

# **SOLVE: Sustainable Options for Livable, Viable Enterprises**



**“If you think it’s impossible, call us first.”**

**Chris Warner, Chemical Engineer**  
**Andrew Saunders, Policy Specialist**  
**Becky Rowland, Public Outreach**  
**Laura Sellens, Systems Engineer**

**SOLVE**

**“If you think it’s impossible, call us first.”**



# Project Analysis

Scope: Multi-use building in Portland, OR.  
2,460,000 ft<sup>2</sup>

Purpose: 1 floor commercial/retail use  
11 floors office/research use  
8 floors upscale residential use

Proposal: Design approach that balances LEED rated (silver) green design concepts with economic profitability.

Affected

Parties: General public will benefit from recreational use of the riverside greenway and interpretive trail.

**SOLVE**

**"If you think it's impossible, call us first."**



# Program Analysis



## Driving Factors:

- Maximize leaseable space and premium rents

## Special Requirements:

- Accommodate biotechnology firm via appropriate laboratory facilities
- Uninterruptible power source (UPS)
- Maximize green image for developer
- Ensure tenant trust in environmental safety

**SOLVE**

**“If you think it’s impossible, call us first.”**



# Site Analysis

## Space Requirements:

- 50ft greenway setback from the Willamette River
- Minimum of 20% open space on the lot

## Assumptions:

- 5 acre, cleared lot in downtown Portland
- Lot is zoned as mixed commercial/residential
- Greenway setback is included in required 20% open space

**SOLVE**

**“If you think it’s impossible, call us first.”**





**SOLVE**

**“If you think it’s impossible, call us first.”**



# Site Analysis



## Site Plan:

- 173,900ft<sup>2</sup> leaseable space
- Building will be constructed in the NW corner of the square lot
- 50ft greenway constitutes the eastern edge of the property
- Southern 20,225 ft<sup>2</sup> is the remainder of the required 20% open space and will house a water treatment wetland

## Peculiarities:

- Substrate is 40+ feet of wood chips c.1926-1974
- Trade hatchet, gun flint, fire ring found buried

**SOLVE**

**“If you think it’s impossible, call us first.”**



# Sustainability Concepts

- Natural ventilation, operable windows, atria
- Reflective roof surface with rainwater harvesting system
- Greywater/rainwater used to flush toilets
- Overflow/greywater treatment wetland
- Heat exchangers on exhaust
- Automated, stacked underground parking
- Low-flow, automatic sinks and toilets
- High efficiency LED lighting
- Uninterruptible power source (UPS), biodiesel backup generator
- CO<sub>2</sub> monitoring system, backup HVAC during peak oxygen use
- Install bus/rail stop outside building
- Old-growth wood chips sold at premium to pellet manufacturer



**SOLVE**

**“If you think it’s impossible, call us first.”**



# Automated Stacked Parking



**SOLVE**

**“If you think it’s impossible, call us first.”**



# Social Infrastructure



## Community Services:

- Interpretive signage provides public education and PR
- Commodities benefit tenants, employees, stakeholders and relieve potential burden on neighborhood facilities
- Lewis and Clark Museum displays artifacts
- Recognize tribal significance

**SOLVE**

**“If you think it’s impossible, call us first.”**



# Safety and Security

## Safety:

- All lab floors sealed from other floors. Separate HVAC, etc.
- Facilities technicians will be versed in monitoring all building systems including CO<sup>2</sup> monitor, wetland storage tank silt gauge, ventilation systems gauges, automated parking, etc.
- Chemical safety manager oversees safe handling, storage and disposal of the lab chemicals with particular emphasis placed on waste reduction, reclamation and recycling.

## Security:

- Separate, smart elevators to biotech floors and residential
- Exclusion of people from parking area prevents burglary, theft

**SOLVE**

**“If you think it’s impossible, call us first.”**



# Conclusion

- **Building meets goals of developer**
- **Financially viable enterprise through premium rents**
- **LEED rating of silver or better**
  - Energy Efficiency
  - Water Conservation
- **Capitalize on potential liability of wood chip substrate**
- **Build community through green building design, commodities, and significant cultural and historical artifacts**

**SOLVE**

**“If you think it’s impossible, call us first.”**



# Acknowledgements

- PNWIS
- Huxley College of the Environment
- Ruth Harper-Arabie
- Dan Mahar, NWAPA
- Kumar Ganesan
- Kim Marcus
- Maggie Corbin
- Denise Newbould
- Terry Nymann

**SOLVE**

**“If you think it’s impossible, call us first.”**

