

EXTERIOR & STRUCTURAL

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Client:
Family of Woodstock - Homeless Shelter for At-Risk Youth

Location:
Parking Lot in Ulster County, Upstate New York which required soil remediation

Health Risk Factors:
Exterior Surface Runoff, Production & Construction

Key Goals:
Easy Maintenance, Affordability, Durability / Longevity, Providing Natural Lighting while maintaining privacy

Our research looks to critique the use of translucent panels, a material and lighting quality often included in many architectural designs. Although these products are touted for being sustainable due to their daylighting qualities and thermal insulation, we argue that healthier, more affordable, and more sustainable options should be considered for designing low-income housing.

Of these three researched options, Magna Glass would be the best alternative to a design with translucent panels. However, our research leads us to not recommend any of the following products. Instead, it would be more cost effective, sustainable, and healthier to consider strategic window placement in the housing design. Alternatives to exterior facade products are listed below:



Kattera Mass Timber



Bark House Poplar Siding & Wall Tile



BioMason Biolith (concrete/masonry) tiles



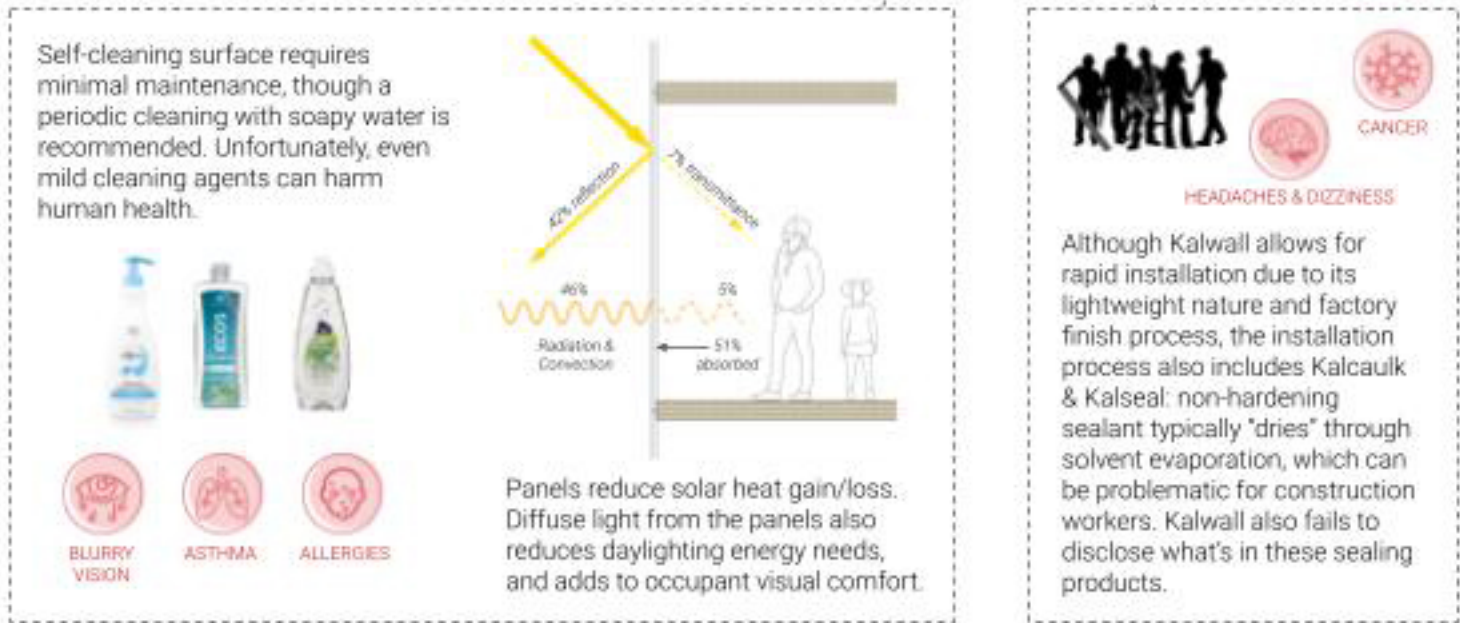
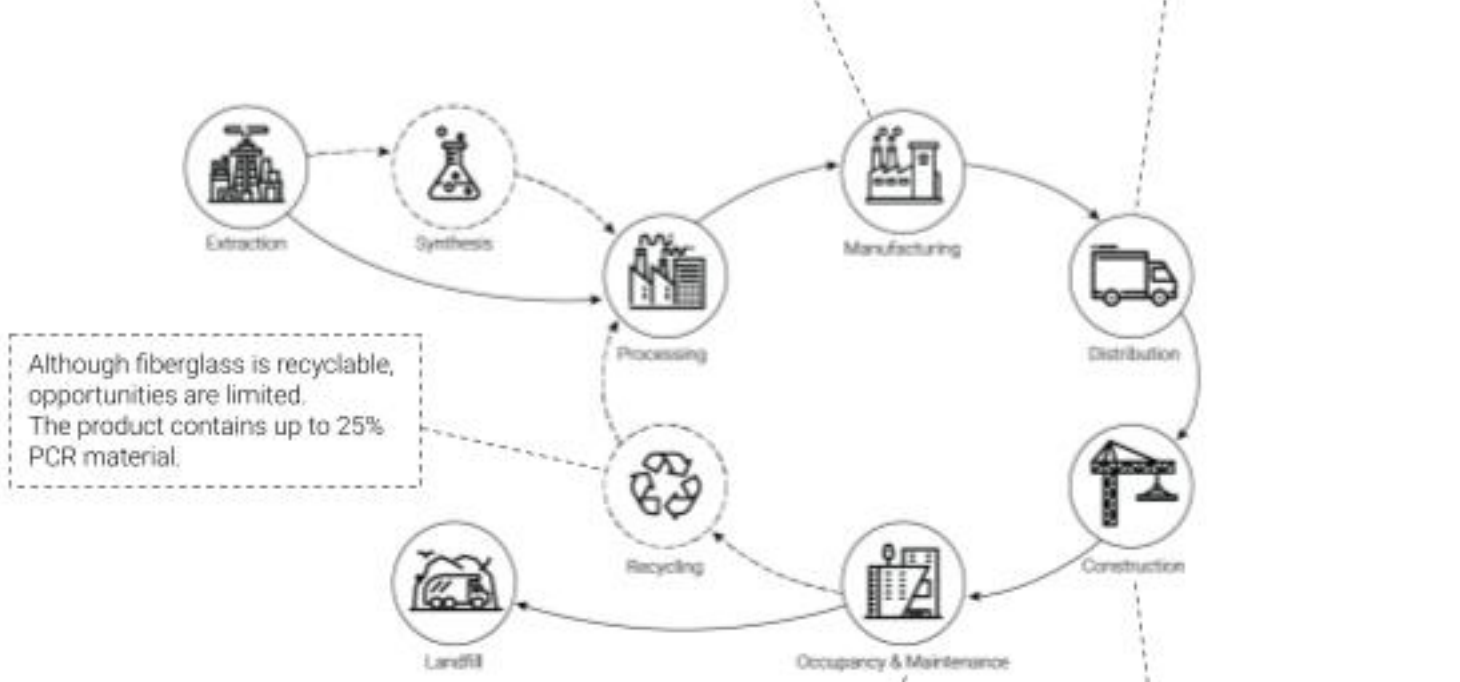
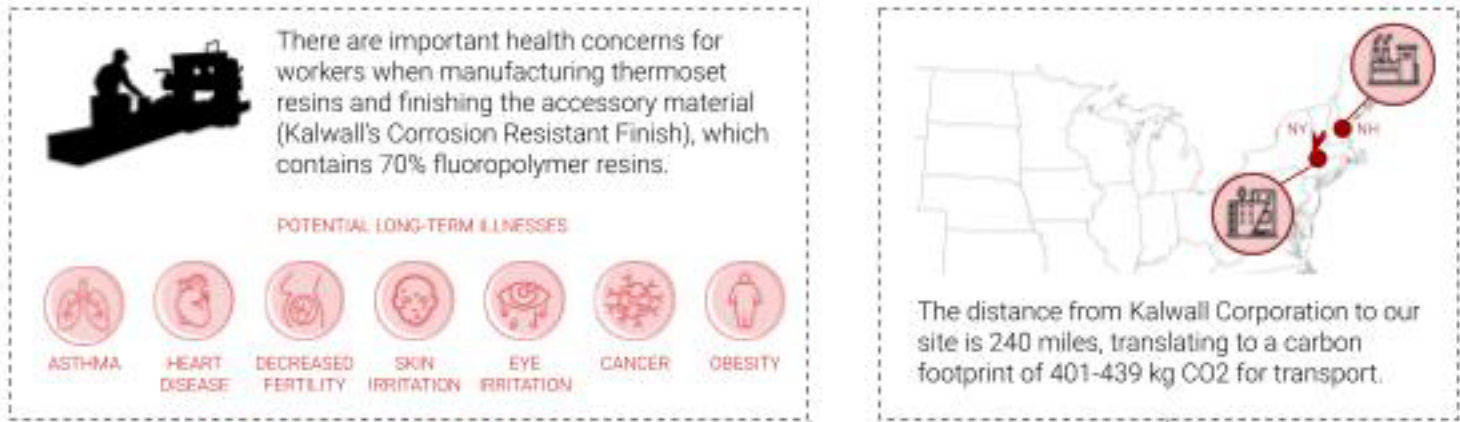
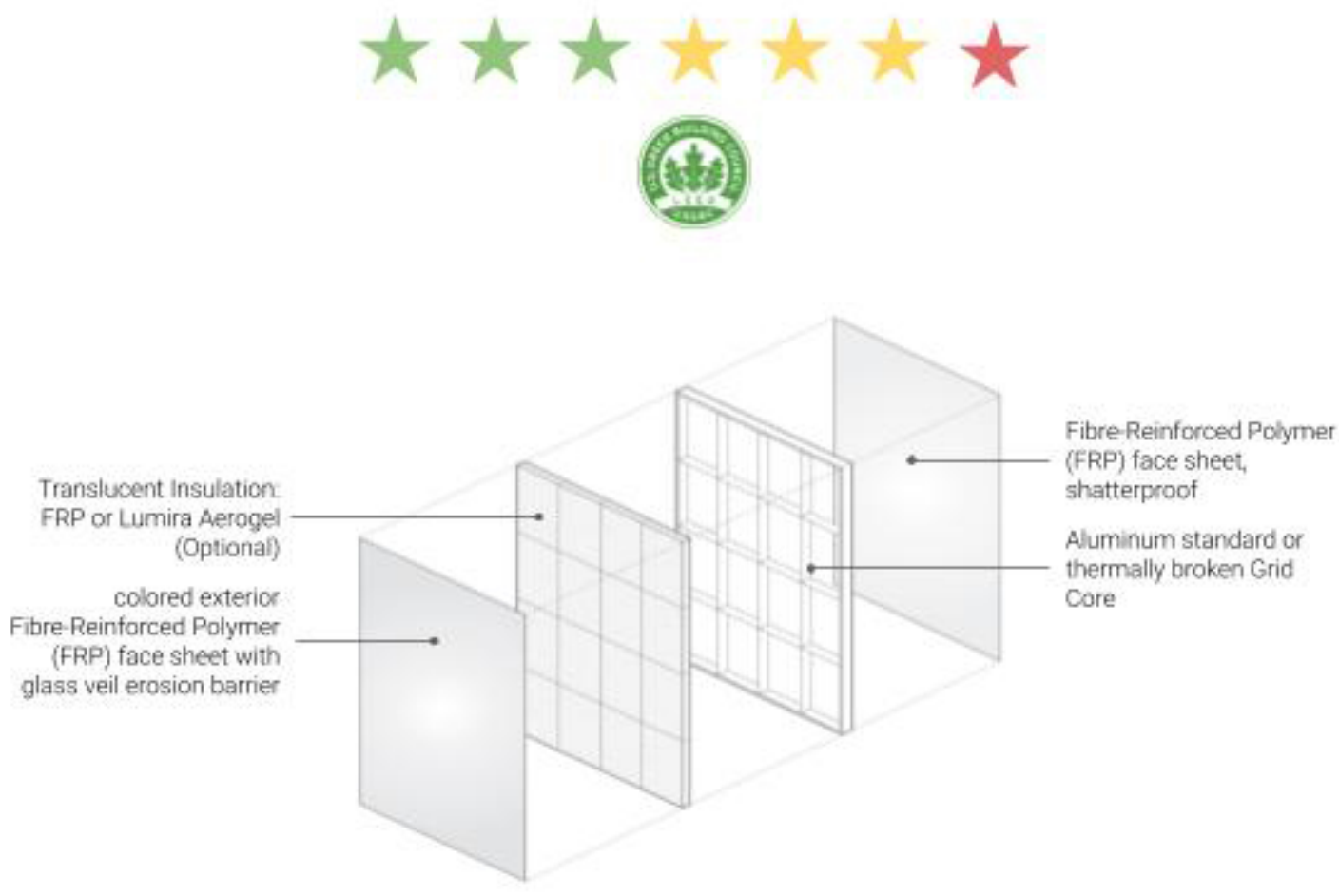
Green Leaf Brick

HUMAN HEALTH
INDOOR CLIMATE
ENVIRONMENT ENERGY
ENVIRONMENT CARBON
AFFORDABILITY
MAINTENANCE & LIFESPAN
END OF LIFE



KALWALL

Glass-Fiber Reinforced Polymers / Fiberglass

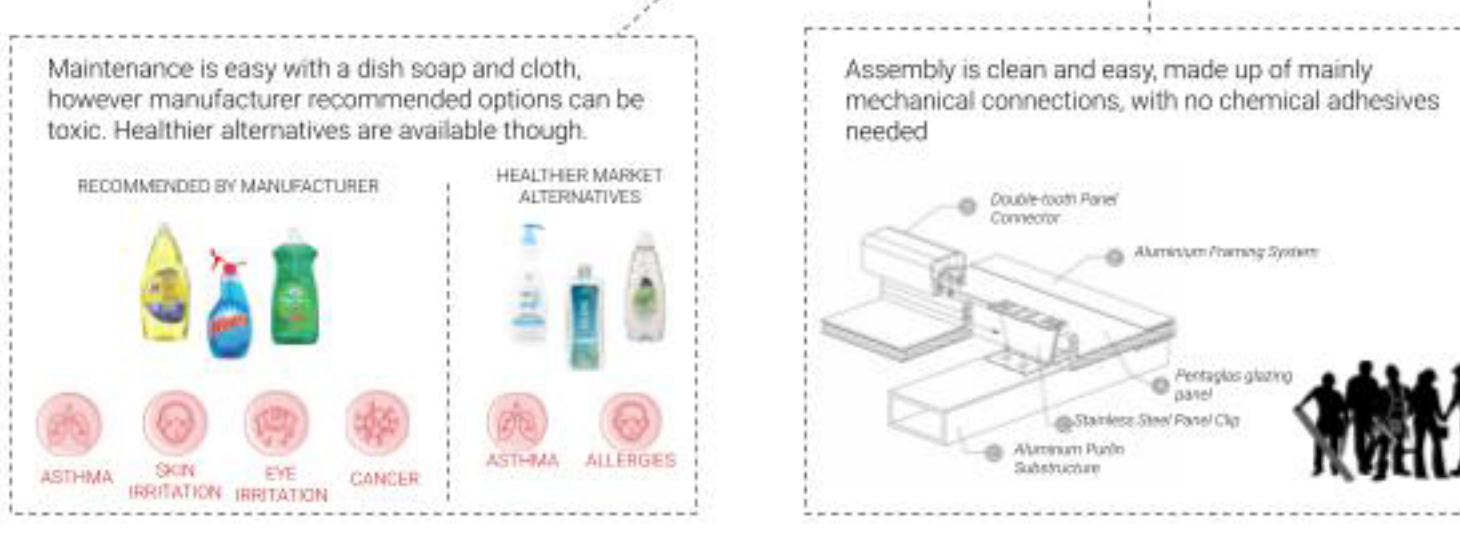
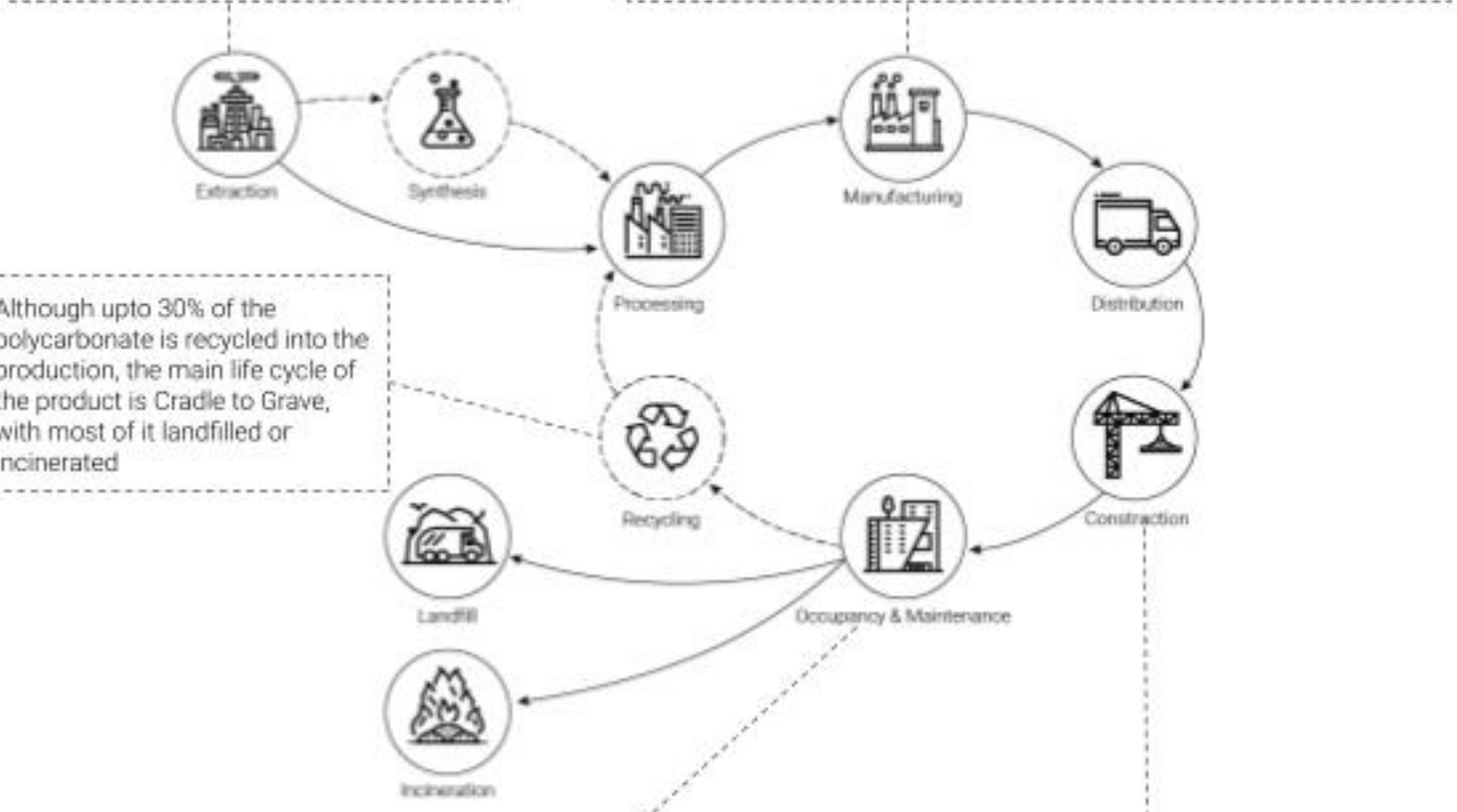
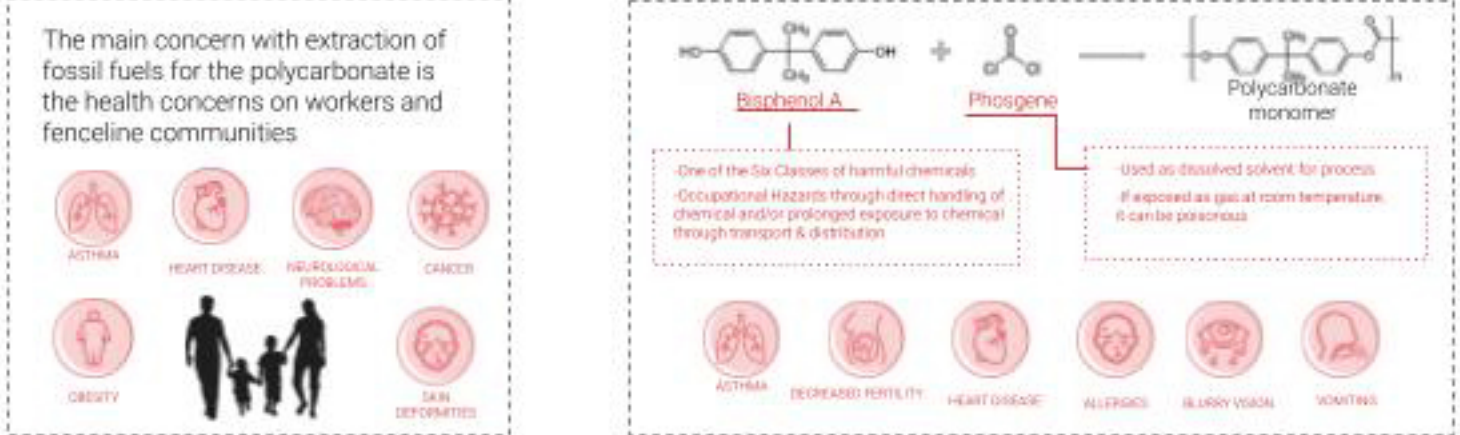
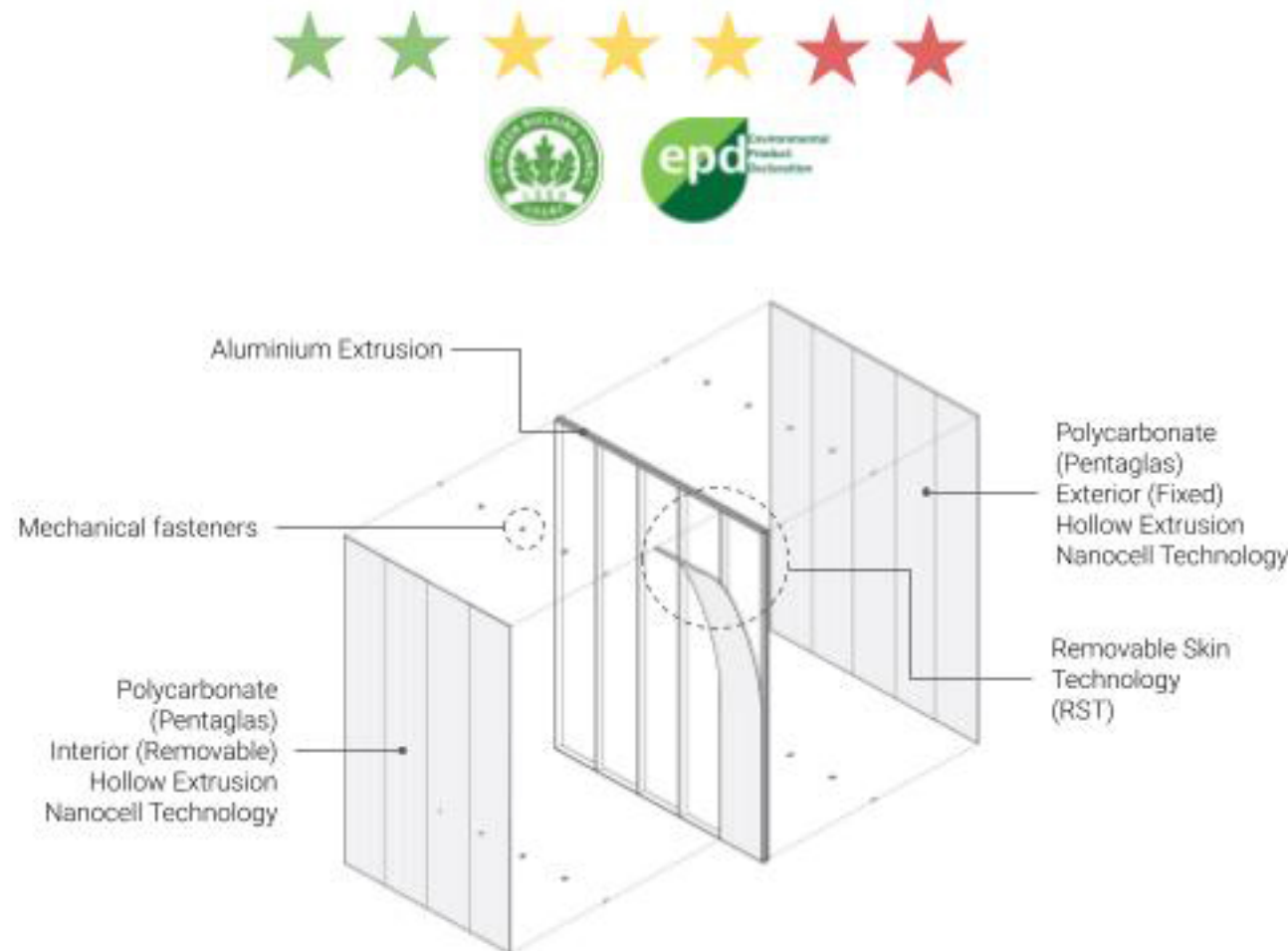


★	Main health concerns exist during manufacturing & installation
★	Excellent daylighting & thermal comfort SHGC: 0.04-0.65 U-Value: 0.28-1.65 W/m2K
★	145 MJ/kg Embodied Energy
★	8.1 kgCO2e/kg Carbon Footprint + 401-439 kg CO2 (Transportation)
★	\$30-\$35 USD/SF*
★	Low Maintenance (self-cleaning surface) + occasional soap & water 25 year limited warranty
★	Panels are reusable, aluminium is recyclable, & fiberglass is recyclable (though opportunities are limited)



KINGSPAN - UNIQUAD

Extruded Polycarbonate

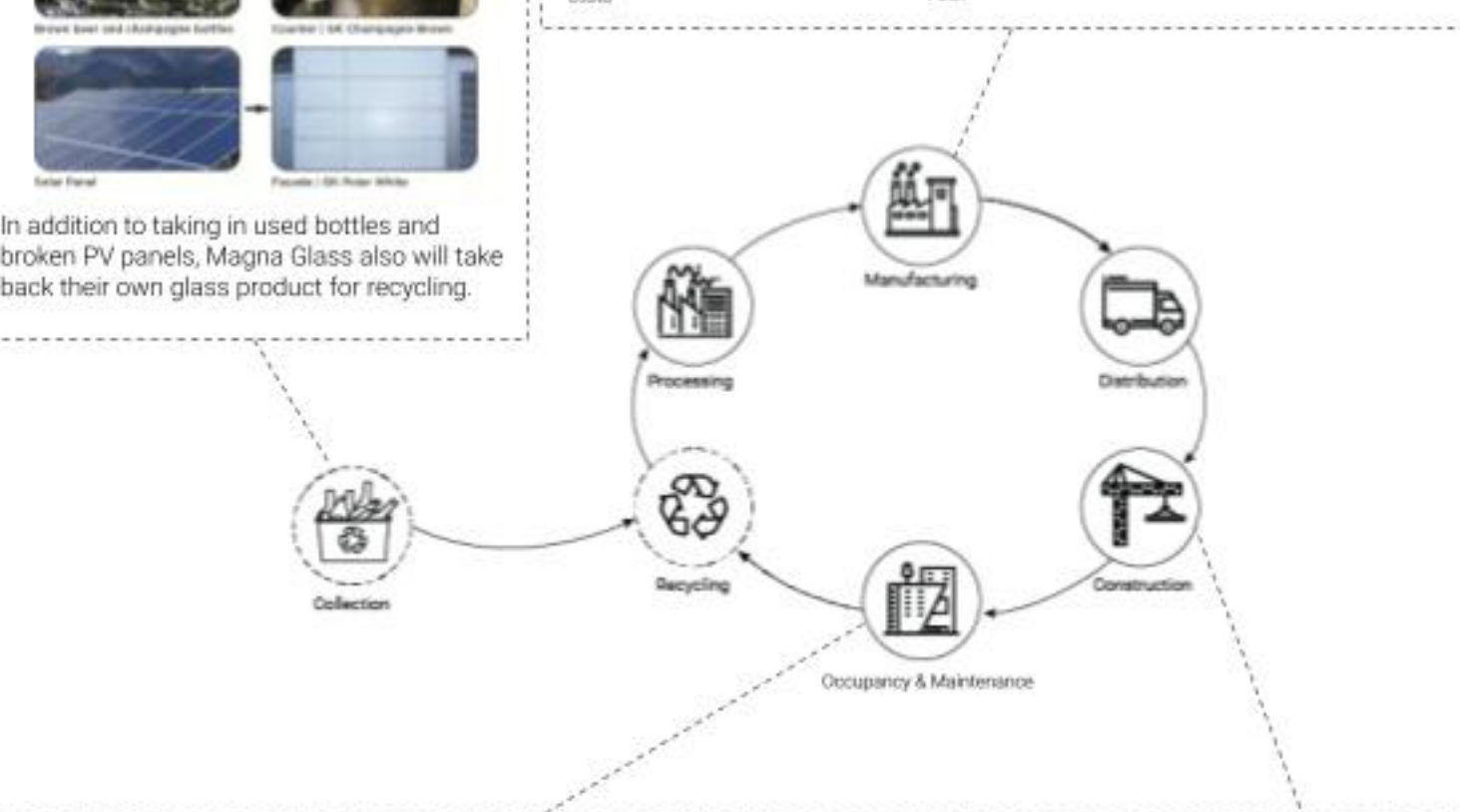


★	Main health concerns exist during manufacturing
★	Good daylighting & thermal comfort SHGC: 0.40-0.41 U-Value: 0.23 W/m2K
★	143 MJ/kg Embodied Energy
★	32 kgCO2e/kg Carbon Footprint + 552 kg CO2 (Transportation)
★	\$32-\$45 USD/SF
★	Low & easy Maintenance (Dish soap & water) 25 year limited warranty
★	Cradle to Grave(Landfill/Incineration) + ~30% panels & aluminium recycled



MAGNA GLASS

100% Recycled Glass



★	Some health concerns when filling holes of panels
★	Good daylighting & thermal comfort SHGC: 0.40-0.41 U-Value: 0.23 W/m2K
★	15.8 MJ/kg Embodied Energy
★	2.9 CO2e/kg Carbon Footprint + 2000kg CO2 (Transportation)
★	\$36-\$56 USD / SF
★	Low Maintenance & Acid Resistant (Dish soap & water) 50-100 year lifespan (wind load dependant) + 10 year guarantee
★	Upcycled product and panels can be brought back to factory to be 100% recycled