

Water Supply Wells and Springs

19-13-B50. Public and semi-public water supplies

In the case of public or semi-public water supplies or water supplies developed for a considerable number of persons necessitating higher rates of pumpage than for residential use, separating distances between wells or springs and sewage disposal systems or drains shall be established in accordance with the provisions of section 25-33 of the general statutes and of section 19-13-B39.

19-13-B51a. Effective date

The provisions of section 19-13-B51a to 19-13-B51l, inclusive, shall be applicable to all water supply wells constructed after the effective date.

(Effective January 12, 1971.)

19-13-B51b. Definitions

As used in sections 19-13-B51a to 19-13-B51l, inclusive:

- (1) "Water supply well" means an artificial excavation, constructed by any method, for the purpose of getting water for drinking or other domestic use;
- (2) "Well contractor" means any person, firm or corporation drilling or constructing a water supply well;
- (3) "Aquifer" means a water-bearing earth material which can transmit water in significant quantity. It can be either consolidated rock (ledge rock) or unconsolidated material (sand, gravel, soil with boulders, etc.);
- (4) "Dug well" means a well excavated into a shallow aquifer;
- (5) "Spring" means a place where, without planned intervention of man, water flows from consolidated rock or unconsolidated material on land or into a body of surface water such as a lake, stream, or river. A spring shall have the same protection requirements as a dug well.
- (6) "Driven well" means a well which is constructed by driving a permanent casing with a screen area into unconsolidated material. Driven wells do not penetrate consolidated rock;
- (7) "Gravel well" means a well constructed into unconsolidated material. In the zone immediately surrounding the well screen more permeability is obtained by hydraulic action or by removing the finer formation material and replacing it with artificially graded coarser material;
- (8) "Drilled well" means a well constructed by drilling a hole and inserting a casing to support the sides of the hole. The portion of the well which is in consolidated rock may not require support of a casing;
- (9) "Annular space" means the space between two objects, one of which is surrounded by the other. This includes space between the wall of an excavation and the wall of a pit; between the wall of an excavation and the casing of a well; or between two casings;
- (10) "Casing" means an impervious, durable pipe or sidewall placed in a well to prevent the walls from caving, or to seal off surface drainage or undesirable water, gas, or other fluids so they cannot enter the well;
- (11) "Established grade" means the elevation of the finished ground surface at the point of intersection of the well casing;
- (12) "Pollution" means the adverse effect on water quality created by the introduction of any matter;
- (13) "Sewer" means a conduit or pipe used or intended for conveying sewage or other contaminated wastes, or such conduit or pipe into which sewage or wastes may backup;
- (14) "Source of pollution" means any place or condition which may result in pollution of a ground water supply; it may include a stream, pond, sewer, privy, septic tank, the field, cesspool, sewage, sewage treatment unit, industrial waste, industrial waste disposal unit,

19-13-B51c. Interconnections

- location where animal excrement is allowed to accumulate, or disposal site for refuse, industrial waste, sewage sludge or industrial waste sludge;
- (15) "Well top seal" means an arrangement used to establish a watertight junction at the top of the casing of a well with special regard to the piping or equipment installed therein;
- (16) "Well vent" means a piped outlet at the upper end of a well to allow maintenance of atmospheric pressure within the well casing;
- (17) "Well pit" means a structure built wholly or partly underground to house the well top or well appurtenances or both;
- (18) "Yield" means the quantity of water delivered per unit of time which may flow or be pumped continuously from the well;
- (19) "Public supply well" means a water supply well used or made available by a water company to two or more consumers, as defined in section 25-32a of the 1969 supplement to the general statutes.
(Effective January 12, 1971.)

19-13-B51c. Interconnections

No physical connection between piping carrying water from a public water supply and piping carrying water from any other source shall be permitted unless such other water supply is of safe, sanitary quality and the interconnection is approved by the commissioner of health.
(Effective January 12, 1971.)

19-13-B51d. Location

All separating distances are to be measured horizontally.

- (a) Wells with a required withdrawal rate of under ten gallons per minute.
- (1) Each such well shall be located at a relatively high point on the premises consistent with the general layout and surroundings; be protected against surface wash; be as far removed from any known or probable source of pollution as the general layout of the premises and the surroundings will permit; and, so far as possible, be in a direction away from ground water flow from any existing or probable source of pollution.
 - (2) No such well shall be located within seventy-five feet of a system for disposal of sewage or other source of pollution. Greater separating distances shall be required for certain industrial wastes or certain rock formations. If a sewer is constructed of extra heavy cast iron pipe with leaded joints or equal approved type of tight joint, a minimum separating distance of twenty-five feet shall be maintained.
 - (3) No such well shall be located within twenty-five feet of the high water mark of any surface water body, nor within twenty-five feet of a drain carrying surface water or of a foundation drain.
- (b) Wells with a required withdrawal rate of from ten to fifty gallons per minute.
- (1) Each such well shall be located at a relatively high point on the premises consistent with the general layout and surroundings; be protected against surface wash; be as far removed from any known or probable source of pollution as the general layout of the premises and the surroundings will permit; and, so far as possible, be in a direction away from ground water flow from any existing or probable source of pollution.
 - (2) No such well shall be located within one hundred fifty feet of a system for disposal of sewage or other source of pollution. Greater separating distance shall be required for certain industrial wastes or certain rock formations. If a sewer is constructed of extra heavy cast iron pipe with leaded joints or equal approved type of tight joint, a minimum separating distance of seventy-five feet shall be maintained.

19-13-B51e. Precautions

- (3) No such well shall be located within fifty feet of high water mark of any surface water body, nor within fifty feet of a drain carrying surface water or of a foundation drain.
- (c) Wells with a required withdrawal rate of more than fifty gallons per minute.
 - (1) Location of such well shall be approved by the state department of health in accordance with the provisions of section 25-33 of the 1969 supplement to the general statutes and section 19-13-B39 of the public health code.
 - (2) Each such well shall be located at a relatively high point on the premises consistent with the general layout and surroundings; be protected against surface wash; be as far removed from any known or probable source of pollution as the general layout of the premises and the surroundings will permit; and, so far as possible, be in a direction away from ground water flow from any existing or probable source of pollution.
 - (3) No such well shall be located within two hundred feet of a system for disposal of sewage or other source of pollution. If conditions warrant, greater distance shall be required. Sanitary conditions in the area within the radial distance required shall be under control of the well owner by ownership, easement, or other arrangement approved by the commissioner of health. If a sewer is constructed of extra heavy cast iron pipe with leaded joints or equal approved type of tight joint, a minimum separating distance of one hundred feet shall be maintained.
 - (4) No such well shall be located within fifty feet of the high water mark of any surface water body nor within fifty feet of a drain carrying surface water or of a foundation drain.

(Effective January 12, 1971.)

19-13-B51e. Precautions

A well under construction shall be protected so that there can be no drainage or surface wash into the well. Workmen employed in such construction shall exercise sanitary precautions in disposal of wastes and handling of construction materials so as to avoid contamination of the well and aquifer. All water used in constructing a well shall be disinfected with fifty milligrams per liter (parts per million) of chlorine in order to protect the well from contamination. No polluted water shall be used in connection with the construction of a well.

(Effective January 12, 1971.)

19-13-B51f. Construction

- (a) Materials. Pipe used for casing a well other than a dug well shall be made of steel or other material approved by the commissioner of health. They shall be free from flaws or defects and shall have watertight connections.
- (b) Dug well. The casing or side walls of a dug well shall be constructed of watertight concrete at least four inches thick to a depth of at least ten feet below the ground surface. Below the depth of the watertight casing, loosely laid stone, concrete block, brick or other materials approved by the commissioner of health may be used. The annular space between the face of the excavation and the watertight section of casing shall be filled with clean clay or other impervious material.
- (c) Gravel well. The casing of a gravel well shall be surrounded with concrete grout to a depth of at least ten feet below the ground surface. The annular space between the casings of a gravel well with artificially placed gravel shall be protected at the top by a watertight covering to prevent any foreign matter entering the well through the gravel.
- (d) Drilled well. The construction of a drilled well shall provide for shutting out all water except that from the water bearing formations which are intended to supply water to the well. The casing shall extend at least ten feet below ground surface. Any annular space surrounding the casing pipe needed for drilling shall be filled with concrete grout to a depth of at least ten feet below the ground surface. Below ten feet, any clean fill material can be used. Where the unconsolidated material above consolidated rock is less than

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19-13-B51g. Covering

- twenty feet deep and the casing ends in the consolidated rock, the casing shall be effectively sealed in the rock.
- (e) Upper terminal of casing. The casing of every well shall project not less than six inches above the established grade at the well or above the pump house floor. The well contractor shall ascertain the established grade before completion of the well. Where a pitless adapter is used, it shall be designed to, and made of materials that will, keep soil and water from entering the well during the life of the casing. A below-ground connection shall not be submerged in water at the time of installation. Where a pump is not installed immediately following the construction of the well, the well shall be tightly sealed and suitably vented.
- (Effective January 12, 1971.)

19-13-B51g. Covering

The cover of the dug well shall be made of substantial reinforced concrete at least four inches thick. Other material approved by the commissioner of health may be used. It shall be of sufficient diameter to overlap the casing or side walls by at least two inches. A tight joint shall be provided between the casing and cover. If a pump is set on the slab, the top of the slab shall be sloped to drain away from the pump or drop pipe sleeve.

- (b) A manhole shall be installed if the cover slab cannot be readily removed, and such manhole shall be provided with a curb extending at least two inches above the slab and equipped with a watertight overlapping cover. The manhole cover shall be locked or bolted in place in such manner as to prevent tampering or shall be located in a locked housing.
- (Effective January 12, 1971.)

19-13-B51h. Well pits

- (a) The use of a well pit shall be avoided whenever practical. When used, it shall be large enough to permit ready access to equipment.
- (b) A well pit and its juncture with any other structure shall be watertight, or suitably drained to insure dryness as provided in section 19-13-B51i.
- (c) Every conduit or similar connection with a well pit shall be made watertight.
- (Effective January 12, 1971.)

19-13-B51i. Well pit drains

- (a) Where there is no danger of flood or back flow, the water from a pit shall be drained onto the surface of the ground. The pipe used shall be at a grade of not less than one-eighth inch per foot toward the outlet. The junction between the pit floor and the drain pipe shall be made watertight. The drain pipe and joints shall be watertight to a distance of twenty-five feet from the pit. Any drain to the ground surface shall be screened to prevent entrance of animals and insects.
- (b) No well pit drain shall be connected directly with any sewer, house drain or storm drain. The drainage of any well pit shall not be dependent on the operation of any pumping system except where gravity drainage at the location cannot be secured, in which case automatic sump pumps may be installed with the concurrence of the approving authority.
- (c) When a well pit is constructed in impervious soil, no porous material shall be used as a base under the well pit floor. If fill is required, it shall be clean, impervious earth, well tamped.
- (Effective January 12, 1971.)

19-13-B51j. Permanent appurtenances

- (a) Any equipment, piping or appurtenance, permanently installed in a well, shall be joined watertight to the well casing at the point of entrance to the well by a well top seal or equally effective means.

19-13-B51k. Post-construction

- (b) Every well in which the drawdown is ten feet or more shall be fitted with an adequate air vent. Such vent shall be extended to the height of at least twelve inches above any possible high water level. The vent shall be shielded and screened in such manner as to permit the entrance of air but keep out foreign matter.
- (c) The foundation for a reciprocating pump shall be constructed with sufficient clearance around the well casing and the base of the power head to permit the assembly in place of a watertight well top seal. The well casing shall extend at least six inches above the floor.
- (d) The foundation for a turbine pump may be of concrete upon which the power head may rest directly. It shall be so constructed that the well opening is adequately covered and all openings through the base shall be sealed watertight. The well casing shall be installed at least six inches above the floor.
- (e) A hand pump shall be constructed so that a stuffing box or other arrangement prevents entrance of contamination around the pump rod. The pump spout shall be of covered type. The base shall be of the one-piece flange type. Provision shall be made for leading waste water away from the top of the well. A hand pump shall be frostproof and shall not require priming. A hand pump shall be mounted:
 - (1) When a well is cased with iron pipe, upon a base flange which is attached rigid and watertight to the well casing;
 - (2) on a concrete platform or similar structure when a well is not cased with iron pipe. A metal sleeve shall be used through the concrete platform or cover slab and extend above the slab into the pump base; or
 - (3) by other sanitary method approved by the commissioner of health.(Effective January 12, 1971.)

19-13-B51k. Post-construction

- (a) On completion of the well, the well contractor shall pump or otherwise flush the well sufficiently to clear the water of cuttings.
- (b) The well contractor shall make a yield test to determine the quantity and stability of flow of water from the well. The date of the test and the maximum drop in water level in the well during the test shall also be recorded (drawdown). The rate of test pumping shall equal or exceed the rate of withdrawal required for the particular installation. In the case of nonpublic water supply wells with a required withdrawal rate less than ten gallons per minute, the period during the drilling and clearing may be included in the time of the yield test. The minimum length of such yield test shall be four hours for a well with a required withdrawal rate of less than ten gallons per minute; * thirty-six hours for a well with the required withdrawal rate of from ten to fifty gallons per minute; and seventy-two hours for a well with a required withdrawal rate of more than fifty gallons per minute. Test pumping shall be continuous at a constant rate for the period required. In the case of a public well, drawdown shall have held essentially stable for the last twelve hours prior to the completion of the test. The well contractor or tester shall record the date of the yield test; the water level in the well shortly before the yield test begins; the length of the pumping period; the constant pumping rate; the water level in the well at reasonable intervals after pumping begins and within five minutes before the pumping ends; and the water level in the well at reasonable intervals thereafter for a sufficient time to allow recovery to the water level prior to the yield test. He shall furnish a copy of such record to the owner.
- (c) The pump installer shall disinfect each new well system before use. Disinfection shall be accomplished by treating the water in the well, storage tank and connected piping with a chlorine solution of fifty milligrams per liter (parts per million) strength so as to obtain a residual of ten milligrams per liter (parts per million) of chlorine after three hours detention. The side walls and piping shall be rinsed with the chlorine solution. The chlorinated water shall not be removed from the water system until after a detention period of at least three hours.

*An alternate test for low yield wells serving a single family: Remove all water from the completed well and measure rate of recovery.

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19-13-B51l. Testing

1. If the recovery is observed for twelve hours or more, the actual amount of water recovered in the first twelve hours shall be the yield, expressed in gallons.
2. If at least three hundred gallons are recovered in less than twelve hours, the yield expressed as gallons/day shall be computed by the formula $\frac{\text{twelve}}{\text{hours recovery}}$ times gallons recovered.

(Effective January 12, 1971.)

19-13-B51l. Testing

Public water supply wells shall be sampled by the state department of public health or local director of health for bacteriological, physical and sanitary chemical examination. Approval of the commissioner of public health shall be obtained before the well water is made available for use.

(Effective January 12, 1971; Amended effective December 30, 1996.)

19-13-B51m. Well permits

- (a) Subject to subsections (b) and (c) below no water supply well permit shall be given until it has been demonstrated to the satisfaction of the director of health that public sewers are available or a subsurface sewage disposal system can be installed on the lot in compliance with Sections 19-13-B103a to 19-13-B104d, inclusive of the Regulations of Connecticut State Agencies.
- (b) No water supply well permit shall be given by the director of health:
 - (1) To premises used for human occupancy when a community water supply system having at least fifteen service connections or regularly serving at least twenty-five individuals is deemed available if the boundary of the parcel of property in which the premises is on or will be located on is within two hundred feet, measured along a street, alley or easement, of the approved water supply: or
 - (2) To non-residential premises, where the water may be used for human consumption, when a community water supply system having at least fifteen service connections or regularly serving at least twenty-five individuals is deemed available if the boundary of the parcel of property in which the premises is on or will be located on is within two hundred feet, measured along a street, alley or easement, of the approved water supply.
- (c) The commissioner of health services, or his or her designee, may grant an exception to subsection (b) above upon a finding that such exception will not adversely affect the purity and adequacy of the supply nor the service of the system or it is determined that:
 - (1) The community water system which serves the premises is unable to provide such premises with a pure and adequate supply of water: or
 - (2) If construction problems warrant such action.

(Effective February 2, 1988.)

