# Chapter 8
# Station Auxiliaries

## 8-1. General

For the majority of pumping stations, auxiliary equipment will be defined as station cranes and hoists required for placement and removal of equipment, trash raking and conveying equipment, fire protection, heating and ventilating, office facilities, and emergency power backup system.

## 8-2. Station Cranes

*a. General.* An overhead traveling crane should be installed in all stations except those of small size where such equipment would not be practicable or economical. In small pumping stations removable roof hatches located over the equipment should be considered. Stations using an all metal building can also be constructed to have roof hatches over the equipment. The metal building should be designed to allow removing the roof hatches without reducing the building's stability. A mobile crane necessary to remove the equipment will not be furnished by the Government. Load and reach requirements of a mobile crane, for removal of the pumping units, should be furnished with the design of the building. A concrete slab outside of the equipment door should be provided and sized to hold the larger pieces of the disassembled pumping unit and driver.

*b. Overhead.* Overhead cranes with a capacity over 3 metric tons (3.3 tons) should be provided with an electric-motor-driven equipment hoist, trolley, and bridge. Monorail cranes with the travel rail located over the equipment should also be considered. When providing a monorail-type crane, there should be sufficient space in the station to place equipment. An alternate would be to continue the rail outside of the station where room would be provided to place equipment. The crane should be sized to lift the heaviest, fully assembled, single piece of equipment.

*c. Mobile*. The mobile crane should be located within 8 hr travel time to the pumping station. Roads to the station and clearance of utility lines should be confirmed after the mobile crane is sized. If available cranes cannot meet these conditions, then an inside overhead crane must be provided.

## 8-3. Trash Rakes

*a. Rakes.* EM 1110-2-3105 provides detailed information about the selection of raking equipment. The two basic types are hand and mechanical raking. The decision to use either hand or mechanical raking should be based on the amount and characteristics of the debris, station configuration, safety, and engineering judgment. Operating personnel should never have to hand rake and handle debris coming from a sanitary or combined sewer. Also, mechanical raking should be used if the station configuration presents a danger for personnel; for example, a very deep sump, significant amount of debris, or the weight of debris will require mechanical lifting capability.

*b. Trash disposal***.** Suitable provision must be made in design of the trash rack chambers to permit storage and removal of accumulated trash with reasonable ease. Truck access to locations where trash is deposited upon removal from the trash rack chamber should be provided in order to avoid laborious transfer procedures in final trash removal.

## 8-4. Fire Protection

Pumping stations are considered Special Purpose Industrial Occupancy as defined in National Fire Protection Association (NFPA) 101, Chapter 28. Fire protection should be provided by portable fire extinguishers. Fire protection requirements for diesel driven stations are provided in NFPA 37. The number, size, and type of portable fire extinguisher shall be provided as specified in NFPA 10.

## 8-5. Heating and Ventilation

*a. Heating.* In general, space heating of the superstructure should be provided in flood control pumping stations located in colder climates. The space heater should be sized to maintain a minimum temperature of 12.8 °C (55 °F).

*b. Ventilation*.

(1) Proper ventilation of pumping stations is an important design consideration. A means should be provided for gravity ventilation of the sump at all times to prevent concentrations of vapors or gases which may result in damage to the structure or injury to personnel. Forced ventilation should be used when pumping water may contain sewage. The superstructure should have

ventilation to remove heat produced by the equipment. Power-driven roof or wall fans can be used to ventilate the superstructure.

(2) All power ventilation equipment controls should be located adjacent to the entrance door. All ventilation should be rated for operating in an explosive atmosphere.

## 8-6. Office Facilities

*a. Office space.* An enclosed office should be provided for all stations over 3 cu m/sec (100 cfs) total capacity. A desk, chair, and filing cabinet to store as-builts and operation and maintenance manuals should be provided. Sound proofing should be provided for stations with diesel prime movers. Heating and cooling should be provided as necessary.

*b. Sanitary facilities.* Sanitary facilities should be provided for all pumping stations. These facilities will range from portable units for small stations with little operating time to more conventional facilities with showers for the larger stations and shall meet the requirements of EM 385-1-1. For example, a larger station may have a total capacity over 90 cu m/sec (3,000 cfs) with a workforce of over 12 people.

*c. Drinking water.* An adequate supply of drinking water shall be provided in accordance with EM 385-1-1.