Celebrating Our Second Century

PLIMPTON & HILLS CORPORATION

PLUMBING - HEATING - COOLING - INDUSTRIAL SUPPLIES

Hartford, CT
(860) 522-4233
(860) 240-7566 Fax

Springfield, MA
(413) 731-1500
(413) 731-1515 Fax

New Britain, CT
(860) 229-2076
(860) 224-4830 Fax

Manchester, CT
(860) 533-1108
(860) 533-0393 Fax

East Canaan, CT
(860) 824-7942
(860) 824-7960 Fax

Great Barrington, MA
(413) 528-6723
(413) 528-6769 Fax

Lewin P&H SUPPLY COMPANY

Fairfield, CT
(203) 332-4273
(203) 332-4279 Fax

Wallingford, CT
(203) 269-7739
(203) 269-6881 Fax

ASCO P&H SUPPLY COMPANY

Danbury, CT
(203) 743-9221
(203) 743-3735 Fax

Stamford, CT
(203) 965-5959
(203) 965-5964 Fax

Waterware
Premier Kohler Showrooms at Plimpton & Hills Hartford, Fairfield, Danbury & Stamford

April 29, 2008

Jeff Brissette
119 Richmond Road
Coventry, CT 06238

Jerry Farrell, Commissioner
Department of Consumer Protection
165 Capitol Avenue, Room 100
Hartford, CT 06106

RECEIVED
MAY 13 2008
LEGAL DIVISION
CONSUMER PROTECTION

Dear Mr. Farrell:

I am deeply concerned about your support for the proposed Well Drilling/Geothermal Regulations. As proposed they reflect a basic misunderstanding of a geothermal heating and cooling system. In addition, no distinction is made between a horizontal and vertical loop field.

"Boring holes for earth loop insertion and boring holes in order to find water and produce water are two completely different tasks."[1] By definition, a well is "any excavation made for water, or in exploration for water."

A geothermal bore hole is a hole for the insertion of a specified size and length heat exchanger. It does not require the exploration or production of water. Its sole function is to contain and become part of, an engineered heat exchanger. It then becomes an integral part of the buildings heating/cooling system. As such, its construction is more correctly placed under the jurisdiction of a licensed heating/cooling contractor. Please note the attached exceptions as noted.

I hope that you will seriously consider the impact that these regulations would have if passed as proposed. The regulations place too much responsibility in the hands of people untrained in the correct function of heating and cooling systems. This coupled with a monopoly on creating the geoexchange bore hole as defined, will result in overpriced, underperforming, inefficient system for the consumer.

Please withdraw your support for these regulations as written.

Sincerely,

Jeff Brissette, Geothermal Sales
Plimpton & Hills Corporation
jeffb@plimptonhills.com

[1]Closed loop/Ground Source Heat Pump Systems 1988 Oklahoma State University

STATE OF CONNECTICUT
REGULATION
of the
DEPARTMENT OF CONSUMER PROTECTION
(NAME OF AGENCY)

concerning
WELL DRILLING
(SUBJECT MATTER OF REGULATION)

Section 1. Section 25-128-33 of the Regulations of Connecticut State Agencies is amended to read as follows:

Sec. 25-128-33. Title of regulations

These regulations, together with the regulatory provisions of [Chapter] chapter 482 of the General Statutes, and [the section] sections 19-13-B51a through 19-13-51Bm, inclusive of the [Public Health Code] Regulations of Connecticut State Agencies, relating to water supply wells, shall be collectively known as the Connecticut Well Drilling Code.

Sec. 2. Section 25-128-34 of the Regulations of Connecticut State Agencies is amended to read as follows:

Sec. 25-128-34. Purpose of regulations

The purpose of the regulations shall be to govern the construction, repair, development, and abandonment of wells and geoexchange bore holes, in order to safeguard the public health, [and] to provide an adequate supply of clean and uncontaminated water for all persons in the state of Connecticut [.], and to provide for the safe and efficient use of the heating and cooling properties of the earth.

Comment [jpb1]: (Note that not all geoexchange bore holes penetrate aquifers. Those that do not should not be subject to well drilling regulations.)

Sec. 3. Section 25-128-35 of the Regulations of Connecticut State Agencies is amended to read as follows:

Sec. 25-128-35. Scope of regulations

(a) Well [Contractors and Drillers] drilling contractors. The regulations shall apply to any person who engages in the industry, procedures, or operation, full time or part-time, for compensation or otherwise, of obtaining water from a well or wells by drilling, or other methods [.], or of drilling geoexchange bore holes A well drilling contractor is any person regularly offering to the general public [the] their own personal services [of his] or the services of any employees [or himself] in the industry of obtaining water from a well for any purpose or use [.], or in the industry of drilling geoexchange bore holes

Comment [jpb2]: (Should be excluded or modified to read "vertical bore holes that penetrate aquifers").

Comment [jpb3]: (This is exclusive of blasters and directional drillers. This monopolistic practice will throttle the industry by creating inflated costs to the consumer.)

(b) Abandoned wells. The regulations shall apply to any person who abandons and permanently discontinues the use of a well or geoexchange bore hole, or to any person who is responsible by law for the abandonment of a well or geoexchange bore hole except as provided by [Section] section 25-134 of the General Statutes.

Comment [jpb4]: (Should be excluded or modified to read "vertical bore holes that penetrate aquifers").

(c) Special exception for farmers. The regulations shall not require a person who constructs a well on his own or leased property, intended for use only for farming purposes on his farm, to obtain a certificate of registration or a permit, as provided by Section 25-132 of the General Statutes.

Comment [jpb5]: (Should be excluded or modified to read "vertical bore holes that penetrate aquifers").

(d) Well development. The regulations shall apply to any person who performs work on a well for the purpose of increasing the yield of a well or otherwise improving the quality or quantity of water that might be obtained from the well.

(e) Non water-supply wells. Pursuant to [Section] section 25-133 of the General Statutes, non water-supply wells are exempt from these regulations except for sections 25-128-35, 25-128-58b, and 25-128-60b. Non water-supply wells shall be constructed according to [the public health code] sections 19-13-B51a through 19-13-B51m, inclusive, of the Regulations of Connecticut State Agencies, and any and all municipal ordinances. For the purposes of these regulations the term "non water-supply well" includes peizometers, containment recovery wells and monitor wells.

Sec. 4. Section 25-128-36 of the Regulations of Connecticut State Agencies is amended to read as follows:

Sec. 25-128-36. Definitions

(a) Unless expressly stated otherwise, the following terms shall, for the purpose of the Connecticut Well Drilling Code, have the meanings indicated in this section.

(b) Words used in the present tense include the future; words used in the masculine gender include the feminine and neuter; the singular number includes the plural and the singular.

(c) Where the terms are not defined in this section or in [Section] section 25-126 of the General Statutes, they shall have their ordinarily accepted meanings or such as the context may imply.

(1) Access port: A suitable opening into the well to allow measurement of water level.

(2) Annular space: The space between two objects, one of which is surrounded by the other. This includes the 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 geoexchange bore hole; or between two casings.

(3) ANSI or American National Standards Institute: Nonprofit member organization originally founded in 1918 as the American Engineering Standards Committee, whose mission is the establishment and promotion of voluntary business and technical standards.

[(3)] (4) Aquifer: A water bearing [earth material] strata which can transmit water in significant quantity. It can be either consolidated rock, such as [ledge rock] bedrock, or unconsolidated material, such as sand, gravel, or soil with boulders.

[(5) Bentonite clay grout: A mixture of betonite clay and water with not less than two pounds of bentonite clay for every gallon of water.]

[(4)] (5) Artesian well: A well in which static water level rises above the top of the aquifer. The aquifer is confined by an impermeable geologic formation overlying the aquifer.

(6) ASTM or American Society for Testing and Materials: the voluntary standards development organization founded in 1898.

[(6)] (7) Board: The State Plumbing and Piping Work Examining Board.

[(7)] (8) Casing: A pipe placed in a well or geoexchange bore hole to prevent the walls from caving, or to seal off surface drainage and other contaminants, so that they cannot enter the [well] bore hole.

Comment [jpb6]: (This is not always necessary or preferred. Please remember that it is part of the heat exchanger and direct contact with the earth may provide a better heat transfer.)

(9) Closed-loop geothermal fluid: The heat transfer fluid circulating within the piping and associated components of a closed-loop geoexchange system. The fluid serves to transfer energy between the earth or water surrounding the piping and the heat exchange components of the geoexchange system.

(10) Closed-loop geothermal system: A heat exchange system consisting of piping buried or placed in a trench, pond or geoexchange bore hole. These systems are intended to transfer energy between the earth or water surrounding the piping and the geothermal fluid circulating within the piping.

[(8)] (11) Construction of well: All acts necessary to construct or repair wells for any intended purpose of use, including the location and excavation of the well, placement of casings, screens, and fittings, and well development and testing.

[(9)] (12) Contamination: The act of introducing into water, foreign materials of such nature, quality, and quantity as to cause degradation of the quality of the water in a bore hole or surrounding aquifer.

[(10)] (13) Disinfection: The inactivation of harmful organisms present in water, through use of an accepted chlorine solution or other accepted disinfection material or procedure.

[(11)] (14) Drawdown: The extent of lowering of the water table or piezometric surface within or adjacent to the well, resulting from the discharge of water from the well. Draw down is measured between the static water level and the pumping water level. The quantity of water available in the well from the static water level to the pump intake is known as the draw down available.

[(12)] (15) Established ground surface: The permanent elevation of the surface of the ground at the site of the well after completion of grading, excavation; or other land movements.

(16) Geoexchange bore hole: Vertical bore holes used solely for the purpose of heat transfer which are fitted with closed-loop heat exchange piping and sealed as per section 25-128-57 of the Regulations of Connecticut State Agencies.

Comment [jpb7]: (Should read "Vertical geoexchange bore hole penetrating aquifer"). Please do not allow all GX bore holes to be considered as vertical.

(17) GPS or Global Positioning System: A location-finding method whereby user-operated receivers determine their position by communicating with satellites. The United States Department of Defense developed this system, officially known as "Navigation Satellite Timing and Ranging Global Positioning System."

[(13)] (18) Ground water: Water encountered below the ground surface of the earth within the zone of saturation that can supply wells and springs.

[(14)] (19) Grout or grouting material: A low permeability material placed in the annular space between the casing and the formation or within the [borehole] bore hole which is at least as impermeable as the soil formation. The purpose of the grout is to resist the migration of pollutants into the annular space.

(20) IGSHPA or International Ground Source Heat Pump Association: A non-profit organization founded in 1987 in the state of Oklahoma and dedicated to advancing the technology of ground source heat pumps and promoting their use.

[(15) Cement grouts: A mixture of Portland cement, sand, and water. The mixture is usually composed of one bag of Portland cement weighing ninety-four (94) pounds, an equal volume of dry sand, and five to six gallons of water.

(A) Neat cement grout: A mixture of not more than six gallons of clear water to one bag of Portland cement.

(B) Sand cement grout: A mixture of not more than two parts sand to one part Portland cement, and not more than six gallons of clear water to each bag of cement.

(C) Concrete grout: A mixture of Portland cement, sand, gravel and water.

(D) Bentonite grout: mined processed bentonite clay.

(E) Bentonite cement grout: A mixture of cement grout or sand cement grout with approximately ten per cent (10%) bentonite added to reduce shrinkage.

(F) Natural grout: A mixture of water and natural materials excavated during drilling of the well. The materials shall be placed by whatever techniques are effective for the existing conditions to achieve maximum density, strength, and impermeability of the fill material.

(G) Sand clay grout: A mixture of bentonite clay and sand in equal proportions.]

[(16)] (21) Flowing artesian well: A well in which the static water level is higher than the top of the casing and water flows from the well.

[(17)] (22) Installation of pumps and pumping equipment: The procedure employed in the placement and preparation for operation of pumps and pumping equipment, including all construction involved in making entrances to the well and to the building, establishing seals, installing pump piping, valves, wiring, electrical controls and tanks.

[(18)] (23) Liner pipe: Pipe that is installed inside a completed and cased well for the purpose of sealing off undesirable water or for repairing ruptured or punctured casing or screens. The liner pipe and screens may be constructed of PVC schedule forty (40) plastic.

(24) NSF or NSF International: A non-profit organization founded in 1944 as the National Sanitarian Foundation whose mission is, in part, to develop standards and product certifications to promote public health and safety and to protect the environment.

[(19)] (25) Owner: Any person or [his] such person's agent who holds the title or other rights of property where a well or geoexchange bore hole is constructed, repaired, or abandoned.

[(20)] (26) Potable water: Water free from impurities in amounts sufficient to cause disease or other harmful physiological effects, with the minimum or maximum bacteriological, physical, and chemical composition as defined by the applicable laws and regulations of the Department of Public Health [Services].

(27) Private Water Supply Well: A non-public water system well used to supply a private water supply system as per section 19-13-B101(a) of the Regulations of the Connecticut State Agencies.

(28) Public Water System Well: a water supply well used by a public water system, as defined in section 19-13-B102(a) of the Regulations of Connecticut State Agencies, for the existing or potential purpose of providing public drinking water.

(29) Pump and discharge geoexchange system A type of open-loop geoexchange system where ground water from an aquifer is piped directly from a water well to a building, where it transfers its heat energy to a heat pump. After leaving the building, the water is discharged to a permitted discharge point.

Comment [jpb8]: (This definition excludes surface water used in a geoexchange system. Pumping from a river, pond, stream or lake is beyond the jurisdiction of well drillers.)

(30) Pump and recharge geoexchange system: A type of open-loop geoexchange system where ground water from an aquifer is piped directly from a water well to a building, where it transfers its heat energy to a heat pump. The water is then pumped back into the same aquifer via a second discharge or diffusion well.

[(21)] (31) Repair: Any work involved in the reaming, sealing, installing, changing of casing [depths] depth or height, perforating, screening, cleaning, [acidizing] acid washing, surging, [hydrofracting] hydrofracturing or other redevelopment of a well.

[(22)] (32) Specific capacity: The yield of a well expressed in gallons per minute per foot of drawdown, as abbreviated "gpm/ft."

(33) Standing column wells, also known as "turbulent wells:" A type of open-loop geoexchange system where temperate water from the bottom of the well is withdrawn, circulated through a heat pump exchanger and returned to the top of the water column in the same well.

[(23)] (34) Static water level: The depth to the surface of the water in a well measured from the land surface or other convenient, permanent, and specified datum, when no water is being discharged from the well and the water level has reached equilibrium.

[(24)] (35) Water well: [An artificial excavation or opening in the ground, by which ground water can be obtained or through which it flows under natural pressure or is artificially withdrawn.]A water supply well constructed for the purpose of obtaining or providing water for drinking or other domestic, industrial, commercial, agricultural, irrigation or recreational use including open-loop geothermal wells. Common types of wells include the following:

(a) Well bored or augered: Any excavation made for water, or in exploration for water, using power driven equipment, where the drill consists of a continuous spiral of metal or a hollow cylinder or bucket attached to a shaft, and where the excavated material is brought to the ground service by upward movement along the surface of the spiral or removed by the bucket.

(b) Well gravel: 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.

(c) Well drilled rock: A well drilled into consolidated rock in which that portion of the well drilled into the overlying unconsolidated material is supported by a casing.

(d) Well dug: A well excavated into a shallow aquifer.

(e) Well monitor: A well constructed for the purpose of aquifer testing, obtaining samples of ground water quality and/or measurement of ground water level.

[(25)] (36) Well-seal: An approved arrangement or device used to cap a well or to establish and maintain a junction between the casing or curbing of a well and the pipe or equipment installed therein, the purpose or function of which is to prevent contaminants from entering a well at the upper terminal.

(37) Well abandonment: Actions taken to ensure that a well which is no longer in use shall not be a source or conduit for contamination of ground water resources.

(38) Well contractor: A person regularly offering to the general public the personal services of said contractor or the services of said contractor's employees in the industry of obtaining water from a well for any purpose or use.

(39) Well hydro fracturing: A method of well development used to improve the specific capacity of new or existing drilled wells. Certain zones within the well are pressurized in excess of one hundred (100) pounds per square inch ("psi") with water in an effort to force open fractures in the bedrock.

[(26)] (40) Well vent: An outlet at the upper terminal of a well casing to allow equalization of air pressure in a well but at the same time so constructed as to avoid entry of water and foreign material into the well.

[(27)] (41) Well yield: The quantity of water per unit of time which may flow or be pumped continuously from a well [.], commonly expressed in gallons per minute, abbreviated "gal/min."

[(28) Well hydro fracturing: A method of well development used to improve the specific capacity of new or existing drilled wells. Certain zones within the well are pressurized in excess of one hundred (100) psi with water in an effort to force open fractures in the bedrock.

(29) Well abandonment: Actions taken to ensure that a well which is no longer in use shall not be a source or conduit for contamination of ground water resources.

(30) Well contractor: A well drilling contractor is any person regularly offering to the general public the services of his employees or himself in the industry of obtaining water from a well for any purpose or use.

(31) Master well driller: A master well driller is any person experienced and skilled in the industry of obtaining water from a well for any purpose or use.]

Sec. 5. Section 25-128-37 of the Regulations of Connecticut State Agencies is amended as follows:

Sec. 25-128-37. Manner of construction

The construction of any well or geoexchange bore hole shall be planned and carried out in a manner to guard against waste and contamination of ground water resources.

Comment [jpb9]: (Should be excluded or modified to read "vertical bore holes that penetrate aquifers").

Sec. 6. Section 25-128-38 of the Regulations of Connecticut State Agencies is amended as follows:

Sec. 25-128-38. Application of public health [code] regulations

The regulations for the construction of wells, as provided herein, shall be construed in a manner consistent with the provisions of [Sections 19-13-B51] sections 19-13-B50 to 19-13-B51m, inclusive, of the [Public Health Code] Regulations of Connecticut State Agencies. In the event any conflict shall appear, the interpretation of the regulations shall be made which affords the greater protection of the public health.

Sec. 7. Section 25-128-39 of the Regulations of Connecticut State Agencies is amended as follows:

Sec. 25-128-39. Adequate relations of diameter, depth, and yield

[Wells] All new wells shall be of adequate diameter and depth to be capable of yielding the quantity of water required by the user. For the use of an individual household, a bedrock well of six (6) inches in diameter shall be satisfactory when it is capable of yielding:

(a) five (5) gallons per minute and has a storage available of seventy-five (75) gallons or has a water column depth of one hundred (100) feet, whichever is greater;

(b) three and one half (3 1/2) gallons per minute and has a storage available of one hundred fifty (150) gallons or has a water column depth of one hundred fifty (150) feet, whichever is greater;

(c) two gallons (2) per minute and has a storage available of two hundred twenty-five (225) gallons or has a water column depth of two hundred (200) feet, whichever is greater;

(d) one gallon per minute and has a storage available of four hundred (400) gallons or has a water column depth of three hundred seventy-five (375) feet, whichever is greater;

(e) one half (1/2) gallon per minute and [has a water column depth of four hundred fifty (450) feet or] has a storage available of six hundred (600) gallons[,] or has a water column depth of four hundred fifty (450) feet, whichever is greater.

(f) storage may be provided using combinations of hydropneumatic tanks and/or non-pressurized tanks with booster pumps.

(g) wells yielding less than one half (1/2) gallons per minute shall be pump tested for at least eighteen hours (18) to prove the well yield. It is not recommended that a well with less than one half (1/2) gallon be used as the only supply for an individual household.

In the event, however, that in the opinion of the [Board] board, special or unusual geological, hydrological, or other circumstances shall exist in the construction of any well, the [Board] board may determine the minimum requirements of diameter, depth, and yield for the well.

Sec. 8. The Regulations of Connecticut State Agencies are amended by adding sections 25-128-39a, 25-128-39b, and 25-128-39c as follows:

NEW
Sec. 25-128-39a. Geoexchange bore holes

Geoexchange bore holes shall be a minimum of four (4) times the Inside Diameter ("ID") of the largest individual loop pipe employed in the geoexchange system. Geoexchange systems employing fluids that remain in a liquid state while circulating through loop pipes shall have bore holes with a minimum diameter of four (4) inches.

Comment [jpb10]: Three or four inches are recommended by IGSHPA. The smaller diameter has advantages at times. It is still four (4) times larger than ¾"pipe. ¾ and 1' are the preferred pipe sizes in residential applications.

NEW
Sec. 25-128-39b. Closed-loop geoexchange system fluid

Closed-loop geoexchange systems fluids permitted for use in closed-loop geoexchange systems include potable water, heat transfer fluids containing potable water combined with a maximum of twenty (20) percent food grade proplylene glycol or potassium acetate, or other heat transfer fluids approved by the Department of Consumer Protection in consultation with the Department of Public Health. All chemicals used or added to potable water circulating through a closed-loop geoexchange system shall meet NSF/ANSI Standard Sixty (60) or be approved by the Department of Consumer Protection in consultation with the Department of Public Health.

NEW
Sec. 25-128-39c. Closed-loop geoexchange system piping

(a) The only acceptable materials for the underground portion of a closed-loop geoexchange system are as follows:

1. High density, polyethylene extrusion compound having a cell classification of PE 345434c or PE 355434c with an Ultraviolet ("UV") Stabilizer of C, D or E as specified in ASTM D-3350 with the following exception: This material shall exhibit zero (0) failures ("FO") when tested for one hundred ninety two (192) hours or more under ASTM D-1693, Condition C, as required in ASTM D-3350. This material shall maintain a one hundred sixty (160) pounds per square inch ("psi") hydrostatic design basis at 73.4 degrees fahrenheit per ASTM D-2837, and shall be listed in PPI TR4 as a PE 3408 piping formulation; or

2. Those materials approved by the Department of Consumer Protection in consultation with the Department of Public Health and the Department of Environmental Protection.

(b) The only acceptable method for joining sections of buried polyethylene pipe is by the heat fusion process in accordance with the pipe manufacturer's specifications, or by use of mechanical stab fittings approved by the IGSHPA. The only acceptable methods for joining sections of piping made of materials approved pursuant subsection (h)(2) of Section 25-128-40 of the Regulations of Connecticut State Agencies shall be those methods approved by the Department of Consumer Protection in consultation with the Department of Public Health and the Department of Environmental Protection. All resultant piping assemblies shall be leak-proof as determined by pressure testing.

(c) All geoexchange systems shall be pressure tested with water, air, or an inert gas to a minimum of one hundred fifty (150) percent above the heat pump manufacturer's operating specifications for a minimum period of thirty (30) minutes before being put into service. Any system found to leak shall be repaired or replaced and then retested before being put into service.

Sec. 9. Section 25-128-40 of the Regulations of Connecticut State Agencies is amended as follows:

Sec. 25-128-40. Pumps and pumping equipment

(a) Pumps and pumping equipment shall be installed in the well to make the most efficient use of well storage.

(b) Pumps and pumping equipment shall be located to permit convenient access for inspection, maintenance and repair.

(c) In the event the base plate of a pump is placed directly over the well, the base plate shall be of a type designed to form a watertight seal with the well casing or pump foundation, as provided by Section 19-13-B51j of the [Public Health Code] Regulations of Connecticut State Agencies.

(d) The well shall be properly vented at the well head to allow for pressure changes within the well.

(e) The electrical wiring used in connection with the pump shall conform to specifications of the State Basic Building Code.

(f) Contaminated water shall not be used for the purpose of priming any pump.

(g) Any connection between a geoexchange system and a domestic water supply shall include a reduced pressure backflow preventor.

Comment [jpb11]: Vague and perhaps unnecessary. Primarily used in large commercial applications where proper purging can't be assured.

Sec. 10. Section 25-128-41 of the Regulations of Connecticut State Agencies is amended as follows:

Sec. 25-128-41. Location and protection of wells

The location of any well upon premises shall be subject to approval by the local health officer of the municipality in which the said premises are located, and shall be as provided by [Section 19-13c] section 19a-39 of the General Statutes, and by [Sections 19-13-B50] sections 19-13-B51a to 19-13-B51m, inclusive, of the [Public Health Code] Regulations of Connecticut State Agencies.

Sec. 11. The Regulations of Connecticut State Agencies are amended by adding section 25-128-41a as follows:

NEW

Sec. 25-128-41a. Location of closed loop geoexchange bore holes

Geoexchange bore holes shall have the following minimum separation distances: (All distances shall be measured horizontally):

25 feet from a subsurface sewage disposal system, septic tank, grease interceptor tank or pump chamber that is shown to be watertight per the Department of Public Health publication *Technical Standards for Subsurface Sewage Disposal Systems.*

50 feet from a subsurface sewage disposal leaching system or other source of pollution such as a septic tank, pump chamber, grease interceptor tank (except those found to be watertight per the publication *Technical Standards for Subsurface Sewage Disposal Systems)*, or structures, tanks, or other containers of hazardous substances located above or below ground, including fuel tanks.

10 feet from a building sewer, sewer lateral, or sewer main that are constructed of extra heavy cast iron pipe or equal approved type of tight joint.

10 feet from high water mark of any body of water or drain carrying surface water or of a foundation drain.

25 feet from a private water supply well or other non-public water system well with a withdrawal rate of less than 10 gal/min.

50 feet from private water supply well or other non-public water system well with a withdrawal rate of greater than 10 gal/min.

25 feet from a public water system well with a withdrawal rate less than 10 gal/min.

50 feet from a public water system well with a withdrawal rate greater than 10 but less than 50 gal/min.

200 feet from a public water system well with a withdrawal rate greater than 50 gal/min.

Any underground piping connecting the piping located in a geoexchange bore hole to a structure must maintain the separation distances for a utility service trench as specified in the publication *Technical Standards for Subsurface Sewage Disposal Systems.* Additionally, any excavation between five (5) and twenty five (25) feet from a subsurface sewage disposal septic system shall not be backfilled with free draining material.

Sec. 12. Section 25-128-41 of the Regulations of Connecticut State Agencies is amended as follows:

Sec. 25-128-42. Drilling, general

(a) The well shall be so constructed that a pump of capacity equal to the desired yield can be installed and operated for different yields.

(b) Any water used shall be disinfected or of drinking water quality.

(c) Any chemicals or other additives used in drilling shall be cleaned out from the well.

(d) Rock cuttings shall be cleaned out of the well.

(e) The well shall be tested as provided by [Section 19-13-B51] section 19-13-B51l of the [Public Health Code] Regulations of Connecticut State Agencies.

(f) The well driller shall prepare and maintain a log on forms supplied by the [Board] board, and shall submit copies of the log to the [Board] board and to the owner or owners of the well, respectively. The log shall clearly identify the location of the well upon the premises.

(g) Well development shall be performed only by properly registered persons.

(h) Subcontracted work shall be performed only by properly registered persons.

(i) No solder containing more than 0.2 per cent lead shall be used in making joints and fittings in any public or private potable water supply system or any water user's pipelines.

Sec. 13. Section 25-128-48a of the Regulations of Connecticut State Agencies is amended by adding subsections (c) through (g) as follows:

Sec. 25-128-48a. Annular space

(a) Any annular space between the outside of the casing and the natural materials penetrated by the well shall be filled with suitable material to make this space as impervious to the movement of fluids and competent to support the casing as are the natural materials surrounding the well. The driller may fill the annular space with the natural materials excavated during the drilling of the well to meet the following requirements:

(1) the annular space shall be fitted as completely as possible from the bottom of the casing to the land surface without any depressions, voids, holes or channels;

(2) the driller shall employ whatever techniques are effective for the existing conditions to achieve maximum density, strength and impermeability of the fill material; and

(3) the surface of the fill material shall be sloped away from the casing.

(b) In cases where potentially contaminating or corrosive fluids are encountered, or impermeable natural materials cannot be adequately placed and compacted to where geologic conditions or the isolation distance may not be adequate, the annular space shall be grouted for the full length of the casing, or the portion thereof below the frost line or pitless adaptor, so that no fluids may move in the zone needing to be grouted.

(c) All closed-loop geoexchange bore holes, upon installation of loop piping, are to be grouted with high grade bentonite or thermally enhanced bentonite compounds containing a minimum of twenty percent (20%) by weight of bentonite, with a maximum coefficient of permeability of 10^{-7} cm/s, or with other grouting materials approved by the Department of Consumer Protection in consultation with the Department of Public Health. Grouts are to be mixed and installed in accordance with the manufacturer's specifications. Grouts may be used whether consolidated or unconsolidated formations are encountered.

Comment [jpb12]: (Should be excluded or modified to read "vertical bore holes that penetrate aquifers").

(d) Common types of grout or grouting materials used include the following:

1. Bentonite cement grout: A mixture of cement grout or sand cement grout with a minimum of ten per cent (10%) bentonite added to reduce shrinkage.

2. Bentonite clay grout: A mixture of mined, processed bentonite clay and water with not less than two pounds of bentonite clay for every gallon of water.

3. Cement grouts: A mixture of Portland cement, sand, and water. The mixture is commonly composed of one bag of Portland cement weighing ninety-four (94) pounds, an equal volume of dry sand, and five to six gallons of water.

4. Concrete grout: A mixture of Portland cement, sand, gravel and water.

5. Natural grout: A mixture of water and natural materials excavated during drilling of a well. The materials shall be placed by whatever techniques are effective for the existing conditions to achieve maximum density, strength, and impermeability of the fill material.

6. Neat cement grout: A mixture of not more than six (6) gallons of clear water to one (1) bag of Portland cement weighing ninety-four (94) pounds.

7. Sand cement grout: A mixture of not more than two (2) parts sand to one (1) part Portland cement, and not more than six (6) gallons of clear water to each ninety-four (94) pound bag of Portland cement.

8. Sand clay grout: A mixture of bentonite clay and sand in equal proportions, and clear water.

(e) Salt water resistant grouts shall be used where appropriate. Any additives to the grout other than silica sand and water shall meet NSF/ANSI Standard Sixty (60).

(f) All closed-loop geoexchange system bore holes shall be grouted within seven days of the completion of drilling. After installation of piping, the bore hole shall be covered with a protective layer of grout at least two feet

Comment [jpb13]: (Should be excluded or modified to read "vertical bore holes that penetrate aquifers").

thick and three feet in diameter, centered over the bore hole. Detectable underground tape shall be installed above all bore hole locations.

(g) All closed-loop geoexchange system bore holes shall be filled using the tremie method. The entire bore hole shall be filled with grout beginning at the bottom of the bore hole. The tremie employed shall be properly sized for the type of grout used, the ground conditions encountered, and the type of loop system installed. A minimum one and one-quarter (1.25) inch tremie shall be employed to fill bore holes that have a diameter of four (4) inches or greater. Drilling mud and cuttings shall not be mixed into the bore hole.

Comment [jpb14]: (Should be excluded or modified to read "vertical bore holes that penetrate aquifers").

Sec. 14. Section 25-128-49 of the Regulations of Connecticut State Agencies is amended as follows:

25-128-49. Well head completion and equipment

The completion of the well head and the equipment used shall be as follows:

(a) The top of the casing shall be cut off reasonably smooth and level.

(b) In the event the well head is enclosed, the enclosure shall be adequately drained. In the event a well pit is used, it shall be drained in the manner provided by [Section 19-13-B51] section 19-13-B51i of the [Public Health Code] Regulations of Connecticut State Agencies.

(c) All water piping shall be protected against freezing.

(d) The well shall be equipped with a tightly fixed vented cap or a sanitary seal with an access port for ventilation. The access port shall have a minimum, inside diameter of one quarter (1/4) inch. It shall be installed and maintained in such a manner as to prevent the entrance of water, dust, insects, or other foreign material, and to permit ready access for the purpose of water level measurement.

Sec. 15. The Regulations of Connecticut State Agencies are amended by adding section 25-128-49(a) as follows:

NEW
25-128-49a. Geoexchange bore hole termination

Geoexchange bore holes shall be terminated four (4) feet below the proposed finished grade and shall be fed to the point of termination, except that bore holes terminating in a structure shall be terminated flush with the finished floor. Casing shall only be required for geoexchange bore holes during construction. Casing shall be capped from the time of installation until the installation of the Geoexchange system piping. As the bore hole is being grouted, the casing may be withdrawn.

Comment [jpb15]: (Should be excluded or modified to read "vertical bore holes that penetrate aquifers").

Sec. 16. Section 25-128-51 of the Regulations of Connecticut State Agencies is amended to read as follows:

Sec. 25-128-51. Tests of yield

All new and repaired water supply wells shall be tested for yield and capacity, as provided by [Section 19-13-B51 K (b)] section 19-13-B51k(b) of the [Public Health Code] Regulations of Connecticut State Agencies, and all static and pumping water levels and well discharge shall be measured and recorded, with the pumping rate held constant. The test shall be made by one of the following methods: the pump method, the bailer-recovery method, the air rotary drill method, or the air lift method. For wells serving a single family the well may be tested for yield by removing as much water as is practicable from the well and measuring the rate of recovery. Geoexchange bore holes for closed-loop geoexchange systems need not be yield tested.

Sec. 17. Section 25-128-52 of the Regulations of Connecticut State Agencies is amended to read as follows:

Sec. 25-128-52. Disinfection of wells

All wells serviced, repaired, or newly drilled shall be disinfected by chlorination as provided by [19-13-B51 K (c)] section 19-13-B51k(c) of the [Public Health Code] Regulations of Connecticut State Agencies.

Sec. 18. Section 25-128-53 of the Regulations of Connecticut State Agencies is amended to read as follows:

Sec. 25-128-53. Construction of non-water supply wells and geoexchange bore holes

All wells used for other purposes than the supply of water for human consumption, and all geoexchange bore holes, shall be constructed, repaired, and maintained in such a manner that they are not a source or cause of ground water contamination.

Comment [jpb16]: (Should be excluded or modified to read "vertical bore holes that penetrate aquifers").

Sec. 19. Section 25-128-54 of the Regulations of Connecticut State Agencies is amended to read as follows:

Sec. 25-128-54. Maintenance and repair of wells, geoexchange bore holes and pumping equipment

All wells and geoexchange bore holes shall be maintained in a proper condition to conserve and protect ground water resources, and shall not be a source or cause of contamination or pollution of the water supply of any aquifer. All materials and construction practices used in the maintenance, repair, or replacement of any well shall be the same as those required for the construction of a new well or geoexchange bore hole. All maintenance, repair, hydrofracturing, developing, and replacement work shall be done only by a registered well driller, or by a licensed plumber or electrician acting within the scope of the person's license, as provided by [Section] section 25-129 of the General Statutes[, and Articles 5 and 6 of the regulations].

Comment [jpb17]: (Should be excluded or modified to read "vertical bore holes that penetrate aquifers").

Comment [jpb18]: ABSOLUTELY NOT. They are not always to be constructed in the same manner. Because it is part of the heat exchanger, thermal conductivity is a consideration.

Sec. 20. Section 25-128-55 of the Regulations of Connecticut State Agencies is amended to read as follows:

Sec. 25-128-55. Promulgation of construction standards

The regulations for the construction, maintenance, and repair of wells and geoexchange bore holes, as provided herein shall be promulgated in cooperation with the [State] state Department of Public Health [Services] and the Department of Environmental Protection.

Sec. 21. The Regulations of Connecticut State Agencies is amended by adding Section 25-128-57a as follows:

NEW

Sec. 25-128-57a. Geoexchange system abandonment

When decommissioning a geoexchange system, closed-loop geothermal fluid shall be displaced with bentonite grout or a substance approved by the Department of Consumer Protection in consultation with the Department of Public Health and the Department of Environmental Protection, or otherwise be evacuated from the geoexchange system by a process approved by the Department of Consumer Protection. After displacement or evacuation of the fluid, the bore hole and excavation shall be filled and covered with grout to provide a cap at least twelve (12) inches thick over the bore hole. All fluids shall be contained and properly disposed of.

Comment [jpb19]: This is an admirable and desired position. However, displacement and evacuation can be performed under a variety of licenses.

Sec. 22. Section 25-128-58a of the Regulations of Connecticut State Agencies is amended to read as follows:

Sec. 25-128-58a. Unlimited Contractor-[limited to] well [water-supply] drilling W-1

A person holding a W-1 registration may perform any work as defined by section 25-129 of the General Statutes. As provided by [Section] section 25-129 of the General Statutes, the [Board] board hereby establishes certain requirements for the registration of well drilling contractors. This registration permits the registrant to construct a well, including but not limited to, the installation, repair and maintenance of pumps, pump motors, pump piping, valves, wiring, electric controls and tanks. Before any registration is issued to any individual the Board shall require that the applicant submit:

(1) [His] The applicant's full, legal name, street address, city, state and zip code;

(2) A certificate of liability insurance specifying well drilling purposes and providing liability coverage for bodily injury of at least one hundred thousand dollars ($ 100,000) per person with an aggregate of at least three hundred thousand dollars ($ 300,000), and for property damage of at least fifty thousand dollars ($ 50,000) per accident with an aggregate of at least one hundred thousand dollars ($ 100,000);

(3) Documentation that [he] the applicant has been actively engaged in the well drilling trade as a well driller for a period of thirty-six (36) months prior to the date of [his] application and/or has held a valid W-2 registration for at least two years;

(4) The [name(s)] name and [address(es)] address of [his] any [employee(s)] employee of the applicant who [hold] holds a [master driller registration] registration pursuant to this chapter;

(5) Letters of references from a Connecticut registered well contractor, a local public health official and one (1) other responsible citizen which attest to the applicant's integrity and ability to act as a well driller; and

(6) [He] The applicant shall be found in compliance with all provisions of subsection (e) (1) of section 25-129 of the General Statutes, concerning [his] the applicant's conduct in the well drilling industry.

Sec. 23. The Regulations of Connecticut State Agencies are amended by adding Section 25-128-58c as follows:

NEW
Sec. 25-128-58c Contractor-limited to well casing extension W-5

Well Casing Extension Contractor, shall permit persons licensed to perform plumbing and piping work pursuant to chapter 393 to perform well casing extension, repair and maintenance work.

Sec. 24. The Regulations of Connecticut State Agencies are amended by adding section 25-128-58d as follows:

NEW
Sec. 25-128-58d Contractor–limited to geoexchange bore hole drilling W-7

As provided by section 25-129 of the General Statutes, the board hereby establishes certain requirements for the registration of well drilling contractors. This registration permits the registrant to construct a geoexchange bore hole, geoexchange system, as defined in section 25-128-36c, including but not limited to, the installation, repair and maintenance of pumps, pump motors, pump piping, valves, wiring, electric controls and tanks. Before any registration is issued to any individual the board shall require that the applicant submit:

(1) The applicant's full, legal name, street address, city, state and zip code;

(2) A certificate of liability insurance specifying well drilling purposes and providing liability coverage for bodily injury of at least one hundred thousand dollars ($ 100,000) per person with an aggregate of at least three hundred thousand dollars ($ 300,000), and for property damage of at least fifty thousand dollars ($ 50,000) per accident with an aggregate of at least one hundred thousand dollars ($ 100,000);

(3) Documentation that the applicant has been actively engaged in the well drilling trade as a well driller for a period of thirty-six (36) months prior to the date of application and/or has held a valid W-8 registration for at least two years;

(4) The name and address of any employee of the applicant who holds a master driller registration;

(5) Letters of references from a Connecticut registered well contractor, a local public health official and one (1) other responsible citizen which attest to the applicant's integrity and ability to act as a well driller; and

(6) The applicant shall be found in compliance with all provisions of subsection (e) (1) of section 25-129 of the General Statutes, concerning the applicant's conduct in the well drilling industry.

Sec. 25. Section 25-128-60a of the Regulations of Connecticut State Agencies is amended to read as follows:

Sec. 25-128-60a. Unlimited Well driller [- limited to well water-supply drilling] W-2
The requirements for this registration shall be three (3) years as an apprentice driller or possesses equivalent experience and training. This registration permits the registrant to construct a well, including but not limited to, the installation, repair and maintenance of pumps, pump motors, pump piping, valves, wiring, electric controls and tanks only while the registrant is in the direct and regular employment of a contractor registered for such work. The applicant shall demonstrate [his] knowledge of well drilling by passing a written examination conducted pursuant to [Sections] sections 21a-7 (1) and 21a-8 (5) of the General Statutes.

Sec. 26. The Regulations of Connecticut State Agencies are amended by adding section 25-128-60c as follows:

NEW
Sec. 25-128-60c. Limited well casing extension journeyperson W-6
This registration shall permit persons licensed to perform plumbing and piping work pursuant to chapter 393 to perform well casing extension, repair and maintenance work while in the employ of a contractor licensed for such work.

Sec. 27. The Regulations of Connecticut State Agencies are amended by adding Section 25-128-60d as follows:

NEW
Sec. 25-128-60d. Driller limited to geoexchange bore hole drilling W-8
The requirements for this registration shall be three (3) years as an apprentice driller or possess equivalent experience and training. This registration permits the registrant to construct a geothermal bore hole, Geoexchange system, as defined in section 25-128-36c, including but not limited to, the installation, repair and maintenance of pumps, pump motors, pump piping, valves, wiring, electric controls and tanks only while the registrant is in the direct and regular employment of a contractor registered for such work. The applicant shall demonstrate

Comment [jpb20]: (Should be excluded or modified to read "vertical bore holes that penetrate aquifers").

Comment [jpb21]: (Should be excluded or modified to read "vertical bore holes that penetrate aquifers").

Comment [jpb22]: ABSOLUTELY NOT. A geoexchange system is part of an engineered heating and cooling system. As such, it is to be covered under the appropriate heating license.

Comment [jpb23]: The installation and repairs to pumps, pump motors, pump piping, valves, wiring, electric controls and tanks in a geothermal heating system is beyond the license and training of a well driller. This is part of an engineered heating system. As such it is covered by heating cooling licenses.

Comment [jpb24]: (Should be excluded or modified to read "vertical bore holes that penetrate aquifers").

Comment [jpb25]: (Should be excluded or modified to read "vertical bore holes that penetrate aquifers").

Comment [jpb26]: Again no. The pumps tanks and wiring are not for the evacuation of water. They are to be engineered to transfer energy relative to demand in an economical manner. This is to be covered by a licensed heating contractor.

knowledge of well drilling by passing a written examination conducted pursuant to sections 21a-7 (1) and 21a-8 (5) of the General Statutes.

Sec. 28. The Regulations of Connecticut State Agencies are amended by adding section 25-128-60e as follows:

NEW

Sec. 25-128-60e. Apprentice Driller

Apprentice well drillers may perform the work for which they are being trained, but only in the presence and under the supervision of a registered well drilling contractor or journeyperson. Nothing in chapter 482 of the Connecticut General Statutes shall be construed to prohibit the employment of one apprentice driller by a registered well drilling contractor and an additional apprentice driller for each registered well drilling journeyperson employed by a well drilling contractor.

Apprentice drillers, under the supervision of a well drilling contractor or journeyperson, may do minimal cleaning work not in the presence of such supervising well drilling contractor or journeyperson, and shall be allowed to perform the following certain work provided that a registered well drilling contractor has certified to the Department of Consumer Protection in writing that such apprentice driller has obtained minimum experience of on the job training ("OTJ") hours in the following areas of well drilling work:

Cable Tools (Minimum 500 OTJ Hours)

Work limited to: Surging; Bailing; Cleaning and Developing; Test Pumping; Drilling in consolidated material when cased.

Excluding: Casing installation; Drilling in unconsolidated material; Well construction.

Rotary (Minimum 1500 OTJ Hours)

Consolidated rock (Bedrock) material: Work limited to drilling in a cased hole in a consolidated or bedrock formation; excluding casing installation.

Unconsolidated material: No work permitted at any time without the supervision of a person registered to perform this work.

Development: Work limited to Air lifting; Jetting; Test pumping.

Hydro fracturing (Minimum 500 OTJ Hours)

May perform the following work: Hydro fracturing; Test pumping.

Pumps and Piping (Minimum 2000 OTJ Hours)

A helper may, after 2000 OTJ hours, install pumps and associated piping and related equipment for wells drilled by a W-l contractor while the helper is under the employ of such contractor, but shall not perform water conditioning and treatment work.

Abandonment (Minimum 500 OTJ Hours)

Any abandonment work, such as the removal of pumps and piping, shall comply with the procedures of abandonment of the well, as provided in the well drilling regulations.

Sec. 29. Section 25-128-61 of the Regulations of Connecticut State Agencies is amended to read as follows:

Sec. 25-128-61. Permit requirement

(a) Before commencing work on the construction, repair, development, hydro fracturing or abandonment of any well[,] or geoexchange system consisting of a vertical bore hole, a registered well contractor shall [apply to the Board for] complete an application for a permit in a format acceptable to the Commissioner of Consumer Protection, and such application shall be filed with the authority having jurisdiction for the issuance of a permit, as provided by [Section] section 25-130 of the General Statutes. By filing said application, [The] the applicant [shall be required to agree by his signed, written oath] agrees that all work under the permit shall be done in strict compliance with the Connecticut Well Drilling Code, unless a special exemption from one or more of the regulations of the [Board] board has been granted.

Comment [jpb27]: Verticality is noted here! Precedent is set to more clearly define types of bore hole.

(b) The contractor shall then submit the completed, signed permit application for each well or geoexchange

system, with the proper fee to the local director of health or [his] the director's agent, who shall approve such permit if said proposed well or geoexchange system conforms to the [public health code] Public Health Code, established pursuant to section 19a-36 of the Connecticut General Statutes. No well or geoexchange system shall be drilled until such a permit has been issued and approved.

(c) Water supply well permits shall be evaluated according to their content with regard to proper separating distances as outlined in the [public health code.] Public Health Code, established pursuant to section 19a-36 of the Connecticut General Statutes, and the Connecticut Well Drilling Code.

(d) Permit applications, permits, and completion reports may be filed electronically.

Comment [jpb28]: (Should be excluded or modified to read "vertical bore holes that penetrate aquifers"). As written this opens the door for non-qualified, improperly trained, people to install heating and cooling systems. The end result will be an inferior product delivered to the consumer.

Comment [jpb29]: (Should be excluded or modified to read "vertical bore holes that penetrate aquifers").

Sec. 30. Section 25-128-62 of the Regulations of Connecticut State Agencies is re-numbered and amended to read as follows:

Sec. [25-128-62] 25-128-61a Contents of permit application

The application for a permit by a registered well driller shall include an appropriate map or plot plan, showing the location of the proposed well or geoexchange bore holes and the premises on which the well is located, in relation to roads, intersections, and other permanent land features. All permit applications shall be signed by a [master driller, as representative of the] registered well-drilling contractor.

Sec. 31. The Regulations of Connecticut State Agencies are amended by adding section 25-128-62a as follows:

NEW
Sec. 25-128- 62a. Well Completion Report

A registered well contractor shall, within 60 days of completion, file a Well Completion Report Form in a format acceptable to the Commissioner of Consumer Protection. Such Completion Report Form shall be concurrently submitted to the owner, the Department of Consumer Protection, and the local health department or district.

Sec. 32. The Regulations of Connecticut State Agencies are amended by adding section 25-128-62b as follows:

NEW
Sec. 25-128- 62b. Geoexchange System Completion Report

A registered well contractor shall, within 60 days of completion, file a Geoexchange System Completion Report Form in a format acceptable to the Commissioner of Consumer Protection. Such Completion Report Form shall be concurrently submitted to the owner, the Department of Consumer Protection, and the local health department or district. Said report shall include the following:

Name of the contractor; address; registration number; type of work completed, i.e. drill bore holes, install and grout loops, bore hole abandonment.

System Location:
Town; driller map number; GPS coordinates; latitude and longitude; address; zip code.

System Owner:
Name; company name; address; city; state; zip code; telephone number.

Bore hole Specifications:
Date first bore hole drilled; date last bore hole drilled; total number of bore holes drilled; total number of bore holes used in system; diameter of bore holes; depth of bore holes in feet; spacing intervals of bore holes in feet; average depth to bedrock in feet; average depth of bedrock in feet; geologic materials and thickness of materials penetrated; amount and type of casing, if any; static water levels.

Loop Field Installation:
Installer name; registration number; piping loop material used; number of loops installed; depth of closed loop in feet; date last loop installed; date bore hole grouted; type of grout used; average number of bags to grout each loop; pounds per bag of grout; cubic feet of grout used for each bore hole.

The type and volume of closed-loop geothermal fluid to be used in closed loops shall be denoted, and the form shall provide for a confirmation that detectable underground tape has been installed above the bore hole location.

Attached to each form shall be a diagram prepared or approved by the contractor showing major buildings, septic systems, and water supply wells on site.

Sec. 33. The Regulations of Connecticut State Agencies are amended by adding Figures Six (6) and Seven (7) to the Appendix following section 25-128-64 of the Regulations of Connecticut State Agencies as follows:

FIG. 6 Termination of exterior Geoexchange bore holes:

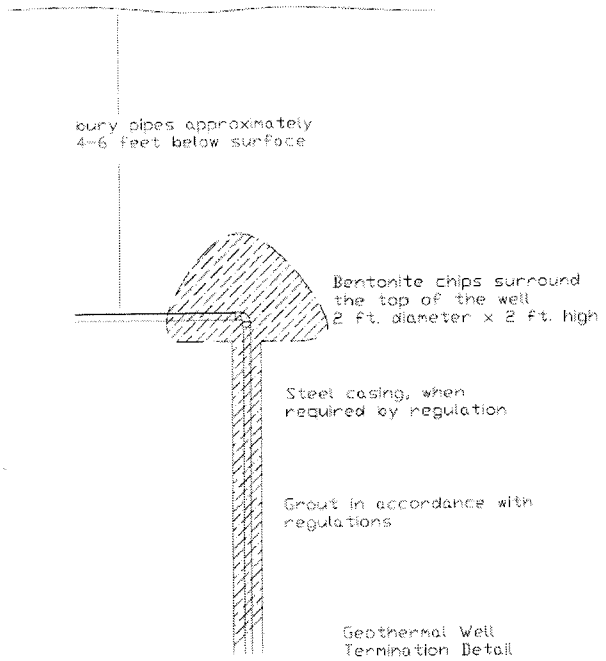
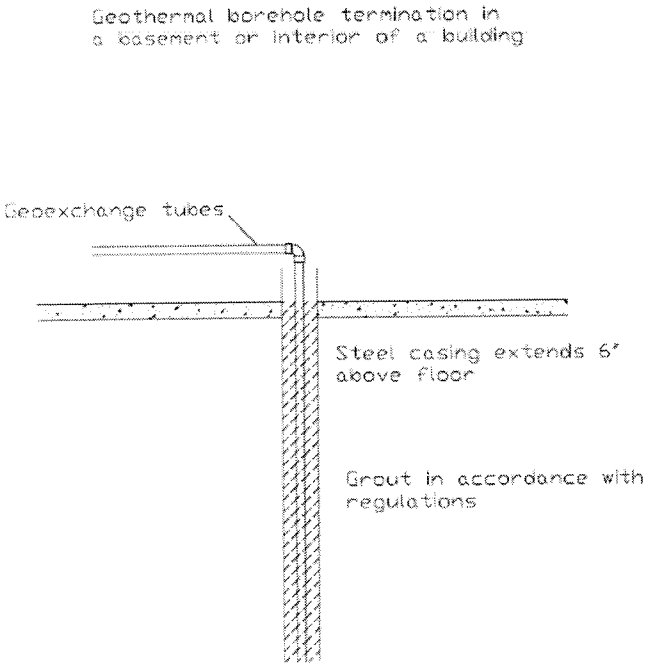


FIG. 7 Termination of interior Geoexchange bore holes:



Statement of Purpose

The purpose of this regulation is to update the Connecticut Well Drilling Code conform with current industry practices, to make technical changes to existing language for clarity and gender neutrality, and to incorporate regulations related to geothermal well drilling.

These regulations provide for updated definitions which conform to current industry practice, and also to incorporate specific definitions for geothermal well drilling. Additional provisions are added to regulate geothermal systems to help assure that the water supply is not contaminated due to substandard well drilling practices or component installation. The Department believes these regulation changes will protect the public health and safety, and in particular, help to protect the water supply from contamination.

The regulation implements changes to the Well Drilling Code, which is part of the regulatory structure of the Department of Consumer Protection.

CERTIFICATION
M-39 REV. 1/77

Be it known that the foregoing:

[X] Regulations [ ] Emergency Regulations

Are:

[ ] Adopted [X] Amended as hereinabove stated [ ] Repealed

By the aforesaid agency pursuant to:

[X] Sections **4-168** and **25-128(b)** of the General Statutes and

[ ] Sections _____ of the General Statutes, as amended by Public Act. No. _____ of the _____ Public Acts.

[ ] Public Act. No. _____ of the Public Acts.

After publication in the Connecticut Law Journal on _____ 20_____ of the notice of the proposal to:

[ ] Adopt [X] Amend [ ] Repeal such regulations

(If applicable): And [X] the holding of an advertised public hearing on _____ day of _____ 2007.

WHEREFORE, the foregoing regulations are hereby:

[ ] Adopted [X] Amended as hereinabove stated [ ] Repealed

Effective:

[X] When filed with the Secretary of the State.
(OR)

[ ] The _____ day of _____ 200___.

In Witness Whereof:	DATE	SIGNED (Head of Board, Agency or Commission)	OFFICIAL TITLE, DULY AUTHORIZED Commissioner

Approved by the Attorney General as to legal sufficiency in accordance with Sec. 4-169, as amended, C.G.S.:	SIGNED	OFFICIAL TITLE, DULY AUTHORIZED

[ ] Approved.

[ ] Disapproved.

[ ] Disapproved in part (Indicate Section Numbers disapproved only).

[ ] Rejected without prejudice.

By the Legislative Regulation Review Committee in accordance with Sec. 4-170, as amended, of the General Statutes.	DATE	SIGNED (Clerk of the Legislative Regulation Review Committee)

Two certified copies received and filed, and one such copy forwarded to the Commission on Official Legal Publications in accordance with Section 4-172, as amended, of the General Statutes.

DATE	SIGNED (Secretary of the State)	BY

INSTRUCTIONS

One copy of all regulations for adoption, amendment or repeal, except emergency regulations, must be presented to the Attorney General for his determination of legal sufficiency. Section 4-169 of the General Statutes.

Seventeen copies of all regulations for adoption, amendment or repeal, except emergency regulations, must be presented to the standing Legislative Regulation Review Committee for its approval. Section 4-170 of the General Statutes.

Each regulation must be in the form intended for publication and must include the appropriate regulation section number and section heading. Section 4-172 of the General Statutes.

Indicate by "(NEW)" in heading if new regulation. Amended regulations must contain new language in capital letters and deleted language in brackets. Section 4-170 of the General Statutes.;;;;;