

## BOILERS AND UNFIRED PRESSURE VESSELS

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. 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 hard hats, goggles, dust respirators, and heavy leather-palm gloves. Wearing safety shoes is also recommended. (See Chapter 36, "Personal Protective Equipment.")

Personnel working in confined areas should wear lifeline and be kept under constant observation. (See Fig. 16-5.)

*Prompt cleaning is important.* Soot gathers moisture rapidly and thus contributes to deterioration of the metal surfaces. Soot and fly ash should be removed as soon as the boiler has cooled. Because ashes may remain hot for days, presenting a hazard to anyone entering the combustion chamber, they are usually wet down with a hose.

As in spraying ashes for disposal, the operator should wet down from the outside toward the center and stay clear of any steam and dust that will come up. A jet of water driven into the center of a hot ash pile will literally explode it. When removing ashes, care should be used to prevent injury to personnel from steam or hot water that may be present when ash gates are opened.

*After cleaning the boiler* it should be inspected thoroughly for defects by the plant engineer. This should be done every time a boiler is taken out of service. At least once a year, the boiler, the fire-side ignition safety, and other safety controls should be inspected by a qualified inspector who is accompanied by the plant inspector.

### Boiler rooms

A boiler is usually 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

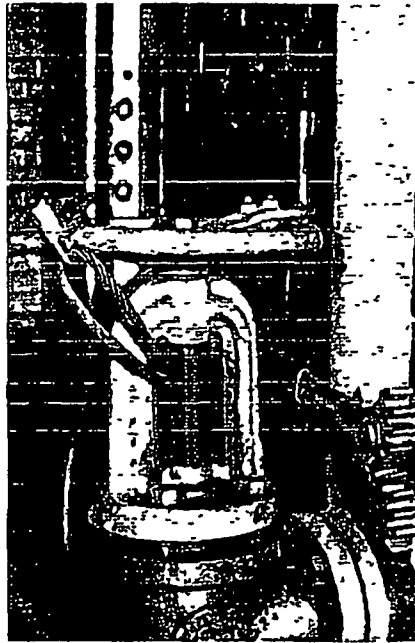


Fig. 16-5a. Valves should be locked when boilers are out of service or when men are working inside. When man is inside, he should have key.

made for an 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 if an entire boiler need be replaced, it can be done 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