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LESSON LEARNED

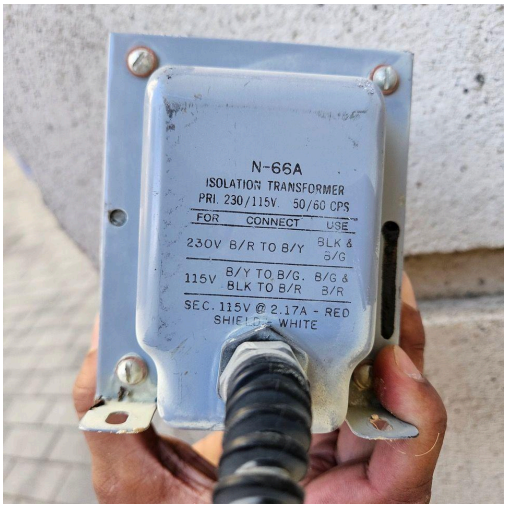
Berkeley Environment, Health & Safety

Electrical Fire Caused by Heat Gun Connected to Power Strip

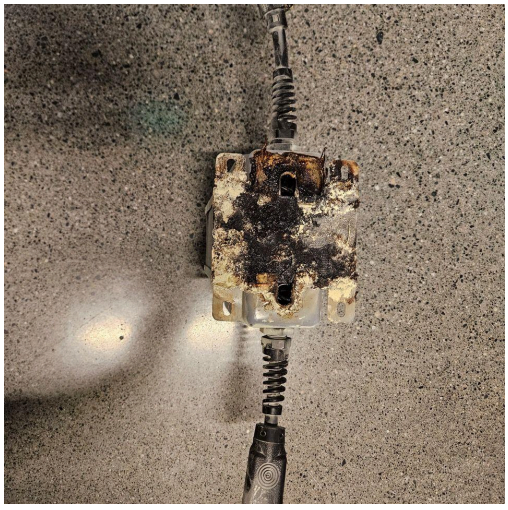
What Happened

A small fire broke out in a laboratory in the Department of Physics when a service technician plugged a heat gun into a power strip that was plugged into an isolation transformer. When a transformer is overloaded, the transformer can experience high operating temperatures, causing it to overheat. In this case, the overheated transformer caused a small fire to break out.

Fortunately, there were no injuries and damage was very minimal. The service technician notified the lab manager as soon as they noticed smoke. The Lab Manager used the fire extinguisher in the room to put out the small electrical fire. The electrical fire was reported to the lab's supervisor and the Department Safety Coordinator (DSC) in a timely fashion. Equipment safety procedures, administrative controls, and potential hazards should have been identified before the equipment was used.



Left: Photo of N-66A Isolation Transformer before the incident.



Right: Photo of the damage to Isolation Transformer after the incident

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What went right?

- While working with the heat gun, the service technician was in a Faraday cage– a necessary safety precaution when working in an environment (e.g., a Physics lab) with potential exposure to electromagnetic fields.
- The technician notified the lab manager as soon as the incident happened.
- There was a Fire Extinguisher in the lab that was used to put the fire out.
- The person who put out the fire, the lab manager, was trained on the proper use of fire extinguishers.
- All parties involved followed the correct reporting procedures. The fire was reported to the on-site supervisor, the lab head, the department safety coordinator, and subsequently, EH&S.
- Lab members and members of neighboring labs were informed about the incident.

What should be done differently?

All researchers, Principal Investigators (PIs), support staff, project managers, contractors, and students with potential for exposure to electrical hazards in a laboratory environment should be able to identify hazards and implement the necessary control measures. The incident could have been prevented if:

- The supervisor, or their designee, conducted a hazard assessment and safe work briefing with all personnel in the area before energized electrical work was commenced.
- Power strip should not have been used. All personnel performing this type of work were trained on how to properly isolate energy sources to use heat-producing equipment.
- The risks of the operation were understood, hazards were identified, and a plan for safe work was created to take the necessary precautions and prevent mishaps.
- Suitably rated electrical tools should have been used only as intended.

Lesson Learned

According to the University of California, Berkeley's Electrical Safe Work Policy, all researchers, PIs, staff, project managers, contractors, and students must ensure they and others around them are working in a safe manner. UC Berkeley complies with Cal/OSHA workplace safety regulations, the California Electrical Code, and other established safety standards to reduce or eliminate the dangers associated with working with or around electrical energy. The laboratory should have ensured ALL potential workplace hazards were identified and that the necessary safety precautions were in place before the service technician began energized electrical work.

Additional Resources

- Electrical Safety Program
- Lab Equipment Electrical Safety