

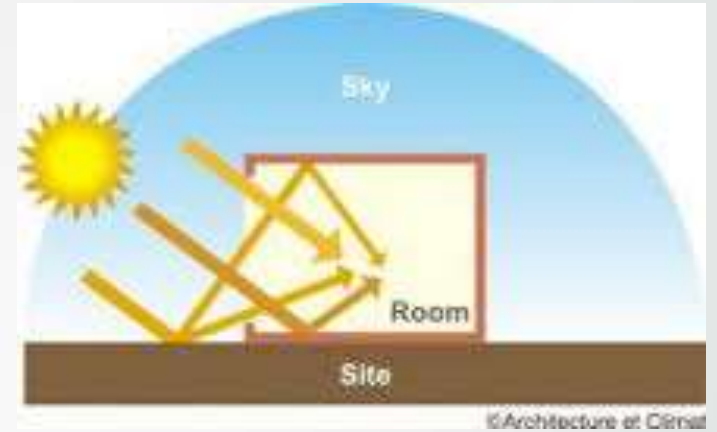


Sustainable Solar Design

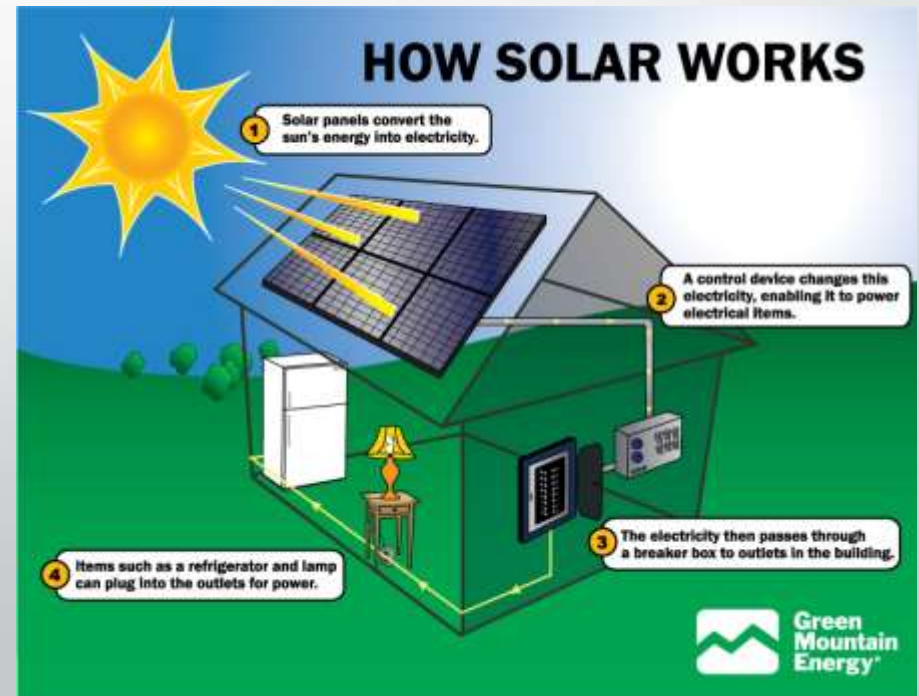
Mike Jones



Solar Design

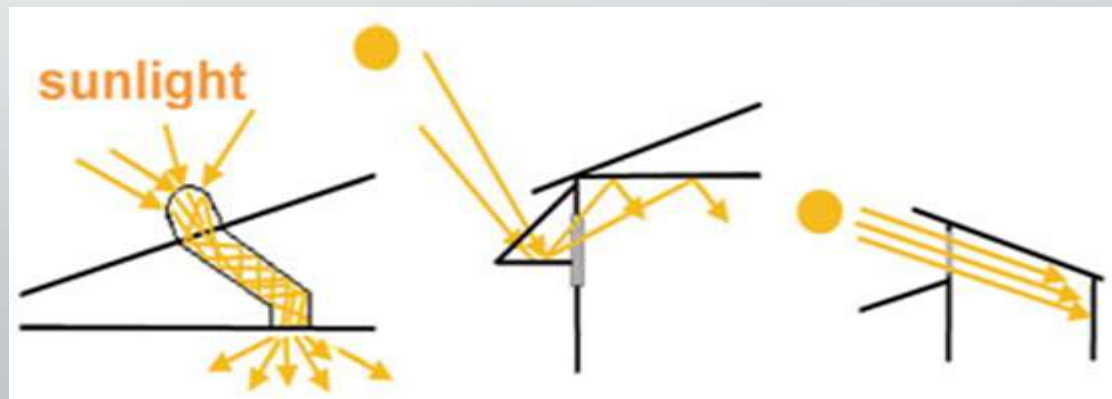
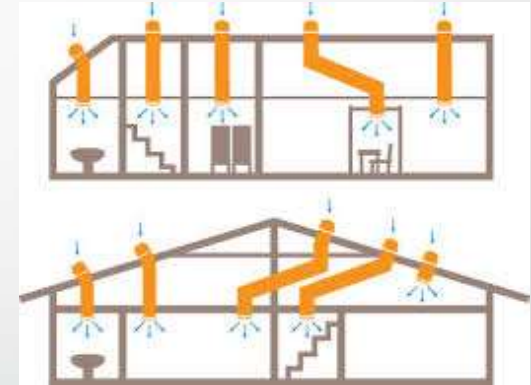


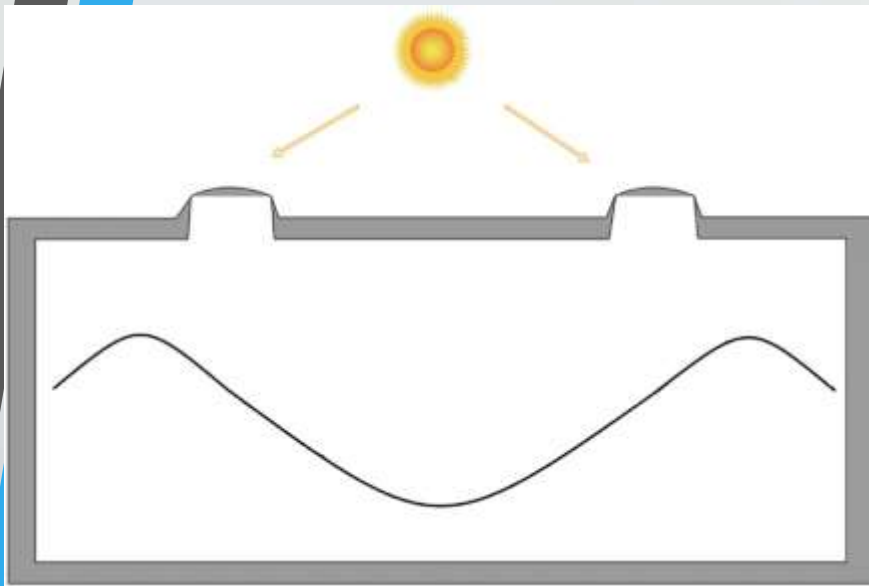
- Daylighting
 - Naturally light areas with the sun's rays, not the use of electricity
- Solar Energy
 - Alternative renewable energy source, helping decrease the use of fossil fuels



Daylighting

- [Skylights](#)
- [Light Pipes](#)
- [Side Windows & Light Shelf](#)
- [Prismatic Glazing](#)





Skylights



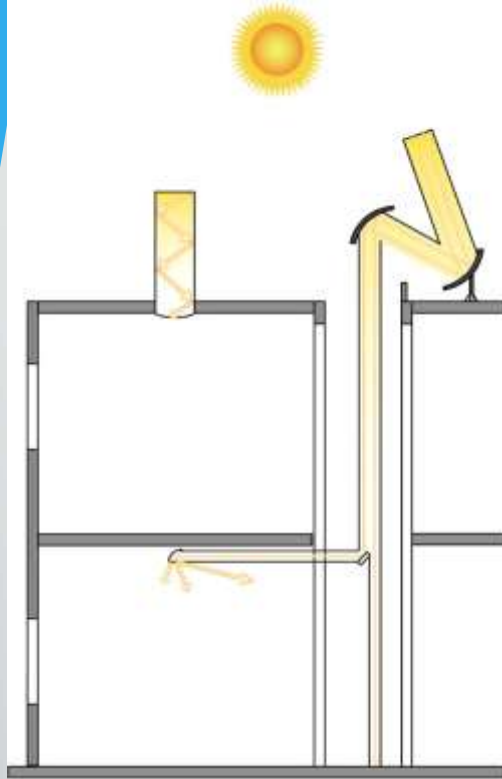
(Shi, p. 203)

- Simple top lighting strategy
- Roof opening designed to capture natural sunlight
- Mainly used for top floors of buildings or homes

VELUX - letting light in - without the heat

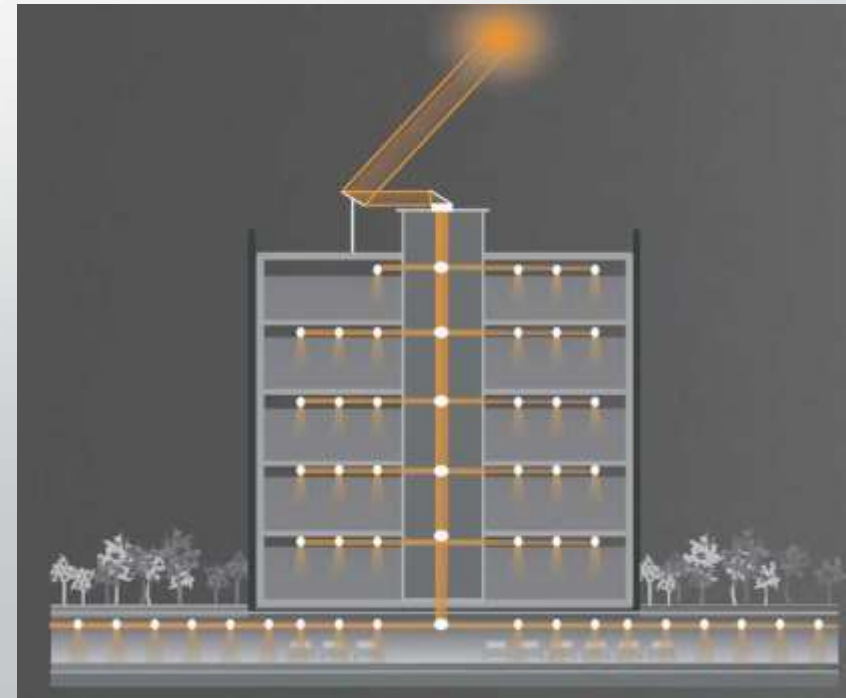


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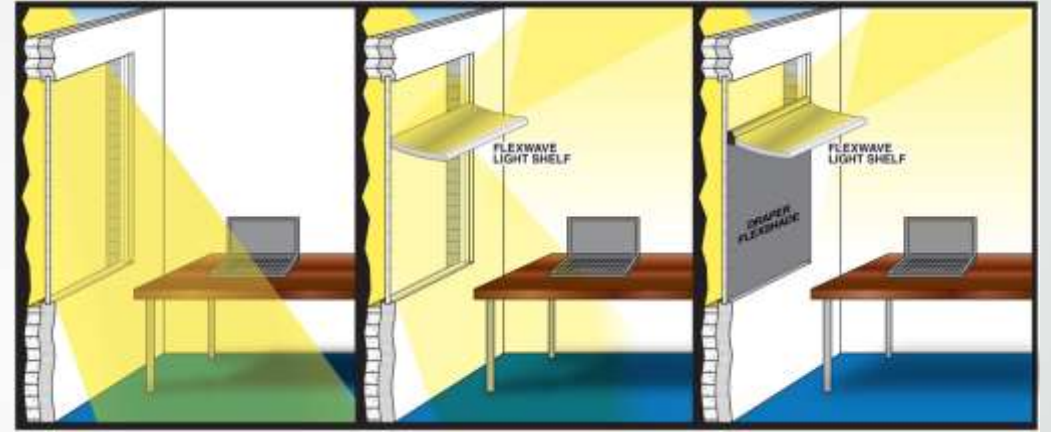
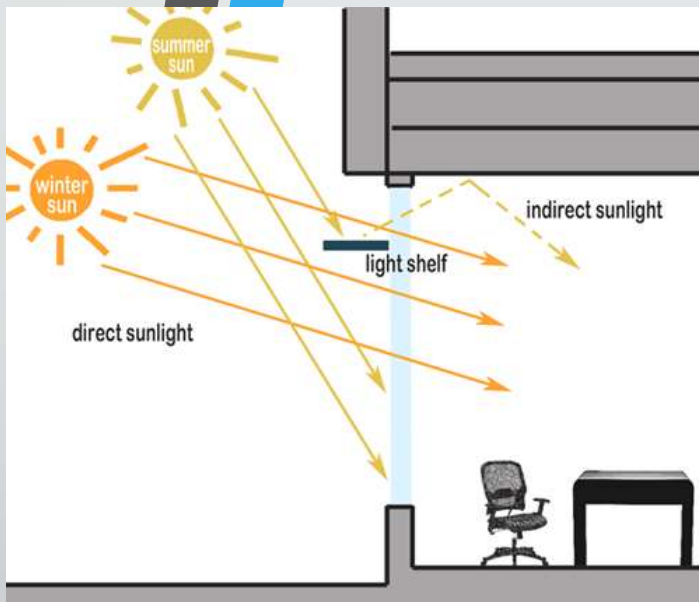


Light Pipes

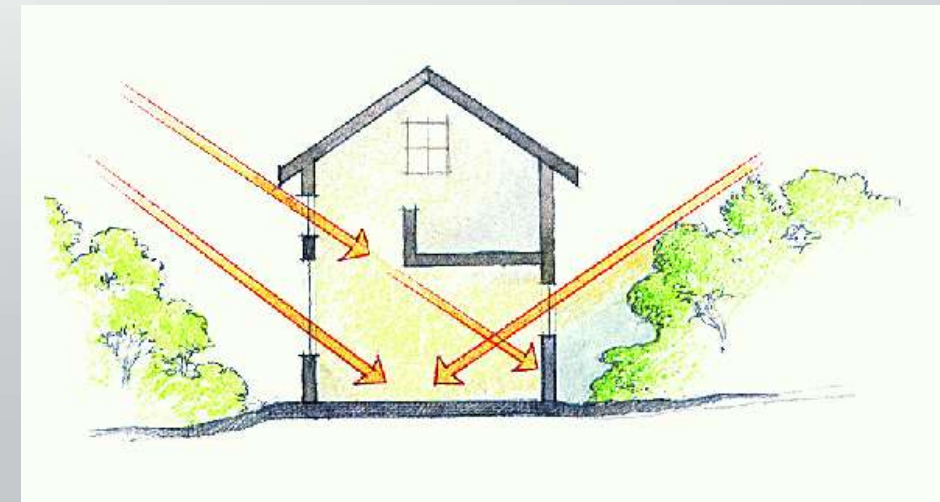
- Can reach all levels of a house or building thanks to reflection of light
- Made of skylights and reflective tubes
- 3 parts: Clear dome to collect sunlight, light reflecting tubes, diffuser installed on ceilings to illuminate interior rooms

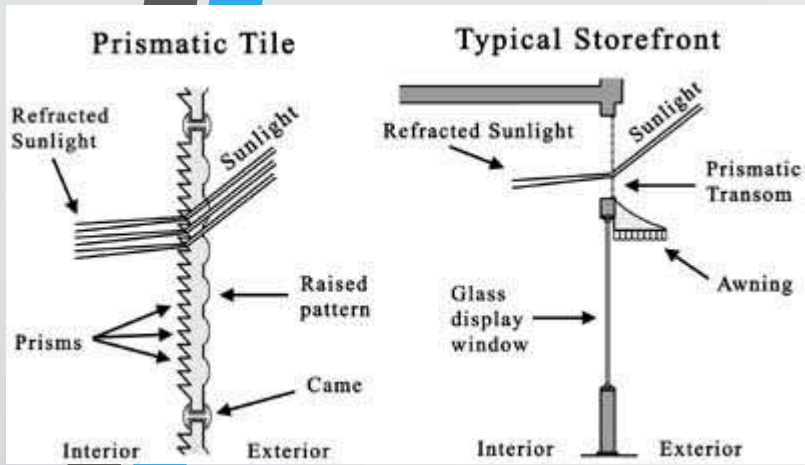


Side Windows & Light Shelf



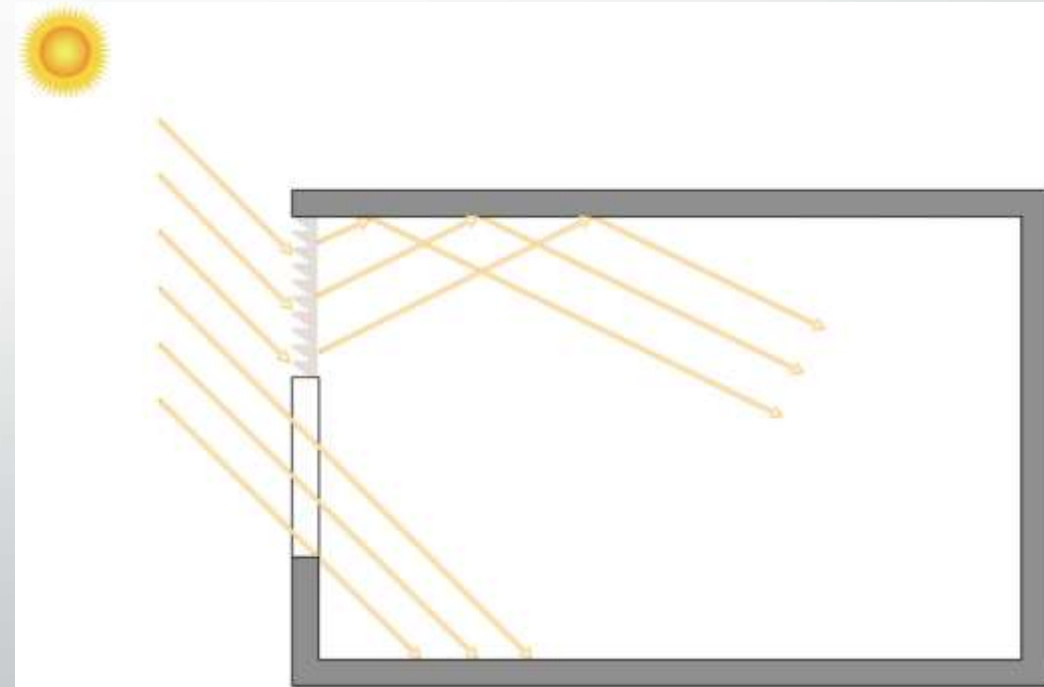
- Side window light is the simplest form of side lighting
- Increasing the number of windows and the window area will lead to more daylight entering a room
- A light shelf is designed to reflect sunlight to the ceiling and then the back of a room
- The shelf can adjust its angle to diffuse more sunlight into the room while providing shade from direct sun





Prismatic Glazing

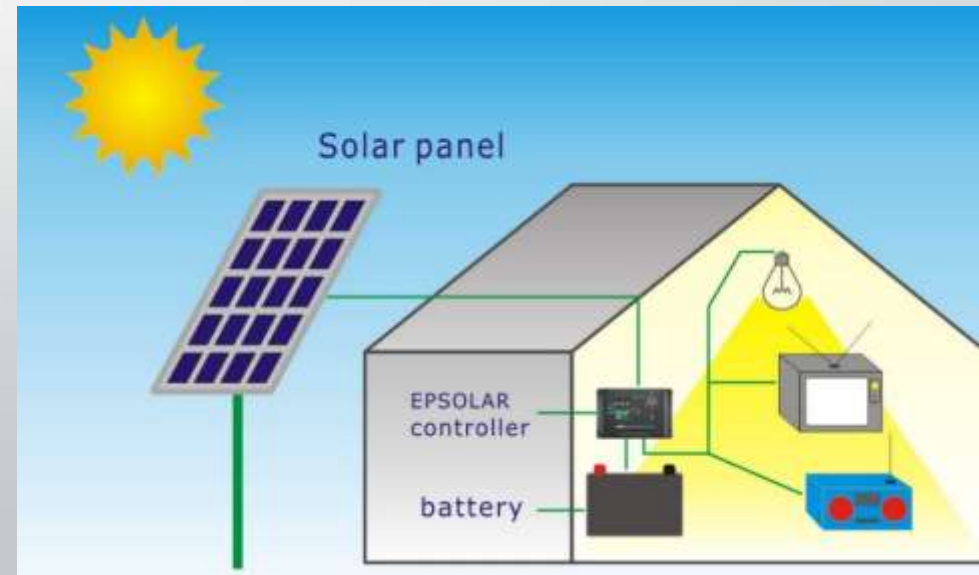
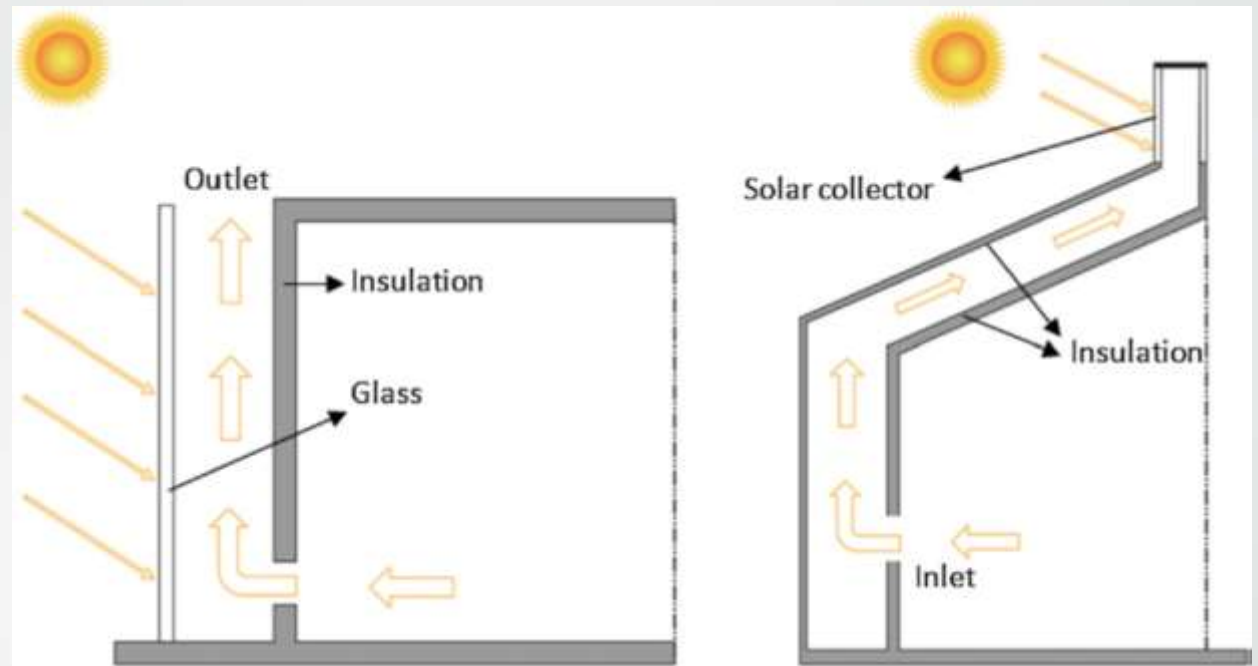
- Similar to Light Shelves
- Takes in sunlight then refracts and reflects deeper in to lighten the room
- Distribution of light and angle can be controlled
- The rest of the light goes directly into the room



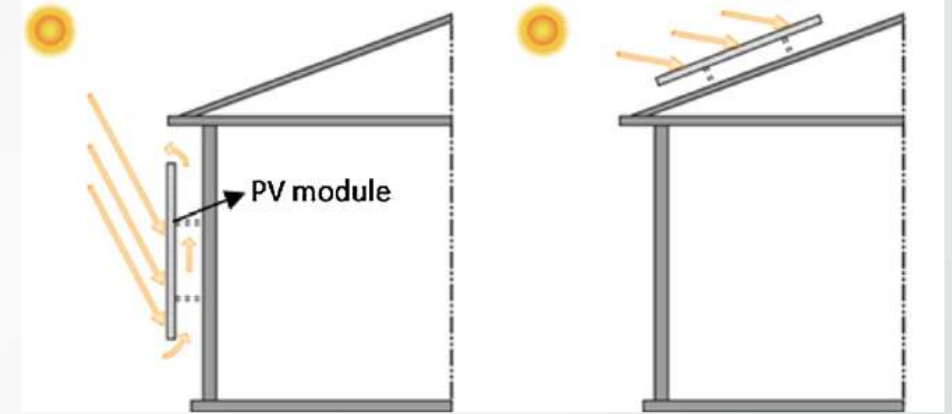
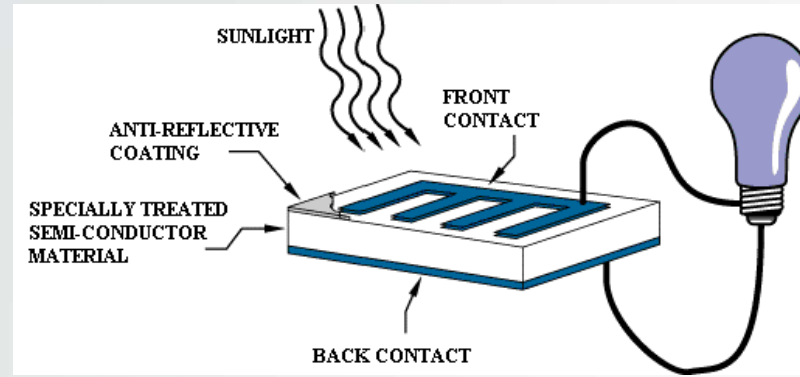
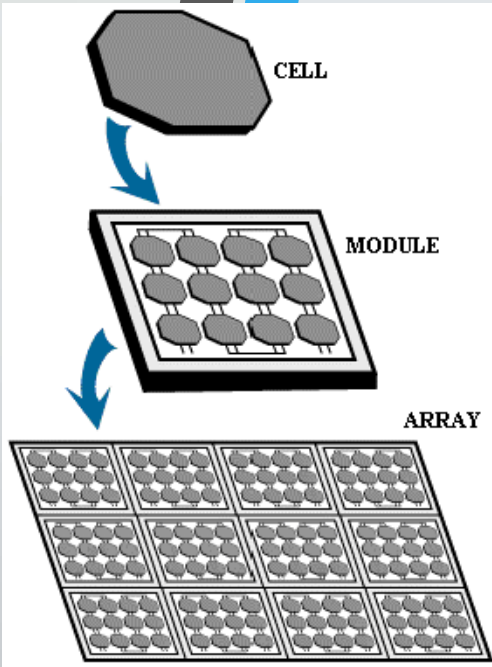
(Shi, p. 201)

Solar Energy

- [Photovoltaic Cells](#)
- [Solar Chimney](#)

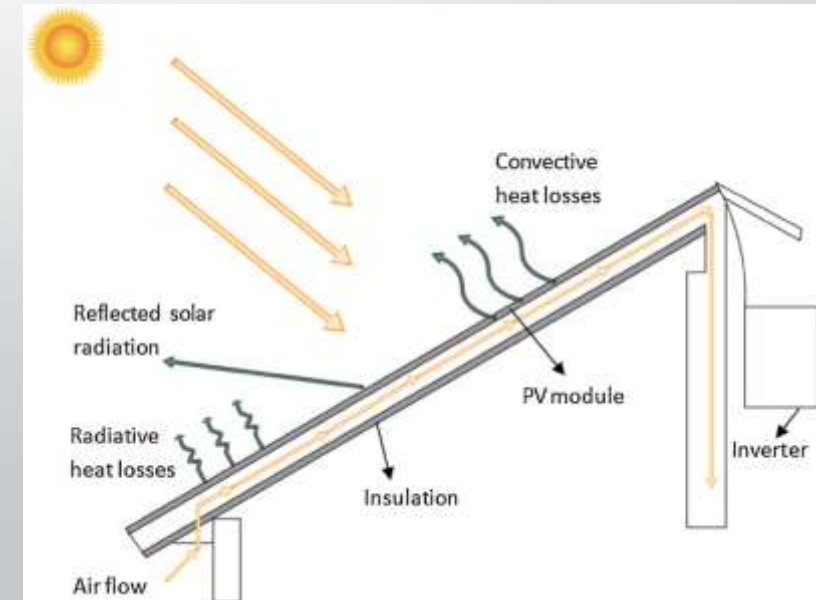


PV Cells / Solar Panels



(Shi, p. 194)

- Photovoltaic Cells make up what most people commonly know as Solar Panels
- Directly converts light into electricity – absorbs light photons and electrons are released
- Cells are wired together to form an array which turns into a panel
- Used on rooftops or side of buildings



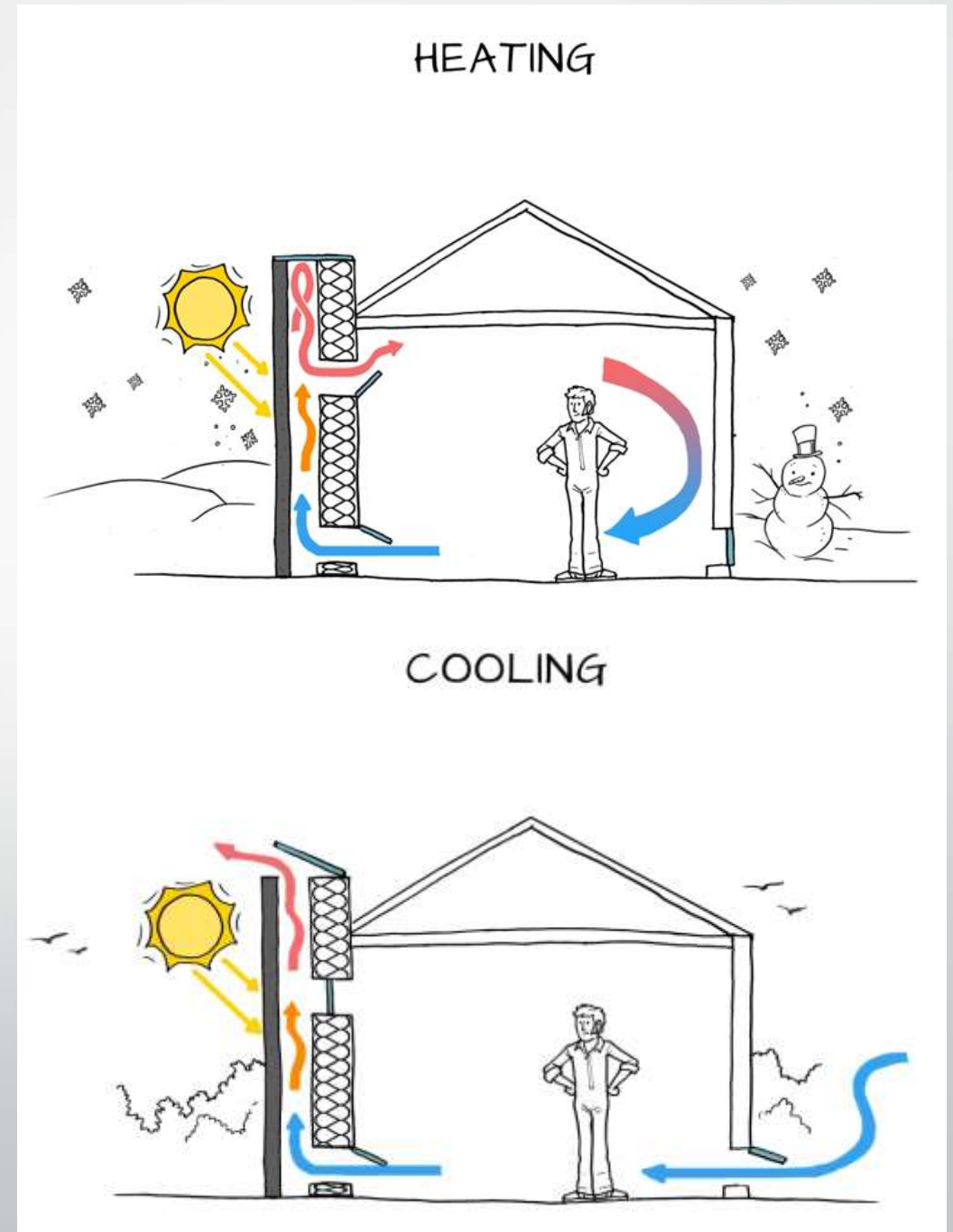
(Shi, p. 193)

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Solar Chimney

- Made of two parts
 - Solar air heater
 - Chimney
- Glass is used to take in heat
- Can be used to cool or heat a room
- Temperature differences creates a pressure difference
- Cooler air is forced through the inlet and out while warm air circulates through a room

[Back to Solar Energy](#)



References

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