



Green Roofs

CCDP 2100 X - Group 8 - Josh, Andy, Joey, Connor
Jan 29th, 2021



Project Overview Slide

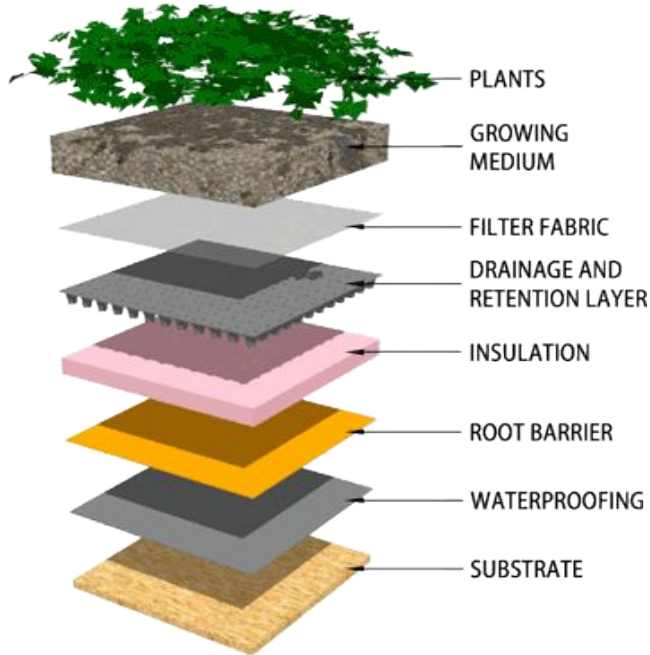


Figure 1: Green Roof Layers

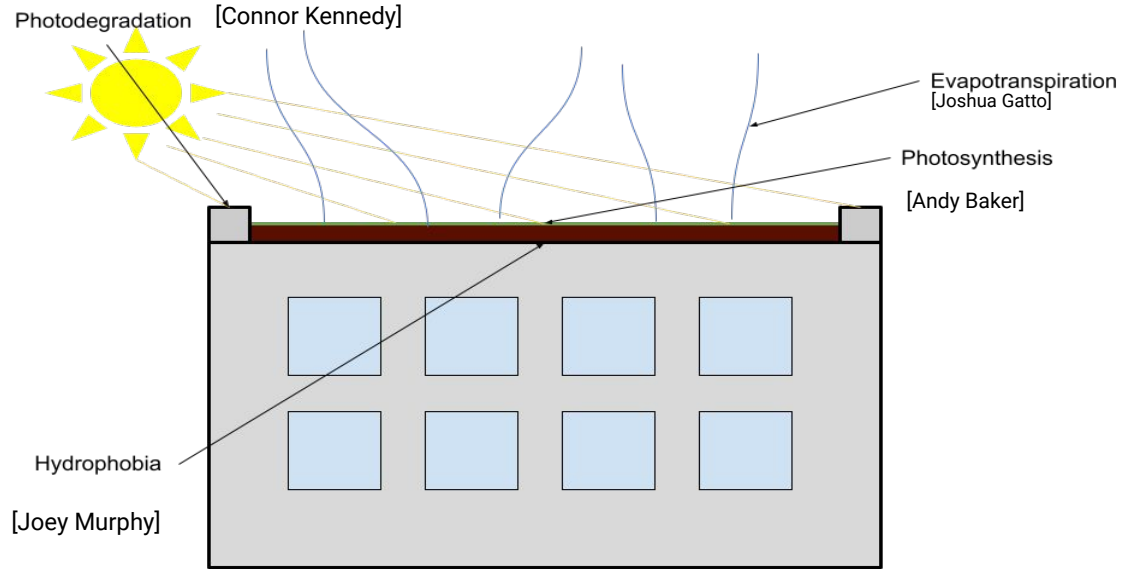


Figure 2: Green Roof Unseen Processes [Joshua Gatto]

Removal of Carbon Dioxide from the Air - Andy Baker

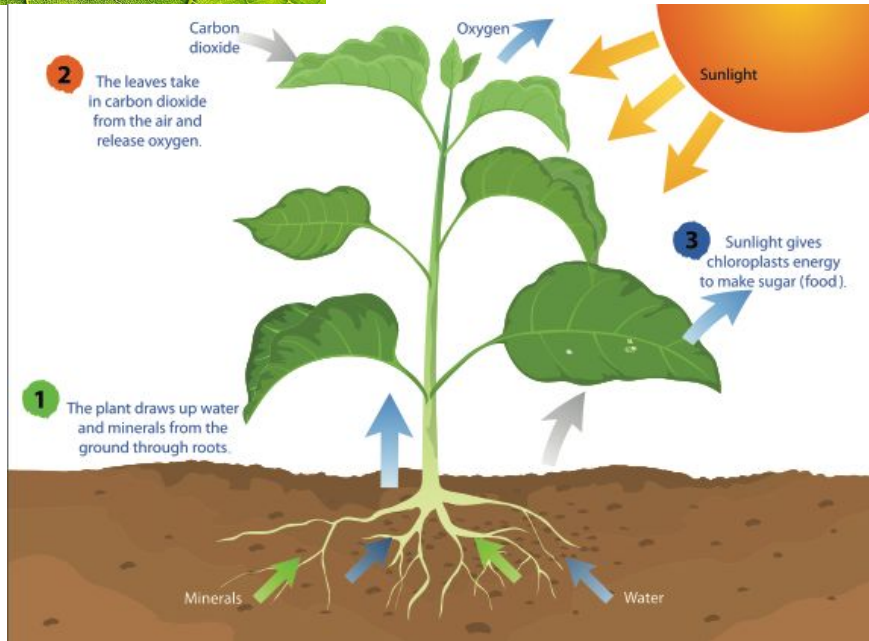


Figure 3: Diagram of Photosynthesis [2]

- Research question -
How do plants help
reduce greenhouse
gases?
- Engineering theory -
Photosynthesis



Waterproofing Layer - Joey Murphy



Figure 4: Water forms drops on the surface and is not absorbed [3]

- How does the waterproofing layer work to ensure no water leaks through the roof?
- Hydrophobia



Roof life expectancy- Connor Kennedy



Figure 5 - UV Rays effect on shingles [4]

- How does having a green roof on a building extend the life expectancy of the roof?
- Photooxidative degradation



Urban Heat Island Effect - Joshua Gatto

- How do green roofs reduce the urban heat island effect?
- Evapotranspiration

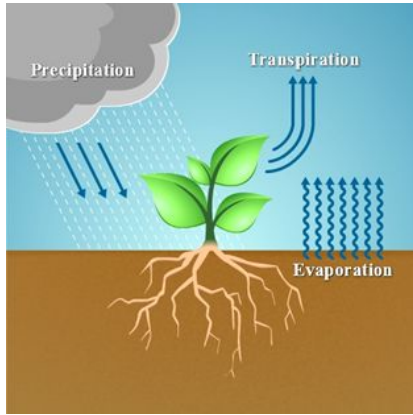


Figure 6: Evapotranspiration[5]

References:

- [1] "Green Roof Primer," Minnesota Green Roofs Council, 19-May-2014. [Online]. Available: <https://mnngreenroofs.org/green-roof-primer/>. [Accessed: 29-Jan-2021].
- [2] Smithsonian Science Education Center, "What is Photosynthesis" ssec.si.edu. [Online]. Available: <https://ssec.si.edu/stemvisions-blog/what-photosynthesis> [Accessed Jan. 25, 2021]
- [3] H.Knight, "Superhydrophobic coating is non-toxic and economical to produce", *theengineer.co.uk*, Dec. 16, 2015. [Online]. Available: <https://www.theengineer.co.uk/superhydrophobic-coating-is-non-toxic-and-economical-to-produce/> [Accessed Jan 24,2021]
- [4] "Beat Your Roof's Worst Three Enemies," *bestlife52.com*, August 11, 2020. [Online]. Available: <https://bestlife52.com/home/shingles-flashing-ventilation/>. [Accessed Jan 24, 2021]
- [5] "Using Green Roofs to Reduce Heat Islands," *EPA*, 11-Jun-2019. [Online]. Available: <https://www.epa.gov/heatislands/using-green-roofs-reduce-heat-islands#:~:text=Green%20roof%20temperatures%20can%20be,up%20to%205%C2%B0F>. [Accessed: 26-Jan-2021].