## SEPTIC SYSTEMS (PRIVATE)

REQUIREMENT

Construction of private septic systems requires a septic permit issued by the Health Department.

DEFINITIONS

For the purpose of these regulations, the following terms, phrases, words, and their derivations shall have the meaning given herein. When not inconsistent with the context, words used in the present tense include the future, words in the plural number include the singular number, and words in the singular number include the plural number. The word "shall" as used herein is mandatory and not merely directory.

Baffle shall mean a partition installed in a septic tank for proper operation of the tank and to provide maximum retention of solids, and includes vented sanitary tees and submerged pipes.

Bedroom shall mean any room within a dwelling that might reasonably be used as a sleeping room.

Biomat shall mean a biological layer formed by soil microorganisms along the trench bottom that secretes a gluey or sticky substance and anchor themselves to the soil or rock particles.

Board shall mean the County Board of Commissioners of Douglas County, Nebraska.

Building sewer shall mean line from building drain to septic system.

Cesspool shall mean an underground pit into which raw household sewage or other untreated liquid waste is discharged and from which the liquid seeps into the surrounding soil.

Community Water Supply System shall mean a public water supply system which serves at least fifteen service connections used by year round residents or regularly serves twenty-five year round residents.

Construction shall mean the installation of a new septic tank system or the replacement, alteration or expansion of an existing system.

Contamination shall mean introduction of any material that would cause potable water to be a hazard to human health.

County shall mean Douglas County, Nebraska.

DHHSS shall mean the State of Nebraska Department of Health and Human Services System.

Distribution Box shall mean a watertight box that receives the discharge or effluent from a septic tank and equalizes the flow to each individual line of a soil absorption system.

## SEPTIC SYSTEMS (PRIVATE)

Distribution System shall mean piping or other devices which distribute sewage within a soil absorption system.

Dosing Chamber shall mean a receptacle for retaining sewage until pumped or siphoned to the soil absorption system.

Drop Box shall mean a type of septic effluent distribution which consists of "boxes" made of concrete, fiberglass, or polyethylene. Outlets at the top and bottom of the "boxes' provide distribution.

Effluent shall mean sewage flowing out of a septic system.

Failure shall mean unauthorized discharge of effluent or sewage on the surface of the ground, or to a cesspool, seepage pit, dry well, or leaching pit, or to an absorption system with less than 4 feet to ground water or other limiting soil characteristics or which causes pollution of any air, water, or land of the State, or which threatens public health.

Fill shall mean soil, rock, gravel, or material which has been placed over the original soil or bedrock and is characterized by a lack of distinct horizons or color patterns as found in naturally developed, undisturbed soils.

Filter Material shall mean clean gravel, crushed stone, or rock ranging in size from 1/4 to 2 1/2 inches or other materials as approved by the Health Department.

Grease Trap shall mean a watertight tank for the collection and retention of grease which is accessible underground outside of the building for periodic removal of the contents.

Groundwater shall mean water occurring beneath the surface of the ground that fills available openings in rock or soil materials such that they may be considered saturated.

Health Department shall mean Douglas County Health Department.

Health Officer shall mean the Director of the Douglas County Health Department or his authorized representative.

Industrial Waste shall mean sewage not otherwise defined as domestic sewage, including the runoff and leachate from areas that received pollutants associated with industrial or commercial storage, handling, or processing.

Lateral Field Aeration/Injection Process shall mean an alteration of a septic system.

NDEQ shall mean the Nebraska Department of Environmental Quality.

## SEPTIC SYSTEMS (PRIVATE)

Percolation Rate shall mean the rate obtained from percolation tests used in determining the amount of absorption area required, usually expressed in minutes per inch.

Percolation Test shall mean the determination of the suitability of an area for subsurface sewage effluent disposal by testing the rate at which the undisturbed soil in an excavated pit or hole of standard size will absorb liquid per unit of surface area.

Perforated Pipe shall mean one type of distribution tile generally four inches in diameter with one-half to three-fourths inch diameter perforations designed to distribute sewage effluent.

Permit shall mean a written permit issued by the Douglas County Health Department, permitting the construction of a private septic system under these regulations.

Person shall mean any person, firm, partnership, association, corporation, company, or organization of any kind.

Pollution shall mean a material that, if allowed to enter a potable water system could degrade the esthetic property of water with taste, color or odor, but would not be hazardous to human health.

Private Septic Systems

Individual shall mean a septic system, or part thereof, serving a dwelling or other establishment which uses subsurface soil treatment and disposal.

Community shall mean a septic system serving two or more dwellings or other establishments and which uses subsurface soil treatment and disposal.

Private Well shall mean a well which provides water supply to less than fifteen service connections or regularly serves less than twenty-five individuals.

Public Septic System shall mean a septic system operated by a governmental subdivision.

Public Water Supply System shall mean a water supply system designed to provide the public piped water fit for human consumption, if such system has at least fifteen service connections or regularly services at least twenty-five individuals daily at least sixty days out of the year. This definition shall include any collection, treatment, storage, or distribution facilities under control of the operator of such system and used primarily in connection with such system and any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system.

Septic System shall mean a reservoir or tank which receives sewage and by bacterial action and sedimentation affects a process of clarification and decomposition of solids. Such system includes the piping, distribution boxes or drop boxes, seepage beds, drainfields, absorption fields, and mounds that convey and dispose of sewage.

## SEPTIC SYSTEMS (PRIVATE)

Septic Tank shall mean a reservoir or tank which receives sewage and by bacterial action and sedimentation affects a process of clarification and decomposition of solids.

Abandoned Septic Tank shall mean when a building is disconnected from an individual sewage disposal system.

Sewage shall mean any water carried domestic waste, exclusive of footing and roof drainage, from any industrial, agricultural, or commercial establishment, or any dwelling or any other structure. Domestic waste includes liquid waste produced by toilets, bathing, laundry, culinary operations, and the floor drains associated with these sources, and specifically excludes animal waste and commercial or industrial waste water.

Soil Absorption Field shall mean a drainfield, leaching area, or seepage bed, including the effluent application, and distribution system intended for the treatment of sewage or disposal of effluent. The absorption system includes the infiltrative surface in the absorption trench and the soil between and around the trenches.

Surface Water shall mean all waters within the jurisdiction of Nebraska, including all streams, lakes, ponds, impounding reservoirs, marshes, wetlands, watercourses, waterways, springs, canal systems, drainage systems, and all other bodies or accumulations of water, natural or artificial, public or private, situated wholly or partly within or bordering upon the state. Impounded waters in this definition do not include areas designated by the NDEQ as wastewater treatment or wastewater retention facilities or irrigation reuse pits.

Title 124 shall mean NDEQ Rules and Regulations for the Design, Operation and Maintenance of Septic Tanks.

Trench shall mean an excavation area of the soil of predetermined size used for final treatment and disposal of septic tank effluent.

SANITATION REQUIREMENTS
(Refer to figures at the end of this Section)

In order to protect the general health, safety and welfare of the people of Douglas County and of the general public, private septic systems shall be constructed, operated, used and maintained in accordance with the following standards and requirements. It shall be unlawful for waste discharged to:

(1) Contaminate any drinking water supply

(2) Be accessible to insects, rodents, or other possible carriers of disease which may come into contact with food or drinking water

(3) Pollute or contaminate the waters of any bathing beach or stream used for public or domestic water supply purposes or for recreational purposes

(4) Be a health hazard or accessible to children

(5) Be a nuisance

(6) Violate any other laws or regulations governing water pollution or sewage disposal.

APPLICATION PROCESS

An application for private septic system shall be submitted to the Health Department. After approval of plans and specifications, a permit for construction will be issued.

CONSTRUCTION REQUIREMENTS (Refer to figures at the end of this Section)

The following specifications and requirements shall be complied with in the construction of private septic systems where water under pressure is available. **(**All permits located in ten year floodplain (floodway) shall contact NDEQ before a permit is issued for private septic system.)

(1) Prior to the construction of a private septic system in the County, plans and specifications shall be approved by the Health Department, and a permit obtained. Plans and specifications shall be submitted with the septic application form furnished by the Health Department. These plans must provide adequate space for reserve areas for replacement systems. Proposed construction of private septic systems located within the floodway requires approval of the NDEQ before a permit will be issued.

(2) Percolation tests shall be required in any location where the Health Department deems it necessary to establish the absorptive qualities of the soil.

(3) A boring of a minimum of 10 feet to determine soil characteristics and ground water table shall be required.

(4) After construction is complete, but before the private septic system is back-filled, the Health Department shall be notified in order that an inspection can be made. No part of the septic system shall be back-filled until such part has been inspected and approved; provided that the Health Department must make such inspection within 8 working hours after the Health Department has been notified.

(5) The building sewer shall be water tight and shall be laid with a slope of not less than one eighth inch per foot.

(6) Septic Tank Sizing for a Single Family Dwelling

a. The minimum capacity for any dwelling with a clothes washing machine, dishwasher, garbage grinder or whirlpool bath is 1500 gallons.

b. The minimum capacity for a dwelling with two or fewer bedrooms is 1000 gallons.

c. The minimum capacity for a dwelling with three to five bedrooms is 1500 gallons.

d. The minimum capacity for a dwelling with over five bedrooms shall be 1500 gallons plus 250 gallons for each additional bedroom over five.

(7) The capacity for a septic tank for any structure other than a single residence dwelling shall be determined on the basis of the estimated quantities of sewage flow. Title 124 shall be used for sizing requirements.

(8) The septic tank shall be at least 15 feet from the foundation of the dwelling and 15 feet from any other structure on site.

SEPTIC TANK SETBACK DISTANCES

| | Minimum Setback Distance Feet | |
|---|---|---|
| Item | Tanks | Absorption, Infiltrative, and Evaporative Systems |
| | | |
| Surface Water | 50 ft. | 50 ft. |
| Private Drinking Water Wells | 75 ft. | 100 ft. |
| Public Drink Water Supply Wells | | |
| Non-Community System | 75 ft. | 100 ft. |
| Community System | 500 ft. | 500 ft. |
| Community System when a septic system or soil absorption system of > 1000 gpd is | 500 ft. | Evaluated by professional engineer for potential impact on the well and submitted to the Department if less than 1000 ft. |
| | | |
| All Other Water Wells: | 75 ft. | 100 ft. |
| | | |
| Water Lines: | | |
| Pressure-Main | 10 ft. | 25 ft. |
| Pressure-Service Connection | 10 ft. | 25 ft. |
| Suction Lines | 50 ft. | 100 ft. |
| | | |
| Property Lines: | 5 ft. | 5 ft. |
| | | |
| Foundations and in ground swimming pools | 15 ft. | 30 ft. |

(9) The septic tank shall be at least five feet from the property lot lines.

(10) The septic tank of the private septic system shall be at least 75 feet from any well. The absorption fields shall be at least 100 feet from any well and on the down stream side.

(11) Construction of the private septic system shall not begin until the final grades of the area in which the system is to be situated are finished.

(12) Septic tanks may be built of reinforced concrete or they may be of prefabricated commercial construction of reinforced concrete, fiberglass, fiber reinforced plastic, high density plastic, and other tanks in compliance with Title 124 - Rules and Regulations for the Design, Operation and Maintenance of Septic Tanks, provided that they are approved by the Health Department. It is recommended that

concrete tanks be certified by the American Concrete Institute. The septic tank shall be of watertight construction.

(13) Inlet and outlet connections to the septic tank shall be equipped with sanitary tees at least 4 inches in diameter or baffles. The inlet tee or baffle shall project into the liquid in the septic tank to a level greater or equal to six inches and no more than 12 inches to assure the influent will be directed below the scum layer. The outlet tee or baffle shall be equal to 0.4 of the liquid depth of the tank and round tanks shall be equal to 0.35 of the liquid depth of the tank.

(14) The septic tank cover shall be designed for a load of not less than 150 pounds per square inch and the septic tank must be equipped with a separate access hole to permit cleaning out of the tank. The tank must be pumped out through this access hole.

(15) A distribution box or drop boxes shall be provided when more than one absorption field lateral is utilized and all absorption field laterals shall originate at the distribution box.

When drop boxes are used, the following criteria shall be followed:

a. The drop box shall be watertight and constructed of durable materials not subject to excessive corrosion or decay.

b. The invert of the inlet pipe shall be at least one inch higher than the invert of the outlet pipe to the next trench.

c. The invert of the outlet pipe to the next trench shall be at least two inches higher than the invert of the outlet pipe of the trench in which the box is located.

d. When septic tank effluent is delivered to the drop box by a pump, the pump discharge shall be directed against a well or side of the box on which there is no outlet.

e. The drop box shall have a removable cover for inspection purposes.

(16) The effluent pipe from the septic tank to the distribution box shall be water-tight.

(17) All of the outlets of the distribution box shall be exactly the same elevation when installed and after the system has been backfilled. The outlet pipes from the distribution box shall have equal slopes for five feet after leaving the box. All of the trenches shall be the same length and shall be able to treat a like amount of effluent.

(18) The lid of the distribution box shall be removable for inspection purposes.

(19) When the septic tank must be placed at a depth too great for direct discharge to a distribution box at the proper level, a dosing chamber shall be provided at the outlet end of the septic tank.

(20) The dosing chamber shall be of watertight construction. It shall be equipped with an automatic pump to pump septic tank effluent to the distribution box or drop box.

(21) The dosing chamber shall be of sufficient size to permit servicing and to provide effluent storage during power interruptions.

(22) The minimum total absorption area for any structure other than a single residence dwelling shall be determined on the basis of the estimated quantities of sewage flow.

The required square footage for an absorption trench for a dwelling shall be determined by the following table when a percolation test was performed.

ABSORPTION TRENCH REQUIREMENTS

## SEPTIC SYSTEMS (PRIVATE)

| Perc Rate in minutes per inch | 1 Bedroom 200 gpd | 2 Bedroom 300 gpd | 3 Bedroom 400 gpd | 4 Bedroom 500 gpd | 5 Bedroom 600 gpd | 6 Bedroom 700 gpd | 7 Bedroom 800 gpd | 8 Bedroom 900 gpd | 9 Bedroom 1000 gpd |
|---|---|---|---|---|---|---|---|---|---|
| <5 | Systems must be designed with a 12 inch loamy sand liner that would have a percolation rate of 15 to 20 minutes per inch and shall be designed at the 11-20 minute per inch level | | | | | | | | |
| 5-10 | 165 | 330 | 495 | 660 | 825 | 990 | 1155 | 1320 | 1485 |
| 11-20 | 210 | 420 | 630 | 840 | 1050 | 1260 | 1470 | 1680 | 1890 |
| 21-30 | 250 | 500 | 750 | 1000 | 1250 | 1500 | 1750 | 2000 | 2250 |
| 31-40 | 275 | 550 | 825 | 1100 | 1375 | 1650 | 1925 | 2200 | 2475 |
| 41-50 | 330 | 660 | 990 | 1320 | 1650 | 1980 | 2310 | 2640 | 2970 |
| 51-60 | 350 | 700 | 1050 | 1400 | 1750 | 2100 | 2450 | 2800 | 3150 |
| >60 | Systems must be designed by a professional engineer. Construction Permit Needed | | | | | | | | |
| | | | | | | | | | |

The required square footage for establishments shall be determined by the following equation: The daily design flow divided by (Five divided by the square root of the percolation rate). sq. ft. = design flow (gpd) ÷ 5 ÷ $\sqrt{\text{Percolation(min/in).}}$

Absorption area for a bed shall be calculated by determining the required square footage for a trench multiplying the area by the factor in the following table:

ABSORPTION AREA FACTORS

| Width of Bed in feet | Factor |
|---|---|
| >5 to 10 | 1.25 |
| >10 to 15 | 1.33 |
| >15 to 20 | 1.50 |
| >20 | Unacceptable |

(23) The total absorption area in the effluent treatment field shall be based on the percolation tests and the number of bedrooms in a single family residence. The minimum total absorption area shall be 300 square feet.

(24) No subsurface effluent treatment facility shall be installed in uncompacted filled ground.

(25) No part of any absorption field shall be installed less than five feet from any property lot line.

(26) The absorption field shall be at least 30 feet from any dwelling foundation and/or inground swimming pool. If there is no basement, this distance may be reduced to 20 feet.

(27) All liquid wastes except roof drains shall be discharged to the septic tank

(28) Maximum slope of absorption field lines shall be 4 inches per 100 feet. Recommended slope is 0 to 4 inches per 100 feet.

(29) Maximum depth of distribution piping shall be 30 inches. Recommended depth is 24 inches. Maximum depth of lateral field, trench, and seepage bed shall be 48 inches.

(30) Concrete or plastic half moon tiles or chambers may be used for sewage distribution in the absorption trench. The width of the tiles or chambers must be 20 inches or greater for a 60 inch wide trench. The maximum trench width shall be 36 inches when using tiles or chambers less than 20 inches wide.

## SEPTIC SYSTEMS (PRIVATE)

(31) The filter material shall be covered with untreated building paper or a two-inch layer of hay or straw or similar, approved permeable materials.

(32) Minimum depth of distribution piping shall be 15 inches.

(33) The maximum length for any individual lateral shall be 100 feet.

(34) Minimum width of lateral trench shall be 24 inches and maximum width shall be 60 inches.

(35) Minimum depth of filter material under 4 inch perforated pipe consisting of clean gravel, rock, or crushed stone under distribution system shall be 6 inches and no more than 24 inches.

(36) Minimum filter material over distribution system shall be 3 inches.

(37) Minimum distance between laterals shall be 7 feet.

(38) Distribution piping shall be at least four inches in diameter.

(39) All turns in laterals shall be made by the use of bends and ells cemented in place.

(40) A seepage bed may be used for the treatment field only when conditions prevent the installation of a conventional lateral system.

(41) A seepage bed is any excavation trench wider than 5 feet.

(42) Seepage bed construction shall be limited to areas having natural slopes of less than 6%.

(43) If a seepage bed is used, the minimum depth of gravel under drain pipe shall be 12 inches and minimum fill of gravel over pipe shall be 6 inches.

(44) Area requirements for seepage beds shall be at least 25% greater than for a conventional lateral system which would service the same installation.

(45) The tile or distribution pipe in beds shall be uniformly spaced no more than 5 feet apart and not more than 30 inches from the sidewalls of the beds.

(46) Septic system setback distances from lakes, rivers, and streams must be at least 50 feet from ordinary highwater mark.

(47) Bottom of soil absorption field must be at least four feet above seasonal high water table.

GREASE TRAPS
(Refer to figures at the end of this Section)

It is required than an external grease trap be installed for all restaurants and establishments involved in food preparation.

Materials and Specifications

(1) If an external grease trap is used it shall be watertight, durable, and constructed of the same materials as septic tanks.

(2) The inlet invert shall be at least 3 inches above the outlet invert.

(3) The inlet baffle or sanitary tee shall extend at least 24 inches below the liquid level.

(4) The outlet baffle or sanitary tee shall extend to within 8 inches of the tank bottom.

(5) The grease trap shall be provided with an inspection or cleanout cover over the inlet and outlet.

(6) Blackwater other than kitchen waste shall not be connected to a grease trap.

(7) All wastewater from the kitchen operation shall be connected to the external grease trap. The effluent from the grease trap shall connect to the inlet line of the septic tank.

**SEPTIC SYSTEMS (PRIVATE)**

Operation and Maintenance

In order to be effective, grease traps shall be operated properly and cleaned regularly to prevent the escape of appreciable quantities of grease. The frequency of cleaning at any given installation can best be determined by experience based on observation.

Sizing of Grease Traps

(1) A grease trap shall provide twenty four hours of detention time for the average daily flow.
(2) The minimum capacity of any grease trap shall be 750 gallons.

ABANDONED SEPTIC TANK

Whenever the use of a septic tank system is discontinued following the connection to a sanitary sewer or following condemnation or demolition of a building or property or due to the construction of other on-site sewage treatment system, the septic tank system shall be properly abandoned and any other further use of the system for any purpose shall be prohibited. The abandoned septic tank shall be pumped of all liquids, the top of the tank shall be destroyed, and the tank shall be filled with sand or compacted earth or the tank may be removed after pumping.

**AVAILABILITY OF PUBLIC SEWER SYSTEM**

When a public sewer system is available to the premise either adjacent to and/or parallel to the property, connection to the public sewer system shall be required.

CESSPOOL

Cesspools are not permitted.

FLOOR DRAINS

Floor drains connected to a septic system are not allowed in garages.

CERTIFIED SEPTIC SYSTEM INSTALLER

Every commercial installer of private septic systems shall have a master plumber's license issued by the City of Omaha, or a sewer layers license issued by the City of Omaha, or a certification of competency issued by the Health Department beginning January 1, 2000. A certificate of competency will be issued by the Health Department after installer attends a training clinic and passes a written examination with a grade of 70% or better. The training clinic and examination will be administered by the Health Department. The certification shall be valid for a period of four years. The fee for such certification and training clinic shall be as determined by the Board with the recommendation of the Douglas Board of Health.

**SEPTIC SYSTEMS (PRIVATE)**

PERMITS

It shall be unlawful for any person to construct, alter or extend private septic systems in the County unless such person holds a valid permit issued by the Health Department in the name of such person for the specific construction, alteration, or extension proposed. The permit issued by the Health Department shall be in addition to the zoning permit for building or any other permit required and shall be obtained prior to construction, alteration and extension of the residence or facility to be served.

All applications for permits for the construction, alteration and extension of private septic systems shall be made to the Health Department, who is hereby authorized to issue a permit therefore upon compliance by the applicant with all the provisions of this regulation and any other pertinent regulations. A permit for the construction, alteration and extension of a septic system may be denied where a public sewerage system is available to the premise and parallel to the property along a boundary.

Applications for permits shall be in writing, shall be signed by the applicant and shall include the following:

(a) name and address of the applicant and legal description of property on which construction, alteration, or extension is proposed.

(b) complete plan of the proposed treatment facility, with substantiating data, if necessary, attesting to its compliance with the minimum standards of the Health Department and Title 124.

A complete plan for the purpose of obtaining a permit to be issued by the Health Department shall include:

( 1) the number, location and size of all septic facilities to be constructed, altered, or extended.

( 2) the location of water supplies, water supply piping, existing septic facilities, buildings or dwellings, and adjacent lot lines.

(c) plans of the proposed septic facilities to be constructed, altered or extended.

(d) the number and type of plumbing fixtures to be installed in the building.

(e) the number of bedrooms if a dwelling and the number of people to be served by the facility if other than a dwelling.

(f) the results of percolation tests and 10’ boring tests at the proposed site of the absorption field.

FEES

The fee as established by the Board with recommendation from the Douglas County Board of Health for a permit to construct a Septic System shall be payable to the Health Department.

INSPECTIONS

The Health Department is hereby authorized and directed to make such inspections as are necessary to determine satisfactory compliance with this regulation. It shall be the duty of the owner or occupant of a

property to give the Health Department free access to the property at reasonable times for the purpose of making such inspections as are necessary to determine compliance with the requirements of this regulation and regulations promulgated hereunder.

## CONFLICT WITH OTHER REGULATIONS

In any case where a provision of this regulation is found to be in conflict with any other regulation pertaining to zoning, building, plumbing, fire, safety or health existing on the effective date of this regulation, the provision which established the higher standard for the promotion and protection of the health and safety of the people shall prevail. In any case where a provision of this regulation is found to be in conflict with any other regulations including NE Department of Environmental Quality existing on the effective date of this regulation, which establishes a lower standard for the promotion of the health and safety of the people, the provisions of this regulation shall prevail.

## VIOLATIONS

Violations of these Regulations are subject to the provisions of N.R.S. §23.174, and are considered a misdemeanor.

## SEVERABILITY

If any portion of these Regulations or their application to specific circumstances shall be held invalid by a court of competent jurisdiction, the remainder of these Regulations and its application to other circumstances shall be unaffected.