

### 2.7 Types of Machine Guards

There are several different forms of machine guards commonly utilized to protect operators from hazards. Each type of guard is designed and installed on a machine to allow normal operation while affording hazard protection to the operator.

1. **Fixed Guards:** Fixed guards are the most common form of guarding and involve a guard that is directly attached to a machine so that the operator is shielded from the hazard. Fixed guards must be fastened in place and require tools for removal. Fixed guards are normally utilized to protect against areas of a machine that do not require frequent access. These areas can include drive shafts, belts, gears, rollers, and other mechanical power transmission components.
2. **Adjustable Guards:** Adjustable guards are devices which must be positioned by the operator of a machine to properly protect against hazards. Adjustable guards are most frequently installed at the point of operation where an operator frequently needs direct access to a machine component for normal operation. Adjustable guards may also be interlocked with a machine's controls so that they must be in the proper position for a machine to operate. If at any time during operation an interlocked guard is moved, the machine must come to an emergency stop until the guard is repositioned. If an adjustable guard is not interlocked, strong administrative controls and training must be in place so that a machine operator understands the function of the guard and the need for it to be in position during machine operation.
3. **Self-Adjusting Guards:** Self-adjusting guards are a form of guard which automatically adapts to the size of the stock being fed into a machine. They are generally designed to protect the operator from the point of operation. When the machine is not in use, these guards rest all the way down covering the blade or other hazard. When in use, they open just enough to allow the operator to feed stock into the machine.
4. **Presence Sensing Devices:** Presence sensing devices such as light curtains and beams are another form of guarding that is utilized on machinery where direct access to potentially hazardous components is necessary during the operating cycle, or when fixed or moveable guards are not practical to install. These safety systems are wired directly into the machine controls much like an interlock device. When the path of an optical beam is disrupted by an object, the machine will not be permitted to start or if already operating will trigger an emergency stop.

Considerations must be made for machinery in the event of a loss of power while in operation. Per [29 CFR 1910.213\(b\)\(3\)](#), where injury might result if a machine were to unexpectedly restart after a loss of power, provisions shall be made to prevent automatic machine restart after power is restored. An anti-restart device prevents a machine from restarting automatically after a loss of power. To restart a machine after a power loss, the controls must physically be cycled off before a start cycle can be initiated. This measure ensures that the operation of a machine is under the control of an operator regardless of whether power is supplied.