Mobile Green Room Divider

Rollable plant trough with trellis

Figure 1: Plant troughs as room dividers

Key Data

- LOCATION: Indoor & Outdoor, mobile (rollable)
- TYPE OF GREENING: Vertical greening, plant trough
- VEGETATION: Climbing plants, perennials, indoor plants
- CONSTRUCTION: Plant trough (wood) with castors and trellis (wood, steel cable)
- IRRIGATION: Manual or automatic (Drip line)

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Content

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Location Selection

- Define the area and height of the installation site
- Determine the maximum dimensions (length/width/height) of the planned route inside the building (doors, elevators, etc.)
    - Assembly location Installation site
    - Relocation of the system

  for maximum dimensions of the greening system

- Determine exposure and light conditions (indoors)
  for plant selection and/or additional lighting (indoor)

- Irrigation:
    - Staff available for manual watering (also during holiday periods)
    - Water connection (for automatic irrigation)
    - Power connection (for automatic irrigation)
    - Drainage system (for automatic irrigation and outdoor installations)

Material

For a "*mobile green room divider*" with a **plant trough ~ 130/50/56 cm** (L/W/H) and a **trellis with a total height of 175 cm**, the following materials are required.

The specified dimensions serve as a guideline for material procurement and as a construction aid. However, it is recommended to prepare a construction drawing or sketch based on the actual available component dimensions or individual sizes.

For the wooden components, it is generally recommended to choose a locally sourced, easy-to-work-with, and durable type of wood. The surface should preferably be planed and untreated. For **outdoor use**, the wood should be weather-resistant, e.g., larch wood can be used. For **indoor use**, spruce wood is a suitable option.

In principle, the use of reclaimed or leftover wood is also possible. Through appropriate surface treatment and processing (e.g., placing the visually appealing side at the front), material can be saved and (re)used.

Wooden Plant Trough

- **Square timber ~ 50/80 mm ~ 9 m** – for frame construction
    - 4 pcs. each 1250 cm (longitudinal timbers)
    - 2 pcs. each 35 cm (cross timbers)
    - 6 pcs. each 43 cm (Uprights)

- **Wooden boards ~ 26/140 mm ~ 18 m** – for cladding and base
    - 8 pcs. each 130 cm (longitudinal timbers)
    - 8 pcs. each 45 cm (cross timbers)
    - 8 pcs. each 45 cm (Uprights)

- **Castors**
    - 4 pcs. heavy-duty castors (load capacity > 200 kg each) – swivel and lockable
      Choose castor type according to the floor covering

- **Screws** [d/l mm diameter/length]
    - 12 pcs. 5/120 mm (upper frame)
    - 20 pcs. 5/80 mm (lower frame + cross timbers)

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- 100 pcs. 4/50 mm (cladding + floorboards + castors)

Trellis Made of Wood and Steel Cable

- **Square timber ~ 45/45 mm ~ 6 m** – for trellis frame
  - 2 pcs. each 155 cm (Uprights)
  - 3 pcs. each 115 cm (longitudinal timbers)
- **Screws**
  - 6 pcs. 5/80 mm (Uprights-Planter trough)
  - 12 pcs. 4/70 mm (Uprights-longitudinal timber)
- **Steel stable 4 mm** [d] **~ 12 m**
- **Cable clamps 4 mm** [d] **~ 4 pcs.**

Vegetation Support Layer

- **Waterproofing plant trough:**
  - Plastic mortar tub
  - *and/or* dimpled membrane (available at construction supply stores)
  - *or* pond liner, e.g., made of EPDM
- **Inspection pipe diameter 5 cm, length approx. 50 cm**
  - e.g., drainage pipe (PP) DN 50 + cap
- Optional: **Tank valve** for drainage
- **Drainage layer** height 5 cm, approx. 30 litres, e.g., expanded clay, clay granulate
- **Separation layer – fleece approx. 2×1 m** - e.g., recycled fleece (200 g/m²)
- **Substrate ~ 200 l**
  - For indoor use: e.g., lightweight, purely mineral mixture (volcanic rock, perlite, pumice, zeolite)
  - For outdoor use: e.g., lightweight intensive roof garden substrate, planting substrate with mineral and organic components (peat-free)
- **Cover layer/mulch material 3 cm ~ 20 l**
  - Garden fibre / wood fibre
  - *or* mineral coarse aggregate

  no bark mulch (inhibits plant growth)

Plants

- **Indoor:** Climbing plants (e.g., chestnut vine, pothos, philodendron, monstera) and suitable indoor plants **Note: Pay attention to light requirements!**
- **Outdoor:** Small-growing climbing plants, perennials, herbs
  Note: Pay attention to exposure and moisture requirements!
- **Binding wire** for climbing plants

Tools

- Measuring tape, folding ruler
- Marking square
- Pencil
- Wood saw: circular saw or mitre saw
- Cordless drill/driver + bit set
- Wood drill bits 3, 4, and 5 mm [d]

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- Optional: wood planer
- Sandpaper
- Cutter-Knife
- Stapler + pins
- Wrench for cable clamps
- Cable pliers
- Scissors (for cutting fleece)
- Garden shears
- Hand shovels
- Binding material (e.g., string, clips, wire)
- Watering can or garden hose

Step-by-Step Instructions

Once all materials have been procured, preparations and assembly can begin.

Step 1: Plan Sketch and Dimensions

Based on the determined overall dimensions, a plan sketch and the exact component lengths should be created. It is recommended to prepare a list with all cutting dimensions and drill hole positions for the wooden parts.

Step 2: Assembly of the Plant Trough

First, all lengths are marked on the wood ("marked out"), then the wood is cut and processed, and finally assembled into a planter box using screws.

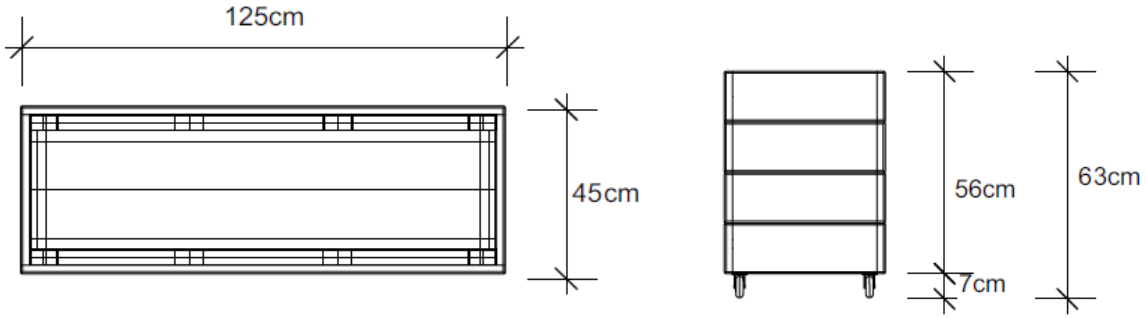

Figure 2: Plant trough top view and side view

2.1 Cutting and Processing the Wood

1. Transfer length measurements and drill hole positions onto the wood
2. Cut the wood to the exact lengths.
3. Chamfer or grind edges
4. Pre-drill screw holes (distance to end grain edge > 2 cm)

2.2 Screw Together

1. First, assemble the **frame** from the **squared timbers** and screw it together (2 screws of 5 mm per joint).
2. Screw the **wooden boards** onto the frame (2 screws of 4 mm per board end).
3. Insert the **base boards** and screw them in place (2 screws of 4 mm per board end).

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4. Tilt the plant trough and mount the **castors** at the four corners (e.g., 4 screws of 4 mm per castor).
   Tip: Position the castors slightly inward so they can still be locked from the outside but do not protrude too far.

Figure 3: Visualisation of mobile plant trough (without trellis)

Step 3: Mounting the Trellis

1. **Drill holes** (minimum diameter 5 mm) through all three **longitudinal timbers** for the cable. Distribute the hole spacing evenly (e.g., 9 holes at 10–15 cm intervals).
2. Screw the **uprights** to the inside of the short sides of the planter frame (3 screws of 5 mm per upright).
3. Insert the **longitudinal timbers** between the uprights (2 screws of 4 mm per joint):
   a. One timber at the very top
   b. One timber 5 cm above the top edge of the planter box
   c. One timber positioned in the middle
   Note: **The lower longitudinal timber should only be attached after inserting the mortar tub!**
4. Thread the **steel cable** vertically through all three longitudinal timbers and secure both ends with cable clamps.
   Tip: Continue weaving the cable in a snake-like pattern while maintaining tension.

Step 4: Sealing / Lining

1. Insert the appropriate **mortar tub** (alternatively, only use sealing foil).
2. For drainage, if needed, drill a hole for a **tank valve** either on the side 3 cm above the base or in the bottom with an internal length of 3 cm (for water retention).
3. Line the inside with **dimpled membrane** or **pond liner** (up to the top edge) and fix it to the inner side of the planter frame every 20 cm using a stapler.
4. For the **inspection pipe**, drill many small holes in the lower section and wrap it with fleece (to prevent substrate from entering the pipe).

Step 5: Filling / Layer Structure

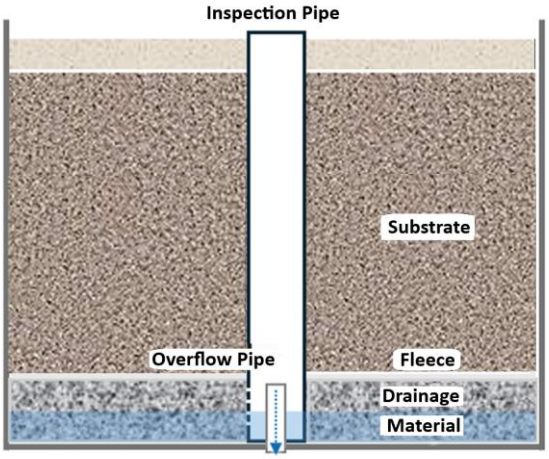

Figure 4: Layer structure plant trough

1. Position the inspection pipe at the bottom and hold it upright.
2. Add approx. 5 cm of **drainage material.**
3. Cut the **separation fleece** to size and cut an opening for the inspection pipe.
4. Place the fleece inside and pull it up along the inner sides of the planter box.
5. Fill in the **substrate** (leave enough space for large plant root balls if necessary).

Step 6: Planting

1. Remove the **root ball** from the nursery pot and slightly loosen or score the roots at the bottom (improves root establishment).
2. Place the plant in position and fill in with **substrate**.
3. Press the substrate down around the plants by hand and continue filling until approx. 5 cm below the top edge.
4. Apply approx. 3 cm of mulch material.
5. Fix the climbing plants to the trellis using binding material.
6. Move the fully planted green wall room divider to its designated location.
7. Water thoroughly (the substrate will initially absorb a large amount of water).

Figure 5: Building and planting workshop mobile troughs School Graz

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Plant Care and Maintenance

- Daily visual inspection:
    - Are the plants healthy and vital?
    - Is the irrigation system intact?

- Establishment care:
    - Water approx. 3 times per week (initially more frequently with smaller amounts) After successful root establishment, reduce to once a week if necessary.
    - Guide and tie the shoots to the trellis.
    - Remove brown leaves.
    - Fertilise (spring/summer) with slow-release fertilizer/solid fertilizer.

    - Water retention and drainage
    - Check water retention and drainage (approx. once per week):
    - Water level in inspection pipe max. approx. 6 cm If higher, drain excess water using a hose or pump.
    - If drainage outlet is installed – check functionality.

- Pruning and replanting:
    - Prune brown leaves or excessively long shoots as needed.
    - In case of plant loss – remove entire root ball and replace.

Figure 6: Plant care

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