address _____

City _____ State _____ Zip _____

Home Phone _____

CREDIT CARD AUTHORIZATION:

(Circle One)
 Visa/Mastercard American Express

Hotel Reservations can be guaranteed via any major credit card. Registration & activity fees may only be paid via Visa or MasterCard.

Card Number _____

Expiration Date _____

Cardholders Signature _____

Complete and Return to:
Non-Ferrous Founders' Society
1480 Renaissance Drive - Suite 310
Park Ridge, IL 60068
Phone: 847-299-0950. Fax: 847-299-3598

REGISTRATION FEES:

Meeting Registration includes all program activities, indicated meals and social functions. Optional Activity Fees (golf/tours,) and hotel accommodations are not included. Late fees apply if registration payment is not received by August 14th. Meeting Registration and Activity fees can only be paid via Visa or Mastercard and will be billed separately from hotel deposit upon receipt of registration.

Registration fee:	Before 9/5	After 9/5	\$ Enclosed
Attendee	\$ 1,375.00	\$ 1,475.00	\$ _____
Spouse Fee	\$ 550.00	\$ 600.00	\$ _____

Optional Activity Fees:

10/16 Golf Tournament (Soft spikes required)	\$ 245.00	\$ _____
10/16 Prancing Horse Equestrian Tour	\$ 75.00	\$ _____
10/18 Southern Pines Pottery Painting & Wine Tasting Tour (Including Lunch)	\$ 98.00	\$ _____
TOTAL		\$ _____

HOTEL RESERVATIONS

(\$195 per night)

(Circle One) Single Double

Arrival Date: _____ Departure Date: _____





OPEN DISCUSSIONS Program At-A-Glance

Friday, October 14

1:00 - 5:00 PM
Executive Committee Meeting

1:00 - 5:00 PM
Registration & Hospitality
Suite Open

Saturday, October 15

9:00 - 11:00 PM
Government Affairs
Committee Meeting

9:00 AM - 5:00 PM
Registration & Hospitality
Suite Open

11:00 AM - 1:00 PM
New Directors' Orientation

1:00 - 5:00 PM
Board of Directors Meeting

6:00 - 7:30 PM
Past Presidents Reception -
(By Invitation Only)

Sunday, October 16

8:00 AM
9th Annual Founders' Classic
Golf Tournament - Men & Ladies
Pinehurst #8 - The Centennial

9:30 AM - 2:00 PM
Optional Tour -
Prancing Horse Equestrian Tour

9:00 AM - 3:00 PM
Registration & Hospitality
Suite Open

3:30 - 5:30 PM
OPENING GENERAL SESSION
(Spouses Invited)
Keynote Address:
The Honorable
Donald A Manzullo (Invited) -
Chairman, House Small
Business Committee

Other Featured Speakers:
Thomas M. Sullivan,
Chief Counsel for Advocacy, U.S.
Small Business Administration

W. Fletcher Steele,
President, Pine Hall Brick Co.
and NAM Small/Medium
Manufacturers Division Chairman

6:00 - 7:30 PM
WELCOME RECEPTION

Monday, October 17

7:30 AM
Continental Breakfast in the
Tabletop Display Room

8:00 AM - 12:30 PM
GENERAL BUSINESS SESSION

8:00 AM - 10:30 AM
Open Forum: the USITC Report
*on the Competitive Conditions in
the U.S. Market for Foundry
Products*; Report to the
Membership: *The NFFS/CCMA
Foundry Tour to China*

10:30 AM - 11:30 AM
**Open For Business
Tabletop Exhibit Session**

11:30 AM - 11:30 PM
Outsourcing Pros and Cons

11:30 AM - 12:30 PM
"Avoiding Compliance Problems"
Martha Guimond,
Jos. A. Guimond & Associates

8:00 - 9:30 AM
Ladies' Continental Breakfast
Village of Pinehurst at Leisure

12:30 - 2:00 PM
ANNUAL BUSINESS
LUNCHEON (Spouses Invited)
NFFS President's Address

2:00 - 5:30 PM
Balance of the afternoon at leisure

5:45 PM
Shuttle Transportation
available to the FairBarn

6:00 - 10:00 PM
FairBarn Hoedown

Tuesday, October 18

7:30 AM
Continental Breakfast in the
Tabletop Display Room

8:00 AM - 1:00 PM
GENERAL BUSINESS SESSION

8:00 AM - 10:00 AM
"Open Competition-
On Value, Not Price"

Phil Krone,
Productive Strategies Inc.

10:00 AM - 11:00 AM
**Open For Business
Tabletop Exhibit Session**

11:00 AM - 1:00 PM
"Open to Change -
Making Work Flow"

Drew Locher,
Change Management Associates

9:30 AM - 3:30 PM
Optional Spouse Program -
Southern Pines Shopping, Pottery
Painting and Wine Tasting Tour

1:00 PM
Balance of the afternoon at leisure

7:00 - 11:00 PM
PRESIDENT'S RECEPTION / DINNER

11:00 PM
2005 Annual Meeting Adjourns



Where can
Ashland provide
 solutions
 in your
metal casting
 operation



ASHLAND



Responsible Care™



Ashland's innovative ideas improve the productivity, profitability, quality and performance of your metal casting process. In the design stage, during the production cycle using new technology solutions or with casting and environmental analysis, we have the unique ability to address your metal casting needs. Visit us on the web at www.ashchem.com/ascc/castings or contact an Ashland account manager at 1.800.848.7485.

The people of Ashland:
Delivering casting solutions one customer at a time.

Environmental Stewardship • Operational Excellence • Innovative Solutions • Global Team

© Copyright 2004, Ashland Inc. ® Registered trademark, ™ Trademark, Ashland Inc. * Responsible Care and the Responsible Care logo are registered service marks of the American Chemistry Council in the United States and of different entities in other countries.

Transportation

Transportation costs are also an advantage for U.S. producers, according to purchasers. Because many customers request specific delivery dates in a short time frame, reliability of transportation can be important in retaining customers. Freight time and cost from Asia can be prohibitive¹⁹ whereas some suppliers in closer proximity, such as in Brazil and Mexico, often face problems associated with their inadequate transportation infrastructure. Additionally, owing to the size and weight of certain cast products, freight costs can make imports less competitive. For example, even though certain foreign producers may have a cost advantage when producing items such as cast steel railcar wheels, U.S. producers presently have a slight advantage in the domestic market for that product as they can be difficult to ship. In many cases, U.S. foundries were established near their major customers; many are in Midwestern states near motor vehicle production plants. However, as downstream customers move offshore this traditional advantage may be eroded. Conversely, transportation-related advantages can benefit foreign foundries with access to captive raw material, such as bauxite in China and pig iron in Brazil.

Technical Advice and Services

U.S. producers claim these services give them an important competitive advantage over foreign foundries.²⁰ The majority of U.S. purchasers considered U.S. producers to have a minor advantage at best in this factor, but only a slightly smaller number consider that neither domestic nor foreign producers have an advantage. The increasing sophistication of foreign producers, especially the foreign-invested foundries in China, is likely contributing to a declining U.S. advantage for these services. In addition, standard software that can simulate metal solidification and other computer-aided techniques to improve designs is available universally. Largely because of the U.S. advantage in technical design, advice and services, purchasers indicated that U.S. producers excel at complex castings.

¹⁴ Employees contribute 8 percent of their monthly salary to the Unemployment Guarantee Fund (FGTS), with matching funds provided by the employer.

If an employee is dismissed, the employer must contribute an additional 40 percent of the amount accrued in the FGTS fund as a severance for the dismissed employee.

¹⁵ U.S. Department of State, Bureau of Democracy, Human Rights, and Labor, Country Report on Human Rights Practices-2003, Feb. 25, 2004, found at <http://www.state.gov/g/drl/rls/hrrpt/2003>, retrieved Mar. 18, 2005.

¹⁶ Chinese industry official, interview by USTIC staff, Jan. 2005.

¹⁷ For example, in Alabama, peak-hour costs can be as high as 14 cents per kwh, but only 2 cents per kwh during off-hours.

¹⁸ Brazilian industry official, interview with USITC staff, Brazil, Nov. 2004.

¹⁹ Producers reported shipping times from China of up to 4 weeks. One source indicated that ocean shipping costs for transporting products from China to the United States are \$2,500 to \$3,000 per container. They further claim that this adds \$1.10 to a \$12 casting, compared with only \$0.30 for transporting a comparable Mexican casting to the United States. Mitchell Quint and Dermot Shorten, "The China Syndrome," found at <http://www.strategy-business.com/resiliencereport>, retrieved May 2, 2005.

When's the last time you got an order on your defense-related patterns?

PUT THE ODDS IN YOUR FAVOR!

The government buys thousands of metal castings each year for in-service weapons systems. But without visibility of sub-contractors and existing tooling, a new contractor and pattern is often created each time the part is needed. Non-Ferrous Founders' Society has created a secured database of defense-related tooling for government buyers to utilize existing supply chains which provides opportunities for follow-on orders for any metalcasters that currently have defense-related patterns.

What if don't own the pattern?

Regardless of whether the pattern is owned by the government, customer, or foundry, the database identifies the owner of the pattern and its location so everyone in the supply chain benefits.

Do I need to be a government contractor?

No. Nothing changes from the way you have previously made these parts other than the opportunity to get orders more frequently.

Recent Success Stories:

A foundry secured an order for 600 castings for a pattern that they had not used in 8 years!

Government buyer reported locating the supplier and tooling in a matter of minutes instead of 3-6 weeks!



For more information contact: Ryan Moore, Program Manger
Non-Ferrous Founders' Society • 1480 Renaissance Drive, Suite 310, Park Ridge, IL 60068 • (847) 299-0950

www.nffs.org

Saving Money is the First Step...

Making it is the second!



INTRODUCING

UltraMelt™

A premium quality silicon carbide crucible manufactured by high pressure iso-static pressing. UltraMelt™ incorporates Morganite's advanced bonding technology aimed at providing extended service life in aggressive conditions.

Benefits include:

- Superior erosion resistance
- Energy savings from excellent heat transfer and density improvement
- Improved oxidation protection
- Increased service life in chemically aggressive applications

Morganite is registered and manufactures to the ISO 9001 : 2001 quality standards.

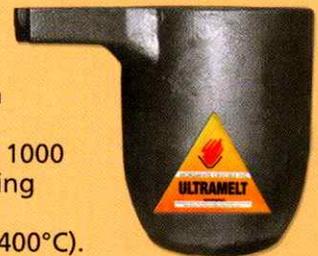
FURNACES BY MORGANITE

In addition to our full-line of crucibles, Morganite also manufactures an extensive line of electric, gas, and dual energy furnaces. That puts a single point of contact with a unique technical competence handling your molten metal systems. Morganite also markets various accessories to process and transfer molten metal.

ULTRAMELT™ APPLICATIONS

UltraMelt™ can be used in gas and low frequency induction furnaces (up to 1000 Hertz) with a typical casting temperatures ranges of 1830°F–2550°F (1000°C–1400°C).

- Precious metal and copper melters with corrosive flux usage
- Induction melters where mechanical stirring erodes side walls
- Precious metal and copper reclaimers with abrasive charge materials
- Melters and holders utilizing reclaim oil containing corrosive containments
- Non-ferrous melters and holders seeking oxidation resistance



MORGANITE

22 North Plains Industrial Road Unit #1 Wallingford, CT 06492
Tel. (203) 697.0808 • Fax. (203) 265.6267
www.e-crucible.com

Competitive Concerns for Both Foreign and Domestic Producers

Raw Materials

The Commission found that with few exceptions, U.S. and foreign foundries purchase similar metallic raw materials. These metals trade on world markets and tend to have equivalent prices. Robust demand by the Chinese manufacturing sector has led to significant price increases for many raw materials for foundries. Less-profitable U.S. foundries were especially impacted by these price increases. Additionally, demand from China may have reduced availability of scrap in the U.S. market.

Regional differences do exist for material costs, reflecting local market conditions and transportation costs. For example, foundries in Brazil have local access to pig iron, and although these foundries pay the world price for pig iron, their transportation costs are much lower because they only pay for internal shipping. Brazil is also a leading world producer of aluminum, because of the high quality of its local bauxite ore, giving them a similar transportation cost advantage. In contrast, much of the metallic raw materials used by Indian and Mexican foundries must be imported and transportation costs can add to the cost of the raw material.

Western Chinese foundries have a raw material advantage because prices of local supplies of scrap and coal are lower than world market prices, and there are lower transportation costs because these materials are available locally. However, some of the price advantage is offset by higher inland transportation costs for their castings and lower quality raw materials.

Product Quality

According to both purchasers and producers, at one time, U.S. foundries had a clear advantage in this area, but foreign foundries have improved their product quality resulting in fewer defective products. Additionally, determining who has an advantage in product quality largely depends on the type of castings the customer requires. Purchasers indicated that the U.S. has a clear advantage in specialty castings which require more complex designs, closer tolerances, and tighter material specifications.²¹ U.S. foundries were also cited by responding U.S. purchasers as manufacturing with a low defect (rejection) rate.

Concerns over product quality also depend on the castings' country of origin. Both producers and purchasers indicated that the Chinese do not produce castings at the same level of quality as those produced in the United States. However, Brazil and Mexico consistently provide castings, particularly of gray iron, that are of similar quality to those produced in the United States.

²⁰ U.S. industry officials, interviews by USITC staff, United States, Mar. 2005.

²¹ For example, the U.S. industry's greater experience in process control has allowed production of castings that more easily meet the automobile industry's rigid quality requirements than foreign castings, with fewer costly rejections.

Nabertherm

MORE THAN HEAT 30-3000 °C



Clean, Fast and Efficient Melting with either Gas or Electricity...

- Capacities to 4000 lbs. Aluminum
- Temperature to 2550 °F
- Dip-out or Integrated Hydraulic Tilt pour
- High Efficiency, Low Heat Loss
- Rugged, Dependable Service

■ Made
■ in
■ Germany

www.nabertherm.com

Nabertherm Inc. · 54 Read's Way, New Castle, DE 19720, USA · Tel (302) 322-3665 · Fax -3215 · contact@nabertherm-usa.com

Labor Availability

Labor availability is an issue for both domestic and foreign foundries. Attracting production workers is problematic because foundries tend to be dirty, noisy places, and wages are not typically high enough to compensate. This is the situation, for example, in parts of China (especially near the major eastern cities) and in India because there are many other employment opportunities in both countries. The availability of technically trained personnel is also a problem in Brazil, China, and India because of competition with higher-paying industries. Industry officials noted that Brazil lacked sufficient educational opportunities in metallurgy, and the industry is encouraging schools to offer more metallurgical courses.

Technology

Some of this ambiguity may be related to the basis of comparison. For example, according to the Chinese Foundry Association, the Chinese industry as a whole has a low level of technology, but certain Chinese foundries have state-of-the-art technology that meets or even exceeds that used in any U.S. foundry. Certain Brazilian foundries also use the latest technology. Any improvements in foundry manufacturing processes can be quickly adopted by foundries in any country. Foundry equipment is available worldwide and countries such as China typically import machinery from Japan, Taiwan, the European Union, and the United States. Foreign direct investment in developing country industries has

substantially contributed to technology adoption, especially in China. Many foreign investors operate foundries in their own countries, and transfer personnel to developing countries to bring in operating expertise.

Exchange Rates

Although U.S. producers cite exchange rates as an advantage for foreign producers, fluctuations in the value of the dollar make the competitive advantage unclear. Divergent views exist relating to the impact of China's fixed exchange rate regime, and the economic effects of allowing the yuan to float relative to the U.S. dollar. U.S. producer questionnaire responses, hearing testimony, and interviews indicate that U.S. producers consider the fixed exchange rate an advantage for Chinese foundries selling castings in the U.S. market. Four of the representatives of the foundry industry that appeared at the Commission hearing stated that the rate at which the Chinese currency is currently pegged to the U.S. dollar has had a negative effect on the competitiveness of the domestic foundry industry, even as the dollar has weakened relative to other currencies.²² One representative, though, testified that the view that a floating Chinese exchange rate will have a large effect is misguided because, for example, the Chinese currency cannot be used for international transactions, only domestic purchases, and Chinese manufacturers face the same currency fluctuations as domestic manufacturers when buying equipment or raw materials from third countries.²³

²² Testimony by James Mallory, Non-Ferrous Founders' Society; George Boyd, Goldens' Foundry and Machine; Michael Kerwin, Georgetown Economic Consulting Services; and William Blackerby, ASC Industries, hearing transcript pp. 12, 24, 71, and 80, respectively.

²³ Prehearing submission of ASC Industries, Oct. 12, 2004, pp. 8-10.

Put your business systems together

**Integrated
Enterprise
Software
designed
specifically
for Metal Casters**

Sales Analysis

Quality

Job Cost

Product Certification

Shipping and Invoicing

Cost Estimating

Production Control

EDI

Tooling Management

Data Collection

Order Processing

Accounting

Purchasing

Production Scheduling

Inventory

B&L
Information Systems

Call 269.465.6207 or visit www.blinfo.com

Outlook for the U.S. Foundry Products Industry

With rising labor and raw material costs, greater price pressure, and declining profitability, the U.S. foundry industry faces a difficult competitive environment. The domestic industry anticipates numerous competitive challenges from factors in addition to imports during the next five years, as shown in the following tabulation:²⁴

Factor cited by U.S. producers	Number of responses
Healthcare/insurance/labor costs	395
Customers moving or sourcing offshore.....	328
Meeting environmental/labor regulations	263
Lack of skilled labor.....	187
Funds to invest in new technology/equipment	187
Ability to obtain capital	115
Adoption of new technology or process improvements by domestic competitors	97

The domestic industry is under continuing pressure to reduce prices as customers confront intense competition in their own end markets. Price reductions offered by many producers, combined with higher raw material and energy costs, appear to have contributed to lower profitability. This, in turn, may have affected the level of internal funding available for capital improvements and research and development for product innovations and new technologies. The poorer financial condition of the industry also affects its ability to obtain capital from external sources on favorable terms. Any compromised ability to invest in greater automation and technological advancements, such as computer-aided design, may have implications for the future competitiveness of the industry, as technology is considered key to global competitiveness. As noted by U.S. industry respondents, the inability to adopt new technologies and equipment becomes more critical if foreign competitors are able to implement such improvements.

About 19 percent of producers reported that they lacked the capital funds to counter import competition and 36 percent have scaled back or dropped planned capacity expansions. Forty-six percent of responding U.S. producers reported cutting back or eliminating production or closing production lines in response to import competition. Contraction of productive capacity may reduce the industry's ability to offer the range of castings required by its customers, as well as raise the unit costs of remaining production to cover fixed overhead expenses.

Furthermore, the domestic industry's U.S. customer base appears to be shrinking. The foundry industry and its downstream customers have noted that price competition has forced many customers to increase their purchases of lower-cost castings from foreign foundries. In some cases, this shift to foreign castings has been encouraged by end-use customers trying to remain competitive in the U.S. market as their competitors pursue lower costs overseas. Competitive

pressures have also driven a growing number of the industry's downstream customers to move manufacturing operations offshore to benefit in part from lower production costs. The likelihood of regaining this business becomes more remote with the actual movement of finished and semi-finished goods production from the United States to foreign locations.

Domestically, labor and environmental issues are at the forefront of industry concerns. The ability to manage or reduce healthcare, insurance, and labor costs is reported to be the paramount challenge facing the industry. Healthcare and insurance costs can be controlled to some extent by reducing coverage or shifting a greater share of the burden to employees, but neither of these actions helps to attract a skilled work force, which is a primary industry concern. The industry must not only manage increasing employee benefit costs, but also balance wages, which must be attractive enough to compete with other industries offering a more desirable work environment while remaining low enough so as not to considerably raise production costs. The U.S. foundry industry will likely continue to incur higher wage rates and benefit costs than many of its foreign competitors. It may need to intensify efforts to implement increased automation and capital improvements that will raise productivity levels and provide consistent product quality to offset a portion of this differential. This appears to be somewhat problematic, considering the financial condition of some foundries.

Increased raw material prices appear to have contributed to the industry's problems in 2004 and 2005.²⁵ Ferrous scrap prices doubled, pig iron prices increased 33 percent, and aluminum and copper ingot prices increased 20 and 60 percent, respectively, in 2004 compared with the prior year. Raw materials account for one-third of foundry production costs, and the most significant component is metallic raw materials. Passing on raw material cost increases to purchasers is problematic, especially for iron and steel foundries. The costs of these raw materials have historically been relatively stable, and pass-through provisions in sales contracts were not used. In addition, the large users are automobile producers who, because of their market power, resist pass-through costs. Two of the largest iron foundries, each with multiple establishments, and several other smaller producers filed for Chapter 11 bankruptcy in early 2005, citing increasing raw material costs as the reason.²⁶

In recognition of the intense competitive situation facing the U.S. foundry industry, U.S. producers have responded with a broad array of initiatives that focus on improved manufacturing processes, lowering costs, and new business strategies. With respect to manufacturing processes, information derived from field work and hearing testimony indicates that U.S. producers are implementing lean manufacturing and Six Sigma programs to cut waste and product defects, improve quality, and streamline operations; increasing automation, such as adding robots to production lines; and switching to other manufacturing processes. Reverse engineering—the process of taking apart an item for duplication or enhancement—is another possible

avenue to improve competitiveness. Reverse engineering cuts product development time, thus getting a competing product to market more quickly. Flexible manufacturing may also improve performance. Flexible manufacturing is a highly automated production process that uses computer-controlled machinery to produce small volumes of a broad range of products. Flexible manufacturing yields higher and more consistent product quality and improved worker productivity, but requires a large capital investment.

Nearly 80 percent of responding producers are implementing cost-reduction efforts. In addition to cutting manufacturing costs, other cost factors were identified as a source of potential improvement, with an emphasis on efficiency gains. Better utilization of the workforce may result from increased automation or reassessment of job functions and manufacturing layout. Greater collaboration with customers in early product design and development phases could lower costs by optimizing casting design and improving the production process, according to questionnaire respondents. Questionnaire responses indicate that formal cost evaluation programs could also reduce manufacturing costs. Respondents indicated that all products, even those with good profit margins, should be evaluated for improvement. Through this process, domestic companies may learn more about their actual costs and then make the best decisions on how to reduce such costs.

Flexible and creative business strategies play an important role in achieving operational success, according to questionnaire responses. Many U.S. producers had already shifted production from their traditional product lines prior to the current competitive climate. Niche marketing is being pursued by a number of U.S. foundries that have found demand for small runs, high-technology products, or fill-in orders, for example. Some U.S. producers have shifted their product mix to larger, more complex parts that present a manufacturing challenge to low-cost, high-volume foreign competitors, and for which production is more likely to remain in the United States. Such products include those with intricate shapes, greater core complexity, and tighter dimensional tolerances; those produced from ultra-clean iron; and parts requiring a high degree of technical collaboration with customers' engineering and manufacturing personnel, along with flexible lead times. Foundries may also pour different or more alloys to broaden their product scope and customer base. To increase sales, foundries may need to expand their sales forces and marketing regions to create more sales opportunities or add a wider range of technical services to support customer needs. Foundry closures have also created opportunities for operating foundries to gain new business and expand their customer base, as well as purchase machinery and equipment at reduced prices.

As a result of these efforts, many foundries reported rebounding sales to their leading markets since the economic downturn of 2001. A number of reporting U.S. foundries are profitable and experiencing increased income. These foundries largely serve booming markets, such as that for aluminum motor-vehicle components. Captive foundries also demonstrated improved performance as they are somewhat sheltered from market forces. As the industry has contracted and the economy picks up, remaining foundries may find themselves in a better position to gain new business and increase sales. Despite rising costs for raw materials, energy, and labor; rising pricing pressures from downstream customers and foreign metal-casting competitors; and shrinking domestic markets over the past few years, some industry observers suggest brighter prospects for the U.S. metal foundry industry. For example, the American Foundry Society (AFS) anticipates that demand for metal castings will rise significantly with expanded U.S. industrial production over the next few years. A spokesman for AFS noted that "...we're seeing year after year production gains in the foundry industry... We're actually forecasting 25-year highs for U.S. production in 2008."²⁷ The AFS projects continued recovery of U.S. metal castings shipments; it expects shipments to grow by 11 percent over the next 4 years to 15.27 million short tons in 2008.²⁸ Cast metals for which shipments are anticipated to rise the most are aluminum (by 6.4 percent in 2005 and by 18 percent over the next 4 years) and ductile iron (by 4 percent in 2005 and by 14 percent over the next 4 years). Less significant increases are anticipated for castings of steel (by 6.3 percent in 2005 and by 15.5 percent over the next 4 years) and copper alloys (by 2 percent in 2005 and by an average annual rate of 0.3 percent to 2014). The exception is gray-iron castings shipments, which reached an all-time low in 2003, for which the AFS foresees only minimal gains in 2005-08, and longer-term annual declines thereafter. An implication of more robust demand prospects is that individual domestic metal foundry establishments can benefit if they succeed at developing new customers by expanding their shipments into new end-use markets. An automotive industry analyst notes²⁹ that prospects could be brighter for foundries that produce ductile-iron and aluminum castings. For example, according to the analyst, automotive-parts caster Internet Corp., which cited rising steel scrap prices as a major cause for financial losses³⁰ and for its decisions to shut down several production facilities³¹ and to seek bankruptcy protection in 2004,³² could favorably alter its competitive position by shifting from the highly price-competitive automotive-components market into potential new end-use markets with greater prospects for metal castings shipments—e.g., aluminum castings for household appliances.³³

²⁵ Based on 424 responses to the Commission's producer questionnaire.

²⁶ The Commission's producer questionnaire only requested data for 1999-2003 because of the timing of the study request.

²⁷ Nonferrous foundries typically include pass-through provisions in sales contracts because, historically, prices for aluminum and copper raw materials have varied to a much greater extent than those for ferrous raw materials. Reportedly, automobile producers are becoming more amenable to allowing pass-through cost increases because of increasing supplier bankruptcies.

²⁸ Alfred Spada, Marketing Director, AFS, cited in Tony Reid, "Auto Supply Company Announces Closure of Decatur, Ill., Foundry," *Herald & Review*, Decatur, IL, Mar. 30, 2005, p. A1.

²⁹ Kenneth H. Kirgin, "11% Growth Forecast for Next 4 Years, Led by Aluminum, Ductile Iron," *Modern Casting*, Jan. 2005, pp. 22-27.

³⁰ Jim Gillette, Auto Analyst, CSM Worldwide, cited in Reid, "Auto Supply Company Announces Closure of Decatur, Ill., Foundry."

³¹ "Internet Ties Losses to Scrap Costs," *American Metal Market*, Feb. 20, 2004.

³² "Internet to Close Wisconsin Aluminum Auto Parts Plant," *American Metal Market*, Dec. 15, 2005; "Internet Closing Decatur Foundry by Year-End," *American Metal Market*, Mar. 30, 2005; and "Auto Supplier Internet Plans to Shut Factory," *American Metal Market*, Jan. 13, 2004.

³³ "Internet Reaches Agreements with Customers to Amend Contracts," *Modern Casting*, Jan. 3, 2005, found at <http://www.amm.com>, retrieved Apr. 6, 2005.

³⁴ According to the AFS, shipments for aluminum castings for household appliances are anticipated to rise by 11.4 percent over 2004-08 and by 1 percent thereafter in the longer-run (2004-14). Kirgin, "11% Growth Forecast for Next 4 Years Led by Aluminum, Ductile Iron."



Open Discussions – 2005 NFFS Annual Meeting *Featured Speakers*

Opening General Session

Congressman Donald A. Manzullo (R-IL), Chairman of the U.S. House Committee on Small Business since 2001, has been invited and has tentatively accepted an invitation to be the Keynote Speaker at the 2005 NFFS Annual Meeting at the Pinehurst Resort in North Carolina. Congressman Manzullo has held more than 60 hearings on the state of manufacturing in America and introduced a various important pieces of legislation aimed at restoring manufacturing and putting Americans back to work. He has repeatedly emphasized the importance of maintaining a strong domestic manufacturing industry to the nation's defense and recently introduced legislation requiring the Defense Department to make more than 50% of its purchases from companies operating in the U.S.

Thomas M. Sullivan, the U.S. Small Business Administration's Chief Counsel for Advocacy, represents a new generation of small business leadership. Nominated by the President and confirmed by the U.S. Senate, he is charged with independently advancing the views, concerns and interests of small business before Congress, the White House, federal regulatory bodies, and state policy makers. Named by Fortune Small Business magazine as one of the "30 most influential folks in Washington" in September 2000, he was described as "respected by regulators for his well researched positions on issues affecting small business."

W. Fletcher Steele is the President of Pine Hall Brick Company in Winston-Salem, North Carolina. He also serves on the Board of Directors of the National Association of Manufacturers and is Chairman of the Small & Medium Manufacturers Board of Directors. A graduate of NC State University with a degree in industrial engineering, he is a former Chairman of the Brick Industry Association and presently serves on its Board of Directors. He also serves on the Board of Directors of the Brick Association of the Carolinas and as Chairman of the Marketing and Promotion Committee.

Open Forum - The ITC Report on Foundry Products

Judith-Anne Webster was the Project Leader for the year-long USITC Section 332 investigation of the Competitive Conditions in the U.S. Market for Foundry Products and is the principal author of Chapters 3 (the U.S. Foundry Industry), 7 (Aluminum), 8 (Copper), and 10 (Competitive Conditions) of the 368-page report delivered to the House Ways & Means Committee on May 4th.

Avoiding Regulatory Compliance Problems

Martha Guimond is no stranger to NFFS members. She is the author of the Society's *NFFScene* newsletter and has been a frequent guest speaker at NFFS Annual Meetings. Her no-nonsense approach to regulatory compliance issues has consistently made her one of the Society's highest rated Annual Meeting speakers. She and her brother Skip are the principals of Joseph A. Guimond & Associates, an engineering and consulting business with over 30 years experience in providing safety and health compliance assistance to industry. The firm is on retainer with NFFS and provides training seminars, compliance assistance templates, and individual phone and fax consultations to metal casters.

Open Competition - on Value, Not Price

Philip Krone has been an active marketing professional for manufacturing, service and professional firms since 1972. He is President of Productive Strategies Inc., a management and marketing consulting company, he founded in 1993 that helps companies and associations define and reach their growth objectives. As President of the firm he has developed the FOCIS Selling Training program, a consultative selling is being offered in Pinehurst immediately following the NFFS Annual Meeting. He has also been a contributor to various trade and business magazines over the course of his career.

Open To Change – Making Work Flow

Drew A Locher is Managing Director for *Change Management Associates*. CMA provides various Business Improvement Consulting and Organizational Development services to industrial and service organizations. CMA will assist organizations to successfully implement Systems and Quality Management principles within their operations to improve business performance. Since 1986, he has been working to implement innovative Business Management strategies in a wide spectrum of business environments. From 1986 to 1990 he participated in the development and delivery of Business Improvement programs for General Electric. In 1990, he left GE to form CMA. The CMA approach is practical and application oriented – "learn as you're doing - and succeeding."



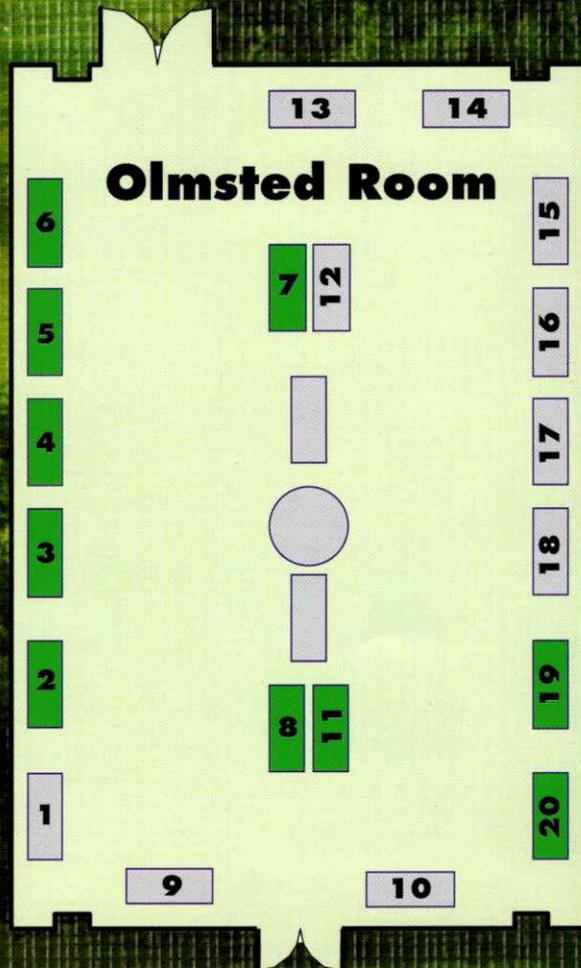
Open for Business

For the eighth consecutive year, non-ferrous foundry industry equipment and service suppliers have started lining up to meet and interact with the key decision makers from their current and potential customers at the Non-Ferrous Foundry Society (NFFS) Annual Meeting. The 2005 event will be held **October 16th to 18th** at **The Carolina Hotel** at the **Pinehurst Resort** in North Carolina.

The meeting's tabletop display room is "Open for Business" during the continental breakfasts and extended morning breaks on both Monday and Tuesday to give attendees relaxed, non-conflicting opportunities to visit with exhibitors. And unlike other industry meetings, supplier exhibitors know that NFFS attendees are nearly all owners and key executives for aluminum and brass & bronze foundries. That makes them exactly the type of people – those who make the major purchasing decisions for their companies – that suppliers most want to reach.

Tabletop spaces are available on a first-come basis, with space requests confirmed in the order received. The list of exhibitors the list of exhibitors continues to grow, the advance reservation list already includes NFFS Supplier Partner companies **Ashland, B & L Information Systems, Inductotherm, Morganite Melting Systems, Nabertherm, Thermtronix Corporation, and Yellow Transportation.**

8th Annual Tabletop Expo!

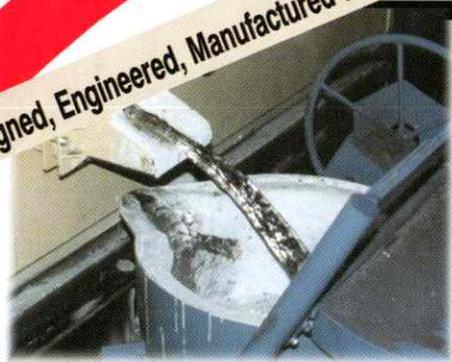


- | | | | | | | | | | | | | | | | | | | | |
|----|-------------------------------|----------------|------------------|------------|--------------------------|------------------------------|----------------------------|----|-----|---------------------|-----|-----|-----|-----|-----|-----|-----|------------------|---------------------------|
| 1. | 2. Engineered Foundry Systems | 3. Thermtronix | 4. IMR-USA, Inc. | 5. Ashland | 6. DISA Industries, Inc. | 7. Morganite Melting Systems | 8. B&L Information Systems | 9. | 10. | 11. Nabertherm Inc. | 12. | 13. | 14. | 15. | 16. | 17. | 18. | 19. Inductotherm | 20. Yellow Transportation |
|----|-------------------------------|----------------|------------------|------------|--------------------------|------------------------------|----------------------------|----|-----|---------------------|-----|-----|-----|-----|-----|-----|-----|------------------|---------------------------|

Designed, Engineered, Manufactured & Owned in the USA

THERMTRONIX®

THE FUTURE IN ALUMINUM MELTING



NON-CRUCIBLE FURNACES
900 LBS. THRU 30,000 LBS.

UL Underwriters Laboratories Inc.®
LISTED



BUY WITH CONFIDENCE
RATED #1 IN BUYER PREFERENCE!

ALUMINUM MELTING E-NEWS™

SUBSCRIBE AT WWW.THERMTRONIX.COM



CRUCIBLE FURNACES
250 LBS. THRU 3,000 LBS.

ENERGY SAVER



NO CRUCIBLES

- FACTORY RECONDITIONED FURNACES •
- FACTORY WARRANTY •
- SAVE MONEY • SAVE TIME •
- CALL FOR DETAILS



TOLL FREE (888) 624-6358 • TEL (760) 246-4500 • FAX (760) 246-4550

U.S.A. SALES OFFICES • CALIFORNIA • WISCONSIN • OHIO • TENNESSEE • INTERNATIONAL SALES AGENTS • MEXICO • KOREA • CHINA • INDIA • TAIWAN



www.thermtronix.com

VISIT OUR ONLINE TRADE SHOW 24 HRS A DAY 7 DAYS A WEEK