SAFETY WHILE WORKING IN MACHINERY

Machine safety means eliminating the hazards due to machines and providing safe operating condition.

**Hazards:**
- Contact with Moving Parts.
- Contact with Electricity, Heat, Fire, Cold, Other Energies.
- Contact with Pressurized Gas Or Liquid.
- Contact with Harmful Chemicals.
- Contact with Harmful Noise, Radiation, Vibration.
- Lack of Adequate Workplace Ergonomics: handling and process design.
- Harmful Actions to the Environment and Community.
HAZARDS DUE TO:

- At the controls: starting or stopping, set-up, adjusting.
- Feeding of materials into the machine: loading and cleaning.
- Machine operations like cutting, turning, drilling, shaping, and punching.
- At the gears, wheels, cylinders, belts, rollers, chains, cables, sprockets & cams.
- Around lift trucks and moving equipment.
- Around conveyors, elevators, and cranes.
- Around any machinery and equipment that can release energy.
a. Hazardous Motions in Machines:

   a. Rotational motion:

   b. Reciprocating Motion:

   c. Transverse Motion:
These motions have different actions and can therefore result in one or several types of injury.

<table>
<thead>
<tr>
<th>Motion</th>
<th>Action</th>
<th>Type of Injury</th>
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<tr>
<td>Rotating</td>
<td>Cutting/ Trapping</td>
<td>Laceration/ Amputation</td>
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<tr>
<td>Back and Forth, Up and Down</td>
<td>Impact/ Struck by</td>
<td>Fracture/ Amputation</td>
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<tr>
<td>Straight Line</td>
<td>Entanglement/ Pulled by</td>
<td>Sprain/Strain Fracture, Amputation</td>
</tr>
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</table>

b. **Contact with Electricity, Fire, Heat, Cold, and other Energies:**
   - At power panels, electrical circuits, power lines, ovens, and heating elements.
   - Around chemical containers, vats, pipes, pumps, and compressors.
   - Around cranes, hoists, other lifting devices.
   - During service and repair jobs.

**Effects:**
   - Burns and scalds.
   - Freeze injuries.
   - Electrocution.

c. **Contact with Pressurized Gas or Liquid:**
   - At nozzles of pressurized cleaning and painting spray lines and air jets.
   - Around injectors, autoclaves, extruders, chemical containers, vats, pipes, pumps and compressors.
   - During cleaning, service, and repair jobs.
EFFECTS:
- Puncture skin.
- Cuts.
- Reduce visibility.

CONTACT WITH HARMFUL NOISE, RADIATION, VIBRATION:
- At stamping, sawing, grinding and polishing jobs.
- At welding and cutting jobs.
- At finishing and curing job.

Effects:
- Harmful noise or radiation can destroy hearing or damage your internal organs.
- Vibrations can injure soft body tissues and joints.

Preventive Measures:
- Machine guarding will prevent from contact with hazardous motions.
- Isolation will prevent from extreme temperatures, noise and pressurized gas or liquid.
- Insulation will prevent from contact with electricity.
- Vibration dampers will prevent from vibration.
- Personal protective equipment’s will be the least preventive measure for machine safety.