



taking place and will prevent successive system cycles until the failure has been corrected.

Device Safeguarding	A means that detects or prevents inadvertent access to a hazard.
Emergency Stop	A control that, when actuated, initiates immediate or controlled stopping action of hazardous motion of the manufacturing system, process or cell. Reference NFPA 79 for explanation of the categories of emergency stops.
Enclosures	Guarding by fixed physical barriers that are mounted on or around a machine to prevent access to moving parts. They are most effective when designed as part of the machine, but they can be bolted or welded to the frame.
Fencing	Guarding by means of a fence, which restricts access to the machine. Guarding by fencing and location guards shall be designed to prevent contact with the hazardous equipment when reaching around, under, through or over the barrier.
Fixed Barrier Guard	A guard affixed to a fixed surface in such a manner so as to enclose all or part of hazard zone.
Guard	A barrier that is designed and installed to prevent contact with a hazard.
Guarding by location	Guarding that is the result of physical inaccessibility of a particular hazard under normal operating conditions. This is defined as 8 feet or more above ground level or a working surface.
Hazardous Parts of Machinery	Any machine, part of a machine or any projectile from a machine, capable of crushing, puncturing, severing, burning, breaking or otherwise injuring any body part. Hazards include (1) Point of operation hazards where work is performed on material such as cutting, shaping, boring or forming; (2) All components of mechanical, hydraulic, pneumatic or electrical systems, which transmit energy to the machine allowing it to perform work; and (3) Hazards associated with conductors, contacts, relays, flywheels, pulleys, belts, chains, rods, couplings, cams, spindles, gears, noise, vibration and projectiles.
Hazard Zone	An area or space in which immediate or impending hazards exist. It can also be defined as an area enclosed by fencing or barrier guarding.
In-running Nip Points	A hazard area created by the intersection of rotating and fixed parts or by two or more mechanical components rotating in

	opposite directions in the same plane and in close conjunction or interaction.
Interlock	A means to permit or prevent hazardous motion or conditions.
Interlocked Barrier Guard	A movable barrier or section of a barrier with a safety interlock switch to either prevent entry into a hazard area or interrupt the electric circuit and stop the equipment.
Machine Guarding	Device or devices which effectively prevent personnel, contractors, subcontractors, contracted services or visitors from physical harm due to contact with any hazard present at any machine.
Mechanical Power Press	Mechanically powered machine that shears, punches, forms or assembles metal or other material by means of cutting, shaping, or combination dies attached to slides. Excluded machines - press brakes, hydraulic and pneumatic power presses, bulldozers, hot bending and hot metal presses, forging presses, hammers and riveting machines.
Point Of Operation	That area on a machine where materials are positioned for processing or change by the machine, and where work is actually being performed on the material.
Presence-Sensing Device	A device designed, constructed and arranged to create a sensing field or plane that will detect the presence of body parts or other objects.
Programmable Logic Controller (PLC)	An electronic system that performs logical, decision-making, or arithmetic functions by executing programmed instructions.
Safeguarding	Any means of effectively preventing personnel from coming in contact with parts of machinery, equipment or material being processed which would cause physical harm.
Shear Points	A hazard area created by a reciprocal (sliding) movement of a mechanical component past a stationary point on a machine.
Zero Access	When a machine is guarded so hands, arms, fingers or other body parts cannot contact a hazard.

#### **4.0 Basic Rules**

- Equipment and machinery shall not be operated without the required safeguards (e.g. guards, presence sensing devices, safety trip controls, etc.) in place and functioning properly.
- Follow the safe operating procedures outlined in the Safe Operating Procedure for the task including personal protective equipment requirements.
- Do not wear jewelry, loose clothing or permit unrestrained long hair when working on or in close-proximity (3 feet/1m) of operating machinery or equipment.

- Do not remove, damage, tamper with or by-pass machine safeguards.
- **Never** place your hands, arms, fingers or any other portion of your body in the point of operation or other recognized danger zone unless protected by the department / agency Lock/Tag/Try Procedures.
- Use hand tools to dislodge materials or clear jams. If a guard must be removed or by-passed to clear a jam, clean a machine, lubricate or otherwise access a point of operation, power transmission or other danger zone, the machine or equipment must be properly locked and tagged following the department / agency Lock/Tag/Try Procedures.
- Actively look for potential hazards or defects associated with machinery, equipment or safeguards prior to beginning work. Report them to your supervisor immediately.
- Where necessary to protect others from operating an unsafe machine or piece of equipment, remove it from service following the department / agency Lock/Tag/Try Procedures and report the conditions to your supervisor.
- Complete pre-use, periodic or routine inspections as required.
- Do not operate equipment or machinery without the required training or authorization.
- Report malfunctions of safeguards, incidents and injuries so an investigation into the root-cause can be conducted.

## **5.0 Responsibilities**

### 5.1. Department and Agency Heads

Accountable to ensure that a system is in place to make the change(s) necessary to identify, evaluate and eliminate/control machinery / equipment risks

### 5.2. First Line Manager / Supervisor

1. With assistance from the Department / Agency Safety Representative conduct a survey (Attachment One) of existing machinery / equipment for safeguarding by:
  - Identifying for the greatest potential
  - Reviewing history of hand, finger, arm or other type injuries associated with the machine / equipment
2. Define specific hazards by analyzing:
  - Type, model and manufacturer
  - Job or task being done
  - Machinery motion or action
  - Production, maintenance or set-up mode
  - Operator experience
  - Incident / injury type
  - Current method of safeguarding
3. Prioritize the hazards
4. Analyze the cause(s) of hazards by:
  - Determining the root cause of the hazard

- Unguarded point of operation
  - Manufacturer design failure
5. List all possible solutions to the root cause
  6. Evaluate and select the appropriate machine / equipment safeguarding solution by:
    - Including possible consequences to operation and maintenance
    - Talk to the original manufacturer
    - Find out if new generations are guarded
    - Ask about retrofits
  7. Test the effectiveness of the solutions with:
    - Operators
    - Maintenance personnel
  8. Implement the solution using:
    - Education / training
    - Procedural changes
    - Engineering
  9. Monitor the solution(s) by:
    - Annual machine guarding self assessment

### 5.3. Employees

1. Review the machinery / equipment manufacturer provisions for appropriate safeguards.
2. Ensure the machinery / equipment safeguards meet the following minimum requirements:
  - Prevent hands, arms, fingers or any other body part from entering the point of operation or other danger zone
  - Secure so that safeguards can not be easily removable or defeated
  - Made of durable material to withstand the conditions of use
  - Secured firmly to the machine / equipment
  - Protected from falling objects such as small tools or parts
  - Create no new hazard such as new shear points, sharp edges, ergonomic stressors, increase noise or vibration
  - Minimum interference so the guard does not interfere with the operation / loading material, safe lubrication and able to lubricate machine / equipment without removing the guards
  - Follow department / agency Standard Operating Procedures for machine safeguarding

## 6.0 Training

Proper protection cannot be provided through the use of safeguards alone. Employees must know what a safeguard's purpose is and how to use them effectively. Therefore, employees must receive training on the following:

- A description or review of the hazards associated with machinery and equipment they are likely to operate or contact in the work environment.
- How the safeguards provide protection, and the hazards they are intended to address.
- How to properly use the safeguards and what things to look for that would indicate the safeguard are not working properly.
- How and under what circumstances safeguards can be removed and by whom.
- What to do if a safeguard is damaged, missing or not functioning properly.

Refresher training shall occur when one or more of the following situations trigger the need for such:

- When newly assigned to operating, maintenance or set-up tasks on machinery or equipment.
- When new or significantly altered safeguards are introduced.
- When a significantly new types or models of machinery or equipment are introduced.
- When a trend in injuries or incident develops involving failure of the machine safeguarding system or a pattern of at risk behaviors.

Attachment One

**MACHINE GUARDING SURVEY**

**General Requirement**

<b>Electrical Power / Controls</b>	<b>YES</b>	<b>NO</b>
Is each machine equipped with a master switch which can be locked and tagged during repair or maintenance operations?	<input type="checkbox"/>	<input type="checkbox"/>
Are power controls and operating controls located within easy reach of the operator at his/her regular work station?	<input type="checkbox"/>	<input type="checkbox"/>
Are controls brightly marked and easily identified allowing the operator to cut off power at the point of operation?	<input type="checkbox"/>	<input type="checkbox"/>
Is each machine provided with an appropriate electrical ground?	<input type="checkbox"/>	<input type="checkbox"/>
Is a trip device provided on machinery on which injury might result if motors were to inadvertently restart after power failures?	<input type="checkbox"/>	<input type="checkbox"/>
Are main "kill" switches centrally located, easily identified, and accessible to shop supervisors or co-workers for use in interrupting power in emergency situations?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Guarding</b>		
Are appropriate guards provided to protect the operator and other employees from hazards such as exposed belts, pulleys, sheaves, drive shafts, drive couplings, chains, rotating parts, flying chips and sparks?	<input type="checkbox"/>	<input type="checkbox"/>
Are employees appropriately reprimanded if they are observed removing protective devices, or if they are observed operating any equipment with protective devices not in place?	<input type="checkbox"/>	<input type="checkbox"/>
Are combs, featherboards or suitable jigs provided for the use of operators performing work for which standards guards cannot be installed? (Examples: grooving, jointing, moulding.)	<input type="checkbox"/>	<input type="checkbox"/>
<b>Personal Protective Equipment</b>		
Is appropriate eye protection provided to, and its use required by, operators and helpers where the operation of the machine may produce flying objects or dust?	<input type="checkbox"/>	<input type="checkbox"/>
Is appropriate hearing protection provided to, and its use required by, operators and helpers, who must work around equipment which may emit noise levels?	<input type="checkbox"/>	<input type="checkbox"/>
Is the wearing of loose fitting clothing or neckties prohibited for employees who operate shop equipment?	<input type="checkbox"/>	<input type="checkbox"/>
Is the wearing of gloves, rings, neck chains and other hazardous jewelry prohibited of employees who operate or work on machines with working parts?	<input type="checkbox"/>	<input type="checkbox"/>
Are employees with long hair required to keep the hair restrained while working around machinery with moving parts?	<input type="checkbox"/>	<input type="checkbox"/>
If employees must work around operating machinery with a potential to produce kickbacks, are they provided with and required to wear heavy aprons?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Housekeeping</b>		
Are appropriate brushes provided employees working at machines which produce slivers, sawdust, and other debris?	<input type="checkbox"/>	<input type="checkbox"/>
Are employees instructed to never clean their machines or the surrounding area with bare hands?	<input type="checkbox"/>	<input type="checkbox"/>
Are employees instructed to never clean their machines while they are operating?	<input type="checkbox"/>	<input type="checkbox"/>
Is compressed air allowed for cleaning ONLY where it can be reduced to 30 P.S.I.? Is such reduction enforced by the supervisor?	<input type="checkbox"/>	<input type="checkbox"/>
Is eye protection provided and its use required where compressed air is used for cleaning operations?	<input type="checkbox"/>	<input type="checkbox"/>
Are oily rags, waste, and other materials saturated with combustible substances disposed of in approved metal containers with self-closing lids?	<input type="checkbox"/>	<input type="checkbox"/>

Are such containers clearly marked for disposal of combustible materials and emptied on a daily basis?	<input type="checkbox"/>	<input type="checkbox"/>
Are local exhausts installed on machines which produce large amounts of dust, sawdust, or other fine debris?	<input type="checkbox"/>	<input type="checkbox"/>
Is a safety zone established and well marked around each machine?	<input type="checkbox"/>	<input type="checkbox"/>
Are machines spaced so as to allow adequate safety zones?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lockout / Tagout / Try</b>		
Is each machine completely shut down and the control switch locked and tagged by the person performing maintenance, prior to any maintenance attempt?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Training</b>		
Are only personnel thoroughly trained in the operation of a machine allowed to operate machinery?	<input type="checkbox"/>	<input type="checkbox"/>
Does the supervisor ensure that an employee is thoroughly trained in the safe operation of a machine prior to that employee's being allowed to operate it?	<input type="checkbox"/>	<input type="checkbox"/>
Are all manufacturer's operations manuals and diagrams on file and made available to employees responsible for operating any machines?	<input type="checkbox"/>	<input type="checkbox"/>
If manufacturer's literature is not available, has the supervisor written to the manufacturer to request such material?	<input type="checkbox"/>	<input type="checkbox"/>
Does the supervisor constantly observe shop practices to ensure that all safety regulations are being observed?	<input type="checkbox"/>	<input type="checkbox"/>
When unsafe acts are noted, does the supervisor ensure they are corrected and that they do not recur?	<input type="checkbox"/>	<input type="checkbox"/>
Has a safety procedure been written for each machine, kept by the supervisor and been made available to all operators?	<input type="checkbox"/>	<input type="checkbox"/>
Does the procedure include:		
• Clearing the operating area of obstructions?	<input type="checkbox"/>	<input type="checkbox"/>
• Designating the dimensions of a "safety" zone for each machine in the location?	<input type="checkbox"/>	<input type="checkbox"/>
• Specifying the personal protection devices required during the operation of the machine or when assisting?	<input type="checkbox"/>	<input type="checkbox"/>
• Prohibition of the wearing of loose fitting clothing, long free-flowing hair, jewelry, neckties or other apparel which may increase the risk of accidents?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Inspection of the machine prior to each start, such inspection to include:</b>		
• Clearing the operating area of obstructions?	<input type="checkbox"/>	<input type="checkbox"/>
• Check of operating controls?	<input type="checkbox"/>	<input type="checkbox"/>
• Check of safety devices?	<input type="checkbox"/>	<input type="checkbox"/>
• Check of power drives, sharpness of cutting edges and other parts to be used?	<input type="checkbox"/>	<input type="checkbox"/>
• Are any deficiencies noted corrected prior to operating the equipment?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Machines used for both Wood-Working and Metal-Working</b>		
<b>Buffing and Wire Brushing Wheels</b>		
Are operators provided with and required to use eye protection during buffing operations?	<input type="checkbox"/>	<input type="checkbox"/>
Are goggles or face shields and leather gloves provided and their use required by employees operating wire brushing wheels?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Drill Presses</b>		
Are all employees who may work with drill presses alert to the potential for injury by:		
• Coming in contact with the drill bit?	<input type="checkbox"/>	<input type="checkbox"/>
• Being struck by insecurely clamped materials being worked on?	<input type="checkbox"/>	<input type="checkbox"/>
• Being struck by flying metal chips or wood shavings?	<input type="checkbox"/>	<input type="checkbox"/>
• Leaving the key in the chuck?	<input type="checkbox"/>	<input type="checkbox"/>

• Brushing shavings away with bare hands?	<input type="checkbox"/>	<input type="checkbox"/>
Is it required that all stock be properly secured to the press to prevent accidental movement during drilling?	<input type="checkbox"/>	<input type="checkbox"/>
Is it required that all stock be properly secured to the press to prevent accidental movement during drilling?	<input type="checkbox"/>	<input type="checkbox"/>
Are operators prohibited from making measurements near the tool, reaching across the table or adjusting the machine or stock while the machine is in motion?	<input type="checkbox"/>	<input type="checkbox"/>
Are operators and assistants provided and required to wear eye protection when operating, working or standing in close proximity of the drill press while it is being operated?	<input type="checkbox"/>	<input type="checkbox"/>
Are all power transmission parts effectively guarded?	<input type="checkbox"/>	<input type="checkbox"/>
Is a spring-safety guard provided to guard the drill bit and to catch metal slivers and wood chips?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lathes</b>		
Are operators and assistants provided with and required to wear eye protection when operating the lathe or when they are within close proximity of the lathe during operation?	<input type="checkbox"/>	<input type="checkbox"/>
Have operators been instructed to allow lathes to stop of their own accord? Are they aware of the dangers of using hand pressure to stop spinning chucks after power has been turned off?	<input type="checkbox"/>	<input type="checkbox"/>
Is each exposed power transmission part effectively guarded for complete operator protection?	<input type="checkbox"/>	<input type="checkbox"/>

**Note:** If a supervisor or operator has reason to believe that a machine may not be effectively guarded the Department Safety Representative or Risk Management should be consulted.

Are operators instructed to avoid taking deep cuts when working with wood to avoid the cutting tool's being forcibly ejected?	<input type="checkbox"/>	<input type="checkbox"/>
Are operators prohibited from wearing loose clothing, long loose hair, or jewelry which may become tangled in the revolving parts of the machinery?	<input type="checkbox"/>	<input type="checkbox"/>
Are operators prohibited from measuring or calibrating while the lathe is in motion?	<input type="checkbox"/>	<input type="checkbox"/>
Are all cutting heads covered as completely as possible by metal hoods or shields?	<input type="checkbox"/>	<input type="checkbox"/>
Are guards designed in such a manner as to allow easy access to make adjustment to the stock or cutting head?	<input type="checkbox"/>	<input type="checkbox"/>
Where an exhaust system is used, does the metal guard form part or the entire exhaust hood?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Metal-Working Machines</b>		
<b>Milling Machines</b>		
Are all operators thoroughly familiar with the leading cause of accidents with milling machines, and are they warned to avoid these situations, i.e.:		
• Failure to draw the job back to a safe distance when loading and unloading?	<input type="checkbox"/>	<input type="checkbox"/>
• Leaving the cutter to remove chips while the machine is in motion?	<input type="checkbox"/>	<input type="checkbox"/>
• Using incorrectly dressed cutters?	<input type="checkbox"/>	<input type="checkbox"/>
Is appropriate eye protection provided to operators, and is its use enforced?	<input type="checkbox"/>	<input type="checkbox"/>
Are shims, blocks and clamps provided to hold stock in place?	<input type="checkbox"/>	<input type="checkbox"/>
Are operators instructed to make certain that such clamping devices are mounted low enough to clear the arbor and cutter?	<input type="checkbox"/>	<input type="checkbox"/>
Are operators instructed to lower the table prior to backing work under a revolving cutter?	<input type="checkbox"/>	<input type="checkbox"/>
Are adjustments to the speed of the machine, the rate of feed or coolant flow, or other function prohibited while the machine is in operation?	<input type="checkbox"/>	<input type="checkbox"/>
Are machine equipped with hand-adjusting wheels, mounted on the shaft by	<input type="checkbox"/>	<input type="checkbox"/>

clutches or ratchet devices, so that the wheels do not revolve when the automatic feed is in use?		
Do horizontal machines have a splash guard and pans for catching thrown cutting lubricant and lubricant running from the tools?	<input type="checkbox"/>	<input type="checkbox"/>
Is the placing of hand tools on the worktable prohibited at all times?	<input type="checkbox"/>	<input type="checkbox"/>
Are operators prohibited from reaching around cutters to remove metal chips or debris?	<input type="checkbox"/>	<input type="checkbox"/>
Are brushes provided and their use required for cleaning the machines?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Metal Shapers</b>		
Are all operators familiar with the primary causes of injury in shaping operations, i.e.:		
• Placing the hand or fingers between the tool and the work?	<input type="checkbox"/>	<input type="checkbox"/>
• Running the bare hand over sharp metal edges?	<input type="checkbox"/>	<input type="checkbox"/>
• Measuring the job while the machine is running?	<input type="checkbox"/>	<input type="checkbox"/>
• Failing to clamp the work or tools prior to starting the cut?		
Is eye protection provided and its use required?	<input type="checkbox"/>	<input type="checkbox"/>
Do all mechanical presses containing full revolution clutches incorporate a single stroke device and an anti-repeat mechanism into the press system?	<input type="checkbox"/>	<input type="checkbox"/>
Is it required that pressure on hydraulic presses be bled off and switches locked out prior to maintenance being performed?	<input type="checkbox"/>	<input type="checkbox"/>
Do all point of operation guards protect the operator by one of the following methods (the answer to at least one of the four following must be "yes"):		
• Does the guard prevent or stop normal stroking of the press, if the operator's hands are inadvertently placed in the point of operation?	<input type="checkbox"/>	<input type="checkbox"/>
• Does the guard prevent the operator from inadvertently reaching into the point of operation?	<input type="checkbox"/>	<input type="checkbox"/>
• Are the controls designed so that the operator must use both hands to operate the press, and are the controls located at a safe distance from the point of operation?	<input type="checkbox"/>	<input type="checkbox"/>
• Must the point of operation be enclosed before a press stroke can be initiated?	<input type="checkbox"/>	<input type="checkbox"/>
• Are hand tools provided and required to be used to free or scrap pieces from the die? Are employees aware that this operation should never be done with bare hands?	<input type="checkbox"/>	<input type="checkbox"/>
• Has a regular inspection program been established and maintained to ensure that all parts, auxiliary equipment and safeguards are in good repair and properly adjusted?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Wood-Working Machines</b>		
<b>Band Saws</b>		
Are all operators instructed that the primary cause of injury associated with band saws results when the operator's hands make contact with the saw blade?	<input type="checkbox"/>	<input type="checkbox"/>
Are operators provided and required to wear appropriate eye protection?	<input type="checkbox"/>	<input type="checkbox"/>
Is the cutting edge of the blade completely enclosed by an adjustable guard, except at the point of operation?	<input type="checkbox"/>	<input type="checkbox"/>
Are both upper and lower drive wheels completely enclosed by solid metal, woven wire mesh or expanded sheet metal and securely fastened to the metal framework?	<input type="checkbox"/>	<input type="checkbox"/>
Is each saw provided with a tension control device to ensure proper operating tension at all times?	<input type="checkbox"/>	<input type="checkbox"/>
Are effective brakes provided to stop the wheel in the event of blade breakage?	<input type="checkbox"/>	<input type="checkbox"/>
Has the operator been instructed that s/he must use extreme caution to ensure that his/her hands do not come in contact with the saw blade during operation?	<input type="checkbox"/>	<input type="checkbox"/>
Does the supervisor review the operator's performance visually periodically to	<input type="checkbox"/>	<input type="checkbox"/>

ensure that all precautions are taken?		
<b>Circular Saws</b>		
Are circular saw operators aware that the most frequent cause of injury by these employees results from:		
• Hands slipping off the stock while it is being pushed into the saw?	<input type="checkbox"/>	<input type="checkbox"/>
• Holding the hands too close to the blade during the cutting operation?	<input type="checkbox"/>	<input type="checkbox"/>
• From kickbacks?	<input type="checkbox"/>	<input type="checkbox"/>
Is appropriate eye protection provided and its use required?	<input type="checkbox"/>	<input type="checkbox"/>
Are table saws equipped with a guard which protects the portion of the saw above the table?	<input type="checkbox"/>	<input type="checkbox"/>
Does the guard automatically adjust itself to the thickness of the material being cut in order to provide continuous protection from the blade?	<input type="checkbox"/>	<input type="checkbox"/>
Are table saws (unless self-fed with rollers or a wheel in the back of the saw) provided with a spread fastened securely behind the saw?	<input type="checkbox"/>	<input type="checkbox"/>
Are circular ripsaws provided with sectional non-kickback fingers or dogs?	<input type="checkbox"/>	<input type="checkbox"/>
Is the part of the saw blade underneath the table completely enclosed?	<input type="checkbox"/>	<input type="checkbox"/>
Are swing saws, radial saws and cutoff saws designed to return gradually and automatically to the starting position when released by the operator?	<input type="checkbox"/>	<input type="checkbox"/>
Is it required that stock be held against a gage, never sawed freehand?	<input type="checkbox"/>	<input type="checkbox"/>
Is the operator required to stand out of the line of the stock he is ripping to avoid being injured by kickbacks?	<input type="checkbox"/>	<input type="checkbox"/>
Is a heavy plastic or leather apron or abdomen guard provided to give additional protection?	<input type="checkbox"/>	<input type="checkbox"/>
Are operators required to stop the saw completely prior to leaving it?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Sanding Machines</b>		
Is eye protection provided and required to be used by operators and assistants?	<input type="checkbox"/>	<input type="checkbox"/>
Are dust respirators provided and their use required by those operating the machine or who must stand in close proximity of the operation and when cleaning up?	<input type="checkbox"/>	<input type="checkbox"/>
Do belt sanders have guards placed at each in-running nip point on the power transmission and feed roll parts?	<input type="checkbox"/>	<input type="checkbox"/>
Is the unused run of the sanding belt guarded?	<input type="checkbox"/>	<input type="checkbox"/>
Do manually fed sanders have a work rest to be used by the operator to properly support the work?	<input type="checkbox"/>	<input type="checkbox"/>
Are sanding belts the same width as the pulley-drum, are they free of cracks and badly worn spots and frays, and are they adjusted tightly against the pulley-drum before each use?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Jointers</b>		
Are employees aware that jointers are one of the most dangerous machines in wood working shops, and that the majority of such injuries occur when operators catch their hands and/or fingers on the knives, especially when short lengths of stock are being jointed?	<input type="checkbox"/>	<input type="checkbox"/>
Is eye protection provided and its use required?	<input type="checkbox"/>	<input type="checkbox"/>
Is the jointer blade guarded as work is fed into it?	<input type="checkbox"/>	<input type="checkbox"/>

**Note:** A guard which adjusts itself covering the table on the working side of the gage is recommended. The unused end of the gage should be enclosed at all times.

Are push blocks provided and their use required when performing surfacing work or when jointing short pieces of stock?	<input type="checkbox"/>	<input type="checkbox"/>
Do jointers have rounded heads no deeper 7/16 inch, and no wider than 5/8 inch?	<input type="checkbox"/>	<input type="checkbox"/>
Is the opening between the table and the knife just large enough to clear the knife?	<input type="checkbox"/>	<input type="checkbox"/>

Is the clearance between the edge of the rear table and the cutter head not more than 1/8 inch?	<input type="checkbox"/>	<input type="checkbox"/>
Is the table throat opening not more than 2 1/2 inches, when tables are set with each other for zero cut?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Wood Shapers</b>		
Are employees aware that shapers can be dangerous when the operator's hands come in contact with revolving knives?	<input type="checkbox"/>	<input type="checkbox"/>
Are operators alert for broken knives which may be thrown by the machine?	<input type="checkbox"/>	<input type="checkbox"/>
Is eye protection provided and its use required?	<input type="checkbox"/>	<input type="checkbox"/>
Are the cutting heads of wood shapers enclosed with a cage or adjustable guard?	<input type="checkbox"/>	<input type="checkbox"/>
Are knives of the best shaper steel and set by fully qualified installers?	<input type="checkbox"/>	<input type="checkbox"/>
Do knives fit the grooves in the collars perfectly, and are they free of dust	<input type="checkbox"/>	<input type="checkbox"/>
When knives are worn down to the middle point of the collar, are they discarded?	<input type="checkbox"/>	<input type="checkbox"/>
Are knives balanced perfectly?	<input type="checkbox"/>	<input type="checkbox"/>
Are operators instructed to avoid deep cuts, to start the work in short starts and stops, to bring the spindle up to operating speed slowly?	<input type="checkbox"/>	<input type="checkbox"/>
Do operators listen for any evidence that the knives are out of balance?	<input type="checkbox"/>	<input type="checkbox"/>
Is there a braking device on the shaper to stop the spindle after the power is shut off?	<input type="checkbox"/>	<input type="checkbox"/>
Is a long handled brush provided and its use required for removing chips and dust from the blades?	<input type="checkbox"/>	<input type="checkbox"/>
Is it required that shaper work be held against guide pins or a fence?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Planers</b>		
Is eye protection provided and its use required?	<input type="checkbox"/>	<input type="checkbox"/>
Are dust respirators provided and its use required?	<input type="checkbox"/>	<input type="checkbox"/>
If the planer is not sound insulated, is hearing protection provided?	<input type="checkbox"/>	<input type="checkbox"/>
Are cutter heads completely enclosed in solid metal guards, which should be kept closed when the planer is running?	<input type="checkbox"/>	<input type="checkbox"/>
Are all belts and pulleys completely enclosed on the backside of the planer?	<input type="checkbox"/>	<input type="checkbox"/>
Are feed rolls guarded by a wide metal strip or bar to keep the operator's fingers out of the rolls while allowing boards to pass?	<input type="checkbox"/>	<input type="checkbox"/>