# Northeast District Department of Health

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## NON-ENGINEERED Septic System Plans Check List (For Installers)

These instructions provide the minimum requirements to assist installers as they prepare complete, code-complying plans for new and repair subsurface sewage disposal systems (permits not needed to add/replace risers, baffles, or filters to tanks or replace d-box covers). Installers must also refer to the Technical Standards, Public Health Code, soils data, and property specifics.

1. **The plan must include all of the following information:**
   - ☐ Property address and owner's name
   - ☐ Plan date
   - ☐ Installer's name and address
   - ☐ MLSS calculations (see next page)
   - ☐ Location, size, and type of sewer lines, couplings/cleanouts, septic tank, risers, and filter
   - ☐ Location and description of leaching system (distribution pipes, d-boxes, and leaching rows)
   - ☐ Select fill and C33 sand requires onsite testing and/or an approved wet sieve (within 30 days)
   - ☐ Property lines* and street location

     *Property lines- In accordance with the requirements of CT PHC section 19-13-B103e (c) (2) (C), all plans for the construction or repair of a SSDS must be submitted on or with "a plot plan of the lot, which shall be a surveyor's plan if available or one prepared from information on the deed or land records."
   - ☐ Building locations (including accessory structures)
   - ☐ Watercourses
   - ☐ Ground / surface water drains and drainage structures (including foundation drains and catch basins)
   - ☐ Buried utilities (Call Before You Dig at cbyd.com or dial 811)
   - ☐ Nearby wells and water service lines:
     - If the well is buried, it must be uncovered and visible in field
     - Indicate whether the well is drilled or dug
   - ☐ Existing ground elevations in the area of the proposed system and down gradient
   - ☐ Proposed system elevations (flow lines at house/sewer line connection, into and out of the septic tank, into and out of distribution boxes, and leaching rows)
   - ☐ Benchmark location and elevation (in/on a fixed / permanent object near the system)
2. **The plans must show the basis of design:** i.e., 3-bedroom home with perc design rate of 10.1-20 min/inch requires 1000-gallon tank and 675 square feet of effective leaching area-ELA**; and the proposed design**: i.e., Proposing 1000-gallon concrete tank and 225' of 4' x 1' stone trenches which provides 675 sq. ft. of ELA.
3. **The plan must show all separating distances or be drawn to scale:** i.e., 75' to well or 10' from building served.
4. **In the case of repairs, show all exceptions or variances requested:** i.e., distance to wells, property lines, structures, reduced size, central systems, system on another property, etc.
5. **Pump Systems-Tech Standards VI:** include pump chamber size (interior dimensions), pump make/model/size, pump curve (for Total Dynamic Head-TDH), dose volume and leaching capacity for dose (~20%), pressure line type/diameter/length/bends, on/off and alarm elevations, riser to grade, quick disconnect in riser, lift chain/rope, frost protection/weep hole, 24 hour storage capacity or dual alternating pumps, separate circuit for alarm/pump, building official permit required and auditory/visual alarm. Consider buoyancy (floating) for areas with high groundwater and/or plastic pump chambers.

**All required information must be provided with the plan per CT PHC 19-13-B103e (c) (3). Incomplete plans will be returned for revision. An approved plan and an approved permit to construct are required prior to any system construction.**

# Worksheet for Non-Engineered SSDS

Date:_____

Property Address:_____Town:_____

Property Owner:_____

Plan Designed by:_____

Title:_____License #:_____

Mailing Address:_____ Email:_____

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**Plan Type, Circle one:** New Full Repair (Tank and Leaching) Partial Repair

If Partial Repair, Circle all that apply: Sewer Line Tank Distribution Line D-Box Leaching

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**BASIS OF DESIGN: Residential or Commercial**

Number of Bedrooms or Design Flow:_____ LargeTub: Yes No Garbage Disposal: Yes No

Water treatment system: Yes No If yes, is there a separate system for backwash discharge? Yes No

Soil perc rate:_____min/inch Effective Leaching Area required _____ $ft^2$

**REQUIRED:** Minimum Leaching System Spread (MLSS) or length of system calculations if RS <60"

RS or Depth to soil restriction (mottling/redox, ledge, etc.):_____inches, HYDRAULIC GRADIENT or slope:_____%

(HF)_____ x (FF)_____ x (PF)_____ = MLSS (in feet)_____ (Tables for HF, FF and PF on last page)

If you are using fill to increase the RS please include a separate worksheet or cross-section that shows additional information and calculations.

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**PROPOSED DESIGN INFORMATION:**

Proposed septic tank size:_____Gallons or using existing (must be inspected and in good condition) Tank

Type: Concrete Plastic Water Tight: Yes No H20 Load Rated: Yes No Filter Type:_____

Tank Risers Needed: Yes No If Yes, Covers Left on Tank: Yes No Safety Device to be Installed: Yes No

Description of leaching system proposed:_____

ELA credit $ft^2$ / linear ft.:_____X Total system length_____= ELA provided _____ $ft^2$

MLSS Provided:_____ft Maximum leaching system depth into original grade:_____inches

**Variances Requested**: _____

**Pump System Needed:** Yes No If Yes, See #5 on first page for necessary items and contact the pump manufacturer for assistance with proper pump selection based on vertical height, dose, and pipe type/size/length/bends.

# MLSS Calculation Tables

1/1/2024

## HYDRAULIC FACTORS (HF)

Hydraulic Gradient (% Slope)

Receiving Soil Depth (Inches)

| | <1.0 | 1.0-2.0 | 2.1-3.0 | 3.1-4.0 | 4.1-6.0 | 6.1-8.0 | 8.1-10.0 | 10.1-15.0 | >15.0 |
|---|---|---|---|---|---|---|---|---|---|
| 0.1 - 17.9 | See Comments in Section VIII A | | | | | | | | |
| 18.0 - 22.0 | 72 | 62 | 54 | 48 | 42 | 34 | 30 | 28 | 26 |
| 22.1 - 26.0 | 66 | 56 | 48 | 42 | 34 | 30 | 28 | 26 | 24 |
| 26.1 - 30.0 | 56 | 49 | 42 | 34 | 30 | 28 | 26 | 24 | 20 |
| 30.1 - 36.0 | 48 | 42 | 34 | 30 | 28 | 26 | 24 | 20 | 18 |
| 36.1 - 42.0 | 42 | 36 | 30 | 28 | 26 | 24 | 20 | 18 | 16 |
| 42.1 - 48.0 | 36 | 32 | 28 | 26 | 24 | 20 | 18 | 16 | 14 |
| 48.1 - 60.0 | 30 | 28 | 24 | 22 | 20 | 18 | 16 | 14 | 10 |
| >60.0 | MLSS Need Not be Considered | | | | | | | | |

## FLOW FACTORS (FF)

**Flow Factor = Design Flow/300**

**Residential:** The design flow for residential buildings is 150 GPD per bedroom up to three. Beyond three bedrooms, the design flow is 75 GPD per bedroom for single-family residential buildings and 125 GPD per bedroom for multi-family residential buildings.

For a central SSDS serving a single-family residential dwelling and a residential outbuilding, the main dwelling shall utilize the FF based on the single-family criteria and the FF shall be increased by 0.50 for each bedroom in the outbuilding.

| **Single-family buildings:** | **FF** | |
|---|---|---|
| 1 Bedroom = 150/300 | 0.5 | |
| 2 Bedroom = 300/300 | 1.0 | |
| 3 Bedroom = 450/300 | 1.5 | |
| 4 Bedroom = 525/300 | 1.75 | Increase FF by 0.25 for each additional bedroom |

**Multi-family buildings:**
Minimum FF is 1.92 (4 bedrooms) and each additional bedroom increases FF by 0.42.

**Non-Residential**: Design Flow (GPD) / 300

## PERCOLATION FACTORS (PF)

| Percolation Rate | Percolation Factor (PF) |
|---|---|
| Up to 10.0 Minutes/Inch | 1.0 |
| 10.1 to 20.0 Minutes/Inch | 1.25 |
| 20.1 to 30.0 Minutes/Inch | 1.5 |
| 30.1 to 45.0 Minutes/Inch | 3.0, or 2.0* |
| 45.1 to 60.0 Minutes/Inch | 5.0, or 3.0* |

*If leaching system is entirely in select fill and the bottom of system is above original grade and at least 24 inches above maximum groundwater.