

MODERN CASTING

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SPOTLIGHT ON SAFETY

OUR SPECIAL SECTION WITH
4 COMPELLING ARTICLES
BEGINS ON **PAGE 15**

PLUS

**STORMWATER CHANGES
TO WATCH FOR **p.13****

**WHAT UNDERWRITERS
WANT **p. 40****



WINNING AT

Four foundries achieved AFS accolades last fall, thanks to safety champions who relentlessly play offense and defense every day. But these innovators know the real victory is sending people home to their families looking and feeling the same as they did when they arrived to work.

MODERN CASTING STAFF

Foundries face unique safety risks and challenges in the relentless pursuit to send their people home healthy and injury-free. While wearing personal protective equipment, locking idle machinery, maintaining proper ventilation, and avoiding noise exposure are positive steps to take, metalcasters are finding more ways to help mitigate safety issues.

Adding to the continuous job of educating team members and providing processes and controls to help them work safely, foundry leaders have the added concerns that accompany potential OSHA citations for workplace violations.

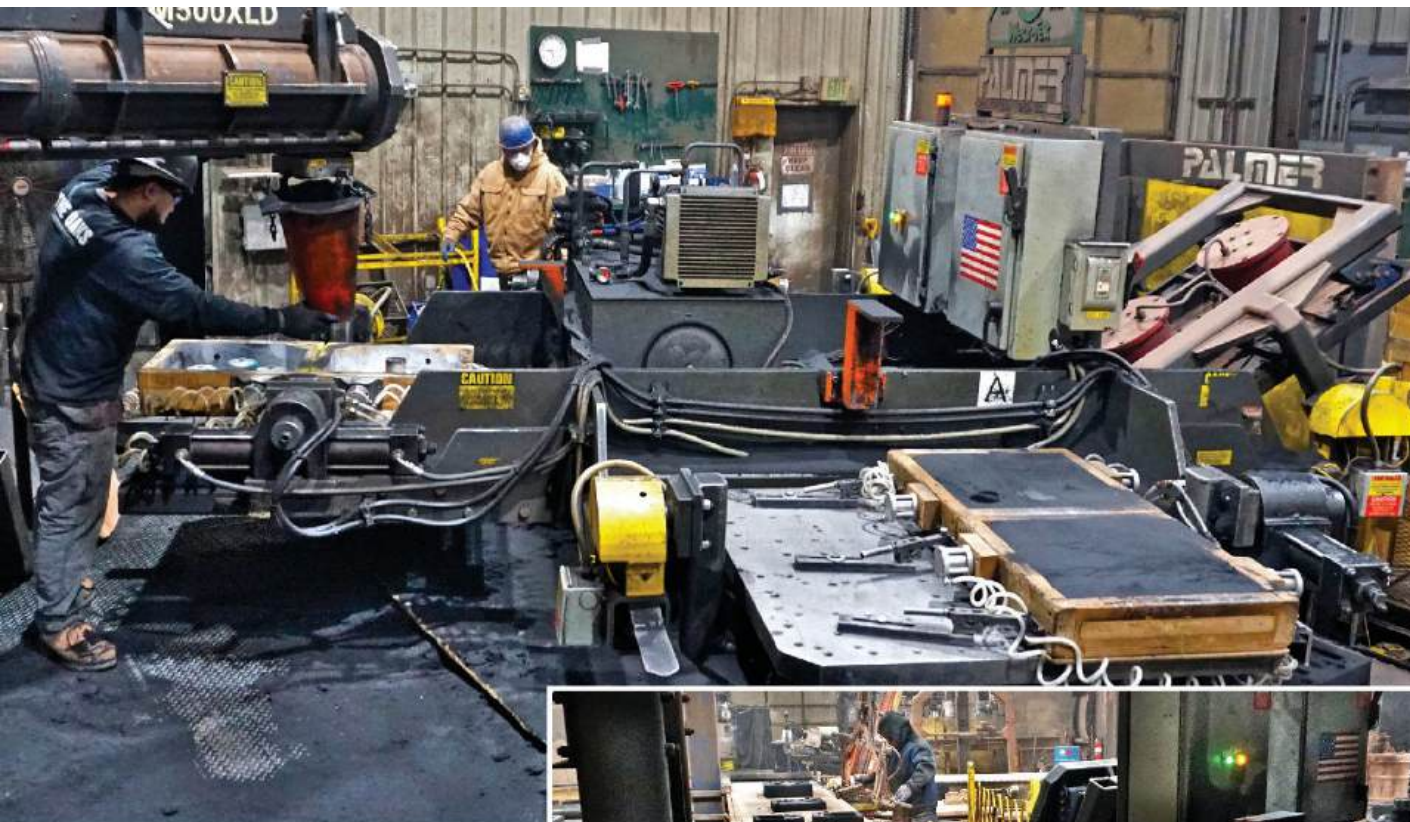
COURTESY LODGE CAST IRON



SAFETY

A photograph of a cluttered industrial workspace, likely a packing department. In the foreground, there is a workbench covered with various tools, including wrenches and sockets, and a red fire extinguisher. A large black fan is visible in the background, and another fan is partially visible on the right. A person, presumably a Lodge employee, is visible in the background, working at a table. The word "SAFETY" is overlaid in large, bold, white capital letters on the left side of the image.

A Lodge employee in the packing department at the take off line inspects and labels the skillet before they go into boxes for shipment.



COURTESY WEAR-TEK

Above: Wear-tek's entire FMM process is shown as the FMM rotates into its next position. Right: As the FMM indexes to the next station, the platen rolls back over, ready to be prepped for more sand.

Understanding the importance of safety on the lives of employees and their families, some foundry leaders are developing creative solutions to problems as old as the industry itself. A few who have taken safety into their own hands were honored by AFS during its fall EHS Conference—these are their stories.

Sculpting the Future at Wear-Tek

Plant Design Engineer Brandon Roy at AFS Corporate Member Wear-Tek is no rookie to using his hands at work. Trained as a classical sculptor in Italy and working as a sculptor for 20 years, Roy ran his own bronze foundry and handled public art installations, involving extensive engineering requirements. A certified welder and machinist, he is credited for the creative solutions that helped Wear-Tek win the 2024 AFS Safety Innovation Award.



COURTESY WEAR-TEK

The foundry was ready to replace an outdated closed-loop no-bake molding line to a primarily hands-free process. The old method required manual filling of patterns, pushing heavy patterns down the line, and flipping small molds ranging from 10–150 lbs.—all manually. Back and finger injuries created a sense of urgency to reduce lost and ease the intensive labor that was contributing to high turnover rates.

“We had some new people who

would start on the job, and, after a few hours, wouldn't come back after break on their first day,” said Roy. “Or, we'd lose people for months at a time with twisted ankles caused by tripping over a chunk of sand on the floor.”

They considered the idea of a carousel with a separate mold rollover but would yield only 20 molds per hour due to the slow process. It was a good idea, but they needed stations that invert the molds in a synchronized and quick operation.

Enter the Palmer Flip Molding Machine (FMM), a concept they had seen in a smaller prototype at another foundry. Wear-Tek was concerned at first this was too new of a product to work, but when they saw the stations in action as a proof of concept, they decided to go with it. The challenge was fitting the machine into a very tight space with a large sand supply tank that had to fit within a half-inch of the beams 20 above. That's when an unexpected tool came into play: augmented reality (AR).

Roy put AR technology to work by placing the machinery into an AR program and walked through the AR layout in real time at the foundry. He discovered the visual representation could show that if the machine was made with removable platens that could be shipped separately, they could fit the FMM through the foundry doors.

Not only was the fit of the machine important, but ergonomics and durability were non-negotiable. Because they were motivated by the safety of their employees, the last thing they wanted was a ball-drop—so, great attention was given to this priority.

Another challenge to get right: the details of fine-tuning sensors and programming the FMM. It took months to come to a satisfactory point of precise sensor readings.

While the FMM still requires some manual tasks—filling, striking off the top, gluing, and stacking the halves—the machine handles the brunt of the work. It flips molds onto a conveyor system, rotating from one station to the next, which reduces the number of employees required, the physical strain on workers, and time to complete the task. Another benefit? No more debris on the floor.

They also customized the patterns just for the FMM, which were larger and would increase productivity—that brought their need for three shifts down to just one. But employee morale went up, Roy says, as people began friendly competitions to see who could produce the



A Lodge employee stands beside a molding pattern to be loaded into the DISA molding machine.

COURTESY LODGE CAST IRON

most molds using the FMM.

"Listening to the people on the floor helped us get it dialed in," he said. "We really took their feedback into consideration, especially in the first four months to make sure it operated the way they wanted it to operate. It definitely motivated people a lot."

An employee-focused mindset and some creative thinking is paying off at Wear-Tek, where any injury is still a viewed as a failure, regardless of productivity or revenue, according to Roy. The foundry's future plans include extending the automated conveyor line, which will eliminate their need for forklifts carrying molds to furnaces.

The Road to a Million

Kristi Yates, senior manager of health and safety at AFS Corporate Member Lodge Cast Iron since 2019, took action after seeing the consequences

of improper lockout/tagout procedures. Hand injuries take a toll not only on the employee but on their family as well.

Yates affirms employee health takes priority over meeting numerical production targets—so she's fully focused on sending people home safely to their families at the end of every shift. Her efforts helped Lodge earn the AFS 2024 Millionaires Safety Award, which recognizes member foundries that achieve 1 million hours of work without a lost-time incident. The honor signifies a high standard of workplace safety, which Yates doesn't take lightly.

"Our co-workers and peers come to work to provide for their families and we want them to be able to do that in a safe environment," she said. "We have to remind people we're supporting them."



Yates empowers employees to speak up about safety concerns. The team uses communication boards that make employees feel comfortable voicing concerns about their wellbeing. In addition to near-miss reports, the Lodge “Safety Thanks” program rewards employees who go above and beyond in promoting safety with a gift card redeemable for Lodge-branded items.

“It’s a basic need in life to want to be safe and be valued,” Yates added. “And people will do well if they believe you want them to be safe and that you value them.”

For Yates, enhancing foundry safety involves embracing change in management styles and safety programs through leader training. Lodge also puts its money where its message is by empowering employees to stop the line if they see a safety threat to themselves or a co-worker—even if it disrupts production.

“If we don’t make a single skillet because we stopped the line to make sure somebody wasn’t going to have a serious injury, I don’t think anybody in this organization would feel that was a loss for the day,” said Yates.

Yates says acknowledging and valuing employees’ efforts on safety helps build a proactive culture—an imperative shield for combating health issues and providing better outcomes. At Lodge, safety practices have evolved from a “safety policing” approach to one driven by employee engagement.

“You can always report a hazard—it doesn’t matter if it’s your first day, because fresh new eyes are a really valuable thing,” she said. “It only makes us better. We strive to be proactive and less reactive.”

Millionaires in the Making

AFS Corporate Member EJ was also a Millionaires Award winner in 2024 for the third time in the last five years. Scott Nachazel, facility manager, emphasizes the continuous effort it takes to maintain such a record.

Using a computerized management system that tracks incidents,



COURTESY EJ



COURTESY EJ

Above: An EJ employee takes a temperature reading from the furnace. Left: Banners show EJ’s million-hour achievements in June 2024, March 2022, and November 2020.

corrective action, and near misses, EJ operates with a “change processes” mentality, with sustainable long-term solutions in mind. For non-routine tasks, EJ uses RADAR (Recognize, Assess, Develop, Act, Report) cards, mini risk assessments filled out by employees to identify potential hazards for a task. So, for example, when the foundry changes a Muller gear-box—which is done infrequently and is so labor intensive that it requires multiple shifts—RADAR cards help determine pinch points and identify suspended loads.

EJ focuses on root cause analyses, cause maps, and the “5 Whys” technique (asking “why” multiple times) in collaboration with employees. He says team effort is more likely to identify factors that may not have been thought of before to develop more comprehensive solutions. EJ emphasizes the priority of safety over production by discussing potential hazards and near misses at a safety stand down, where production is fully halted, whether plant-wide or department specific.

“We’ve shut down production and have even utilized information from other EJ facilities to discuss and make people aware of what the potential hazards could be, to prevent accidents, and to ask for their feedback,” said Nachazel.

He believes in proactive safety measures and has an open-door policy that encourages employees to communicate safety concerns with him, each other, and other leadership.

“Employees can write a safety comment any time,” Nachazel said. “The most effective means of safety really



Browntown's blast and grind department display the 2024 Safety Innovation & Insight Award.

happens at the supervisory level where the employee trusts the supervisor to listen and take action. When you start implementing some of those changes they recommend, that builds that trust even further and helps sustain the continuous improvement effort.”

The safety conversation at EJ begins on Day 1 as new employees head into their new-hire training. Nachazel says the company rewards employees achieving safety milestones, but he knows it isn't blankets and coolers that move the safety needle—rather, the impact of safety itself is the driving motivation behind their success.

At EJ, management and employees alike adopt a mindset of actively caring for each other and promoting a continuous-improvement safety culture. An important but never-ending task, ensuring a safe and healthy space is at the forefront of Nachazel's mind, especially as safety banners hang throughout the facility—a constant

visual reminder of why they've now joined the AFS “millionaire club.”

Getting a Handle on Injuries

Hand and finger injuries were increasing in the blast and grind department at AFS Corporate Member Grede Browntown, so they conducted an internal investigation to figure out what was going on.

Blast and Grind Supervisor Dave Wallgren, with over 20 years at the company, says there were many inconsistencies in how castings were being handled. Depending on who was training them, employees had different approaches for handling parts, and that was the root of the problem.

Wallgren says they embarked on a mission to prevent injuries before they could happen.

The team aimed for a 25% reduction in hand and finger injuries with a plan that established more consistency in parts handling. After taking pictures of the castings, a training system was developed to ensure castings were hooked in the same place

every time—the safest spot to handle castings. The team documented the hand placement on bilingual process cards to conquer the challenge of language barriers and unify the process across the entire workforce.

In the first half of 2023, Grede Browntown had an increase in hand and finger injuries in the blast and grind area—following implementation of its process change, the number decreased by 77% within a six-month period. The victory was recognized with the 2024 AFS Safety & Insight Award.

Because the plan was so effective, the company is currently in the process of implementing the new process across all departments. In March 2025, they are investing in a new blast machine where hangers come down to eye level, thus eliminating the practice of hanging parts overhead.

Safety and automation are going hand in hand at Grede, Wallgren affirmed. “We'll proceed with more automation like articulated arms where the human hands won't even be touching castings.” **MC**