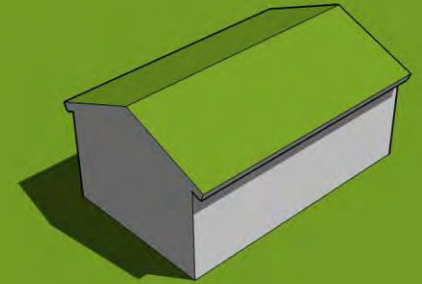
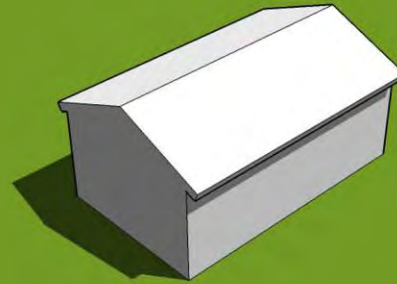
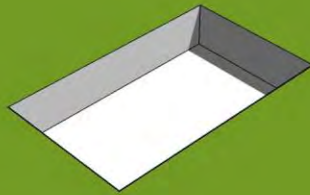


planning for alternate energy
systems and energy efficiency

***green roofs as a green
building strategy***

11jun10

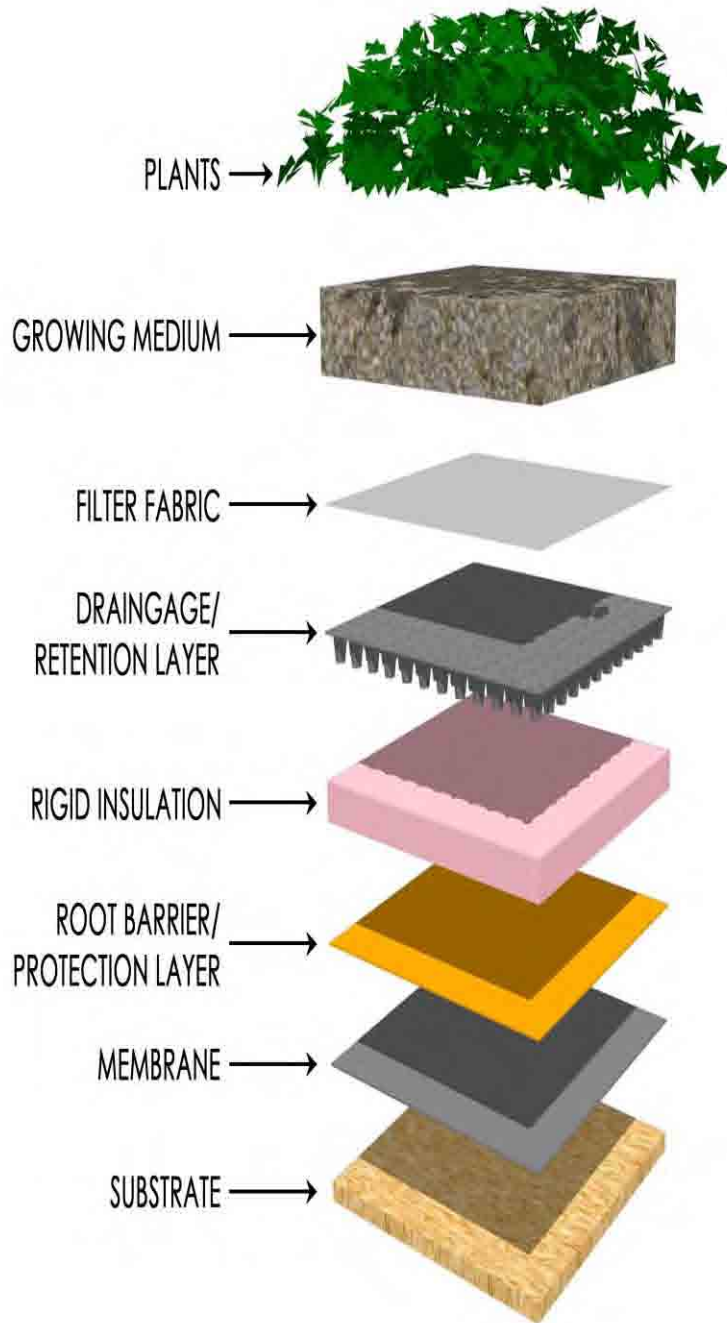




EOR w a t e r
e c o l o g y
community

Kevin ***Biehn***,
ASLA, CPESC, LEED AP



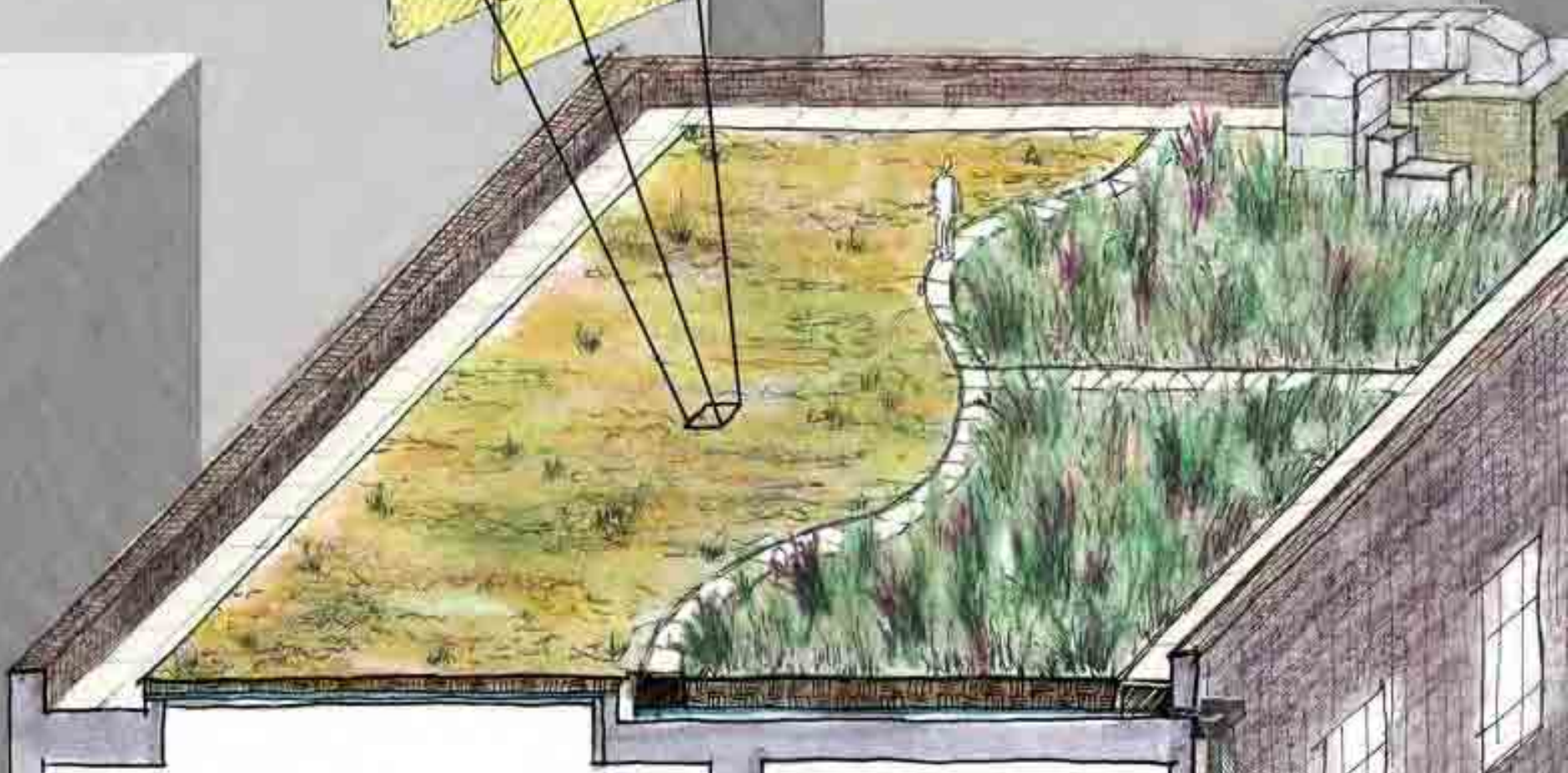
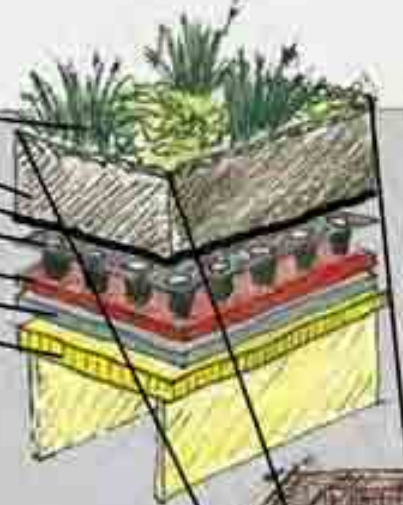


types + construction

built-in-place vs. modular
extensive vs. intensive
plants
soils
slope
cost

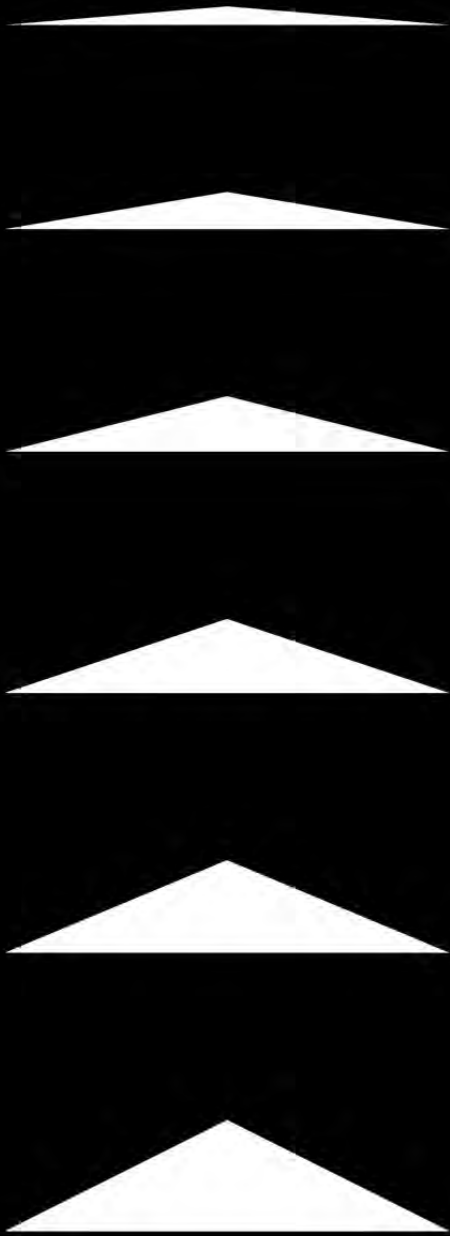


- vegetation
- growing medium
- filter fabric
- drainage/ filtering
- root barrier
- high quality waterproofing
- roof deck











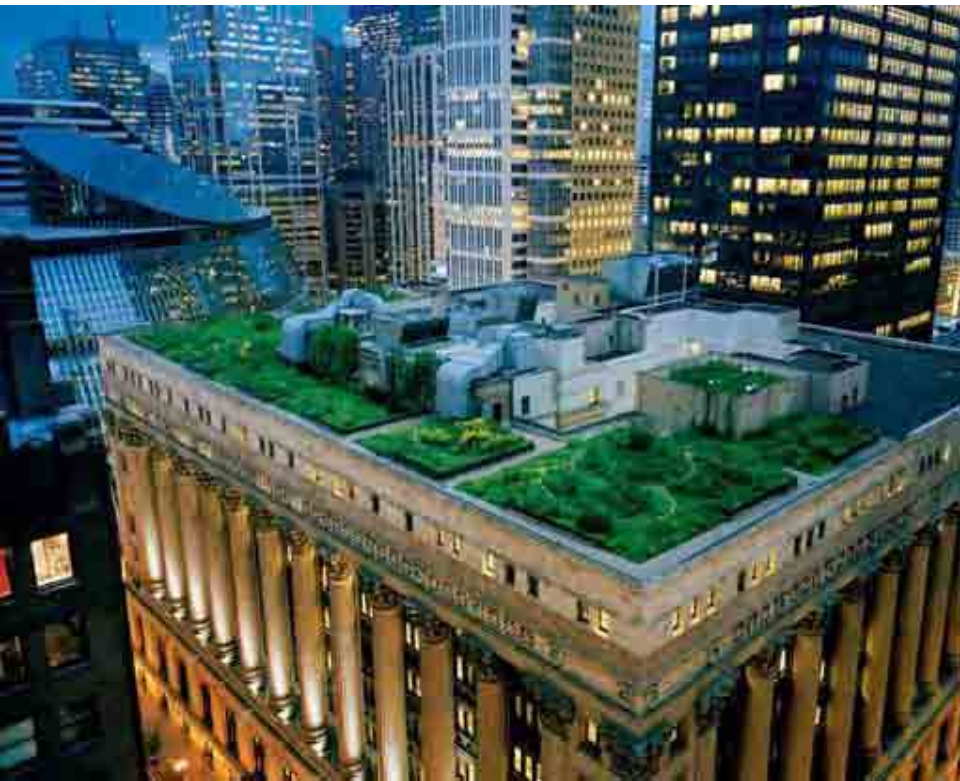
benefits

cost savings
community
property value



cost savings

energy: heating + cooling
roof life span
public acceptance
reduced infrastructure



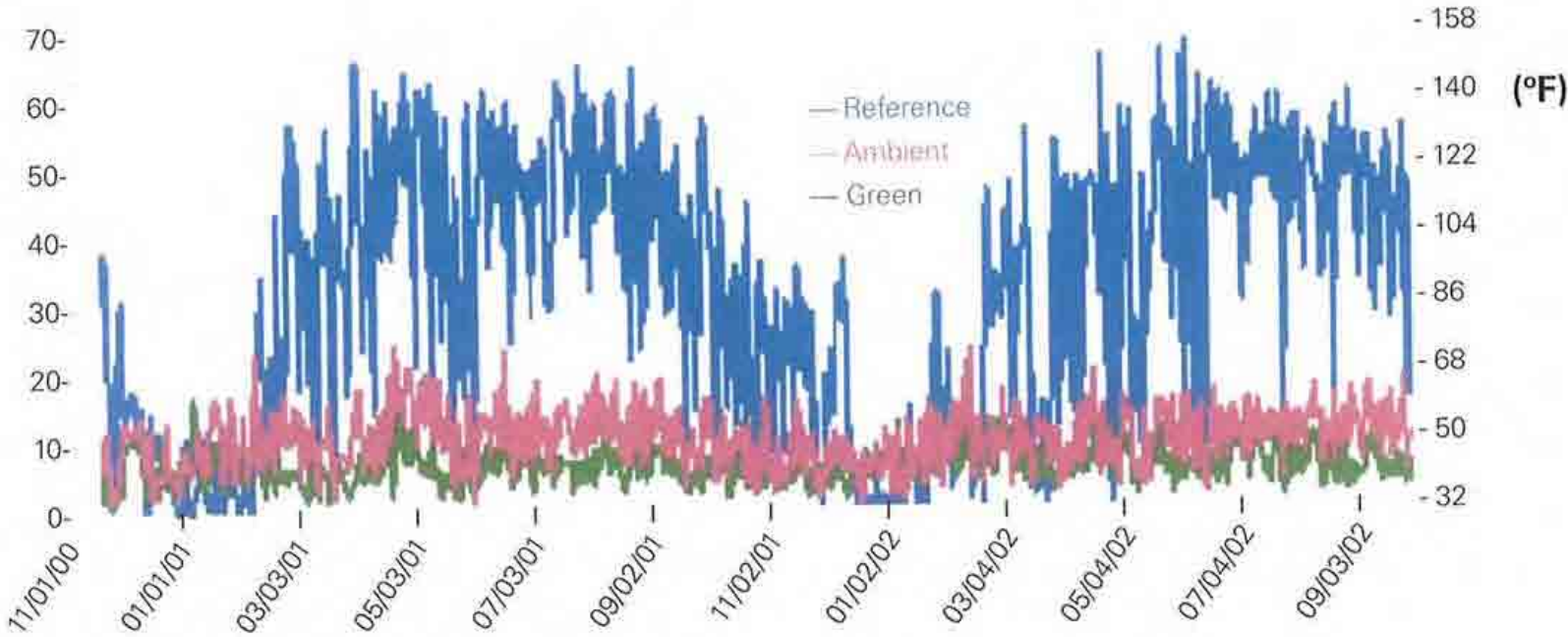
Solar gain

Insulation & Thermal Mass

Transpiration from plants

Air intake

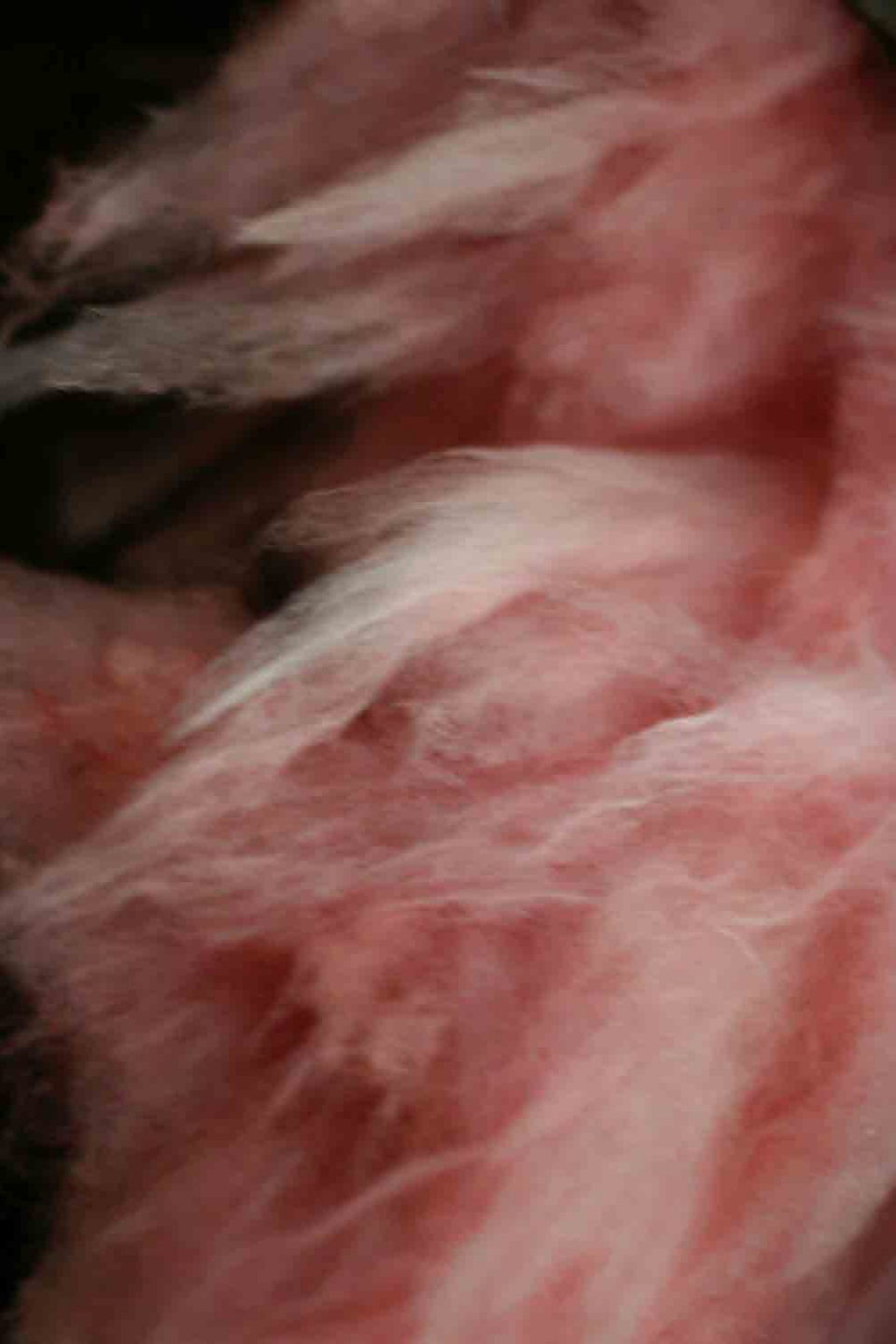
Temperature fluctuation (°C)

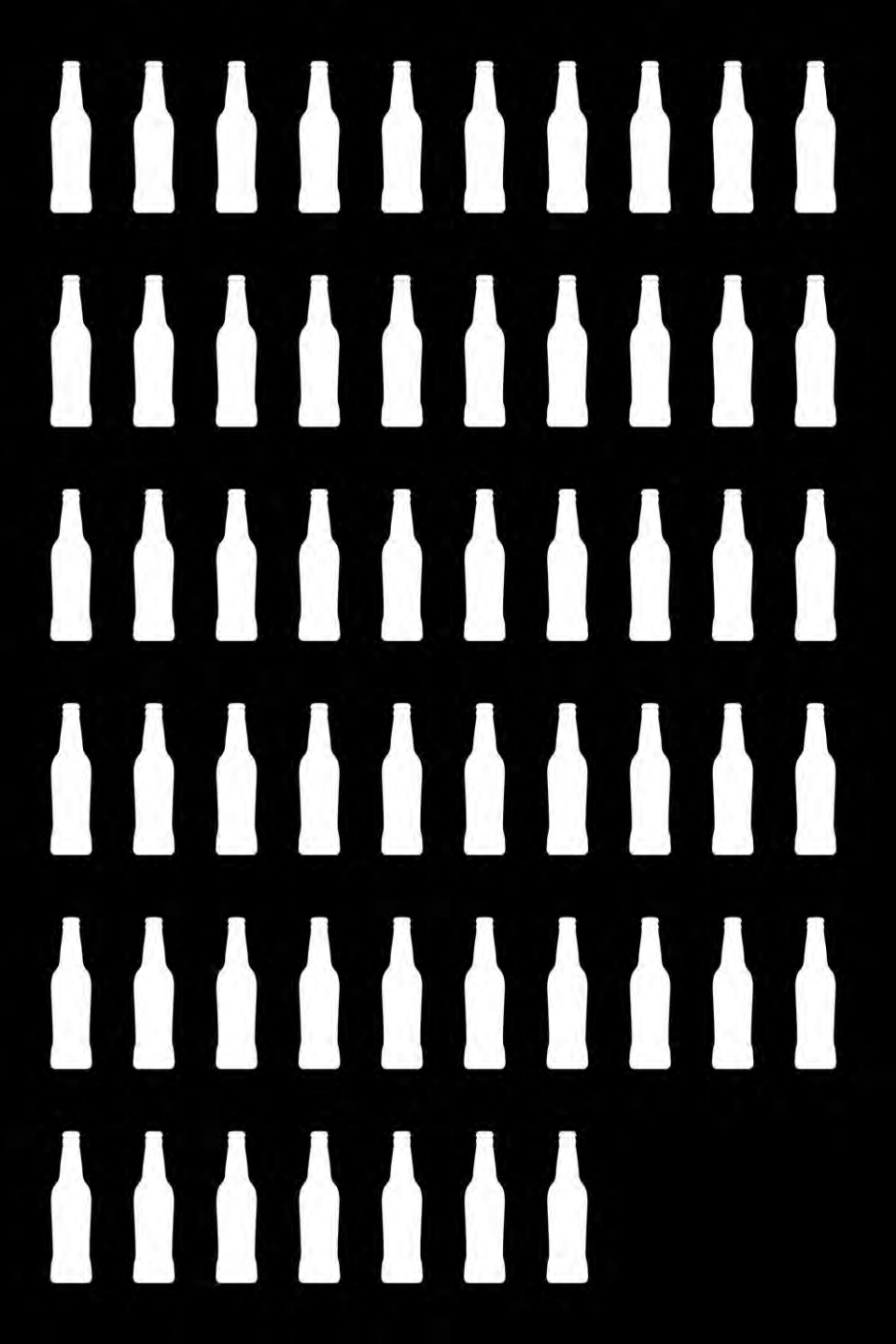


Time

Planting Green Roofs and Living Walls - 2004



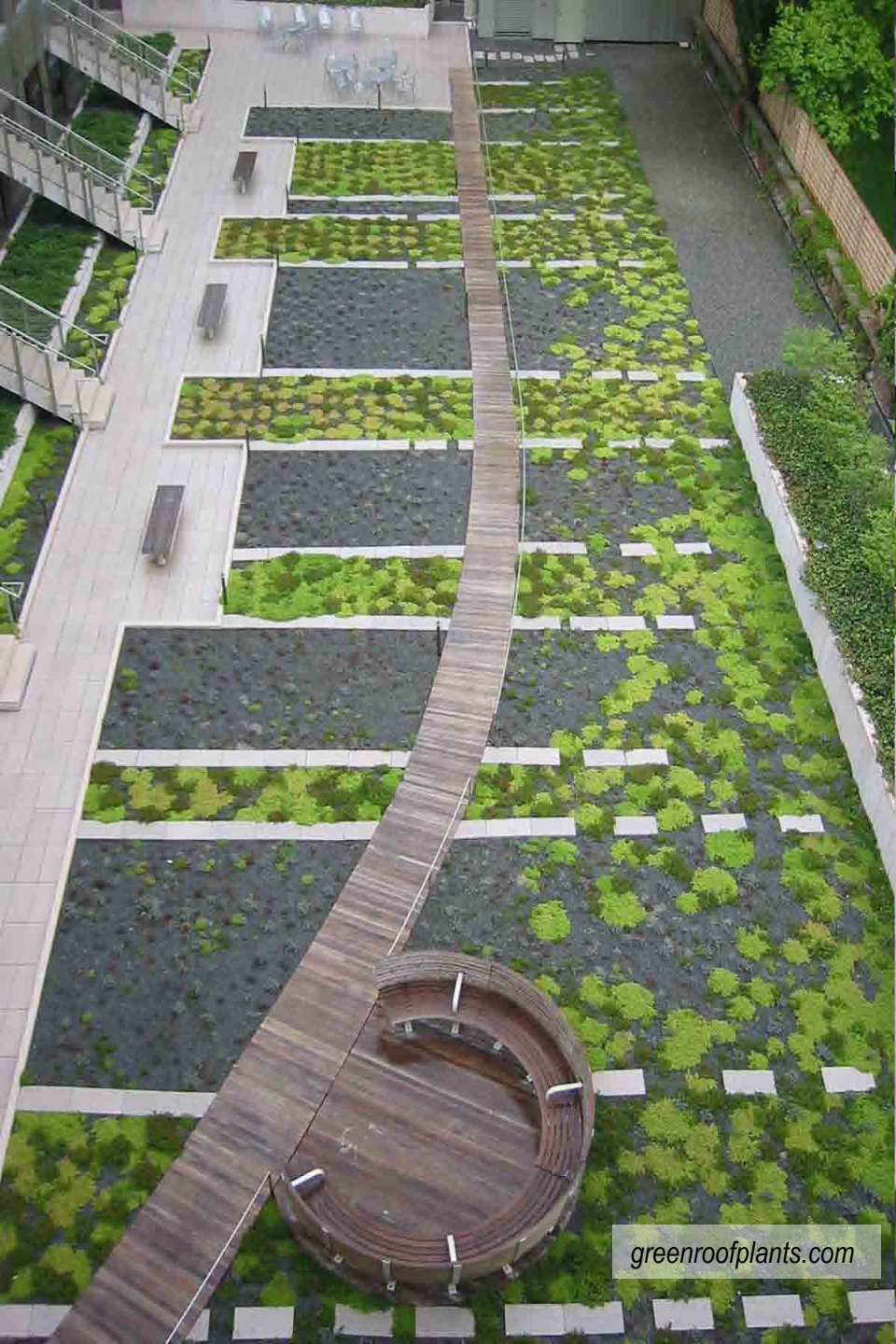






RTU-2

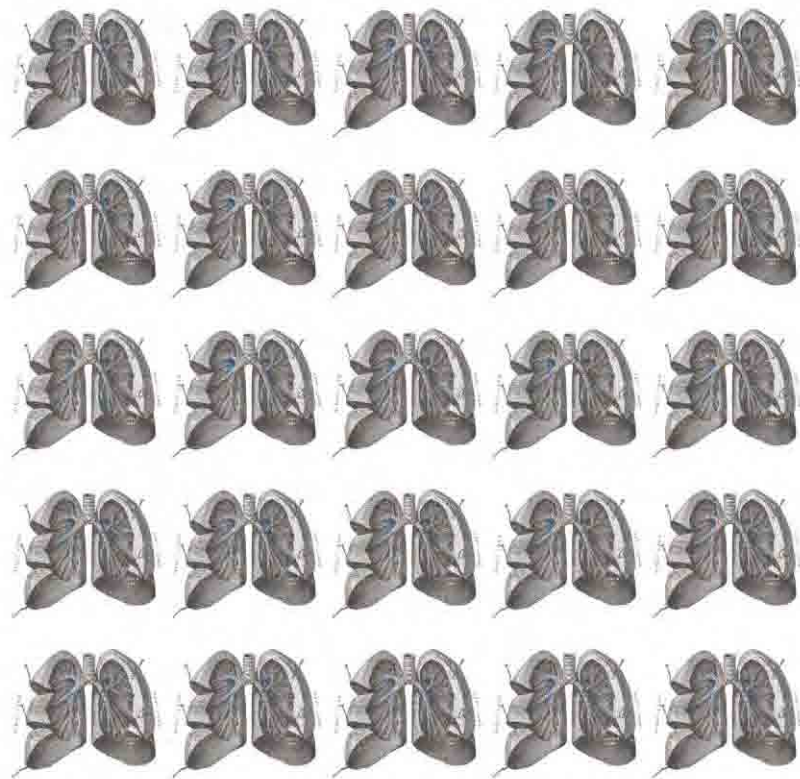


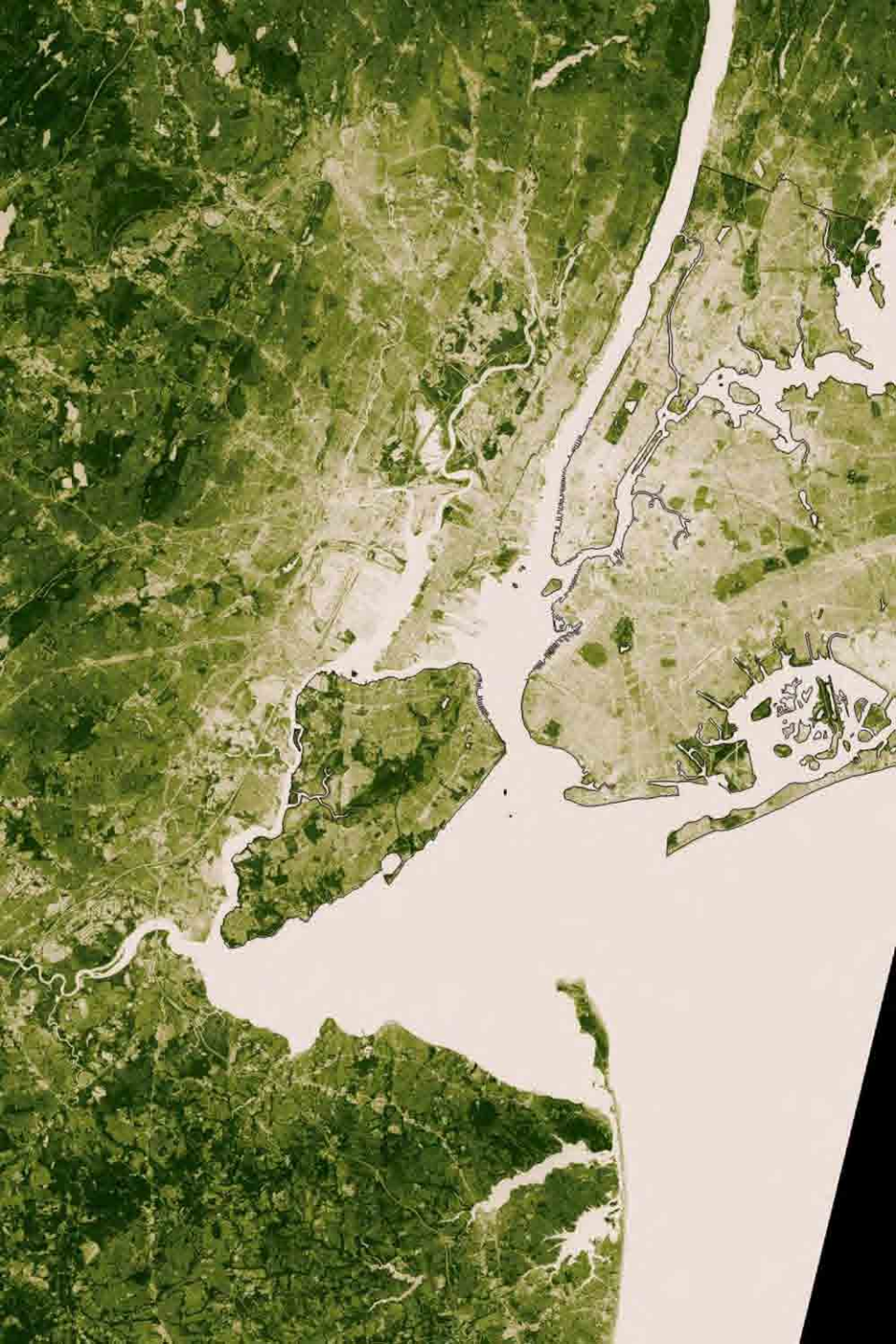


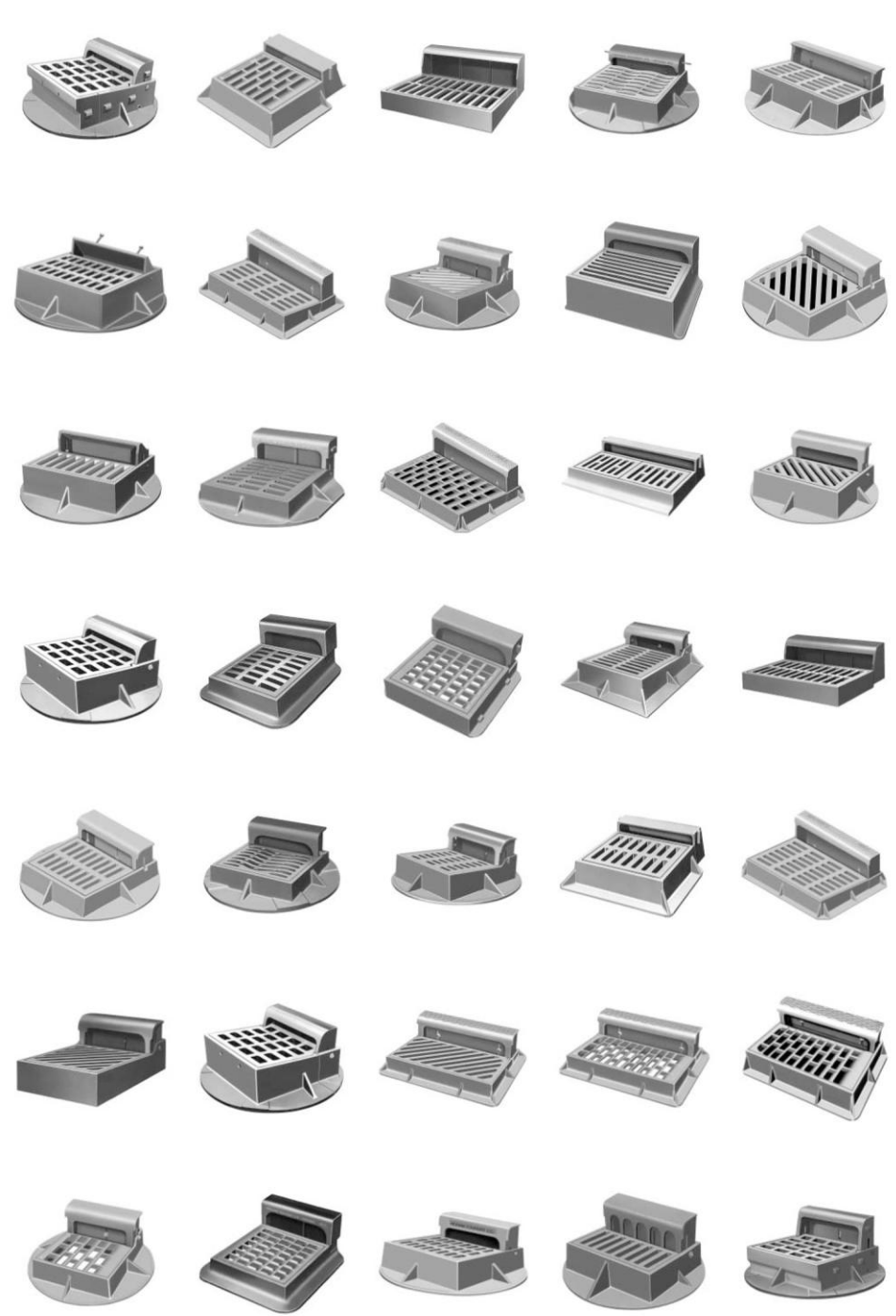
greenroofplants.com

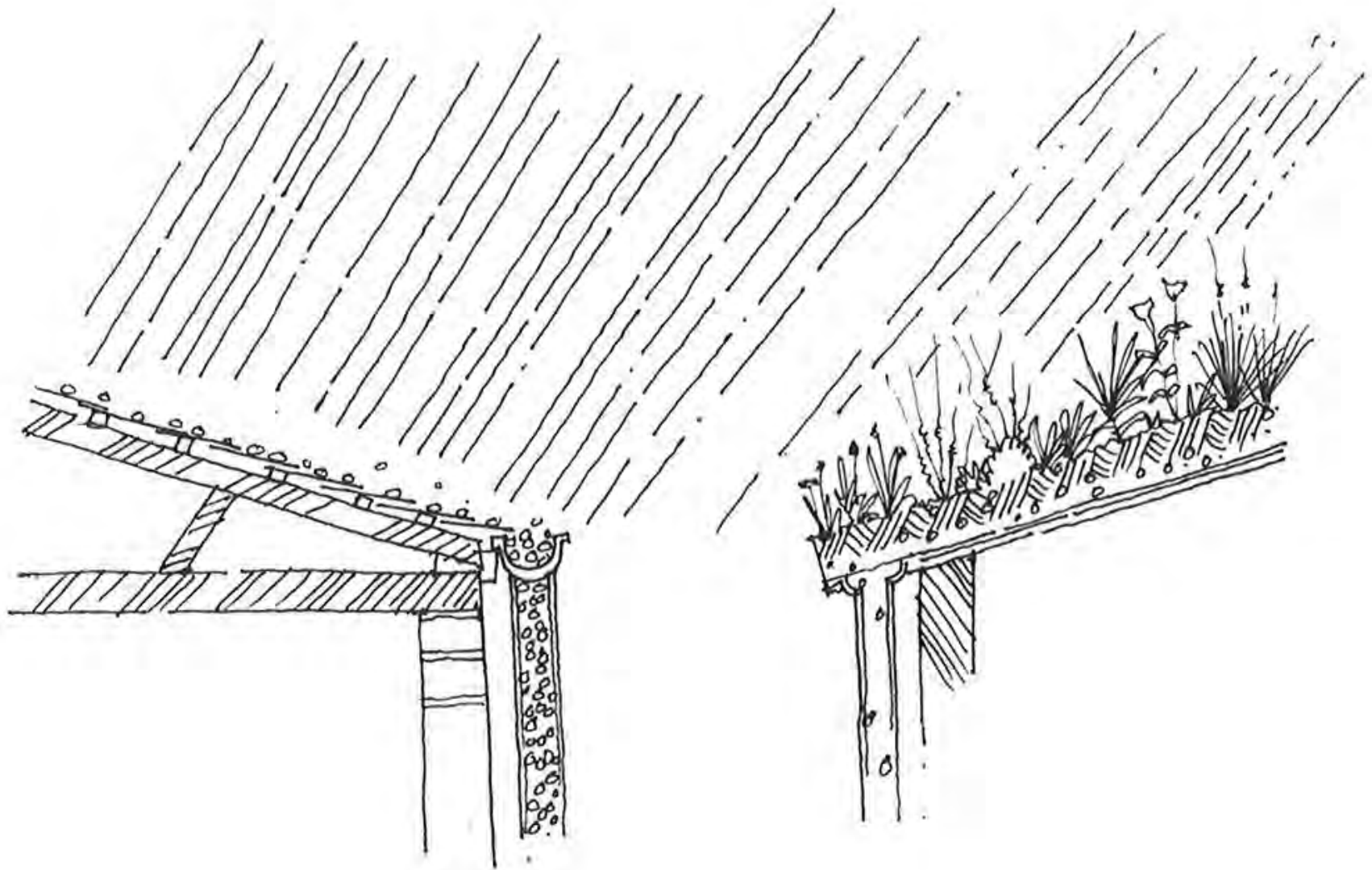
community

- air quality
- urban heat island
- GHG
- stormwater
- reducing re-roofing waste
- habitat
- aesthetics





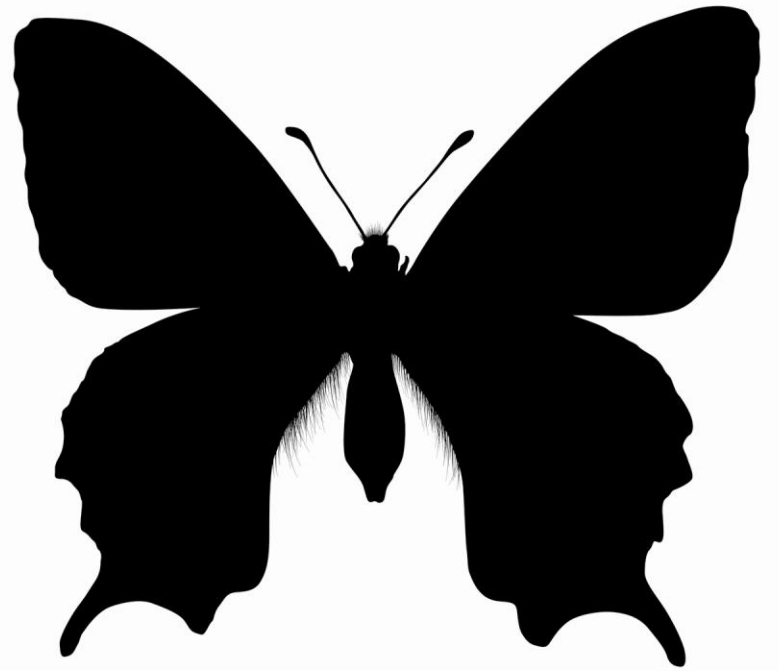




Planting Green Roofs and Living Walls - 2004



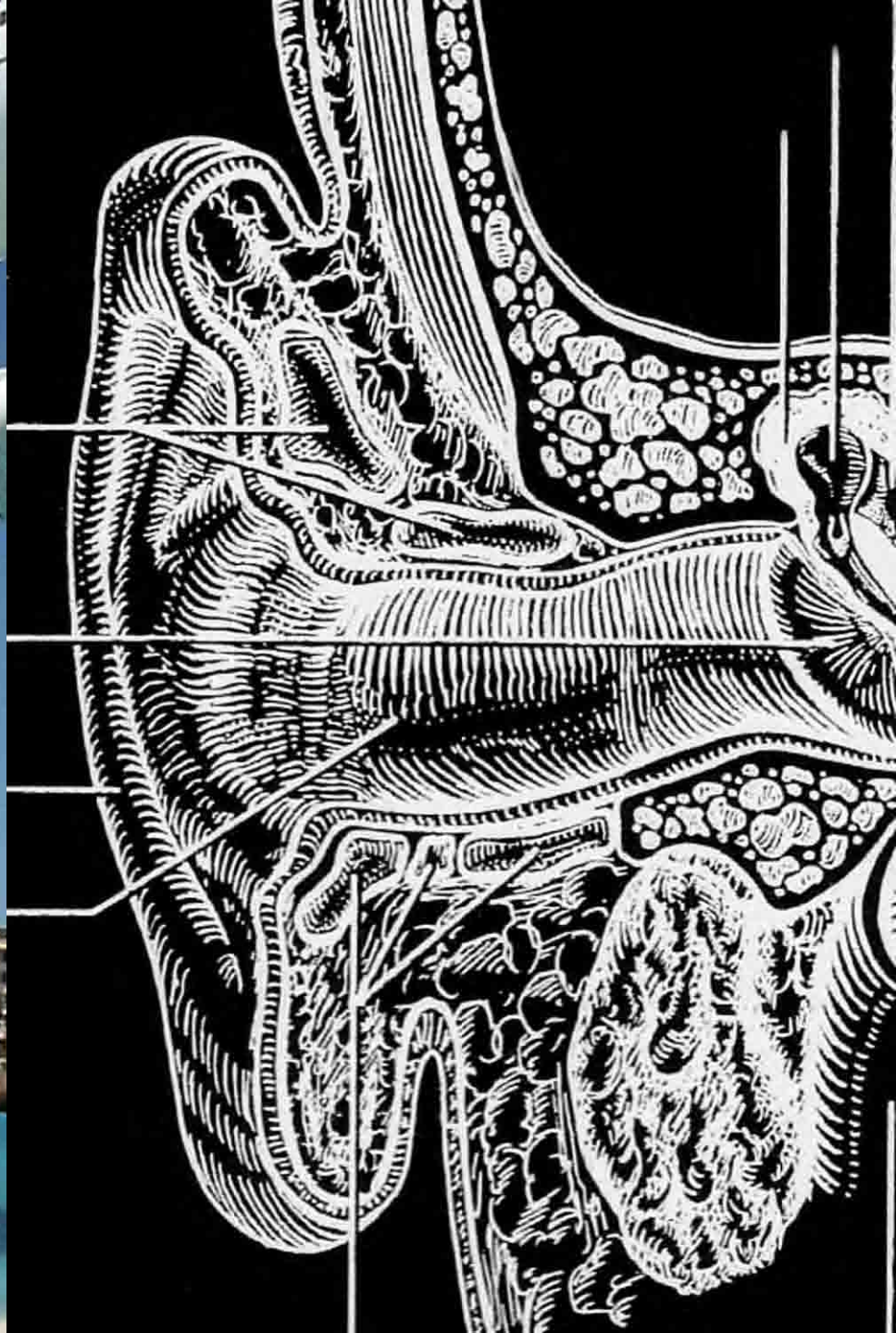






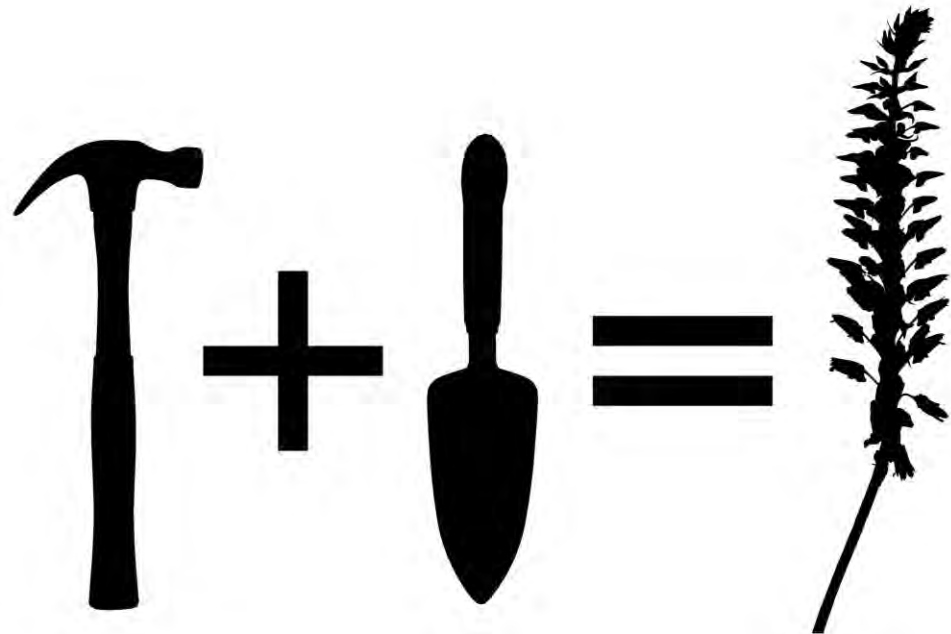
property value

marketability
sound insulation
health & horticultural therapy
worker productivity
recreation + amenity space









\$\$\$\$\$\$\$\$

Intensive (\$35-\$50/sq.ft.)

Extensive (\$20-\$35/sq.ft.)

Conventional (\$8-\$12/sq.ft.)



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