



Designs, As-builts, & Additional Reporting Requirements

Residential Sewage Program
Bureau of Environmental Health and Radiation Protection
Ohio Department of Health

Designers

- Statute does not allow the registration or bonding
- Designs shall be prepared & submitted by persons capable of reviewing:
 - The soil evaluation
 - Site conditions
 - Information provided by homeowner
 - Rules...
- In order to facilitate the owners choice of an appropriate site specific STS and complete design in accordance with Rules

Designers

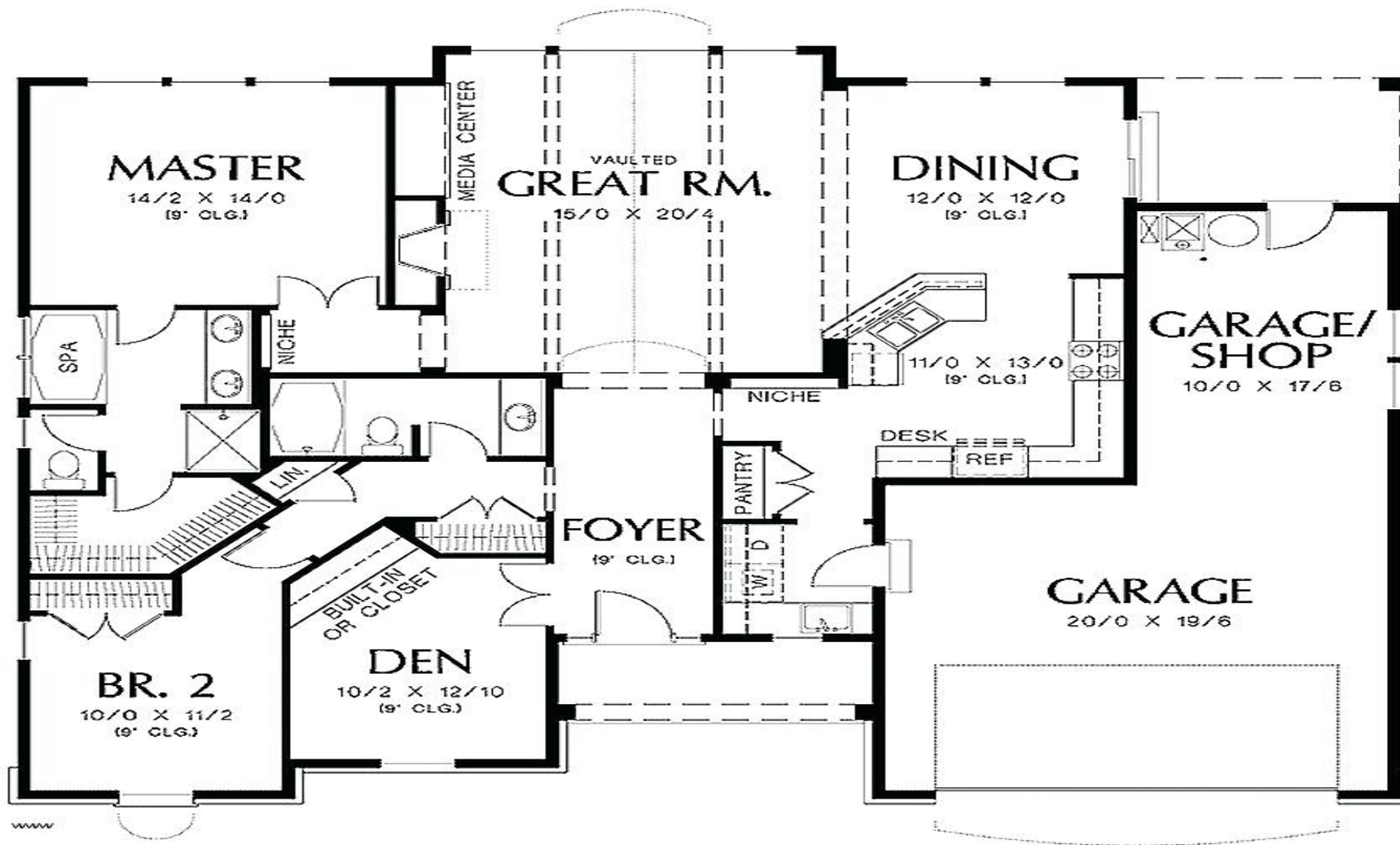
- Shall obtain education as necessary or required by manufacturer for all STS technologies they intend to design.
- Can be acting as agent to the BOH –or
- Independent agent of homeowner
- Any BOH that employs staff qualified may charge fee.
 - Must conduct cost methodology
 - Liability?

Designers

- Must be able to:
 - Estimate STS flows including DDF, expected variations, pollutant concentrations and mass loads (if exceeding typical Household Strength, such as reduction in flows due to low flow fixtures or GWRS)
 - HSTS: 120 GPD/BR** (Minimum 240 GPD unless...)
 - SFOSTS: Varies by building type and waste strength
- **What's considered a BR?

What is a Bedroom?

- *“Means a room that is designed or used as a sleeping room or could reasonably be used as or finished as a sleeping room as determined by the board of health. The BOH may consider the room’s architectural features when making the determination.*
- Going to vary from jurisdiction to jurisdiction. Always check for local policies before design submission.



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Designers

- Must be able to evaluate site specific information including:
 - Soil Evaluation (complete?)
 - Site Conditions (Drainage, compressions, hydraulics, etc.)
 - Site Prohibitions (Offsets, easements, zoning, etc.)
 - Information from homeowner (House location?)

Designers

- Must be able to select devices and components capable of meeting performance and rule requirements.
- Pretreatment components for sizing reductions or depth credits
- Tank Sizing, Pump Selections, Distribution Network, etc.
- VSD, In-Situ, Sizing, etc. (Local Variability)

Designers

- Provide approximate installation & operation costs of feasible STS options to assist owner in selection of STS to design.
- Ultimately it is the homeowner's choice to decide on the design plan right for them



Designers

- Site visit; Must delineate by staking or flagging proposed soil absorption area(s) on site as they relate to contour & topography (Slope consideration)
- Must be within representative area identified by soil scientist
- Must be sited to avoid natural drainage features and depressions. (Additional siting requirements based of system type and technologies.)

Designers

- Must be available to meet with the owner, soil scientist, installer, service provider, or local health department during, prior, and after the installation.



Designs

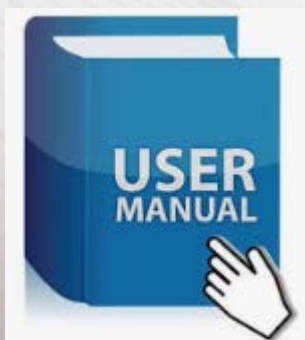
- At a **MINIMUM** include:
 - Description of dwelling and/or structures to be served by STS
 - Details on DDF, SILR, HLLR, length along contour, absorption area dimension, and if needed pump selection/sizing and pressure distribution network information.
 - (Justification if varying)

Designs

- Identification and description of **ALL** materials and system devices and components including:
 - Septic Tanks
 - Dosing Tanks
 - Distribution Piping
 - Diversion Mechanisms
 - Distribution Materials
- Identification of applicable sizing requirements for devices & components

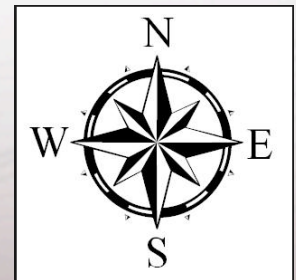
Designs

- Identification of:
 - Approved system manufacturer and model to be used
 - Manufacturer O&M Instructions
 - Means of access for O&M



Designs

- Legible scaled site drawing illustrating:
 - Proposed location of STS Devices & Components
 - Replacement area
 - Approximate location of soil boring(s)/test pits
 - Within representative area. Not just TH locations
 - Location of surface features that may affect operation (i.e. disturbed areas, wooded areas, drainage, hardscapes, etc.)
 - North Arrow



Designs

- Must show that approximate location(s) of STS components meet all isolation distances
 - 10' from **ANY** utility service line (including overheads)
 - 10' from roadway or road surface
 - 10' from driveway or other hardscape
 - 10' from property line or R.O.W. boundary
 - 10' from **properly sealed** well
 - 10' from buildings or other structures

Designs

- Must show that approximate location(s) of STS components (& replacement area) meet all isolation distances
 - 10' from any recorded easements (municipal R.O.W.'s, utilities, zoning, deed requirements, set-backs, etc.)
 - 10' from any intermittent streams or swales
 - 10' from geothermal horizontal closed loop systems
 - 10' from irrigation lines & GWRS

Designs

- Must show that approximate location(s) of STS absorption components (& replacement area) meet all isolation distances
 - 50' from any surface water impoundment (fish farms, storm water retention, additional storage reservoirs, etc.)
 - 50' from any lake, river, or wetland
 - 50' from any perennial stream
 - 50' from any road cut or stream cut banks.

Designs

- Must show that approximate location(s) of All STS components (& replacement area) meet all isolation distances
 - 50' from any water supply source (including neighbors)
 - 50' from vertical open and closed loop geothermal heating and/or cooling system



Designs

- Building sewer must be 10' away from water distribution line when attainable except w/in 5' of foundation where both lines enter a building when they must cross.
- Minimum of 12'' between outside of water service line and sewer line (Preference that water above sewer.)
- At crossings one full length of water pipe located so both joints minimum of 10' from sewer line and 20' sleeve installed (and sealed at ends) over one line
- Only share trench where they must cross.

Designs-Site Drainage

- When Surface water runoff will infiltrate or cause ponding in, on, or around STS components:
 - Diversion swales or other grading shall be designed (cannot negatively impact drainage of or onto other properties or storm water management)
 - Interceptor drain sited no closer than 6' upslope of soil absorption component and prevent effluent from entering drain

Designs-Site Drainage

- Perimeter drain:

1. No closer than 6' upslope and 8' from outermost extent of soil absorption component. (Never cross)
2. Bottom must not be deeper than 2'' into a flow restrictive layer (except to allow for drainage at daylight)
3. Designed to induce surface water to drain and ensure subsurface flow to drain
4. Limited to site w/ 6'' unsaturated soil beneath infiltrative surface or treat effluent to <1000 fecal
5. 8' from mound lateral, 1' from toe.

Designs

- If necessary or applicable must also include one enlarged detailed plan view drawing including:
 - Proposed location & configuration of STS with proposed absorption area dimensions & elevations
 - Ground surface elevations & component elevations
 - **ANY additional information** requested by the BOH

Designs

- If necessary or applicable must also include:
 - Pump selection information including pump curve
 - Pressure distribution network description & calculations
- **Any additional** information requested by the BOH

Designs-Additional Considerations

- New STS not sited in an area identified as a floodway
- Only below grade soil absorption components of a **NEW** STS may be sited w/in any part of 100 year flood plain. (Except where prohibitions in place)
- Not sited within sanitary isolation radius of public water system

Designs-Additional Considerations

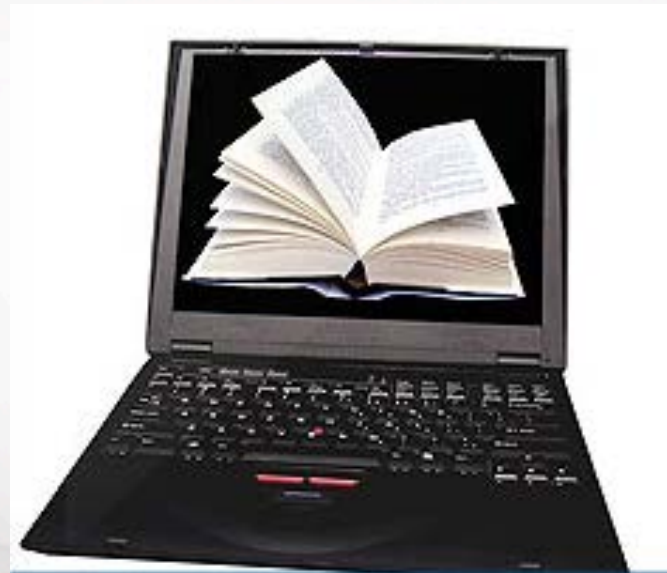
- LHD adopted resolutions (VSDs to perched H₂O)
- Adjustments to SILR
 - Written justification
- Adjustments to HLLR (Decrease & Increase)
 - Written justification
- Reductions along contour
 - Written justification
- Buoyancy Conditions?

Designs-Additional Considerations

- Increase in the extent of fill beyond edges when shallow restrictions exist
- Fill material brought to site (Prior excavation versus after) (& Source)
- Fill material at site for meeting VSD & In-situ
- Damage prevention or operational issues for freezing temperatures

Designs-Additional Considerations

- Referencing design manuals versus rule
- Published Bulletins
- Internet Sources
- Spreadsheets



Designs-NPDES Considerations

- How is the determination made?
 - Justification through documentation

E. Soils and Site Review		
• Has a Site and/or soil evaluation been conducted?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
F. Soils and On-Site System Evaluation (Answer All)		
• Is the Site suitable for a septic tank or pre-treatment to gravity, Low Pressure Pipe or engineered drainage with soil absorption?	Yes <input type="checkbox"/> *	No <input type="checkbox"/>
• Is the Site suitable for a septic tank or pretreatment to mound?	Yes <input type="checkbox"/> *	No <input type="checkbox"/>
• Is the Site suitable for a septic tank or pretreatment to drip distribution?	Yes <input type="checkbox"/> *	No <input type="checkbox"/>
• Is the Site suitable for system designs that have been approved by the Director of Health under a Special Device Approval and the Homeowner agreed to utilize these technologies?	Yes <input type="checkbox"/> *	No <input type="checkbox"/>
• Is there adjacent property owned by the homeowner suitable for supporting an on-site system and Homeowner agreed to utilize the adjacent property?	Yes <input type="checkbox"/> *	No <input type="checkbox"/>
* If you answered "Yes" to any of the questions in section C, D, or F, STOP : The project cannot be recommended for approval.		
Comments/Explanations: Click or tap here to enter text.		
Additional documentation is provided in an attachment		
		Yes <input type="checkbox"/> No <input type="checkbox"/>
Local Health Department Personnel Name: Click here to enter text.	Title: Click here to enter text.	
Local Health Department Personnel Signature:	Date: Click here to enter a date.	

Soil Evaluation

- Did a soil evaluation take place in accordance with OAC 3701-29-07
- If no, why not?
- OAC 3701-29-09(A)(1)(b): *“The board of health may waive the requirement for a soil evaluation based on small lot size , for an alteration, or for an incremental repair plan;”*
 - Justification through documentation.
 - Not intended to be a “one size fits all.”

Site Considerations

- Is a sewer connection available?
 - Within 400'? (OEPA NOI)
 - Sewer entity capacity available?
 - Barriers?

- At what depth are the restrictions noted?
 - Will depth credits help?
 - Addition of Sand fill?

Soil Requirements

*Depth Credits do not apply to Minimum unsaturated in situ soil requirements



Table 2. VSD and in situ soil requirements

Paragraph	Limiting Condition	Minimum VSD (inches)	Minimum unsaturated in situ soil within infiltrative distance (inches)
(D)	Limiting condition not specified in this table	18	8
(E)(1)	Fractured and/or Karst bedrock	36	12
(E)(2)	Ground water or aquifer	36	12
(E)(3)	Other limiting conditions identified in soil evaluation or by the board of health as having high risk of not meeting 3701-29-15 (A)	36	12
(F)	Highly weathered soils with weak structure or low to very low permeability developed on the low lime till plains are present	24	8
(G)	Perched seasonal water if not established by board of health	12	8
(G)	Perched seasonal water as established by a board of health	6	6

Site Considerations

- Do we have length along contour?
- Split zoning? OAC 3701-29-15(N)(2)(g)
- >24'' in situ soil? OAC 3701-29-15(N)(2)(e)
- Written Documentation

Site Considerations

- Up to 30% HLLR reduction for replacement if pressurized OAC 3701-29-15(N)(2)(h)
- Drip Distribution
 - 6"-2' spacing on sand fill
 - >25% slope with safety consideration.
 - Has an Assurance Party been consulted with?

Site Considerations

- Is the site suitable for system designs that have been approved by the Director of Health under a Special Device Approval *and* the Homeowner agreed to utilize these technologies?

Site Considerations

- Is there adjacent property owned by the homeowner suitable for supporting an on-site system *and* the Homeowner agreed to utilize the adjacent property?

Soils and On-Site Evaluation



E. Soils and Site Review		
• Has a Site evaluation been conducted?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
• Has a Soil evaluation been conducted?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
F. Soils and On-Site System Evaluation (Answer All)		
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* If you answered "Yes" to any of the questions in section C, D, or F, <u>STOP</u> : The project cannot be recommended for approval.		
Comments/Explanations: Click or tap here to enter text.		
IF NO WHY????????		



As-builts

- Minimum requirements listed in O.A.C. 3701-29-09(F)
- Shall be available at the time of the inspection
- Must be legible
- 8^{1/2}" x 11" or greater
- Copy to Homeowner & LHD (Installer should also keep)

As-builts

- Drawing needs to include:
 - Signature from the installer indicating that the STS was installed in accordance with rules.
 - Any changes to the design...(after consultation and written documentation from LHD & Designer)

As-builts

- Changes including:
 - Applicable horizontal isolation distances
 - Changes in location of STS from designated must get prior approval (LHD & designer)
 - Designated vertical reference point or benchmark (elevations)

As-builts

- Plan view drawing for installed STS components
- Identification of Specific products & components
- Any manufacturer required notes, manuals, O&M

As-builts

- Verification of compliance with any start-up procedures
- Mounds/LPP
- Spray
- Pretreatment

Additional documentation

- Service Inspections
 - Dates & Results w/in 60 days of service
- Manufacturer's requirements + any additional information from LHD
- Must cover every component of the system

Additional documentation

- Pumping Reports
 - (Manifest)

- Abandonment Reports
 - With associated pumping report

Additional documentation

- Every registrant must maintain & submit complete & accurate records as required for determining compliance with all applicable rules

THE IMPORTANCE OF CLARITY

SEPTIC TANKS PUMPED
SWIMMING POOLS FILLED
NOT SAME TRUCK
439-1250

THEM TAPES.COM

Paperwork, Paperwork, Paperwork!



Contact Information

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