

STANDARD OPERATING PROCEDURE

Electric Power Drill — Safe Operation & Maintenance

SOP Number:	EQ-DRILL-001	Revision:	1.0
Effective Date:	March 30, 2026	Review Date:	Annual
Department:	Facilities / Workshop	Approved By:	Health & Safety Manager

1. PURPOSE

This Standard Operating Procedure (SOP) establishes the minimum requirements for the safe setup, operation, and maintenance of electric power drills in workplace and workshop environments. Following this procedure reduces the risk of personal injury, equipment damage, and ensures compliance with applicable occupational health and safety regulations.

2. SCOPE

This SOP applies to all employees, contractors, and students who operate corded or cordless electric power drills. It covers handheld drill/drivers, hammer drills, and combination drill/drivers up to 18 V / 1,500 W rated power.

3. RESPONSIBILITIES

Operator

- Complete this SOP training before first use.
- Inspect the drill and accessories before each use.
- Report defects or incidents to the supervisor immediately.

Supervisor

- Ensure operators are trained and authorised.
- Maintain an up-to-date equipment register and maintenance log.
- Remove defective tools from service and arrange repair/replacement.

4. HAZARDS & RISK SUMMARY

Hazard	Potential Harm	Controls
Rotating chuck / bit	Laceration, entanglement	Secure workpiece; no loose clothing
Flying debris / chips	Eye injury	Safety glasses mandatory
Electric shock (corded)	Electrocution	Inspect cord; GFCI outlet
Drill bit breakage	Penetrating injury	Correct bit for material; correct speed
Noise (hammer mode)	Hearing loss	Hearing protection >30 min use
Dust (wood/masonry)	Respiratory illness	N95 mask; dust extraction preferred
Awkward posture	Musculoskeletal injury	Use two hands; adjust workpiece height

Hidden wiring / pipes	Electrocution, flooding	Check drawings; use cable detector
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5. REQUIRED PERSONAL PROTECTIVE EQUIPMENT (PPE)

PPE Item	Specification	Mandatory?
Safety Glasses / Goggles	ANSI Z87.1 rated, side shields	YES
Hearing Protection	Required for prolonged use (>30 min continuous)	Recommended
Work Gloves	Close-fitting; NOT loose or fabric gloves	YES
Steel-Toed Footwear	CSA Grade 1 or equivalent	YES
Dust Mask / Respirator	N95 minimum when drilling masonry/wood	Situational
Secure Clothing	No loose sleeves, ties, or dangling jewellery	YES

■ **WARNING: Safety glasses MUST be worn at all times while the drill is in operation. Ordinary prescription glasses do NOT provide adequate protection.**

6. PRE-USE INSPECTION

Before each use, perform the following checks. Do NOT operate a drill that fails any item — remove from service and tag with a defect notice.

1	Body & Housing No cracks, missing parts, or damage to the housing.
2	Power Cord / Battery Cord: no cuts, fraying, or exposed wire. Battery: no swelling, cracks, or leaking.
3	Chuck Chuck jaws open and close smoothly; no visible damage.
4	Drill Bit / Attachment Bit is correct type for material, sharp, undamaged, and securely tightened in chuck.
5	On/Off Trigger & Lock Trigger operates freely and returns to off position when released.
6	Speed / Clutch Settings Selector switch moves freely and engages positively into detents.
7	Ventilation Slots Air slots on housing are clear of debris.
8	GFCI (Corded Only) Plug into a GFCI-protected outlet; test GFCI before use.

7. OPERATING PROCEDURE

Step A — Workpiece Preparation

1	Secure the workpiece Clamp or vice-grip the material firmly. Never hold small workpieces by hand while drilling.
2	Mark the drill location Use a centre punch on metal; mark clearly on wood or masonry.
3	Check for hazards Use a cable/pipe detector to confirm no hidden utilities before drilling into walls, floors, or ceilings.
4	Select the correct bit Match bit type (wood, metal, masonry, SDS) to material. Ensure the diameter is correct for the application.

Step B — Drill Setup

1	Insert the bit Open chuck fully. Insert bit straight and centred. Tighten with the chuck key (keyed chuck) or by hand (keyless). Remove chuck key before applying power.
2	Set mode & speed Select Drill, Hammer Drill, or Driver mode as required. Select low speed (1) for large bits or hard material; high speed (2) for small bits in soft material.
3	Set clutch torque (driver mode) Adjust clutch collar to appropriate torque setting to prevent overdriving fasteners.
4	Check battery / power Ensure battery is charged and seated; corded drill is plugged into a GFCI outlet.

Step C — Drilling

1	Don PPE Put on safety glasses, gloves, and any other required PPE before starting.
2	Grip the drill Use both hands — dominant hand on pistol grip, non-dominant hand on auxiliary handle (if fitted).
3	Start the drill off the work Squeeze the trigger and let the bit reach speed before touching the workpiece.
4	Apply steady, even pressure Align the drill perpendicular (or at the required angle) to the surface. Apply firm, consistent forward pressure — do not force.
5	Reduce pressure near break-through Ease off pressure as the bit approaches full depth to prevent grabbing and loss of control.
6	Clear chips regularly Withdraw the bit periodically to clear swarf, especially when drilling deep holes in metal.

7 Stop before adjusting

Release the trigger and wait for the bit to stop completely before adjusting grip, changing bits, or setting down the drill.

■ **WARNING: NEVER** leave a running drill unattended. **NEVER** carry the drill with your finger on the trigger. If the drill jams or stalls, release the trigger immediately — do **NOT** attempt to force it free while powered.

8. POST-USE PROCEDURE

1 Power down

Release the trigger and ensure the bit has fully stopped.

2 Disconnect power

Unplug corded drill from outlet or remove battery pack before removing the bit.

3 Remove and store the bit

Remove bit from chuck, clean it, and store in the proper bit case.

4 Clean the drill

Wipe housing with a dry or slightly damp cloth. Clear ventilation slots with compressed air if available.

5 Inspect for damage

Note any new damage or abnormal performance for logging and reporting.

6 Return to storage

Store the drill in its case or designated rack. Charge cordless battery if below 20%.

7 Complete the log

Record the date, hours used, operator name, and any observations in the equipment log.

9. MAINTENANCE SCHEDULE

Frequency	Task	Performed By
Before each use	Pre-use inspection (Section 6)	Operator
Monthly	Clean air vents; inspect chuck for wear; test trigger lock	Operator / Supervisor
Every 6 months	Full functional test; inspect brushes (brushed motors)	Qualified Technician
Annually	Manufacturer-recommended service; calibration if applicable	Authorised Service Centre
As needed	Replace worn or damaged bits; replace worn brushes/carbon	Operator / Technician

10. EMERGENCY PROCEDURES

In case of injury:

- Release trigger and disconnect power immediately.
- Call for first aid assistance. Dial 911 (or facility emergency number) if required.

- Do not move the injured person unless there is immediate danger.
- Preserve the scene for incident investigation.

In case of electric shock (corded drill):

- Do NOT touch the person if they are still in contact with a live source.
- Disconnect power at the breaker or outlet using a non-conductive object.
- Call 911 immediately. Begin CPR if trained and the person is unresponsive.

In case of fire (battery drill):

- Do NOT use water on a lithium-ion battery fire.
- Use a Class D or CO2 extinguisher. Evacuate area if fire cannot be controlled.
- Call 911. Report incident to supervisor and H&S Representative.

11. TRAINING & AUTHORISATION

No person may operate a power drill in this facility without completing the following:

- Review and sign acknowledgement of this SOP.
- Attend tool orientation session with a qualified supervisor.
- Demonstrate safe operation under direct supervision prior to independent use.
- Renewal training required after any recorded incident or annually, whichever comes first.

12. REFERENCES & RELATED DOCUMENTS

- Manufacturer Operator's Manual (keep on file with equipment register)
- Ontario Occupational Health and Safety Act (OHSA), R.S.O. 1990
- CSA Z432 — Safeguarding of Machinery
- Facility PPE Policy
- Equipment Defect Tag / Out-of-Service Procedure
- Incident Reporting Procedure

13. ACKNOWLEDGEMENT & SIGN-OFF

By signing below, all parties confirm they have read, understood, and agree to comply with this Standard Operating Procedure.

Role	Printed Name	Signature	Date
Operator			
Supervisor			
H&S Representative			