BREAK OUT SESSION

CAUTION CAUTION CAUTION

Sellen SUSTAINABILITY

System Hazard Analysis

- What system is your group analyzing?
- How does it work?
- Why is the system unique?
- Which trades will be involved in the installation of the system?
- Activity Hazard Analysis
- Signage & Communication

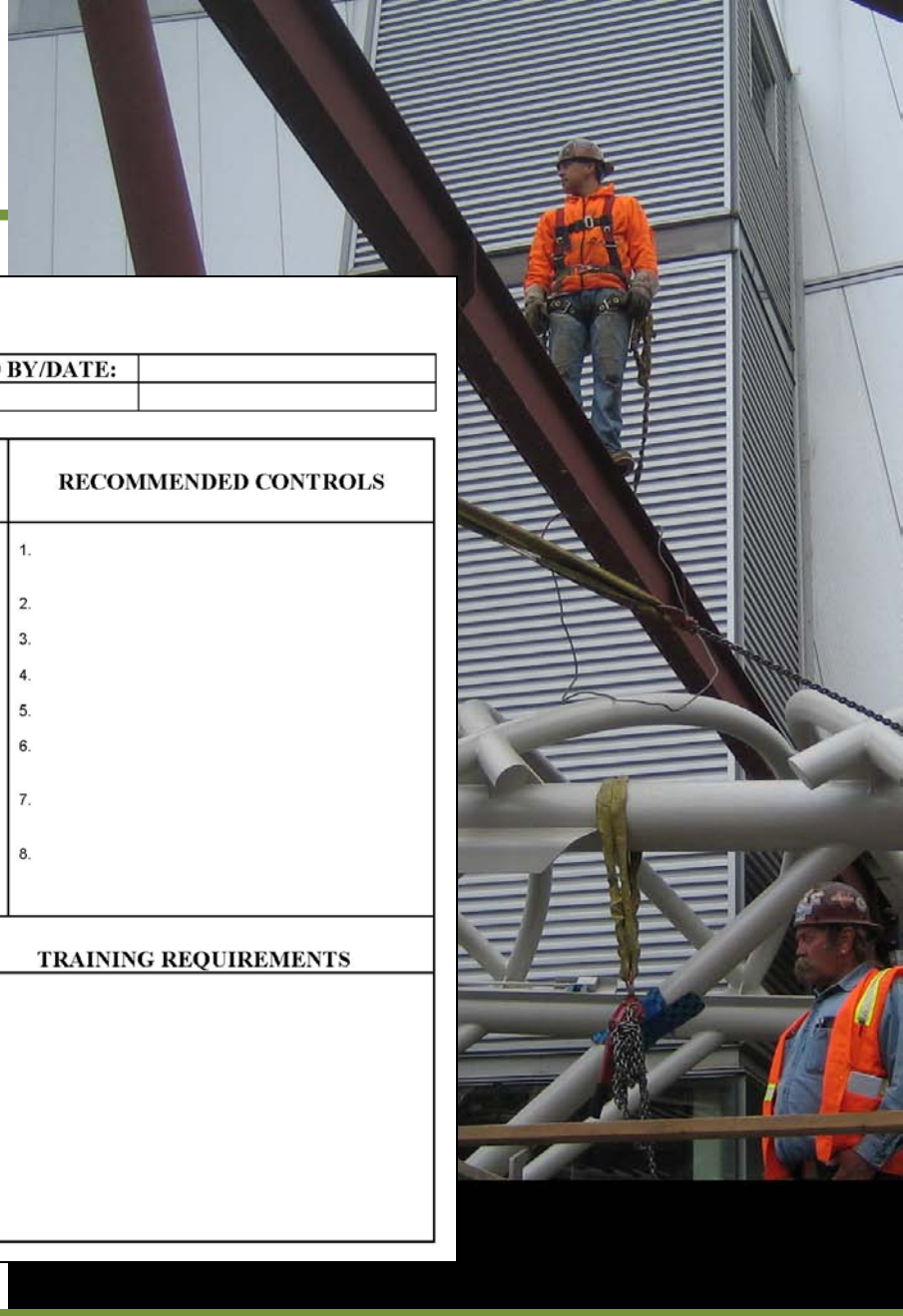
ACTIVITY HAZARD ANALYSIS

ACTIVITY:		ANALYZED BY/DATE:	
COMPETENT PERSON:		PROJECT:	

PRINCIPLE STEPS	POTENTIAL SAFETY/HEALTH HAZARDS	RECOMMENDED CONTROLS
1. 2. 3. 4. 5.	1. 2. 3. 4. 5. 6. 7. 8.	1. 2. 3. 4. 5. 6. 7. 8.

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
1. 2. 3. 4. 5. 6. 7.		1. 2. 3. 4. 5. 6. 7.

Activity Hazard Analysis



ACTIVITY HAZARD ANALYSIS

ACTIVITY:		ANALYZED BY/DATE:	
COMPETENT PERSON:		PROJECT:	

PRINCIPLE STEPS	POTENTIAL SAFETY/HEALTH HAZARDS	RECOMMENDED CONTROLS
1. 2. 3. 4. 5.	1. 2. 3. 4. 5. 6. 7. 8.	1. 2. 3. 4. 5. 6. 7. 8.

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
1. 2. 3. 4. 5. 6. 7.		1. 2. 3. 4. 5. 6. 7.

Green Building Safety Signage

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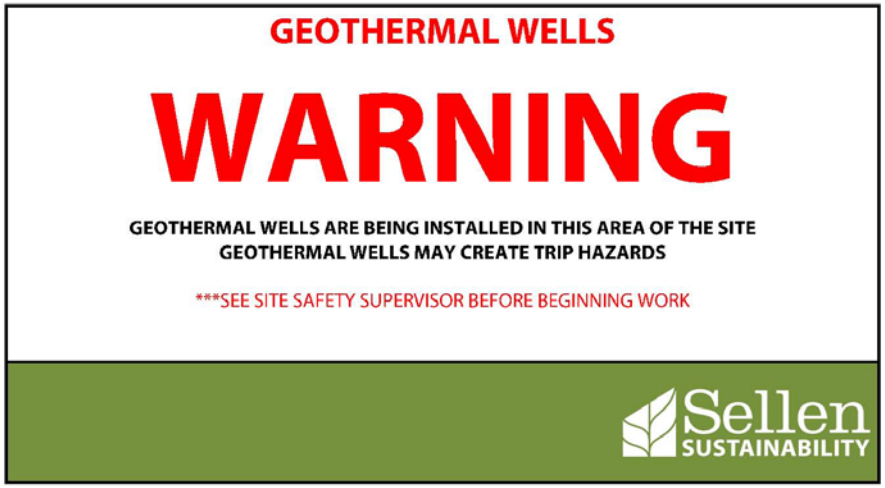
Green Building Safety Signage



GREEN BUILDING SYSTEMS

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NATURAL
VENTILATION
CAUTION
CAUTION
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SUSTAINABILITY

What is it?

USGBC defines natural ventilation as ventilation provided by wind or diffusion effects through doors, windows, or other openings in a building (i.e. cross ventilation caused by opening windows on opposite sides of a building). Natural ventilation does not require mechanical systems to create air exchanges/air flow.

How is it Constructed?

- Where is it located?
- Which trades may experience a new situation?
- How is it sequenced?
- What equipment & materials are involved?
- How is it installed?
- How is it operated & maintained

Installation

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Sellen SUSTAINABILITY

Installation

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Installation

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Installation

CAUTION CAUTION CAUTION

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Operation & Maintenance

CAUTION CAUTION CAUTION

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Operation & Maintenance

CAUTION CAUTION CAUTION

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Ensuring Safety

- Access
- Sequencing
- Material Handling
  - Hoisting
  - Overhead Protection
- Fall Protection
- Environmental Factors

UNDERFLOOR AIR DISTRIBUTION

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What is it?

Ventilation system that is installed under the floor. Used properly, underfloor air distribution can be more efficient than a traditional system because warm air rises meaning an underfloor air system requires less energy to heat a space.

How is it Constructed?

- Where is it located?
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- How is it installed?
- How is it operated & maintained

Installation

CAUTION CAUTION CAUTION

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Installation

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Installation

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Installation

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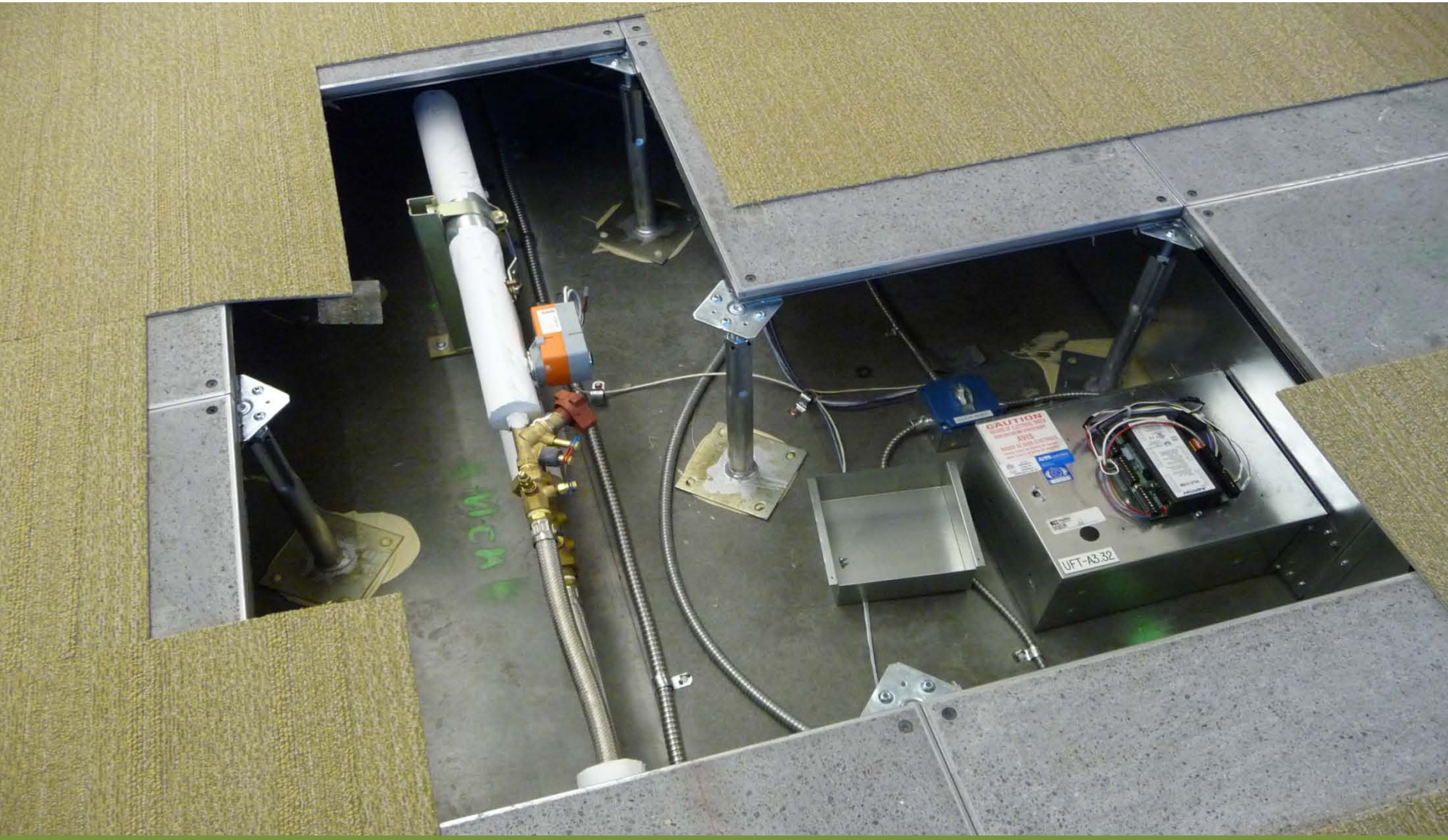
Operation & Maintenance



CAUTION CAUTION CAUTION

Sellen SUSTAINABILITY

Ensuring Safety

- Access
- Trip Hazards
- Impalement
- Fall Hazards
  - Change in Elevation
  - Balancing
  - O&M
- Material Handling

COOL ROOFING MATERIALS

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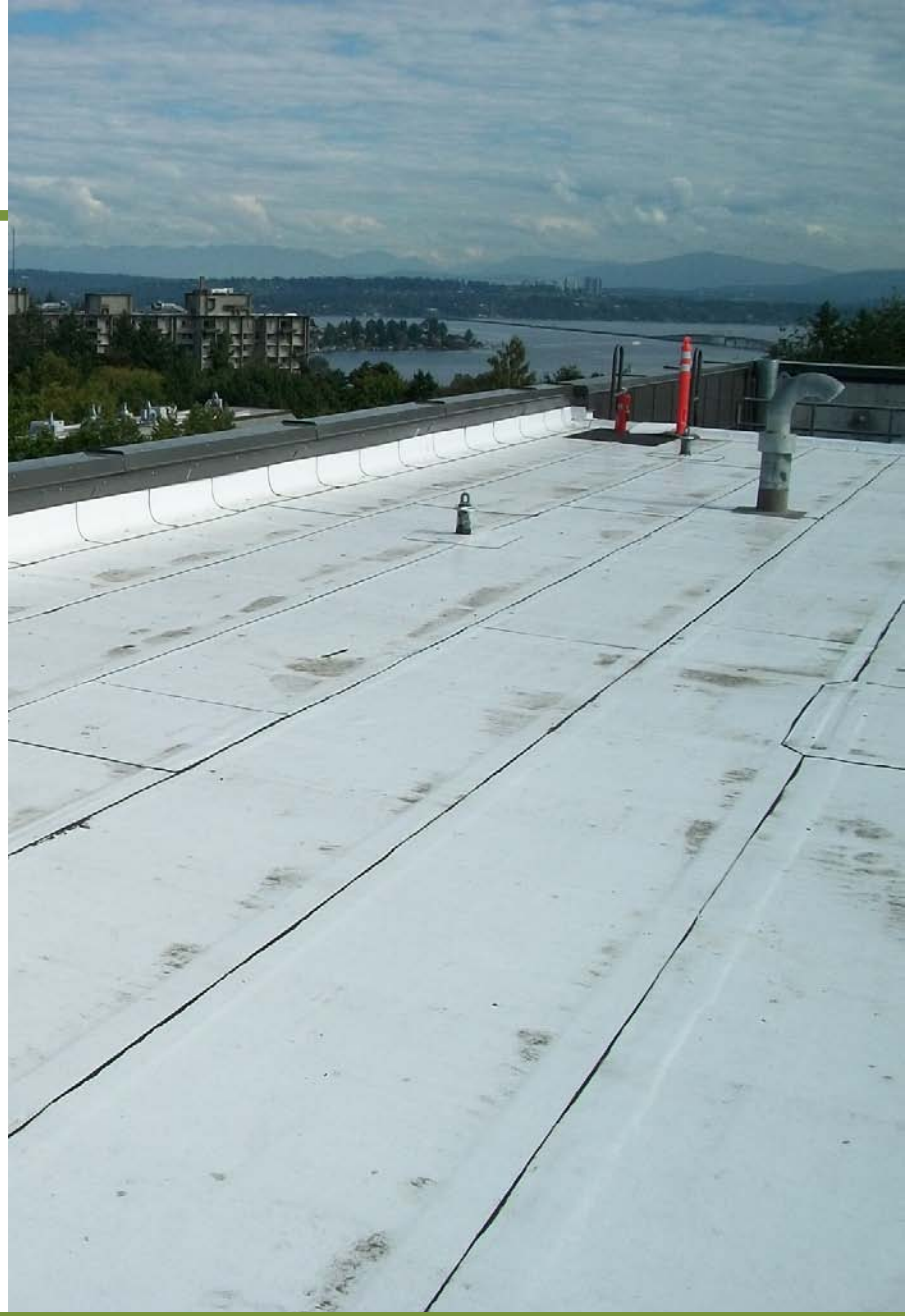
What is it?

Light colored roofing materials that reflect the sun's rays keeping the roof and surrounding areas cooler when compared to traditional roofing materials. (i.e. light colored coatings, light colored metals, light colored paints, etc.)



How is it Constructed?

- Where is it located?
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CAUTION CAUTION CAUTION

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Installation

CAUTION CAUTION CAUTION

Sellen SUSTAINABILITY

Installation

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Installation

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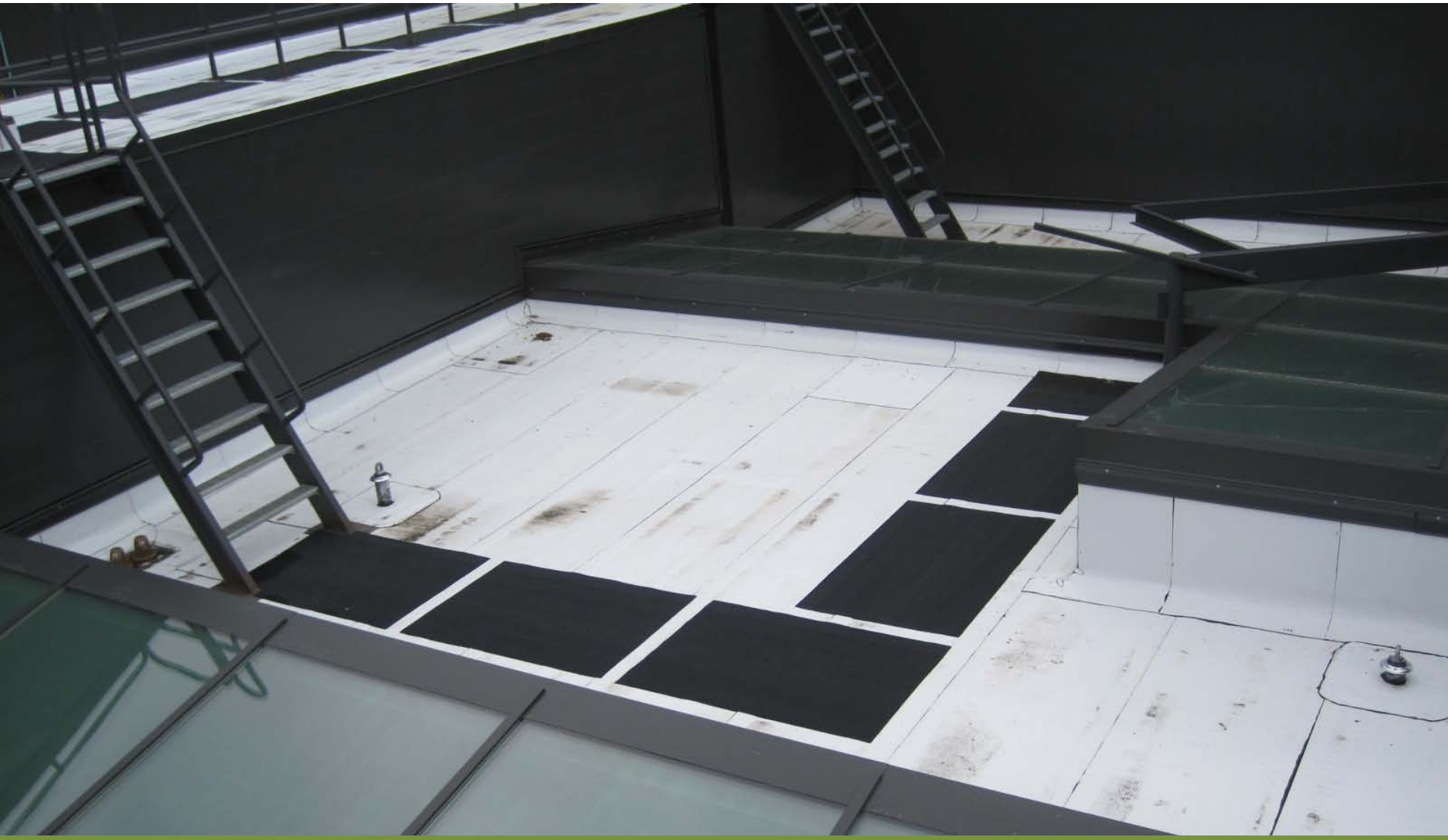
Operation & Maintenance



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Ensuring Safety

- Access
- Fall Protection
- Material Delivery
  - Placement
  - Point Loading
  - Overhead Protection
  - Hoisting
  - Equipment Conveyance
- Environmental Factors

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SOLAR
PANELS
CARLISLE
DANGER
CAUTION
CAUTION
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SUSTAINABILITY

What is it?

Solar panels or Photovoltaics convert solar energy (sunlight, including ultra violet radiation) directly into electricity.

How Does it Work?

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Types of Systems

- Photovoltaics
- Evacuated Solar Tubes / Solar Hot Water
- Solar Powered Fans
- Solar Shingles
- Power Film
- Solar Glazing
- Solar Sunshades

How is it Constructed?

- Where is it located?
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- How is it sequenced?
- What equipment & materials are involved?
- How is it installed?
- How is it operated & maintained

Installation

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Installation

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Installation

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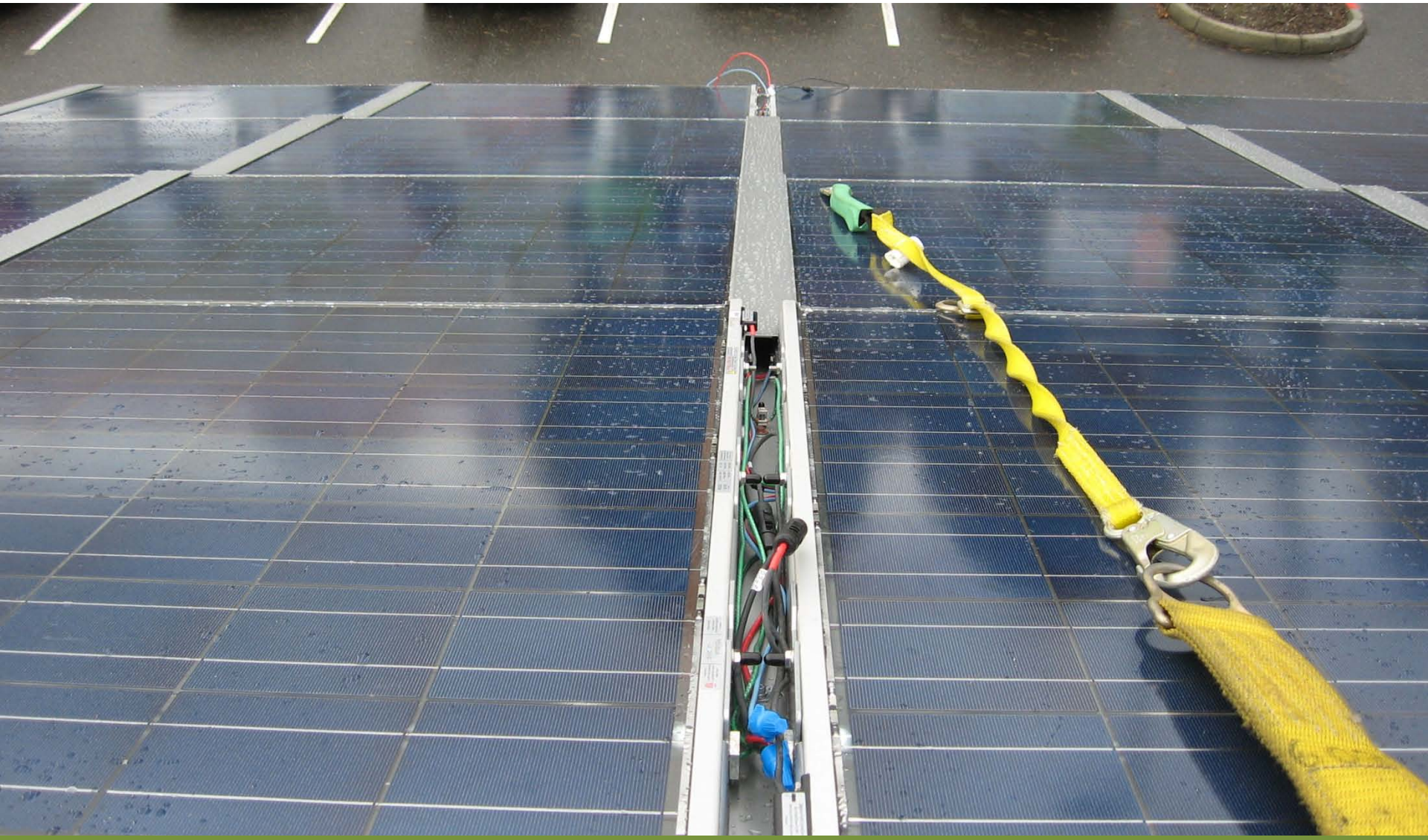
Installation



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Installation

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Operation & Maintenance

CAUTION CAUTION CAUTION

Sellen SUSTAINABILITY

Ensuring Safety

- Access
- Fall Protection
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  - Hoisting
  - Equipment Conveyance
- Environmental Factors


RAINWATER
HARVESTING
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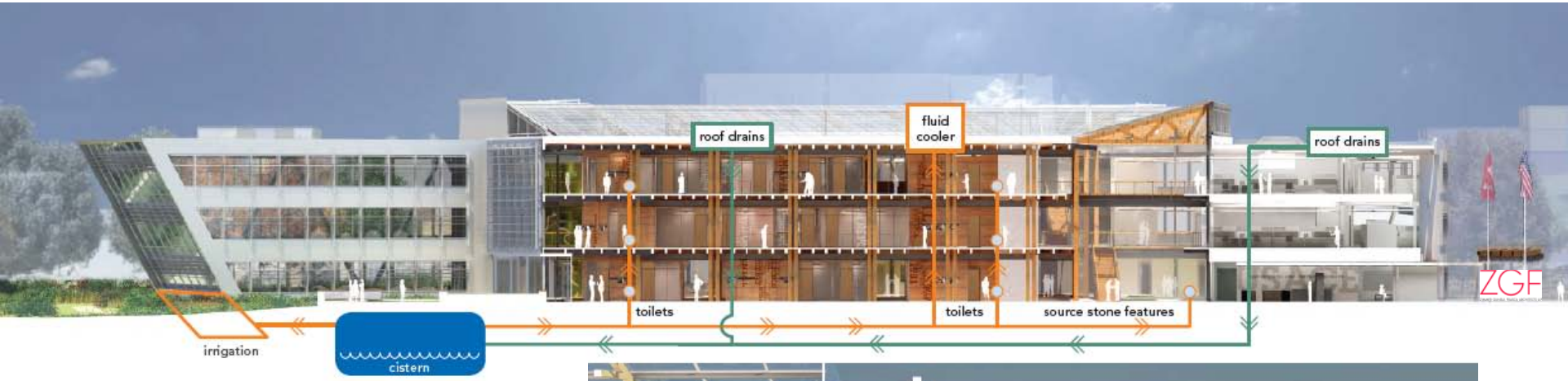
SUSTAINABILITY

What is it?

Collection and storage of rainwater to be reused in replace of potable water for things like irrigation or flushing toilets.

How Does it Work?



West plaza underground cistern location

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How is it Constructed?

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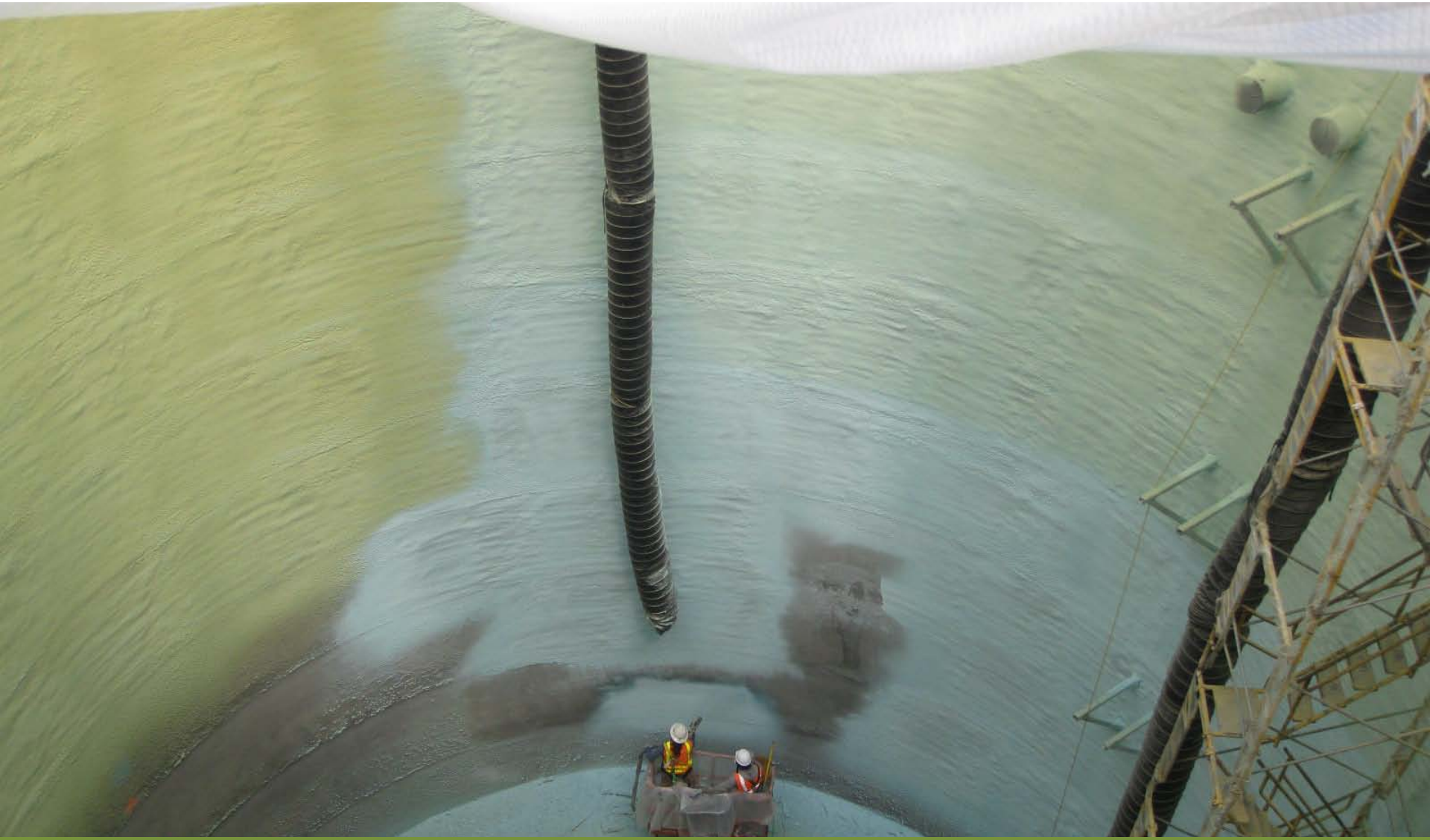
- How is it operated & maintained

Installation



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Installation

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Installation

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Installation

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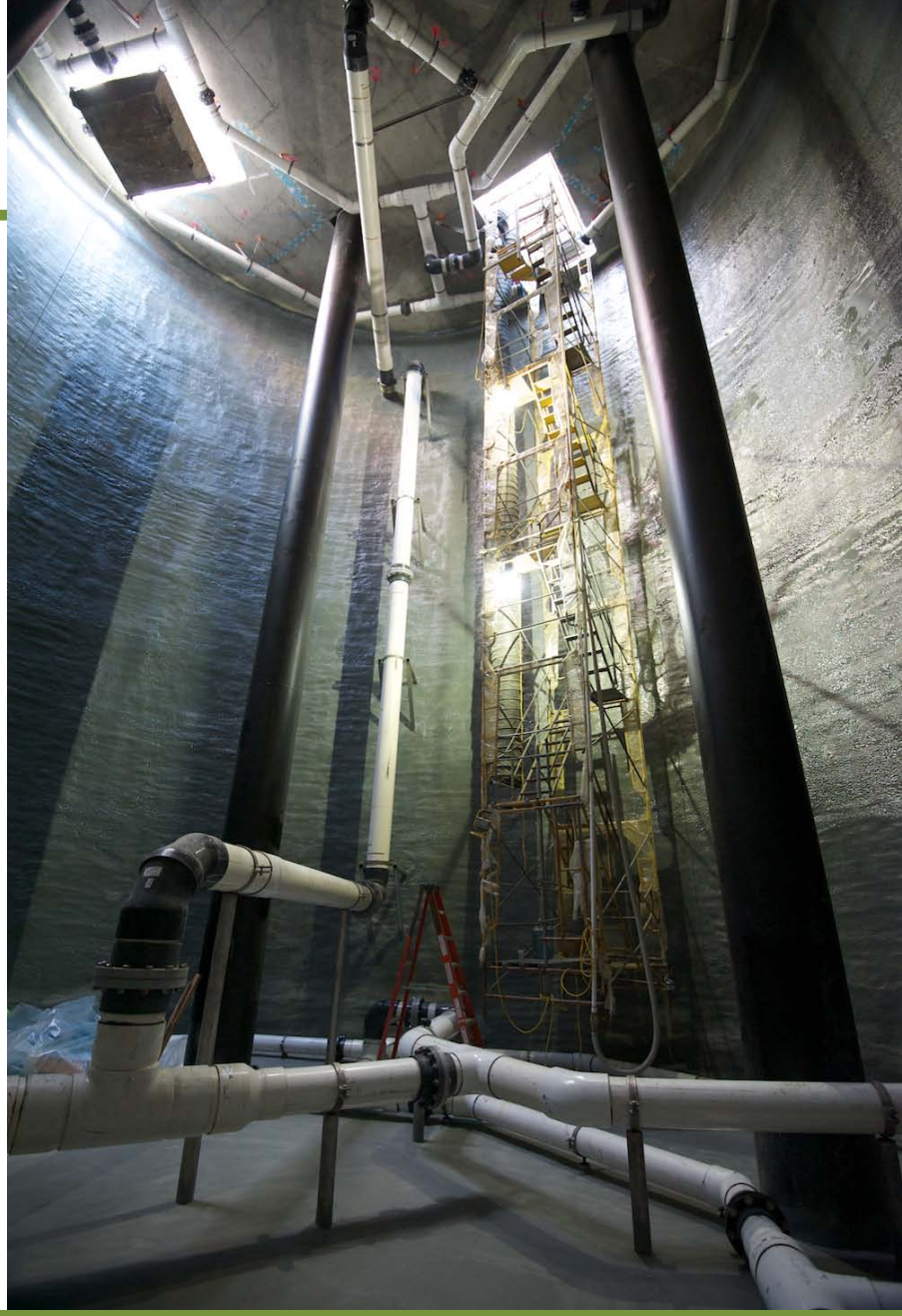
Additional Systems

- Rain barrels
- Thermal Energy Storage
- Rainwater Hog Tank
- Sloan Aqus – Sink to toilet reuse system



Operation & Maintenance

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Ensuring Safety

- Confined Space
  - Air Quality
  - MSDS
  - Lighting
  - Chemical Exposure
- Access
- Lockout / Tagout
- Engulfment
- Overhead Protection

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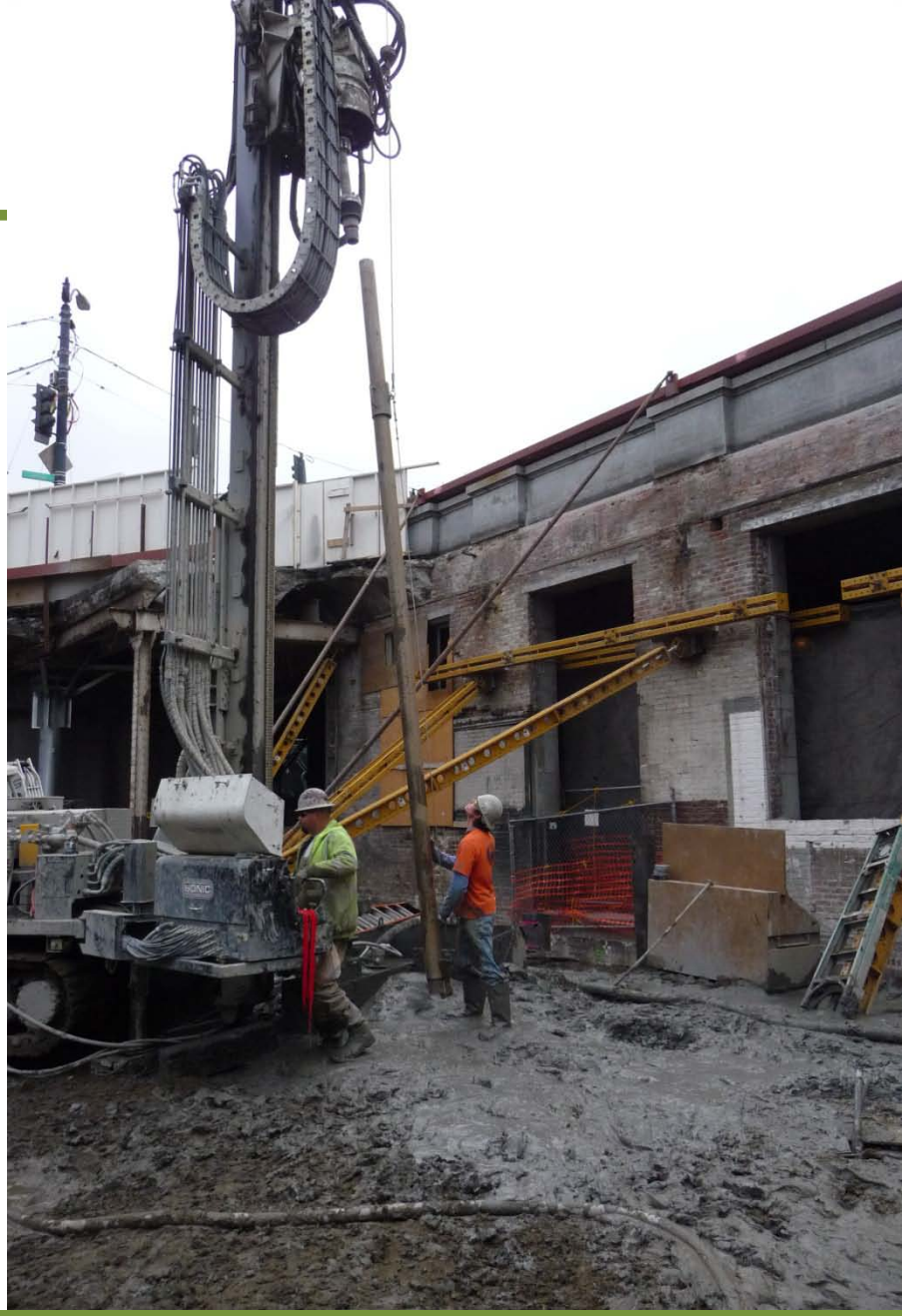
What is it?

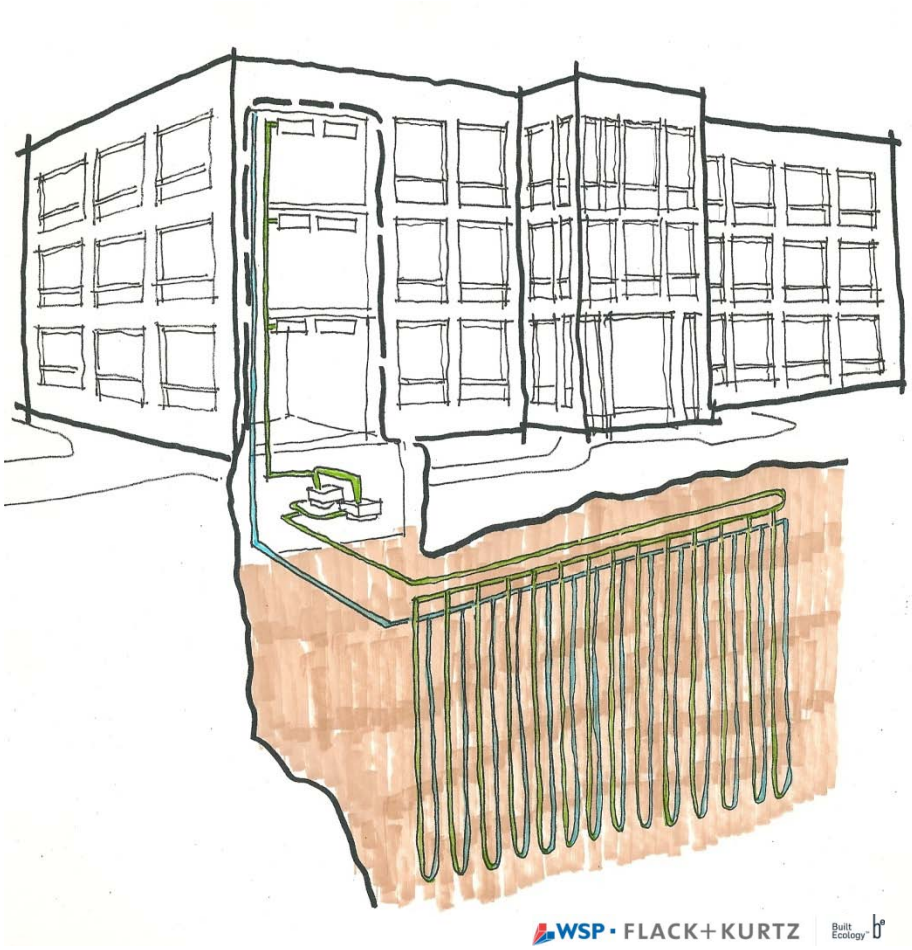
Typically, geothermal wells are drilled 150-300 feet deep into the ground. The closed loop wells are filled with water that leverages the earth's constant 55 degree temperature to reduce building heating and cooling demands.



Types of Systems

VERTICAL WELL

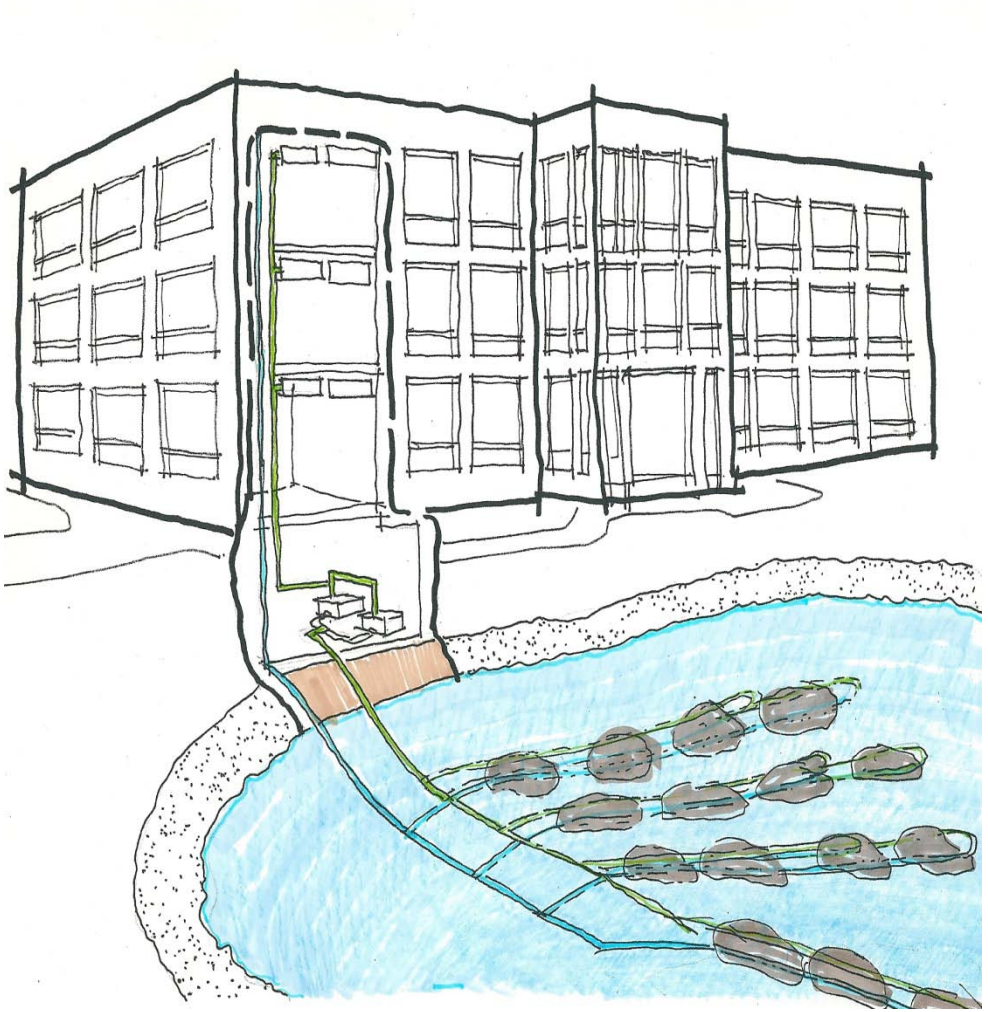
- Drilled wells typically 150’ to 300’ deep
- Requires less space
- Most efficient as earth’s temperature is more constant
- Can be integrated into structural piling systems



Types of Systems

HORIZONTAL WELL

- Shallow well base
- Requires more space
- Earth's temperature is more variable
- Not as efficient



WSP · FLACK+KURTZ | Built Ecology

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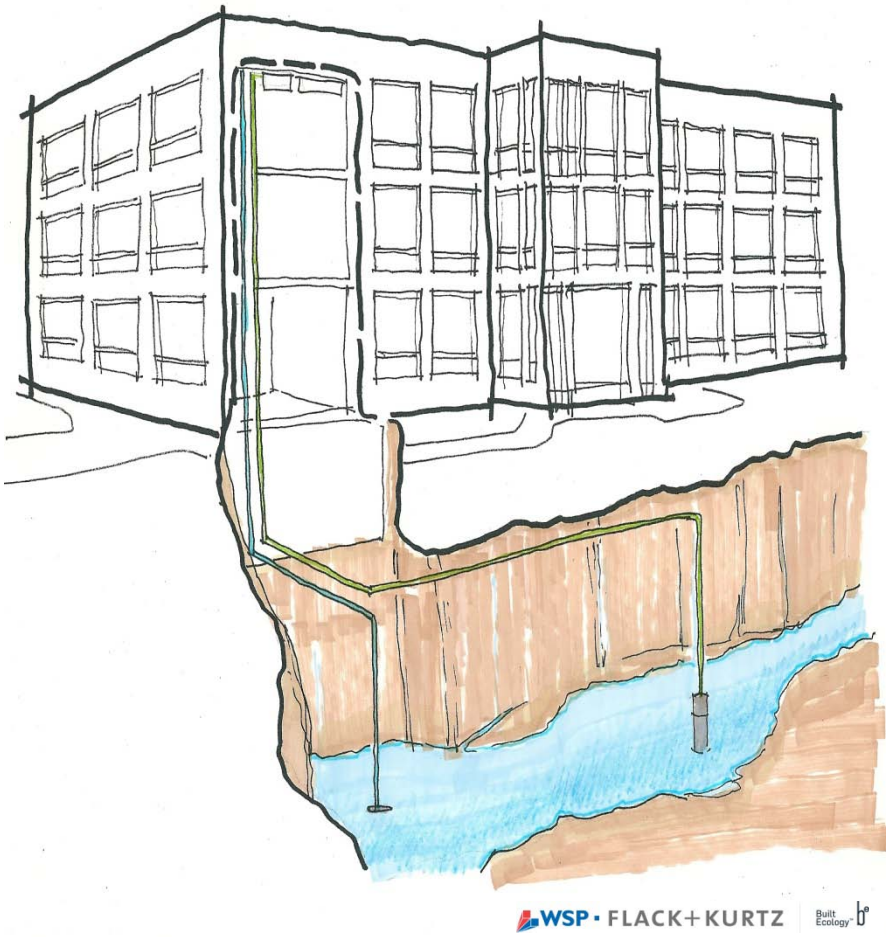
Types of Systems

OPEN LOOP

- Requires ground water source or pond nearby
- Can have negative effects on ground water or pond depending on temperature swings
- Often requires more maintenance



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How is it Constructed?

- Where is it located?
- Which trades may experience a new situation?
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- What equipment & materials are involved?
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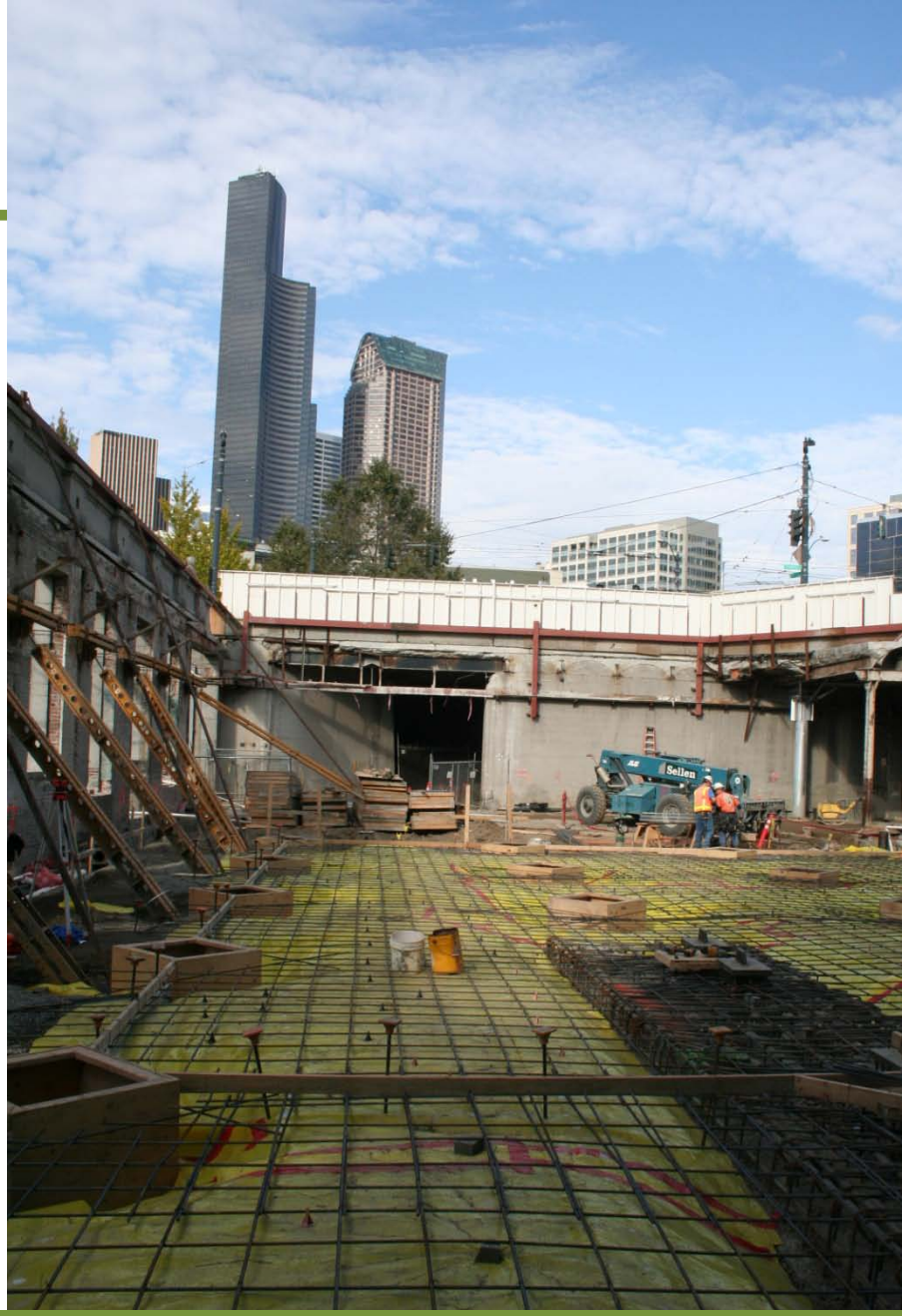
- How is it operated & maintained



Installation

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Installation

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Installation

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Installation

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Unique Installations

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Operation & Maintenance

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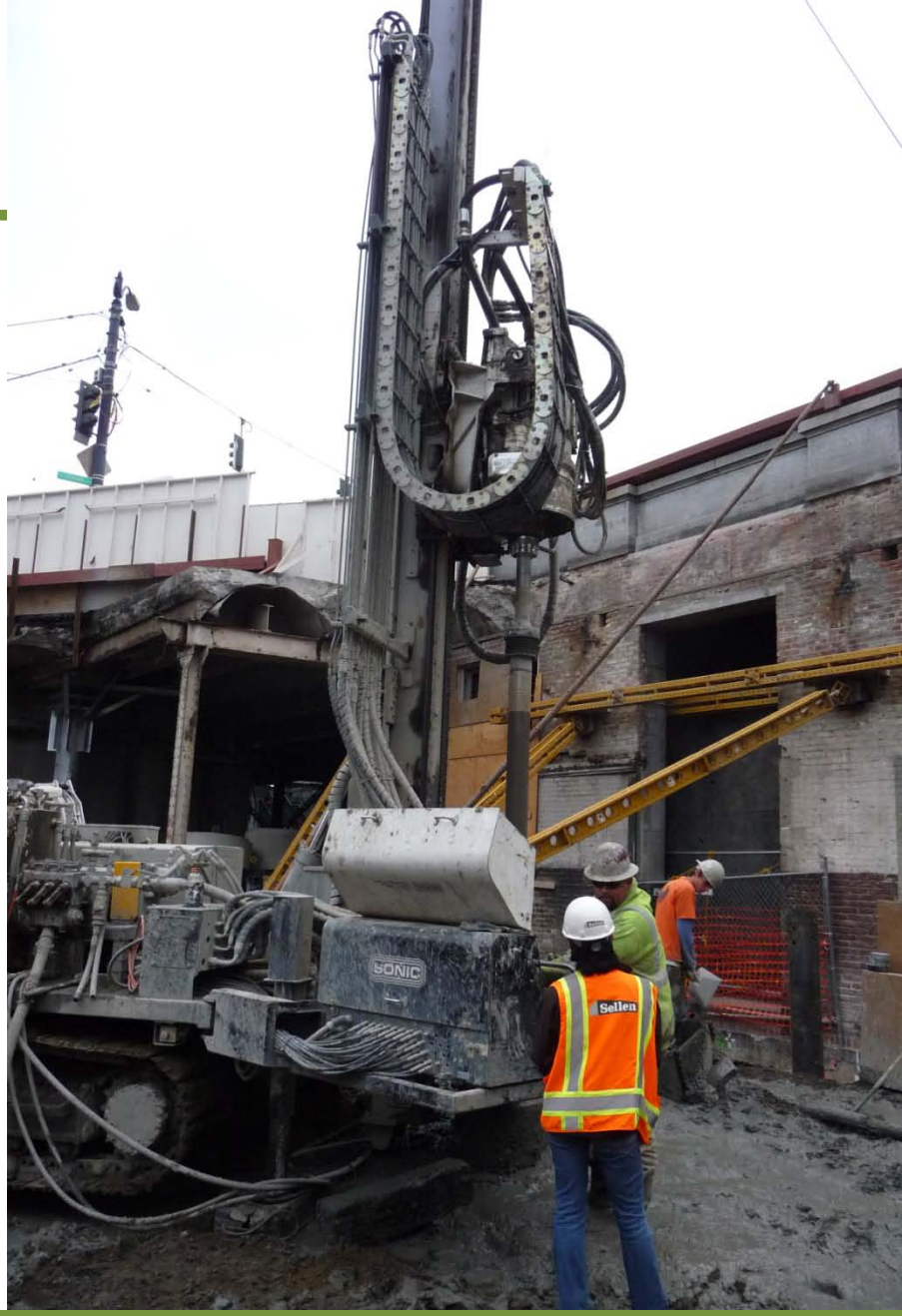
Ensuring Safety

- Equipment Failure
- Struck-by / Caught Between
- Hearing Protection
- Slip / Trip Hazards
- Trenching
- Emissions
- Electrical Shock



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What is it?

Paving materials that use larger aggregate to create voids for water to pass through and back into the ground.

What is it?

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Sellen SUSTAINABILITY

How is it Constructed?

- Where is it located?
- Which trades may experience a new situation?
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- What equipment & materials are involved?
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Installation

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Installation

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Installation

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Operation & Maintenance

CAUTION CAUTION CAUTION

Sellen SUSTAINABILITY

Ensuring Safety

- Equipment Failure
- Struck by moving equipment
- Impalement from form stakes
- Material Handling
- Concrete Burns

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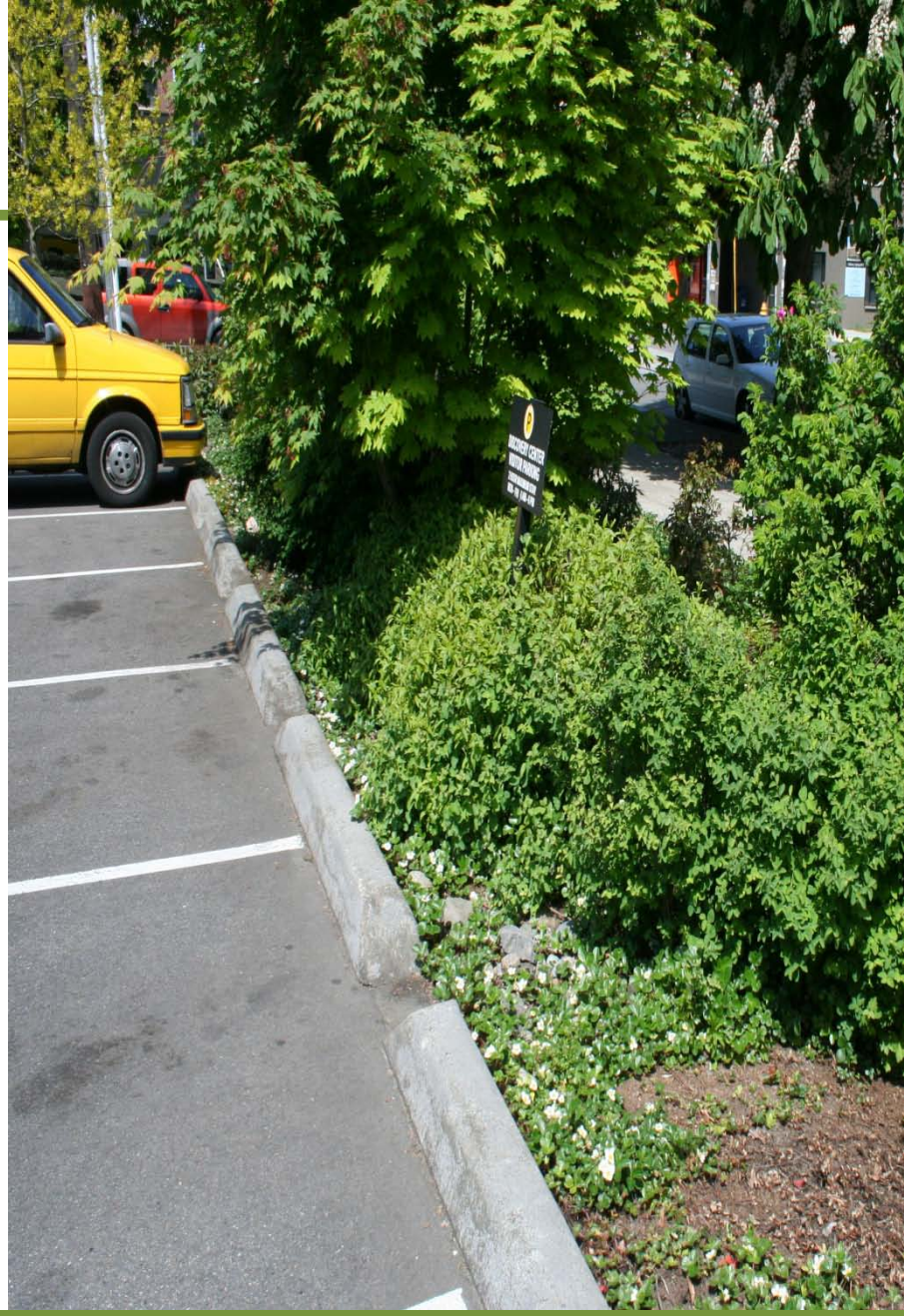
BIOSWALES

CAUTION CAUTION CAUTION

Sellen SUSTAINABILITY

What is it?

Vegetated ditch that is typically installed by sidewalks or driveways to capture and treat stormwater before it can infiltrate back into the aquifer.



How is it Constructed?

- Where is it located?
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Installation

CAUTION CAUTION CAUTION

Sellen SUSTAINABILITY

Installation

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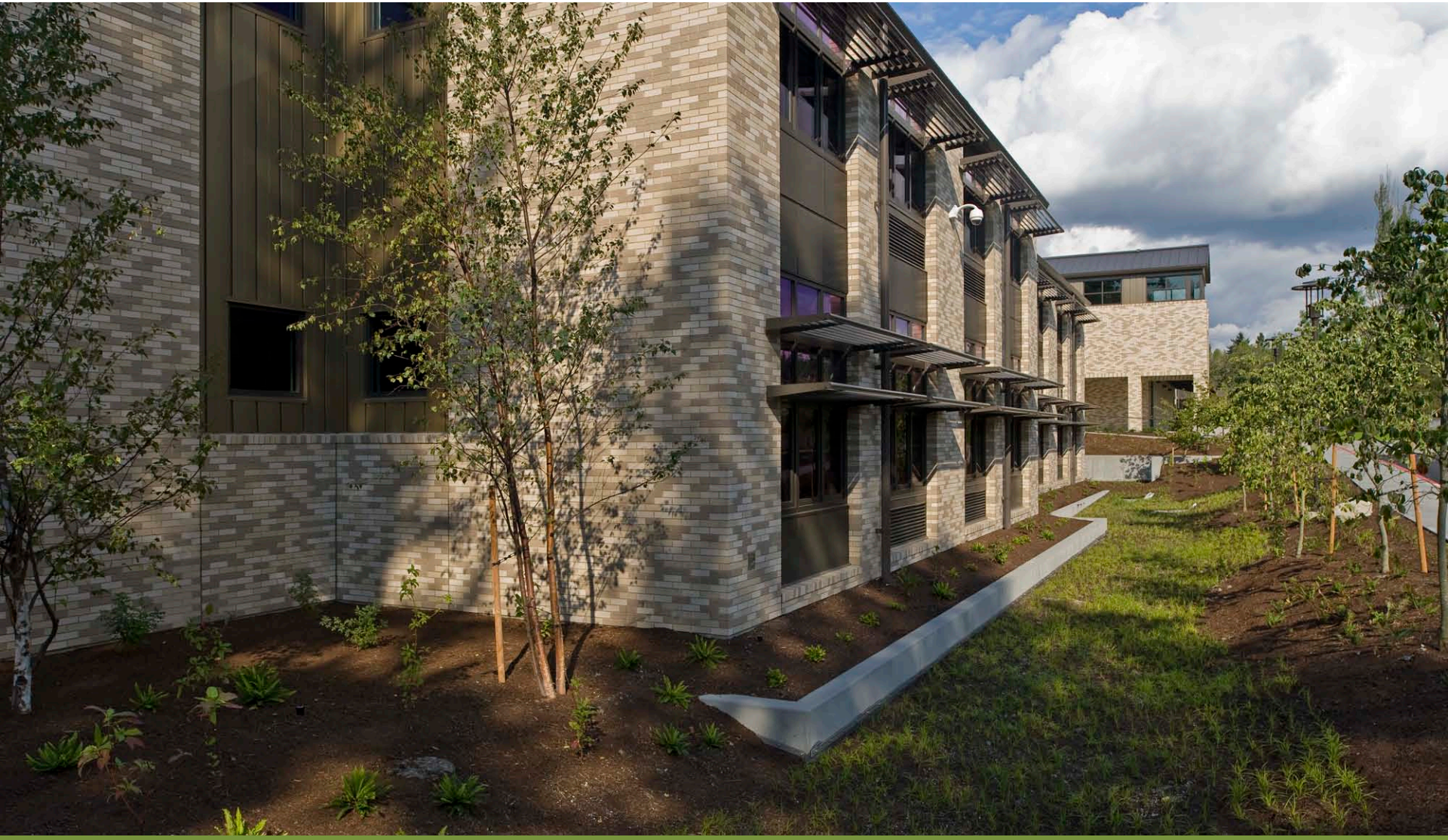
Sellen SUSTAINABILITY

Operation & Maintenance



CAUTION CAUTION CAUTION

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Ensuring Safety

- Heavy Equipment
- Struck-by / Caught Between
- Trenching
- Material Handling
- Utilities
- Ergonomics

LIVING MACHINE

CAUTION CAUTION CAUTION

Sellen SUSTAINABILITY

What is it?

A natural wastewater treatment system that uses a series of pools, organisms, plant and animal life to treat wastewater onsite to achieve potable standards.

How is it Constructed?

- Where is it located?
- Which trades may experience a new situation?
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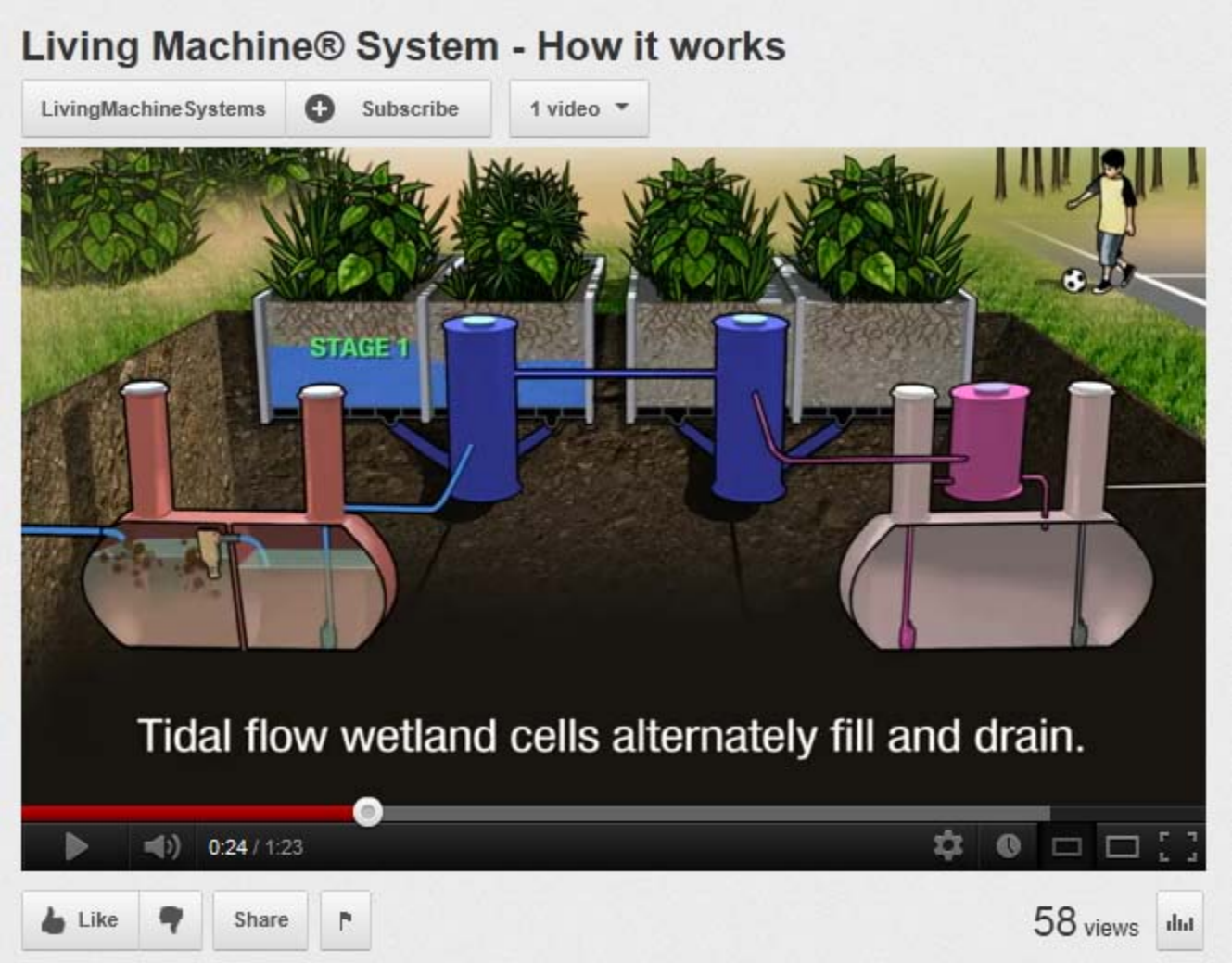
- What equipment & materials are involved?
- How is it installed?
- How is it operated & maintained

Installation

CAUTION CAUTION CAUTION

Sellen SUSTAINABILITY

Installation



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Operation & Maintenance

CAUTION CAUTION CAUTION

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Ensuring Safety

- Trip Hazards
- Fall Protection
- Overexertion
- Confined Space (depending on size of underground tanks)
- Potential Waterborne Pathogens