

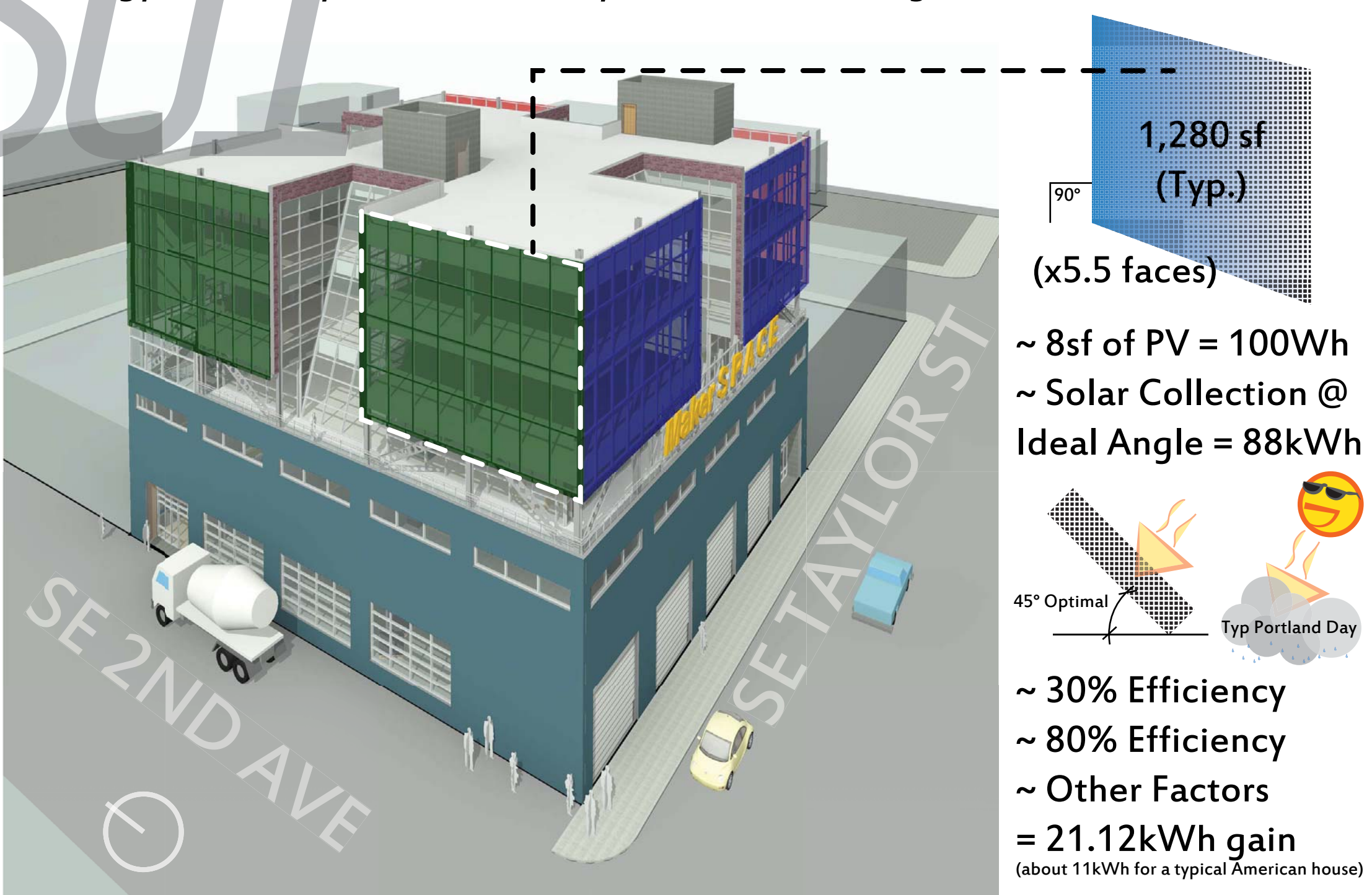
Sustainability

As little material as possible was used in the making of this poster. This poster has an embodied energy value of 0.18MJ (megajoules). Every object in the universe is composed of a set amount of energy, which may be measured, and given a value. With this logic in mind, we may realize that small shifts in consumption may have a tremendous effect on energy use.

- Su1 (Sustainability Unit 1): Photovoltaic | Buildings are pounded with solar energy throughout the day - let us use it!
- Su2 : Water Resourcing | Portland receives between 20 and 70 inches of precipitation per year. Like... a trillion-trillion rain drops.
- Su3: Waste Resourcing | Americans use 106gal of water per day on average. A large percentage of that goes right down the toilet.
- Su4: Embodied Material Energy | Demolition & building new = existing building energy value + new construction.

BIPV - Exchange the Brick Brutalist facade for Colored Photovoltaic Glazing

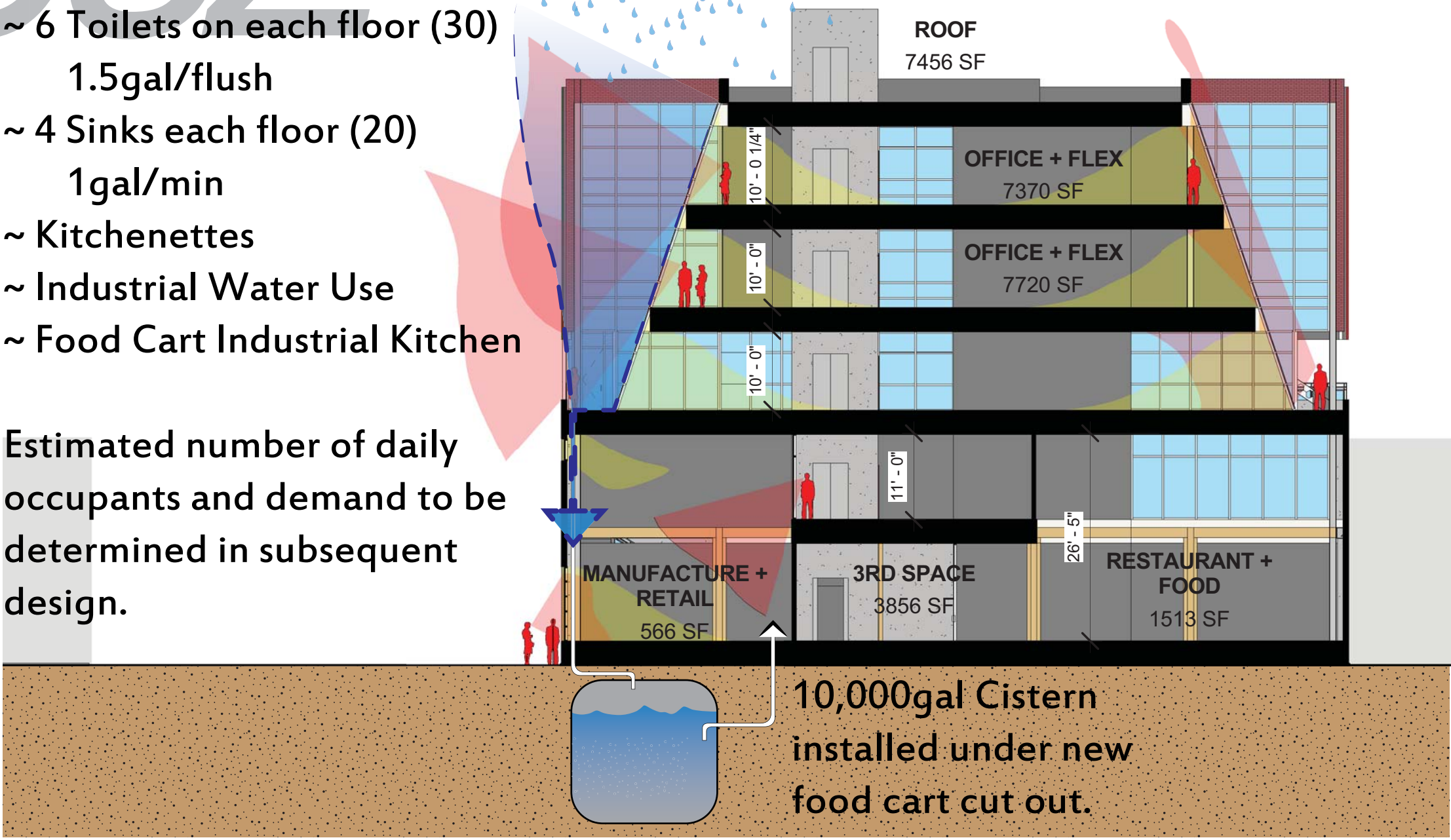
- Energy offset may be unreasonably low, due to 90 degree orientation.



Cistern = 10,000gal Considerations

- Potential Collection = 100kga
- ~ 6 Toilets on each floor (30) 1.5gal/flush
- ~ 4 Sinks each floor (20) 1gal/min
- ~ Kitchenettes
- ~ Industrial Water Use
- ~ Food Cart Industrial Kitchen

Estimated number of daily occupants and demand to be determined in subsequent design.



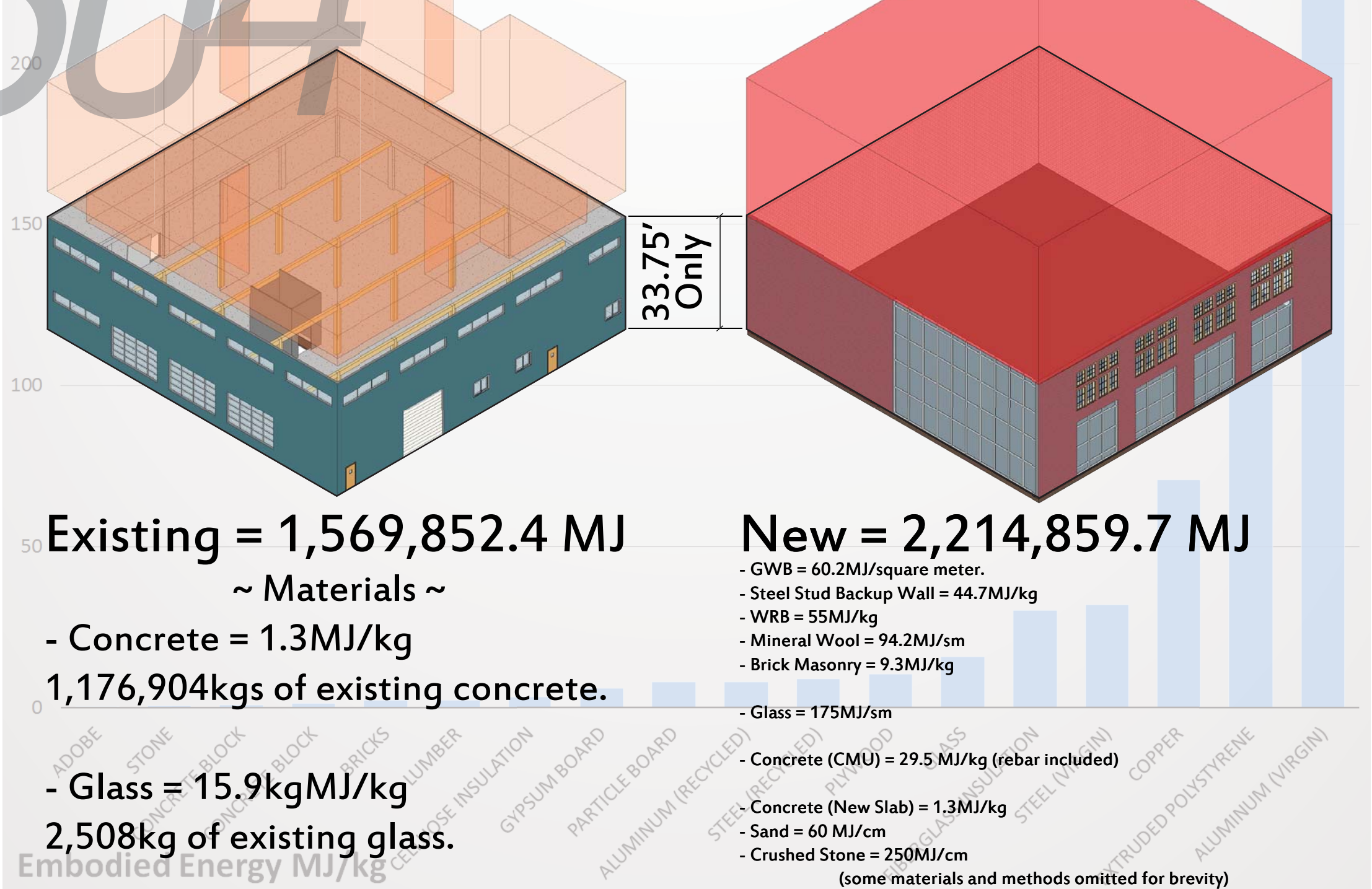
Living Machine

- ~ Located at Entries
- ~ Serve as Welcome
- ~ Seating
- ~ Refuge from the Eastside Industrial Sanctuary.
- ~ Partial Building Capacity: 2500gpd (gallon/day)



Embodied Energy Comparison - Existing vs. New Construction

If a new building occupies the same site, of matching height, it will equal both the existing building's embodied energy + new construction = 3,784,712.1 Megajoules



Sources:
 - Ambrose, J., & Tripney, P. (2011). Simplified Engineering for Architects and Builders 11 ed. Hoboken: John Wiley & Sons, Inc., Pg. 38-39
 - Fischetti, D., Garrett, A., & Overton, J. (2008). Water Efficiency: the white stag block. Portland: University of Oregon. Retrieved Nov 05, 2014, from http://design.uoregon.edu/wsb/pdf/WS_water.pdf
 - Grondzik, W. T., Kwok, A. G., Stein, B., & Reynolds, J. S. (2010). Mechanical And Electrical Equipment for Buildings: MEEB. (11, Ed.) Hoboken: John Wiley & Sons, Inc. Pg 36-37.
 - Kwok, A. G., & Grondzik, W. T. (2011). The Green Studio Handbook: Environmental Strategies for Schematic Design. Kidlington: Elsevier Inc., pg. 270-286.
 - Lechner, N. (2009). Heating, Cooling, Lighting: Sustainable Design Methods for Architects. Hoboken, New Jersey: John Wiley & Sons, Inc.
 - Living Machine. (20112). Port of Portland/Municipal-Government/Port-of-Portland-Headquarters.-Portland,-OR.aspx
 - Preservation Lab. (2011). The Greenest Building: Quantifying the Environmental Value of Building Reuse. Washington DC: National Trust for Historic Preservation. Retrieved Nov 05, 2014, from http://www.preservationlab.org/information-center/sustainable-communities/green-lab/ca/The_Greenest_Building_LowRes.pdf
 - Wilson, R. H. (1987-2014). Photographs, Sketches, Paintings and Architecture: A Collection. RHW Designs, Portland, OR, USA. Retrieved from www.rhwdesigns.com