MIOSHA Fact Sheet

Fabricated Metal and Machinery Manufacturing

Fabricated metal product manufacturing (NAICS 332) is considered a high hazard industry based on the annual number of recordable injuries and illnesses occurring in this industry. The processes (i.e. shearing, bending, welding) used to prepare and assemble metal parts to customer specifications from metal stock create numerous hazards. **In 2017, over 1000 employees in Michigan working in NAICS 332 experienced an injury and/or illness that involved days away from work. Over one-third (390) of these injuries/illnesses were serious enough to involve 11-31+ days away from work. Most of these injuries and illnesses were related to either musculoskeletal disorders, contact with an object or equipment, and overexertion.**

Machinery manufacturing (NAICS 333) is considered a high hazard industry based on the annual number of recordable injuries and illnesses occurring in this industry. The processes (i.e. forging, stamping, bending, forming, and machining) used to make machines create numerous hazards. **In 2017, 610 employees in Michigan working in NAICS 333 experienced an injury and/or illness that involved days away from work. Half of these injuries/illnesses were serious enough to involve 11-31+ days away from work. Most of these injuries and illnesses were related to either musculoskeletal disorders, contact with an object or equipment, and overexertion.** Over one-third of the employees working in NAICS 332 and 333 that were injured had over five years of service with the employer.

#	Top 10 Most Frequently Cited Part and Rule Numbers (NAICS 332 - Fabricated Metal and NAICS 333 Machinery Manufacturing) FY 16, 17, 18	# of Citations / Part #
1	**Parts 92/430, Hazard Communication. Rule 1910.1200(e)(1) -** Employers shall develop, implement, and maintain at each workplace, a written hazard communication program which at least describes how the criteria specified in paragraphs (f), (g), and (h) of this section for labels and other forms of warning, safety data sheets, and employee information and training will be met.	**440**
2	**Part 85, The Control of Hazardous Energy Sources (Lockout/Tagout). Rule 1910.147(c)(4)(i)** - Develop, document, and utilize procedures for the control of potentially hazardous energy when employees are engaged in service or maintenance of machines or equipment where unexpected energization, start-up or release of stored energy could occur and cause injury.	**357**
3	**Part 472, Medical Services Eye/Body Flush Stations. Rule 325.47201(3) –** An employer shall ensure that suitable facilities for quick drenching or flushing of eyes and body are provided within the work area for immediate emergency use when the eyes or body of any person may be exposed to injurious corrosive materials.	**287**

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4	**Part 7, Guards for Power Transmission. Rule 408.10727(1) -** A belt and pulley which is 7 feet or less above the floor or platform and which is exposed to contact shall be guarded pursuant to R 408.10751 to R 408.10754.	**260**
5	**Part 33, Personal Protective Equipment. Rule 408.13312(1) -** An employer shall ensure that each affected employee uses appropriate eye or face protection, when exposed to eye or face hazards.	**172**
6	**Part 1, General Provisions. Rule 408.10034(3) -** A point of operation guard or device shall be as prescribed in a specific standard, or, in the absence of a specific standard, shall be designed and constructed, when required, to prevent the machine operator exposed to the hazard from having any part of his or her body in the hazardous area during the operating cycle. A guard or device for the point of operation of a non-production arbor press or straightening press is not required if the machine is equipped with a hand control that is designed to stop the ram action or return the ram to the up position when released.	**165**
7	**Part 1, General Provisions. Rule 408.10034(9)** -When an employee is exposed to a hazard created by a pinch point other than point of operation, the hazard shall be guarded, or the employee otherwise protected.	**152**
8	**Part 2, (Rescinded-Floor and Wall Openings, Stairway and Skylights. Rule 408.10213(2)) -**An open-sided floor or platform 4 feet or more above adjacent floor or ground level shall be guarded by a standard barrier as specified in R.408.10231on all open sides, except where there is entrance to a ramp, stairway, or fixed ladder. The barrier shall be provided with a toe board as specified in R 408110233(2) where, beneath the open sides, (a) persons can pass, (b) there is moving machinery, or (c) there is equipment with which falling materials could create a hazard. The intermediate sections of the barrier and the toeboard may be eliminated when materials are regularly passed over the end of the floor, as in lumber storage. A stationary elevated platform secured to a building or structure used exclusively for the service and maintenance of overhead bridge cranes and similar mobile equipment may be equipped with standard barriers and toeboards that are removable in lieu of fixed standard barriers and toeboards on the side adjacent to the machinery, if such barriers and toeboards are secured against falling when they are not serving as protective barriers. **Part 2, Walking Working Surfaces (Effective February 2, 2018) – Duty to have fall protection and falling object protection. Rule 1910.28(b)(6)** The employer must ensure: (i) Each employee less than 4 feet (1.2 m) above dangerous equipment is protected from falling into or onto dangerous equipment by a guardrail system or a travel restraint system, unless the equipment is covered or guarded to eliminate the hazard. (ii) Each employee 4 feet (1.2 m) or more above dangerous equipment must be protected from falling by: (A) Guardrail systems, (B) Safety net systems, (C) Travel restraint systems or (D) Personal Fall Arrest Systems.	**125**
9	**Part 7, Guards for Power Transmission. Rule 408.10731(1) -** Gears, sprockets, and chain drives exposed to contact shall be guarded pursuant to R 408.10751 to R 408.10754. This does not apply to hand-operated gear sprockets and chain drives used to adjust machine parts which do not move after hand power is removed.	**114**

10	**Parts 92/430, Hazard Communication. Employee information and training. Rule 1910.1200(h)(1) -** Employers shall provide employees with effective information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new chemical hazard the employees have not previously been trained about is introduced into their work area.	**191**

Summary of 2016 - 2018 Fatalities

- Employees pressurized a furnace with plant air to check for leaks. A section of the door broke away at the welds and struck the 58-year-old maintenance worker causing fatal injuries.
- A 46-year-old welder was welding on a 3,000 lb. part mounted on a fixture when the part fell onto the welder crushing him between the part and the floor.
- A 56-year-old coil handler was separating two coils of steel while the steel was standing up and when the banding was cut, one of the coils fell onto the coil handler's legs. The coil handler passed away after having surgery on his legs.
- A 52-year-old machine operator was operating a tube cutting machine when a roller flew up, cutting his neck. Emergency services were called, and the victim could not be revived.
- Two coworkers found a machine operator kneeling by his machine and checked on him. The coworker that touched him thought he felt a shock when he touched him. The victim fell to the ground and was not breathing. Emergency services were called, and the victim could not be revived.
- A 29-year-old blaster was abrasive blasting large cryogenic tanks with steel shot for refurbishing. The employee was found at approximately 3:00 p.m. collapsed on the floor with his blasting hood still on. He was pronounced dead at the scene.

Resources

MIOSHA's Consultation Education and Training (CET) Division offers statewide safety and health assistance to employers and employees. To learn more about free services available from the CET Division, or to request a visit, call the Lansing office at 517-284-7720 or 800-866-4674, or submit your request electronically at www.michigan.gov/cetrca. To download free materials from the MIOSHA website go to www.michigan.gov/mioshapublications.