Equipment Storage and Maintenance for Winter Shutdowns



A winter shutdown can leave equipment exposed to months of freezing temperatures, moisture, and inactivity. Without proper preparation, spring startup may reveal cracked pumps, corroded components, failed batteries, or damaged hydraulic systems. These problems create more than repair costs: equipment failures and unexpected movement can seriously injure workers.

For OHS managers and worksite professionals, winter shutdowns should follow a documented plan that connects safe isolation, equipment preservation, inspections, and return-to-service checks. Each machine’s operating and maintenance manual should guide the work.

Decide What Needs Shutting Down

Start with an equipment inventory. Identify assets entering seasonal storage, machines remaining operational and systems that must stay available for emergencies.

Common shutdown candidates include excavators, loaders, compactors, agricultural machinery, landscaping equipment, portable generators, and seasonal production lines. Water-containing equipment deserves particular attention: pressure washers, irrigation systems, transfer pumps, sprayers, and

wet-processing equipment can suffer freeze damage where liquid remains trapped. Manufacturer guidance warns that frozen pressure-washer systems can also create dangerous pressure conditions.

Air compressors, pneumatic tools, hydraulic attachments, and battery-powered equipment need their own storage arrangements. Avoid applying one checklist indiscriminately across the fleet.

Assign a responsible person to each asset and record its location, shutdown date, outstanding defects, preservation requirements, and inspection schedule. Identify essential systems separately so shutdown work does not inadvertently disable fire protection, heating, drainage or emergency power.

Control Hazardous Energy First

Before cleaning, draining or servicing equipment, identify every hazardous energy source. Electrical supplies, batteries, hydraulic pressure, compressed air, elevated attachments, springs, and hot fluids can remain dangerous after the engine stops.

Authorized workers should follow equipment-specific shutdown and lockout procedures: notify affected personnel, stop equipment normally, isolate energy sources, apply required locks and tags, release or restrain stored energy, and verify isolation before beginning work. A stopped engine or emergency-stop button does not establish safe isolation.

Lower attachments to a safe resting position where possible. Where components must remain elevated, use approved mechanical supports. Coordinate contractors and overlapping crews, including arrangements for transferring protection across shifts.

Keep storage labels separate from maintenance protection. A

“winterized – do not operate” tag communicates equipment status; it does not replace the hazardous-energy controls required during servicing.

Clean, Inspect, and Preserve

Remove mud, salt, crop residue, and accumulated debris before storage. Allow equipment to dry, and avoid directing wash water into electrical components, bearings, or other vulnerable areas. Cleaning also makes leaks, cracks and worn parts easier to identify.

Inspect hoses, belts, seals, wiring, guards, tires, and undercarriages. Repair safety-critical defects or clearly identify equipment that must remain unavailable. Lubricate designated points and apply approved corrosion protection where the manufacturer recommends it. Removing debris also reduces opportunities for rodents to nest in stored machinery.

Service fluids according to the manual and maintenance schedule. Confirm that engine coolant provides protection for anticipated minimum temperatures. Fuel-storage instructions vary by engine, fuel, and storage duration: some equipment requires treated fuel, while other systems require draining. Do not assume that every tank should be emptied or filled.

Protect Equipment-Specific Systems

For pumps, pressure washers, and sprayers, relieve pressure before disconnecting components. Drain and flush the equipment as directed, including hoses, filters, valves, and low points. Where specified, circulate an approved winterizing fluid through the complete system. Use products compatible with seals and the equipment’s intended service and collect discharged liquids for appropriate disposal. Simply opening one drain may leave water trapped elsewhere.

For compressed-air systems, manage condensate in receivers,

drains, filters and piping. Protect operating installations against freezing, maintain dryers and verify that automatic drains function properly. Frozen condensate can obstruct equipment and damage components.

For batteries, distinguish between chemistries. Follow manufacturer instructions for disconnection, storage temperature, charge level, and charging equipment. Lithium-ion packs may require partial-charge storage rather than continuous charging. Keep batteries clean, dry, and secure. Inspect them for damage before reuse.

Maintain Protection Throughout Winter

Choose dry, secure storage with suitable drainage and adequate access for inspections. Park mobile equipment on stable ground, secure it against movement and protect vulnerable connections. Use suitable covers without creating moisture traps. Label preserved equipment clearly, especially where fluids have been drained or components removed.

Schedule inspections based on manufacturer requirements and site conditions, with additional checks after storms, flooding or major temperature changes. Look for leaks, corrosion, pest damage, deteriorating covers and water intrusion. Record findings and corrective actions.

For equipment still working through winter, continue preventive maintenance. Use approved lubricants and fuels for the temperature range, check batteries and tire pressures, inspect hoses, and follow prescribed warm-up procedures before loading machinery.

Do not start stored engines periodically without checking preservation instructions. If testing requires operation, follow a controlled return-to-service procedure. Never run portable generators inside buildings or enclosed spaces because of carbon monoxide hazards.

Make Spring Startup a Planned Task

Before restarting, review the shutdown record. Remove preservation materials, restore fluids and connections, inspect guards and safety devices, and complete required servicing. Follow authorized lockout-removal procedures, clear personnel and test equipment under controlled conditions before normal operation. Document approval to return the asset to service.