**Section 604.255 Well Pumps, Discharge Piping, and Appurtenances**

a) Where line shaft pumps are used:

1) the casing must be firmly connected to the pump structure or have the casing inserted into a recess extending at least one-half inch into the pump base;

2) the pump foundation and base must be at least six inches above the finished floor elevation; and

3) lubricants must comply with Section 604.105(f).

b) Where a submersible pump is used:

1) the top of the casing must be effectively sealed to prohibit the entrance of water under all conditions of vibration or movement of conductors or cables;

2) the electrical cable must be firmly attached to the riser pipe at 20-foot intervals or less; and

3) mercury seals must not be used when an existing submersible pump is replaced or a new submersible pump is installed.

c) Discharge Piping

1) The discharge piping for each well must:

A) be designed to minimize friction loss;

B) be equipped with a check valve in or at the well, a shutoff valve, a pressure gauge, and a means of measuring flow;

C) be protected from the entrance of contamination;

D) have control valves and appurtenances located above the pumphouse floor when an above-ground discharge is provided;

E) be equipped with a smooth-nosed sampling tap at least 18 inches above the floor to facilitate sample collection, located at a point where positive pressure is maintained but before any treatment chemicals are applied;

F) when necessary to remove entrapped air from the well, be equipped with an air release-vacuum relief valve located upstream from the check valve, with exhaust/relief piping terminating in a down-turned position at least 18 inches above the floor and covered with a 24 mesh, corrosion-resistant screen;

G) be valved to permit test pumping and control of each well;

H) have all exposed piping, valves, and appurtenances protected against physical damage and freezing;

I) be anchored to prevent movement and be supported to prevent excessive bending forces;

J) be protected against surge or water hammer; and

K) be constructed so that it can be disconnected from the well or well pump to allow the well pump to be pulled.

2) The well must have a means of pumping to waste that is not directly connected to a sewer.

3) The discharge, drop, or column piping inside the well for submersible, submersible jet, and submersible line shaft pumps must:

A) be capable of supporting the weight of the submersible pump, piping, water, and appurtenances, and of withstanding the thrust, torque, torque fatigue, and other reaction loads created during pumping; and

B) use lubricants, fittings, brackets, tape, or other appurtenances that comply with Section 604.105(f).

d) Pitless Well Units

1) Pitless units must:

A) be shop-fabricated from the point of connection with the well casing to the unit cap or cover;

B) be threaded or welded to the well casing;

C) be of watertight construction throughout;

D) be of materials and weight at least equivalent and compatible to the casing;

E) have field connection to the lateral discharge from the pitless unit of threaded, flanged, or mechanical joint connection; and

F) terminate at least 18 inches above final ground elevation or three feet above the 100-year flood level or the highest known flood elevation, whichever is higher.

2) The design of the pitless unit must make provision for:

A) access to disinfect the well;

B) a properly constructed casing vent meeting the requirements of subsection (e);

C) facilities to measure water levels in the well, under subsection (f);

D) a cover at the upper terminal of the well that will prevent the entrance of contamination;

E) a contamination-proof entrance connection for electrical cable;

F) an inside diameter as great as that of the well casing to facilitate work and repair on the well, pump, or well screen; and

G) at least one check valve within the well casing.

3) If the connection to the casing is by field weld, the shop-assembled unit must be designed specifically for field welding to the casing. The only field welding permitted will be that needed to connect a pitless unit to the casing.

e) Casing Vent

1) Well casing must be vented to the atmosphere.

2) The vent must terminate in a downturned position, at or above the top of the casing or pitless unit, no less than 12 inches above grade or floor, in a minimum 1½-inch diameter opening covered with a 24 mesh, corrosion-resistant screen.

3) The pipe connecting the casing to the vent must be of adequate size to provide rapid venting of the casing.

4) Where vertical turbine pumps are used, vents may be placed into the side of the casing.

f) Water Level Measurement

1) Each well must be equipped with a means for taking water level measurements.

2) Where pneumatic water level measuring equipment is used, it must be made using corrosion-resistant materials and attached firmly to the drop pipe or pump column to prevent the entrance of foreign materials.

g) Observation wells must meet the requirements in 77 Ill. Adm. Code 920.170.

(Source: Amended at 47 Ill. Reg. 7503, effective May 16, 2023)