

Modular Greening System

Key Data

- Location: Indoor (classroom)
- Type of Greening: Vertical greening, modular living wall
- Vegetation: Indoor plants
- Constructions: Metal wall rails with modular planting panels
- Irrigation: None

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Location Selection

The location for the modular green wall was predefined by the school. Installation took place indoors in a classroom at **BRG 6 Marchettigasse**.

The aim was to integrate vertical greening directly into the learning environment, thereby contributing to an improved indoor climate and enhancing the presence of nature in everyday school life.

The following aspects were considered when selecting the location:

- Load-bearing wall suitable for the substructure and modular panels
- Good accessibility for installation, maintenance, and educational use
- Consideration of the lighting conditions in the classroom when selecting plant species

The green wall is positioned in a way that does not interfere with classroom activities while remaining clearly visible and easily accessible.

Materials

The following list provides an overview of the materials required for the installation and planting of a modular green wall. Quantities and dimensions depend on the number of module rows and the planned wall area.

Substructure and Fixings

- **Metal wall rails**
 - Quantity according to the number of vertical module rows
 - Length adapted to the desired height of the green wall
- **Screws and wall plugs**
 - Suitable for the specific wall type
 - Sufficient quantity to ensure secure fixing of the wall rails

Modules and Growing Medium

- **Modular planting cassettes / panels**
 - Quantity according to the planned green wall area
- **Peat-free growing medium**
 - Suitable for indoor or outdoor applications, depending on the project requirements
- **Mineral fertiliser**
 - Applied sparingly to support plant establishment during the initial growing phase

Plants

Plants suitable for either indoor or outdoor use are selected depending on the project location and must be able to thrive under the prevailing light and temperature conditions.

Particular attention was given to the following criteria:

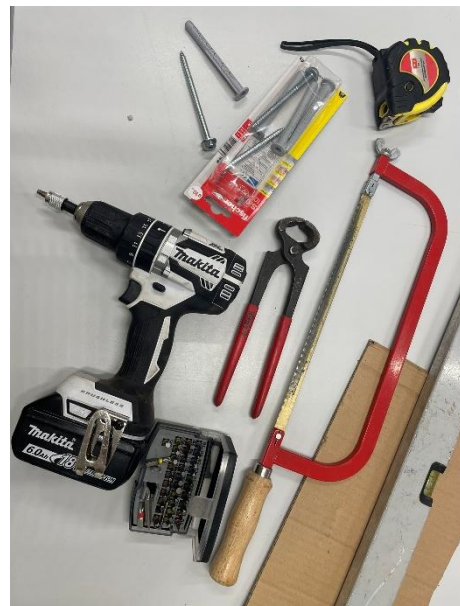
- Non-toxic plants suitable for use in a school environment
- Low maintenance requirements

The plants are inserted directly into the modular planting cassettes. Depending on plant size, each cassette is planted with two to three plants.

After planting, regular inspections and watering as required are necessary to ensure successful establishment and healthy growth.

Tools

- Cordless drill/driver with bit set
- Masonry/concrete drill bits
- Metal saw
- Cutting pliers
- Spirit level
- 8 × 80 mm screws with suitable wall plugs
- Adhesive tape
- Buckets
- Shovels
- Hand trowels
- Watering can
- Ladder (if required)



Step-by-Step Instructions

Preparing and Installing the Wall Rails

Für die Montage werden die Wandschienen zunächst **auf die benötigte Länge zugeschnitten**.

For installation, the wall rails are first cut to the required length.

The number of wall rails needed depends on the number of vertical module rows of the green wall. In this project, three vertical rows are planned, so three wall rails are cut accordingly.

After cutting, the cut edges should be briefly checked. If necessary, sharp edges can be deburred to prevent injuries during later installation.

The wall rail is first placed against the wall in the intended position. It is important to ensure that it lies flat against the wall.

Using a spirit level, check whether the wall rail is aligned exactly vertically. Correct alignment is important so that the modules installed later hang straight and the load is distributed evenly.



Once the position is correct, the drill holes are marked directly on the wall through the rail.

Since the wall rail has many fixing holes, it is sufficient to use every second hole. Care should be taken to select the drill holes alternately offset to the left and right. This ensures that there is at least one screw on each side along the full height of the rail and that the load is transferred evenly into the wall.



After marking the drill points, prepare everything for drilling.

A masonry drill bit is used for the holes, suitable for the wall material and for the screws and wall plugs that will be used later.

To ensure that the drill holes are only as deep as necessary, place the screw that will later be used next to the drill bit. Mark the drill bit with a piece of adhesive tape at the point where the screw ends. This mark serves as a depth guide when drilling.

Then drill the holes as straight as possible into the wall at the previously marked points.

After drilling, insert the wall plugs into the prepared holes. Carefully tap them into the wall with a hammer until they are flush with the wall surface.

Then place the wall rail against the wall again and align it with the drill holes.

Using a cordless screwdriver and the appropriate bit, screw the screws through the wall rail into the wall plugs.



Once the first wall rail has been installed, it serves as a reference for the remaining wall rails.

The positions of the next wall rails are determined along the already fixed rail. To do this, place another wall rail against the wall and determine the required centre-to-centre spacing based on the modules that will later be installed.

The modules are 20 cm or 40 cm wide. In addition, a tolerance of approx. 1 cm is included to ensure that the modules can later be inserted without tension.

Once the spacing has been defined, check again whether the wall rail is correctly aligned.

All installation steps are then repeated for this wall rail as for the first rail:

- Marking the drill holes
- Drilling the holes
- Inserting the wall plugs
- Screwing the wall rail into place

This process is repeated until all required wall rails have been installed.



After all wall rails have been installed, the substructure of the green wall is complete.

Before inserting the modules, check again that all rails are firmly fixed.

The modular panels can then be inserted into the wall rails from above or from the front. Make sure that the modules fit cleanly into the guide rails and lock securely into place.

Planting the Modular Cassettes

Only plants that are suitable for the respective location are used for planting, depending on the design either for indoor or outdoor use. Especially in a school context, it is important to ensure that all plants are non-toxic and do not pose any health risks.



First, the modular cassettes are filled with peat-free potting soil. The soil is added loosely and lightly pressed down to provide a good base for the plants.

The plants are then carefully removed from their pots and the roots are gently loosened. Two to three plants are placed in each cassette, depending on plant size and growth habit.

Finally, a small amount of mineral fertiliser is evenly added to the cassettes. This supports plant establishment during the initial phase. After planting, the modules should be watered thoroughly so that the soil and roots connect well.



Greening and Maintenance

Maintenance includes the following tasks in particular:

- During the first weeks (establishment phase): check daily and water if necessary
- After good root development: check 2–3 times per week and water if necessary
- Clarify watering arrangements for the summer holidays in good time
- On an ongoing basis, as needed:
 - Guide shoots along the trellis and tie them if necessary
 - Remove brown leaves and dead shoots as needed
 - Prune plants if growth becomes too strong
 - Fertilise if necessary in spring/summer
 - Remove and replace dead plants if necessary

Cleaning Up and Cleaning Tools

After completing the work

- Clean all tools and equipment used and check that everything is complete
- Dispose of excess materials and packaging properly or collect them for later use
- Return all tools to their designated storage place
- Collect any small parts that may still be lying around
- Remove power cables and leave the work area clean

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