Electric Kiln Safety

Texas Department of Insurance
Division of Workers' Compensation
Safety Education and Training Programs

HS04-039A (9-06)

Introduction

Electric kilns used in creating things such as pottery and ceramics should only be used by trained operators. The hazards from electric kilns include electric shock, burns and fire. Safety can be ensured if kilns are correctly designed and properly installed, located, operated, and maintained. Other hazards associated with electric kilns include:

- refractory ceramic fiber (RCF) linings (including asbestos in older kilns);
- fumes which can be given off during some firing cycles; and
- manual handling problems associated with the loading and unloading of ware.

Installation and location of the kiln

Many fires involving kilns occur at night, due to overheating of wood in the roofs, ceilings, or floors above the kiln. The metal casing of the kiln can become very hot (up to 830° in some cases) despite mineral insulation.

- Kilns should be located away from general work areas in a separate room or area.
- They should be located on a load-bearing floor with plenty of space between the kiln and the ceiling. If there is any doubt as to the strength of the flooring under where a kiln is to be located, contact a structural specialist (i.e., structural engineer) for advice.
- Heat shields or a metal canopy hoods and flues should be installed above kilns with limited space between the ceiling to protect against fire.
- The canopy may require insulation and should extend well over the kiln door.
- Flues should be installed by a trained professional.
- The floor, ceiling, and walls near the kiln should all be made of a non-combustible material.
- Sufficient space should be left around the kiln to allow room for maintenance, servicing, and free movement of air.
- All kilns that are not permanently wired should be plugged directly into an adequately rated and protected socket without the use of an extension cord.
- Good housekeeping around kilns is essential and combustible materials should never be stored near the kiln or allowed to accumulate around it.
- A barrier or kiln cage should be used for protection when children, persons with learning and physical disabilities or the public are learning pottery or ceramics near a kiln.
- Safeguards should be in place to prevent people from becoming trapped inside the barrier or kiln cage and the operating controls should be located outside the barrier or kiln cage and positioned so that the kiln door does not obstruct access to them when open.

Electrical safety

Prior to installing an electric kiln, the electrical system should be inspected and tested by a professional electrician to determine if it is safe and can accommodate the power rating required of the kiln. If it cannot, a new electrical system suitable for the kiln should be installed.

Safe operation

Electric kilns should only be used by trained operators who know safe working procedure, proper use of controls and safety devices, and can recognize dangers and handle emergencies.

Students learning to create pottery and ceramics can use the kiln under the strict supervision of a trained operator.

Two or more people should be capable of operating the kiln and be familiar with the emergency procedures, in order to ensure that there is sufficient cover in the absence of the normal operator.

Written instructions on the safe operation and emergency procedures for the kiln should be posted near it with a list of trained operators and their phone numbers.

Safe practices should be adopted and used when the kiln is in use. Gloves providing thermal protection and protective eyewear should always be worn when removing ware while the kiln is still warm. In addition, protective eyewear, fitted with filters should be worn when removing spy hole plugs to inspect cones when the kiln is hot.

Kiln maintenance

The electrical installation and the kiln should be regularly maintained. This includes regular inspection, particularly where sockets and flexible cables are used. Both electrical installation and the kiln should be periodically tested to ensure that the bonding, earthing, insulation connections, and electrical protection will operate correctly. If faults are found, the kiln and the installation should be taken out of service until the faults are repaired.

- Any work carried out on the kiln or its electrical system should be done by a trained professional who is familiar

with this type of equipment.

- Kiln operators should maintain up-to-date records of the nature and extent of all maintenance and repair work carried out on the kiln.

Fumes

General ventilation around kilns is required to provide fresh air to help maintain a healthy working environment. Ventilation can be created naturally, (i.e., through doors, window etc.) or mechanically (using a fan to supply air). Natural ventilation relies on wind pressure and temperature differences, whereas mechanical ventilation is controllable.

Manual handling

Depending on the nature of the ware being fired, loading and unloading the kiln may present a hazard. Trained operators will need to consider the loads being handled during these operations as well as the amount of twisting and turning that has to be done. Where possible, trolleys or other devices should be used to transport wares around the premises and to lift heavy loads. All employees involved in the manual handling of heavy articles should receive adequate training to prevent injuries.

Remember to practice safety. Don't learn it by accident.

This training program was published with information from Health and Safety Executive (United Kingdom of Great Britain and Northern Ireland.), and the Texas Workers' Compensation Commission.

Review Questions:

1. Why should a kiln be located in a separate room?

2. Ventilation is critical to working around kilns? True or False.

3. What type of gloves should be worn when working with a kiln?

Answers:

1. Reduce heat.
2. True
3. Thermal

Resources

The Texas Department of Insurance, Division of Workers' Compensation (TDI/DWC) Resource Center offers a workers' health and safety video tape library. Call (512) 804-4620 for more information or visit our web site at www.tdi.state.tx.us.

Disclaimer: Information contained in this training program is considered accurate at time of publication.

The Texas Department of Insurance,
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