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THE ILLINOIS **Manufacturer**

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Spring 2017

**HR in Manufacturing:
A Digital Transformation**

**How Will OSHA's
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Mission Statement

The object for which the Illinois Manufacturers’ Association was formed is to strengthen the economic, social, environmental and governmental conditions for manufacturing and allied enterprises in the state of Illinois, resulting in an enlarged business base and increased employment.

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Share your company news with IMA . . .

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Digital Manufacturing: The Way of the Future



The demands on workers to possess even more math skills, particularly in the areas of statistics and qualitative analysis, will be the new 'norm.'

In past years, I've commented frequently about the efforts the IMA Education Foundation has undertaken to vastly improve the quality of job seekers in search of manufacturing careers. Indeed, the efforts of the Foundation, working with our partners in the education sector, have resulted in more than 10,000 industry-recognized credentials awarded to Illinoisans. Furthermore, our work has led to both national and international recognition for excellence. Rest assured that we will continue to expand those initiatives.

More recently, the Foundation, partnering with the German-American Chamber of Commerce and William Rainey Harper College, embarked on an ambitious five-year initiative to restore manufacturing focused apprenticeships in Illinois. Over the last two years, the Illinois Consortium for Advanced Technical Training (ICATT) began apprenticeships in concert with individual employers and community colleges across Illinois. At this writing, there are 23 employers aligned with the ICATT effort, and our spade work to engage at least 600 apprentices between now and September 30, 2020 continues. ICATT is focused on the expressed wants of small and medium-sized manufacturers, many of whom mistakenly believe apprentices are beyond their reach. While we have a federal grant to help offset costs, establishing a self-sustaining system of apprenticeship is vital.

To be sure, all of this is good news for both durable and non-durable manufacturers and helpful in facing today's skills gap dilemma. However, a larger and more formidable challenge is about to hit us full-force, and it's a challenge for which very few are prepared.

In the pages of this issue of *The Illinois Manufacturer*, we are focusing on the coming of Industry 4.0, or Digital Manufacturing. In short, the Fourth Industrial Revolution will create what many call a "smart factory." Within modular structured smart factories, cyber-physical systems monitor physical processes, create a virtual copy of the physical world, and make decentralized decisions. Tied to the Internet of Things, cyber-physical systems communicate and cooperate with each other and with humans in real time. Then, when coupled with the Internet of Services, both internal and cross-organizational services are offered and used by participants throughout the value chain.

Concerned that you may not be ready for these changes? You are not alone.

Industry 4.0 will redefine manufacturing and the intellectual skills needed by employees. Our systems and processes will be generating mountains of critical data, and from the C-Suite to the production line operator, every worker will need to deduce and understand what the data is telling us. The demands on workers to possess even more math skills, particularly in the areas of statistics and qualitative analysis, will be the new 'norm.' Without those skills, the company will lag far behind every competitor worldwide. Our feature article, authored by leading US experts at the University of Buffalo, gives us a peek at the new jobs in manufacturing and should be required reading by every management team.

The IMA Education Foundation is already raising the alarm with our education system partners to begin evaluating the changes that will be necessary for the future world. New industry standards and certificates for robotics and product development are being created, and curriculum to meet the new standards will need to be created in short order. With the current morass dominating the attention span of state officials and lawmakers in Springfield, our job is made even tougher.

Manufacturing in Illinois cannot be left behind during this transformation, and resources like the Digital Manufacturing Laboratory in Chicago will be a significant factor to succeeding. As Governor Bruce Rauner and legislative leaders try to look ahead and plan for our state's future, it is our belief that a complete overhaul of our entire education system, from pre-school to post-doctorate, must take place to meet the coming challenges.

The Fourth Industrial Revolution is here, and it isn't going away. ■

A handwritten signature in black ink, appearing to read "Greg Baise". The signature is fluid and cursive, with a large initial "G" and "B".



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You Have a Right to be Angry...



...we are now seeing
[Illinois] residents
and businesses leave
our state's borders
for greener pastures
as the dysfunction
grows.

I am asked every single day when Illinois will finally have a budget. Whether I'm at a family function, attending a worship service, representing the IMA at a forum, or simply talking with an IMA member company in the course of daily business, the question is omnipresent. So much so that I'd be a very wealthy person if I had a nickel for every time an inquiry was made.

It's sad. It's disgraceful. It's tragic.

It's gone on so long that I'm close to running out of adjectives to describe the political morass, and even worse, it's a problem of our own making. Our state's current budget and economic situation are not the result of a global recession or catastrophe that has upended our economy. The self-inflicted chaos is harming valuable state programs and imposing severe damage on our economy as well as Illinois' already-tattered reputation.

Take for example our mountainous debt that is growing by at least \$12 million daily. You didn't read that wrong – Illinois is piling up debt at a rate of nearly \$8,333 every single minute. Taxpayers will be on the hook for an additional \$25,000 by the time you've finished reading this column.

Illinois' total backlog of bills now exceeds \$13 billion with no end in sight. With just under 13 million people living in Illinois, every man, woman, and child is on the hook for \$1,000 today. But when you factor in our severely underfunded pension systems with a \$130 billion unfunded liability, the debt per person skyrockets so much that a family of four would owe about \$44,000.

It's abysmal. It's horrific. It's miserable.

Illinois has become such a laughingstock across the nation that Tom Bevan, co-founder and publisher of *RealClearPolitics* even coined a new phrase – IExit. In a recent op-ed in the *Chicago Tribune*, Bevan acknowledged that while some progressives in California are agitating for succession, "maybe it's time for Illinois to leave the Union – as a favor to the rest of us in America." While he was joking about IExit, the sad truth is that many Illinoisans and businesses have long recognized that our dysfunctional state government is a large part of the problem.

Consider these facts. In February, the Illinois jobs data from the U.S. Department of Labor seemingly showed a bright spot. More people – 6,055,000 people – were employed in Illinois than at any time in our state's history, eclipsing the previous record set nearly seventeen years ago. However, when the IMA ran the data behind the headline, we discovered that Illinois has added only a net 100 jobs since 2000 compared to our neighboring states that added an average of 115,000 new jobs.

Illinois has added only one new job every two years for the past 17 years. At the same time, more than 400,000 new residents called Illinois home. However, we are now seeing these residents and businesses leave our state's borders for greener pastures as the dysfunction grows.

In the last year, more than 115,000 Illinoisans fled the state in a massive outmigration that has seen Illinois lead the nation in this woeful category for three straight years. Every other state in the region is growing while Illinois is shrinking. And it's not confined to one area of the state. We are losing population in every corner of the state. Human capital – our friends, colleagues, and family – are leaving because Illinois policymakers cannot create stability for our businesses and families.

It's atrocious. It's shameful. It's terrible.

Since the recession ended in June 2009, every one of our neighboring states have added tens or even hundreds of thousands of manufacturing jobs while Illinois has lost 1,600 jobs. More than 300,000 manufacturing jobs have disappeared since the turn of the century, some of which are attributable to new technology and automation. But the fact remains that every other Midwest industrial state is growing at our expense.

Illinois has numerous attributes – a great workforce, good colleges and universities, central location, water, world-class city and international airport, and an excellent infrastructure system to name a few. Our state should be the economic engine of the Midwest and nationally. But, it seems that our politicians can't get out of their own way and are blowing up the engine.

Our elected officials need to start focusing and actually begin fixing Illinois' problems by balancing the budget, passing real economic development reforms including changes to workers' compensation, strengthening the education and workforce development system, and reforming the tax code. Instead our politicians are playing political games designed to elicit votes that will play well on the next political mail piece or television commercial.

I'm mad. I'm angry.

Actually, I'm furious. I'm watching my beloved home state being driven further into the ground. I'm not going to take it anymore. Who's with me? ■



Improve Mergers and Acquisitions Success with Effective Employee Communications

Mergers and acquisitions (M&As) often are challenging endeavors for manufacturers and distributors, and the costs of failure can be significant. Experience shows that the mergers most likely to succeed are implemented according to a well-developed integration plan that includes employee communications.

Why Employee Communications Matter

If you treat your employees like mushrooms – kept in the dark and fed a bunch of “fertilizer” – you can expect disengaged employees and high turnover, in turn leading to stakeholder dissatisfaction and eventual loss of customers.

Successful merger integration and change management often is driven primarily by employee experience – what they see, hear, feel, and say. Change is concerning for many people, particularly employees who might feel powerless over their fate. Left uninformed, or under informed, employees may assume the worst. As a result, employee productivity can suffer as staff struggles to connect the dots on their own.

Effective communication is vital. Like other elements of the change management process, a well-developed employee communications plan can help employees transition from potentially scary, confusing endings to exciting new beginnings and reduce the depth and duration of the productivity loss that often follows major change.

Remember, though, that news of a consolidation won't be uniformly received. Some staff likely will transition from their existing jobs, and others may experience apprehension over potential changes in their roles and relationships. Employees need to know what's happening and what is and isn't changing. An effective communications plan answers the questions of both “what's in it for me” (WIIFM) and “what's needed from me” (WNFM).

In addition, the plan represents a valuable opportunity to help staff acknowledge and let go of the work they had been doing and the path they were on at their previous organization. It should prepare them for the new company, where they might experience a shift in authority, responsibilities, and teams.

Employee communications also should ease the cultural transition by demonstrating the new culture to be expected. Some fears can be reduced by reinforcing the values that both organizations championed before the transaction. Being honest and open with employees will help them view the organization as a principled employer with an enviable culture.

The Role of Anticipation

Silence should not be an option. Information must be conveyed to employees from both the acquiring and acquired companies. The best information to convey may be the information they crave most. The communications plan should anticipate the concerns

that are foremost in employees' minds and should consider what they do and don't already know or what they may have heard, even if it was not from official communications channels. The plan also should consider perceptions they may have of the other company, regardless of the truthfulness of those perceptions. Any communications must answer concerns from all the employee stakeholders in ways they understand and trust.

Dos and Don'ts for Effective Employee Communication

Do:

- Stick to known facts (for example, how the consolidation will help the business).
- Deliver consistent and simple messages that relate to the audience, avoiding jargon like “synergy” or “convergence.”
- Act in a straightforward, honest, and professional manner; this is the wrong time for a charm or PR offensive.
- Display concern, patience, and understanding.
- Allow the audience to react and talk.
- See that the message communicated is actually implemented.

Don't:

- Speculate or discuss irrelevant issues.
- Assume that once is enough – instead, communicate messages more than once.
- Give personal advice or make promises about future employment, reference letters, or other salary and benefit issues if these things are not established.
- Become defensive if asked a hostile or negative question; instead, avoid emotional language and respond with facts.
- Wait to communicate until you have all of the answers – employees will fill in the holes with speculation.

The Critical Consideration

When crafting an employee communications plan, it's important to remember that the goal isn't to push information on the employees. Rather, the goal is to create awareness, build understanding, and achieve buy-in and sustained commitment. If properly done, employee communications will preempt misunderstandings and adverse reactions and convey with clarity and relevance the positives to come. ■



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Are H-1B Visa Status Requirements Changing?

In addition to announcing that the numerical quota for new H-1B visas has been exhausted for fiscal year 2018 (which begins October 1, 2017), the United States Citizenship and Immigration Services (USCIS) and other federal agencies are also announcing warnings and reminders to protect American workers from fraud, abuse, and potential discrimination related to the H-1B visa program.

U.S. employers rely upon the H-1B visa category to temporarily hire foreign workers for “specialty occupations” and are subject to various regulations affecting their employment. For the last several years, U.S. employers have sought H-1B status approvals in numbers that have far exceeded the congressional limit of 85,000 visas for new H-1B workers. Employers of H-1B workers must meet minimum prevailing wage obligations, provide notice at the place(s) of employment, maintain a public access file describing terms and conditions of employment, and make certain attestations to the Department of Labor (DOL) that employment of the H-1B worker will not adversely affect the working conditions of similarly employed (U.S.) workers.

From USCIS

USCIS announced efforts to address concerns related to H-1B fraud and abuse. Specifically, the agency points to “too many American workers who are as qualified, willing, and deserving to work in these fields” and who “have been ignored or unfairly disadvantaged. Employers who abuse the H-1B visa program may negatively affect U.S. workers, decreasing wages and opportunities as they import more foreign workers.” In an effort to protect American workers, USCIS has confirmed a more targeted approach to its existing H-1B site visit program. To date, USCIS site visits have been conducted randomly and are intended to confirm the H-1B worker’s actual wages, job duties, and work location(s). USCIS confirms it will continue to conduct site visits on an unannounced and random basis, and effective immediately, the agency will also target areas where fraud and abuse may be more likely to occur, such as:

- Instances in which USCIS cannot confirm employer’s basic business information (which could disproportionately af-

fect start-ups);

- H-1B dependent employers, which are defined under a sliding scale and employ a significant percentage of H-1B workers depending on total employee headcount and are subject to additional requirements for the protection of U.S. workers;
- Employers placing H-1B workers at third-party work sites, which must provide direction and control despite placement at a work site not controlled by the H-1B employer.



USCIS has established a new email address to solicit anonymous tips, in addition to the existing avenues to report fraud allegations to the DOL and Immigration and Customs Enforcement. USCIS also provides several examples, which may be fraud indicators:

- H-1B worker not being paid at or above stated wage;
- Wage disparity between H-1B and other workers to detriment of U.S. workers;
- H-1B worker not performing stated job responsibilities;
- H-1B worker has less experience than similarly employed U.S. workers within the company;
- H-1B worker not working at stated location(s).

USCIS has also rescinded an out-of-date policy memo related to adjudication of H-1B petitions for computer programmers. While this rescission does not mark a direct change in existing policy related to H-1B eligibility for programmers and other IT-related occupations, it does include a critical reminder that the entire H-1B program is limited to specialty occupations requiring the theoretical and practical application of a body of

highly-specialized knowledge, in addition to baccalaureate level education in a particular discipline, and that it is the employer’s (petitioner’s) burden to establish that the position qualifies for H-1B approval. For certain types of occupations, compensation at the low end of industry standards may be an indicator that the position will not qualify for H-1B status.

From DOL

Similarly, the Department of Labor (DOL) announced plans to protect U.S. workers from discrimination related to the H-1B visa program. Specifically, the DOL intends to:

- “Rigorously use all of its existing authority to initiate investigations of H-1B program violators,” including greater coordination with the Departments of Homeland Security and Justice;
- “Consider changes to the Labor Condition Application (LCA) for future application cycles.” The LCA is required prior to the submission of an H-1B petition with USCIS and contains information related to the terms and conditions of the proposed H-1B employment. Such changes may include “greater transparency for agency personnel, U.S. workers and the general public”; and
- “Continue to engage stakeholders on how the program might be improved to provide greater protections for U.S. workers, under existing authorities or through legislative changes.”

From DOJ

The Department of Justice’s (DOJ’s) Civil Rights Division also cautioned employers not to discriminate against U.S. workers when sponsoring H-1B foreign workers. The DOJ’s announcement warns employers that it is “wholeheartedly committed to investigating and vigorously prosecuting these claims.” The Division’s Immigrant and Employee Rights Section is devoted to enforcement of anti-discrimination provisions found within the immigration statute, which prohibits citizenship, immigration status, and national origin discrimination and other unfair employment practices separate from employer obligations under Title VII. It is important that all employers of H-1B workers take seriously their obligations for employment of such workers, with respect to USCIS, DOL, and DOJ guidance. ■

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Wrongful Workplace Conduct: How to Investigate

There is bad news on the HR front at your company. One of a myriad of possibilities has occurred: an employee is accusing a manager of sexual harassment, a former employee is suing for racial discrimination, a supervisor is retaliating against a subordinate for complaining about a hostile work environment. Any of those scenarios (and many others) can expose a company to the risk of financial losses, loss of reputation and protracted litigation. Finding out what happened should be the first step towards dealing with the problem. It is in every employer's best interest to recognize when to conduct an investigation. No "buzz words" are required to qualify a statement as a complaint; often, mere knowledge of a problematic situation is sufficient to require the employer to take the initiative, or least inquire further. It also is important to know how to conduct an effective and efficient investigation, so as to minimize the potential for mistakes during the investigation.

It's Definitely A Sprint, Not A Marathon, When Conducting A Workplace Investigation

Delaying an investigation may seem like a great cost-saving measure, but it is not. Any unreasonable delay in initiating an investigation may be used as a basis to demonstrate that the company failed to remedy or prevent, for example, harassment or discrimination from occurring, or permitted or ratified unlawful conduct. One of the worst things a company could face is a jury trial where a juror believes that the company lagged in looking into the issues, thus leading to the potential for ongoing misconduct that was not stopped immediately.

It may also be illegal to not conduct a prompt investigation. The Equal Employment Opportunity Commission's "Enforcement Guidance on Vicarious Employer Liability for Unlawful Harassment by Supervisors" states plainly, "If a fact-finding investigation is necessary, it should be launched immediately."

Under the same guidelines, an investigation often should be started even if the complaining employee requests that the employer not start an investigation, particularly if mandated by law or statute.

You Have To Get Experience Before You Get Experience

For those situations that legally require an investigation, such as a claim of sexual harassment, employers proceed at their own peril if they randomly assign the investigation to someone without experience. If that person doesn't interview all of the appropriate witnesses, or doesn't review the personnel or other files that are significant, the employer can face potential exposure for the failings of the investigation in the form of claims of an inadequate investigation or punitive damages aimed at punishing the employer. There are many considerations that must be analyzed when determining who should investigate, including: the job titles/positions of the employees involved in the conduct or wrongdoing; the type of conduct involved; and the existence or likelihood of litigation. Using in-house personnel to investigate is a good and cost effective solution. Human resources, legal department, or management can investigate a variety of claims and often have a more intimate knowledge of the company's operations and people. It is important that the investigator is not in the chain of management with the employees being investigated (or the accuser, if applicable). The investigator must be impartial in both actuality and appearance. The in-house legal department is more suited for investigations when likelihood of future litigation is high, as they are familiar with the rights and duties of employers and employees. In addition, attorney-client privilege and the work product doctrine often

can protect the results of the investigation from being disclosed. For civil rights-type claims, the EEOC has issued guidance on who should be conducting investigations and employee interviews: "The employer should ensure that the individual who conducts the investigation will objectively gather and consider the relevant facts. The alleged harasser should not have supervisory authority over the individual who conducts the investigation and should not have any direct or indirect control over the investigation. Whoever conducts the investigation should be well-trained in the skills that are required for interviewing witnesses and evaluating credibility."

Don't Hate On The Player . . .

Often the best-intentioned employers make the knee-jerk decision to transfer the person who is bringing the complaint, or to put that person on a paid leave. Generally, separating the involved parties is the best course of action, especially when the investigation is being conducted. While this is often a good idea, taking any action that could be perceived as harmful, embarrassing, or disciplinary in nature to the "victim" can make the employer look less than sympathetic. When possible, therefore, it is better practice to temporarily transfer or suspend the accused with pay pending the investigation. This way, the person bringing the complaint does not misperceive a well-intentioned action as punishment for having come forward and lodged a complaint.

see [WORKPLACE](#) page 10

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“If you don’t know where you are going, you’ll end up someplace else.”

A workplace investigation is only as good as the tools you have available to you. It is prudent to set up an “investigation team” at the outset. This is so that the investigation and any actions taken do not fall exclusively on the shoulders of one person. If there are layers of management involved, issues can be vetted by a group rather than one person, and any subsequent claims against the investigator of wrongdoing, lack of thoroughness, bias, etc. are significantly minimized.

Some of the most important and often overlooked tools for an effective investigation are your company’s personnel policies. Many of these policies are quite obvious, and many companies already have them. For example, nearly every workplace should have policies prohibiting harassment or discrimination of any kind. Employee conduct and discipline policies are also important in today’s workplace, and the majority of companies with written policies have these types of discipline policies. Companies should make sure they include language in these types of policies expressly stating that retaliation against another employee because of reporting discrimination or harassment is prohibited and a cause for discipline. Computer use policies are important too because

electronic data can provide important information. The key to effective computer use policies is the elimination of any expectation your employees have that what they do on their computer at work is private.

Confidentiality Was A Virtue of the Loyal . . . It May Not Be Anymore

Many employers have rules or policies directing employees who are involved in a workplace investigation to keep their conversations with investigators confidential and to refrain from discussing the matter with colleagues while the investigation is ongoing. However, the NLRB recently held that this common practice is unlawful. Section 7 of the National Labor Relations Act provides that employees have a right to freely discuss work conditions as legally protected, concerted activity. According to the NLRB, employers may tell employees not to discuss an ongoing investigation only in the following circumstances when the employer has a “legitimate and substantial business justification” for requesting confidentiality that outweighs employees’ Section 7 rights:

- Witnesses are in need of protection and discussion of the investigation may endanger them.
- Evidence is in danger of being destroyed.
- Testimony is at risk of being fabricated.
- There is a need to prevent a cover-up.
- Any other comparably serious threat exists to the integrity of an employer investigation that would be sufficient to justify a confidentiality requirement.

This prohibition must be juxtaposed with

the EEOC’s directive that anti-harassment policies and complaint procedures should contain an assurance that the employer will protect the confidentiality of harassment complaints to the extent possible.

So what are companies to do now when conducting investigations of sensitive HR issues? First, immediately discontinue any standard practice of requesting employee confidentiality during an investigation. Second, evaluate the circumstances of each investigation. Consider whether confidentiality is objectively necessary to prevent corruption of the investigation. Is there likely to be danger to witnesses, danger of evidence being destroyed or stories being fabricated, or danger of a cover-up if employees are not instructed to maintain confidentiality? Are there other reasons that justify a confidentiality request in this particular investigation? If so, the reasons for requiring confidentiality should be documented as part of the investigation notes. If not, then employees should not be told that they can’t discuss the investigation with colleagues.

In the end, a good workplace investigation will identify issues and address problems before they get out of control, and position the employer to avoid or minimize liability and deter other employees from engaging in future acts of misconduct by demonstrating that the company will take seriously any evidence of wrongdoing. Ideally, you can address the bad news efficiently and effectively, and perhaps even some good can come out of an otherwise bad situation. ■

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EFECs Are Helping Businesses Meet Carbon-Free Environmental Goals

Businesses must pivot with the changing energy market to remain vital...

Energy generation and usage is at a turning point in our country: future energy demands must be met with less impact on our climate and with minimal burden on the nation's economy. With energy being one of the top five expenses for most businesses, this is having a major impact. Their challenge is to reduce environmental impact while maintaining profitable operations.

Emission-Free Energy Certificates (EFECs) are allowing companies to meet emissions reduction-related goals and to reap good will as protect the environment. This is important for their profitability. According to Nielsen, "Brands that establish a reputation for environmental stewardship... have an opportunity to not only grow market share, but build loyalty." In its 2015 Global Survey of Corporate Social Responsibility and Sustainability, Nielsen found that 72 percent of 15 to 20-year-olds, and 51 percent of 50 to 64-years-olds—with everyone else falling somewhere in between—are willing to pay extra for products and services from sustainable brands.

How EFECs Fit Into the Sustainable Energy Mix

EFECs are not the only option, of course, for meeting sustainability objectives. Businesses have a number of options along a wide spectrum, depending on their level of commitment. Options include on-site or distributed generation (e.g., solar panels or battery storage) at any cost or voluntary Renewable Energy Certificate (REC) purchases that don't impact operations, but offer a cost-effective way to support the environment.

If these choices don't suffice, businesses that want to "do something," but don't know how to go about it with limited resources, can now also turn to EFECs.

EFECs and RECs are similar commodities. A REC/EFEC represents the environmental attributes related to power production from a qualifying source. The difference is that each REC represents the environmental attributes associated with 1 MWh of electricity

generated by a renewable source, whereas each EFEC represents the environmental attributes associated with 1 MWh of electricity generated by a unit that does not directly produce air emissions.

Businesses have been using RECs for nearly a decade to support the production of electric power from renewable generation sources. RECs give businesses the chance to source their power from renewable facilities when land or capital is unavailable to deploy actual on-site renewables.

EFECs were created to represent the emission-free attributes of generating sources, such as nuclear, that do not directly emit green house gas from combustion.

PJM Environmental Information Services (PJM EIS), a company that reports and tracks environmental and emissions attributes for power suppliers, defines emission-free energy as electric power output from a generating unit that does not directly produce any air emissions (e.g., sulfur dioxide, nitrogen oxide and carbon dioxide) as reported in its Generation Attributes Tracking System (GATS). Eligible fuel types include solar photovoltaic, solar thermal, wind, hydro, nuclear, tidal energy and wave energy.

For the generation sources that qualify for both an EFEC and a REC, the attribute linked with the MWh can be one or the other, but not both, and will be verified, tracked, and retired in the PJM EIS GATS system to avoid double counting. **The difference between EFECs and RECs is simple:** EFECs represent the environmental attributes associated with a generator's output (emissions as a re-

sult of combustion) and RECs represent the environmental attributes related to a generator's input (the fuel sources).

How RECs and EFECs Work to Support the Environment

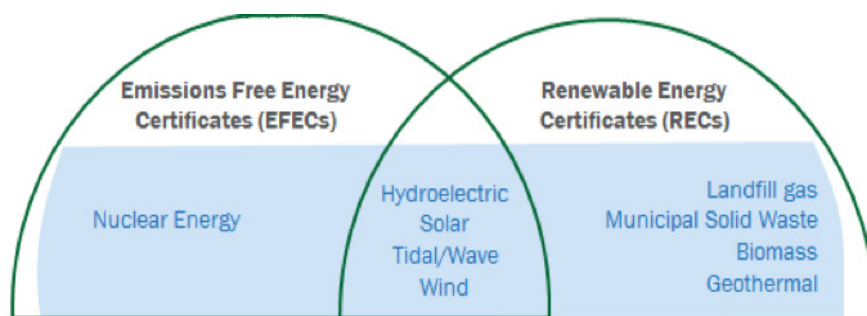
To understand how RECs and EFECs work, picture a giant watering can being filled from multiple hoses or spigots flush with energy units generated from various sources, such as coal, gas, nuclear, wind, solar, and hydro.

Once in the watering can, the source of the energy units can't be distinguished. When customers pull "water" (electricity) from this "can" (the electric grid), they receive a mix of whatever energy source contributed to the energy units in the can.

Now, the "watering can" can only hold so much "water," but it also must have enough to meet demand if everyone needs water at once—right? And for the sake of our environment, we want much of the energy source in the watering can to be green. When a customer purchases a REC or EFEC, they are encouraging the development of more energy from renewable or emission-free sources.

As a new renewable or emission-free generation of energy comes online, generation from plants that burn fossil fuels has to be reduced, so we don't overflow the watering can. Therefore, when renewable or emission-free energy is added to the grid, less power is needed from existing coal and gas plants. This lessens the release of certain pollutants into the environment.

see [EFECs](#) page 12



Constellation is the preferred energy provider for IMA members. For more information, visit www.constellation.com/IMA. Or, you may contact Rich Cialabrini at richard.cialabrini@constellation.com or (312) 394-4157.

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EFECs

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How Businesses Benefit from EFECs and RECs

Selling RECs or EFECs provides an additional revenue stream for these energy sources, providing a financial incentive for companies to invest in them. On the flip side, when your business purchases EFECs and/or RECs, you demonstrate support for energy-generating sources that can be part of a broader climate solution. You avoid a capital outlay to deploy your own on-site renewables, yet still power your business with sources that may help you meet your environmental goals.

"Businesses have overwhelmingly expressed a need for low-carbon products," said Ed Wilson, Executive Director, Association Sales. "We have committed to providing a convenient vehicle for our customers to purchase power that helps businesses meet their environmental goals in a cost-efficient manner."

When you purchase a Carbon-Free Electricity Product from Constellation, the electricity you purchase will be matched with EFECs from nuclear energy sources. In other words, you will offset the particular percentage of load you select with carbon-free electricity.

Promoting Your Environmentally Friendly EFEC Purchase

You can claim that the EFECs in your carbon-free product purchase are sourced from PJM Emission-Free Energy Credits and are 100 percent nuclear. You can avoid any misleading "green" claims by specifically referencing the percentage of your electricity load that is matched with EFECs, and accurately qualify any "clean" energy claims when making statements about the EFECs purchased. For example, you can say that the EFECs support demand for nuclear generation sources, which do not directly emit green house gases.

Customers who purchase a carbon-free product can use EFECs to compare the impact of emission-free generation sources to

the grid average emission factor, which is a blend of generation resources available in the region. For example, **an Illinois customer holding enough EFECs to cover 100 percent of the electricity usage of a 1,000 kW facility for a year could claim carbon dioxide avoidance equivalent to 2,949 metric tons, 2,418 acres of trees or 621 cars removed from the road for a year.***

A carbon-free electricity purchase may help your company to meet internal environmental goals by demonstrating your support for generating sources such as nuclear that can be part of a broader climate solution. Start the conversation with your Constellation representative today by visiting energy.constellation.com/ima/contact. Please see the full terms and conditions for Constellation's carbon-free product for full details of the offering.

Questions? Call the IMA's Executive Vice President, March Frech, at (217) 718-4203. ■

*Annual measure based on 65 percent load capacity and 2012 data set eGRID national generation emissions average (1,141.95 lbsCO₂e/MWh)/ Annual measure based on <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator> (1.22 metric ton CO₂ sequestered annually by one acre of average U.S. Forest)/ Annual measure based on <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator> (4.75 metric tons CO₂e/vehicle/year).

How Will OSHA's Crystalline Silica Rule Affect Construction and General Industry Employers?

Crystalline silica ("silica") is a mineral found in materials used in industrial products and at construction sites, such as sand, concrete, stone, and mortar. Silica is also used in the manufacturing of glass, pottery, ceramics, bricks, concrete, and artificial stone. Medical studies have concluded that inhalation of silica can cause silicosis, a lung disease marked by scarring of the lungs, and increases the risk of lung cancer, COPD, and kidney disease.

Exposure to silica is widespread in the construction and maritime industries, and in numerous general industry sectors including, but not limited to: foundries, railroads, fracking, and manufacture of glass, concrete, asphalt, and artificial stone products.

OSHA estimates that 2.3 million workers annually are exposed to silica in the workplace, and approximately 2 million of these workers are in the construction industry.

Federal regulations governing silica exposure have been in place since 1971 when the Occupational Safety and Health Administration ("OSHA") set permissible exposure limits ("PELs") for silica exposure in general industry and construction/shipyards.

However, the final silica rule published by OSHA on March 25, 2016 (81 FR 16286) significantly increases the protections in place for employees exposed to silica in the workplace, and imposes new and substantial obligations on employers.

The final silica rule, which was effective on June 23, 2016, creates two separate standards addressing occupational exposure to silica – one for exposure in general industry and maritime, and another for exposure

in the construction industry.

The two separate standards were promulgated in order to accommodate the different activities, exposures, and conditions within the two sectors. OSHA estimates that 2.3 million workers annually are exposed to silica in the workplace, and approximately 2 million of these workers are in the construction industry.

OSHA also estimates that implementation of the final silica rule will prevent over 640 fatalities and over 900 moderate-to-severe silicosis cases annually, and that the cost to implement the final rule will be \$1 billion annually.

Requirements Imposed by the New Regulations

The most significant change of the final silica rule is the revised PEL for silica. The prior PELs for silica were equivalent to approximately 100 micrograms of silica per cubic meter of air ($\mu\text{g}/\text{m}^3$) for general industry and 250 $\mu\text{g}/\text{m}^3$ for construction and shipyards. OSHA set the new silica PEL at 50 $\mu\text{g}/\text{m}^3$ as an eight-hour time-weighted average for all industries covered by the new regulations. Therefore, under the new rule, exposure to silica over an eight-hour work shift can fluctuate, but the average exposure must not exceed 50 $\mu\text{g}/\text{m}^3$. While OSHA believes there is still significant risk with the new 50 $\mu\text{g}/\text{m}^3$ PEL, OSHA concluded that it was the lowest level of exposure that was technologically feasible.

Although the PEL is the same for both general industry and the construction industry under the new regulations, the approach to compliance differs significantly. For both the general industry/maritime and construction rules, the applicability of the final silica rule is triggered by worker exposure to silica at or above a 25 $\mu\text{g}/\text{m}^3$ "action level," averaged over an eight-hour day.

However, in response to numerous comments from the construction industry, OSHA adopted Table 1 of the new rule which identifies applicable engineering controls and work practices for 18 common construction tasks. As one example, Table 1 requires employees using hand-held power saws (any blade diameter) to use a saw equipped with an integrated water delivery system that continuously feeds water to the blade, and to operate and maintain the saw in accordance with the manufacturer's instructions for minimizing dust emissions.

Construction employers who properly implement the applicable controls listed in Table 1 for a specific task are not required to perform a silica exposure assessment and are not subject to the silica PEL for that task. However, if the employer does not properly implement the controls in Table 1, the silica PEL applies for that task and the employer must assess and limit its employees' silica exposure in accordance with the PEL.

see [OSHA](#) page 14



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OSHA

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By contrast, employers who are potentially subject to the general industry/maritime rule must perform an exposure assessment using either a performance option or scheduled monitoring option. The performance option is based on any combination of air monitoring data or objective data that is sufficient to accurately characterize employee exposure.

The scheduled monitoring option provides a more structured approach and requires initial monitoring to determine employee exposure. Under either approach, the employer must assess the exposure of each employee who is or may reasonably be expected to be exposed to silica at or above the $25 \mu\text{g}/\text{m}^3$ action level. If the action level is triggered, employers must meet the PEL and demonstrate compliance.

In some circumstances, employers are required to supplement the controls with respiratory protection. For example, Table 1 provides that construction employees using a hand-held power saw must comply with the respiratory protection requirements when using the tool indoors or outdoors for more than four hours in a shift.

The final silica rule also requires that medical surveillance be made available to

employees who are required to wear a respirator for 30 or more days per year or who are exposed to silica above the PEL for 30 or more days per year (and beginning on June 23, 2020, medical surveillance must be offered to employees exposed above the action level for 30 or more days per year).

The results of medical surveillance are to be provided to the employee only, although the employer will receive the physician or licensed health care professional's recommended limitations on respirator use.

The final silica rule requires employers in general industry, maritime, and construction to develop a written exposure control plan.

Sometimes a task in general industry or maritime may be the same as a task performed in the construction industry. In certain circumstances, the final silica rule allows employers in general industry and maritime to comply with the standard for construction.

Thus, if the engineering and work practice

controls in Table 1 are implemented for that task, the PEL does not apply. However, the task performed must be indistinguishable from the construction task and must not be performed regularly in the same environment and conditions.

The final silica rule requires employers in general industry, maritime, and construction to develop a written exposure control plan. The written plan must describe the methods used to identify and control workplace exposures. Under the construction standard, a designated individual who is capable of identifying silica hazards and who possesses the authority to take corrective measures must implement the exposure control plan.

The final silica rule also requires employers in general industry and maritime to establish "regulated areas" in order to limit access to areas where exposure to silica exceeds the PEL.

The standard for construction does not include a requirement for regulated areas, but the written exposure control plan must include procedures to restrict access to work areas, whenever necessary, to minimize exposure to silica.

The new regulations establish a hierarchy of controls that employers must implement to reduce and maintain exposure to silica to levels below the PEL. The primary means of reducing exposure are engineering and work practice controls.

Deadlines for Employers to Comply

All obligations for compliance under the general industry and maritime standard commence on June 23, 2018 (two years after the effective date of the rule), with two exceptions. For hydraulic fracturing operations, the obligation for engineering controls commences five years after the effective date.

Also, the requirement for employers to offer medical surveillance commences two years after the effective date (June 23, 2018) for employees exposed above the PEL for 30 or more days per year, and four years after the effective date (June 23, 2020) for those exposed at or above the action level for 30 or more days per year.

All obligations for compliance under the construction standard commence on June 23, 2017 (one year after the effective date), with one exception. The requirements for laboratory analysis commence two years after the effective date. OSHA anticipates that most construction employers will forgo the exposure assessment process and comply with the Table 1 control methods.

Enforcement of the Final Silica Rule

Commenters to the silica rule also called on OSHA to include a separate enforcement mechanism for employer retaliation if an employee accepts medical surveillance. Despite criticism of the enforcement options available under Section 11(c) of the OSH Act (29 U.S.C. § 660(c)), which pro-

hibits discrimination against an employee for exercising rights afforded by the OSH Act and regulations, OSHA declined to include any separate enforcement option.

OSHA's new civil penalty policy took effect in August 2016, and increased the maximum penalties for most violations from \$7,000 per violation to \$12,471 per violation (and made the same adjustment to daily penalties imposed for failure to abate a violation). Maximum penalties for willful or repeated violations have also been increased from \$70,000 to \$124,709 per violation. Any violations of the new silica regulations will be subject to the increased penalty amounts.

In the preamble and guidance documents addressing the final silica rule, OSHA encourages employers to take advantage of OSHA's On-Site Consultation Program, which provides free and confidential consultation services to small and medium-sized businesses.

Status of the Final Silica Rule

Numerous petitions for review of the final silica rule have been filed. Groups representing employers and manufacturers believe that compliance with the previous silica standard is sufficient and that the new regulations are unnecessary.

These groups also argue the economic and technical feasibility of the requirements under the new regulations, stating that the new rule places undue burdens and irreparable harm on manufacturers. On the other hand, petitions for review filed by labor groups seek a more stringent standard with stronger medical surveillance and protections for workers.

In addition to legal challenges, industry groups have met with lawmakers to attempt to mount a challenge to the new regulations. The groups have urged lawmakers to support language that would prohibit funding the implementation of the final silica rule until additional studies are completed. At this point, the compliance deadlines are unchanged. However, employers should monitor these challenges as their outcomes may have an effect on the final regulations.

The recently-enacted regulations governing exposure to respirable crystalline silica significantly increase the protections afforded to employees. Whether or not these protections are necessary, or technically or economically feasible, is still up for debate. Nevertheless, employers in general industry, maritime, and construction should closely examine the new regulations in preparation for the upcoming June 23, 2017 and June 23, 2018 compliance deadlines. ■

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Ice on Fire

Educating the Industry 4.0 Workforce

The era of Industry 4.0 has arrived, whether you're ready or not.

Customers are insisting on better features, increased customization, and higher quality and performance, all at a competitive price. The process of taking an idea through initial design, making a prototype, testing it, redesigning problem areas, and repeating test and design until achieving satisfaction is being discarded. The replacement is a much quicker, virtually based method dependent on a web of innovative digital technologies that coalesce to create a "smart factory." What does Industry 4.0 mean for manufacturers? More specifically, what is its impact on the workforce, and how do we need to adapt education to ensure that manufacturers – especially small and mid-sized ones – are not left in the dust because of an insufficiently skilled employee base?

Industry 4.0: A Definition

We are now entering the Fourth Industrial Revolution, consisting of a highly intelligent, interactive, and efficient automated manufacturing ecosystem that integrates product design, production and logistics. The shift marries cyber capabilities with physical systems to form the foundation of digital manufacturing. It involves the fusion of an array of concepts and technologies – advanced robotics and artificial intelligence, the digital thread and digital twin, and the Internet of Things, to name a few. Inter-connected technologies are improving the product lifecycle through quicker and more accurate sharing of information across all stages, among internal functions, suppliers and customers. The new era's roots were planted in 2011, when Henning Kagermann of the German National Academy of Science and Engineering (Acatech) coined the term Industrie 4.0 in reference to a proposed initiative of the German government. Leading German manufacturers have since embraced fourth revolution practices to become pioneers in digital and automated manufacturing. While companies such as Siemens and GE are busy implementing a digitized landscape, a large portion of U.S. industrial companies are in the early stages of climbing aboard.

Digital Manufacturing

Maintaining integrated digitized operations, let alone devising the systems and

protocols that make them possible, cannot occur if roles remain stagnant. While there may be minimal impact for some – such as tool and die makers, as well as those who inspect highly critical items that can't be handled by digital means – new technologies will support their work and enhance their capabilities. For other roles, the responsibilities, skills, and interactions within the workplace may change.

Drafters, CNC programmers, machinists, document control specialists, and testers performing visual and manual inspections may require new or expanded skill sets to better integrate their work into the digital thread and take advantage of new data sets surrounding the products being made. Technology advances in the manufacturing environment are causing heavier dependency on technicians who install, program, operate and troubleshoot devices such as robots, automated systems and additive manufacturing machines. New job functions will also arise with emerging processes and technologies. In an effort to align workers, employers and educators, a project is underway to determine roles and associated skills that are integral to Industry 4.0. The initiative is a partnership between the Digital Manufacturing and Design Innovation Institute (DMDII) and the Right Management division of workforce solutions provider ManpowerGroup. Input is being provided by top U.S. manufacturing firms, small businesses, technology startups, research universities,

and technical colleges.

The team identified over 160 roles – from factory floor workers to executives – that engage and support digital manufacturing and design technologies and business practices across an enterprise. The initial list was narrowed to 20, selected for the first round of "Success Profile" development. The profiles will summarize the impact, outcomes, business cases, responsibilities, competencies, experiences, and additional background that captures a sense of how a worker can be successful in that job role.

The first set of Success Profile roles stretch across various disciplines found within an organization. At first glance, a few may appear to not directly relate to technology at all. For example, project participants expressed concerns about managing culture and technology change since the nature of some work will become vastly different or involve changes across teams and groups. Hence, a role focused on organizational change management strategy made the list. The 20 roles are receiving scrupulous attention through a profile-building exercise that incorporates shaping the overall scope of each role, integral technical competencies and key performance indicators with input from industry and academic experts. Results of the project will be released this spring to member organizations of DMDII, and to the public in the fall.

Industry 4.0 insiders, including those



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involved in the DMDII-Right Management taxonomy project, acknowledge that a broad range of roles will require competency in data interpretation, integration, and advanced manufacturing technologies and systems. Smart sensors embedded in technologies will generate copious amounts of process and machine data that depend on people who can analyze insights to make production improvements. Workers with skills in existing manufacturing technologies will be interacting more with workers who build data connectivity throughout an organization, and those who find new ways to take advantage of greater levels of employee connectivity throughout a product's lifecycle.

There also will be a need for employees versed in:

- Modeling and simulation
- Operating intelligent machines that use self-aware manufacturing hardware
- Advanced analytics
- Cyber-physical system security
- Management and predictive modeling in supply chain networks

While technical skills are paramount in fully realizing the benefits of digital manufacturing, the soft skills that underpin teamwork and collaboration should not be ignored. Factory floor employees, in particular, are increasingly becoming members of integrated teams, requiring them to interact more with each other, managers, and engineers. "A portion of these skills will be changing on a rapid basis," said Lory Antonucci, senior talent management consultant at Right Management. "Some of the tools we are looking at now may be different in the next three to five years."

One University's Educational Initiatives

Located in Western New York, the University at Buffalo is proud of its reputation as being a leader in advanced manufacturing and design. That's why we are conducting

a thorough self-examination in light of Industry 4.0 and how we serve multiple populations.

New technologies and fast-moving industry changes are pushing us to rethink how we teach design, materials, and manufacturing courses. Our curriculum is adapting to reflect manufacturing's move to a hybrid model of operations: part traditional technologies, and part automation and advanced techniques. Digital manufacturing is also influencing our faculty hiring processes and strategic research initiatives.

The university elevated its commitment to educating future manufacturing leaders and being agile to workplace needs by launching an interdisciplinary "Community of Excellence" in spring 2015 called Sustainable Manufacturing and Advanced Robotic Technologies (SMART). In addition to educational pursuits, the SMART Community of Excellence aims to develop the next generation of manufacturing technologies and processes by integrating cutting-edge research in engineering, architecture, and business.

The drive to increase advanced manufacturing competency has resulted in new programs that incorporate applied knowledge relevant to a wide range of industrial environments. A manufacturing minor for undergraduates premieres in fall 2017, as does a graduate certificate in advanced manufacturing featuring emerging design, manufacturing paradigms and fundamental principles of production. Additional certificates in robotics and product development are also being created.

A Broader Impact

UB's ambitions in boosting interest and proficiency in digital manufacturing attributes are not dissimilar, overall, to other efforts happening around the country.

We acknowledge that any program intent on providing the workforce with high-demand skills is beneficial. But unless brought to scale, they are limited in their ability to

have the wide-ranging, national impact intrinsic to competing amid the heavyweights of the world.

Some lessons can be extracted from the German vocational training systems supporting that country's thriving industrial sector. The following are common characteristics, according to the Manpower report "The Future of the Manufacturing Workforce:"

- Early placement in technology-based learning
- Comprehensive, company-based internship/apprenticeship programs that mix classroom education with on-the-job training
- Societal norms that advocate technical and industrial career pathways
- Similarly standardized educational tracts across states

To this list of attributes, we add additional thoughts for bringing the benefits of digital manufacturing to fruition:

- Building general awareness of digital manufacturing and the impact it can have on an organization: this requires eliciting a holistic view of all components of the product life cycle, not just technologies and tools.
- Tapping into non-traditional learning modes: this includes making learning accessible online, as well as opening university-accredited programming to non-enrolled students. For example, line workers who are aware of what's coming, and realize they need to adapt, are eligible to pursue UB's advanced manufacturing graduate certificate.
- Increased partnering between community colleges, four-year institutions and manufacturers: industry requires people with varying skills, from technicians to engineers, researchers and scientists. Greater coordination can help ensure better alignment with industry and abolishing workforce preparation gaps.
- Garnering government buy-in: policy makers need to be attuned to manufacturers' needs and be convinced of supporting educational initiatives that boost math and analytical skills, as well as hands-on training, across diverse populations.
- Sharing of best practices: at least at the state level, best practices in preparing someone for a career in Industry 4.0 need to trickle down, whether in the form of standards or workshops.

Educators do not have the power to solve the talent shortage alone. Neither do employers, or federal and state governments. It will take coordination and collaboration among all sectors to mitigate the skills gap. Greater alignment of industry needs with educational and training programs is the answer to securing our Industry 4.0 future. ■

Meet the New and the Old: Minuteman International



Minuteman International employee Vince Warford assembles a scrubber.



Jack Hill became the Managing Director of Minuteman International in January 2017, and has been an employee there for 22 years.

The IMA would like to welcome one of our new members, Minuteman International from Pingree Grove, Illinois.

Minuteman International is a manufacturer of commercial and industrial products for today's cleaning industry, and celebrated 65 years of business in 2016.

"Any type of flooring surface that you'll see commercially—restaurants, hotels, airports, schools, hospitals, warehouses, distribution centers—we have products to clean those surfaces," explained Jack Hill, the Managing Director of Minuteman International. "We manufacture tank vacuums, industrial tank vacuums, critical filter vacuums, and we have a full line of walk-behind scrubbers, rider scrubbers, burnishers, sweepers, and self-contained box extractors as well as wide-area vacuums."

Minuteman International manufactures 80 percent of the products it sells. The other 20 percent comes from their German parent company, Hako-Werke. Hako-Werke also builds commercial and industrial cleaning equipment.

"We're in a small, rural town and we're the largest manufacturer and employer in the area. We have 125 employees globally, and 110 of them are here," Jack stated.

Since the start of Minuteman International in

1951, many companies have joined forces under their name.

"In 1981, Minuteman International was acquired by Hako-Werke, and they appointed a president by the name of Jerry Rau, who ran the company until 2000. We grew from 3 million to 80 million during that time, and acquired Multi-Clean, which is a chemical division that we still own today. Then, in 1998 we bought PowerBoss,

We want to be the easiest company in our industry to do business with. The message is simple: we are doing what we say, and saying what we do.

which is an industrial sweeper-scrubber company that really compliments Minuteman's commercial product offering," Jack explained. Minuteman International is keeping its tradition of growth and expansion with revolutionary, soon-to-be launched products.

"Right now, we are working on a robotic scrubber," Jack excitedly relayed. "So, if we can get a robotic scrubber that can be virtually autonomous, it'll have a huge impact on the market and on the labor cost. For every dollar spent on manned scrubbers it costs \$19 in labor. There will still need to be a person to fill the tank and charge the equipment, but they can just go about their day and monitor the scrubber."

"On the industrial side, we have a big project on the board right now," Jack continued. "We're building a battery powered sweeper-scrubber. This will be the first full battery platform that we have launched in the last decade."

While Minuteman International is focused on creating the best products, the top priority has always been the customer.

"It comes down to one key principle: the customer. The customer is king – without the customer we have nothing. We want to be the easiest company in our industry to do business with. The message is simple: we are doing what we say, and saying what we do," Jack asserted.

The IMA is proud to have Minuteman International as a member. ■

- Paasche Airbrush Company



Twin brothers Steven (above) and Brian Pettersen (right) are the CFO and CEO of Paasche Airbrush company, and are the fourth generation in the business.

Paasche Airbrush Company is a small family-owned and operated manufacturer of airbrushes, spray guns and spray booths at its factory in Chicago, Illinois. Founded in 1904 by 24-year-old Jens Paasche, an immigrant from Norway, Paasche Airbrush Company has continued to grow and evolve with the changing demands and desires of its customers. Paasche Airbrush Company was one of the first manufacturers in Illinois to join the IMA, and celebrated 100 years of member-

ship this past December.

"My great grandfather worked for a gun manufacturer when he started off – that's how he got into the business," said Steven Pettersen, CFO of Paasche Airbrush Company. "He started to work for an airbrush company in Chicago, and then eventually he broke off and started his own company."

Steven works alongside his twin brother, Brian, who is the CEO.

"It's definitely a family-run business," Steven said. "The average amount of time an employee has been working here is over 25 years. Many of our employees that work here have been here for almost their entire working career."

This is true for Steven and Brian, who both began working for their family's company shortly after graduating from college.

"Over the summers, I would work out in the shop doing packing or assembly work with the machines," Brian recalled. "I started with expediting – getting factory orders processed and completed, then came into sales, and from there, did some marketing, answering phone calls, and getting familiar with the product. In the back of my head, I always knew I was going to come work here."

However, the future of Paasche Airbrush Company was not always so certain.

"In 1955, when he was 75 years old, our great grandfather sold the business. The company he sold it to ran it into the ground," Steven relayed. "When they put it up for auction, he bid for it himself. So he



bought it back and started running it again, and brought the company back from where the other business had put it."

While the company has continued to stay in the hands of the Paasche family, much of the original uses for Paasche airbrushes have been overtaken by modern technology. Work that once took the skill and craftsmanship of an artist can now more efficiently be done digitally.

"Businesses used to do all of their graphic work with airbrushes, and that has disappeared," Brian said. "Disney used a lot of our AB brushes, which is something we have obsoleted recently. Most of the precision work got taken over by the computer decades ago."

The AB airbrush was patented in 1908, and was used for fine-detail airbrushing. It is the only model of Paasche airbrushes that has not been copied by another airbrush manufacturing company.

Though many of the services once needed for airbrushes have now gone digital, Paasche Airbrush Company has fought to stay relevant in an increasingly digitized market.

"The hottest thing recently has been FX, zombie makeup, and creature makeup. Artists use our brushes for everything from temporary tattoos, to hobbies and crafts, to touch-up and design work on furniture and cars," Brian asserted.

"We are constantly moving into different areas," Steven said. "It always seems like there's something new that pops up that gives us a little more life – a broader appeal."

see **PAASCHE** page 20



An employee tests the quality of a recently made airbrush.

And broaden their appeal, they have! In 2011, Paasche Airbrush Company made their mark on the special FX world when they signed on to sponsor *Face Off*, a Syfy reality television show where prosthetic makeup artists compete against each other to create prostheses like those found in science fiction and horror films. The show has over 2 million viewers.

"The most exciting thing recently has been the work we've done with *Face Off*," Brian explained. "We get to watch them over the years as new techniques come out. It's amazing to see this new kind of creative work being done with our airbrushes."

Among the many new opportunities that have opened for Paasche Airbrush Company over the years, there has also been a struggle to stay relevant in a global market.

"The main problem we have is competition with China," Steven admitted. "That seems to be where all the growth goes."

"Ever since the Internet came around, it made it so much easier for China to sell

directly to the U.S. You simply can't compete with the price. But quality, and, obviously, service is where we beat them," said Brian.

The future for Paasche Airbrush Company will be bright. With the fifth generation coming into the workforce in the next decade, Brian and Steven have a lot to look forward to.

"Both Steven and I have two children," said Brian. "We plan on the company still being around when they grow up, so hopefully they'll be interested in taking over once we're ready to retire."

Along with keeping the business within the family, Paasche Airbrush Company maintains its long-lasting relationship with the IMA.

"Most organizations are out there for their own private interests where they fight to grab a larger piece of the pie. It's important to have an organization out there that fights for some common sense – not what people want, but what we need to do for the future," Brian said.

Please join the IMA in congratulating Paasche Airbrush Company on 113 years of business, and 100 years of membership. ■



Face Off Season 2 contestant Nick Herrera used Paasche Airbrush Company's airbrushes to paint the body and face of this sea turtle.



Top left: Jens Paasche works on an airbrush, 1910.
Bottom left: The original Paasche Airbrush Company office.



Jens Paasche at 59 years old, 1949.

ISTEP Program: Education, Communication, and International Support for Illinois Manufacturers

"As we celebrate World Trade Month across the United States, Illinois is proud to be the premier exporting state in the Midwest, with an economy slightly larger than the Netherlands," said Sean McCarthy, Director of the Illinois Department of Commerce & Economic Opportunity. "It is not a surprise that this Midwestern state is comparable to a European country when Illinois' 10 leading industries' export sales figures totaled \$59.8 billion in 2016."

While Illinois manufacturers stand as a pillar of the state economy, there is more work to be done. The Illinois Department of Commerce's Office of Trade and Investment (OTI) is prepared to support Illinois manufacturers as they pursue new international market opportunities. OTI proactively assists Illinois' small and medium-sized business interested in expanding their global export footprint through concierge trade services and financial assistance opportunities. The Illinois State Trade and Export Promotion (ISTEP) Program supports these services and offers companies financial resources to attend trade shows, obtain product compliance certification and international marketing assistance.

Yearly, OTI leads 15 to 20 Illinois business delegations to world class trade shows that are strategically chosen to position Illinois manufacturers at the forefront of international market opportunities. An Illinois business interested in attending a trade show outside of OTI's yearly pre-planned missions can take advantage of OTI's Individual Foreign Market Sales Mission financial assistance.

While trade shows last only four or five days, OTI operations continue the progress made for years to come. With 10 foreign offices in key markets around the world and a team of local trade specialists, OTI provides market intelligence and matchmaking services to identify foreign buyers and distributors for Illinois companies. OTI's 10 foreign office trade directors cement relationships made at trade shows and work as liaisons between the company headquarters and the new market for as long as needed.

Illinois manufacturer Treatment Products Ltd. utilized OTI's services when it was be-



ginning to explore international markets. "We could not have started exporting, nor continued to increase our exports and employees without the help of the Office of Trade & Investment," said Jeff Victor, Vice President of Treatment Products Ltd. "They instructed us, referred us to experts and provided programs including trade missions with other Illinois firms that enabled us to find customers for our products throughout the world."

The OTI team of professionals always has the client's needs and goals in mind when providing the state's domestic and international services. Director of OTI, Margo Markopoulos, explained, "OTI services are tailored to every one of our Illinois clients. Here at OTI, we understand that export success leads to economic growth and job creation here at home."

Illinois' internationally-connected mindset has positively benefited its residents. Treatment Products now employs 25 Chicago residents at its plant on the near west side of Chicago, with over half of those jobs being for export activities. This is just one example of how small and medium-sized

businesses in Illinois can create job opportunities when international exports grow. OTI's domestic and international programs are offered to Illinois businesses to grow our economy and help expand Illinois' global reach.

Congratulations to IMA members AJ Antunes & Co. for receiving the "Exporter of the Year" award, and to Frigid Fluid Co. for receiving the "Export Continuing Excellence" award from the Governor's Export Awards program.

"Illinois has the best location, the best people, and the best infrastructure of any other state in the nation," Governor Rauner said at the awards reception in December. "Our businesses and entrepreneurs are the backbone of the Illinois economy and this year's recipients exemplify just that."

The ISTEP program is highly competitive. Applications are accepted throughout the entire year and admission decisions are made on a first-come, first-served basis.

Visit exports.illinois.gov to learn more about how your company can take advantage of OTI's export assistance services and ISTEP program. ■

HR in Manufacturing: A Digital Transformation

Manufacturers are looking for new ways to remain profitable in light of constantly-changing market conditions. While efforts to reduce costs typically focus on implementing more efficient manufacturing processes and maintenance procedures, advanced technology solutions are helping human resource management streamline processes while maintaining a strong, diverse workforce. However, manufacturers worldwide are finding it difficult to hire and retain enough workers to support their growth despite a rising global population; and industry experts predict the situation will worsen over the next 20 years.

While there are a number of factors contributing to a potential labor shortage, the most pressing is an aging workforce. In many of the world's developed countries, retirement-age employees from all types of industries are exiting the workforce at a faster rate than qualified workers are being hired to replace them.

The US Census Bureau projects that between 2025 and 2050 people aged 65 and older throughout the world double to 1.6 billion globally, whereas the total population will grow by just 34 percent over the same period. The exodus of older workers not only leaves companies with less manpower, but they also are faced with the prospect of

losing significant institutional knowledge.

Another issue is the negative perception of "manufacturing" jobs. It seems that teenagers have little interest in a manufacturing career because manufacturing is perceived as a declining industry with unprofessional, dead-end jobs, dirty factories and frequent layoffs. Faced with these challenges in addition to complex labor demands, HR executives are turning to technology for help.

Identifying, Attracting and Hiring the Next Generation of Workers

To overcome the challenge of a labor shortage, HR executives must appeal to Millennials – a tech-savvy, digital native generation. Oncore estimates that by 2025, they'll make up about 75 percent of the American workforce. Millennials who were raised on technology are comfortable using it how, when and where they want. Consequently, they demand a similar high-tech work environment that features state-of-the-art technology such as instant communications, 3-D graphics and open system architectures. Manufacturers willing to make the investment in these types of technology tools could gain a key competitive advantage when it comes to recruiting and retaining a new generation of workers. Newer, nimbler, more high-tech companies like Tesla Mo-

tors, for example, are more desirable employers for engineers that want to work on the latest innovations.

HR executives are starting to use data analytics to help identify critical trends and patterns to guide future actions. For example, when possible hires are identified, algorithms now exist that can predict how successful a prospective hire will be in a position. Types of information used in the analytics may include demographic data, benefits history, compensation history, job history, and more.

Additionally, by analyzing a company's high-performing workers, it is possible to identify the characteristics of the type of person most likely to succeed, which is then used for recruitment processes, during interviews, and for developing existing teams. Once qualified candidates are identified, compensation comparisons can be created to determine the appropriate salary offering necessary to attract top talent based on position, industry, geographical location and many other factors.

Providing an Improved, High-Tech Employee Experience

Surprisingly, human resources has seen few innovations outside of payroll automation nearly 50 years ago. Many time-consuming, manual processes still exist that also are paper intensive. Digitally transforming these systems can support a manufacturer's growth without adding expensive, additional headcount. Examples include systems for digitalizing and searching job applications, automating payroll and scheduling, and providing employee portals where individuals can access and change benefit information.

Cutting-edge manufacturing companies also are combining adult learning theories with sophisticated technology systems to transform existing training programs in ways that empower and engage people like never before. This new approach effectively transfers information in ways that are comfortable to a younger generation, while at the same time lowering costs and delivering improved results.

For example, HR managers are presenting content in multiple formats to help employees learn in the most effective way, such as using 3-D graphics for more visual learners or recording sessions for auditory learners.



Managing Diverse Workforces and Optimizing Resources

These diverse workforces provide important flexibility, allowing companies to cost-effectively deploy talent when and where it is needed most. However, despite the fact that workers are hired from different labor pools in many different locations, HR managers are still responsible for ensuring that everyone, regardless of employment status, is compliant with constantly-changing regulations including country labor laws, visas and benefits. Consequently, HR departments need an integrated human capital management system that supports varied country regulations.

Also, a comparison of pay rates and availability is critical for resource optimization. When all of this information is presented through an intuitive, easy-to-use interface and graphical formats, smarter decisions quickly can be made.

Worker safety is always a top concern, especially in manufacturing. Fortunately, technology advancements have made it easier to keep workers safe. Digitalization of safety systems and deployment of wearable devices embedded with sensors has made tracking and evacuations much faster. For instance, workers at plants or mining sites can wear bionic jackets containing safety sensors that allow companies to track the physical location of people, as well as monitor environmental factors such as light, sound and air

Encouraging Information Sharing

Giving employees access to an integrated technology system ensures everyone is working from a trusted single source of information. When content is changed in one location, such as the layout design of a new plant facility, it is updated throughout all other departments. A connected, collaborative environment also allows companies to

Making More Insightful Decisions

These are just a few of the solutions manufacturing companies are using to help address the challenges faced by human resources in today's complex, global business world. Whether it is competing for workers, maintaining a flexible workforce, or giving workers tools to make their jobs easier, HR teams are embracing digital transformation to help their companies maintain profitability and market leadership. ■

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MSSC Now Offering “Fast Track” Certifications

In today's economy, a highly skilled workforce is more important than ever to ensure competitiveness. For businesses, finding appropriate skills to meet the demands of global competition is imperative for success. For individual workers, improved skills are the key to moving across a manufacturing work space.

Leading companies are taking the approach of digital learning experiences anytime, anywhere. Increasingly, they are offering remote skills training for manufacturing, allowing employers and employees alike to make use of self-paced learning approaches.

The non-profit MSSC is the nation's leading industry-led training assessment and certification organization. MSSC first achieved national prominence when it was selected under the federal National Skill Standards Act in 1998 as the “Voluntary Partnership” of industry, labor and education responsible for developing industry-wide skill standards and certifications for advanced manufacturing. To fulfill that charge, MSSC developed a formidable coalition of some 700 companies, all the industrial unions, 4,000 front-line workers, and 400 career-technical education organizations.

In 2001, the federal National Skill Standards Board unofficially approved the MSSC's national Production Standards, which the MSSC reviews annually to ensure that they are keeping pace with technological change. For example, the current version of these national standards includes emerging technologies such as 3-D printing, Internet of Things, next generation robotics, mechatronics, Nano-manufacturing, and advanced materials.

The full Production and Logistics Standards are available without charge under “2016 Standards” at www.msscusa.org. IMA member companies should review those standards and then ask whether they would be satisfied with job applicants who passed MSSC certification assessments based on their ability to perform against those standards. Most companies find that individuals that have been certified by MSSC to demonstrate competency against this array of skills far exceed the abilities of their usual applicants.

While keeping pace, MSSC continues its



focus on the industry-wide core technical competencies required for front line workers. It delivers its Certified Production Technician (CPT) and Certified Logistics Technician (CLT) program through a network of some 1750 MSSC-trained Instructors and 1000 MSSC-authorized Assessment Centers, mostly at community colleges and secondary schools, in 49 states.

The focus on job applicants reflects MSSC's traditional focus on helping companies build a robust pipeline of higher skilled, MSSC-certified workers.

Hundreds of companies have worked successfully with MSSC and its national network to help build that pipeline.

MSSC has had a close relationship with IMA for nearly a decade. Indeed, it was the IMA Board that encouraged MSSC in

2010 to seek accreditation under a new ISO Standard 17024 for Personnel Certification. Today MSSC is the only national certification body to be accredited under that global quality standard and to be endorsed by the National Association of Manufacturers for both manufacturing and logistics.

MSSC is also a Founding Partner of the NAM-endorsed Skills Certification System, which includes other leading national certification bodies such as the National Institute for Metalworking Skills, the American Welding Society, American Society for Quality and the Society of Manufacturing Engineers. In NAM's design, these “stackable” credentials build on the foundation provided by MSSC CPT that covers the core skills underpinning all production occupations.

As a result, the IMA Board has long encouraged its member companies that have openings to offer an interview to job applicants who have a MSSC or any other certification endorsed by NAM, as long as those individuals meet other company hiring requirements. The focus on job applicants reflects MSSC's traditional focus on helping companies build a robust pipeline of higher skilled, MSSC-certified workers.

Hundreds of companies have worked successfully with MSSC and its national network to help build that pipeline.

For more information: Sylvia Wetzel is MSSC's Senior Advisor for the State of Illinois, and can be contacted at swetzel@msscusa.org or at (630)803-6794. Ms. Wetzel's expertise in training, HR, and Workforce development can help improve your company's Human Capital's skills and productivity.

The CEO of Caterpillar in 2015 announced that his company would use MSSC CPT as a key recruitment tool and encouraged its suppliers to do the same. Other leading corporations currently using MSSC CPT and CLT for recruitment purposes include GE Appliances, Lockheed Martin, Harley-Davidson, Snap-on, Toyota, Pace Industries, Ford, BMW, Andersen, Cardinal Glass, Hillwood Alliance Global Logistics Hubs, and Walmart Logistics.

MSSC is now expanding its CPT training and certification program to include incumbent production workers as well under a "Fast Track" program. That program enables those workers to use less time and work on-line in a self-directed program. It builds especially on the success that Bison Gear and Engineering in St. Charles enjoyed in using their version of CPT "Fast Track." This program is ideal for new hires and experienced workers alike. MSSC Certifications are respected industry-wide as objective confirmation and assurance of knowledge and/or skill achievement in various areas of technical expertise.

Organizations who build their workforce with internal training and credentialing can manage and control the time and resources to leverage their employees' skills. They can also save time and money by using the authoritative MSSC CPT standards and compact training to quickly develop the skills necessary for new or newer employees to develop and credential their skills so they are "work ready" in a short period.

MSSC also offers a "Diagnostic Tool"

to companies interested in using MSSC to build the skills of incumbent workers. If a company puts 10 or more workers through an MSSC assessment, this tool will benchmark those scores against national test score averages. This enables companies to pinpoint those specific skills in which their workers are falling behind the national competition and then to focus their CPT training on those deficiencies.

The MSSC CPT program provides the necessary Foundational Skills for incumbent workers required in all manufacturing sectors. These do include "employability" skills that all employers are seeking, such as good conduct, communication, teamwork, problem solving and critical thinking.

They also provide a wide range of core technical skills:

1. Safety- Working safely every day
2. Quality- Assuring the best product for the customer(s)
3. Processes and Production – Ensuring the most efficient conversion of components and raw materials into a finished product
4. Maintenance – Preserving equipment and facilities in the best operating condition
5. Sustainability – Ensuring efficiency while enhancing the environment

Improving workforce foundational skills and competencies in all these functions positively impact organizations with:

- Improved Productivity
- Reduced Safety Incidents –OSHA DART Best Practice metrics.
- Higher Employee Retention Rates – Due

to Employee Satisfaction

- Improved Motivation and Morale – 91% of certificants feel more confident on the job.

- Improved On-Time Delivery and Performance Indicators

- Employee Adaptability – 93% have a better understanding of all work functions and are more flexible in adapting to new technologies.

- Enhanced Soft Skills – 92% feel better prepared to work in a team environment and communicate in emergency situations.

There are four Modules that are completed on-line in a self-directed approach to become a Certified Production Technician. Each module can be completed on line anywhere from 12 to 16 hours with a proctored assessment at the end of each module.

The MSSC awards nationally portable, industry-recognized certificates to individuals who pass any of its four Production Modules:

- Safety
- Quality Practices & Measurement
- Manufacturing Processes & Production
- Maintenance Awareness

MSSC honors those who pass those four Modules with a full "Certified Production Technician," diploma-quality Certification document suitable for framing, together with arm patches.

MSSC has also built an optional "Green Production" module, for companies with a special commitment to sustainability and environmental enhancement. ■



Global mergers & acquisitions advice for the middle market manufacturing sector

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Power for Your People in PEOs

What if there were one simple thing you could do to boost your growth rate by seven to nine percent, reduce employee turnover by 10 to 14 percent, and cut your risk of going out of business in half? And what if, as an added bonus, that one simple thing could also free up a big chunk of your time, time that you could then devote to important strategic issues, or spend with key clients and vendors?

That may sound improbable – and maybe even magical – but more and more owners of small and mid-size businesses are discovering that when they retain the services of a “professional employer organization” (PEO) they do, in fact, realize such a positive impact on their businesses that it can seem almost like magic.

The numbers cited above come from an economic analysis commissioned by the National Association of Professional Employer Organizations (NAPEO), a trade organization that represents many PEOs. One of its goals is to educate companies about the PEO model, which is a form of outsourcing but with a novel twist that provides several advantages to small and mid-size companies that sign on as clients.

With roots in payroll processing and HR outsourcing services, PEOs today can provide a wide range of payroll, benefits, regulatory compliance, and other HR services including strategic consulting. And they now provide those services to about 180,000 small and mid-size companies...

With roots in payroll processing and HR outsourcing services, PEOs today can provide a wide range of payroll, benefits, regulatory compliance, and other HR services including strategic consulting. And they now provide those services to about 180,000 small and mid-size companies that collec-



tively employ more than 3 million workers and generate \$156 billion in annual revenues.

Despite that impressive footprint, many business owners remain unaware of PEOs and the advantages they can provide.

“I’d been on the HR policy beat in Washington for many years, including a decade at the National Association of Manufacturers and also spent time lobbying on HR issues and I really hadn’t heard about PEOs before I took this job almost five years ago,” admits Pat Cleary, President and CEO of NAPEO. “But once I understood the concept, I was an instant convert. It was one of the best business models I’d ever seen, and I still feel that way today – more so, if anything.”

When asked his thoughts on the main factor behind the higher growth, survival, and employee-retention rates enjoyed by companies using a PEO, Cleary doesn’t hesitate:

“Focus. If you’re a small business owner, and you can focus on your business and your people and provide them with a really good suite of benefits, good things are going to happen. Your turnover is going to be lower and your growth is going to be higher because you’ve got the time to focus your energies there. To me, it’s an arithmetic issue. There are 168 hours in the week, and you’ve got to spend some of them sleeping and eating. The more of the rest of those hours you can devote to issues strategic to your business – as opposed to administrative

headaches – the greater your opportunities for growth and success are going to be.”

Understanding the Model

Today, outsourcing options abound. What sets PEOs apart is a unique concept: “co-employment.” Your employees remain your employees, but they also become employees of the PEO. That allows the PEOs to aggregate their clients’ employee bases into a large group, which in turn enables the PEO to go to market and negotiate much better rates for benefits than a typical small company would be able to realize.

There’s no need to worry about loss of control, because your employees remain yours in every way that matters. A client service agreement will spell out which responsibilities and risks belong to the PEO, and which ones remain with the client company. “When you work with a PEO, it stands side-by-side with you as the owner, and you actually offload some forms of risk,” says Paul J. Sarvadi, chairman and CEO of Houston-based Insperity. That can extend from compliance issues around hiring to potential legal risks around termination. Because PEOs are experts in all aspects of human resources, having a PEO in your corner can help you with any number of workforce-management issues even as its collective buying power allows you to offer richer benefits packages than you could afford to provide on your own.

“Power For Your People in PEOs” is a condensed article provided by Inc. Magazine. The original, full article was featured in the August 2016 publication of Inc. Magazine. For more information, contact Adam Hackman, Executive Vice President at Wine Sergi Insurance, at adamh@winesergi.com or (630) 485-5881.

Even businesses that are currently outsourcing one or two HR functions, such as payroll, through a conventional outsourcer have a lot to gain by consolidating other HR administrative functions with a PEO. That's been the case for Frank Klavon, who has owned the Glass Doctor of Broward County (Florida) franchise for a dozen years. After working with a payroll provider for several years in a relationship he considered difficult and unresponsive, he decided to explore other options. He was also looking for help dealing with rising workers' compensation costs. He got that, and more, when he signed on with a Florida-based PEO, about six years ago.

The PEO now handles Klavon's payroll quickly and efficiently and provides workers' compensation coverage for his employees at a lower rate than he'd been paying before. Additionally, the PEO manages the employee onboarding process and handles government reporting and forms. "I'm in the customer service business myself, and I appreciate the ease of working with the PEO," Klavon says. "I consider this a very successful relationship."

It is not unusual for small businesses that turn to a PEO to experience a net reduction in costs. "Because a PEO aggregates many small businesses, it not only allows them to obtain better insurance rates but can also provide access to offerings that might not be available to them at all on an individual basis," explain Jay Starkman, CEO of Engage PEO, headquartered in Hollywood, Florida. "The PEO provides better services, streamlined with the expertise that only a company focused on those things can bring. Small businesses often see a net cost savings when

they look at what they were really spending on those areas separately."

Up and Running

Another major advantage of PEOs is that they can provide a company with instant HR infrastructure, which can be a huge boon to a busy entrepreneur struggling to wear many hats. "What I call 'regularly scheduled business interruptions' are removed from their operations," says Insperity's Sarvadi. "They now have Fortune 500 level employee benefits that can help them attract and retain key people, and their overall business risk is reduced since being an employer is one of the biggest areas where business owners take risks."

While the advantages PEOs offer make sense for any SMB, they may be especially relevant to growth-oriented businesses on the hunt for equity investments or debt financing to drive continued expansion. Increasingly, Sarvadi says, venture capitalists, investors, and lenders take a more favorable view of companies that have had the foresight to sign on with a PEO. "Obviously, if you are going to invest in a business, you look for anything that would improve that business's likelihood and degree of success. It has taken some time for VC and private equity firms to fully grasp how dramatically a PEO can boost results, but it's becoming more widely understood now. I think they also view the risk-reduction aspects of using a PEO as an important factor."

Elliot Geidt, a principal at Redpoint, a Silicon Valley-based venture capital firm that has funded more than 430 companies (including Justworks, a New York City-based PEO), has seen an increase in the number of

his portfolio companies using PEOs. "I like this move, because it enables my management teams to focus on building their core product versus focusing on administrative tasks," he says. "And, a startup that uses a PEO can offer 'big company' benefits, which is important for retaining talent. I should also mention that PEOs are often the lowest-cost option for benefits, so my investment dollars go further."

At one time, PEOs may have qualified as a well-kept secret. But that's changing. The benefits are too numerous to ignore. Odds are good that if you aren't using a PEO today, other companies in your industry are. That can put you at a competitive disadvantage, which is one more reason why you should carve out a little time to see what a PEO can do for you.

From a business's perspective, PEOs smooth out what would otherwise be a wide range of cash obligations, such as big quarterly tax payments, employee benefits costs, and workers' compensation deposits, which can often disrupt a company's cash flow. Having regular, predictable costs for an array of services and benefits that you'd otherwise struggle to provide – if you could provide them at all – is another major advantage of using a PEO.

The PEO market is booming, with a broad mix of both regional and national companies offering differing lists of services. The IMA has PEO resources available through their partners at MIS and AcriSource to help manufacturers navigate the PEO landscape. Contact your IMA representative today to learn more about their unique resources and capabilities. ■



Brunswick Reports High Number of Patents Granted in 2016 – Mercury Marine Has Record Year



Brunswick Corporation (NYSE: BC), a worldwide leader in the marine and fitness equipment industries, announced that it had 73 patents granted to the Company during 2016, more than twice its total for 2015, and among the highest amount achieved in Brunswick's nearly 175 years in business. 60 those 73 patents were awarded to Brunswick's Mercury Marine division, which was a record for the engine manufacturer based in Fond du Lac, Wis.

In 2016, Brunswick spent approximately \$139 million on research and development across the global Company, about three percent of its annual net sales and consistent with investment levels of recent years.

Brunswick's research was highly concentrated into the following categories: emissions, control, comfort, maintenance, friendlier boating, and active lifestyle.

"The awarding of these patents was the culmination of a lot of good work across the Company during the past several years," said Brunswick's Vice President and Chief Technology Officer, David Foulkes. "These efforts have reinforced our leadership position in our marine and fitness businesses."

Basler Electric Company Celebrates 75 Years in Business



Basler Electric, a privately held corporation with worldwide headquarters in Highland, Illinois, celebrates its 75th year of business in 2017. Basler produces electronic assemblies for the control and protection of electric power, as well as transformers and plastic components.

Carl Basler founded Basler Electric in 1942 and, from its beginning when Carl began electrical work in his father's garage, to today's global presence, the company's focus has always been on quality and customer satisfaction.

The Highland facility has undergone multiple expansions and changes over the years. Basler offers its customers a large and experienced engineering staff who can design every aspect of a product from electrical, mechanical, software or firmware to meet the most demanding specifications.

The Highland facility's manufacturing capabilities offer flexible, customer-focused processes that include surface mount technology (SMT) and through-hole printed circuit board assembly manufacturing, a complete machine shop for metal fabrication with computer controlled punches/presses, powder coat paint booths, large transformer (up to 2800 kVA) production, and system level final assembly and testing. Basler also operates manufacturing plants in Taylor, Texas, and San Marcos, Texas.

Cedar Concepts Corporation Receives Intent to Matter: Community Impact Award



The U.S. Green Building Council-Illinois (USGBC-Illinois) announced the winners of the 12th annual Emerald Awards for 2017. The Emerald Awards showcase of the best and brightest contributors to a more sustainably built environment by recognizing outstanding individuals, organizations, projects and technologies.

This year, leaders and projects reflect the national recognition Illinois enjoys as a leader in sustainable technology and design. For the fifth year in a row, Illinois had the distinction for being among the top states for LEED projects.

"The achievements this year uniquely illustrate the future of sustainability and how Illinois will continue to lead the nation in green buildings and sustainable communities," said Brian Imus, Executive Director of USGBC-Illinois.

"These leaders and projects build on the success of LEED in Illinois by advancing new strategies that reduce carbon emissions while strengthening the health and economy of our communities."

Cedar Concepts Corporation, owned by Linda McGill Boasmond, is creating green manufacturing jobs in a LEED certified

factory and exemplifies her environmental stewardship and commitment to her community by bringing jobs and sustainability to the Back of the Yards neighborhood.

Cedar Concepts exemplifies the goals of the Epic Challenge of the Chicago green building community to impact more people in every neighborhood with the carbon draw-down strategies and sustainability best practices.

Johnson & Johnson Names Winners of First Africa Innovation Challenge



Johnson & Johnson named the winners of the first Africa Innovation Challenge at the Global Entrepreneurship Congress. The initiative, which received nearly 500 submissions from innovators and entrepreneurs across the continent, sought the best ideas for new, sustainable health solutions that will benefit African communities. Launched in November 2016, the Africa Innovation Challenge solicited novel ideas with a focus on three critical health areas: promoting early child development and maternal health; empowering young women; and improving family well-being.

The three winning concepts embraced these themes as well as the goal of creating ongoing, sustainable businesses:

Project Agateka (Burundi) – The development of a sustainable solution to support girls who are unable to afford menstrual pads and underwear is an important need for young women. Project Agateka will provide a direct health solution as well as the opportunity for women and girls to generate income in Burundi. With the inclusion of health information, the initiative also provides health education to support improved sexual and reproductive health.

Project Kernel Fresh (Liberia) – Project Kernel Fresh sources natural palm kernels from smallholder women farmers, increasing their income.

The entrepreneur cold presses the palm kernel oil to be used in organic cosmetics. The project will also create jobs for young women by training them to sell the products throughout Liberia.

Project Pedal Tap (Uganda) – Seeking to prevent disease transmission, and a reduction of water use, Project Pedal Tap will develop hands-free solutions for hand water taps in Uganda. The entrepreneurs will create manufacturing capabilities, using mostly recycled materials, which will lead to an ongoing business.

“This was an extremely difficult competition to judge as there were many terrific ideas,” said Josh Ghaim, Chief Technology Officer, Johnson & Johnson Consumer Inc. “The three winning projects demonstrated a strong benefit to local communities and the ability to empower young women, and they also have the potential to deliver ongoing economic support. We look forward to working with these entrepreneurs over the course of the next year to help them build sustainable operations.” Each of the three winning recipients will receive funding as well as mentorship from scientists, engineers, and operations members from the Johnson & Johnson Consumer Research & Development organization and other areas of the company.

National Association of Manufacturers Names RSM’s Steve Menaker to Board



RSM US LLP (“RSM”) is pleased to announce that the National Association of Manufacturers (NAM) has named RSM’s Steve Menaker, partner and national leader – manufacturing, to the NAM’s Board of Directors.

Founded in 1895, the NAM, guided by its Board of Directors, is the largest indus-

trial trade association in the United States with more than 14,000 members. It is the nation’s most influential advocate for manufacturing. The NAM’s membership includes some of the world’s most iconic brands, as well as many of the small and middle market manufacturers who power the U.S. economy. Ninety percent of NAM’s members are small and medium-sized businesses.

“I am honored to be a part of the NAM Board,” said Menaker. “At RSM, we understand the unique needs and challenges faced by middle market businesses, across all industries. Our team’s focus is on understanding the manufacturing sector, in particular. I look forward to sharing our firm’s knowledge of and experience in the manufacturing industry, and to learning from my fellow NAM board members how we can work together to help manufacturing – and the 12 million men and women employed in the industry here in the U.S. – thrive and grow today and into the future.”

2017 FMA/CNA Safety Award Winners Announced



The Fabricators & Manufacturers Association, International (FMA) and CNA announced the recipients of this year’s Safety Awards. Open to all FMA and Tube & Pipe International (TPA) company members, the FMA/CNA Safety Awards program recognizes metal fabrication companies that have an ongoing commitment to excellence in safety. Award winners are determined by the FMA Safety Council and the awards are sponsored by CNA. The 2017 Safety Award of Honor is presented to companies having perfect safety records – no recordable injuries or illnesses for calendar year 2016. IMA member Plymouth Tube of Streator, Ill. received the 2017 Safety Award of Honor. The 2017 Safety Award of Merit was awarded to IMA members ADM Mechanical of Decatur, Ill., BTD Manufacturing of Detroit Lakes, Minn. and Washington, Ill. and Laystrom Manufacturing of Chicago, Ill.

“We’re proud to recognize these companies for their outstanding and ongoing efforts to create safe working conditions for their employees,” said Roger Wilson, Assistant Vice President and Industry Leader, Manufacturing, CNA. “This accomplishment could not be achieved without a culture dedicated to safety and risk management.”

Multi-generational Sloan Valve Celebrates 110 Years of Success



Sloan Valve Company from Franklin Park, Ill. celebrated 110 years in business as well as 36 years of membership with the IMA.

In 1906, William Elvis Sloan established Sloan Valve Company in Chicago, ushering in the modern plumbing era with his invention of the revolutionary manual Royal Flushometer. The Royal Flushometer was the first of its kind, designed to replace tank and chain fixtures. Unlike its predecessors, it required less water and energy—a reliable flush unaffected by gravity. The company weathered the stock market crash of 1929, but does not see profits rise again until after 1933. William Elvis Sloan took a 50% pay cut to help the company stay afloat.

Today, the fourth generation descendants of William Elvis Sloan work together to continue the company heritage of innovation, quality, reliability and water conservation. The company continues to create a cleaner environment while building a global brand synonymous with sustainability, energy conservation and water efficient products.

Do you have news to share?

Send your articles and press releases to Anastasia Lowenthal, Editor and Manager of Publications, at alowenthal@ima-net.org.

New IMA Members

ACCURATE PRODUCTS, INC.
Chicago, IL

ACCURIDE-GUNITE
Rockford, IL

AISIN ELECTRONICS ILLINOIS, LLC
Marion, IL

AIT WORLDWIDE LOGISTICS
Itasca, IL

ALL PRODUCTS MFG & SUPPLY, INC.
Romeoville, IL

AMCRAFT MANUFACTURING, INC.
Elk Grove Village, IL

ARLINGTON PLATING COMPANY
Palatine, IL

AUTOMATED MANUFACTURING SOLUTIONS, INC.
Crystal Lake, IL

AUTOMATION INTERNATIONAL, INC.
Danville, IL

CHICAGO IP LAW
Naperville, IL

CITY OF VANDALIA
Vandalia, IL

CLINGAN STEEL, INC.
Elk Grove Village, IL

CONSUMER TECHNOLOGY ASSOCIATION
Arlington, VA

CONTINENTAL CARBONIC PRODUCTS, INC.
Decatur, IL

CRAFT DIE CASTING CORPORATION
Chicago, IL

DR. PEPPER SNAPPLE GROUP
Northlake, IL

**ECONOMIC DEVELOPMENT CORPORATION OF DECATUR
& MACON COUNTY**
Decatur, IL

EDGEWATER PRODUCTS COMPANY, INC.
Chicago, IL

ELASTECH, INC.
Carmi, IL

ESCO LIGHTING, INC.
Chicago, IL

FETCO FOOD EQUIPMENT TECHNOLOGIES COMPANY
Lake Zurich, IL

**GERMAN AMERICAN CHAMBER OF COMMERCE OF THE
MIDWEST, INC.**
Chicago, IL

HATTAN TOOL COMPANY, INC.
Alsip, IL

HENNIG GASKET & SEALS, INC.
Chicago, IL

THE IMPERIAL GROUP LLC
Chicago, IL

INTERNATIONAL MOLD AND PRODUCTION, LLC
Grayslake, IL

KOPPERS, INC.
Cicero, IL

NASCOTE INDUSTRIES, INC., DIV. OF MAGNA EXTERIORS
Nashville, IL

MASON MANUFACTURING, LLC
Decatur, IL

MI-JACK PRODUCTS, INC.
Hazel Crest, IL

MUELLER CO.
Decatur, IL

PEPSICO
Chicago, IL

REYES HOLDINGS, LLC
Rosemont, IL

REYNOLDS MANUFACTURING COMPANY
Rock Island, IL

RING CONTAINER TECHNOLOGIES
Decatur, IL

RIVIAN AUTOMOTIVE, LLC
Normal, IL

ROCKFORD SYSTEMS, LLC
Rockford, IL

SELIG SEALING PRODUCTS, INC.
Forrest, IL

SEMBLEX CORPORATION
Elmhurst, IL

SILGAN CLOSURES
Elmhurst, IL

TECTA AMERICAN CORPORATION
Lisle, IL

THE ADKINS GROUP
Urbana, IL

TOTAL METAL RECYCLING, INC.
Granite City, IL

WABEL TOOL CO.
Decatur, IL

Calendar of Events

June 6-8, 2017: International Defense and HLS Expo 2017 – Tel Aviv

The Illinois Department of Commerce and Economic Opportunity (DCEO), Office of Trade & Investment is inviting Illinois' small businesses on a Trade Mission to exhibit in a No Charge exhibit space in the Illinois Pavilion at the International Defense and HLS Expo (<http://www.isdefexpo.com/home/about-isdef-2/>) trade show in Tel Aviv, Israel from June 6-8, 2017. This opportunity is supported by the US SBA STEP Grant (ISTEP), which means that companies qualifying for this mission will receive the following:

- Free fully furnished trade show booth
- Partial reimbursement of travel for hotel and airfare
- Briefing material
- Pre-show promotion
- Assistance with travel logistics from the State of Illinois Chicago and International Offices

No charge space is limited and qualified Illinois firms will be accepted on a "First Come – First Served" basis. Please contact Sam Ntum at sam.ntum@illinois.gov for more information, with cc to Richard.carpenter@trade.gov. Participating companies may opt to add on services provided by the U.S. Commercial Service, which may also qualify for SBA STEP funding.

June 18-20, 2017: Paint & Coatings Materials Suppliers Trade Mission to Mexico

The U.S. Department of Commerce is organizing its first trade mission for U.S. Paint and Coatings Materials Suppliers. The trade mission will take place from June 18-20, 2017 in Mexico City, Mexico and is designed to coincide with the ANAFAPYT (Mexican National Association of Manufacturers of Paints and Inks) trade show, "Latin America's Coatings Show 2017" which will take place June 20-22. The purpose of the mission is to assist raw material and equipment suppliers to the paints and coatings industry: gain market insight; make industry contacts; solidify business strategies; advance specific projects with the goal of increasing their exports and business in Mexico; and, participate

in the Latin American Coatings Show with complimentary registration or discounted exhibit fees. For questions, please contact Allison.Mello@trade.gov or 312-353-8490.

June 14-16, 2017: InfoComm International - Orlando

Join the U.S. Commercial Service at InfoComm International in Orlando, FL. InfoComm is the largest, most exciting event in North America focused on the pro-AV industry, with 1,000 exhibitors, thousands of products, and 40,000 attendees from 110 countries. The InfoComm show is your once-a-year opportunity to see the latest audiovisual technology, learn the skills that will advance your career, and grow your professional network. The U.S. Commercial Service will be there to help maximize the value of your participation, by providing a variety of on-site services. For questions, please contact Rich Carpenter at Richard.carpenter@trade.gov, or call 312-353-7711. Remember to ask about the possibility of ISTEP funding options!

June 18-20, 2017: SelectUSA Summit - Washington, DC.

This Summit is the premier investment event showcasing inbound investment opportunities throughout the United States. Past Summits have been well attended, with over 1,000 business investors from 70+ international markets, and more than 600 economic development representatives from all over the United States. The Summit provides a platform to communicate economic priorities and affirm the U.S. as the #1 destination in the world for foreign direct investment. The ultimate impact of this important undertaking results in more jobs in America; in fact, 2013-2016 SelectUSA Investment Summit participants have announced more than \$20.6 billion in greenfield FDI into the United States. For more information, please see <http://www.selectusasummit.us/>

June 19-25, 2017: Paris Air Show – Paris

The Illinois Department of Commerce and Economic Opportunity (DCEO), Office of Trade & Investment is inviting Illinois' small businesses on a Trade Mission to exhibit in the Illinois Pavilion at the Paris Air Show (www.siae.fr/en) trade show. This opportunity is supported by the US SBA STEP Grant (ISTEP), which means that companies qualifying for this mission will receive the following:

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- Briefing material
- Pre-show promotion
- Assistance with travel logistics from the State of Illinois Chicago and International Offices

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July 30-August 1, 2017: Dino Mignon International Children's Fashion Expo & Business Conference - Montreal, Canada

Dino Mignon International Kids Fashion Expo is the first largest manufacturers of children's clothing and accessories from around the world, including Canadian companies. The exhibition is open only to: Distributors, Wholesalers and Manufacturers, Importers and Exporters, Representatives and Agent, Baby and Kid Stores, Hypermarkets, Investors, Media, Associations and Unions. Businesses will have the opportunity to meet their customers or their prospect customers (retailers), take orders and address recent market trends and opportunities. For more information, visit <http://www.dinomignon.com>. Questions: contact Sue Bissi, email: Sue.Bissi@trade.gov, or phone: 514-908-3673 or Vicki Tolefree at vicki.tolefree@trade.gov

Visit <http://www.ima-net.org/calendar-of-events> for information, pricing, registration, etc., related to all IMA events. For more information, contact Kimberly McNamara at kmacnamara@ima-net.org, (800) 875-4462, ext. 9371.



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