INDUSTRIAL FASTENERS INSTITUTE
2023

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INTRODUCTION
Welcome to the twenty-third 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 2023 and project what may come to our industry in 2024 and beyond.

MANAGING DIRECTOR’S FOREWORD
2023 was another year marked by challenges for manufacturers worldwide. Continued supply chain disruptions, skilled labor shortages, geopolitical tensions and inflationary pressures were ever-present. Although these headwinds persisted, there were some opportunities. Many North American manufacturers who are customers of IFI members pressed on with plans for re-shoring and near-sourcing, bringing production back home and re-establishing their supply chains to mitigate supply disruptions and improve responsiveness.

Technological advancements in automation, robotics and the Internet of Things (IOT) were all top of mind for manufacturing executives, and adoption of these technologies accelerated due to customer demand, as well as the obvious efficiencies in productivity and the ability to make decisions based on data. The growing demand for sustainable energy and eco-friendly products also created opportunities, with government investment and incentives driving demand. Policies such as the US CHIPS and Science Act and the Inflation Reduction Act provided funding and incentives for US manufacturers serving key sectors.

INSTITUTE OPERATIONS
IFI held its Annual Meeting at the Meritage Resort & Spa in Napa, California from March 4 – 7, 2023, which garnered record attendance with 239 attendees (159 delegates from 89 companies, and 80 spouses). That success was followed by another excellent showing at the Fall meeting held at the Omni PGA in Frisco, Texas, from September 23-26, 2023. At the Fall meeting we had 74 companies represented with total 99 delegates and 18 spouses. IFI gained a combined 51 first-time attendees at our Spring and Fall meetings in 2023, a statistic that shows we’re attracting and engaging new member
representatives. This is particularly important now, more than ever before, as many industry stalwarts are beginning to retire and making way for the next generation in our industry. The Spring 2024 meeting registration has already opened, and we currently have 150 delegates registered, representing 88 companies. 13 of those representatives are attending their first ever IFI meeting. Additionally, our meeting attendees include 58 spouses. The spouses are a very important factor in growing membership engagement and close personal relationships during IFI meetings, and we’ve had excellent participation because we’ve focused on creating an engaging program for everyone. The value proposition of attending IFI meetings is obvious, and our attendance shows it.

Fastener Fair USA was held at the Music City Center in Nashville, Tennessee from May 16-17, 2023 with excellent attendance. IFI once again exhibited at the show. The International Fastener Exhibition (IFE show) was very well attended again in Las Vegas from October 9-11, 2023, where we again exhibited. Trade shows have seen a measurable uptick in participation, showing that in-person events are still as important as ever for building lasting business relationships.

The Automotive Industry Fastener Group (Division III) met in-person five times in 2023, twice with the Spring and Fall meetings, and regionally on May 11 at Munro and Associates in Auburn Hills, Michigan; on July 18 at Shepherd’s Hollow Golf Club in Clarkston, Michigan; and again, on November 30, 2023 to wrap up the year at the Community House in Birmingham, Michigan. At each meeting an automotive industry expert has been featured as part of the meeting program. The division membership finds a tremendous amount of value in their regional meetings because they provide program updates, relevant speakers, and plenty of time for networking with industry peers.

The Aerospace Division (Division II) met regionally twice in 2023, on April 19 at the Marriott Long Beach, and again on October 25 at the Marriott in Santa Ana, California. Like the Automotive Division, Aerospace division members find great value in attending these meetings because of the outside expert speakers, programming, standards updates and networking opportunities.

More detailed updates for the respective divisions, member training, government affairs and IFI’s technical updates will be covered in more detail later in this Annual Report.
IFI By The Numbers

IFI’s membership has grown tremendously, adding 14 new companies since our last Annual report.

- Bluewater Thermal Solutions
- Chicago Fastener Manufacturing
- Chicago Rivet & Machine Company
- CMC Anchoring Systems
- CSM Fastener Products
- Dimac S.r.l
- FPM Heat Treating
- Industrial Steel Treating Company
- Indux, SA de CV
- Jerhen Industries, Inc.
- King Steel Corporation
- Level 1 Fasteners
- SmartCert
- Watershed Data Group

IFI ended 2023 with a reserve fund of $1,832,462, below the strategic plan goal of $2 million set by the Board. The drawdown of the reserves was due to a number of factors, such as increased costs for meetings and events, coupled with an increase in operating costs due to inflation. IFI had not raised dues for members in over 18 years, but for 2024 a 7% dues increase was approved by the members at their Fall meeting in Frisco, Texas. The additional revenue generated by the dues increase and new member acquisitions will help build reserves back to the strategic plan goal and allow for continued investment in new membership benefits.

IFI’s investment in member benefits is strategic and will pay big dividends well into the future as we grow the membership and expand IFI’s services and value proposition. IFI’s reserves provide a buffer that enables us to act quickly and confidently to do the things our members need the most. The reserves ensure that we will be able to withstand the next major economic downturn, and that we can provide uninterrupted operations in service to the members.
Sales of the 2021 Book of Fastener Standards (a.k.a. Inch Fastener Standards, 11th Edition) continue to drive non-dues revenue, exceeding the budgeted revenue. The Online Book of Fastener Standards, in particular, outpaced our sales estimates by $12,000. The new book was released in early 2021 as both a hardcover and online version. The previously popular USB key lock version was done away with in lieu of the online option several years ago. This publication has generated a steady stream of new revenue in both the hard cover and electronic versions, and IFI will continue to count on this revenue to cover a portion of operational costs. The IFI Technology Connection™ subscription sales remained strong, and we expect growth in 2024 with the new website platform. The increased sales of this subscription compared to prior years speaks to the value it brings its users and the upgrades that have been made over time.

**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 both the Precision Metalforming Association (PMA) and Forging Industry Association (FIA) continues to produce cost savings, access to 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 Aircraft 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.

Soaring Eagle Awards

The Industrial Fasteners Institute Soaring Eagle Award recipients are those individuals who have made outstanding and significant contributions to the fastener industry.

The 2023 Soaring Eagle Technology Award went to Henry J. Hogue

In memory of Henry Hogue for his remarkable innovations and pioneering contributions to fastener manufacturing technology. The extraordinary fruits of his creativity and labor resulted in 10 U.S. patents. His most impactful inventions were apparatus for wire drawing and separately for nut manufacturing. Henry Hogue’s numerous innovations led to important and enduring advancements in fastener manufacturing technology and equipment design. These advancements represent a foundational pillar of the state of the art of cold forging and fastener manufacturing today.

Henry J. Hogue
(Awarded Posthumously)
The 2023 Soaring Eagle Service Award went to Bob Hill

This award is in recognition of your many years of dedication and service to the Institute as an active member, industry advocate, officer, Chairman of the Institute, and later as IFI’s Industrial Products Division Manager. Your thoughtful counsel, friendship, and liaison with the IFI members and allied industry organizations exemplify what an industry leader should strive to become. Your practical and insightful input and leadership have impacted the overall health and well-being of the Institute, its members, and the fastener industry.

The 2023 Joe Greenslade Young Leadership Award went to Nicholas Lessnau

In recognition of your remarkable achievements during the first 10 years of your career in the areas of fastener metallurgy, manufacturing process optimization, product development, and your contributions to the development of fastener industry standards and practices.
THE ECONOMIC ENVIRONMENT

As we move into 2024, a retrospective look at the North American landscape in 2023 reveals an environment defined by contrasting currents. The economy surprised many people with its resilience, outperforming expectations in terms of growth, labor market strength, and even a slowdown in inflation. However, this positive story was overshadowed by persistent geopolitical tensions and emerging risks that raise concerns for the future.

GDP surpassed early forecasts, buoyed by consumer spending, a rebounding manufacturing sector and increase investment in infrastructure and technology by the federal government. The jobs market cooled compared to the post-pandemic boom but remained strong with low unemployment.

The most commonly reported unemployment number (U-3) was reported to be 3.7%, slightly higher than the 3.5% reported in 2022. This reported rate is most often cited by the media and includes individuals who are actively seeking a job. The “Real” unemployment rate, known as U-6, has a broader definition in that it includes the underemployed, the marginally attached, and discouraged workers. The U-6 unemployment rate in December 2023 was reported much higher at 7.0%.

Unemployment Rates by State
Seasonally Adjusted, December 2023
(U.S. Rate = 3.7%)

(Source: U.S. Bureau of Labor Statistics)
U-3 Unemployment Rate
January 1, 2023 – December 31, 2023

Number of Unemployed Persons Per Job Opening, seasonally adjusted
December 2008 – December 2023

Source: U.S. Bureau of Labor Statistics
Real GDP increased to +2.5% during 2023, in contrast to the +2.1% increase during 2022. Industrial production moved up 0.1% in December 2023 and declined 3.1 percent at an annual rate in the fourth quarter. Manufacturing production at U.S. factories rose in November, enhanced by automotive output following the strikes. Manufacturing production elsewhere was weaker in large part due to higher borrowing costs and reduced demand.

Contributions to Percentage Change In Real GDP by Manufacturing
Q3 2017 – Q1 2023
2023 ended up being a year of unexpected strength in the stock market. After a rocky 2022 that was underpinned by inflation fears and predictions of recession, many were prepared for 2023 to be much the same. Instead, the year defied predictions and even produced a rally toward year end that left those in the market feeling cautiously optimistic. The S&P 500 rose 26.4% (including dividends), which was the highest climb since 2019. The Dow Jones Industrial Average came in up 13.4%, and the Nasdaq Composite rose a surprising 43%, led by tech companies such as Amazon, Nvidia and Microsoft. The year ended strong as well, with Q4 seeing a further increase of 12.1% for the S&P 500.

The market rally was driven by a combination of factors. Inflation fell due to a cooler economy, slowing demand, and supply chain improvements. Strong job growth also served to prop up the economy, and the Federal Reserve signaled in Q4 that they would pause rate increases, and that they might even cut rates during 2024. This provided a boost to the markets. Many companies also performed well, showing that they had adapted to the tumultuous environment and demonstrating their resiliency.

The technology sector was a clear winner, led by semiconductors, software companies and cloud computing. Higher oil and gas prices lifted the energy sector, which many economists attribute to the ongoing war in Ukraine and unrest in the middle east. While 2023 ended better than it started, concerns have been raised about the prospect of 2024 due to continued geopolitical tensions, the predictions of an economic slowdown, gridlock politics, and pressures on consumer sentiment that make the outcome less certain.
Overall, the agricultural equipment market reported steady sales and revenue growth in 2023, suggesting that the market demand is healthy. This aligns with rising commodity prices and farm incomes, encouraging equipment investment. Buyers are increasingly prioritizing precision agriculture, automation, and emission reduction solutions.

The global Agricultural Machinery Market size is estimated at $69 billion in 2024 and is expected to reach $89.76 billion by 2029, growing at a CAGR of 5.40% from 2024 to 2029. The market is driven by increasing rates of mechanization in developing countries. The decreasing land productivity, water resources, and labor force increased the need for farm mechanization in developing countries.

Aging machinery across North America necessitates equipment upgrades, driving market activity for the top farm implement manufacturers. Like other industries, farm implements manufacturers are experiencing an increasing focus on sustainable practices like biofuels and electrification. Industry leader John Deere is focused on AI and automation, reflecting broader market trends towards precision agriculture and improved efficiency. AGCO and CNH Industrial experienced solid financial performance in the 2023 agricultural equipment market but with some nuances. AGCO focused more on precision AG, while CNH Industrial prioritized electrification and alternative fuels.
Both companies reported similar challenges with rising manufacturing costs and supply chain disruptions. Like Deere, both companies benefited from favorable market conditions like high commodity prices and farm incomes.

**Lawn & Garden Equipment**

North America's lawn and garden equipment industry experienced a varied performance in 2023 compared to the previous year. While specific segments flourished, others encountered obstacles. The initial surge in demand for home improvement projects driven by the pandemic extended into 2022 but gradually waned in 2023 due to mounting inflation and economic uncertainties.

Although specific revenue figures for all North American lawn and garden equipment manufacturers are not readily accessible, industry reports and estimates indicate that the overall market grew by 2-4% in 2023, decelerating from the double-digit growth observed in 2022. Segments such as electric lawnmowers and trimmers continued expanding due to sustainability trends.

Manufacturers concentrating on high-end equipment generally outperformed those in the budget segment. E-commerce continued to gain momentum as a prominent sales
channel for lawn and garden equipment, with manufacturers increasingly integrating electrification, intelligent features, and automation into their products.

Like other manufacturing sectors, lawn and garden equipment manufacturers grappled with escalating materials, labor, and transportation costs. Inflation and economic uncertainties dampened consumer confidence and spending, impacting the demand for non-essential items like lawn and garden equipment.

The outlook for the North American lawn and garden equipment industry in 2024 is cautiously optimistic. Factors such as sustained emphasis on outdoor living, product innovation, and potential alleviation of supply chain disruptions should present growth opportunities.

**Heavy Trucks**

In 2023, the North American Class 8 heavy truck market experienced a resurgence in demand and sales compared to the previous year. After a period of economic uncertainty and supply chain disruptions in 2022, the industry rebounded strongly, driven by various factors, including robust freight demand, favorable economic conditions, and increased fleet replacement cycles.
Key indicators such as freight volumes and manufacturing activity showed signs of recovery, leading to a renewed appetite for new Class 8 trucks among fleet operators and trucking companies. This uptick in demand resulted in higher sales volumes and improved market performance for manufacturers and dealers alike.

Additionally, technological advancements and regulatory changes continued to shape the Class 8 truck market landscape, with a growing emphasis on fuel efficiency, emissions reduction, and driver safety. Manufacturers responded by introducing innovative features and options to meet evolving customer preferences and regulatory requirements. Large fleets like UPS and Amazon are implementing long-term renewable natural gas (RNG) strategies.

Overall, the North American Class 8 heavy truck market in 2023 outperformed expectations, signaling a return to growth and stability after the previous year's challenges. The industry's resilience and adaptability, and favorable market conditions contributed to a positive trajectory and renewed optimism among stakeholders.
**Trade Shows**

In 2023, the Industrial Fasteners Institute engaged in three trade show events within the fastener industry. During May 2023, IFI staff were involved both as an exhibitor, and educational keynote speaker at the Fastener Fair USA event in Nashville, TN. Subsequently, IFI participated in the MidWest Fasteners Association's "Fastener Week" in Chicago, IL in August. Our tradeshow activity culminated in October, as we exhibited at the International Fastener Expo in Las Vegas, NV.

These industry gatherings offer invaluable platforms for a concentrated convergence of fastener industry professionals, encompassing manufacturers, distributors, engineers, and buyers. This enables the IFI to directly engage with its target audience and present its value proposition as an engineering-oriented association representing the North American fastener manufacturing industry. The IFI leverages its booth to showcase its technical expertise and training resources through presentations, demonstrations, and educational materials.

IFI's Managing Director, Dan Walker and Industrial Division Manager, Preston Boyd, manned IFI's booth at the IFE Show
Tradeshows present the opportunity for direct interaction and establishing relationships with potential IFI Membership candidates. The trade shows gather contact information from potential member companies, which can be utilized for future marketing and outreach endeavors.

Participating in fastener industry-related trade shows represents a valuable investment for the Industrial Fasteners Institute. By capitalizing on the opportunities presented by these events, the IFI can enhance its brand awareness, generate leads, foster relationships, educate the industry, and conduct valuable market research.

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 Distributors Association (NFDA), 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 signal strength, while readings below 50 signal weakness.

The seasonally adjusted Fastener Distributor Index (FDI) ended the year with a sub-50 reading, coming in at 47.5 in December. This was a significant deceleration from November’s 54.3 reading, and nearly identical performance when compared to the year prior. More information on the FDI and the Forward Looking Indicator (FLI) can be found here: https://www.fastenersclearinghouse.com/fchlibs/pdfs/FDI_Report_December_2023.pdf.
**Key Economic and Market Factors**

Economic and market conditions in 2023 were primarily comprised of the following factors:

1. Lingering issues from 2022
2. Continued OEM demand volatility
3. UAW strike at Ford, General Motors, and Stellantis
4. EV trending down

**Lingering Issues from 2022**

Economic and market issues that carried over into 2023 continued to affect the Automotive Division members’ ability to service their customers and to maintain acceptable profitability. These issues included supply chain interruptions, cost inflation in raw material and labor, shortages in skilled labor, strong customer demand, rising interest rates, and tighter credit.

**Supply Chain Issues**

Supply chain issues from 2021 and 2022, most notably for semiconductor chips, continued into the start of 2023, albeit at a significantly lesser effect. Chip supply started to improve in 2022 as foundries in Taiwan reallocated capacity back to automotive that had been shifted in late 2020 due to COVID-19 and resulting automotive shutdowns. By 2023, automotive assembly plants had changed how they dealt with remaining supply shortages; instead of shutting down plants completely, they adjusted production volumes and kept production lines running. While this still impacted supplier demand schedules, the effects were noticeably less than the prior two years. Lost production globally in 2023 was about 524K vehicles, down almost 90% from the effect on 2022. (Sources: S&P Global and Autoforecast Solutions)
Cost Inflation

Cost inflation for raw materials, skilled labor, and other materials and processes used for cold-formed fasteners continued to rise through 2023. The pace of cost increases on cold-heading wire has eased somewhat, rising an average of 0.5% above 2022. However, these costs remain almost 50% higher than pre-pandemic levels.

Wage increases continued to escalate in 2023. Despite dropping off somewhat from the increases seen in the prior two years, manufacturing wage increases in 2023 for the U.S. still averaged the third highest in any year since 2000. (Source: Manufacturing Wage Growth Tracker - Federal Reserve Bank of Atlanta)
Shortages in skilled labor continued to be an issue for Automotive Division members in 2023. Although meeting customer demand was less problematic than in 2022, customer requirements remained strong through the first three quarters, posing a challenge to members to keep machines running with skilled operators that simply are no longer available. This, along with continuing attendance issues, placed a greater priority on members’ efforts to develop effective ways to recruit, train, and keep skilled workers.

North American automotive OEM demand remained exceptionally strong through the first nine months of 2023, until the start of the UAW strike in September. As the supply chain stabilized, particularly for semiconductor chips, most members were better able to keep up with customer requirements. However, premium freight costs remained a drain on the bottom lines for most Automotive Division members. Light vehicle production in 2023 was up 9.5% from 2022, with most of that growth occurring in the months prior to the UAW strike. The 4th quarter production decrease was largely driven by the strike and normal year-end production down time. (Source: S&P Global)

Rising interest rates and tighter credit are impacting IFI members, most of which are considered “small businesses”, by raising the cost of their debt and investment in capital equipment and plant space as they try to meet higher customer demand and grow their businesses. The cost of borrowing has risen over 50% since 2019. In addition, credit has gotten much tighter – the approval rate of small business loans is half of what it was in 2019. (Source: Kiplinger, 11/29/23)
Higher interest rates and tighter credit will also impact the market demand for light vehicles as consumer car loans are more expensive than they have been for 40 years. (Source: Cox Automotive)

**Interest Rates on 60-Month Car Loans**
(Statista 2024)

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**UAW Strike**
The United Auto Workers union conducted a series of rolling strikes at selected assembly plants of the Big 3 (Ford, General Motors, and Stellantis) starting mid-September and finally ending at the end of October. The historic six-week strike ended with wage and benefit agreements that included a 25% pay increase to be phased in over the 4-1/2 year term of the new contract. In addition, the cost-of-living adjustments that had been suspended in 2009 during the Great Recession were resurrected, bringing the net increase to UAW workers to about 33%. The wage increase will cause the Big 3 labor costs to rise over $20 million cumulatively. It is anticipated that new vehicle prices will increase to recover this, with the cost impact per vehicle between $850 and $1,000. In addition to the wage and benefit agreements, Stellantis agreed to re-open the plant in Belvidere, IL which had been closed in February of 2023. The plant will re-open as an EV battery production facility. Also, GM agreed to put the Ultium Cells LLC joint-venture (with LG Energy Solutions) battery plant under the UAW agreement.

The impact of the UAW success with the Big 3 will likely be felt beyond the domestic OEMs vehicle price increases. The president of the UAW, Shawn Fain, stated after the
strike was settled that the UAW will now “organize like we’ve never organized before”. The new focus for the UAW is organizing efforts on the non-union German, Japanese, and Korean assembly plants and new EV startups, starting with Tesla. As a result, to remain competitive for skilled labor, automotive tier suppliers, including Automotive Division members, will face stiffer wage competition in 2024 and beyond.

**Softening EV Demand**

Despite state and federal government regulatory pressures to transition to electric vehicles, and the response of the traditional OEMs and EV start-ups to expand production capacity and product offerings, the growth in the EV market has stalled as of the last half of 2023. Headwinds for the EV market includes the difficulty in meeting governmental mandates for localization of battery production since the federal government has been slow to approve rare metals refining permits in the U.S. Furthermore, there is a significant lack of capacity and reliability of the current electrical grid, and the EV charging infrastructure remains inadequate. EV is also not ideal for heavy commercial vehicles (as opposed to hybrids with internal combustion engines or hydrogen fuel cells). Lastly, the affordability for EV vehicles remains out of reach for many Americans. As a result, EV manufacturers have delayed launch timing for some new vehicles and cut production forecasts for some models.

Nevertheless, the market share for pure EV will continue to rise in the coming years, with the majority of market share to finally tip in favor of EVs by the early 2030s. (Source: S&P Mobility)
2024 Forecast

The outlook for 2024, barring the appearance of some other black swan event, seems to be the brightest since before the pandemic. Although the North American production forecast is only projected to be up 1.1%, the market seems to have stabilized. Many of the headwinds Automotive Division members dealt with in the past several years, such as pandemic shutdowns; severe supply chain interruptions; exceptional inflation in raw material, labor, and other costs; historic increases in interest rates; etc., are all moderating or disappearing for 2024.

Additionally, the North American automotive market is entering a period of significant launch activity of new models not seen in many years, driven by introduction of new EV models as well as ICE re-designs and refreshes. There will be 35 new vehicle launches in 2024, with even more in the following three years. This poses significant opportunities for new parts supplied by Division III members.

Despite this good news, IFI members still must contend with the shortage of skilled labor and the financial challenges posed by higher interest rates, tighter credit, and unrelenting pressure on wages, all of which could potentially stress the financial health of some members and their automotive tier customers.
Aerospace Market

Aerospace and Defense Markets Recap

The aerospace and defense markets experienced increased post pandemic rebound in 2023 for passenger growth in commercial aviation, program growth in defense, and increased MRO (Maintenance, Repair and Overhaul) activity in both sectors with many division members seeing growth in their customer orders. At the same time the aerospace industry faced issues with labor, raw materials, and quality for both existing and new platforms. Adoption of new technologies such as Digital Twins, AI, additive manufacturing, Sustainable Aviation Fuel (SAF), and automation are becoming key drivers in the future growth of both the commercial aerospace and defense markets providing prime manufacturers with improved products and operational efficiencies.

Commercial Aircraft Market Recap

In the commercial aerospace market, both Boeing and Airbus project more than 40,000 new aircraft will be added to the global fleets in the next 20 years with the emphasis on fleet replacement, fuel efficiency, reducing carbon footprint, improving maintainability, and developing alternative fuels. Adoption of SAF fuels for current fleets is progressing and engine manufacturers are exploring both increased efficiency through new design like the Rolls-Royce Ultra Fan as well as certification of current production engines as being 100% SAF compatible.
Not all was positive in the engine world for new technology adoption in 2023 as RTX (formerly Raytheon Technologies), the parent of Pratt & Whitney, had recalls of Geared Turbofan (GTF) engines due to contamination of the powder used to additively manufacture high pressure turbine discs. As the pace of innovation quickens in the commercial aerospace sector a key issue will be part and process certification and quality assurance going forward. Aerospace Division member companies maintain quality systems in accordance with AS9100 and take pride in the exceptional quality of their products and processes.

Both the commercial aerospace and defense sectors face challenges with workforce development and retention as production and maintenance rates increase combined with new technology adoption. According to the Aerospace Industries Association (AIA) in their 2023 Facts and Figures, 57.7% of the aerospace and defense workforce employment is in the supply chain where our Division members are key links. Aging workforce retirements resulting in the loss of tribal knowledge will be a key issue in the coming years as a new generation of aerospace labor gets up to speed. In response, our division members and the Institute made great strides in 2023 to implement new training for our fastener industry employees through our cooperation with Compton Community College, IFI member only training programs, and expanded Workforge™ web-based training program.
Division members and Institute staff were also instrumental in working with industry sponsored task groups to develop usable alternatives to replace cadmium plating in aerospace applications. Task groups are working to develop industry consensus for new standards like the SAE AS2461 and spearheading an IFI led group to assure adequate supply chain capacity for the anticipated change from cadmium to the new Zinc-Nickel coatings. These task group initiatives are in addition to IFI staff members continuing service as voting members on key industrial and aerospace standards development organizations like SAE, ASTM, and National Aerospace Standards Committee.

Global geopolitical tensions played a large role in the defense industry in 2023 with conflicts in Ukraine and Israel at the forefront. Increased demand for military aerospace and defense production increased during 2023 with DoD suppliers seeing growth in most order volumes. While current defense airframe production rates face possible slowdowns the demand for MRO supplies has grown keeping pressure on the supply chain and our division members to assure on time deliveries for both new production and legacy system maintenance. Innovations in Unmanned Aerial Systems (UAS), space systems, and ordinance have increased supply chain pressure as well as these new systems with unique components demand expedited delivery schedules to meet market demand.
Another area of growth in 2023 was the Electric Vertical Take Off and Landing (eVTOL) aircraft market. Numerous startups began moving from prototype to short production run development levels creating further stress on the supply chain as the companies matured and began placing component orders in larger quantities with short lead times. In all the IFI Aerospace division Member and Associate companies had a challenging year in 2023 and the coming years look to be just as challenging, but manageable, as our members take the needed steps to assure that their well trained and equipped workforces are up to the challenge.
CONTINUING EDUCATION AND TRAINING

In the opinion of the experts, the “Great Resignation” is over. Many will recall the alarming news from the Bureau of Labor Statistics in late 2021 telling the public that workers were voluntarily quitting their jobs in record numbers. Of course, this message did not need to be publicized to our membership because they were experiencing it firsthand. Many pundits were left scratching their heads because these voluntarily sidelined workers were not rejoining the workforce. “Where did they go?”, and “would they come back?” were the questions of the day.

In 2023 we got the answers. In fact, many of these individuals were coming back into the workplace. However, in an unexpected twist, they were coming back to new industries and new careers. So much so that some would rebrand the “Great Resignation” label to the “Great Realignment.” To some degree we saw this playing out with IFI members. Traditionally we start out our in-person classes with participants briefly introducing themselves. Unlike ever before we began seeing more mid-career individuals in our classes with a common introduction something like this, “I am new to the fastener industry but have “ten years” experience in… “ (insert any number of non-manufacturing, non-fastener related careers.)

Most recently, human resource professionals have chosen to rebrand it once again to the “Great Reskilling.” This latest description is perhaps the most accurate and highlights the necessity that all these individuals require the development of new skills, education, and knowledge. Therefore, training and educational assistance to our members has proven not only beneficial but essential.

As the following report will highlight, IFI continues to offer members a variety of different training and educational opportunities and resources. In addition to building on the existing training and educational offerings, in 2023 IFI transitioned access of the on-line Learning Management System (LMS), Workforge™ (formerly 180 Skills) from an elected paid choice to a member benefit and formed an Apprenticeship Committee to begin developing a U.S. Department of Labor certified apprenticeship program.
Member Training

Training and education remain a popular and well utilized member benefit. In 2023, we continued the 2022 post-pandemic model of offering a hybrid mix of in-person and virtual learning opportunities. We conducted six in-person member training sessions and four webinars. The in-person training classes are all previously developed classes that are regularly updated and currently conducted about every two years. The 2023 in-person classes were held in Santa Ana, CA and Independence, OH. Two of the four webinars were entirely newly developed material and the other two completely revised webinars previously presented in 2020. The hybrid schedule again proved to strike a good balance with a mix of all-day (in-person) offerings attended by about fifteen to twenty participants and two-hour, on-line sessions attended, on average, by about fifty participants.

IFI’s Member Training continues to represent a unique, value-added benefit. Even though a variety of fastener training opportunities exist in the general marketplace, none have the breadth of material or execute it as well for fastener manufacturing and ASD members as IFI Member Training.

Online Training

Although our Member Training is a unique and excellent benefit, it does not address a need by our members for short-subject, fundamental, manufacturing related skills, such as print reading, basic math, problem solving, proper gaging techniques, to name a few. A number of years ago, IFI partnered with a Learning Management System (LMS) provider, Workforge™, to make such classes available to our members. The advantage of utilizing an established LMS like Workforge™ is access to many already developed classes (at the time, Workforge™ has over nine-hundred online classes in its library) and systems that simplified management and record-keeping. The general library of available classes do an
excellent job of covering broad manufacturing topics, but are not specifically directed toward a fastener manufacturing audience. Although that is generally not a problem, in 2022 the IFI began developing IFI specific classes utilizing the same format as the other classes and completed 18 by years end. Unfortunately, no funds were available to develop additional classes in 2023.

When IFI originally offered this to members it was on an individual basis and all participants shared in the costs to manage it. Auspiciously it was decided to make this a Member Benefit in 2023, so that all members were provided the opportunity to receive a certain number of seats at no cost. Additional seats were available at a low cost to members that desired more seats. Many of our members have found this benefit a useful tool, especially for training operators and individuals new to their companies. Member companies elect a system administrator who is then able to tailor the LMS into individual “learning paths” that benefit their participants.

In 2023, Workforge™ underwent some extensive format and transitional changes that added several months delay early in the year for new and existing users, but they ultimately worked through these and are now operating on all cylinders.

In the future Workforge™ is expected to take on an even more significant role for IFI members than it is now. Although it will continue to support members with short, easy to use skills development, it can serve as a “related training” resource to any member that may adopt using the Fastener Technician Apprenticeship currently being developed by IFI and Marshall University Advanced Manufacturing Center.

**Fastener Technician Apprenticeship**

In 2023 the IFI partnered with the Marshall University Advanced Manufacturing Center (MUAMC) to develop an Apprenticeship format for fastener skilled operators that could be certified by the US Department of Labor. This activity was approved at the Spring 2023 Annual Meeting and shortly afterward a committee formed to undergo the leg work necessary to assist MUAMC in developing the necessary program. The resulting Apprenticeship Committee is derived of approximately twelve IFI members, three from each IFI Division, with IFI Staff facilitating activity.
In 2023, the full Committee met four times with multiple Task Group Meetings in-between. MUAMC has reported that the process is ahead of schedule and completed 2023 with partially completed Work Process Schedule and Related Training Instruction Worksheets for (3) separate Apprenticeship Tracks:

- Fastener Technician - Cold Heading
- Fastener Technician - Hot Heading
- Fastener Technician - Screw Machining

Once completed, these documents will identify the roles and responsibilities of an apprentice in these three areas, define the length of time required to demonstrate competency, and identify related training required of each apprentice track. Of course, every company is a little different so these serve as a basic format which can then be individually “customized” by the using company.

This work is expected to be completed in 2024.
In congressional circles, the year 2023 will go down as the year House Republicans took 15 rounds of voting to elect a Speaker of the House in January, only to fire him 10 months later. After several candidates failed to secure the votes to be the next Speaker, Mike Johnson of Louisiana was elected Speaker of the House on October 25, 2023. He’s holding on to that job by his fingernails. As of this writing, Republicans hold 219 seats and Democrats hold 213 seats with 3 vacancies. Due to the differences within the Republican Party itself, that is an ungovernable majority.

The only significant legislation to pass in 2023 were continuing spending resolutions to keep the government open. However, the current spending agreements expire on March 1 and March 8 while IFI is enjoying sunny Florida. Agreement on future government spending is far from certain.

The Capitol was finally fully re-opened to the public and IFI conducted a Washington Fly-In in June 2023. IFI members met with a total of 39 House and Senate offices and the Director of the White House’s Made in America Office about trade issues, tax issues and workforce development.
In addition to conducting our bi-annual Government Affairs Legislative Survey in early 2023, we continued regular member communications activities throughout the year, including issue updates, quarterly government affairs reports, and presentations at division meetings and both the Annual and Fall Meetings.

The vast majority of IFI government affairs activities in 2023 were regulatory in nature due to the aforementioned lack of legislative activity. Following is a summary of key IFI government affairs activities in support of the fastener industry.

**Buy America Issues**
IFI continued its dialogue with the White House’s Made in America Office (MIAO) regarding the need to remove the existing waiver for commercial off-the-shelf (COTS) fasteners in government procurement. In addition to the in-person meeting during the June 2023 Washington Fly In, IFI submitted comments to the MIAO on draft guidance for Buy America, Build America (BABA) provisions of the 2022 infrastructure law, and regarding the Treasury Department’s *Guidance on the Domestic Content Bonus Credit under Sections 45 and 48 of the Inflation Reduction Act (IRA)*. IFI’s comments focused on the fact that Treasury took an inconsistent approach to fasteners compared with other domestic content statutes.

**Trade Issues**
The Biden Administration continues to keep in place the Section 232 Steel and Aluminum tariffs with negotiated quarterly quotas in place for the EU. It was expected that the U.S. and the European Union (EU) would conclude negotiations on a sustainable steel deal in 2023 but they were unable to do so. Both sides agreed to refrain from reinstating the original 232 tariffs and the EU’s retaliatory tariffs until 2025. During these negotiations, IFI communicated with the U.S. Trade Representative’s (USTR’s) office to argue for the inclusion of fastener HTS numbers in any final deal if U.S. manufacturers are granted any future relief from the EU’s carbon emissions reporting regulations as part of a final deal.
Speaking of those EU carbon emissions reporting regulations – Perhaps the biggest trade issue for 2023 involved the EU’s finalization of its Carbon Border Adjustment Mechanism (CBAM). IFI provided numerous member updates, including access to a free webinar provided by a Washington, DC-based law firm, regarding the release of the EU’s CBAM implementing regulations that affect fastener manufacturers that import into the EU. The regulations require greenhouse gas (GHG) emissions data to be reported quarterly beginning January 31, 2024, covering the 4th quarter of 2023. Beginning in 2026, the reporting mechanism will include taxes based on the amount of GHG emissions produced.

Regarding the Section 301 China tariffs, the Administration continues to undertake its 4-year statutory review. The Administration is expected to announce any changes to these tariffs on Chinese products in the coming months.

**Supply Chain Resiliency**
You might recall that in 2022, as part of Congressional negotiations over the legislation that would ultimately become the CHIPS Act, a group of bipartisan Members of Congress worked on bill language aimed at increasing America’s ability to compete with China and to improve supply chain resiliency. At that time, IFI endorsed this bill language to improve
supply chain resiliency and supported its inclusion in any appropriate legislative vehicle. While these provisions did not pass in the 117th Congress, they were re-introduced in 2023 in the 118th Congress and IFI endorsed the re-introduction of these supply chain resiliency sections in the Supply CHAINS Act. Dan Walker submitted the following statement: “The fastener industry makes the nuts, bolts and screws that hold the world together. We are pleased to support the bipartisan Supply CHAINS Act. Fasteners are critical components to almost every industry sector and we encourage passage of legislation like this that will further strengthen critical supply chains and anticipates problems before they arise. IFI urges passage of the Supply CHAINS Act to help protect critical manufacturing capabilities.”

Automotive Issues
As any of you in IFI’s Automotive Division (D-III) know, 2023 was the year of the United Auto Worker (UAW) strikes at multiple plants at once over the course of several weeks. IFI provided Division members with specific updates on strike activities and the potential for advocacy efforts throughout the process, including conducting a Division III survey. We also coordinated with our peers at the Motor Equipment Manufacturers Association (MEMA) to participate in a multi-association meeting with the White House National Economic Council (NEC) regarding available tools for automotive suppliers and forwarded these resources to Division III members.

Environmental Issues
IFI provided multiple updates on environmental issues in 2023 including new reporting rules from the U.S. Environmental Protection Agency (EPA) regarding use of per- and polyfluoroalkyl substances (PFAS). While these reporting rules mostly affect those that coat in-house, customers may ask their suppliers for confirmation that their products are PFAS-free.

Customers are also likely to ask their suppliers for their GHG emissions data so that they can comply with new California regulations affecting companies with more than $1 billion of revenue and operating in California. Publicly traded companies are also preparing to comply with a Securities and Exchange Commission (SEC) rulemaking anticipated in the first quarter of 2024 that could require reporting on the emissions of their supply chains.

IFI also signed onto a Nickel Institute coalition letter regarding concerns with the Agency for Toxic Substances Disease Registry (ATSDR) draft updated Toxicological Profile for Nickel.
**Occupational Safety and Health Administration (OSHA) Activities**

IFI continued to weigh in on proposed OSHA regulations impacting fastener manufacturers, including:

- Submitting comments on an OSHA Request for Information (RFI) on setting an indoor/outdoor workplace heat standard. OSHA convened a small business panel on this issue in 2023 and two IFI member companies participated.
- Signing onto comments submitted by the Coalition for Workplace Safety opposing a proposed rule on electronic illness/injury reporting.
- Signing onto a multi-association letter to the House Education and Workforce Committee and a Coalition for Workplace Safety letter to Congress opposing the OSHA proposed walkthrough rule.
- Communicated with the Small Business Administration Office of Advocacy regarding OSHA’s Indoor/Outdoor Heat Standard small business panels and OSHA’s proposed walkthrough rule.

**Taxation**

One of the issues that IFI lobbied on during its June 2023 Washington Fly In was the need for fixing several business tax issues including the R&D tax credit, the business interest deduction tax credit, and the bonus depreciation tax credit. In January 2024, the House passed a tax bill addressing all three of these IFI-supported business tax issues and the bill awaits Senate action. IFI participated in the following efforts in support of pro-business tax policies:

- Signing onto several National Association of Manufacturers (NAM) letters to Congress opposing tax increases on manufacturers, including pass-through entities.
- Signing onto a multi-association letter to Congress opposing increased taxes on family-owned businesses in the Biden Administration budget and in support of the Main Street Tax Certainty Act making the 199a pass-through deduction permanent.
- Signing onto a multi-association letter to Congress urging needed action on the R&D tax credit, the interest deduction credit, and the bonus depreciation credit.

**Miscellaneous Business Issues**

IFI participated in the following coalition efforts on several business issues:

- Signing onto a multi-association letter to Congress opposing the PRO Act, a bill that supports easier unionization efforts.
- Signing onto a multi-association letter to Congress opposing the Federal Trade Commission’s (FTC’s) ban on non-compete agreements.
- Signing onto two multi-association letters to Congress urging a delay in the effective date of the Corporate Transparency Act (beneficial owner reporting) by supporting HR 4035, the Protecting Small Business Information Act.
**Coordination with Association Peers and Coalitions**

IFI worked with its association peer groups and several coalitions in 2023 to further our government affairs goals, including:

- Meeting with Washington Representatives of the Motor Equipment Manufacturers Association (MEMA) and Precision Manufacturers Association (PMA)/Precision Metalforming Products Association (PMPA).
- Participated in several conference calls with MEMA regarding the effects of the UAW strikes on automotive suppliers and coordinated advocacy efforts.
- Call with Executive Director of the National Association of Surface Finishers regarding fastener issues prior to his speech before the Midwest Fastener Association.
- Participated in bi-weekly conference calls of the Coalition of American Metal Manufacturers and Users (CAMMU) on behalf of IFI. CAMMU focuses on the removal of the 232 steel and aluminum tariffs on the trade allies of the U.S.
- Participated in bi-weekly conference calls with a coalition run by the National Foreign Trade Council (NFTC) regarding tariff issues.
- Participated in numerous webinars provided by the National Association of Manufacturers (NAM) regarding trade, tax, and infrastructure issues.

**What About the Rest of 2024?**

Even if you’ve tried to ignore it, 2024 is a Presidential election year. Even if the 118th Congress was functional and productive (which it is not), this year’s focus is all about the November elections. Regulatory agencies are rushing to issue as many regulations as possible in the event of a change in power in 2025. Based on this lack of focus on passing substantive legislation in an election year, and based on results of a survey of Washington Fly In participants, IFI has decided not to hold a 2024 Washington Fly In. We will work toward a 2025 event to welcome the 119th Congress. That doesn’t mean that IFI won’t continue to make sure that policymakers understand the concerns of the fastener industry throughout 2024. One of those concerns already being addressed is making sure that policymakers, now very focused on aerospace quality issues as a result of the January 5, 2024 Boeing/Alaska Airlines door plug incident, are adequately educated on the quality assurance programs in place in the aerospace fastener industry.
2023 ENGINEERING AND TECHNOLOGY ACTIVITIES

Overview

On the Technology front, the year 2023 represented a return to business as usual with in person meetings at the standards development organizations (SDOs). The ability to meet with our colleagues has re-invigorated the pace of the work. After the slowdown caused by the pandemic, we are playing catch-up and there are many projects now underway to revise and develop the many standards that govern our industry from manufacturing to distribution and the use of fasteners. Another important development was the launch of a new standing IFI Technical Committee. Championed by our Chairman of the Board, Gene Simpson, the new committee will address the latest developments in fastener standards, research, and industry trends, and will serve as a forum for members to discuss their needs and challenges in technical and quality assurance matters. The new IFI Technical Committee, under the leadership of committee chair Steve Sherman, has held three meetings to define its scope and operating procedures, and is beginning its work in earnest in 2024.

New IFI Technical Committee

A new standing IFI Technical Committee was launched and held its first meeting in June 2023. The purpose of the IFI Technical Committee is to prioritize, coordinate and oversee activities related to (i) fastener standardization, (ii) research and development, (iii) technical trends and needs in the market, and (iv) educational topics that address the collective needs of the IFI membership, and to advance the state of the art in fastener manufacturing and mechanical fastening. The committee shall serve as a collaborative hub for the collection and distribution of technical information aimed at informing manufacturers, suppliers, and users of mechanical fasteners of the best practices in the industry. The committee chair is Steve Sherman (Industrial Rivet & Fastener), supported by Nick Lessnau (MNP) as vice chair, Carmen Vertullo (Carver Engineering) as secretary, and Salim Brahimi as staff manager. The new IFI Technical Committee will advance its projects by appointment of task groups and will hold regular quarterly meetings to coordinate the work. In addition, the committee will organize an annual symposium on technical, research or educational topics of interest to the membership.

Consensus Standards Activities

Part of IFI’s mission is to be engaged in research and the collection and distribution of information so that manufacturers and users of fasteners are kept informed of the latest
standards and best practices in the industry. IFI is always actively involved in all fastener standards development committees, including ASTM, ASME, ISO, SAE, RCSC, USCAR and API. These standards have been developed through continual consultation among manufacturers, suppliers, users, and engineering societies.

The following is a summary of significant activities from the various committees.

**ASTM**

**Committee F16 Fasteners**
The following are highlights of key standards under revision.

- ASTM F3125/F3125M – Combined Structural Bolts, the committee is currently considering a proposal to allow hot dip galvanizing of Grade A490 bolts.
- ASTM F606/F606M – Test Methods, is under revision to include a provision for Charpy impact testing and a general revision of the hydrogen embrittlement section.
- ASTM F1941/F1941M – Electroplating, will be revised to align with ISO 4042.
- ASTM F2329/F2329M – Hot Dip Galvanizing, will undergo a general revision in parallel with ISO 10684.
- ASTM F436/F436M – Hardened Washers, will be revised to include language to facilitate offering diffusion coating instead of hot dip galvanizing.

**Committee F07 Aerospace and Aircraft**

- ASTM F1624 – Incremental Step Load Testing, will undergo a general revision
- ASTM F519 – Plating Process Qualification, minor revision

**Committee B08 Coatings**

- ASTM B849 – Stress Relief, and ASTM B850 – Baking, are undergoing a major revision. The objective is to replace these two documents with a new Guide that reflects the latest science and state of the art on hydrogen embrittlement mitigation.

**Committee A01.22 Steel – Bolting Materials**

- ASTM A193/A193M High Temperature Bolts, update.
- ASTM A194/A194M – High Temperature Nuts, update.
- ASTM A320/A320M – Low Temperature Bolts, update.

**Committee E28 – Mechanical Testing**

- E8 – Tension Testing, update.
ISO – Committee TC 2
ISO/TC 2 Plenary Meetings were held in Tokyo, Japan October 16-20, 2023. The meetings were attended by US delegation and Canadian delegations.

ISO/TC 2/WG 13 - Working Group 13 on Washers and Non-Threaded Fasteners
Main topics include creation of a standard for stainless steel washers, ISO 3506-7, currently at DIS ballot stage and review of chamfers in ISO 7090-2. Italy (UNI) is the secretariat of WG13.

ISO/TC 2/WG 18 - Working Group 18 on Pre-Applied Adhesives
Continuation of preliminary work on a new standard ISO/PWI 5161 “Threaded fasteners with pre-applied Adhesives.” Italy (UNI) is the secretariat of WG18.

ISO/TC 2/SC 11 on Fasteners with Metric External Thread
- PWI 898-11 – Bolts, screws and studs with diameters above M39. Continuation of preliminary work.
- ISO 898-1 – It was formally decided to begin the revision of ISO 898-1 in 2024 taking into account the list of basic points that require revision.

ISO/TC 2/SC 12 on Fasteners with metric internal Thread
- Revision of all 13 ISO product standards on prevailing torque nuts
- ISO 16224 – Technical aspects of nut design, currently under revision will be transferred from a technical report to an International Standard
- ISO/PWI 898-12 – Part 12: Nuts with diameters above M39 and specified property classes. The task group is continuing its preliminary work in parallel with PWI 898-11 classes

ISO/TC 02/SC 14 on Fasteners with Non-Metric Thread
- ISO 10684 – Fasteners — Hot dip galvanized coatings, a full revision has been initiated by the TG, which will submit a working draft to SC 14 by the middle of 2024.

United States Technical Advisory Groups TAG to ISO/TC 2/SC 14 Surface Coatings
The new U.S. TAG to ISO TC 2/SC 14 has been officially operating under the administration of ASTM with the sponsorship of the Industrial Fasteners Institute (IFI), more precisely under ASTM Committee F16 on Fasteners as a permanent task group (F16.03.01) within Subcommittee F16.03 on Fastener Coatings. The current leadership of the governing committee is given below.
• Subcommittee F16.03 on Fastener Coatings: **Salim Brahimi**, Subcommittee Chair
• Task Group F16.03.01 U.S. TAG to ISO TC 2/SC 14: **John Medcalf**, Task Group Chair, **Darlene Collis**, Vice Chair, **Albert Gelles**, Secretary

**RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS – RCSC**
The Research Council on Structural Connections met June 7-9 in Lancaster, PA. The Specification Committee is preparing the ground for the next revision of the RCSC Specification. Other proposals being considered are the development of a stainless steel structural bolting specification and a metric version of the RCSC specification. Current research and educational projects sponsored by RCSC include a study on slip of metallic coated materials, and a Video collection covering the RCSC Specification and bolt installation methods.

**SAE Fastener Committee**
The SAE Fastener Committee met at the IFI Headquarters in September 2023.
• **SAE J429** – Mechanical and Material Requirements for Externally Threaded Fasteners. This is the single most widely used inch fastener standard, and a major revision has been undertaken. The revision is expected to be completed in 2024.

**ASME**

**Committee B18 Fasteners**
The ASME B18 on Fasteners met at the IFI Headquarters in September 2023. The following standards are being revised.

• ASME B18.21 – Washers, major revision.
• ASME B18.6.3 – Machine Screws, Tapping Screws, and Metallic Drive Screws (Inch Series), major revision.
• **B18.24** – Part Identifying Number (PIN) Code System Standard for B18 Fasteners, update.

**Committee B1 Threads**
The following standards are being revised.

**ASME B1.1-2019** Unified Inch Threads
• ASME B1.2-1983 (R2017) Gages and Gaging for Unified Inch Screw Threads
API SC21 TASK GROUP ON MULTI-SEGMENT BOLTING

The following is a highlight of key activities.

- **Subgroup 1**: Review and update document 21TR1 on selection of bolting materials.
- **Subgroup 2**: Recommend coatings for short term corrosion resistance. An update to the 21TR1 Annex to 21TR1 covering the results of Phase I Testing has been published. Phase II Testing covering additional testing under cathodic load – testing will begin in 2024.
- **Subgroup 4**: Develop recommendations to improve Rockwell C hardness testing practice and investigate possible application of uncertainty. A recommended practice providing added controls that can be imposed to improve hardness testing accuracy is currently under development.
- **Subgroup 5**: Investigate hardness increase in corrosion resistant alloys due to the threading process. Phase I testing is completed, and a technical report is being developed.
- **Subgroup 6**: Develop SN fatigue curve for L7 bolting in fatigue sensitive applications. A technical report, 21TR2, on results of Phase I has been published. Phase II testing covering additional stress levels is nearly completed.

IFI Book of Fastener Standards

The IFI Board of Directors approved a proposal by the P&I Committee to publish the 12th Edition of the IFI Book of Fastener Standards in the first quarter of 2024. The book will contain nearly 100 standards by ASTM, ASME, SAE and IFI, more than half of which will have been revised since the 2021 edition, plus several new standards. The work to prepare the publication of the 12th Edition began in November 2023 and will be ready for release before the end of April 2024.

The IFI ONLINE Book of Fastener Standards

For those who enjoy the convenience of online access, IFI continued to offer, by subscription, the **IFI Online Book of Fastener Standards**, in addition to the traditional hardcover. The Online Book contains the same standards as the Hardcover, with the significant advantage that the latest revisions of any standard are available as soon as it is released, making it the perfect source of the latest standards for an auditable quality management system. IFI offers a free 7-day trial of the Online Book. The list of subscribers to the IFI Online Book of Fastener Standards has been growing steadily.
IFI Technology Connection

The IFI Technology Connection (ITC) is the one and only comprehensive and authoritative utility where the specifications from both inch and metric fasteners standards have been compiled. ITC is actively and continually being updated to reflect changes to industry standards (e.g., ASTM, SAE, IFI, ASME, and ISO), and new features are being added to improve the user experience. IFI offers a 30-day free trial of the IFI Technology Connection.

ISO Online Fastener Standards Collection

The ISO Fastener Collection continues to be available as an online digital subscription. 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. A subscription to the ISO Fastener Collection on the ISO Online Browsing Platform can be purchased via Standards Council of Canada (SCC):
https://scc.isolutions.iso.org/obp/ui#iso:pub:PUB200006:en

IFI encourages all users of ISO Fastener standards to subscribe to this resource.
**IFI STRUCTURE, MEMBER BENEFITS & SERVICES**

**Division I: Industrial Products**

Division I is made up of 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 and 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. Preston Boyd came on as the new Industrial Division Manager in early 2022. Throughout 2023 the Division was chaired by Rob Kocian of Auto Bolt.

**Division II: Aerospace Products**

Division II manufacturers supply very specialized products to the aerospace industry and the U.S. Department of Defense. Their products are frequently made from 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.

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 Jim Erbs of Safety Socket LLC. The Technical Chairman was the Division Manager, Mike Mowins, who now serves as a voting member representative for the Institute on the NASC and SAE E-25 committees.
Division III: Automotive Products

Division III (formerly known as the Automotive Industry Fastener Group) represents those manufacturers supplying product to the automotive OEMs and the tiers that supply the OEMs. This Division meets as often as bimonthly, usually in the Detroit area to facilitate participation. Because of the nature of the automotive industry, the Division never lacks for projects to undertake, new business and legal issues to learn the best practices lessons from which all can benefit.

The Division coordinates activities with USCAR, AIAG and OESA. Annually, Division III hosts the “John D. Fischer” Memorial Golf Tournament. Participation in this event includes the Division Members, the Institute’s current and past Officers and ASD members. This Division was temporarily managed by Dan Walker, as a search for a new division manager was underway. Mark Quebbeman began working as Manager of Division III in April 2023. The Division was chaired throughout 2023 by Steve Dixon of CamCar Innovations.

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 or formed parts. They provide the Institute expertise in their products or services 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 their areas of expertise, a unique value to the members. This group was chaired in 2023 by Jerry Bupp of National Machinery, LLC.

Membership Services

An often-asked question is, “What are the benefits of IFI Membership?” As a member, 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 fasteners related standards activities, because the IFI is an active member in the following technical organizations:

- ASTM
- ASME
- SAE
- ISO
- ASME
- 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 may 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 $1,100 per year for a single-seat and $4,400 per year for a multi-seat subscription.

Members receive assistance with market insight and connections. The IFI has an Aerospace Fastener Division that is headed by a veteran fastener professional, Mike Mowins. The Automotive Fastener Division will be headed in 2023 by Mark Quebbeman, and the Industrial Products Division is headed by Preston Boyd. Each of these gentlemen has extensive experience in the fastener industry and have served in an executive capacity for fastener manufacturing companies or related businesses.

Members receive legislative insight and representation in Washington, 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 these issues and has provided significant relief for fastener suppliers.
You obtain networking opportunities 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 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.
- 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 North American manufacturing’s best interest.
- World class training by recognized industry experts for your company personnel.
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 2023, the scope of these activities is briefly summarized below. IFI provided qualified staff to attend industry and government meetings requiring more than 60 meetings in 2023 on behalf of members. This shared representation is a savings because members do not necessarily 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
- 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 Fastener Group (AIFG) – 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
- IFI “Pulse” Business Conditions Survey
- Wage & Benefits Surveys
- Washington newsletters from a variety of Association sources (NAM, AIA, etc.)
- Periodic emails 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

This includes a very valuable “Wage & Benefits” survey and report covering all plant floor and middle management positions. The survey was last conducted in mid-2023 and will be conducted again in 2024. Finally, at our Annual Spring, Fall, and periodic Divisional meetings, critical issues speakers and presentations were hosted on a shared cost basis.

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.
2021–2025 STRATEGIC PLAN

Adopted on October 6, 2020

Introduction

The strategic plan is the institute’s roadmap to making decisions and taking actions over the next five years that will move the industry toward maintaining the objectives of IFI’s mission statement, and realizing the goals agreed upon by the membership. The plan is built upon the institute’s past success and growth and prepares the industry and its members to thrive in the future. Even after adoption, the strategic plan is never really “done”. It will be revisited through regular reporting and monitoring at IFI meetings to ensure we stay on track toward achieving all the plan objectives. New objectives may be added over time, as market conditions are subject to change due to external factors such as the economy, regulatory, code or legislative environment.

IFI’s Mission Statement

To represent the North American fastener manufacturers to their suppliers, customers, the government, and the public at large to advance the competitiveness, products, and innovative technology of the IFI Member Companies in a global marketplace.

SWOT Analysis and Process

The IFI Board of Directors members met via video conference four times to develop this plan: On August 4, August 25, September 15, and again on September 22, 2020. Prior to those meetings, a survey was sent to the IFI membership to collect their feedback. This feedback was used extensively by the Board to develop a SWOT analysis (Strengths, Weaknesses, Opportunities, Threats).

From the SWOT analysis, the Board then performed a “TOWS” exercise that resulted in a list of brainstormed strategic plan initiatives. These initiatives were derived by matching up “Strength-Opportunities”, “Strength-Threats”, “Weakness-Opportunities” and “Weakness-Threats” from the SWOT. 48 initiatives in total were generated, which Board members then individually ranked via online survey. The Board finally met to discuss the rankings and decide which were the top strategic plan initiatives to include in this plan. Out of the 48 initiatives that were brainstormed, 21 rose to the top and are included in this plan.
**Strategic Plan Initiatives**

The following strategic plan initiatives were developed by the Board from the SWOT and TOWS exercises and are grouped as follows:

**Education / Training**

- Create “on demand” video library of Members Only Training classes. [SO]
- Develop online webinars using existing IFI MOT coursework and market to end-users of fasteners (customers/public). [SO]
- Create new unique classes and promote existing MOT to non-members to attract them to join IFI. [SO]
- Re-evaluate and discuss the needs / benefit relationship with Rock Valley College and Compton College. [WT]

**Financial**

- Expand IFI’s educational reach and become the recognized source for fastener education. This could become IFI’s main non-dues revenue source [ST]
- Maintain $2 Million in reserves [ST]

**Outreach**

- Reach out to OESA / AIA / AISC / NFDA / end user organizations to create liaison groups. User meetings could be held in conjunction with major conferences of those groups. [SO]

**Communications**

- Create messaging geared toward eligible non-member companies about the technical services / standards representation IFI provides its members [SO]
- Promote fastener manufacturing as a viable career through development and dissemination of consistent communications and messaging for IFI and members to use at the national, state, and local level. [WO]

**Membership Growth / Recruitment**

- Develop prospective member list for division managers and develop new “member recruitment” materials (videos/digital presentation) to use to recruit new members [ST]
- Solicit for contact information from member engineers and send them information about upcoming meetings and events [SO]

**Membership Engagement / Satisfaction**

- Establish a formal mentoring process to keep missing members or newly consolidated member investor groups engaged through personal contact with a peer CEO who can convey the value of IFI participation. [ST]
• Create or sponsor regional IFI networking events in Cleveland, Chicago, Detroit, and Los Angeles to host happy hour / golf or other social events that attract and engage young fastener professionals. [SO]
• Bring more member engineers into the standards development process [SO]

Meetings
• Increase IFI speaker budget to ensure high-quality speakers at every meeting. [WO]
• Seek out big-name Washington players as speakers on topics relevant to IFI’s government relations initiatives [WO]
• Generate interest from middle management through virtual sessions (HR, engineering, maintenance, plant managers). Create a brief introduction to IFI for each presentation to ensure everyone attending knows what IFI does and what individual opportunities exist. [WO]
• Establish a Program Planning Committee whose responsibility it will be to assist in excellent venues and speaker selections. [WO]

Government Affairs
• Schedule regular IFI Washington Affairs newsletters to go to members [WO]
• Develop state and local Government Affairs strategies through the Government Affairs Committee [SO]
• Expand lobbying efforts in Washington by providing more information [SO]

Notes:  
[SO] = Strength Opportunity  
[ST] = Strength Threat  
[WO] = Weakness Opportunity  
[WT] = Weakness Threat
# 2024 Calendar of Meeting & Events

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>JANUARY 19</td>
<td>FTI Fastener Basics Part 1</td>
<td>Webinar</td>
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<tr>
<td>JANUARY 26</td>
<td><em>Workmanship – The Impact of Imperfections/Surface Discontinuities</em></td>
<td>Webinar</td>
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<tr>
<td>FEBRUARY 6</td>
<td>FTI Fastener Specifications &amp; Terminology (CFS 1)</td>
<td>Los Angeles, CA</td>
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<tr>
<td>FEBRUARY 16</td>
<td>FTI Fastener Basics Part 2</td>
<td>Webinar</td>
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<tr>
<td>FEBRUARY 19-20</td>
<td>Geometric Dimensioning &amp; Tolerances</td>
<td>IFI Headquarters, Cleveland, OH</td>
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<td>MARCH 2-5</td>
<td>IFI ANNUAL MEETING</td>
<td>Hyatt Regency Coconut Point, Bonita Springs, FL</td>
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<tr>
<td>MARCH 6-8</td>
<td>Pac-West Conference &amp; Tabletop Show</td>
<td>Westin Anaheim Resort, Anaheim, CA</td>
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<tr>
<td>MARCH 7</td>
<td>FTI Understanding Fastener Strength &amp; Hardness</td>
<td>Anaheim, CA</td>
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<tr>
<td>MARCH 15</td>
<td>FTI Fastener Basics Part 3</td>
<td>Webinar</td>
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<tr>
<td>APRIL 2</td>
<td>FTI Understanding the Bolted Joint (CFS 2)</td>
<td>Los Angeles, CA</td>
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<tr>
<td>APRIL 8-12</td>
<td>FTI Fastener Training Week</td>
<td>Brighton Best Intl., Cleveland, OH</td>
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<td>APRIL 10</td>
<td>Division II Aerospace Group Meeting</td>
<td>Long Beach, CA</td>
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<tr>
<td>APRIL 16-17</td>
<td>ASME B18</td>
<td>IFI Headquarters, Cleveland, OH</td>
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<td>APRIL 18</td>
<td>Pac-West After Hours</td>
<td>San Diego, CA</td>
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<td>APRIL 18-19</td>
<td>Metallurgy/HT Webinar Exercises</td>
<td>IFI Headquarters, Cleveland, OH</td>
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<tr>
<td>APRIL 26</td>
<td>FTI Fastener Basics Part 4</td>
<td>Webinar</td>
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<tr>
<td>MAY 6-8</td>
<td>ASTM F16-B08</td>
<td>Philadelphia, PA</td>
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<tr>
<td>MAY 14</td>
<td>Division III Automotive Group Meeting</td>
<td>Edsel &amp; Eleanor Ford House, Troy, MI</td>
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<tr>
<td>MAY 16</td>
<td>Pac-West Spring Dinner Meeting &amp; Vendor Showcase</td>
<td>La Mirada, CA</td>
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<tr>
<td>MAY 21</td>
<td>FTI Fastening 101</td>
<td>Cleveland, OH</td>
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<td>MAY 22-23</td>
<td>Fastener Fair USA</td>
<td>Cleveland, OH</td>
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<td>MAY 24</td>
<td>Tests from a Load-Frame Exploring Tensile, Proof Load, Etc.</td>
<td>Webinar</td>
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<tr>
<td>JUNE 18-19</td>
<td>Workmanship/Fatigue in Fasteners/Standards 101 Aero</td>
<td>Santa Ana, CA</td>
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<td>JUNE 20</td>
<td>Pac-West After Hours</td>
<td>Vancouver, BC</td>
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<td>JUNE 21</td>
<td>FTI Webinar TBD</td>
<td>Webinar</td>
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<td>JUNE 25</td>
<td>FTI Dimensional/Material Specifications (CFS 3)</td>
<td>Los Angeles, CA</td>
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<td>JULY 12</td>
<td>FTI Webinar TBD</td>
<td>Webinar</td>
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<tr>
<td>JULY 15</td>
<td>Division III Automotive Group &amp; JDF Memorial Golf Outing</td>
<td>Toledo, OH</td>
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<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
<th>Location</th>
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<tbody>
<tr>
<td>JULY 16</td>
<td>Fastener Quality Assurance, Print Reading/Inspection (CFS 4)</td>
<td>Los Angeles, CA</td>
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<tr>
<td>JULY 26</td>
<td>Understanding Galling in Fasteners</td>
<td>Webinar</td>
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<tr>
<td>AUGUST 6</td>
<td>FTI Fastener Mfg, Quality Lab, Processor Tours (CFS 5,6,7)</td>
<td>Los Angeles, CA</td>
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<td>AUGUST 9</td>
<td>FTI Webinar TBD</td>
<td>Webinar</td>
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<tr>
<td>AUGUST 19-23</td>
<td>FTI Fastener Training Week</td>
<td>Chicago, IL</td>
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<tr>
<td>SEPTEMBER 9</td>
<td>FTI Fastener Fundamentals</td>
<td>Chicago, IL</td>
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<tr>
<td>SEPTEMBER 9-11</td>
<td>International Fastener Expo</td>
<td>Las Vegas, NV</td>
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<tr>
<td>SEPTEMBER 16</td>
<td>National Machinery 150th Anniversary</td>
<td>Tiffin, OH</td>
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<tr>
<td>SEPTEMBER 18-19</td>
<td>FTI Understanding Hydrogen Embrittlement</td>
<td>Cleveland, OH</td>
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<tr>
<td>SEPTEMBER 21-24</td>
<td>IFI FALL MEETING</td>
<td>Eldorado Hotel &amp; Spa, Santa Fe, NM</td>
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<tr>
<td>SEPTEMBER 26</td>
<td>Pac-West After Hours</td>
<td>Denver, CO</td>
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<tr>
<td>SEPTEMBER 27</td>
<td>Basics of Threads and Thread Gaging</td>
<td>Webinar</td>
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<tr>
<td>OCTOBER 10</td>
<td>Pac-West Fall Dinner Meeting &amp; Vendor Showcase</td>
<td>La Mirada, CA</td>
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<tr>
<td>OCTOBER 11</td>
<td>FTI Webinar TBD</td>
<td>Webinar</td>
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<tr>
<td>OCTOBER 21-22</td>
<td>Why Fasteners Fail/Standards 101 Industrial</td>
<td>IFI Headquarters, Cleveland, OH</td>
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<td>OCTOBER 21-25</td>
<td>ISO TC 2 Plenary Meeting</td>
<td>TBD</td>
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<td>NOVEMBER 7</td>
<td>Pac-West After Hours</td>
<td>Bay Area, CA</td>
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<td>NOVEMBER 18-22</td>
<td>FTI Fastener Training Week</td>
<td>IFI Headquarters, Cleveland, OH</td>
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<td>NOVEMBER 22</td>
<td>FTI Webinar TBD</td>
<td>Webinar</td>
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<tr>
<td>DECEMBER 12</td>
<td>Pac-West Holiday Party</td>
<td>La Mirada, CA</td>
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IFI Events

*Dates, locations and topics are subject to change*