DEPARTMENT OF LABOR AND INDUSTRY

MNOSHA Instruction **STD 1-12.12A**
January 28, 2026

SUBJECT: Guidelines for Point of Operation Guarding of Power Press Brakes

Purpose:

To provide guidelines for determining compliance with the guarding requirements for power press brakes.

Scope:

This instruction applies MNOSHA-wide.

References:

1. General Industry Regulations & Standards, Subpart O
2. General Industry Regulations and Standards, 29 CFR 1910.212, "General Requirements for Machine Guarding."
3. General Industry Regulations and Standards, 29 CFR 1910.147, "The control of hazardous energy (lockout/tagout)."
4. Federal OSHA Instruction CPL 02-01.025, "Guidelines for Point of Operation Guarding of Power Press Brakes," dated 02/14/1997.
5. American National Standards Institute, Inc. (ANSI) Standards ANSI B11.3-1982 and ANSI B11.3-2002, "Safety Requirements for Construction, Care, and Use of Power Press Brakes" and ANSI B11.3-2012 (R2020) – "Safety Requirements for Power Press Brakes".
6. American Society of Mechanical Engineers (ASME) standard ASME B5.55-2008 "Specification and Performance Standard, Power Press Brakes".
7. American National Standards Institute, Inc. (ANSI) Standard ANSI B11.19-2019 – "Performance Requirements for Risk Reduction Measures: Safeguarding and other Means of Deducing Risk".

8. Federal OSHA Standard Interpretation dated 02/11/2004, "Use of laser guarding systems with hydraulic press brakes".
9. Federal OSHA Standard Interpretation dated 03/25/2004, "Use of laser guarding devices for hydraulic press brakes"
10. Federal OSHA Standard Interpretation dated 08/12/2012, "Speed-Sensing Machine Guards".
11. OSHA Publication 3170-02R 2007: Safeguarding Equipment and Protecting Employees from Amputations
12. Federal OSHA Machine Guarding E-tool (http://osha.gov/SLTC/etools/machineguarding/animations/pbsmall.html)

Cancellation:

This instruction cancels MNOSHA Instruction STD 1-12.12, dated August 12, 2015, Reissued in accessible format May 31, 2022.

Background:

OSHA's machinery and machine guarding regulations (29 CFR Part 1910 Subpart O) require that one or more guarding methods be provided to protect (operating, minor servicing and other nearby) employees from exposure to hazardous machine energy. When guarding by barriers or physical devices is infeasible, guarding by "safe distance" is permitted only if the employer meets conditions outlined in Section B of this directive.

This policy applies to hydraulic, mechanical, or other powered press brakes designed and constructed primarily for bending metal. It also applies to press brakes designed for bending other types of materials such as plastic or composite materials which have the same basic configuration. Excluded from this policy are machines referred to as hand brakes (leaf brake), folding brakes, tangent benders, apron brakes (box and pan), swivel bending brakes, and hydraulic, pneumatic, and mechanical power presses.

ACTION:

A. General Requirements.

1. To protect employees who are not operating or performing minor servicing from exposure to hazardous machine energy, an employer must provide power press brake guarding by physical barriers, presence sensing devices, or by restricting access to power press brakes.

2. A power press brake must not be "energized" (as defined under 29 CFR 1910.147(b)) when the point of operation is not guarded by one or more physical barriers or physical devices unless:

   a. under the operating control of a trained operator;

   b. under the operating control of an employee authorized to perform minor servicing which complies with the conditions of 29 CFR 1910.147(a)(2)(ii)(B);

   c. as provided under the servicing and maintenance testing and positioning requirements of 29 CFR 1910.147(f).

3. Employees performing minor tool changes and adjustments and other minor servicing activities on machines or equipment during normal production operations if they are routine, repetitive, and integral to the use of the equipment for production, must be protected from exposure to hazardous energy by physical barrier guards. When such guarding is not feasible, employees must be protected by alternative measures which otherwise provide effective protection. When machines or equipment are not in normal production operations, servicing and maintenance must be performed under the control of hazardous energy requirements (lockout/tagout) per 29 CFR 1910.147.

4. During **normal production operations**, the power press brake operator must be protected to the extent feasible by physical barriers or physical devices from exposure to the point of operation, moving parts, and elsewhere on the power press brake (per 29 CFR 1910.212). Feasible means of point of operation protection may be limited by the dimensions of the parts being produced and the type of press brake involved (i.e., mechanical verses hydraulic), and could include:

   a. **Two-hand controls** require the concurrent actuation of the operator's hand controls during the hazardous portion of the machine cycle such that the operator cannot reach the hazard before the hazardous motion has ceased. Two modes may be available for operation depending on the control system:
      1) Single stroke mode. This functions much like two-hand controls on mechanical power presses. Two hand controls are used to cycle the press brake and would be held depressed while the ram descends. This mode could be used for parts that can be formed without holding the stock.

      2) The sequence mode is used when there is a need to hold the workpiece~~,~~ or to maintain positioning of a part. This may also be known as stroke-stop mode.

         Sequence is accomplished by stopping the slide on the downstroke (on down-acting machines) just above the workpiece, not more than ¼" above the stock, then while holding the part, using the foot switch to complete the cycle. The operator is protected during the first portion of the cycle by using the two-hand control (or other means to protect the operator from the point of operation).

Note that two-handed controls only protect the operator from the point of operation on the press brake if they are used by a single person, and that two-handed controls do not provide protection for employees assisting the operator.

b. **Presence sensing devices** (such as light curtains) are to be applied, adjusted, maintained, and inspected in accordance with the manufacturer's recommendations. Refer to their manual for details. Presence sensing devices shall be installed and operated such that employees cannot reach the hazard area by reaching over, under, around or through the effective sensing field of the presence sensing device before a safe condition is achieved unless used solely to prevent unexpected start-up. Light curtains may be used in a stroke-stop and blanked mode and allow the operator to hold the part after the press brake stops at the ¼" point above the stock. Light curtains may also be used in a "floating beam blanking" mode where one or more individual beams are shut off (or blanked) while the part is being formed and the blanked beams move with the part being formed. Blanking is a semi-permanent configuration which completely ignores (or blanks off) the detection capabilities of one or more beams from the light curtain. CSHO should note whether the blanked area would allow the operator's body access to the point of operation, in which case adequate guarding is not being provided.

NOTE: Blanking is not to be confused with manual suspension (bypassing), sensing field switching (selection / deselection), or "muting". Muting is the temporary, automatic suspension of the safety function during a non-hazardous portion of the machine cycle without human interaction. Muting stops the presence sensing device from detecting certain objects as they pass through the presence sensing zones (such as light curtains) without stopping the safety circuit. Muting allows for the passage of material into or out of a hazard zone without initiating a stop command while still providing protection during the machine cycle such as when a part is being loaded, unloaded, or repositioned. Muting is commonly used in circumstances such as a conveyor line and is not applicable to normal point of operation guarding on press brakes.

Per American National Standards Institute, Inc. (ANSI) Standard ANSI 11.19-2019, when a presence sensing device is used, employees operating the machine shall have a readily visible indication of when the presence sensing device is armed and the ability to enable and disable the presence-sensing device. The employer shall establish a procedure for the inspection and testing of the presence sensing device system, perform periodic testing on a regular basis, and document the results.

c. **Hold-outs or restraint devices** are an inexpensive alternative applicable in some cases and are designed to prevent an operator from being in the point of operation at all times. Hold out devices shall be inspected, checked, and adjusted according to the employer's established procedures at the start of each operator's shift, following new die or tooling change or adjustment, and when operators are changed.

d. **Pull-out devices** (also known pull back devices) have limited applicability on power press brakes but may be used when press brakes are used as punch presses and the part does not need to be held. If gloves are used by an employee with a pull-out device, the gloves shall be worn over the hand attachments in a manner such that a glove, if caught by the material, machine, or tooling, will not prevent the pull back device from removing the employee's hand from the hazard zone during the hazardous portion of the machine cycle. Pull out devices shall be inspected, checked, and adjusted according to the employer's established procedures at the start of each operator's shift, following new die or tooling change or adjustment, and when operators are changed.

e. **Movable barrier (gate) devices** have limited applicability on power press brakes.

f. **Laser safeguarding and radio-frequency field devices** will only be deemed acceptable if such devices effectively and reliably prevent worker injury. Laser guarding and radio-frequency field devices can only be used on hydraulic press brakes that meet certain criteria including, but not limited to: control reliability features, stopping performance, and ram closing speed.

5. Because of constraints imposed by certain manufacturing or fabricating processes, safeguarding by maintaining a safe distance from the point of operation may be acceptable but **only** when safeguarding by physical barrier or physical devices **is not feasible**. "Safe distance" means the clearance between an employee (typically their fingers holding and supporting a piece part) and the power press brake point of operation. Safeguarding by maintaining a "safe distance" is acceptable if all of the conditions a-d below are met:

   a. The employer demonstrates that physical barriers and physical devices are not feasible to guard the power press brake point of operation. Physical devices typically include: two-hand controls, holdouts or restraints and presence sensing devices.

   b. **The employer demonstrates that power press brake point of operation guarding by maintaining a safe distance is limited to one-time only fabrication of made-to-order or custom-made piece parts,** such as in a model shop or a research and development lab. Small quantity runs, typically performed in a job shop, may be affected by this provision; high volume piece part rates of production will not. A "small quantity run" means fabrication of more than one of the same or similar piece part over a continuous time frame of no more than four hours per month.

      NOTE: Special feasibility guidelines for small quantity runs: When physical guards and physical devices are not feasible for small quantity runs as defined above, safeguarding by maintaining a safe distance as described in this directive is an alternative to power press brake replacement or major renovation which otherwise could provide employee protection.

   c. The employer has a safety program which includes safe work procedures, training, and supervision to ensure that work is performed using "safe distance" alternative measures as described under Section B. "Safe Distance" Safeguarding Program.

d. The employer has a workplace history of operating power press brakes safely by maintaining a safe distance from the point of operation***. Such a history is characterized by absence of injuries related to failure to maintain a safe distance.*** Workplace history will be evaluated by CSHO's review of employer records and interviews or observations of employees.

6. Per OSHA Publication 3170-02R 2007: Safeguarding Equipment and Protecting Employees from Amputations, some workpieces may be too large, heavy, or unwieldly so that one of both hands are required to support it at all times while the workpiece is in the hazard zone and while the operation is being performed. Additionally, a workpiece may be small or light enough that it may be held or supported by one hand while the other hand is used to cycle the machine. Safeguarding by "**safe holding**" is acceptable only if the operator's hands are located away from the point of operation during the hazardous portion of the machine cycle due to both hands being required to hold or support the workpiece or one hand being required to hold or support the workpiece while the other hand operates the machine.

7. Safeguarding of power press brakes is covered by American National Standards Institute, Inc. (ANSI) Standards ANSI B11.3-1982, ANSI B11.3-2002, ANSI B11.3-2012 (R2020), and American Society of Mechanical Engineers (ASME) standard ASME B5.55-2008. OSHA recognizes the ANSI B11.3 standard as the national consensus standard covering power press brakes guarding. Paragraph 6.1.4.3 of ANSI B11.3-1982 specifically addresses safeguarding by maintaining employees at a safe distance when a power press brake is being operated. By specific notation in paragraph 6.1.4.3, "[a] dimension value has not been assigned to the minimum safe distance." ANSI B11.3-2002 paragraph 8.7. 1. states that the safe distance for each job set-up shall be determined. For the purpose of maintaining a "safe distance" as discussed in this instruction, **the operating employee and assistants must not approach closer than necessary and in no case, closer than 4 inches (10.16 centimeters) to the power press brake point of operation. The minimum safe distance of 4 inches (10.6 cm) shall be measured from the exterior point of contact of the power press brake die closest to an employee.**

B. "Safe Distance" Safeguarding Program.

An employer who adopts "safe distance" protection must have (and be prepared to demonstrate to MNOSHA) an effective program. An employer can meet this obligation by establishing and having employees follow an effective program which includes exposure prevention procedures, training, and enforcement of these procedures as described below.

1. **Exposure Prevention Procedures.** A "safe distance" exposure prevention procedure must be developed and documented by the employer and utilized by employees. The exposure prevention procedure must include provisions for maintaining a minimum safe distance as discussed in paragraph A.7.

2. **Training**. Employees must be trained to follow established exposure prevention procedures before operating a power press brake covered under the procedures.

   a. **Training Conten**t. Employee training must include at least the following:

      1) The need for a safety oriented working relationship between the power press brake operator and their assistant.

      2) The function and purpose of operating controls, operating mode controls~~;~~, die space height adjustment positions, and other controls for the power press brake.

      3) The hazards of placing any parts of the body within the point of operation.

      4) The hazards and potential exposure related to each specific piece part bending operation particularly with respect to the piece part itself (for example, whipping and springback) and to tooling (including loading and unloading).

      5) The function and purpose of hand-feeding tools.

      6) The dangers of unsafe work practices, inattention, horseplay, and the misuse of equipment.

      7) The necessity and importance of immediately reporting to the supervisor any condition concerning the power press brake and its operation that may affect the safety of an employee.

   b. **Effectiveness of Training.** The employer must ensure that after training, employees perform applicable exposure prevention procedures proficiently. Power press brake operators and helpers must also comply with the safe operating instructions and recommendations of the power press brake manufacturer or industry-recognized safe working practices for power press brakes. (Successful completion of apprenticeship training may be referenced to demonstrate this latter element of employee proficiency.)

3. **Retraining.** Retraining must be conducted whenever a periodic inspection (see paragraph 5 below) reveals, or whenever the employer has reason to believe, that there are deviations from or inadequacies in an employee's knowledge, use of exposure prevention procedures, or any other work practices required to operate a power press brake safely. This retraining must introduce new or revised control methods and procedures, as necessary, and must reestablish employee proficiency to operate the power press brake safely.

4. **Supervision.** The employer must ensure, through effective supervision, that power press brakes are operated only by trained employees and must enforce the work practices on which power press brake operator training is based. This supervision must include periodic inspections (see paragraph 5 below). Any deviations or inadequacies in the exposure prevention procedures or work practices must be corrected promptly. Employer measures must include retraining and other appropriate corrective action.

5. **Periodic Inspection.** An employer must conduct a periodic inspection of the "safe distance" exposure prevention procedure at least annually to ensure that this procedure and other provisions in this instruction are being followed. This periodic inspection must be performed by a trained person; that is, an inspector, other than the person using the "safe distance" exposure prevention procedure. The periodic inspection must be designed to identify any deviations or inadequacies. The periodic inspection must include a joint review by an inspector and each trained employee of that employee's responsibility under the exposure prevention procedure. The employer must ensure that the periodic inspections have been performed. Normally, the employer must be able to identify the power press brake on which the exposure prevention procedure was being utilized, the date of the inspection, the employees included in the inspection, and the person performing the inspection.

C. Enforcement.

Whether or not safeguarding is provided by maintaining a safe distance, when a physical barrier or a physical device is feasible (except as otherwise allowed in this document) but not used to protect employees exposed to a power press brake, the employer shall be cited for violation of:

1) paragraph 29 CFR 1910.212(a)(3)(ii) for point of operation, or

2) paragraph 29 CFR 1910.212(a)(1) for hazards other than the point of operation

When physical guards and physical devices are not feasible and safeguarding by maintaining a safe distance is not provided as discussed as located in this document, the employer shall be cited for a violation of the General Duty clause, Minnesota Statue § 182.653, subd. 2.

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Distribution: OSHA Compliance and WSC Director

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