Electrical Hazards in Construction – Machinery Stats and Facts

FACTS

1. **Exposed Wiring:** Damaged wiring in machinery like mixers, lifts, and saws can lead to accidental contact with energized components during routine tasks.
2. **Improper Lockout/Tagout (LOTO):** Failing to disconnect power before servicing or repairing machines increases risk of electrocution or sudden reactivation.
3. **Contact with Overhead Lines:** Large machinery such as cranes, dump trucks, or boom lifts can accidentally contact live overhead power lines, causing arc flash or electrocution.
4. **Faulty Control Panels:** Malfunctioning start/stop controls, relays, or switches may cause unexpected startup or energizing of systems while workers are in contact.
5. **Improper Grounding:** Using portable or temporary generators and machinery without proper grounding systems increases shock hazards.
6. **Use in Wet Conditions:** Operating heavy electric machinery in rain, mud, or flooded sites without proper waterproofing or PPE increases the risk of current leakage and shock.
7. **Insufficient PPE and Training:** Workers lacking dielectric gloves, insulated tools, or equipment-specific training may inadvertently contact live parts or fail to recognize hazards.

STATS

- In 2024, OSHA recorded 5,190 workplace fatalities, with ~8% (~415) from electrical incidents. Machinery-related fatalities were ~2% (~100), often due to power line contact or faulty wiring, per NIOSH.

- In 2024, Electrical Standards violations (29 CFR 1926 Subpart K) ranked 5th (2,100 citations), including improper grounding or power line clearance. PPE violations (29 CFR 1910.132) ranked 6th (1,876 citations), often for inadequate insulated gloves or FR clothing.
- A 2022 NIOSH study found that proper PPE (e.g., insulated gloves, GFCIs) reduced machinery-related electrical injuries by 25%, but 25% of workers lacked adequate training or PPE compliance.
- Statistics Canada’s 2021 Workplace Safety Survey recorded 5,000 lost-time claims in construction, with ~500 linked to electrical hazards, including ~150 from machinery. Shocks (10%) and burns (7%) were prevalent, with 15% attributed to inadequate PPE or maintenance.
- WorkSafeBC reported 25–30 annual fatalities in British Columbia (2020–2023), with ~10% (~3) from electrical incidents, including machinery mishaps. GFCIs and PPE are critical.
- Ontario’s 2024 fines (up to $500,000) target OHS violations, including failure to provide electrical PPE or training.