4 MAINTENANCE OF FACILITIES

ANSWERS—QUIZ 1

1. a
2. b
3. a
4. a
5. a
6. c
7. d
8. Never coat brick parapets or walls above grade, on either side, with pitch, roof paper, or asphalt roof coating. These materials do not allow walls to breathe. Such coating causes spalling of the brick and disintegration of the mortar joints, especially in areas where freezing temperatures occur.
9. Deflection of flooring is the most common evidence of overloading. A sag or deflection greater than 1/360 of a span's length is a warning that a floor may be overloaded.
10. Blowers are preferable because their source of supply is known. Suction fans may draw poisonous gases into the area from unseen pockets or crevices.
11. Physical and chemical contaminants, biological agents, and lack of fresh air are thought to be the causes of sick building syndrome.
12. Contamination cleanup, preventive maintenance, and preventive design are three aspects to treating sick building syndrome.
13. Injuries with snow throwers usually occur when the operator attempts to clean off debris while the motor is running.
14. The five hazardous actions with hedge trimmers are as follows:
    - changing hand position with the trimmer running
    - holding branches away from the cutting bar
    - removing debris from the trimmer
    - holding the trimmer with only one hand
    - failing to wait for the blades to stop after turning the trimmer off
15. Accident patterns involving utility tractors include the following:
    - Overturning—this can occur when driving over uneven terrain, steep slopes, or embankments. Utility tractors may also overturn if the operator attempts to pull vehicles heavier than the tractor out of mud or from a ditch.
    - Backing up—sometimes when a tractor backs up, it runs over bystanders. Many of the victims are young children whom the operator did not see.
    - Igniting flammable liquids—using gasoline around a garden tractor can be hazardous if the gasoline spills and can be ignited by a spark or heat source.

ANSWERS—QUIZ 2

1. b
2. a
3. d
4. b
5. d
6. Dry rot can result if the basement floor is damp, subject to water seepage, or is alternately dry and wet.
7. Roof inspection should include penthouses, stacks, vents, air handling units, and supports for water tanks where these structures are flashed at the main roof level. Check the roofs of penthouses because most penthouses contain elevator machinery that can be damaged by water seepage.
8. Stacks should be inspected every six month. They are subject to deterioration, both inside and out, from weathering, high winds, lightning, settlement of the foundation, and the action of corrosive flue gases.
9. Every pesticide label must include a list of what the product will control, directions on how to apply the pesticide, a warning of potential hazards, and safety measures to follow.
10. For an emergency involving pesticides, advice and information on antidotes for specific pesticides are available from these agencies:
    - local poison control center
    - state department of health
    - county agricultural extension agent
    - regional office of the EPA
11. Newer technological applications include:
    - laser shaft alignment
    - ultrasonic testing
    - oil analysis

- wear particle analysis
- infrared imaging
- vibration analysis

12. Accidents owing to inadequate maintenance of floors are a major source of injuries in many facilities. Slippery conditions account for many falls. Holes and other irregularities in wood and concrete floors, both inside and outside facility buildings, lead to frequent injuries from stumbling and falling. In addition, they cause many truck accidents.
13. Angle-iron or channel-iron protection should be used at the edge of concrete platforms and docks and be maintained well. Without this protection, concrete platforms and docks can become spalled or chipped. Ruts in the concrete's finish may cause power or hand trucks to swerve and run off a dock or into employees or material. Resurface badly rutted platforms with concrete or epoxy cement.

ANSWERS—CASE STUDY

1. According to some studies of production costs in U.S. manufacturing and processing facilities, maintenance normally accounts for 15% to 40% of the total. Other studies show that maintenance costs represent an average of 28% of the total cost of goods sold.
2. CPM can reduce employees' exposure to hazards, decrease equipment downtime, and optimize the effectiveness of maintenance expenditures.
3. Maintenance savings come from the following:
   - less exposure by employees to malfunctioning equipment, thus fewer accidents
   - a reduction of lost production time
   - fewer emergency failures of equipment
   - efficient scheduling of equipment repairs and downtime
   - fewer repairs and lower costs
   - improved and safer use of labor
   - longer life for equipment