

## Winterizing Construction & Outdoor Plant Equipment for Reliability & Safety

### Why It Matters

- Cold temperatures, snow, and ice can cause serious problems for construction and plant equipment.
- Engines may fail to start, hydraulic lines can crack, batteries lose charge, and operators face visibility and traction hazards.
- Winterizing equipment and following cold-weather safety procedures help:
  - **Prevent costly breakdowns or component failures that can cause collateral safety hazards.**
  - Extend equipment life.
  - Keep operators safe and productive in harsh conditions.



### Pre-Winter Preparation and Maintenance

- **Inspection and Servicing**
  - Perform full pre-winter inspections on all heavy equipment and outdoor machinery.
  - Check and replace engine oil, hydraulic fluids, and coolant with the manufacturer's recommended cold-weather grades.
  - Inspect hoses, seals, and belts for brittleness or wear — cold weather makes rubber and plastic materials more fragile.
    - **This can create major safety issues when dealing with pressurized lines as well as spill response.**
  - Test batteries – weak batteries fail quickly in freezing temperatures.
    - Frequently clean terminals and ensure proper charge.
  - Verify block heaters or battery warmers are installed and functioning where required.
- **Fuel Systems**
  - Use winter-grade diesel fuel or add anti-gel additives to prevent fuel line freezing.
  - Keep fuel tanks full to reduce condensation and moisture buildup.
  - Drain water separators and check filters regularly.
- **Cooling and Heating Systems**
  - Confirm that antifreeze levels and strength are adequate for expected temperatures.
  - Check cab heaters and defrosters for proper operation — clear vision is essential for safety.



### Daily Start-Up and Operation

- **Pre-Start Procedures**
  - Inspect equipment daily for ice buildup, leaks, low fluids, or frozen components.

- Remove snow and ice from steps, handholds, mirrors, and windows.
- Let the engine warm up gradually to bring fluids to proper operating temperature before working under load.
- Check for unusual noises, sluggish hydraulics, or warning lights — these could indicate cold-related problems.
- **Safe Operation**
  - Operate at reduced speeds until full operating temperatures are reached.
  - Avoid sudden movements or hard braking — traction is reduced on frozen ground.
  - Use extra caution when loading, lifting, or turning on icy or uneven terrain.
  - Always lower attachments and set brakes when parking equipment to prevent sliding.

### Storage and Shutdown Procedures

- Park equipment on level ground, away from drainage paths where melting snow could refreeze.
- Clean mud, salt, and snow off tracks, buckets, and undercarriages daily — these can freeze overnight and cause damage.
- Disconnect batteries or plug in battery maintainers for extended downtime.
- Cover exposed controls or electrical components when equipment is stored outdoors.
- Keep fuel tanks full overnight to minimize condensation.



### Operator and Site Safety Measures

- Ensure operators wear winter PPE: insulated gloves, boots with traction, and high-visibility outerwear.
- Use spotters when visibility is limited by snow or fog.
- Maintain clear, sanded, and salted travel paths for equipment.
- Post signage and barriers around frozen or restricted areas.
- Encourage operators to take warm-up breaks and stay alert for fatigue or cold stress symptoms.

***Winterizing your equipment isn't just about protecting the machine — it's about protecting the operator, the work schedule, and everyone's safety.***



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