

workstands and protection from overhead hazards of ash deposits falling on men entering boilers (Fig 18-3)

Ventilation can be provided by portable power-driven blowers operated outside the boiler setting and having canvas tubes leading in through access doors. Draft fans can be operated for short periods of time to provide ventilation also.

As a precaution against electric shock, many firms only permit 6- or 12-volt lights and tools inside a boiler. They are connected to small portable power transformers outside the boiler. Battery-powered lights are an even safer alternative. All tools used inside a boiler should be properly grounded, and along with extension cords, be thoroughly inspected before use.

When cleaning a boiler, men should wear safety hats, goggles, dust respirators, and heavy, leather-palm gloves. Wearing safety shoes is also recommended (Fig 18-6) (See Chapter 38, "Personal Protective Equipment")

Personnel working in confined areas should wear a lifeline, if necessary, and be kept under constant observation.

Boiler rooms

As stated in the first part of this chapter, a boiler should be in a separate room. Often a separate building is designed to house a boiler and its appurtenances. This compartment or building, called a boiler room or boiler house, should be enclosed by fire-resistant, gas-tight walls, with provision made for adequate outside air supply for the fuel-burning equipment. It is desirable that the air intake be such that it cannot be inadvertently closed, and that, if coal is the fuel, boiler room walls separate the boilers from any engine room, especially if refrigerating machinery is located there.

A boiler room should be so planned that the boiler(s) can be adequately maintained, even so far as pulling the tubes if necessary. It is important to plan ahead so that an entire boiler could be replaced without unduly damaging the building. Many engineers leave additional space in the boiler room to permit adding another boiler if plant demand makes this necessary, and if this is not provided, they design the building so that it can be enlarged if necessary without excessive cost or structural damage. Provision is

often made so that a wall or large glass area will give way in case of an explosion inside the room.

Boiler room floors can become very slippery and dirty, so a surface that can be easily cleaned should be provided.

Lighting. In addition to being well illuminated, the boiler room should have a source of emergency lighting. Gauges and controls should be especially well lit so they can be read easily. Exits, too, should be well lit and identified.

Exits. Each boiler room should have two or more exits, one at each end of the room. If a boiler extends more than one story above ground level, the room should have an exit at the boiler runway or floor level for each story. This exit should lead to a fire escape on the outside of the building.

If the boiler room is in a basement (or sub-basement) exits should lead to outside stairways and runways, and should have landings leading to the exit doors.

Stairs, ladders, and runways. Some state and local boiler codes require the installation of stairs, ladders, and runways around boilers which extend 10 ft or more above floor level. Even if not required by law, such access is desirable so that personnel can operate and service the boiler safely and without having to step on hot steam or water lines or stand on valve stems or handles.

Stairs, ladders, and runways must have handrails and toeboards. Runways should be fabricated of steel grating to provide a non-slip surface and at the same time permit circulation of air. Walkways should *not* be near water glasses or safety valve discharge areas where an operator might accidentally be scalded.

Boiler room emergencies

So many boiler accidents have been investigated thoroughly that necessary preventive action is known exactly. Safety professionals should know enough about boiler room procedures that they can be sure their units have all necessary protection (Fig 18-7).

Rules for both routine and emergency boiler operation should be posted permanently and legibly in the boiler room (Fig