



2018 ANNUAL REPORT TO THE MEMBERSHIP



INDUSTRIAL FASTENERS INSTITUTE

INDUSTRIAL FASTENERS INSTITUTE
2018

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Vice Chairman, Manny DeSantis	Valley Fastener Group, LLC
Immediate Past Chair, Preston Boyd	TRAMEC Hill Fastener

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Jeff Liter	Wrought Washer Mfg., Inc.	2019
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Chairman, Brian Bonebrake	Johnstown Wire Technologies, Inc.
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 Laurence Claus

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 Director of Engineering & Technology
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EXECUTIVE SUMMARY

The IFI 2018 Annual report will detail that:

- IFI remains healthy and continues to build reserves, which remain over \$2 million, which is sufficient for nearly two years of operations.
- Workforce development continues to be a major objective for the industry.
- With orders and production in the final months of 2018, Manufacturing projections indicate that solid growth will continue into 2019, with some slight softening.
- 2018 was a strong year for the aerospace industry, and that growth is expected to continue in 2019 fueled by increased passenger travel demand, aircraft production and increased defense spending.
- Automotive products should expect to drop by 1.1% compared to 2018. Farm equipment should increase by 30%, and production in the U.S. is anticipated to grow by 3.3% in 2019 with average predicted growth of 2.5% through 2021.
- U.S. national debt hit \$22 trillion, with the current federal funds rate at 2.5%. China currently holds \$1.138 trillion, which is 29% of the \$3.9 trillion in Treasury bills, notes and bonds held by foreign countries. The remaining \$22 trillion national debt is owned by either the American people or by the U.S. government itself.
- America exported \$111 billion in goods to China, which ranked third behind Canada (\$276 billion) and Mexico (\$246 billion).
- IFI made an investment of \$65,738 in member employee and industry training.
- Rob Harris had retired at the end of 2017, but was called back to step in for several months as interim managing director until the position was filled by Dan Walker in August.
- Operationally, IFI ended 2018 with a negative \$127,918 from operations and a negative \$215,217 overall. \$87,299 of that loss was from a decrease in investments value in the late fourth quarter due to stock market volatility. The operational loss was primarily due to the Spring and Fall meetings being over budget, and unanticipated severance pay and consulting costs due to a second managing director transition. Income was less than anticipated due to the late release of the *2018 IFI Book of Fastener Standards*.

INTRODUCTION

Welcome to the nineteenth IFI *Annual Report to the Membership*. The report summarizes IFI's operations, special projects, financial position and the value proposition presented to the members. As in past reports, we will attempt to summarize the economic, political, geo-political

and regulatory environment in which the industry operated in 2018 and project what may come to our industry in 2019 and beyond.

MANAGING DIRECTOR'S FOREWORD



Dan Walker, Managing Director

I have spent my first six months learning the day-to-day operations, getting to know the staff, visiting and speaking with members, learning about fastener markets and production, participating in the Fall, Division II and III meetings, and getting acquainted with the customs and daily routine of the IFI. Over the next several months you may begin to notice subtle changes to the way IFI operates. We are working behind the scenes to modernize the institute's communications to bring it into the 21st century. Although we will be modernizing things, we will not be making any changes to what my predecessors and our members have worked hard to build throughout the years. IFI's values and service to the membership will not change – it will simply be modernized and improved.

I absolutely need to thank Salim Brahim, Laurence Claus, Bob Hill, Pat Meade and John O'Brien for their professionalism and continued leadership in their respective roles, and for helping me to get comfortable in my new role. It is an honor to get to work with these fine gentlemen. I also want to express my sincere thanks to Chairman Phil Johnson, Immediate Past Chair Preston Boyd and incoming Chairman and Treasurer Manny DeSantis. All three have clearly displayed their leadership within the IFI and have been an immense help to me in navigating the new job over these first six months. In particular, Phil Johnson bore a heavy load, doing a yeoman's job by spending untold hours in keeping things upright and moving forward until I could get on board. I would be remiss if I didn't also thank Rob Harris for leaving the IFI in excellent shape for me to take over, for the time spent with me discussing the industry's past, present and ideas for the future, and for his friendship.

Modernizing IFI's Operations

In December 2018, I made the recommendation to move away from IFI's aging membership database and communications system to a new one called MemberClicks. This new cloud based solution has built-in efficiencies that will reduce the number of manual tasks, lists, and work-arounds the IFI staff has to manage in the day-to-day operations of the institute. Virtually every aspect of IFI's membership activities will be run through and be tracked using MemberClicks, including:

- Content for the Public website
- Meeting registration
- Committee pages & documents
- Members only content
- Membership dues & renewals
- Email lists and distribution
- Online membership directory
- And a lot more...

By the end of 2nd quarter 2019, MemberClicks will effectively be the hub through which IFI operates, and it will also replace significant portions of the public and the members only sections of the IFI website. There are a few exceptions where MemberClicks will not replace existing technology, which are the online store and subscriptions for the *Technology Connection* and the new *Online Book of Fastener Standards*. Those projects will remain independent of MemberClicks due to the proprietary nature of their programming, which was required to make them function as designed.

The move to MemberClicks will be a big undertaking, but it is a necessary step to modernize, simplify and consolidate IFI's operations. It will bring new capabilities that we hope will increase the membership's engagement and will create a more collaborative environment for everyone.

THE ECONOMIC ENVIRONMENT

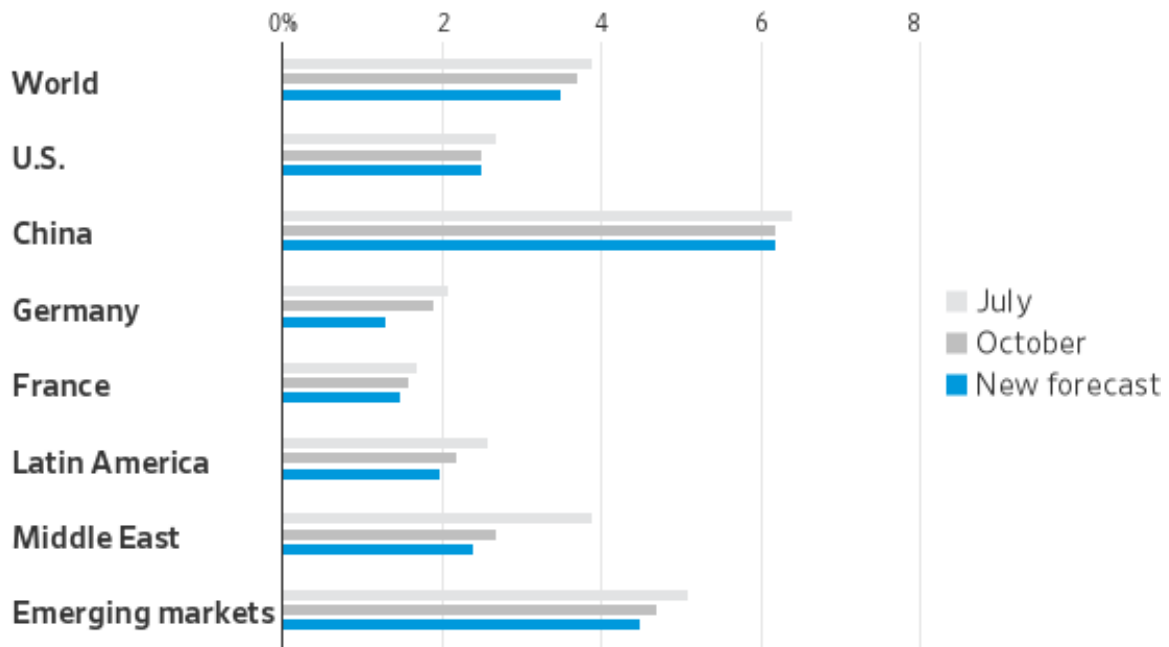
It was a good year for most markets in the U.S. and North America in general, with GDP rising to 2.6% in the fourth quarter of 2018, which was somewhat slower compared to the second and third quarters, which were 4.2% and 3.4% respectively. U.S. GDP growth is forecasted to slow to 2.3% in 2019, 2.0% in 2020, and 1.8% in 2021. The global industrial fasteners market size was estimated at \$74.6 billion in 2017, and sources say it could expand at a Compound Annual Growth Rate (CAGR) of 3.9% over the next several years. The U.S. market for industrial fasteners is expected to increase at 2.6% per year to \$15.2 billion by 2020. However, sustained growth could again be tempered by the increasing cost of raw materials due to tariffs on steel and aluminum.



The U.S. is still the world's bright spot, with low unemployment, falling taxes and oil prices, and rising wages that should help to sustain continued consumer spending. The U.S. unemployment rate ended 2018 at 3.7%, and it is forecasted to fall further to 3.5% in 2019, rise slightly to 3.6% in 2020, and 3.8% in 2021.

The United States exported \$111 billion in goods to China, compared to \$130 billion in 2017. The trade imbalance was -\$382 billion in 2018, which was up from -\$376 billion in 2017. The top U.S.-China exports of interest to the fastener industry included aircraft (\$16.3 billion), vehicles (\$13.2 billion), and machinery (\$12.9 billion).

Forecasts for real GDP growth in 2019



Source: International Monetary Fund

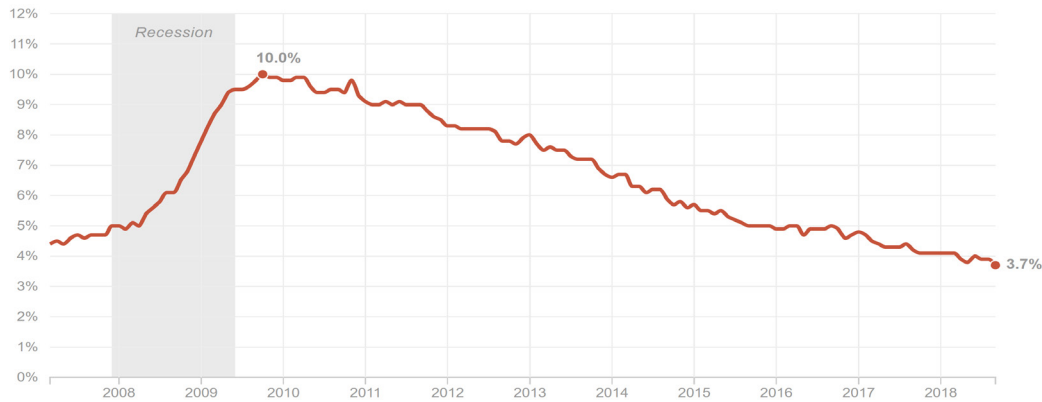
Quarterly Chinese GDP growth, change from a year earlier



Source: Wind

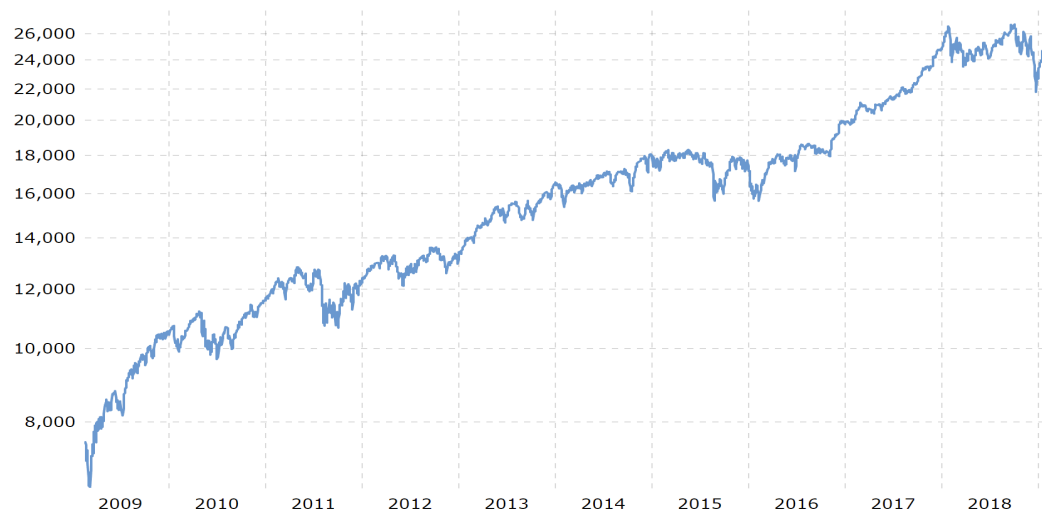
2018 was a positive year for most of the manufacturing sectors in the United States, but cooled slightly toward the end of the year as the boost from consumer and corporate tax breaks waned.

Manufacturers faced headwinds, including a trade war with China, rising interest rates and a historically tight job market.



U.S. Unemployment Rate for Workers 16 Years and Over
Source: U.S. Bureau of Labor Statistics

The Dow closed at its highest record rate on October 4, 2018 at 26,627 (up from the 2017 high of 24,290). On Christmas Eve, December 24th, the Dow dropped to a yearly low of 21,792, but has since rebounded back above 25,000 as of January 31, 2019. The December drop was the largest decline in the index on the trading day before Christmas since 1933, fueled in part by confusing signals from the Trump administration about markets and the economy.



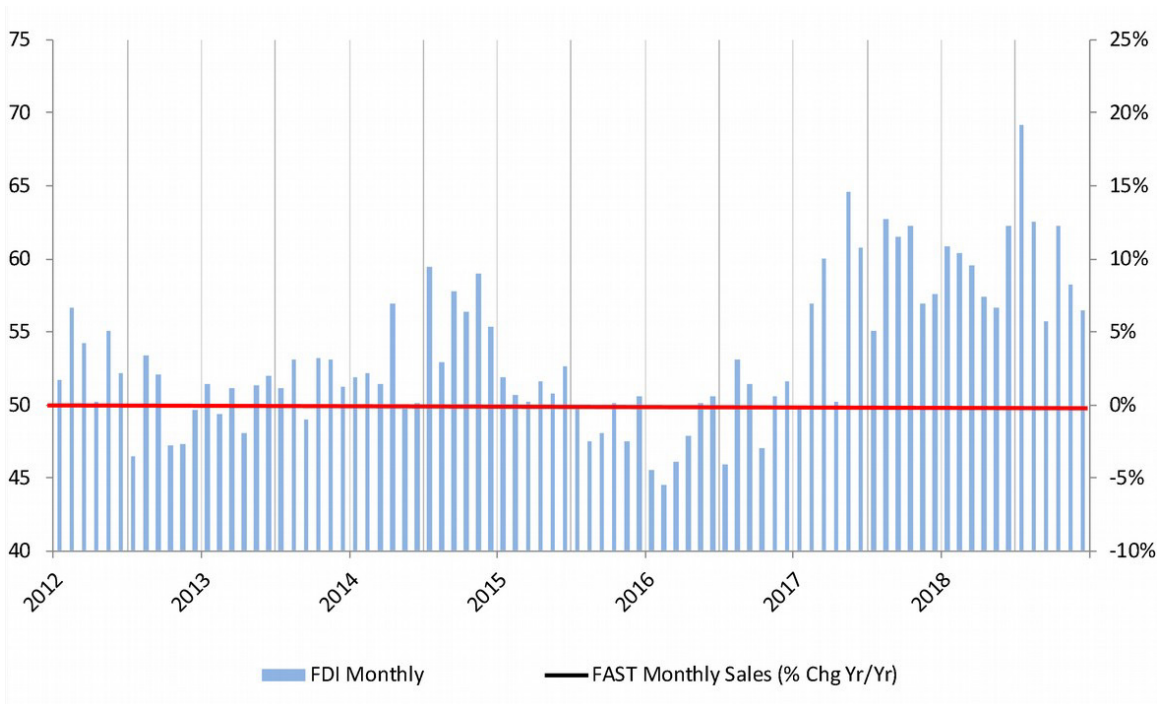
Dow Jones 10-Year Daily Chart
Source: Macrotrends

On December 19, 2018, the Federal fund rate rose to 2.4% (from 2.2%), and it is forecast to rise to 2.9% in 2019 and further to 3.1% in 2020.

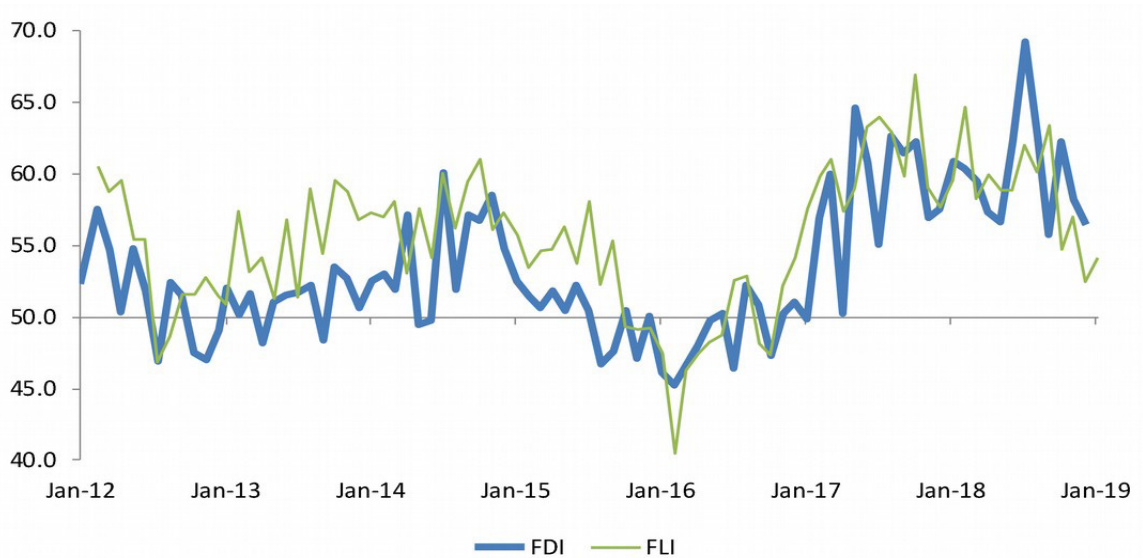
The Fastener Distributor Index (FDI)

According to R.W. Baird, the FDI is a monthly survey of North American fastener distributors, conducted with the FCH Sourcing Network, the National Fastener Distributor Association, and Baird. It offers insights into current fastener industry trends/outlooks. Similarly, the Forward-

Looking Indicator (FLI) is based on a weighted average of four forward-looking inputs from the FDI survey. This indicator is designed to provide directional perspective on future expectations for fastener market conditions. As diffusion indexes, values above 50.0 signal strength, while readings below 50.0 signal weakness.



Source: Baird, FCH Sourcing Network, Company reports



Source: Baird, FCH Sourcing Network

The December FDI report shows the index at 56.5% (still growing), but slightly down from the start of 2018. Forward trends into January 2019 show a positive outlook, although somewhat less optimistic than it was at the end of 2017 looking forward into 2018, according to the above data published by R.W. Baird analyst David Manthey.

Automotive



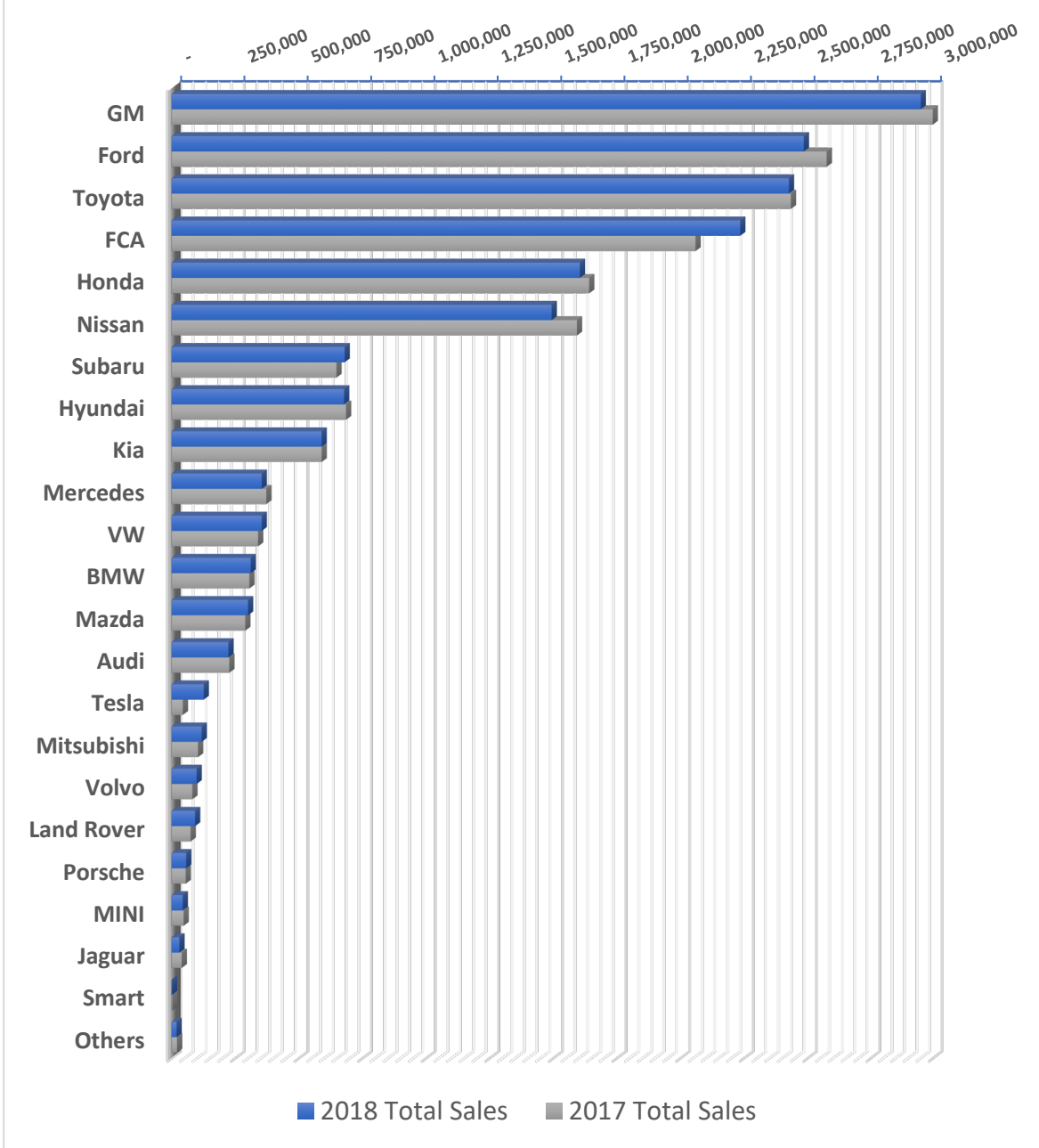
Total U.S. light vehicle sales of 17,274,250 units in 2018 were up just 0.3% compared to 2017. Pickup truck and SUV sales rose 8.0% to 11,786,069 units, up from 10,912,375 the year before. Passenger car sales decreased by 13.1% year-on-year to 5,488,181 compared to 6,318,061 in 2017, following the trend of consumer preference toward trucks, SUVs and crossovers.

Rank	Maker / Brand	Model	2018	2017	Y-o-Y
1	Ford	F-Series	909,330	896,764	1.4%
2	Chevrolet	Silverado	585,106	585,864	-0.1%
3	Dodge	Ram Pickup	536,980	500,723	7.2%
4	Toyota	RAV4	427,168	407,594	4.8%
5	Nissan	Rogue	412,110	403,465	2.1%
6	Honda	CR-V	379,013	377,895	0.3%
7	Toyota	Camry	343,439	387,081	-11.3%
8	Chevrolet	Equinox	332,284	290,458	14.4%
9	Honda	Civic	325,760	377,286	-13.7%
10	Honda	Accord	291,071	322,655	-9.8%

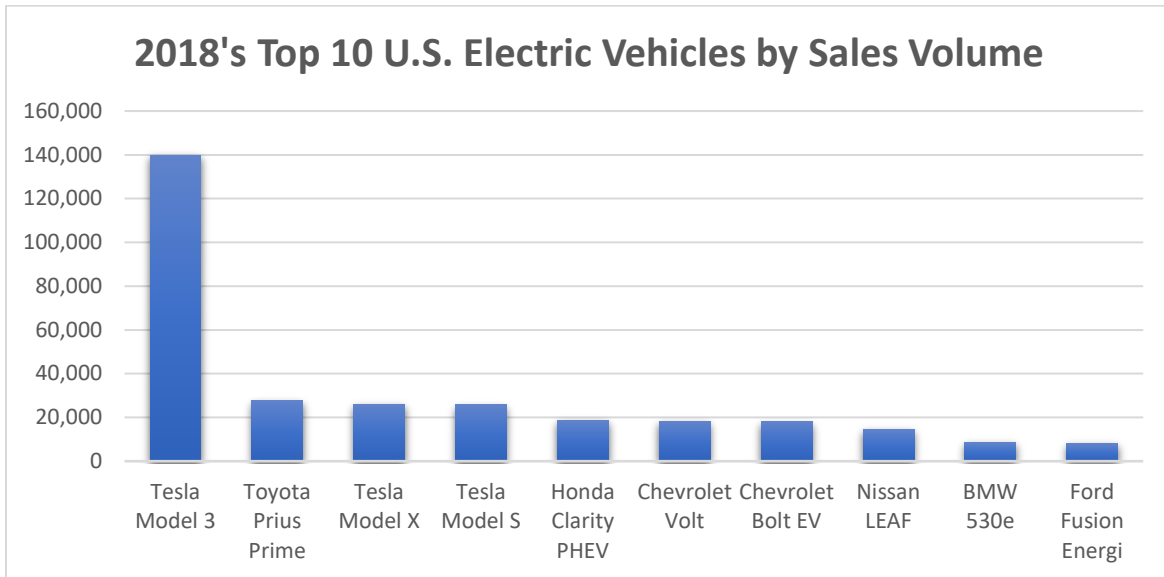
Top 10 Best Selling Models in the United States

Sport Utility Vehicles (SUVs) are forecast to represent more than 50% of U.S. sales in 2019 as consumers move away from traditional sedans. By 2025, SUVs are expected to represent 55% of sales, compared to just 19% for sedans.

U.S. Sales of Passenger Cars & Light Commercial Vehicles (Units)



Hybrid Electric Vehicles (HEV) are forecast to be the fastest segment among electric vehicles, surpassing the growth of Battery Electric Vehicles (BEV) and Plug-in Hybrid Electric Vehicles (PHEV). HEVs are expected to grow from under ½ million units sold yearly to over 1 million by 2021, and are forecast to top 2 million by 2025. The increase in HEVs is attributed to the introduction of 48 volt systems. The states where electric vehicles are growing fastest have adopted regulations that require electric vehicles to be sold by automakers. These are California, Connecticut, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Rhode Island and Vermont.



The best-selling electric vehicle in the U.S. in 2018 was the Tesla Model 3, which sold nearly 140,000 units, five times the next best-selling Prius Prime model from Toyota at just under 28,000 units.

Aerospace

2018 was a strong year in general for the aerospace industry, with Boeing coming out on top over Airbus in terms of total orders for the year. As for 2019, experts predict the market will slightly soften, but remain strong with increased U.S. defense spending creating a high demand, which should be good for U.S. based aerospace fastener manufacturers. In Europe, increased defense spending is also expected, which should create additional growth and demand for aerospace products.

Boeing reported on January 28, 2019 that it had received a Navy contract worth \$2.4 billion to produce the next 19 P-8A Poseidon aircraft. The P-8 is a long-range mission maritime patrol aircraft, based on the commercial Boeing 737 aircraft, which is capable of broad-area maritime operations. In September 2018, Boeing announced it had been awarded \$9.2 billion to produce 351 T-X jets, 46 simulators and associated ground equipment for the U.S. Air Force. More than 90 percent of Boeing's offering will be made in America, supporting more than 17,000 jobs in 34 states.



2018 Boeing Commercial Aircraft Orders, Deliveries and Backlog

Aircraft	Orders	Deliveries	Backlog	Production Rate	
				2018	2019
737	760	580	4,699	52	57
747	18	6	24	0.5	0.5
767	40	27	109	2.5	3
777	59	48	424	5	5
787	131	145	614	12	14

Airbus announced it had reached an agreement with Emirates in February 2019 to reduce its overbook of A380 by 39 aircraft. Airbus will supply Emirates with 123 aircraft (down from 162) including 40 A330neo and 30 A350s. Airbus announced that with this decision that it has no substantial A380 backlog, and that it would no longer sustain production of that model. The final A380 delivery is scheduled to take place in 2021.

2018 Airbus Commercial Aircraft Orders, Deliveries and Backlog

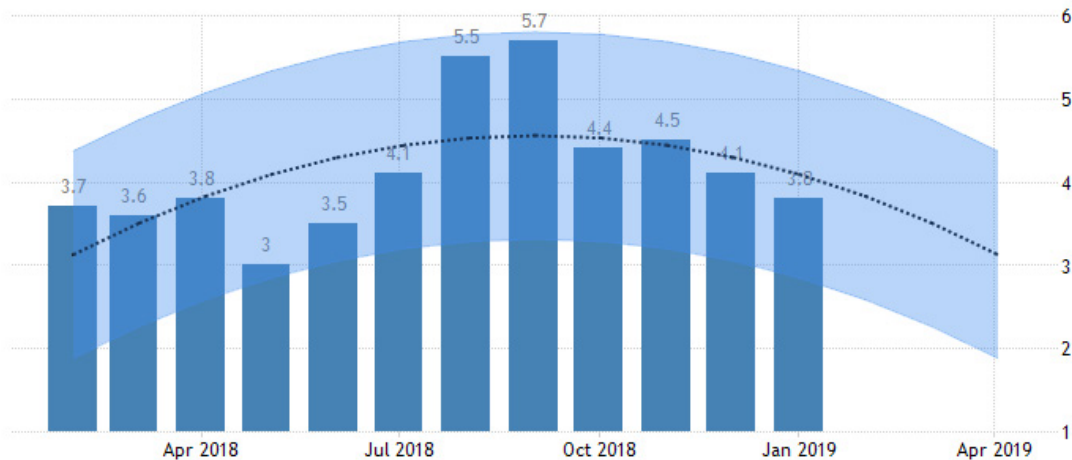
Aircraft	Orders	Deliveries	Backlog
A220	135	33	482
A320	541	626	157
A330	27	49	309
A350	40	93	No data
A380	4	12	No data

Note: According to Airbus, their backlog for all aircraft as of 1/31/19 stood at 7,525 aircraft.

Industrial Products



The industrial products segment is very diverse, running the gamut from construction projects to appliances, medical devices, furniture, trains and trucks, etc. According to Trading Economics, Industrial production in the United States rose 3.8% year-on-year in January 2019, following a 4.1% increase in December 2018. The projection into April 2019 is that production will drop to around 3%, which is still positive, although shown trending downward.



SOURCE: TRADINGECONOMICS.COM | FEDERAL RESERVE

In other segments, Heavy Truck sales are projected by research firm FTR to include shipments of 350,000 units, for a year-over-year increase of 8% compared to 2017. Commercial trailer production is also forecast to be 310,000 units (not including medium-duty low beds), which is just below the volume seen in 2018. FTR reported that Class 8 truck orders set a record during

Q3 2018, with a backlog of almost 7% more than the previous record. Class 4-7 truck production is forecast to be relatively flat in 2019.

Caterpillar reported 2018 sales and revenues of \$54.7 billion, up from \$45.5 billion in 2017. The company expects 2019 to be even better with higher sales and an improving macroeconomic and geopolitical environment. John Deere reported \$2.37 billion in sales for 2018, up from \$2.16 billion in 2017 – a 10% increase. This was reportedly due to strong farm machinery sales as well as strong construction equipment sales. This growth came despite the higher than anticipated material costs for steel.

CONTINUING EDUCATION AND TRAINING



We had another excellent year conducting “Member Only Training”. We sponsored 11 full day training sessions at no cost to Members in Chicago, Cleveland, Detroit, and LA. We added two new courses in 2018, “*Troubleshooting Common Fastener Quality Issues*”, and “*Fastener Standards 101 - Aerospace Version*”, bringing our total number of offerings to 11 unique classes. In addition to the eleven General Invitation sessions, we conducted five on-site sessions of these classes at various Member locations providing about 250 full training days to Members’ participants. Since inception this program has now provided over 1,200 full training days of high-quality, industry specific training.

The table below shows the details of the eleven General Invitation sessions conducted in 2018.

Session Date	Venue	Class	Signed Up	Actual Attendance
March 13	Independence, OH	<i>Troubleshooting Common Fastener Quality Issues (NEW)</i>		28
March 14	Independence, OH	<i>Fastener Standards 101-Industrial Version</i>		16
March 15	Independence, OH	<i>Fundamentals of Fastener Metallurgy and Heat Treating</i>		14
April 18	Santa Ana, CA	<i>Troubleshooting Common Fastener Quality Issues (NEW)</i>	26	23
April 19	Santa Ana, CA	<i>Fundamentals of Fastener Materials-From the Mill to the Header: Aerospace Version</i>	25	29
June 19	Saukville, WI	<i>Fundamentals of Fastener Materials-From the Mill to the Header: Industrial/Automotive Version</i>	24	23
June 20	Saukville, WI	Charter Steel Plant Tour	24	23
July 25	Troy, MI	<i>Troubleshooting Common Fastener Quality Issues (NEW)</i>	23	22
July 26	Troy, MI	<i>Basic GDT for Fasteners</i>	20	18
December 11	Santa Ana, CA	<i>Basic Aerospace Fasteners</i>	24	18
December 12	Santa Ana, CA	<i>Fastener Standards 101-Aerospace Version (NEW)</i>	21	18

In addition, five on-site classes were contracted by Members. These were:

- Fundamentals of Fastener Materials-From the Mill to the Header: Industrial / Automotive Version - November
- *Troubleshooting Common Fastener Quality Issues*- October (presented 3x)
- *Strategic Value of Your QMS - Understanding the Changes to ISO 9001 and IATF 16949* - March

In 2019, these Member Only Training classes will continue in the four strategic fastener centric venues. At the moment there are no new topics scheduled for development in 2019.

Member Only Training will continue to be offered exclusively to members as a free Member Benefit in the General Invitation format as well as the on-site format at a nominal fee. They will continue to provide an important part of the IFI's expanding role in assisting Members with training, which is consistent with the Board's increasing mission to support Members and the fastener industry with a variety of workplace development resources.

[IFI / FTI Partnership](#)

In 2018, the IFI continued its partnership with The Fastener Training Institute to conduct four sessions of *Fastener Training Week / Certified Fastener Specialist Training* in LA, Chicago, and Cleveland and one session of *Automotive Fastener Basics* in Detroit. This partnership includes support of curriculum maintenance and utilization of IFI staff as instructors. In 2018, the IFI partnered with The Fastener Training Institute to make improvements and updates to the

Fastener Training Week program. Unfortunately, this work was not completed and remains an open issue for 2019.

IFI Training Grant Program

In 2018, the IFI Training Grant Program covered the full tuition cost of nine Member Company employees attending *Fastener Training Week* or *Automotive Fastener Basics*. This grant program provides opportunities for Members to increase the knowledge base in their organizations but also to experience the quality of these programs, which drives increased interest and demand for such training.

Community College Partnerships

IFI continues to support the ongoing cold heading education programs being undertaken at both Rock Valley College in Rockford, IL and Compton College in Los Angeles.

Rock Valley College will be starting its first class of 2019 on April 15th. The training is conducted using both National and Nakashimada cold heading equipment, which provides an excellent base for students to get prepared for a career in the fastener industry. The Rock Valley program is nationally recognized by NIMS (National Institute for Metal Working Skills), and credentials are offered for graduates of the six week program. Group training rates are available for companies who are interested. Contact Deann Sharkey at (815) 921-2192 or D.Sharkey@RockValleyCollege.edu for more information.

Compton College reports that a new Machine Tool Technology class will begin with a new instructor, Mr. Michael VanOverbeck. Interested companies should contact Alicia Zambrano at (310) 900-1600 x2779 or azambrano@compton.edu. The new course is part of the IFI Aerospace Fastener Training Program, and Division II members were notified of the course in early February 2019. The Compton course includes the following:

- Introducing students to fastener standards
- Measurement techniques
- Cold-heading (forging)
- Thread-rolling
- Centerless grinding
- Turning
- Trimming
- Interpretation of travelers (routers)
- Standard aerospace fastener industry practices
- Safety procedures
- Machine set-up

Safety Committee



In 2018 the “IFI Safety Committee” continued its charter to provide a forum for IFI Members to gather and share innovative safety and environmental best practices for the industry. The committee met three times in 2018. The first meeting was hosted in March by MacLean-Fogg Component Solutions’ Royal Oak Michigan facility, the second in July by Charter Steel’s Saukville Wisconsin

facility, and the final one of the year by ATF’s Lincolnwood Illinois facility. Each meeting was attended by 20 to 30 individuals and comprised of presentations by committee members on relevant safety topics and a site walk through. Participants got to put their observation skills to work, bringing back things for group discussion they had seen which both exemplified best practice and areas for improvement.

In 2019 this committee will continue to bring together EHS and plant professionals within our membership so that as an industry we can learn from one another and bring improvements to our manufacturing sites and workplaces. The IFI Safety Committee is planning two site meetings in 2019, the first at the IFI Headquarters in Independence, Ohio in April and the second at Seaway Bolt and Specials in Columbia Station, Ohio in October.

The IFI Safety Committee wishes to acknowledge each of the member companies that has either previously undertaken or will undertake hosting a meeting. It takes a great deal of effort and coordination to host a group of twenty to thirty individuals. The Committee is especially thankful for these members and the things the industry has learned as a result.

WORKFORCE DEVELOPMENT



We are excited to report the formation of a new IFI Workforce Development Committee, which is being co-chaired by Jennifer Friel of Mid West Fabricating Co. and Steve Paddock of Böllhoff. The committee developed a survey that went to the IFI membership in early January 2019, which will become the basis of a work plan for the committee to prioritize its objectives. The committee will be working to assemble a Workforce Development Toolbox for IFI members to help them find and develop their next generation workers. The work is just starting, but there is a considerable amount of enthusiasm and momentum, so stay tuned on what IFI will be putting together.

There are 426,000 unfilled manufacturing jobs in the U.S., and there is a potential shortage of 2.4 million manufacturing workers over the next decade. The U.S. economy continues its second longest expansion in history, and the need for workers to meet the increased demand continues to rise. The search for skilled talent is ranked as the No. 1 driver for manufacturing competitiveness by today's manufacturing executives. The fastener industry is no exception, and we are competing directly with other manufacturing industries across the country for the same workers.

Although IFI cannot alone solve the larger U.S. workforce shortage, there are things we can (and have been doing) to ensure our industry has the workers it needs to succeed. We invite you to follow IFI's Workforce Development Committee's

initiatives, provide your valuable input, and stay connected with us as we begin making progress on these initiatives. Here are just some of the initiatives the IFI is involved in to help the industry build the next generation workforce:

- Members Only Training (MOT) – to provide for a smarter industry by constantly making training available to IFI member employees at little or no cost.
- Sponsoring cold-heading training programs at Rock Valley College in Illinois and Compton College in California to formalize the training of new job seekers who want to begin a career in the fastener industry.
- Partnering with the Uniquely Abled Project (UAP) to identify and employ uniquely gifted people with autism who are naturally suited toward repetitive or detailed work that requires undivided attention. This effort is first being undertaken by the Division II Aerospace manufacturers as a pilot program that is hoped to expand throughout the rest of the IFI divisions nationwide in 2019/20.
- The committee will be holding its first meeting on March 11, 2019 in San Antonio in conjunction with the IFI Annual Spring meeting, so there is much more to come.

The Manufacturing Institute (TMI) of the National Association of Manufacturers (NAM) commissioned a study by Deloitte to investigate ways manufacturers can address the impending skills gap. Some of the highlights from the NAM / Deloitte study include:

- 2.69 million jobs will be opening in the next 10 years due to retirements
- 1.96 million new jobs will open due to natural growth in manufacturing
- The average time to fill an open job is on the rise, up by almost 90% to 90 days for the shop floor and skilled production workers, and over 118 days for engineers since 2015.
- 66% of manufacturers surveyed reported that they had lost workers due to higher pay offered by competing companies, and 83% surveyed said they raised wages to prevent losing their skilled workers.
- \$85 billion in GDP is at risk due to the shortage of workers in 2019, but that rises to over \$454 billion by 2028. The total economic output at risk is over \$2.5 trillion over the next decade.
- Only 29% of the U.S. manufacturing workforce are women, while the general working population in the U.S. is 54% female. This imbalance is an opportunity for manufacturers to attract women into careers in their industries.

GOVERNMENT AFFAIRS



*Jennifer Baker Reid, Washington
Representative*

The 116th Congress was sworn in on January 3, 2019, amid what would become the longest partial government shutdown in history. The shutdown had lasted 35 days when the government was reopened on January 28 with the condition that a conference committee in Congress develop a budget deal by February 15 that would include border security measures that President Trump would accept. As I stand before you in San Antonio for IFI's Spring meeting, I'm betting a deal was reached by now but getting there wasn't pretty.

The 116th Congress is the most racially and ethnically diverse in history and has the highest number of women in history (126). The 36 freshmen women include both the youngest (29) and oldest (77) ever to be elected, 5 with military service, and the first Somali refugee turned citizen. There are a number of other "firsts" as well, including the first Native American women (2), the first Muslim woman, and the first former Green Beret. In fact, this Congress has the most military veterans in over 10 years.

This Congress is of course, also divided by Chamber, with Democrats controlling the House and Republicans controlling the Senate – although not with 60 votes to end a filibuster and not with 67 to override a Presidential veto.

Regardless of whether this Congress can find substantive matters on which to agree in a bipartisan manner, there is always work to be done with a new Congress—new Members to educate, new issues to address, and old issues to address again. For example, there are a number of new Members in both the House and Senate whose state or district has a significant presence of IFI members, and they'll need to be educated on the importance of the fastener industry and the issues of concern to fastener manufacturers. In the Senate, freshman Mike Braun (R-IN) will represent 11 IFI Members. New House Members with significant IFI member presence in their districts include Katie Hill (D-CA 25), Gil Cisneros (D-CA 39), Sean Casten (D-IL 6), Haley Stevens (D-MI 11), and Anthony Gonzalez (R-OH 16). But before we discuss what we need to focus on in 2019, let's take a look back at what we worked on in 2018.



[A Look Back at IFI's Involvement in Washington in 2018](#)

Trade Issues

1) Steel and Aluminum Tariffs

We started—and ended—the year working on an issue that had not been around since President George W. Bush imposed Section 201 Global Safeguard tariffs on steel imports in 2001. On March 8, 2018, President Trump issued Presidential Proclamations imposing tariffs of 25 percent on steel and 10 percent on aluminum under Section 232 of the Trade Expansion Act of 1962. This little-used trade remedy gives great latitude to the President to impose tariffs on imports that are deemed to be a threat to national security, as determined by the U.S. Department of Commerce (Commerce). Commerce made that determination in spite of many parties including IFI urging in person and in writing that extreme caution should be taken with broad tariffs on raw materials for fear of unintended consequences on downstream users. As expected, in retaliation, almost all countries have issued lists of their own that contain products that now have a tariff when exported from the U.S.



IFI has continued to work with other steel-consuming industries to get the tariffs removed as soon as possible, but in the meantime, we've also been focused on every possible avenue to help members deal with the reality of the impact of the tariffs on their businesses. That has included helping members understand (to the extent it is understandable) the process for applying for exclusions to the tariffs. As of January 23, 2019, Commerce had received more than 45,000 exclusion requests from more than 700 companies, and had granted only about 14,500, denying about 5,000, with the rest languishing somewhere in the bowels of the Commerce Department.

Based on input from steel consumers, including IFI, Members of Congress have continued to urge Commerce to improve the exclusion process, and by the end of 2018, the Department's exclusion process was under investigation internally by its own Inspector General and by the Government Accountability Office (GAO).

We were active in other areas regarding the tariffs as well. When Commerce developed a new internet portal in an effort to improve the widely-criticized exclusion process, IFI was one of only 36 organizations chosen to test the portal and provide feedback prior to its public launch. We expected the launch in January 2019 but the government shutdown delayed it. We expect it to be launched in February or March 2019 and IFI will keep members informed of the process. We also met with the Commerce's Office of Business Liaison to explain the importance of the fastener industry to the overall U.S. manufacturing economy and the difficulties facing the industry due to the steel tariffs.

2) Potential 232 Tariffs on Autos and Auto Parts

In mid-2018, President Trump directed Commerce to consider whether imported automobiles and automobile “parts” present a potential threat to national security, creating the possibility that he may place tariffs on those products as well. Commerce Secretary Wilbur Ross is scheduled to deliver that report and recommendations by February 17, 2019, unless a delay is announced due to the shutdown. IFI submitted comments on that proposal during the public comment period that opposed the imposition of tariffs in general, but continued to argue that if the steel and aluminum tariffs were to continue and new auto/auto parts tariffs to be imposed, then downstream products such as fasteners must also be protected to withstand foreign competition.

3) Section 301 Tariffs on Chinese Imports

The Administration also spent much of 2018 imposing tariffs on approximately 50% of Chinese imports under Section 301 of the Trade Act of 1974. These tariffs went into effect in a multi-step process with List 1 (25%) going into effect on July 6, 2018, List 2 (25%) on August 23, 2018, and List 3 (10%), including many fastener imports, on September 24, 2018. List 3’s tariff rate is scheduled to rise to 25% on March 2, 2019, unless the U.S. and China can reach a deal on removal of trade barriers and protection of intellectual property. There is currently no exclusion process for List 3 products but there will be one if the rate rises to 25% on March 2. IFI continues to monitor and report on these developments.

4) The U.S.-Mexico-Canada Trade Agreement (a.k.a. NAFTA 2.0)



The U.S. did reach agreement with Mexico and Canada to update the decades-old North American Free Trade Agreement (NAFTA), which had been roundly criticized by President Trump during the 2016 campaign. The new agreement, called the U.S.-Mexico-Canada Agreement (USMCA—come on, sing it to the tune of “YMCA” by the Village People!), still must be approved by Congress and many observers are skeptical about its chances.

Democrats have made it clear they want changes to labor and environmental provisions, Republicans want changes to investment and dispute resolution sections at a minimum, and there is bipartisan agreement that the 232 tariffs on steel and aluminum from Mexico and Canada should be lifted before passage. As discussed in detail in the November 2018 Special Issue of *Nuts & Bolts*, the USMCA contains rules of origin for automobiles and steel and aluminum that could affect automotive and heavy truck fastener manufacturers. Specific information has been provided to Division I and III members and we will continue to keep them informed. In addition, IFI submitted comments to the U.S. International Trade Commission (USITC) on the concerns of the fastener industry on the agreement, and urged immediate withdrawal of the steel and aluminum tariffs for Canada and Mexico.

Workforce Development Issues – The Perkins Act

IFI did work on other issues during 2018, including workforce development. We achieved one of our ongoing objectives during the year with the reauthorization of the Perkins Act in July 2018. The Act increased funding for career and technical education and provided for increased opportunities for businesses to engage in the process to ensure that programs are designed to meet actual workforce needs. IFI had supported reauthorization for several years, and actively lobbied for passage during the 2015 and 2017 Washington Fly In.

2019 – A Preview of Coming Attractions

The first year of any new Congress is busy, but this one, where control of the House changed hands and a large number of new Members were elected, will be particularly busy with basic education visits on the fastener industry, our Washington Fly In in May 2019, and work on issues such as trade, workforce development and infrastructure spending packages.

Speaker Pelosi and Democrats in the House have indicated that their priorities for this Congress are (in order of priority):

- 1) Ethics/Campaign Finance Reform;
- 2) Gun control legislation – likely tougher background checks and assault weapons bans;
- 3) Healthcare – focused on affordability, pre-existing conditions, and access/affordability of drugs;
- 4) Infrastructure – including a discussion on how to fund an infrastructure package and whether to raise the gas tax; and
- 5) Passage of the USMCA ***if*** changes are made to Democrats' liking.

Of course, this list ignores the elephant in the room (all the puns intended) which is that House Democrats will spend enormous amounts of time and attention on investigations of the Administration from every angle, including perhaps revisiting some of the regulatory reform efforts accomplished over the last two years. There is also much discussion of the “Green New Deal” led by progressive Democrats focused on climate change. Remember that the last time Democrats were in charge, the House passed a climate change package known as “the Waxman-Markey bill” (after its sponsors) and voting for it cost many a Democrat their seat in the next election. However, there will be much discussion about options for addressing climate change, including a carbon tax which has some bipartisan support, and manufacturers in energy-intensive industries like ours will need to monitor these developments.

In the Senate, Majority Leader McConnell will continue to push through nominations to the federal bench and hold his breath to see if he will need to handle another Supreme Court nomination before the 2020 elections. The Senate will, of course, also be where many of the House Democrats’ bills go to die.

On the regulatory front, we expect to see a new proposed rule on increasing overtime pay in 2019 and will make sure to keep IFI members informed as we learn more. The following is a brief outline of the key IFI issues that we know will be important to IFI members in 2019:

Trade Issues

We expect the battles over trade to continue in 2019, including continued efforts to persuade the Administration to remove the 232 tariffs on steel and aluminum (at least for Canada and Mexico); and the possible imposition of tariffs on imported autos and auto parts. IFI will continue to educate Members of Congress and the Administration on the negative effects of these tariffs on fastener manufacturers and the unfair foreign competition it creates. As long as it appears that the steel/aluminum tariffs are not going to be removed anytime soon, IFI will continue to stress that the result is that U.S. fastener manufacturers must deal with U.S. raw material that is more expensive than anywhere else in the world, while facing tariffs on imported raw material, and foreign fasteners that can come into the U.S. tariff-free.

There will be legislative efforts to restrict the definition of “national security” under Section 232 and to require Congressional approval prior to the President imposing

Section 232 tariffs. IFI will support these legislative efforts provided they address the current steel and aluminum tariffs.

There is also a legislative effort supported by the White House that would give the President even greater powers to impose tariffs on imports. The *U.S. Reciprocal Trade Act* would give the President the power to impose new or raise existing tariffs on products from other countries if those countries imposed or raised tariffs on U.S. products or had other non-tariff barriers to U.S. products. While the White House and its Congressional sponsors maintain that the bill's intent is to reduce tariffs overall, most business interests have come out strongly in opposition to the legislation based on their belief that it would likely lead to higher tariffs and tit-for-tat policies that would stifle trade and create great uncertainty in the supply chain.

Regarding the future of the USMCA, I cannot currently see a path for passage in this Congress without changes this Administration is likely unwilling to make. The President's threat to withdraw from NAFTA to force a vote on the USMCA is a poison pill for Democrats and would force Speaker Pelosi to refuse to bring up the agreement under "fast track" procedures. IFI will continue to educate Members of Congress and the Administration on our concerns with the steel and aluminum tariffs for Mexico and Canada and the rules of origin provisions for automobiles.

Workforce Development – Higher Education Act Reauthorization

Following reauthorization of the Perkins Act in 2018, those interested in workforce development issues are expected to turn their eyes to reauthorization of the Higher Education Act in 2019. There will be House and Senate efforts to monitor and key for the business community will be what steps can be included to help increase the worker pool. For example, efforts to allow Pell Grants to be used at non-traditional, non-4 year programs would be a step in the right direction. IFI will continue to follow this issue as well as others the Workforce Development task force passes our way.

Infrastructure

It remains unknown whether Congressional Democrats can reach a deal with both Congressional Republicans and the White House on an infrastructure spending package and if so, whether it will include an increase in the gas tax. IFI will follow this issue closely.

[Come One, Come All – May 15-16, 2019 IFI Washington Fly-In](#)

One of the most effective ways for organizations like IFI to get to know and educate Members of Congress is to visit them in their Washington offices. IFI will host its 3rd Washington Fly-In for member companies on May 15-16, 2019. We last visited Washington as a group in 2017, and we've already begun planning this year's event. You have received registration information electronically and we will send another reminder soon. The hotel/registration cut-off is **April 15, 2019**. IFI members will receive briefings on the current issues affecting fastener manufacturers, and appointments will be made for visits to individual Members of Congress and their staff. Please feel free to speak directly to Jennifer at the Laurin Baker Group with any questions.

INSTITUTE OPERATIONS

Rob Harris had retired at the end of 2017, but was called back to step in for several months as interim managing director until the position was filled by Dan Walker in August. Operationally, IFI ended 2018 with a negative \$127,918 from operations and a negative \$215,217 overall. \$87,299 of that loss was from a decrease in investments value in the late fourth quarter due to stock market volatility. The operational loss was primarily due to the Spring and Fall meetings being over budget, and unanticipated severance pay and consulting costs due to a second managing director transition. Income was less than anticipated due to the late release of the *2018 IFI Book of Fastener Standards*.

The Institute's Annual Meeting at The Sanctuary at Kiawah Island, SC and the Fall Meeting at The Ritz-Carlton at Half Moon Bay, CA were both very successful events, rich in take home value and they offered great networking opportunities.

IFI continues to invest substantial amounts in member employee training with seven Members' Only Training (MOT) classes held in multiple locations, again serving more than 600 employees. Several grants were awarded to Member employees to attend the 5-day IFI/FTI Fastener Specialist classes with two classes being hosted at the IFI HQ. Despite the challenging financial year, IFI ended the year with over \$2 million in reserves, which would provide for nearly two years of operations.

IFI Book of Fastener Standards

Sales of the Inch Fastener Standards, 9th Edition were discontinued with the introduction of the *2018 IFI Book of Fastener Standards* (a.k.a. the 10th Edition). The new book was released as both a hardcover and online version. The previous key lock version was done away with in lieu of the online option. Sales of both the new hardcover and online book were less than budgeted, but the release of both had been delayed until September, several months behind schedule. In the past, this publication generated a steady stream of new revenue in both the hard cover and electronic version, and IFI will be counting on this to continue. The IFI Technology Connection™ subscription sales continued to be strong at \$96,500 in revenue in 2018, and keeps on generating repeat revenue every year through renewals.

Industry Collaborations

Coordination with other associations, as in other years, both in the fastener or other metalworking industries, and with those representing key customer segments continued. Our office co-location with the Precision Metalforming Association (PMA) continues to produce cost savings, access to new technology and joint activity opportunities. Our information exchange program with the automotive Original Equipment Suppliers Association (OESA) supplied timely information as did the co-location of our Aerospace Division meetings with the Aerospace Locknut Manufacturers Association (ALMA – now a subdivision of IFI Division II) and our support provided to the Aerospace Industries Association (AIA).

Our participation with the National Association of Manufacturers (NAM) has us cooperating on a variety of industry and government affairs initiatives. This expands the depth and breadth of our influence in Washington as does our work with The Laurin Baker Group. Within the fastener industry, our coordination with the NFDA, MWFA, Pac-West Distributors Association and the Fastener Industry Coalition (FIC) continued when common cause was identified, but we will retain our world recognized independent identity. We teamed up with Pac-West to develop select Fastener Training Institute training programs offered in Cleveland, Detroit, Chicago and Los Angeles.

Soaring Eagle Awards



Mike Lawler

The 2018 “**Soaring Eagles**” **Technology Award** went to **Mike Lawler** of Consolidated Aerospace Manufacturing, LLC (CAM). The IFI Soaring Eagle Technology Award recognizes individuals who have extensive experience in the industrial fastener industry who have made significant contributions to the technological advancement of the fastener industry. Contributions may be through extensive work on fastener standards committees, the publication of widely acclaimed principles or documents and/or through the development of fastener related equipment products, or processes which have been widely acknowledged as advancements in fastener technology. Mike’s dedication

to the aerospace fastener field includes over thirty years of sharing his technical skills with standards organizations such as the AIA/NASC, ALMA, AMS, ASTM, GIFWG, SAE E-25, and the IFI. His passion for doing things right, even when such is not expedient, is renown, as is his volunteer spirit and willingness to share his extensive knowledge with the industry. He has exhibited an uncommon selflessness and has set a high standard for others to emulate.

The 2018 “**Soaring Eagles**” **Service Award** went to **Rob Harris** of IFI for his many years of outstanding service and leadership, which enabled the IFI to fulfill its mission of continually providing dedicated service to the mechanical fastener manufacturers of North America. Rob served as the IFI’s Managing Director from 1995 through 2017, having steered the institute on both rough and calm seas. Through Rob’s stewardship, the IFI has prospered with ample financial reserves to weather the next storm. His leadership, insight, innovation, and choice of highly qualified personnel, have elevated IFI’s role as the leading association representing the interests



Rob Harris

of fastener manufacturers in North America and serving the technical and educational needs of its members. He has set a high standard of excellence and is leaving an enduring legacy.

2018 ENGINEERING AND TECHNOLOGY ACTIVITIES

IFI Book of Fastener Standards - 2018 Edition (aka 10th Edition)



The most significant non-dues activity of the IFI was the publication in September 2018, of the IFI Book of Fastener Standards – 2018 Edition, also known as the “10th Edition.” The book is available in the traditional hardcover format and a NEW online format called the ***IFI Online Book of Fastener Standards***.

The ***2018 Edition IFI Book of Fastener Standards*** is an essential compilation of the most commonly used fastener standards for inch fasteners and ***non-ISO*** metric fasteners. The book contains 92 separate standard specifications issued by ASTM, ASME, SAE and IFI. The ***2018***

IFI Book of Fastener Standards is the ***tenth edition*** of the Book of Standards published by the Industrial Fasteners Institute. This edition represents 77 years of continued development in fastener standards and practice since IFI published the first edition in 1941. The IFI Book of Standards is considered a “BIBLE” for designers, manufacturing engineers, and managers in all industries, and major manufacturing and construction interests throughout the world use the IFI Book as an authoritative reference for fastener technical data. The 2018 Edition, in hardcover and online platform, is the next step in continuing a tradition of dedicated service to the fastener supplying industry and the companies they serve. The collection contains a total of 92 standards, comprised of 39 ASTM standards, 29 ASME standards, 2 SAE standards and 22 IFI standards. The aggregate value of all the individual standards is approximately \$4,000.

Organization of the Book

As with the 9th Edition, this new edition has been organized to make finding the standards easy. Dimensional standards are at the beginning of each product section followed by the related material standards. For example, the dimensional data for a bolt is given in ASME B18.2.1, located in the front of the Bolt Section, which also contains the material standards for SAE J429, ASTM A193, etc.

The title of the 2018 Edition does not contain the term “Inch” because many of the standards have been combined into dual inch/metric standards. For example, ASTM F606 and its metric companion ASTM F606M have been combined by ASTM Committee F16 on Fasteners to form a dual inch/metric standard designated ASTM F606/F606M. Although the term “Inch” was omitted from the title, this book fundamentally remains the comprehensive reference source for “Inch” fastener standards. IFI no longer publishes a Metric Fastener Standards Book.

[IFI Online Book of Fastener Standards](#)

The **IFI Online Book of Fastener Standards** is an online library that provides access to the same 92 standards available in the hardcover Book. The online platform is a convenient and essential “one-stop” collection that is always current, making it the perfect source of the latest standards for an auditable quality management system.

The **IFI Online Book of Fastener Standards** began as a feasibility study that was begun in 2016 to offer the IFI Book of Inch Standards in an additional format, adding the option of an online subscription to replace the digital Keylok-secured version. The 8th and 9th Editions of the Book were offered hardcover and digital versions. The digital version offers the convenience of being accessible on a personal computer or being shared from



a local network server, based on the number of seats purchased controlled by a Keylok USB device. The limitation that has always existed with the IFI Book of standards is that standards are revised between publications. Consequently, the IFI Book is a very useful reference source, but it has a “shelf-life,” making it less current, and less useful, with every passing year. The digital version did not alter this reality. In addition, occasional technical and software compatibility problems related to the Keylok devices created inconveniences for users and the need for IFI to rely on third party support by the provider of the Keylok device.

The initial feasibility study was followed in 2017 by detailed analysis and development of the appropriate digital platform and user options which will be described below.

The benefits of the ***IFI Online Book of Fastener Standards*** are multiple, but the most significant benefit to the user is that the IFI Subscription will always provide the most recent revision of the standards, making the IFI a “one-stop shop” for inch fastener standards. A significant benefit for IFI is that the annual subscription fee paid by users will become a steady source of revenue that will gradually eliminate the cyclical nature of revenues obtained from publication of each new revision of the Book. With the online, the digital version of the book is no longer being offered.

The ***IFI Online Book of Fastener Standards*** is offered in packages of 1, 5 or 10 user packages for each physical location or local area network (LAN). The pricing scheme is such that the per-user prices is significantly reduced from 1 user license to 5 and 10 user licenses. By this approach, IFI is encouraging customers to purchase the number of licenses that reflect the actual user within a customer location. Additional locations (e.g., divisions of the same company) may purchase their licenses at 50% of the cost of the first location.

A complete listing of the *IFI Book of standards*, in both hardcover and online subscription, plus related products are given at the IFI web store: <https://www.indfast.org/shop/>

[IFI Technology Connection Update](#)

The IFI Technology Connection (ITC) is the one and only comprehensive and authoritative utility where the specifications from both inch and metric fastener standards have been compiled to allow the user to instantly obtain all the technical data pertaining to a specific fastener. ITC is actively and continually being updated to reflect changes to industry standards (e.g., ASTM, SAE, IFI, ASME, ISO). New products and features include the addition of a variety of screw products.

[The ISO Metric Fastener Collection Now Available](#)

The Industrial Fasteners Institute (IFI) has been licensed to sell individual ISO metric thread and fastener standards as well as the ***ISO Screw Thread and Fastener Handbook*** for many years. However, the *ISO Screw Thread and Fastener Handbook* is no longer available through the IFI or any other licensed reseller, because in 2014, ISO decided to altogether stop printing the hardcover collection. Since then, ISO TC 1 and TC 2 standards have only been available for purchase individually at a cost that quickly becomes forbiddingly high if a user needs more than a handful of standards.

After lengthy discussions and pressure by IFI, we are very pleased to announce that an agreement has been reached with ISO and the Standards Council of Canada (SCC) to make available the **ISO Fastener Collection** as an online digital subscription. The objective of this effort was to make the full fastener collection available to users in North America at a cost that mirrors the old hardcover **ISO Fastener Collection**.

The collection includes all the standards under the jurisdiction of ISO technical committees TC 1 (Threads) and TC 2 (Fasteners), for a total of *218 standards*. The *ISO Fastener Collection* is now available via the Standards Council of Canada (SCC) using the **ISO Online Browsing Platform (OBP)**, at a very reasonable cost of \$498 CAD per year for one user. Up to 10 user-seats may be purchased. Same as with the new **IFI Online Book of Standards**, one of the key benefits of *ISO Online Browsing Platform* is that the user always has access to the latest revision of any standard in the ISO Fastener collection. The availability of the ISO Fastener Collection is a significant development that will go a very long way to serving the needs of manufacturers, distributors and users of fasteners in North America who have had no way to access ISO Fastener standards in a cost-effective manner since 2014.

A subscription to the **ISO Fastener Collection** on the **ISO Online Browsing Platform** can now be purchased directly from ISO via Standards Council of Canada (SCC) at <https://scc.isolutions.iso.org/obp/ui#iso:pub:PUB200006:en>

IFI technical staff encourages all users of ISO Fastener standards to subscribe to this resource.

[Standards Development](#)

IFI is always actively involved in all fastener related standards development activities. IFI Director of Engineering & Technology, Salim Brahim, represents the interests of IFI members and the fastener industry within ASTM, ASME, ISO, SAE, RCSC, USCAR and API. The following is a list of the most significant activities and news from the various committees.

ASTM – Committee F16 on Fasteners

The new consolidated structural bolting standard ASTM F3125/F3125M⁽¹⁾ is now well established in the structural bolting industry. The current version (i.e. ASTM F3125/F3125M-15a) has been undergoing significant review at the task group level in 2017-2018. A new release likely to occur by May 2019.

- (1) **ASTM F3125/F3125M-15a** Standard Specification for High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, 120 ksi (830 MPa) and 150 ksi (1040 MPa) Minimum Tensile Strength, Inch and Metric Dimensions.

ASTM – Revision of ASTM B633 - Zinc Electroplating Standard

Following more than three years of task group activity beginning in 2015, subcommittee B08.06 finally agreed to propose a revised concurrent ballot to return the requirement for mandatory post treatment “baking” back to how it was specified prior to the 2007 revision of B633. The 2007 revision changed the default mandatory baking requirement from 1200 MPa (~39 HRC) to 1000 MPa (~31 HRC). This proposal returns the default mandatory baking requirement back to 1200 MPa (~39 HRC), unless otherwise specified by the purchaser. In other words, as it was prior to 2007. The purchaser may always obtain baking below 1200 MPa by simply specifying that requirement.

The ballot received a few negatives votes. The disagreement by a few members of B08 to the proposal in the ballot centers on a single issue. That is, whether the mandatory (i.e., default) baking requirement in B633 should begin at hardness of 31 HRC or at 39 HRC. Indeed, this debate has persisted since the 1980s. Fortunately today, a significant body of data are available to inform and guide the debate. In November 2018, committee B08 met in Washington DC, where the members discussed at length and sometimes intensely debated all the issues mentioned by the negative voters during several task group and subcommittee meetings over the past four years. We are pleased to report that the negatives were either withdrawn or overwhelmingly found non-persuasive by tabulated vote. As of this writing ASTM Committee on Standardization (COS) which oversees the actions of all the technical committees such as B08, reviewed the non-persuasive motions to ensure that the actions fully complied with ASTM procedures. We are confident that COS will be satisfied that due process was followed. With that said, we expect the latest revision to B633 to be published by May 2019.

This issue has caused significant disruption and harm in the fastener industry. We are pleased that the matter of B633 will soon be behind us as an industry.

Additional Background:

- It is generally understood that the revision in 2007 was made by B08 as a precautionary measure. However, scientific research or supporting test data that may have originally served as the basis for that revision have not been provided and are not available for review.
- The request to revert mandatory post treatment “baking” back to how it was specified prior to 2007 was first formally made in 2011 by committee F16 (Fasteners). Nearly seven years into this dialogue, proponents of the 2007 revision have failed to offer any scientific research or test data to validate that revision. In sum, no such data are available.
- On the other hand, this proposal is supported by a significant body of peer reviewed academic research and overwhelming industry test data that are consistent with longstanding industry practice. The research and the data emphatically demonstrate that there is no risk of internal hydrogen embrittlement (IHE) from zinc electroplating of steel with tensile strengths at or below 1200 MPa (39 HRC). This fact is reflected by current industry practice where the great majority of zinc electroplated components, notably fasteners (hundreds of millions of fasteners each year), below hardness of 39 HRC are not baked and do not cause concerns related to IHE. These fasteners are often mandatorily HE tested after electroplating, and systematically pass the test.
- The research confirms what we already know, that IHE is in fact problematic for zinc plated steel above 1200 MPa (39 HRC). The susceptibility of steel to HE gradually begins to increase at strength levels above 1200 MPa (39 HRC). The research findings are corroborated by the fact that IHE related failures of zinc electroplated fasteners above 39 HRC, although not common, do occur occasionally. These IHE failures can generally be prevented with properly specified baking duration and temperature.
- The cited research examines both internal hydrogen embrittlement (IHE) and environmental hydrogen embrittlement (EHE). It is imperative that B08 committee members make the distinction between internal hydrogen embrittlement (IHE) and environmental hydrogen embrittlement (EHE). Prevention of internal hydrogen embrittlement (IHE) is within the scope of B633. However, environmental hydrogen embrittlement (EHE), depends on service conditions, including the corrosivity of the service environment, which serves as a potentially unlimited source of hydrogen. EHE is not within the control nor the scope of B633. Furthermore, no amount of baking after electroplating can change the environmental conditions or an eventual outcome of EHE (good or bad).
- Although well intentioned, the 2007 revision lowering mandatory baking requirement from 1200 MPa (~39 HRC) to 1000 MPa (~31 HRC), has caused both harm and confusion in industry and the market. Several examples of the harm and confusion are given here:

- Historically, ASTM B633 has been specified on part drawings without any additional requirements relative to baking being detailed. Parts that have been zinc electroplated per B633 for years prior to 2007 without need for baking, were suddenly no longer in conformance with the standard. This “non-conformance” helped create the false perception that these products are defective. Yet, nothing had changed with either the parts or the zinc electroplating processes that suddenly made them either defective or less safe. The only change was a seemingly innocuous revision in B633 that has had a massive negative and costly impact on industry, notably in the fastener and related industries such as Oil & Gas, by creating direct contradiction with long standing practice.
- The artificial “non-conformances” created by the 2007 revision to B633 have been used as the basis of several unjustified and very costly lawsuits against electroplaters and part suppliers. Two such cases have been presented in detail to Committee B08.
- More than 10 years after the 2007 revision of B633, engineering drawings have generally not been revised to accommodate the new baking requirements. A design engineer would need a very high level of qualification to change from B633 to another specification such as F1941/F1941M, or to invoke the ER-0 provision that exempts the part from the mandatory baking requirement. Very few design engineers feel they have the necessary specialized qualification to justify making such an engineering change.
- The confusion has compelled many end users to mandate baking of all fasteners that are heat treated, even Grade 5 fasteners (25-34 HRC). Even when they are given information showing that baking of zinc electroplated parts below 39 HRC is neither justified nor beneficial. Sometimes, even when B633 is not explicitly specified on the drawing or purchase order. The result has been a significant inflation in the cost of electroplating and of zinc electroplated components that is artificial, without any benefit in product safety or integrity.
- Since 2007, many service failures, particularly with fasteners, have been improperly attributed to the absence of baking that is currently mandated in B633. These misdiagnoses are invariably made by metallurgists who don’t have specialized training for identifying the root cause of such failures. These people justifiably rely on ASTM as the “gold standard” to guide their analysis. In this case, the systematic baking requirement for parts 1000 MPa and greater is not technically justified and is therefore misleading the users of B633.

- The well-known case of blow out preventer (BOP) bolt failures (2012 and 2014) on off shore oil platforms in the Gulf of Mexico is one dramatic example of confusion and misdiagnosis caused by the 2007 revision of B633. In this example, the cause of failure was initially attributed to the fact the bolts in question were electroplated to the pre-2007 revision of B633, and therefore not baked. The consequences of this flagrant error have been extremely dangerous and costly, by diverting the attention and resources of the Oil & Gas industry in the wrong direction for several years. Fortunately, the misdirection is being corrected, but uncertainty and confusion persist in the Oil & Gas industry.
- The reality in the market is that B633 has been in existence for much longer than F1941. Therefore, although not by design, B633 has remained as a legacy (i.e. grandfathered) standard on approximately half of fastener technical drawings and part specifications. The current requirement in B633 which has effectively mandated systematic baking of fasteners below 39 HRC has created tremendous confusion because of the significant contradiction it created with F1941.
- Following the potentially disastrous BOP bolt failures in the Gulf of Mexico, and the tremendous confusion caused by the initial misdiagnosis related to 2007 revision of B633, the Bureau of Safety and Environmental Enforcement (BSEE) American Petroleum Institute (API) have made a formal written request that ASTM make the necessary changes to resolve the contradiction between B633 and F1941/F1941M.
- The Industrial Fasteners Institute (IFI), with over 150-member companies representing the fastener manufacturing industry in North America, including steel companies and companies that perform plating and coating of fasteners has, since 2007, taken the position that B633 must be brought back in alignment with F1941/F1941M. Ever since its adoption in 1998, F1941 mandates baking only for fasteners above 39 HRC. Billions of fasteners, with hardness below 39 HRC, have been and are being zinc electroplated without being baked. There are no cases of reported test failures or field failures of such fasteners attributed to IHE or the absence of baking.
- It is IFI's position that the current requirement in B633 which effectively mandates systematic baking (by default) of fasteners below 39 HRC has created tremendous confusion because of the gaping contradiction it has created with F1941 and common industry practice. Most importantly, it is IFI's position this requirement is neither technically valid nor does it benefit in any way the safety or integrity of critical bolted joints. [Ref. ISO TR 20491].

- Committee F16 on Fasteners, with over 250 members representing the fastener industry, including steel companies and companies that perform plating and coating of fasteners, has formally taken the same position by adopting a Main Committee resolution (May 2016) that passed unanimously, to “resolve the conflict between B633 and F1941 by working with B08 to change B633’s baking requirements to align with those in F1941.”
- IFI urges committee B08 to address the processing and baking requirements for parts above 1200 MPa (>39 HRC), which are known to be susceptible to IHE, and for which IHE and EHE failures are not uncommon occurrences. In other words, in the interest of safety, let us focus our attention on where the problem exists, i.e., above 1200 MPa (>39 HRC).

ISO – Committee TC2 on Fasteners

The 2018 plenary meetings of the ISO Technical Committee on Fasteners (ISO TC 2) were hosted for the first time by Canada during the week of October 15-19. Hosting this event is part of IFI’s continuing effort to promote and increase the contributions and influence of North American experts on the evolution of ISO metric fastener standards. This objective is achieved in part by hosting one set of ad hoc group meetings in Montreal and hosting the annual plenary meetings somewhere in North America whenever the rotation allows.

The ISO TC 2 gathering is always an engaging international event where fastener experts from around the world collaborate and share their knowledge and experience on fasteners to develop state of the art ISO metric fastener standards. This year was no exception. During 2018, significant progress has been made on several key ISO standards, such as ISO 4042, ISO 10683, ISO 3269, ISO 898-2 and ISO TR 20491. The meetings also provided a great platform to connect scientific research with fastener standards and practices because the event was co-hosted by the McGill University Hydrogen Embrittlement Facility (MHEF). Founded in 2006, in part with a grant from IFI, the McGill Hydrogen Embrittlement Facility (MHEF) has a globally recognized reputation of research on hydrogen embrittlement, coatings and high-strength fasteners. We are proud that several important standards in the global fastener industry are being revised thanks in part to research conducted at MHEF.

We thank IFI membership, as IFI was the principal sponsor of the event. We also thank Ifastgroupe, Leland Industries, Endries International and IBECA Technologies without whose generous support, this important and well-attended international event would not have been possible.

Subsea Bolting Task Group

In December 2012, a Chevron offshore oil rig lower marine riser package separated from the blowout preventer, releasing a small amount of synthetic drilling fluids into the Gulf of Mexico. The incident was the result of the failure of H4 connector bolts. Although, the root cause of the failures was never determined, initial analysis report mistakenly ascribed the cause to Internal Hydrogen Embrittlement (IHE). As was described above relative to ASTM B633, the erroneous conclusion was reached because of the current baking requirement in ASTM B633, leading to a great deal of confusion in the industry. A similar but separate occurrence in 2014 has given rise to fears that the problem is pervasive and has made headlines in *The Wall Street Journal*.

The Bureau of Safety and Environmental Enforcement (BSEE), asked the American Petroleum Institute (API) Subcommittee 21 on Materials to make recommendations to prevent any future occurrence of such a failure. API SC 21 Task Group on Multi-Segment Bolting in Subsea Applications was created as a result of the BSEE request. The mandate of the task group is to conduct research and testing aimed and to propose data driven recommendations to improve Oil & Gas industry standards and practices relative to bolting. More precisely, the TG will be examining the selection of fastener materials and the selection of coatings. The proposals will eventually result in changes to the API Specification 20E, *Alloy and Carbon Steel Bolting for Use in the Petroleum and Natural Gas Industries*.

In 2017, API awarded two research contracts to IBECA Technologies Corp., to conduct the work at the McGill University Hydrogen Embrittlement Facility in Montreal. The research work began 2018 and is expected to be completed by the end of Q2 2019.

A workshop was organized by the National Academies of Sciences (NAS) on Subsea Bolt performance, April 10-11, 2017, in Washington DC. NAS assembled a Committee to study the question of subsea bolt failures. Following completion of its work, the NAS Committee issued a consensus report in 2018. The report and its recommendations do not alter the direction being taken by API SC 21 Task Group on Multi-Segment Bolting in Subsea Applications.

DIVISION I: INDUSTRIAL PRODUCTS

Division I are those manufacturers who supply fasteners and formed parts to the makers of industrial products, the construction industry and to distribution. Most of our fastener standards are developed for this segment of the industry. The Division meets twice yearly and often hosts speakers on topics of timely interest to the whole membership. Many of our technical special projects are triggered by the needs of this segment. This Division provides support to our technical engineering activities, to the Research Council on Structural Connections and to the Bolting Technology Council. Our activities with ASTM, ASME and ISO are largely driven by Division I. This Division has as Division Manager, Bob Hill. The Division was chaired by Don Kubkowski – Sems and Specials, Inc.

DIVISION II: AEROSPACE PRODUCTS

Division II manufacturers supply very specialized products to the aerospace industry and the Department of Defense. Their products are frequently made from the more exotic materials and often have complex geometry in their design. Their supply to the government means they must comply with defense procurement agency constraints. This Division has an Affiliate Member category; which are those key distributors in the supply chain providing product to the major aerospace airframe, engine and flight component OEMs. The Division tends to be quite active in government affairs due to the many regulations governing the sale and use of the products their fasteners go into. This Division has been the fastest growing in the IFI, and has as Division Manager, Pat Meade. The Division has successfully partnered with a community college program, trains machinery operators for the industry, and currently has over 90 graduates that have been hired into industry. The Division was chaired by Pat Wells from The Young Engineers, Inc. The Technical Chairman was Owe Carlsson from Arconic Fastening Systems.

DIVISION III: AUTOMOTIVE PRODUCTS

Division III represents those manufacturers supplying product to the automotive OEMs and the Tiers that supply the OEMs. It meets bimonthly, usually in the Detroit area to facilitate participation. Because of the nature of the automotive industry – frequently confrontational and always price and volume driven – the Division never lacks for projects to undertake, new business and legal issues to learn and best practices lessons from which all can benefit. The Division coordinates activities with

USCAR, AIAG and OESA. This Division has as Division Manager, John O'Brien. The Division hosts the annual "John D. Fischer" Memorial Golf Tournament in which Division members, the Institute's current and past Officers and Associate Division Members participate. The Division was chaired by Mr. Ryan Surber from Rifast Systems, LLC.

ASSOCIATE SUPPLIERS DIVISION (ASD)

The Associate Division Members are the key suppliers of the raw material, machinery, equipment and services used in the production of fasteners/formed parts. They provide the Institute expertise in their particular area and brief Members on new technology, operational practices, business developments and trade issues impacting their ability to supply the fastener manufacturing market. Without the Associate Suppliers, there would be no industry. Twice a year they provide very focused briefings on one of their particular areas of expertise, a unique value to the Members. This group is most ably chaired by Brian Bonebrake from Johnstown Wire Technologies, Inc.

MEMBERSHIP SERVICES

An often-asked question is, "What are my benefits from an IFI Membership?"

You are plugged into a great source of business information specifically related to the fastener industry. The IFI subscribes to several industry news services. The information is sifted through and the information that should be of interest to management is passed on immediately. You are plugged into the highest possible level of technical information. You are kept abreast of all fastener related standards activities, because the IFI is an active member in the following technical organizations:

- ASTM
- ASME
- SAE
- ISO
- RCSC

Your technical questions will be answered immediately. If our technical staff does not have the immediate answer, the issue will be researched and you will get an answer promptly.

When you find yourself in dispute with a customer, the IFI technical staff will provide you with a written opinion and/or create an IFI Technical Bulletin specifically addressing your issue to pass on to your customer as a third-party opinion.

When you find yourself in need of industry guidance where standards do not address your specific on-going needs, the IFI can create a working group and develop an IFI standard to provide the needed guidance for the future. Example: IFI was specifically asked about the need for a standard to address the tolerance for straightness and length on very long parts. This is something that can be addressed by creating an IFI standard.

You receive a free subscription to the IFI Technology Connection™. Non-members pay \$1,000 per year for a single-seat and \$4,000 per year for a multi-seat subscription.

Members receive assistance with market insight and connections. The most robust fastener market today is the aerospace fastener market. The IFI has an Aerospace Fastener Division that is headed by a past executive from that field, Pat Meade, former CEO of LISI, the Automotive Fastener Division headed by John O'Brien, former Sales VP for Federal Screw Works and Industrial Products Division headed by Bob Hill, former President and Owner of Hill Fastener Corporation.

Members receive legislative insight and representation in D.C. The IFI has a consulting group, The Laurin Baker Group in Washington that keeps their eye on legislation that impacts the fastener industry and business in general. They work directly with government officials to make sure the perspective of the fastener industry is considered on critical issues. The IFI greatly influenced the outcome of the Fastener Quality Act. The IFI has also worked successfully on specialty metals issues relative to the production of fasteners going into military products and on issues related to export controls. The IFI has had a significant impact on making these two issues the least less cumbersome possible for fastener suppliers.

You obtain networking with other fastener manufacturers and supplier executives that you cannot get anywhere else. Trade associations exist to afford collective representation of an industry's interests that individual companies cannot easily do sufficiently on their own. Their mission is to influence customers, governments and the public in the interests of the industry. Today trade associations are almost a

necessity in a globally competitive business world, and almost all governments recognize them as institutions that advance the nation's industries in ways no other organization could.

Members, and non-members contemplating IFI membership, frequently ask, Can I afford to be a member of a trade association? Is the money I pay worth the investment? By joining this association will I gain opportunities and information to better run my business? What key issues is our industry facing that an association can deal with better than I can on my own?

These are the key questions as to why companies join associations. IFI's challenge remains to provide a value proposition in which the reward consistently exceeds the cost. This is particularly true when confronted with difficult times, customers who don't want to understand the industry and its issues, and government decisions that directly impact the association's members. The association is the venue where ideas and information can be exchanged to the benefit of all.

What, therefore, is it that IFI strives to provide its Members?

- Networking opportunities with peers and key suppliers to the industry is almost everyone's first consideration.
- A voice and source of advocacy for the industry which is recognized by the public, the industry's customers, and the government.
- A forum to collectively develop and share the cost of information gathering, training, carrying out industry specific technical and business oriented projects, and as a vehicle to coordinate projects of joint interest to the industry and with the key customers of and the suppliers to the industry.
- A mechanism by which to represent the industry on technical and standards-based issues nationally and internationally in the interest of the member companies and their supply base.
- The vehicle to coordinate with other associations in N. American manufacturing's best interest.

These are the functions performed by the IFI's Divisions, Committees, Working Groups and by the Staff of the Institute, under the supervision of the Board of Directors. For 2018, the scope of these activities is briefly summarized below. IFI provided qualified staff to attend industry and government meetings requiring more than 60 days of travel on behalf of Members. This shared representation is a savings

because Members do not need to attend these meetings themselves. This also allows for coordination amongst and between the various bodies and activities rationalizing the decisions being reached by the industry. Over the course of the year IFI staff and/or designated Company Members will attend multiple day meetings of the following:

- ASTM – F16
- ASME – B18 and B1
- SAE – Fastener Committee and E-25
- International Standards Organization (ISO) – TC2
- Aerospace Industries Association working group and regular NASC meetings
- The Aerospace Government/Industries Working Group (GIFWG) on fasteners
- At the National Association of Manufacturers (NAM)
- International Economic Policy Committee and the Subcommittee on China - Coalition for a Sound Dollar
- Coalition for the Future of Manufacturing
- Associations Council
- OSHA Policy Group
- NLRB Working Group
- Selected consortium dealing with issues of importance to the industry
- The Research Council on Structural Connections (RCSC)
- The Metalworking Industries Associations Executive Committee
- The Automotive Industry Action Group (AIAG) – Packaging & Logistics and Quality Committees
- The Metalworking Manufacturing Coalition
- The Original Equipment Suppliers Association (OESA) meetings, workshops and seminars on the automotive supply chain.

The Institute thus provides the vehicle by which Member Companies can coordinate and collaborate with other like-minded organizations on issues of concern. These relationships leverage the political reach of the Membership in government affairs and on issues of business concern. This spreads the cost of such activities over a broader base and makes accessible the best thinking of the combined groups without incurring the costs belonging to multiple organizations. Key groups the IFI regularly coordinates with include:

Fastener Organizations:

- European Industrial Fastener Institute
- Fastener Institute of Japan
- Brazilian Fastener Institute
- Taiwan Industrial Fasteners Institute
- Chinese Fastener Association
- National Fastener Distributors Association
- Pacific West Fastener Association
- Midwest Fastener Distributors Association
- Fastener Industry Coalition
- Fastener Education Foundation
- Fastener Training Institute

Metalworking Organizations:

- Precision Metalforming Association
- Precision Machined Parts Association
- Spring Manufacturers Institute
- Forging Industry Association
- Tooling & Manufacturing Association
- American Bearing Manufacturing Association
- American Gear Manufacturing Association
- American Iron & Steel Institute
- Metal Treating Institute
- National Tooling & Manufacturing Association
- National Association of Manufacturers

Other key Institute activities include developing and/or acquiring and disseminating industry information. These surveys and studies are also able to be done on a shared cost basis. Included are:

- Benchmarking Surveys
- Wage & Benefits Surveys
- Washington newsletters from a variety of Association sources (NAM, AIA, etc.)
- Periodic emails, broadcast faxes and website updates on critical issues impacting the industry
- Regular economic updates
- Nuts & Bolts newsletter on what is happening at IFI and in the industry

Added in 2016 was the “IFI Wage & Benefits” survey and report covering all plant floor and middle management positions. The survey is being conducted again in mid-2019.

Finally, at our Annual Spring, Fall, and periodic Divisional meetings, critical issues speakers and presentations were hosted on a shared cost basis. In 2018 these included:

- Dr. Alan Beaulieu on the Economy
- Laurin and Jennifer Baker’s IFI Government Affairs Briefings
- Anders Karlsson (EIFI Chairman) on the Fastener Situation in Europe
- Dan Sharkey, BWST Law – on Contracts and Legal Considerations
- Timothy Saxon – on Graphite Electrodes
- Peter Hasencamp, Lucid Motors – On the Electric Vehicle Outlook
- Jodie Stewart, Exec Com – On Effective Communication for Leaders

- Salim Brahim, IFI – on the San Francisco Bay Bridge Remediation
- John McElroy, Blue Sky Productions, Inc. – “The Future of Mobility”
- Jeff Schuster, LMC Automotive – “Global Auto Outlook: Industry at Crossroads?”
- Thomas Ricketts, Bank of America – on the View of Future Capital Markets

Dealing with common problems and developing common opportunities, along with networking, are what drives most memberships in trade associations. Your participation in the IFI is always appreciated and gives you a voice in deciding what those issues will be and how they will be dealt with. Perhaps most important, it provides you a seat at the table in helping shape the future your business will exist in.

2016-2020 STRATEGIC PLAN UPDATE

Industrial Fasteners Institute

2016 - 2020 Strategic Plan

Updated March 10, 2019

GOAL 1: Maintain Financial Stability of the Institute

Objectives	Strategies	Responsibility	Evidence/Timeline	Status
A. Maintain a minimum of two years budgeted Operational Expense	<ol style="list-style-type: none"> 1. Keep Board advised as to IFI Reserves and potential calls on same 2. Establish investment Criteria for Carnegie 	<ul style="list-style-type: none"> • D. Walker • Board 	<ul style="list-style-type: none"> • As of 12/31/18 Reserves & Cash were ~\$2.07 million • Done: Guideline is 30% Equities / 70% bonds or cash 	<ul style="list-style-type: none"> • Achieved • As of 12/31/18 13% equities / 86% fixed / 1% cash
B. Develop Annual Budgets that balance with Revenue	<ol style="list-style-type: none"> 1. Forecast dues & non-dues revenue, general operating & project expense 2. Plan cost-shedding actions if revenue falls below forecast 	<ul style="list-style-type: none"> • Finance Committee • D. Walker & Treasurer 	<ul style="list-style-type: none"> • 2019 Budget prepared for approval • TBD 	<ul style="list-style-type: none"> • Complete • Ongoing
C. Budget Annual Meetings consistent with forecast attendance plus Board approved subsidy	<ol style="list-style-type: none"> 1. Historical based attendance forecast 	<ul style="list-style-type: none"> • D. Walker • B. Malcolm 	<ul style="list-style-type: none"> • Annual (spring) meeting • Fall Meeting 	<ul style="list-style-type: none"> • Ongoing
D. Implement as needed for non-dues revenue to be \geq 20% of total	<ol style="list-style-type: none"> 1. P & I sales & training revenue forecast for 20% of total 	<ul style="list-style-type: none"> • D. Walker & S. Brahimi and P & I Committee 	<ul style="list-style-type: none"> • In 2019 Budget • Review new standards annuity impact in 2019 	<ul style="list-style-type: none"> • Done

GOAL 2: Implement Continuous Improvement in Developing and Communicating IFI's Value Proposition

Objectives	Strategies	Responsibility	Evidence/Timeline	Status
A. Implement a social media presence	<ol style="list-style-type: none"> 1. LinkedIn / Twitter 2. Facebook for ECEC 	<ul style="list-style-type: none"> • D. Walker • L. Claus 	<ul style="list-style-type: none"> • Select media target audience to focus on and • Develop Schedule for each 	<ul style="list-style-type: none"> • Started <ul style="list-style-type: none"> - LinkedIn - Twitter
B. Promote IFI's technical excellence	<ol style="list-style-type: none"> 1. Identify specific projects to continue building industry reliance on IFI leadership 	<ul style="list-style-type: none"> • S. Brahimi 	<ul style="list-style-type: none"> • Industry practices & processes seminars • Potential R & D projects 	<ul style="list-style-type: none"> • Always in process

GOAL 3: Continue to Advance Member & Industry Training Opportunities

Objectives	Strategies	Responsibility	Evidence/Timeline	Status
A. Members Only Training (MOT)	<ol style="list-style-type: none"> 1. Develop 2 new MOT courses every year with initial goal of 10 topics given in rotation 	<ul style="list-style-type: none"> • L. Claus 	<ul style="list-style-type: none"> • 2018 <ul style="list-style-type: none"> - Raw Material - Why Fasteners Fail - Fastener Manufacturing <ol style="list-style-type: none"> a) Industrial & Auto b) Aerospace - Metallurgy & Heat Treat - Trouble Shooting Common Fastener Quality Issues - Basic Fastener GDT - Standards for Aerospace Fasteners - Transitioning to TS16949 to Meet the Required Schedule 	<ul style="list-style-type: none"> • In Process • No new courses to be developed in 2019 • Established 2019 dates
B. Evaluate Expanding MOT to Business & Commercial Topics	<ol style="list-style-type: none"> 1. Survey for most wanted/needed topics 2. Develop one & test in 2019 3. Evaluate further expansion 	<ul style="list-style-type: none"> • L. Claus, S. Brahimi, D. Walker & Working Group 		<ul style="list-style-type: none"> • In Process

Objectives	Strategies	Responsibility	Evidence/Timeline	Status
C. Members Only Apprenticeship	<ol style="list-style-type: none"> Design an outreach program for co-op students and under-employed workers Design with the guidance of a newly formed IFI Workforce Development Committee an online fastener industry specific program for Members only 	<ul style="list-style-type: none"> D. Walker L. Claus 	2018/19 <ol style="list-style-type: none"> Why are fasteners so important? Safety Blueprint Reading GDT SPC Applied Math Cold Heading 	<ul style="list-style-type: none"> Pending Board Approval Explore partnering with PMA to utilize 180 skills system with existing and new modules for online training
D. Trade Schools	<ol style="list-style-type: none"> Re-establish and develop programs at Rock Valley and Compton colleges. 	<ul style="list-style-type: none"> D. Walker L. Claus 	<ol style="list-style-type: none"> Relocate equipment Hire instructors Develop Curriculum Attract students 	<ul style="list-style-type: none"> Compton started new class in February 2019 Rock Valley scheduled class for April 2019

GOAL 4: Develop Activities to Interact with Key Customer Industries to Continue Enhancing IFI Value and Provide Vehicles for Member Interaction with Same

Objectives	Strategies	Responsibility	Evidence/Timeline	Status
A. Identify potential key industry customer programs where IFI could be seen as contributing technical expertise of value to the customer group(s)	<ol style="list-style-type: none"> Industrial <ul style="list-style-type: none"> Truck Off Road Farm Appliance Construction Other Automotive <ul style="list-style-type: none"> OEMs, Upper Tiers Aerospace <ul style="list-style-type: none"> Air frame, Engine 	<ul style="list-style-type: none"> Division Working Groups/Managers with IFI Technical Staff Examples: GM Fastener Task Force; USCAR; etc. Topics: New product launches; materials/coatings issues; government caused issues 	<ul style="list-style-type: none"> Schedule meetings with possible partners Goal: one such partnership per Division in 2019 	<ul style="list-style-type: none"> Aerospace and Automotive: Done Industrial Products Truck Capacity Presentation at Fall 2017 Meeting

GOAL 5: Succession Planning for Institute Management

Objectives	Strategies	Responsibility	Evidence/Timeline	Status
A. Technical Engineering Director succession planning	<ol style="list-style-type: none"> Identify potential candidates basis: <ul style="list-style-type: none"> Education – M/E desirable Training – quality, standards, engineering drawing, ISO systems, manufacturing, metallurgy Direct experience in the industry Has written technical documents Position description provided 	<ul style="list-style-type: none"> Done 	<ul style="list-style-type: none"> Done 	<ul style="list-style-type: none"> Salim Brahim commencing work 10/1/2015
B. Managing Director succession planning	<ol style="list-style-type: none"> Determine criteria important to selection <ul style="list-style-type: none"> Education – BS/MBA? Association/Business or Industry Experience? Position Description Provided Previous Senior Officer background or Field Grade military officer background 	<ul style="list-style-type: none"> Done 	<ul style="list-style-type: none"> Done 	<ul style="list-style-type: none"> Dan Walker commencing work 8/1/2018
C. Division Manager	<ol style="list-style-type: none"> Hire a Program Manager to work with the Division Managers as an assistant and liaison for the Association, the co-op outreach program, and community college ECEC awareness. Time Line for Each Position to be determined 	<ul style="list-style-type: none"> Executive Committee and Board 		<ul style="list-style-type: none"> Division III candidate to be voted at spring 2019 meeting Division II candidate search is active

2018-2019 CALENDAR OF MEETINGS AND EVENTS

2018

FEB 12 – 16	FTI Fastener Training Week	Los Angeles, CA
FEB 29 – MAR 2	ISO TC2 ad hoc Meetings	Milan, Italy
MAR 3 – 6	IFI ANNUAL MEETING	The Sanctuary at Kiawah Island, SC
MAR 13	<i>Troubleshooting Common Fastener Quality Issues</i> MOT	IFI Headquarters
MAR 14	<i>Fastener Standards 101</i> MOT	IFI Headquarters
MAR 15	<i>Fundamentals of Fastener Metallurgy and Heat Treating</i> MOT	IFI Headquarters
MAR 21	Division II Meeting	Costa Mesa, CA
APR 2 – 6	FTI Fastener Training Week	IFI Headquarters
APR 11 & 12	Fastener Fair	Huntington Convention Center – Cleveland, OH
APR 18	<i>Troubleshooting Common Fastener Quality Issues</i> MOT	Santa Ana, CA
APR 19	<i>Fundamentals of Fastener Materials – Aerospace</i> MOT	Santa Ana, CA
APR 30 – MAY 1	FTI Automotive Fasteners Class	Troy, MI
MAY 2 – 4	FTI Hydrogen Embrittlement Class	Wixom, MI
MAY 16	Division III Meeting	Birmingham, MI
MAY 21 – 25	ASTM Committee Week	San Diego, CA
MAY 23	ASME B18 Meeting	San Diego, CA
JUN 6 – 8	RCSC Annual Meeting	St. Louis, MO
JUN 19	<i>Fundamentals of Fastener Materials – Automotive</i> MOT	Charter Steel
JUN 20	<i>Charter Steel Mill Tour</i> MOT	Saukville, WI
JUL 16	Eagles Dinner	The Glen Club, Glenview, IL
JUL 17	Division III Meeting & “JDF” Golf Outing	The Glen Club, Glenview, IL
JUL 9 – 13	ISO TC2 ad hoc Meetings	Paris, France
JUL 25	<i>Troubleshooting Common Fastener Quality Issues</i> MOT	Troy, MI
JUL 26	<i>Basic Fastener Geometric Dimensioning and Tolerancing</i> MOT	Troy, MI
AUG 20 – 24	FTI Fastener Training Week	Chicago, IL
SEPT 12	SAE Fastener Committee Meeting	Troy, MI
SEPT 19	ASME B18 Meeting	Charleston, SC

SEPT 22 – 25	IFI FALL MEETING	The Ritz-Carlton at Half Moon Bay, CA
OCT 14 – 18	MS&T 18 Conference – Environmental Degradation and Embrittlement of Structural Materials	Columbus, OH
OCT 15 – 19	ISO TC2 Plenary Meetings	Montreal, QC, Canada
OCT 17	Division II Meeting	Marriott, Costa Mesa, CA
OCT 30 – NOV 1	Fastener Show	Las Vegas, NV
NOV 5 – 7	ASTM Committee Week	Washington, DC
NOV 8	ASTM Committee F07 HE Workshop	Washington, DC
NOV 14	ASTM F16.96 Subcommittee on Bolting Technology Committee Mtg.	IFI Headquarters
DEC 3 – 7	FTI Fastener Training Week	IFI Headquarters
DEC 5	Division III Meeting	Birmingham, MI
DEC 11	<i>Understanding the Basics of Aerospace Fasteners</i> MOT	Santa Ana, CA
DEC 12	<i>Fastener Standards 101 – Aerospace Version</i> MOT	Santa Ana, CA

2019

JAN 29	<i>Why Fasteners Fail</i> MOT	Troy, MI
JAN 30	<i>Troubleshooting Common Fastener Quality Issues</i> MOT	Troy, MI
FEB 5	<i>Fastener Manufacturing Basics</i> MOT	IFI Headquarters
FEB 6	<i>Fundamentals of Fastener Metallurgy and Heat Treating</i> MOT	IFI Headquarters
FEB 7	<i>Standards 101 – Industrial Version</i> MOT	IFI Headquarters
MAR 9 – 12	IFI ANNUAL MEETING	The Westin Riverwalk, San Antonio, TX
MAR 20	Division II Meeting	Embassy Suites, Santa Ana, CA
APR 1 – 5	FTI CFS Week	Cleveland, OH
APR 9	<i>GDT Part 1 – Full Day</i> MOT	Santa Ana, CA
APR 10	<i>GDT Part 2 – Half Day</i> MOT	Santa Ana, CA
APR 24	IFI Safety Committee Meeting	IFI Headquarters
MAY 7	<i>Fastener Materials – From the Mill to the Header - Automotive & Industrial Version</i> MOT	Saukville, WI
MAY 8	Charter Steel Tour	Saukville, WI

MAY 14 – 16	IFME (International Fastener Machinery Expo)	Georgia World Congress Center
MAY 15 – 16	IFI Washington Fly-In	Washington, DC
MAY 22	Division III Meeting	Birmingham, MI
MAY 21	Fasteners 101 – Auto Focus	Cobo Center, Detroit, MI
MAY 22 – 23	Fastener Fair USA	Cobo Center, Detroit, MI
JUN 3 – 5	Fastener Tech 2019	Donald Stevens Convention Center, Rosemont, IL
JUN 6	<i>GDT Part 1 – Full Day MOT</i>	Chicago, IL
JUN 7	<i>GDT Part 2 – Half Day MOT</i>	Chicago, IL
JULY 22	Eagles Dinner	Royal Park Hotel, Rochester, MI
JULY 23	John D Fischer Golf Outing	R&S Sharf Golf Course at Oakland University
AUG 19 – 23	FTI CFS Week	Chicago, IL
SEPT 17 – 18	ASME B18 and SAE Fastener Committee Meeting	IFI Headquarters
SEPT 21 – 24	IFI FALL MEETING	Renaissance, Nashville, TN
OCT 15	<i>Standards 101 – Auto and Industrial Version MOT</i>	Independence, OH
OCT 16	IFI Safety Committee Meeting Seaway Bolt & Specials Corp.	Columbia Station, OH
DEC 2 – 6	FTI CFS Week	Chicago, IL
DEC 10	<i>Basic Aerospace Fasteners MOT</i>	Santa Ana, CA
DEC 11	<i>Standards 101 – Aerospace Version MOT</i>	Santa Ana, CA



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