

Vertical Gardens Roof Gardens

ENPL 236

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Vertical Gardens

- What is vertical Garden
- for growing plants, and more particular to a vertical garden, i.e., in which a plurality of plants may be arranged in a generally vertical orientation. It is, on occasion, desirable to be able (U.S. PATENT DOCUMENTS)

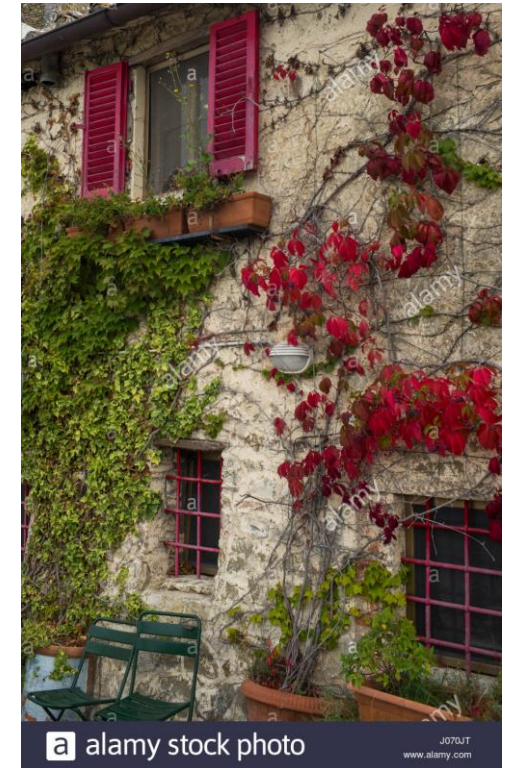
History

- Vertical gardens has been used since ancient times (example: hanging gardens)
- Vineyards and pergolas used in the Mediterranean region
- Ivy on British mansions
- Stanely Hart White
- Patric Blanc



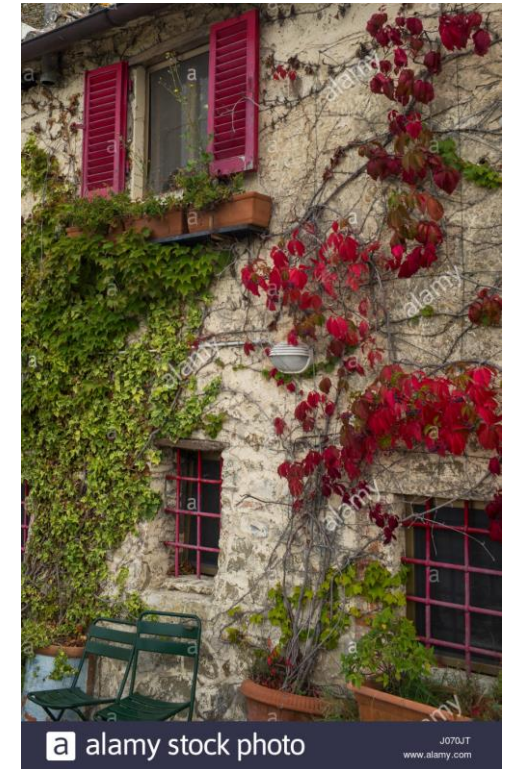
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history

- Stanly Hart White (1891-1979): studied agriculture. landscape Architect invented the vertical or green wall called it Botanical Bricks made it in his court yard
- White holds the first known patent for a green wall, or vertical garden, conceptualizing this new garden type as a solution to the problem of modern garden design. In 1939, he received a patent for his *Vegetation-Bearing Architectonic Structure and System*, and it was recently renewed.
- the actual inventor is Stanley Hart White, a Professor of Landscape Architecture who patented a green wall system in 1938.

History

- Patrick Blanc
- Patrick Blanc is sometimes credited as having developed the concept in the late 1980s,

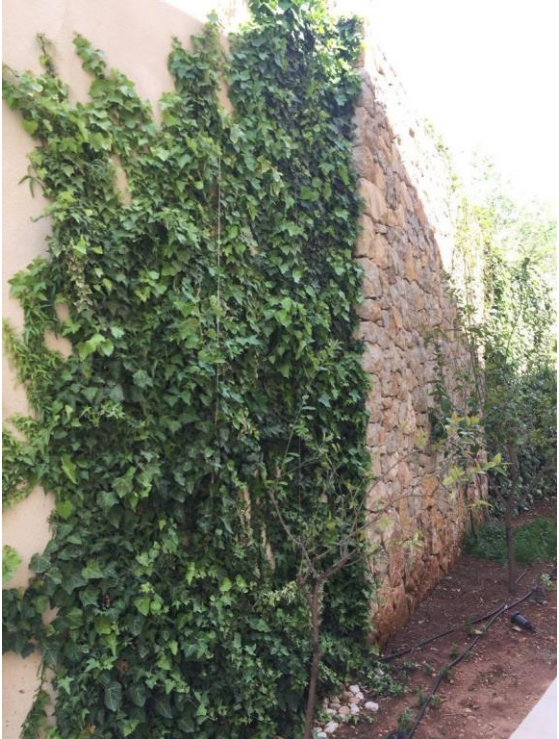
types

- Climbing plants
- Containers
- Structures (steel, wood)

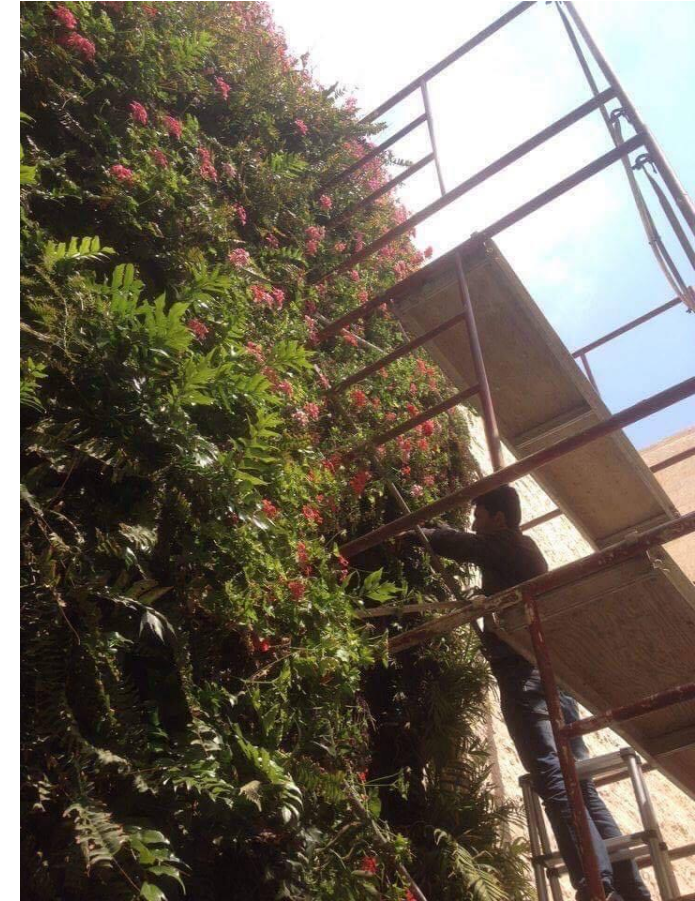
- There are two main categories of green walls: green façades and living walls. Green façades are made up of climbing plants either growing directly on a wall or, more recently, specially designed supporting structures. The plant shoot system grows up the side of the building while being rooted in the ground. With a living wall the modular panels are often made of stainless steel containers, geotextiles, irrigation systems, a growing medium and vegetation. There are three types of growth media used in living walls: loose media, mat media and structural media.



Types Climbing plants



Types Structures (steel, wood)





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- Interior and Exterior
- Ornamental plants
- Farming (edible plants, food)

Jeff Koons



Roof gardens

- Roof garden: is a vegetated space on top of manmade structure

- When designing roof garden loads should be calculated
- If it is decided to make the garden after the the construction finished one s should know how much weight the roof can bear
- Withstand the rain and wind in winter

- Intensive (eco... little growing media small plants
- Extensive (no matter of cost, structure, soil and growing media any type of plants including trees

Benefits

- Aesthetic value
- Economic value (agricultural product)
- Provide green space
- Health value

- Ecological value (biodiversity, birds local and migratory) this can be achieved by providing food and water for birds
- improve water (filter runoff) and air quality while
- reduce energy consumption.
- Green roofs provide water retention (stormwater in areas that has lots of rain)
- Reduce sound

Benefits

- Green roofs provide water retention (stormwater in areas that has lots of rain)
 - succulent plants most successful for stormwater retention
 - soil (mix of media that consist of heated clay slate and shale + beat or humus or organic material this can retain water)





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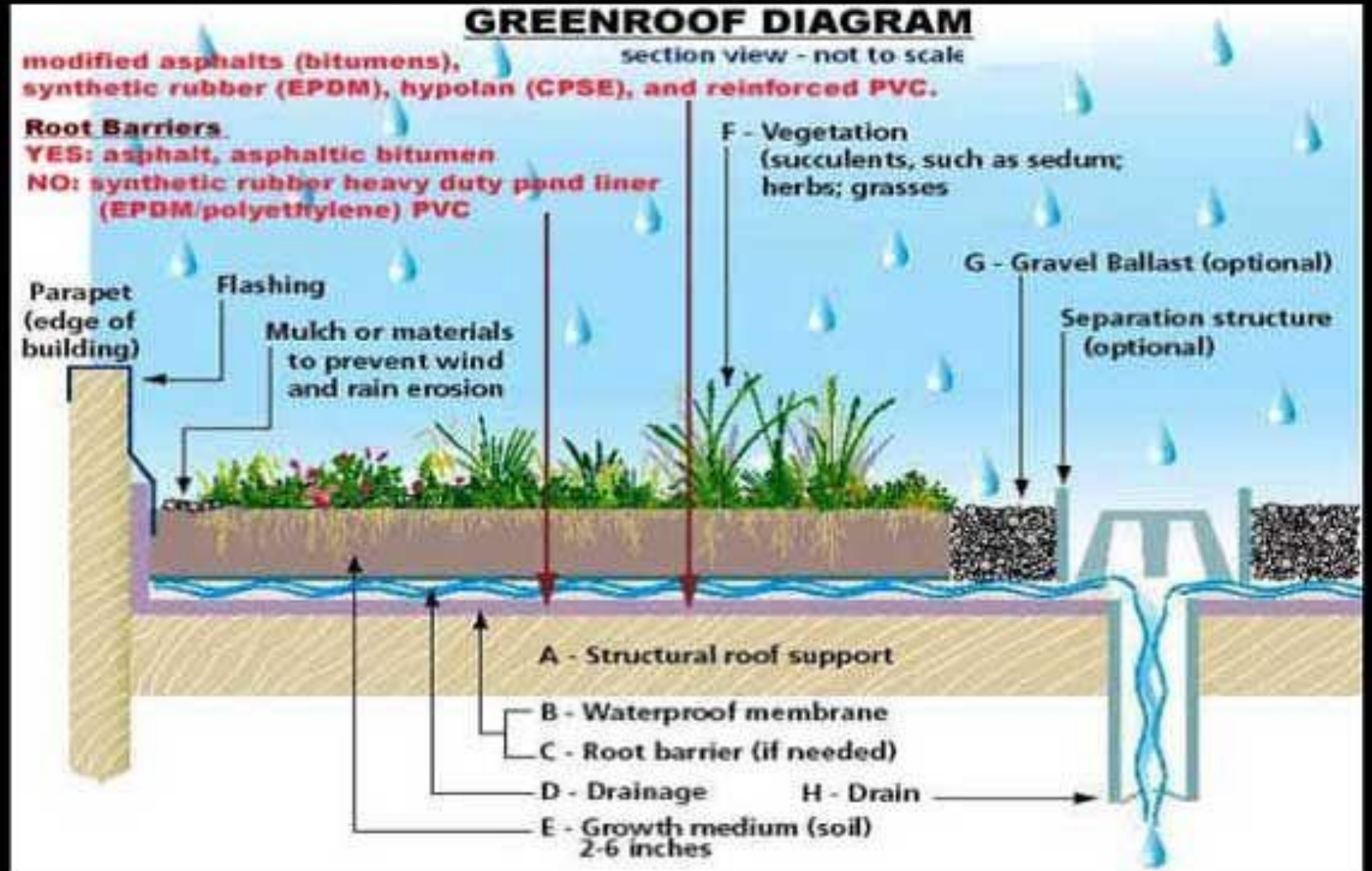
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- Sedum (stonecrop)
- Sempervivum (houseleak)
- Delosperma
- Zwartcop

Disadvantage

- Add extra cost for structural system

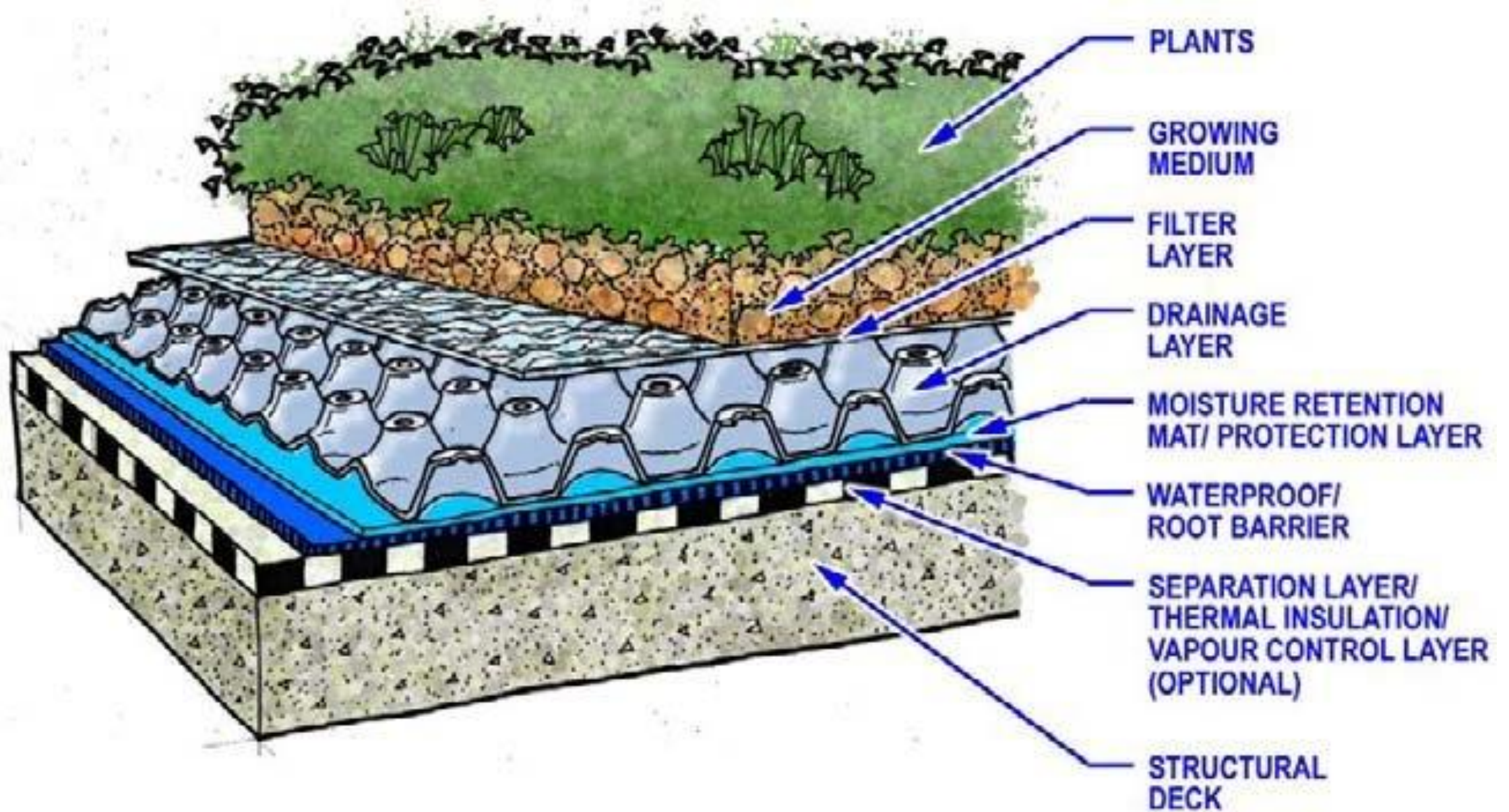
HOW IT WORKS



HIGHBURY BUILDERS COLLECTIVE

GREENROOFS

23.6.2004



Agriculture



Aesthetics



Containers





Singapore Park



Kowloon station
Hong Kong

Companies for roof gardens

- ZinCo



TUGC

- John Brooks,1984 :The garden book
- Derek Townshed, 2007: A study on green roof Application

