



TACKLING URBAN HEAT WITH PLANTS ?

A learning module for more sustainability in the city of the future

WE TAKE ANOTHER LOOK AT LISA'S RESEARCH.
ONE OF THE ARTICLES MAKES LISA THINK.

BLOOMING WALLS AGAINST THE HEAT

Air, Environment / 20 July 2021 / by the Technic Journal editorial team

Climate change is causing the number of heat-related deaths in cities to rise — this is the finding of a study by the University of Bern. Vertical greening systems are intended to help address this problem. However, not every type of vertical garden offers the same benefits. // By Selina Stiegler and Daria Zietkowiak.



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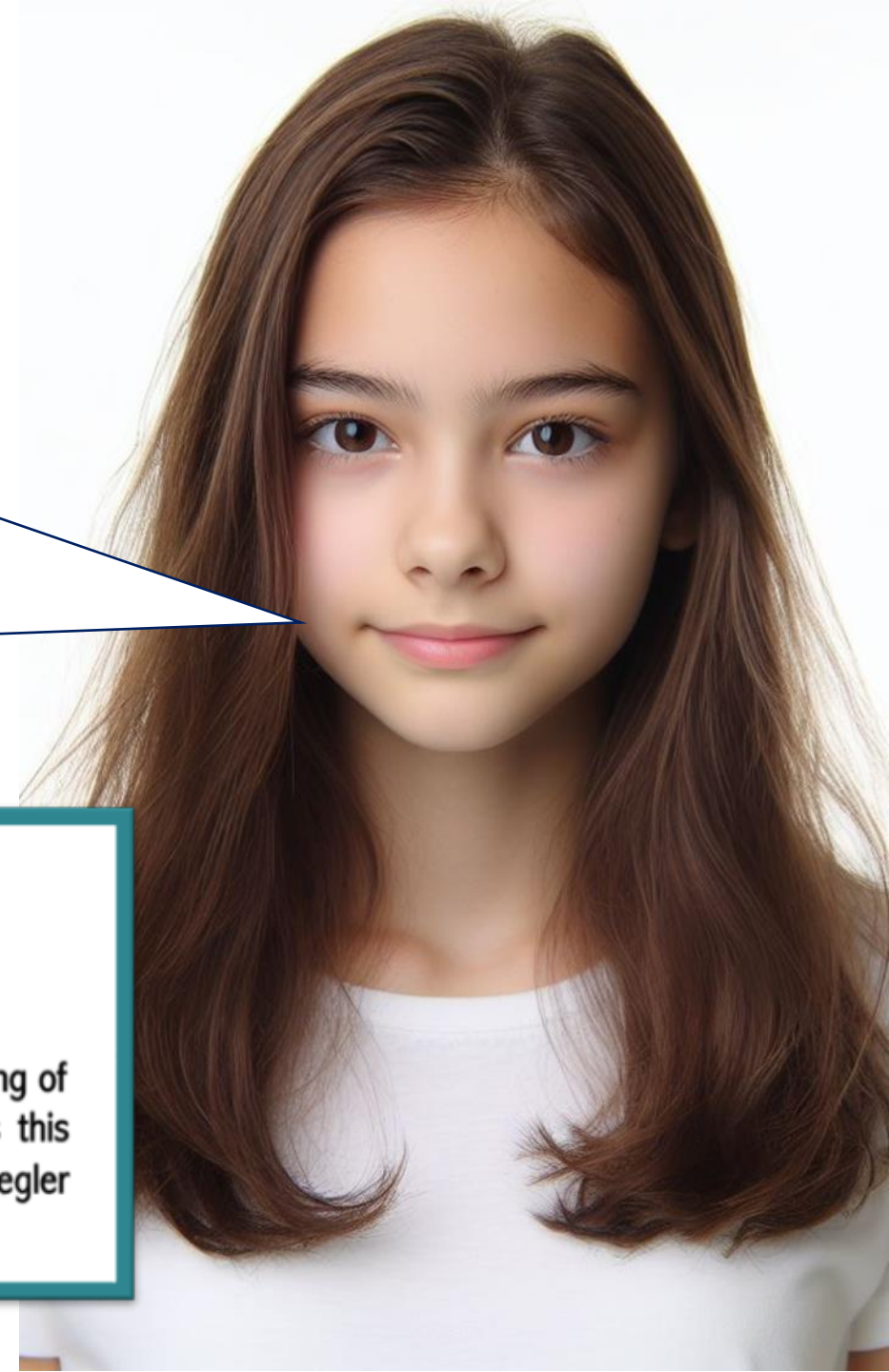
Vertical greening means planting
plants on the exterior walls of
buildings.

But what systems are available
for vertical greening?

BLOOMING WALLS AGAINST THE HEAT

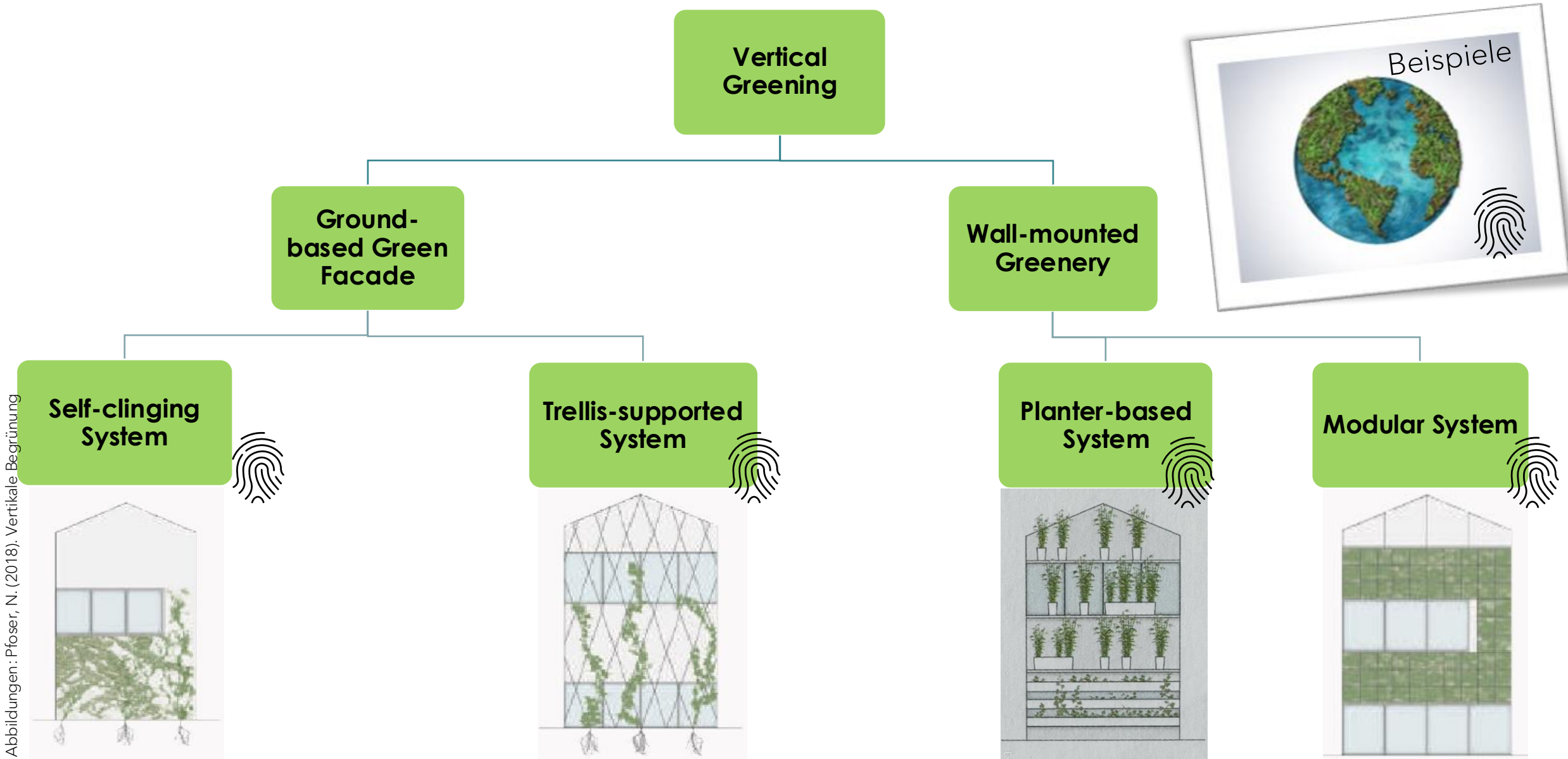
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What types of vertical greenery systems are available?

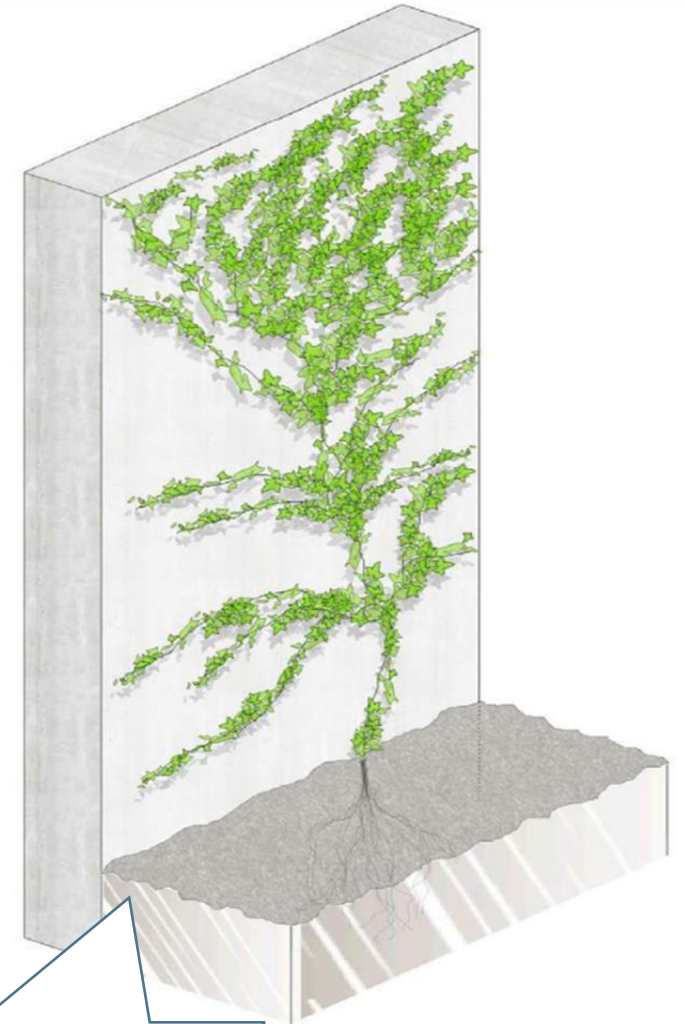
Use the interactive diagram: The fingerprint shows you what you can select.



Ground-based Green Facade

Self-clinging System

- The plants are planted in the ground
- The plants grow directly on the wall
- The plants are called self-clinging climbers



What does the system look like in reality?



Ground-based Green Facade

Self-clinging System

Ivy facade in Bonn

Photo: Institute for Biology Education, University of Cologne, 2016

Which plants can be used?



Self-clinging System: Example Plants

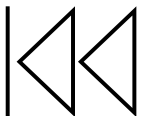
Boston Ivy (*Parthenocissus tricuspidata*)

- The leaves have three points (trilobed)
- The leaf margin is slightly serrated



Common Ivy (*Hedera helix*)

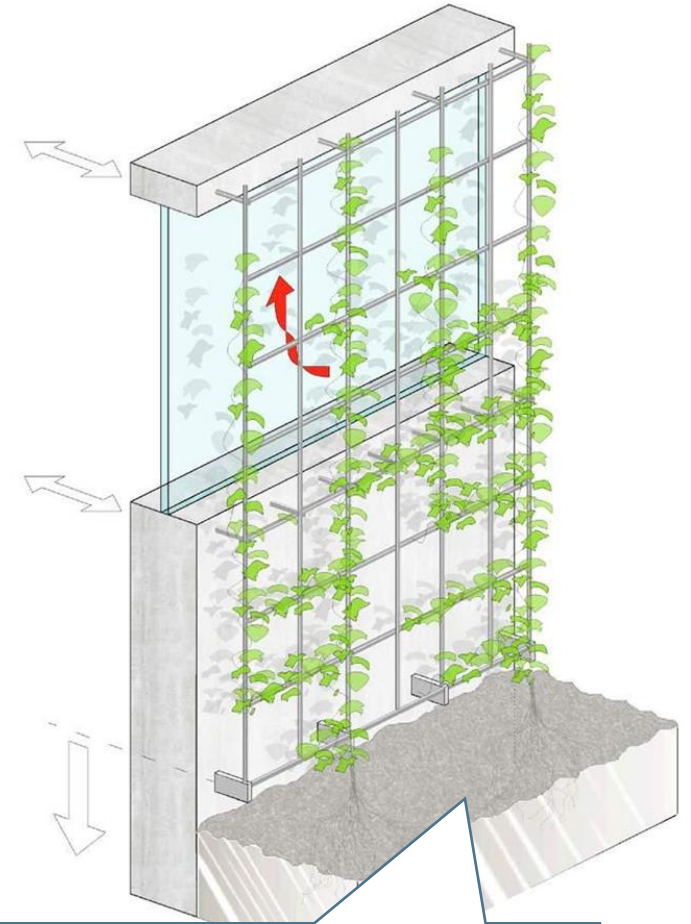
- Die Blätter sind herzförmig und gelappt
- Der Blattrand ist glatt (ganzrandig)



Ground-based Green Facade

Trellis-supported System

- The plants are planted in the ground
- The plants grow upward on a support frame
- This frame is also called a trellis



What does the system look like in reality?



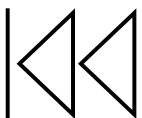
Ground-based Green Facade

Trellis-supported System

Climbing plants on
trellises

Photo: Institute of Physics, Humboldt University of Berlin
Marco Schmidt

Which plants can be used?



Trellis-supported System: Example Plants

Chinese Kiwi
(*Actinidia chinensis*)



Photo: de.wikipedia.org

Wisteria (*Wisteria*)

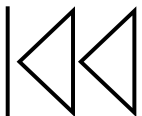


Photo: shop.plantura.garden

Evergreen Honeysuckle
(*Lonicera henryi*)



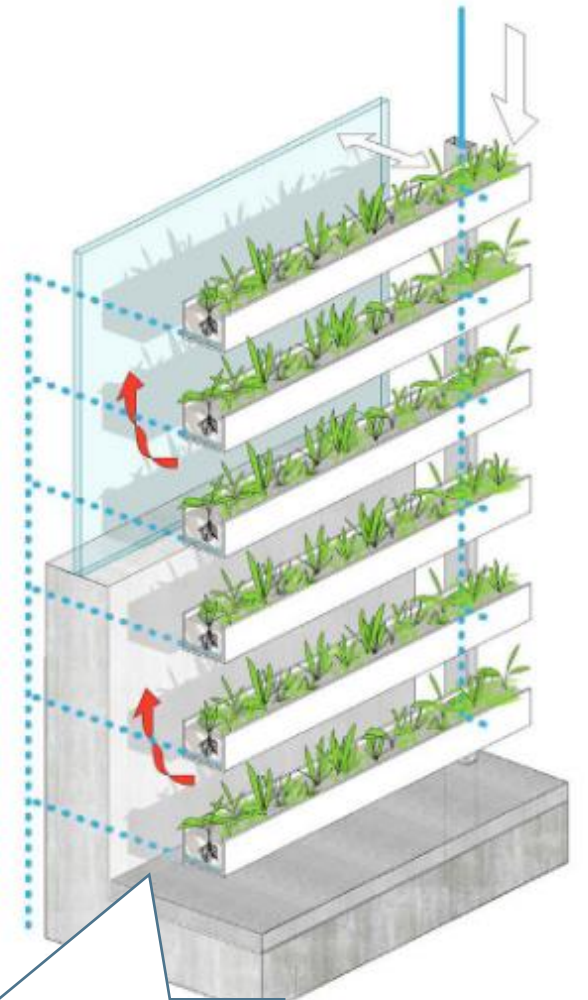
Photo: brandmeier.de



Wall-mounted Greenery

Planter-based System

- The plants are in planters
- The planters are placed in front of the wall or stacked on top of each other as plant shelves
- The system requires its own water and nutrient supply -> ground-based plants do not need this!



What does the system look like in reality?



Planter-based System

You can use lots of different plants, and it all comes down to the planter system!

- Herbaceous perennials
- Small shrubs
- Climbing plants (with support)



Photo: Pfoser, N. (2018). Vertikale Begrünung



Photo: Jonas Bomba

Which plants can be used?



Planter-based System: Example Plants

Perennials

cypress
(*Cymbalaria muralis*)



Photo: mein-schoener-Garten.de

Small shrubs

spindle trees
(*Euonymus*)

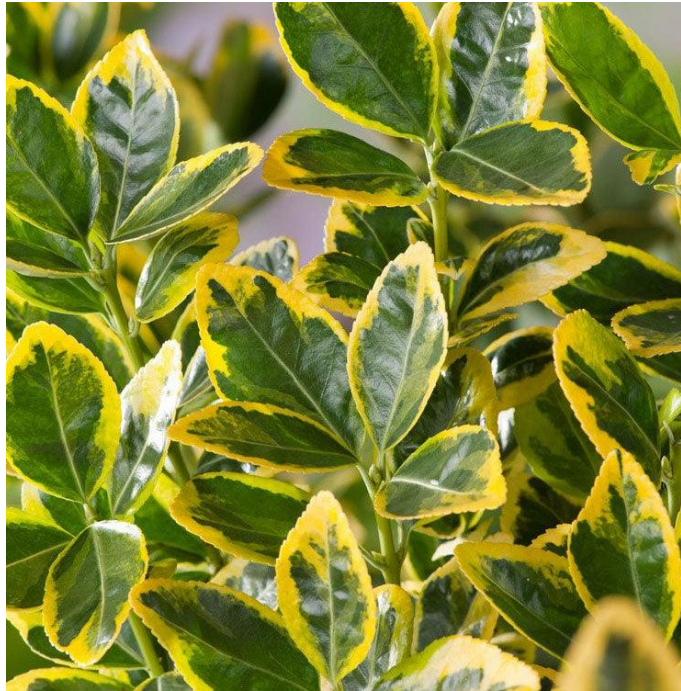


Photo: intratuin.de

Climbing Plants

Clematis
(*Clematis montana*)

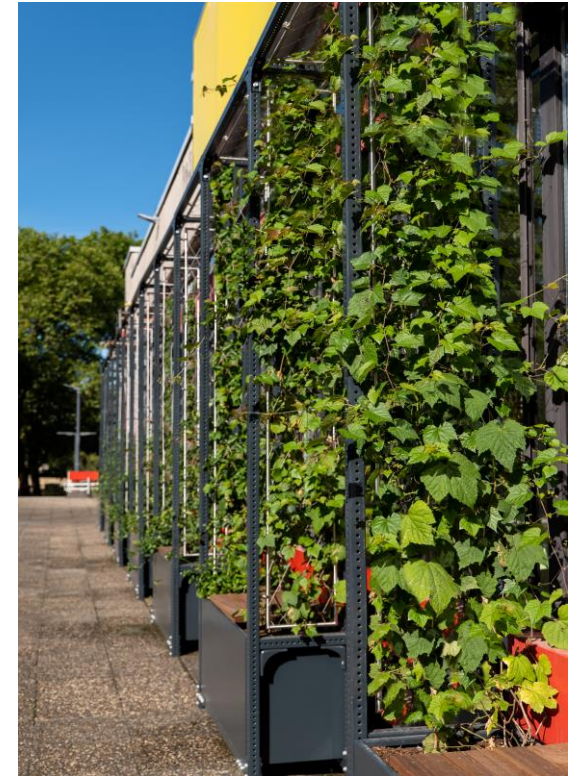
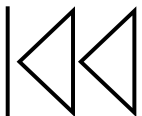


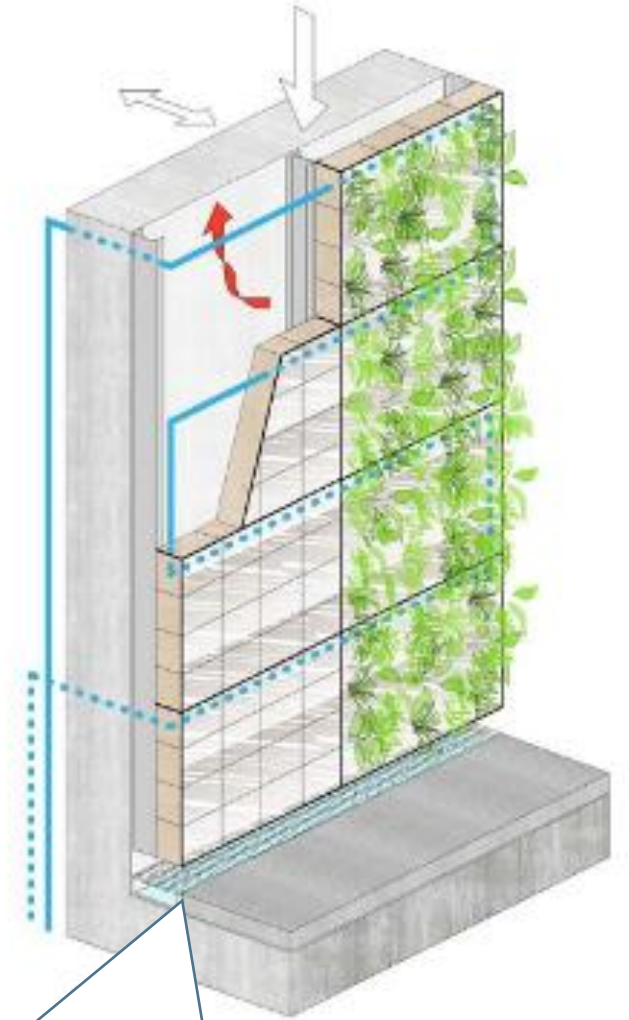
Photo: Jonas Bomba



Wall-mounted Greenery

Modular System

- The plants are planted in modules
- The modules are installed on the wall
- The system requires its own water and nutrient supply -> ground-based plants do not need this



What does the system look like in reality?

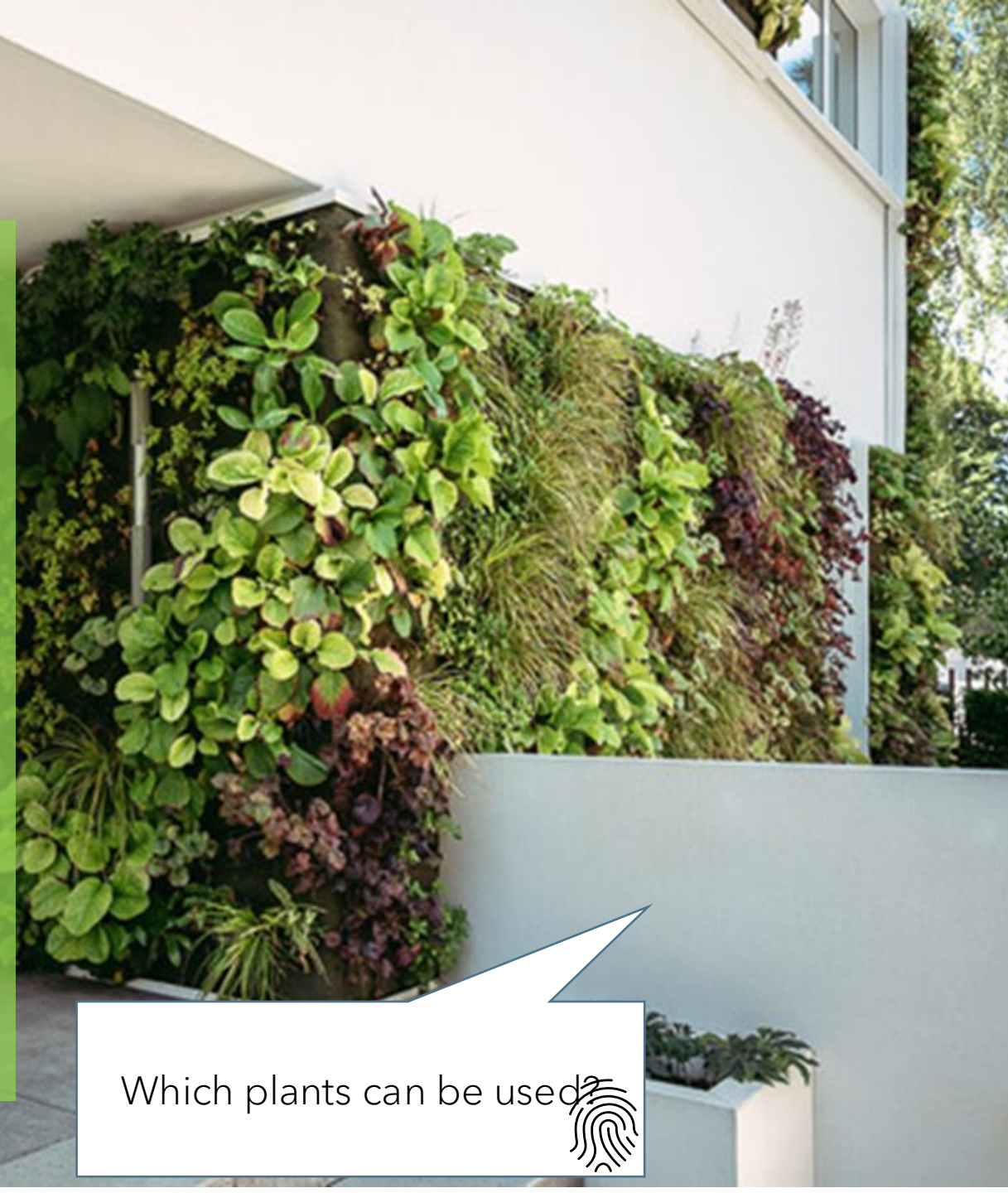


Modular System

You can use lots of different plants :

- Herbaceous Perennials
- Grasses
- Ferns

KREBS & CONRADS, Forschungsprojekt
GrüneFassadeKöln, 2023



Which plants can be used?



Modular System: Example Plants

Perennials

cypress
(*Cymbalaria muralis*)



Photo: mein-schoener-Garten.de

Grasses

hanging sedge
(*Carex pendula*)



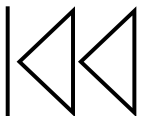
Photo: naturadb.de

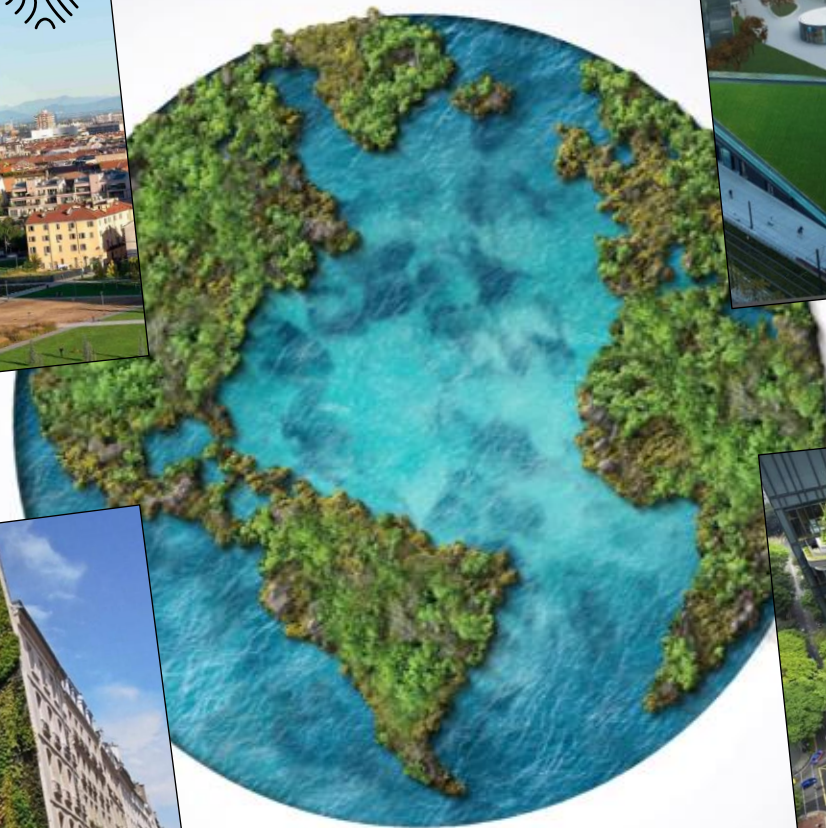
Ferns

deer tongue fern
(*Asplenium scolopendrium*)



Photo: Garten-von-ehren.imgbolt.de





Bosco verticale, Mailand, Italien

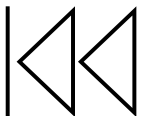
Photo: stefano boeri architetti.net



Düsseldorf: Kö Bogen II



Photo: competitionline.com



Vertical Garden by Patrick Blanc



Photo: urbannext.net

Homeoffice Patrick Blanc 😊

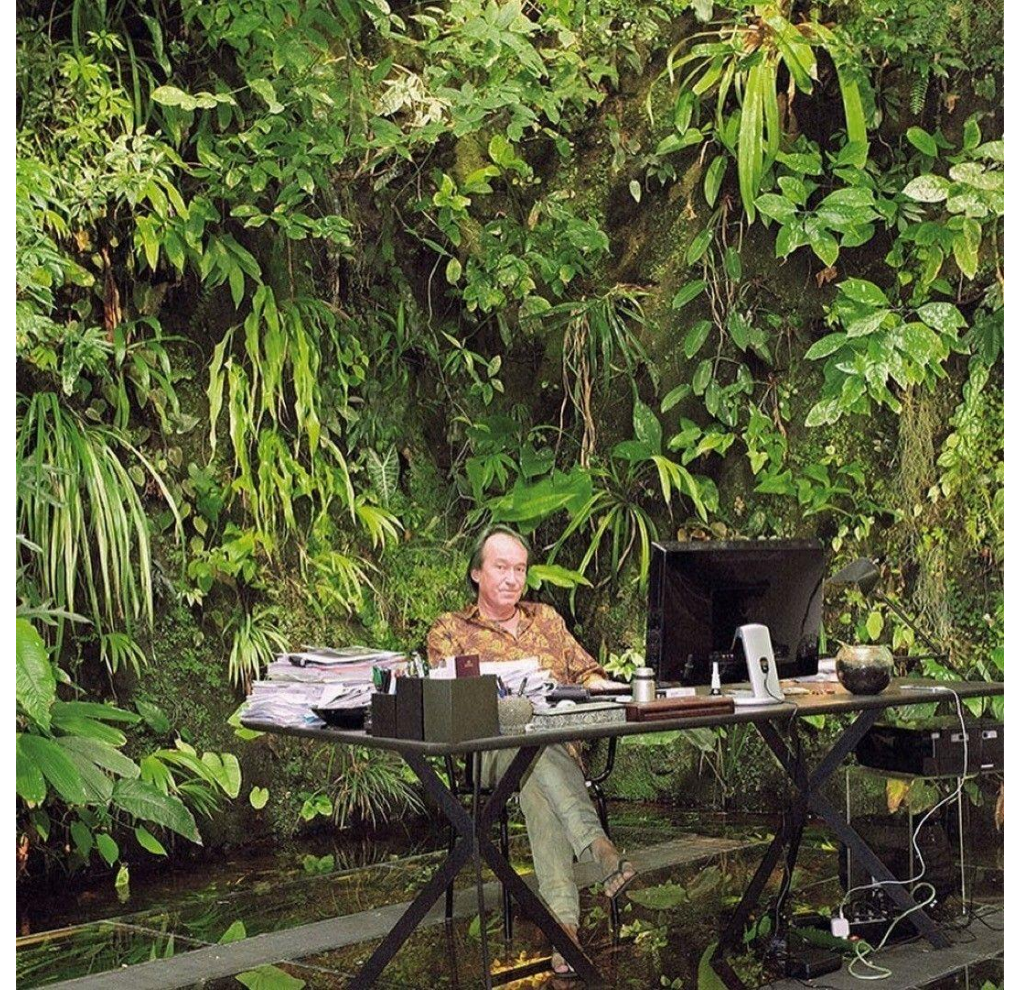


Photo: instagram.com



Singapur



Photo: reisereporter.de



Photo: touristik-aktuell.de

