

AN APPLICANT'S GUIDE TO:

## RESIDENTIAL SEWAGE PUMPS

If your property requires a sewage pump, [the steps below](#) will you in finding the most appropriate sewage pump for your property.

### Step 1: Select a Type of Sewage Pump

Two types of pumps:

#### 1. Sewage Pump

- Most common for residential properties

#### 2. Grinder Pump

- Used for residential properties with higher lifts or heavier solids

Select simplex or duplex:

- Simplex contains one pump
- Duplex has two pumps to share the workload

Your pump system **must meet the following** basic requirements:

- Pumps: Received nationally recognized testing entity, such as Underwriters Laboratories (UL)
- Motors:
  - Explosion proof pump & motor assemblies approved by NRTE
  - Separate thermal overload protection
  - Moisture-sensing failure probes connected to alarm system
  - Meet NEMA requirements
- Check valve is required to prevent any backflow of wastewater into the main sewer line

- Motor level controls and panel: automatically turn pump on and off and send appropriate alarms (see below for more requirements)

### Step 2: Select a Pump Size

Your sewage pump's size is measured by horsepower and is determined by your household needs and where the pump is located on your property in relationship to the public sewer main. You will also need to know your home's available voltage, phase of power, and amperage.

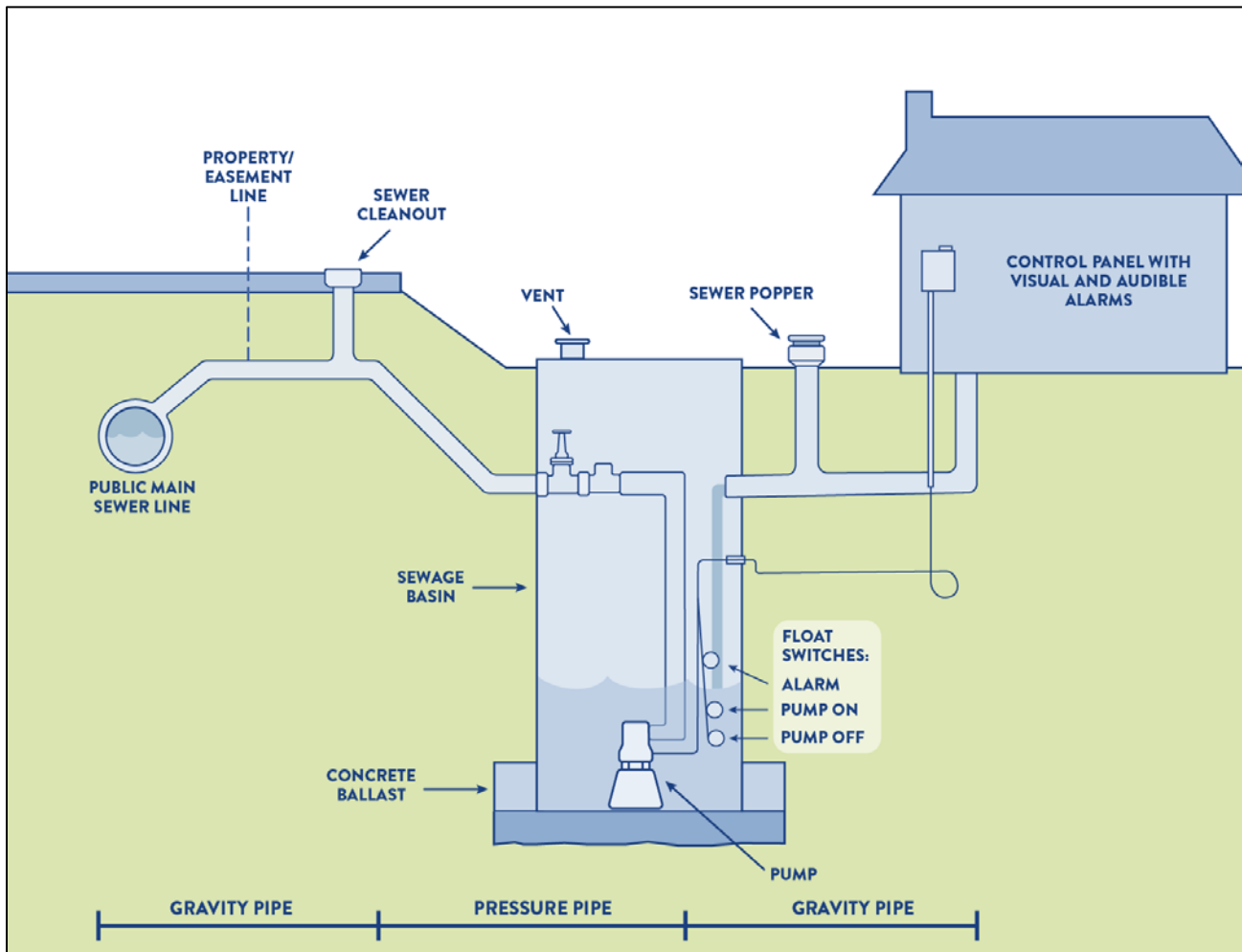
**Please work with an experienced pump supplier to select the right pump for you, their calculations will consider:**

- Vertical lift required (height from the lowest point in the house to the main sewer line)
- Horizontal distance the pump will need to move the sewage
- Total dynamic head (TDH) which combines vertical lift and friction loss in the pipes
- Pump's flow rate in gallons per minute (GPM) based on household usage

### Step 3: Select a Basin

The sewage basin serves as temporary storage until the pump ejects wastewater up to the main sewer line. To ensure a smooth discharge and prevent overflows, correct sizing of the basin is critical.

**Basin Sizing Consideration:** Number of bathrooms and appliances that will drain to the basin



Required Basin Features:

- Basin Cover:
  - Non-Traffic areas: 3" above surrounding group surfaces
  - Traffic areas: H-20 rating is required
- Integral anti-flotation flanges and concrete ballasts
- Guide rail system to easily move pump and float switches

**Step 4: Level Controls, Control Panel, Alarm System, and Electrical Work**

The electrical **components must meet the following** requirements:

- Level Control & Alarm System
  - Float switches: High Water Alarm, Pump On, Pump Off, and optional Low Water Alarm

- Each pump level control switch to wire directly and independently
- Each pump level control/alarm system on separate electrical circuit breakers
- Intrinsically safe circuits rated by NRTE
- Control Panel:
  - Mounted outside the pump
  - Appropriate NEMA classifications
- Alarm Panel:
  - Mounted within the building served by the pump
  - Visible or audible alarm
- Electrical work must meet the technical and permitting requirements of the local building code

### **Step 5: Research and Obtain Recommendations:**

- Select a Reliable Brand:
  - Research reputable brands known for quality and reliability
  - Read reviews and ratings from other homeowners
- Consider Professional Installation:
  - While some may opt for DIY installation, hiring a professional ensures proper setup and adherence to codes
  - Obtain quotes from licensed plumbers or sewage pump specialists
- Maintenance and Warranty:
  - Choose a pump with a good warranty
  - Learn about the maintenance requirements to ensure longevity and proper functioning

**Reminder: Wipes clog pipes! Only flush the 3 P's: Pee, poop, and toilet paper**