

### Houston Area 2019 Amputation Prevention Flyer

From January 2015 through September 2019 there were approximately 408 amputations reported to the Houston OSHA offices.

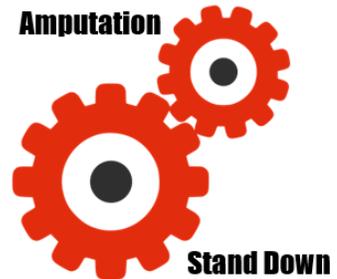
In Fiscal Year 2018 the Houston OSHA offices received approximately 113 amputation reports with 95 of them in general industry and 18 in construction.

The types of amputations reported in FY 18 ranged from partial loss of a fingertip to amputation of an arm. We encourage everyone to participate in the 2019 amputation stand down to reduce amputation hazards and send each employee home safely at the end of the day.



Amputations can be a life changing injury. Establishing and following safe work practices are essential to preventing amputations along with effective safety programs to identify and eliminate the hazards that cause them. Important OSHA standards related to amputation prevention include, but are not limited to:

- Control of Hazardous Energy 1910.147 Subpart J
  - Equipment that may start up unexpectedly or release hazardous energy during maintenance and servicing must be locked out and workers trained on lockout/tagout procedures
- Machinery and Machine Guarding Subpart O
  - Guards must be provided to protect employees from hazards such as point of operation, ingoing nip points, rotating parts, flying chips and sparks
- Hand and Portable Powered Tools and Equipment Subpart P
  - Hand tools must be used and maintained in a safe condition



### What's an Arm and Leg Worth?

2019 Amputation Stand Down  
September 4 – October 4<sup>th</sup>

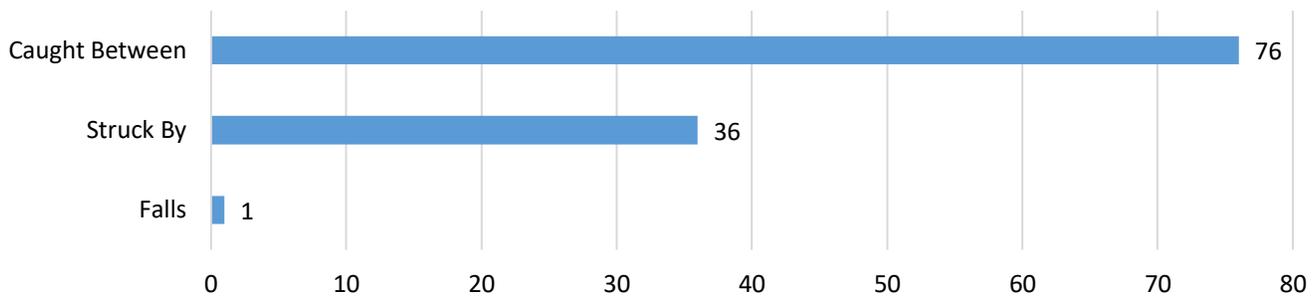
<http://standdownevents.org/amputation.cfm>

### Costs of Amputation Related Injuries

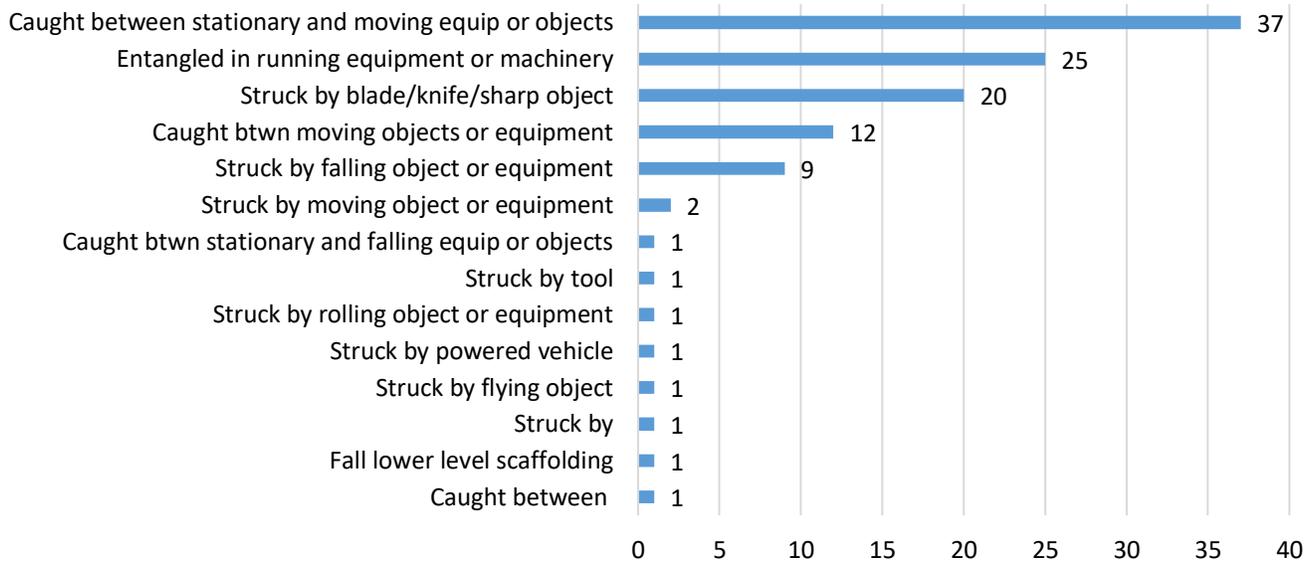
The cost of an amputation varies depending on the severity of the injury. Using the OSHA Safety Pays program, <https://www.osha.gov/dcsp/smallbusiness/safetypays/>, we can see that the average cost of an amputation in the years 2011 – 2013 was \$77,995 based on National Council on Compensation Insurance, Inc. (NCCI) data and had an indirect cost of \$85,794. The sales costs were calculated using a 5% profit margin.

Totals	
Estimated Direct Costs:	\$ 77,995
Estimated Indirect Costs:	\$ 85,794
<b>Combined Total (Direct and Indirect Costs):</b>	<b>\$ 163,789</b>
<b>Sales To Cover Indirect Costs:</b>	<b>\$ 1,715,890</b>
<b>Sales To Cover Total Costs:</b>	<b>\$ 3,275,780</b>

### FY 1 Houston Area Amputations by Focus Four Category

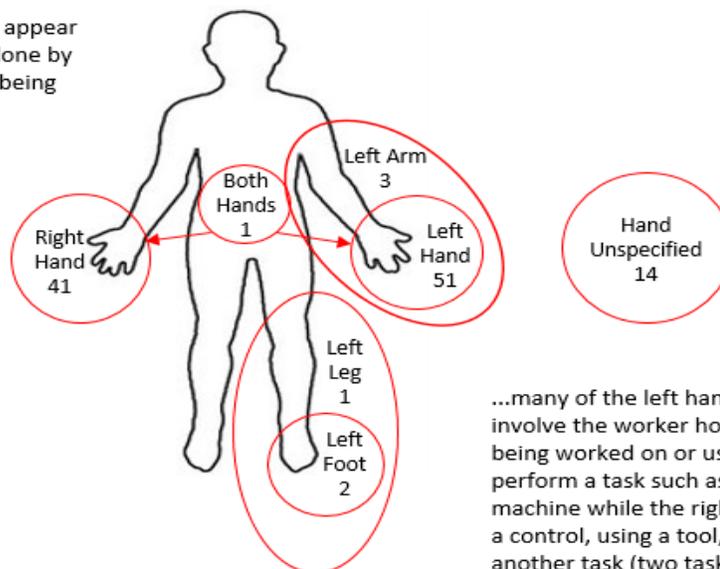


### FY 18 Houston Area Amputations by Event



### FY 18 Houston Area Amputations by Injured Area

Many right hand injuries appear to relate to work being done by the right hand (one task being performed) whereas...



The proportion of amputations, left vs. right, are similar to the previous year

...many of the left hand injuries appear to involve the worker holding the materials being worked on or using the left hand to perform a task such as reaching into a machine while the right hand was operating a control, using a tool, or performing another task (two tasks being performed).

## **FY 2018 Amputations Reported in the Houston Area (113)**

### **Augers and Screws**

- Employee was cleaning a screw conveyor and he lifted a lid to clean underneath while the conveyor was in motion and got the tips of his index and ring finger amputated.
- Worker was washing down a crumb machine with a water hose and reached behind a guard and contacted a rotating auger sustaining a partial amputation of the left middle finger.

### **Belts and Pulleys**

- Operator's left pinky finger was partially amputated when his glove was pulled into a spinning belt on the machine.
- Employee had changed a bearing on an air handling unit fan. He was in the process of manually checking the tension of the drive belt by rotating by hand when his hand was pulled between the motor and the drive belt amputating the left ring finger.

### **Boxes**

- Employee was unloading and stocking boxes of tile onto shelves. He placed a box onto the shelf and pinched a section of his index finger amputating the bottom section of the finger underneath the finger nail to the first joint.

### **Chains and Sprockets**

- Employee was cleaning debris off a roller conveyor and while doing so the tip of his left middle finger got caught in the sprockets and chain of the machine amputating the tip of the left middle finger.
- Employee sustained a partial amputation of the tip of the ring finger on the left hand when her hand was caught between the chain and sprocket while putting the chain back on the job made machine.
- Employee was assisting a production line lead in applying caps to bottles of windshield washer fluid. This was being done manually on some bottles as the capper was not applying caps to all bottles. As the employee was placing caps on bottles, he was looking in the area where the chain and sprocket are located. It appeared that he saw a cap(s) that had fallen into this area. He attempted to remove the cap(s) by reaching over the guard and had four fingers amputated on the right hand.

### **Doors and Gates**

- Employees were closing dividers separating ballrooms in the country club. The employee's hand was caught between two moving panels amputating the middle finger midway on the fingernail and crushed the ring finger up to the beginning of the fingernail.
- Employee was unloading freight and was unfolding the lift gate deck extension behind the trailer. He got his hand caught in the fold of the lift gate deck extension causing a skin amputation on the left ring finger and a laceration to the left middle finger.
- An employee was getting ready to leave the store and felt a pinch in his left middle finger while pulling up the lift gate on his delivery truck. He pulled his finger back and saw that he was missing part of his middle finger.
- Employee was closing the door on the vehicle and closed it on their hand amputating the right ring finger.
- Employee was trying to clear a jam inside of a gravimetric blender loading hopper when the automatic hopper gate shut on his left index finger. The tip of his finger had to be amputated.

- Truck driver was doing a delivery and as he approached to close the dock rolling door his left ring finger got caught between the rolling door and the metal plate ramp amputating it.
- Employee was trouble shooting an interlock switch on a HVAC unit and sustained an amputation of the pinky finger tip on the left hand while closing the door panel to a the HVAC unit.
- A maintenance employee was working on the back of a straight cut machine troubleshooting the lights of a sensor on a folding gate when he placed his right hand on the folding gate. The folding gate came down on his right middle finger amputating the tip of it.

### **Drills**

- Employee was operating a drill and had just finished drilling two holes in some square tubing. One of the pieces of square tubing was flipped over, and the employee was drilling a hole on the opposite side of the tubing. The employee reached in to grab shaving near the drill bit, and his **glove** was caught, pulling his left thumb in causing a severe cut and partial amputation.

### **Fan Blades**

- Employee amputated the fingertip of the left middle finger while trying to move a thirty inch floor fan to redirect the airflow.

### **Forklifts**

- Employee was setting blocks of wood down for combi (a type of forklift) driver and a fork landed on his boot resulting in the amputation of the left big toe.
- Forklift came in contact with an employee's left foot causing a partial amputation of the big toe.
- Employee was operating a forklift in order to pull a load of wood pulp from a three-high stow in a warehouse. The operator grabbed a load from the stack with the clamp and was backing out but had his wheels turned. An adjacent bundle was stowed in such a way that its edge overlapped with the load being handled. As the load was backed out, it pulled the adjacent bundle, causing it to fall against the forklift mast tipping the forklift over. The employees left forearm was lacerated and his left leg above left ankle was crushed requiring amputation.
- Employee experienced an amputation of the tip of the right ring finger when a steel I-beam fell off the forklift he was loading.

### **Gears**

- Employee was in the process of aligning the key-ways for the assembly of a bull gear with the crankshaft, when the tip of his right pinky finger was caught between the bull gear teeth and the gear teeth on the end of the pinion amputating it.

### **Handling Materials**

- Two employees were lifting a valve into place. They lost control of the valve, and one of the employee's finger got pinched as he tried to catch the valve partially amputating the left ring finger.
- The employee was trying to move a 500 pound mold for a vertical hydraulic press when the mold slipped and the employee tried to catch it. The mold crushed the employee's left hand resulting in the amputation of the tip of the left index finger and the left middle finger may need to be amputated.
- Employee was moving a sofa down a staircase when his finger was caught between the hand rail and hand truck component amputating the tip of the right index finger.

- The employee was manually flipping an 18" by 30" cross head guide that weighed 150lbs. The part landed on his right hand crushing the ring and pinky finger. Pinky finger stitched and ring finger amputated to the first joint.
- Employee was attempting to relocate a 10' flange by hand. During the relocation the flange started to roll onto its side and he attempted to control the flange. The flange rolled onto its side and caught his right middle finger between the rolling flange and another flange on the pallet amputating the tip.

### **Knives**

- Employee amputated tip of left middle finger with a utility blade when cutting excess plastic film that collected near the vacuum tube.

### **Ladders**

- The employee was descending the ladder of a scaffold when he misjudged the last step and stepped off the ladder too early. Attempting to catch himself, he grabbed for the ladder and his ring was caught, tearing the skin on his finger. The hospital decided to amputate the left ring finger.

### **Lathes**

- The employee was cleaning a rotating piece on a lathe machine using an emery cloth. The employee's left glove finger got caught in the rotating part, resulting in partial amputation to the left pinky and a fracture to his wrist.
- Employee was sanding down a shaft with sand paper on a lathe and got his left middle finger and left index finger caught. The hospital stated they were going to amputate them.
- Employee was threading 7-5/8" diameter pipe. He activated the foot pedal while holding a piece of sand paper between the chuck and pipe amputating his middle finger on his right hand.

### **Milling Machine**

- Employee was milling a piece of aluminum with the end mill machine. Employee went to raise the drill bit up and didn't turn the machine off first. He was wearing a glove and the glove was pulled into the machine causing the fingertip of the right ring finger to be amputated.

### **Miscellaneous Equipment**

- Employee placed his finger near the bead of a tire while machine was being operated and the tire dismounting arm struck the middle finger and partially amputated its tip.
- Employee was putting a blade attachment on a bobcat mini excavator. He stuck his finger between the hole and the rack and it slipped and hit his finger amputation the tip.
- Employee was inserting a plug into a 12" valve when the tip of his gloved thumb got pinched between the plug and the body of the valve. Doctor is deciding on amputation.
- Employee was pulling up the dock leveler to unload equipment from truck. His finger got caught in between the hole of the leveler and the dock amputating the tip of the middle finger.
- An extrusion employee was letting air out of a shaft with his finger when a second employee engaged the roll handling trolley. The first employee's finger was pinched between the core of the roll and the shaft amputating the tip of the middle finger.
- Employee in the grinding room reached his hand into a meat grinder to clear debris form the cutting area when another individual turned the machine on amputating his fingers at the first knuckle.
- An employee was operating a bagging machine, while sitting on a conveyor. He placed his hand under the guarding of the machine to pull the bag down and as he pulled the bag down with his left hand, he was using

the right hand to turn off the machine and he hit the wrong button. The doors to the machine are used for guarding. The jaw clamp of the machine closed on his finger and doctors amputated his left index finger.

- Employee amputated part of his pinky left finger when it struck a metal rack as he was elevating himself in an electric lift ladder to retrieve merchandise. The employee had his hand outside of the protective railing when it struck the rack. He had surgery on the finger but it was not reconnected.
- Employee was fitting a welding key into a slot to join two pieces of iron that were on a work table. The key did not fit properly so he removed it to investigate. He placed his finger in the key slot when one of the pieces of iron shifted amputating the tip of his left middle finger.
- Employee was winding rolls of sorbent plastic material when one of the cores got stuck. They hit the core with the palm of her hand as instructed, to make it again, and her left hand got caught in machine. Crushed left hand causing bruising with fracture to middle finger and cut needing stitches to the end of the middle finger as well as some bone chipping to pinky finger.
- The crew was performing repair work on a well. They were making up a polish rod onto a rod string and stuffing box. The box was 3" above a pipe wrench which was on the polish rod. The employee placed his hand on the pipe wrench and the stuffing box slipped down onto the employees left index finger crushing it between the wrench and the box resulting in amputation of the left index finger.
- Employee was cutting metal beam when the beam shifted and went up in the air and came down. The beam struck his left thumb and the doctor advised partial amputation.
- Employee was trying to unjam the machine. When the employee opened the guard something flew out (aluminum part of the cans) and struck his left middle finger amputating the fingertip.
- The employee was hooking blinds on an elevator lift to assemble. When the elevator lift was lowered the employee's left ring finger was next to a stop and the finger was partially amputated.
- Employee went to close the breaking machine. When he grabbed the handle he reached over the top of the machine to secure the handle with his left hand. He then pulled the handle and he lost his balance causing the right hand to slip into the pinch point amputating the tip of his right pinky finger.
- Employee was using a small bending machine to bend a stainless 1/4" wide by 8' long metal rod into a circle. The employee was routing the material into the rollers and his fingers got caught in the rollers, resulting in partial amputation of the right middle finger.
- Employee was removing the jockey bar pins and the supervisor told the employees he was fixing to turn the rudder with the forklift. Supervisor went down the gangway and started operating the forklift. He started turning the rudder and co-worker yelled at him to stop. An employee had their right hand was on the rudder stop and the tiller pinched his right middle, ring, and little fingers amputating them.
- Worker was loading containers onto a vessel and was attempting to put on a twist lock on a 20' container. He received a partial amputation of tip of right thumb when he got his thumb was caught between the container side wall and an outside corner casting of the container.
- A team was dismantling a machine for refurbishing which requires the machine to be disassembled in a specific order; extruder, core barrel, base plate and carriage. The injured employee was working on the extruder deck and he was holding the carriage as it was being lifted. As the carriage was being lifted, the whole assembly rolled forward once it cleared the shaft. The employee's finger was caught between the extruder deck and extruder base amputating the right index finger. The employee, who was new to the refurbishing team, had removed the carriage stop which was not supposed to occur until the last step.
- Employee was changing the membrane for a reverse osmosis system. Somebody pushed the membrane into the tube, causing the employee to get his hand stuck between the membrane and the tube amputating right middle finger.
- Employee was loading billet onto a roller that feeds an extruder. The billet got jammed and as he tried to unjam it he got his finger pinched by the billet. His right index finger will have to be amputated.

- Operator was making adjustments to a corrugation machine's stacking section. While performing the adjustment the operator left the machine in auto instead of placing it in manual in order to temporarily stop the cycling of the stacking operation. The operator used a box-end wrench to loosen the bolts that hold the internal plate down. The machine cycled and pinched the operator's finger between a bracket and frame amputating part of the right index finger.
- Employee was working on a broken limit switch, attempting to place the stop pin back in place when his right ring finger was compressed between the housing and stop pin amputating the tip.

### **Mortar Mixer**

- The employee was adding mortar to mixer when he noticed that mortar had built up inside the mixer. He put his hand into the mixer while it was rotating to try to clean the build-up off. The rotating blade caught his **gloved** hand and amputated his left index finger and damaged his middle finger which may need amputated.
- Employee was operating a mortar mixer on a construction site when at some point during the mixing process the mixer guard was removed and he inserted his right hand into the moving parts of the mixer and amputated two fingers.

### **Pipes**

- Employee handling pipe suffered an amputation to the tip of his finger.
- Employee's left pinky finger was caught between pipe and a safety clamp amputating the tip.
- Employee was cutting plates off of pipes and crushed his left index finger between a pipe and a guard resulting in a fingertip amputation without a bone loss.
- Employees were inspecting and rolling 7" 29# casing on a flat rack, when an employee's right ring finger found itself between 2 joints of pipe that another employee was rolling into position. Employee had the finger smashed between the two pieces of pipe resulting in amputation.
- Employee was setting up pipes on a pipe rolling rack so he could coat the inside of the pipe with paint. He reached over a pipe to fix another pipe that was not sitting on the rollers correctly and he got the tip of right middle finger pinched between the pipe and the pipe roller partially amputating it.
- Employee was cleaning pipe rollers adjacent to a pipe threading machine when his hand got caught in between the pipe and the rollers amputating the fingertip of his right middle finger.
- Employee was rolling pipe and got his finger pinched between two pipes crushing his right index finger resulting in amputation.
- An employee was rolling a pipe by hand when his finger got caught between the pipe he was rolling and another pipe smashing the tip of the right pinky finger to a degree that it had to be surgically amputated.
- While installing a sewer line using the horizontal directional drilling method, a crew member was helping to add a drill stem to the tail string when his hand got too close to the nylon sling and the drill pipe and was crushed between the two amputating the right hand.

### **Presses**

- An employee was clearing a jammed coil, when the die came down and crushed his left hand. The employee was transported to the hospital where his left hand was amputated.
- Employee got his right hand caught between press and the fixture he was bending partially amputating the right ring finger.
- A temporary employee was working in the powder department and was working near a press. The punch process of the machine was not guarded. The temporary employee was running a compacting press and was

instructed to stay in a certain area. He moved to the front of the machine and stuck his right hand inside while the machine was in a downward motion. The press compacted severing his right index finger.

### **Printing Press**

- Employee was cleaning a printing press after a run. While he was cleaning his finger got stuck in between the equipment crushing his middle finger on the left hand resulting in partial amputation.

### **Pumps**

- An employee was cleaning pump and product lines between runs. The cover of the pump was removed for cleaning and the pump was not de-energized and he had the tip of his left index finger amputated when he placed his hand near the rotating parts.

### **Rigging and Hoisting**

- Employee was setting a work piece into a manual lathe. While maneuvering the work piece with an overhead crane, his finger was pinched between the chuck jaws and the work piece severing the fingertip.
- Employee was part of a team conducting routine maintenance to move a large catalyst cartridge using a permanent hoist in the unit. The employee's task was to align flanges on the bottom of the equipment as it was lowered into place using the hoist. Another employee, with a radio, was positioned where he could see the placement of the equipment and the employee aligning the flanges to communicate with the hoist operator. The employee sustained a crushing injury to the fingers on both hands when the cartridge was lowered onto the support ring in the cartridge housing while the employee was gripping the support ring with both hands fracturing/amputating 8 fingers.
- Employee was installing a bolt inside the counterweight to a tank suspended by a chain. The chain suddenly broke and the hand of the employee was stuck between the counterweight and the inner tank resulting in amputation of the left arm.
- An employee was using an overhead crane to move a bundle of product. He put his hand on the hook and started to lift the load and pinched the tip of his left ring finger off between the load rigging and the hook.
- Employee was hooking up a forklift that was to be load in a vessel. The foreman signaled the crane operator to start the lift and the workers left ring finger got caught amputating the tip.
- Employee sustained an amputation of tip of pinky finger on the left hand when a piece of steel he was moving fell off a crane hook landing on his hand.

### **Rollers**

- Employee was performing a shift clean-up when his left arm was pulled into the rollers amputating his left arm below the elbow.
- Employee was threading paper through a roller and when he attempted to remove a piece of paper his hand was caught in the roll pulling it into the machine amputating the right ring finger.
- Employee was working on the lamination line when he saw some hardened resin on a roller. He used a tool to try and remove the resin, but his hand was pulled into the rollers amputating the right index finger.
- Employee was measuring sheet metal to see if it was the correct diameter when his **gloved** hand was pulled into the roller machine severely crushing four fingers on his right hand resulting in amputation.

### **Saws**

- Employee was operating a saw cutting alloy steel bar. He panicked and tried to pull a piece out from the saw and cut the tip of his finger off.

- Employee was setting up a saw for cutting a round bar. He reached in to clean out the shavings with the left hand and accidentally hit the clamp button with his right hand. The clamp closed on his left hand partially amputating the left pinky finger and other fingers are trying to be repaired.
- Employee was placing 33" bolts of wood into a three head trim saw with 2 blades in operation. Employee amputated the middle and the index finger on the left hand when he reaching into trim saw to adjust a crooked bolt of wood.
- Cutting sections from 4"x4"x8' cedar board the employee's hand made contact with rotating blade amputating his thumb and left index fingertip.
- Employee was operating a straight cut saw in order to cut a frame. She moved her hand from the bar and the left thumb was partially amputated.
- Employee was using skill saw to cut cabinet doors. The saw kicked back and amputated his left thumb.
- A part wasn't coming through the guillotine saw cutter properly and instead of walking to the back of the machinery to check he by-passed the guard. The blade on the guillotine saw cutter came down amputating his right index finger.
- Worker was using a skill saw to cut expansion board material when he felt a tug on his right index finger and realized that he had cut through the tip of his right index finger to the bottom of the nail.

#### **Saws, Band**

- Employee was adjusting a tilted piece of pipe that was being held by a gripper on a band saw. As he was adjusting the pipe, the gripper caught the tip of his right pinky finger between the pipe and gripper causing a partial amputation. Later the entire tip of the pinky finger at the nail bed was removed.
- Employee was in the process of cutting bone-in rib eye steaks with a band saw when the meat moved and he amputated his left hand index and middle finger.
- Employee was disassembling wooden pallets and his left hand went into the rotating circular band saw amputating his left thumb and index finger behind the fingernail.
- Employee was in the process of slicing boneless round steaks on a meat band saw when he amputated the finger tip of right index finger.
- Employee was removing tools from the tool box and while removing a battery operated portable band saw he accidentally depress the trigger. The running blade came in contact with his right hand amputating the fifth finger up to the first knuckle.
- Employee was cutting meat using the band saw and cut the bottom tip of right index finger below the nail resulting in amputation at the hospital.
- Employee was trimming a block of foam insulation with a band saw. His hand was too close to the blade and the tip of his right thumb was amputated just above the finger nail.

#### **Saws, Bone In**

- Employee was cutting pork loin chops on the bone-in band saw when the bone slipped from his grip and his right index finger to hit the saw blade. When he pulled his index finger back, the saw caught his middle finger in the blade cutting it diagonally from the top joint upwards to the tip of the finger and causing a soft tissue avulsion of the tuft of the index finger.

#### **Saws, Table**

- Operating a table saw to cut a metal part when the saw had a kickback and struck the employee's hand amputating three fingers on the left hand.
- Worker was machining parts on a table saw and amputated two fingers on the table saw.

- While an employee was using a table saw, the saw back fed the piece of lumber he was cutting jamming the blade. He tried to unjam the saw and the saw blade contacted his left hand amputating two fingers.
- Employee was using a table saw to cut wood stakes. The blade of the table saw pops up from below the table surface when a two hand control is actuated. The machine is designed to retract the blade back below the table surface once the controls are let go but for some reason the blade did not fully retract and the employee grabbed the cut wood and hit his right index finger on the blade partially amputating it.

### **Shafts**

- A temporary employee was one of several employees supporting an approximately 20' long rotating reaming device being run through the heat exchanger baffle plates to prepare them for tube insertion. Pipe sections of 1'-2' in length are used by slipping them over the reamer so that employees are holding the pipe while the reamer is rotating, which prevents contact with the rotating reamer. The employee was using a 2" nut instead of a pipe, which allowed his **gloved** hand to contact the rotating reamer at high speed. The high speed rotation caught the employee glove and rotated his middle finger off amputating it.
- Employee was exiting the stacker and walked around to the operator side. He put his hand on a moving shaft and it caught his arm and pulled it back towards him breaking the left forearm.

### **Tools**

- Employees were using a metal form called a keyway which utilizes rebar pins to keep it together. The employee was using a 10 lb. sledgehammer to secure pins and while striking the last pin he struck his pinky finger on the left hand causing him to lose his fingernail and have the finger-tip and bone shaved.

### **Trash Bin**

- Employee was using a forklift to empty a trash bin into a larger trash container. He dismounted the forklift to open the trash bin's door. When he opened the door the release of the trash made the bin bounce on the forklift forks and his hand resting on one of the forks had the tip of his left index finger pinched off.
- Employee was operating a forklift with a hopper attachment to dump trash in a dumpster. While releasing the handle to allow dumping, the employee placed his left hand between the hopper and the forklift fork to reach up to release the lever. When it released, the weight shifted, pinching his left ring finger between the hopper and the forklift fork crushing his left ring finger resulting in amputation of the tip.
- A forklift operator was in the process of emptying a self-tipping dumpster that was attached to the forks of a forklift. The forklift operator tilted the forks forward to help facilitate the dumping of the dumpster. The operator then got out of the cab of the forklift, walked to the side of the forklift mast and placed his left hand on the lower portion of the mast. The operator reached up with his right hand and disengaged the release lever on the back of the self-tipping dumpster, causing the dumpster to quickly shift forward. The resulting shift in weight of the dumpster caused the forks to swing back into the mast pinching his finger between the forks and mast amputating the tip of ring finger.

### **Valves**

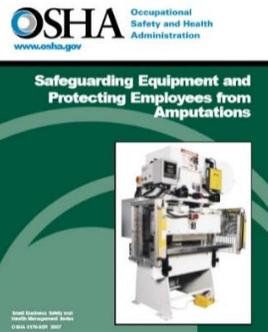
- Employee was cleaning resin from the surface of 16" globe valve and it closed severing three fingers on his right hand.

### **Wires and Ropes**

- Employee overseeing a wire run through a machine when it became tangled in the machine. The employee tried to help and was grabbed by the wire amputating the top of his left thumb.

- Employee was placing a bag on the bottom of a dust collector. The rope securing device became entangled around the employees left thumb causing laceration and amputation above the first joint.
- Employee was lowering a pallet jack to a lower level when the rope became tangled with the employee's right pinky finger resulting in an amputation.

## Resources

 <p>Amputation Prevention</p> <p>JOIN US FOR THE AMPUTATION PREVENTION STAND-DOWN KICK OFF</p>	<p>Amputation Stand Down Webpage</p> <p><a href="http://standdownevents.org/amputation.cfm">http://standdownevents.org/amputation.cfm</a></p> <p>Webinar information and resources</p>
 <p>Lockout/Tagout</p> <p>LOTOT HOME</p> <p>Lockout Tagout Interactive Training Program</p>	<p>OSHA Lockout/Tagout eTool</p> <p><a href="https://www.osha.gov/dts/osta/lototraining/index.html">https://www.osha.gov/dts/osta/lototraining/index.html</a></p> <p>Information and resources on the control of hazardous energy (Lockout/Tagout)</p>
 <p>Machine Guarding eTool</p> <p>Machine Guarding eTool</p>	<p>OSHA Machine Guarding eTool</p> <p><a href="https://www.osha.gov/SLTC/etools/machineguarding/index.html">https://www.osha.gov/SLTC/etools/machineguarding/index.html</a></p> <p>Information and resources on guarding machinery and equipment</p>
 <p>OSHA Occupational Safety and Health Administration</p> <p>Safeguarding Equipment and Protecting Employees from Amputations</p>	<p>OSHA Amputation Prevention Booklet</p> <p><a href="https://www.osha.gov/Publications/osha3170.pdf">https://www.osha.gov/Publications/osha3170.pdf</a></p> <p>Booklet on general and machine specific guarding and amputation prevention information</p>
 <p>A Guide for Protecting Workers from Woodworking Hazards</p>	<p>OSHA Woodworking Booklet</p> <p><a href="https://www.osha.gov/Publications/osha3157.pdf">https://www.osha.gov/Publications/osha3157.pdf</a></p> <p>Booklet on general and machine specific guarding and amputation prevention information for woodworking equipment</p>

**Amputation Self-Inspection Checklist – OSHA Machine Guarding eTool Appendix G**

Department: \_\_\_\_\_ Machine: \_\_\_\_\_ Equipment # \_\_\_\_\_

<b>Requirements for All Safeguards</b>	Yes	No
• Do the safeguards provided meet the minimum OSHA requirements?		
• Do the safeguards prevent workers' hands, arms, and other body parts from making contact with dangerous moving parts?		
• Are the safeguards firmly secured and not easily removable?		
• Do the safeguards ensure that no objects will fall into the moving parts?		
• Do the safeguards permit safe, comfortable, and relatively easy operation of the machine?		
• Can the machine be oiled without removing the safeguard?		
• Is there a system for shutting down the machinery and locking/tagging out before safeguards are removed?		
• Can the existing safeguards be improved?		
<b>Point of Operation Mechanical Hazards</b>		
• Is there a point-of-operation safeguard provided for the machine?		
• Does it keep the operator's hands, fingers, body out of the danger area?		
• Is there evidence that the safeguards have been tampered with or removed?		
• Could changes be made on the machine to eliminate the point-of-operation hazard entirely?		
<b>Power Transmission Apparatus Mechanical Hazards</b>		
• Are there any unguarded gears, sprockets, pulleys, or flywheels on the apparatus?		
• Are there any exposed belts or chain drives?		
• Are there any exposed set screws, key ways, collars, etc.?		
• Are starting and stopping controls within easy reach of the operator		
• If there is more than one operator, are separate controls provided?		
<b>Other Moving Parts Mechanical Hazards</b>		
• Are safeguards provided for all hazardous moving parts of the machine, including auxiliary parts?		
<b>Non-Mechanical Hazards</b>		
• Have appropriate measured been taken to safeguard workers against noise hazards?		
• Have special guards, enclosures, or personal protective equipment been provided, where necessary to protect workers from exposure to harmful substances used in machine operation?		
<b>Electrical Hazards</b>		
• Is the machine installed in accordance with National Fire Protection Association and National Electrical Code requirements?		
• Are there loose conduit fittings?		
• Is the machine properly grounded?		
• Is the power supply correctly fused and protected?		
• Do workers occasionally receive minor shocks while operating any of the machines?		

**Notes:** \_\_\_\_\_  
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\*Incidents are logged or recorded in various mediums and reports generated using various criteria. Late reporting, natural causes which may have generated an initial report, fatalities transferred to other jurisdictions, and other factors may affect the overall numbers over time. Houston area offices cover SE Texas and the data is edited to determine a count of workplace related incidents under OSHA jurisdiction and may change over time as records are updated. Narratives are rewritten for brevity and edited and may not reflect the final results of an investigation. Data in many cases is used 'as is'. The numbers and information are for accident prevention purposes and trending and is not intended to be a statistical study or evaluation. For questions email Jim Shelton at the HNAO at: [shelton.james@dol.gov](mailto:shelton.james@dol.gov)

This information has been developed by an OSHA Compliance Assistance Specialist and is intended to assist employers, workers, and others as they strive to improve workplace health and safety. While we attempt to thoroughly address specific topics [or hazards], it is not possible to include discussion of everything necessary to ensure a healthy and safe working environment in a presentation of this nature. Thus, this information must be understood as a tool for addressing workplace hazards, rather than an exhaustive statement of an employer's legal obligations, which are defined by statute, regulations, and standards. Likewise, to the extent that this information references practices or procedures that may enhance health or safety, but which are not required by a statute, regulation, or standard, it cannot, and does not, create additional legal obligations. Finally, over time, OSHA may modify rules and interpretations in light of new technology, information, or circumstances; to keep apprised of such developments, or to review information on a wide range of occupational safety and health topics, you can visit OSHA's website at [www.osha.gov](http://www.osha.gov).