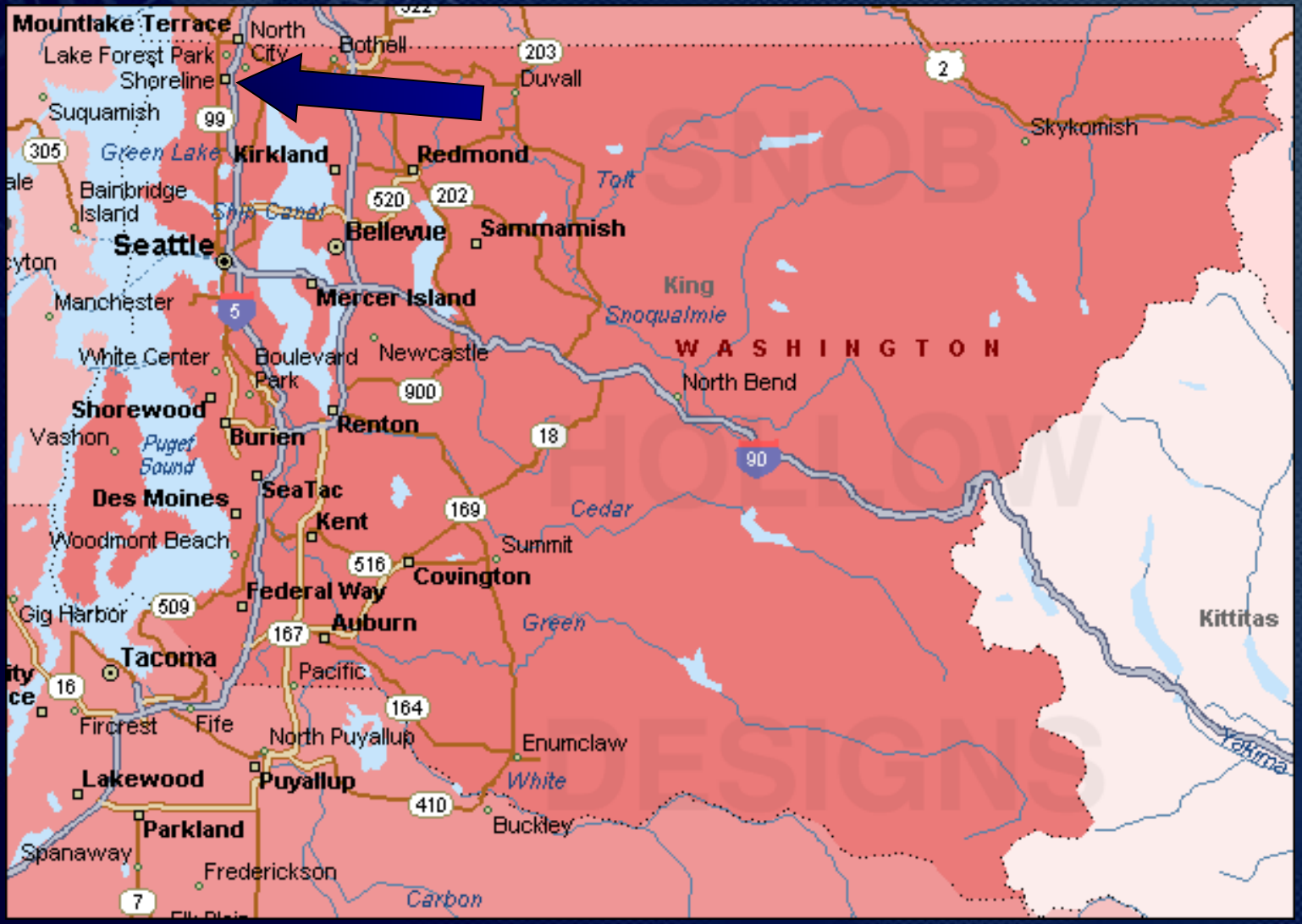
Residential Wastewater Pump Applications

defying the laws of gravity

Residential Pump Systems

- Ronald Wastewater District
- Sewer Systems
- Pros & Cons
- Pump Components
- Pump Types
- Applications
- Review & Inspections
- Case Study

Ronald Wastewater District



Ronald Wastewater District

Gravity Sewer System

- A series of pipes that collect and carry liquid waste from homes, businesses, schools, etc., through natural gravity flow, to a wastewater treatment plant.
- Most common type of wastewater collection.

Residential Pumps

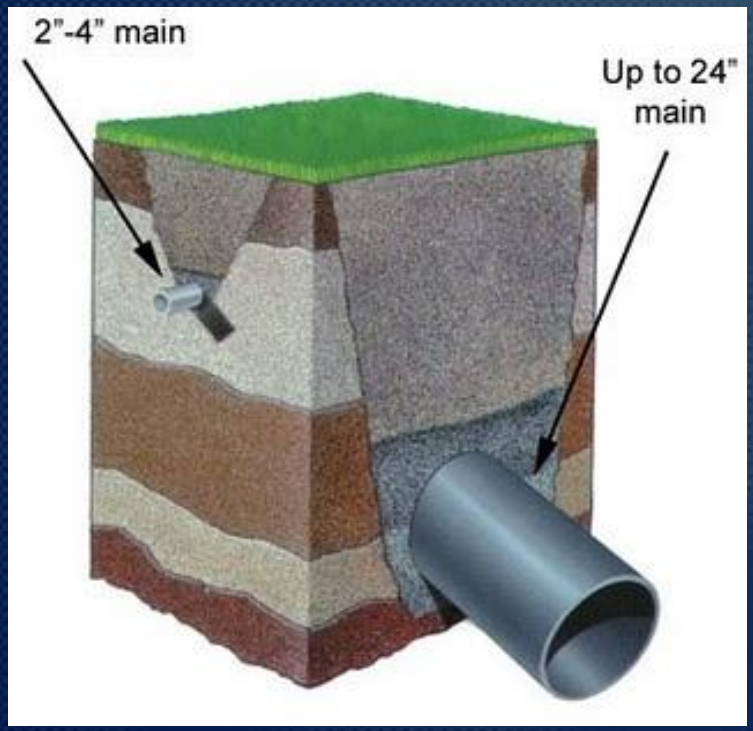
- Wastewater management device
- Wastewater from household appliances flows through the home's pipes into the pump's holding tank
- Wastewater inside the tank reaches a specific level, the pump will turn on and pump it to the *gravity sewer system* using a *pressure system*

Residential Pump System

- Semi-Positive Displacement Pumps and Centrifugal Pumps
- Low-pressure sewer (LPS)
- Consists of a network of pressure pipes and solids handling or grinder pumps, which may be installed at each home site.

Pros

- Small diameter pipe
- Conforms to the natural topography
- Does not require deep excavation
- Maximize density in urban areas
- Horizontally 1½ to 2 miles or Vertically 185 feet
- Closed system, less I&I

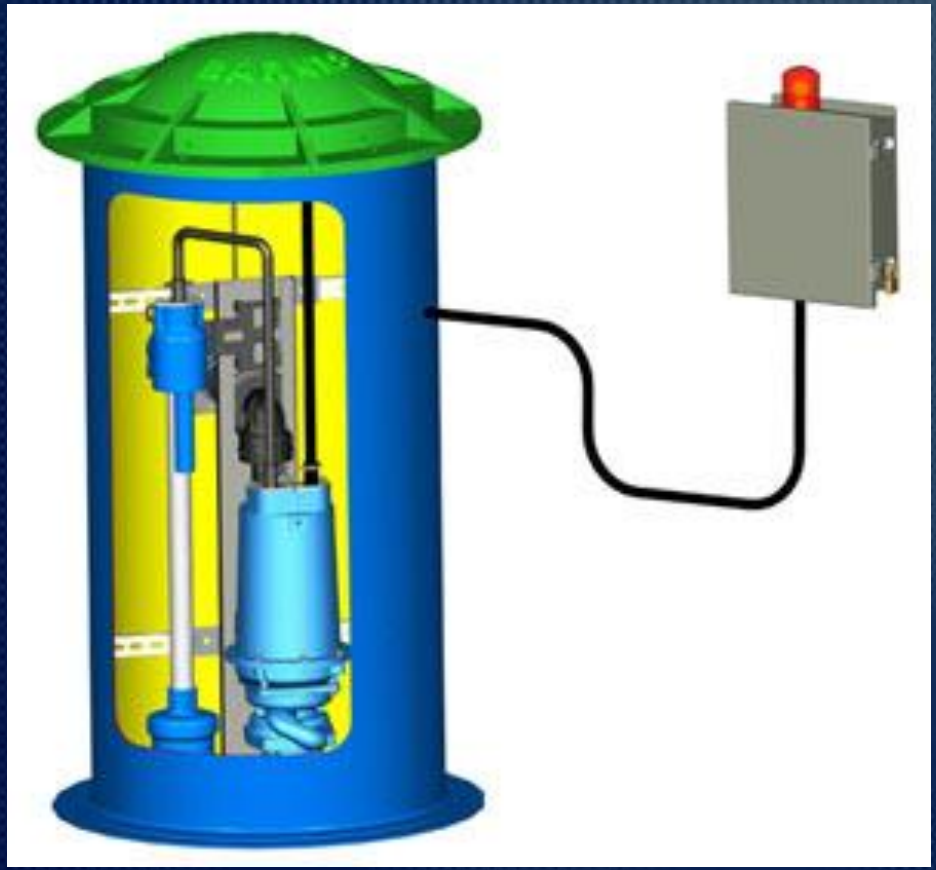


Cons

- Outside of typical sewer rules & regs
  i.e. gravity system
- Homeowner can be liable for maintenance and repair costs
- Clogging issues
- No Power…No Sewer

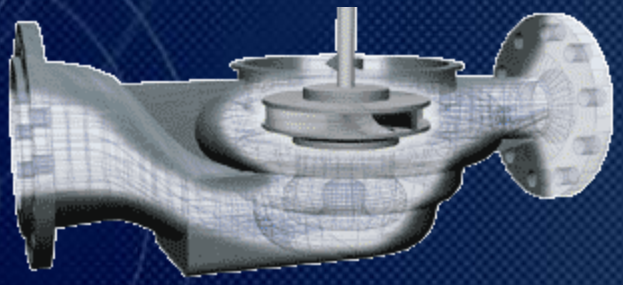
Pump Components

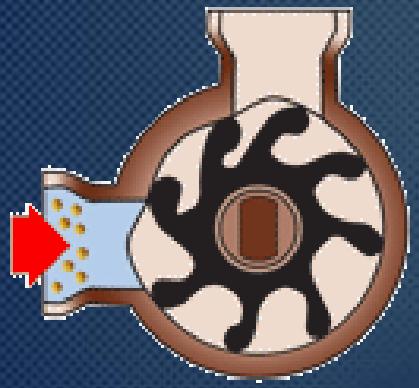
- Pump
- Tank
- Alarm (buzzer and indicator light)



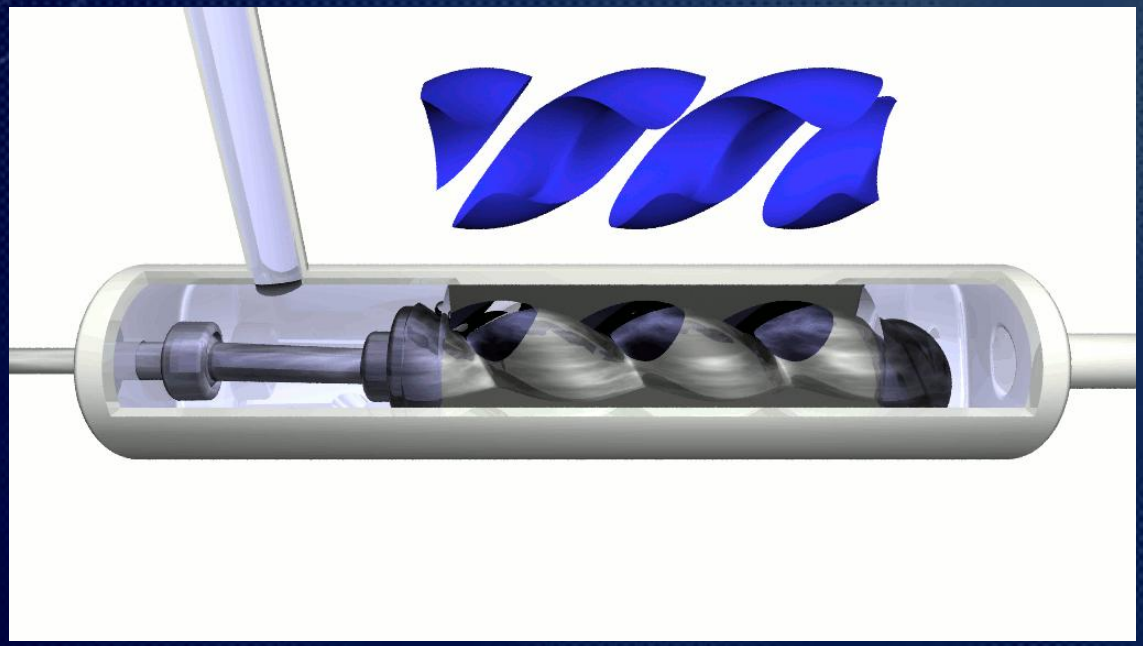
Types of Residential Pumps

- Centrifugal

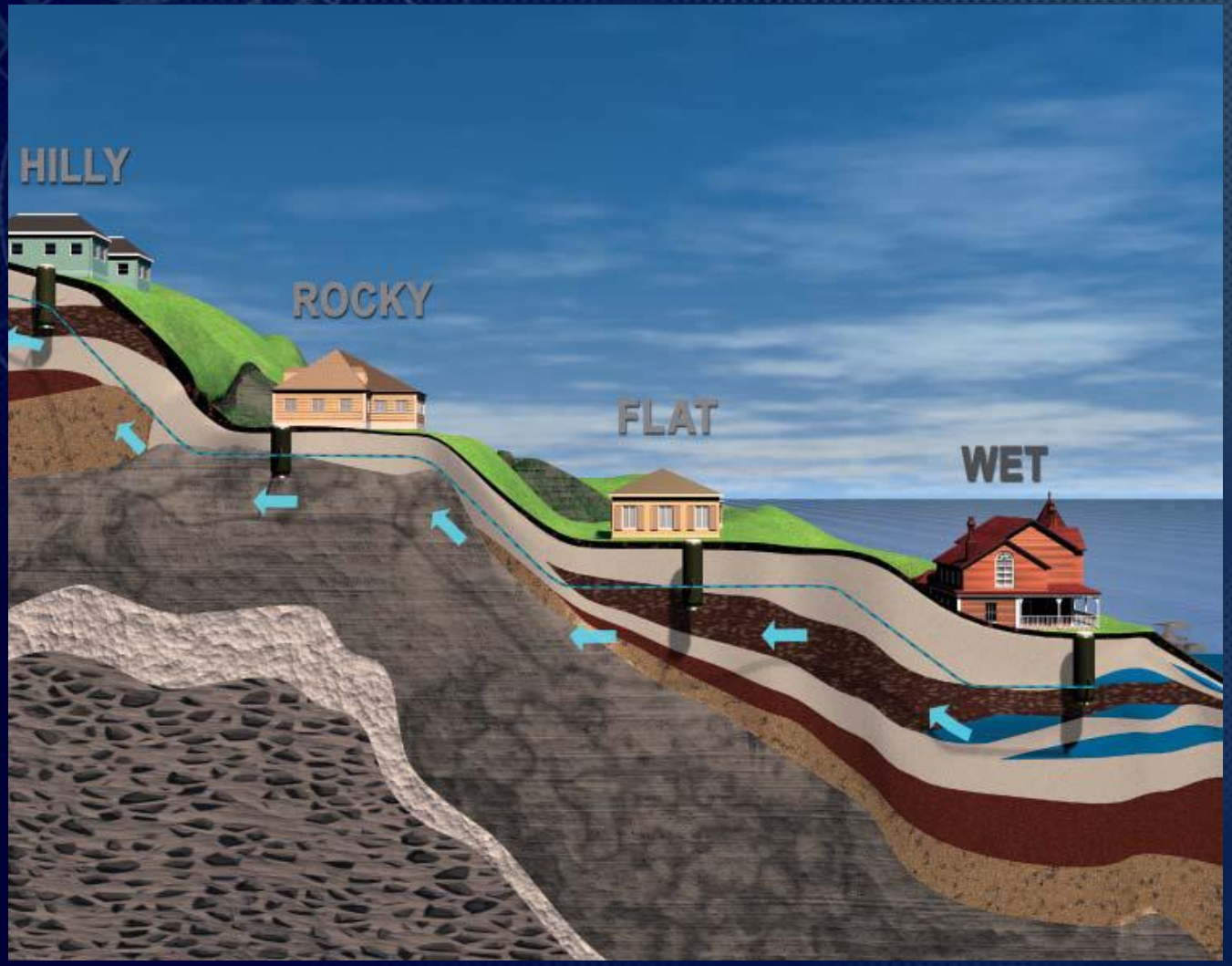




- Semi-Positive Displacement (Progressive Cavity)



Residential Pump Applications



Rules and Regulations

- Whenever possible sewer service shall be provided by gravity service
- 2% minimum grade standard
- < 2% with indemnification

Review Process

- Owner applies for variance
- Owner supplies pump specs
- District Engineer approves or marks-up plans
- Owner signs HH/Indemnification
- District Board approves HH/Indemnification
- District issues all permits

Inspection Process

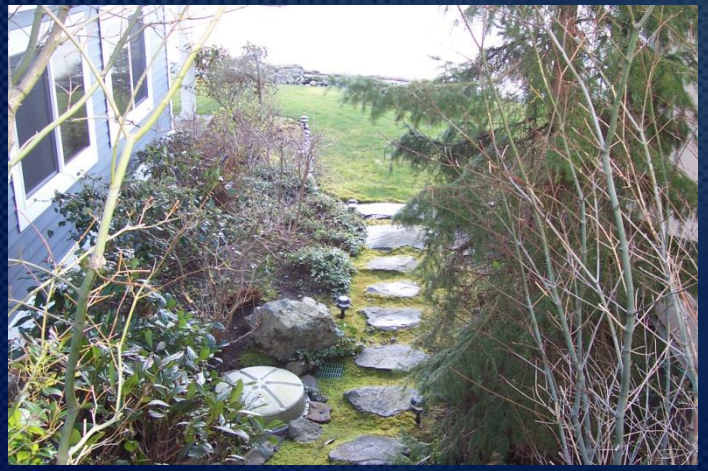
- Typical for side sewer inspection
- Pressure sewer line to be exposed when possible
- Run at least two pump cycles
- Check all connections
- Test alarm panel

Case Study – Apple Tree Lane

- District owns & maintains 20 Grinder Pumps
- Sea Level - between Puget Sound and Burlington Northern RR

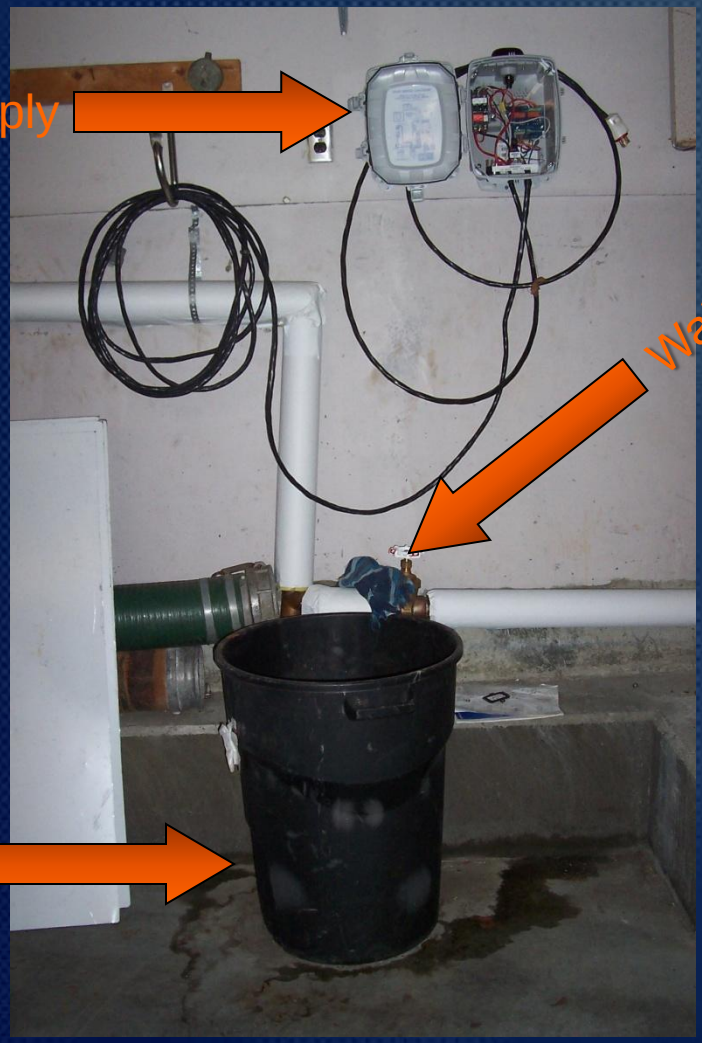
A Little History

- Sewage drained directly into Puget Sound
- Grinder Pumps installed in 1984

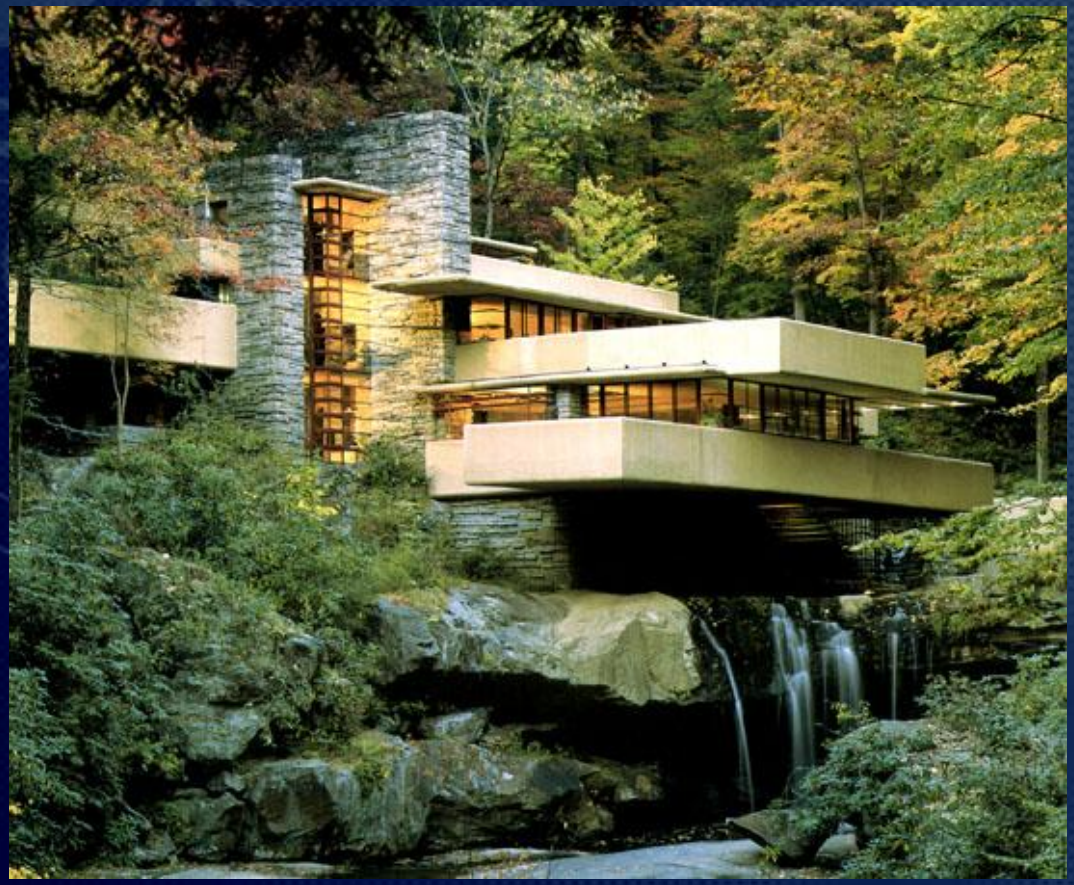


Testing & Repair

- In-House testing & repair
- Reduced O&M costs
- More efficient
- Customer service



Questions?



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