LUSITANO RETREAT
NORTH PORTUGAL

The Build Library

56 hands-on modules — step by step

Reclaimed-first build guides · North Portugal · 2026

56 infographics included

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Water Systems

Catch it, clean it, move it by gravity.

6 modules

Project E24: The IBC Rainwater Cascade – A Step-By-Step Build Guide

MATERIALS & TOOLS CHECKLIST

THE RECLAIMED MATERIALS LIST

2-3 food-grade 1000L IBCs (with "alimentos" or "agua" stamps), reclaimed guttering, stainless/galvanized fittings, food-grade filter cartridge, and an overflow hase.

ESSENTIAL BUILD TOOLS

Utility knife (for cutting IBC lids), spanners, spirit level (critical for the plinth), drill (for top installation), and a PVC hose cutter.

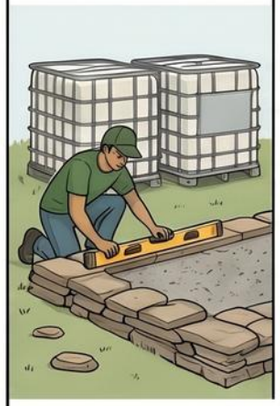
RELIABLE SOURCING CHANNELS

Never use IBCs that hold chemicals, fuels, or pesticides, verify the "Food grade" logo or previous plice/oil/beverage history before use.

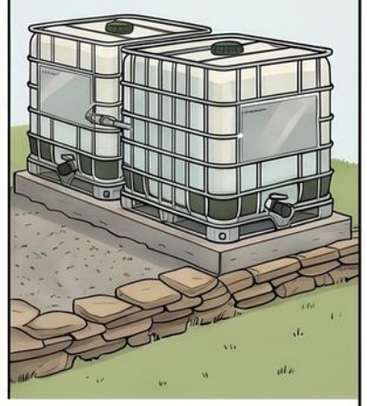
RELIABLE SOURCING CHANNELS

Warehouse stockyards, food-industry recyclers, Fioresta Comum, local classifieds like OLX for "IBC food-grade."

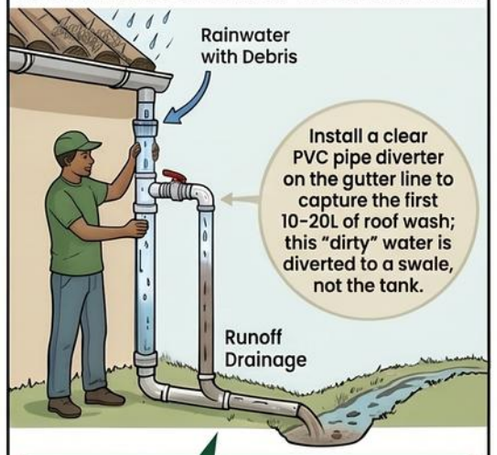
1. SITE PREPARATION & LEVELING.



2. POSITIONING THE CASCADE



3. INSTALLING THE FIRST-FLUSH DIVERTER



CRITICAL: FIRST-FLUSH MANDATORY.
Capture initial runoff to divert debris-heavy water.

1. SITE PREPARATION & LEVELING.

Clear the area and build a stone plinth or compacted gravel base; the base must be perfectly level to prevent the 1,000kg tanks from settling oo prevent the 1,000kg tanks from settling or tipping.

4. PLUMBING AND FILTRATION.

4. PLUMBING AND FILTRATION.

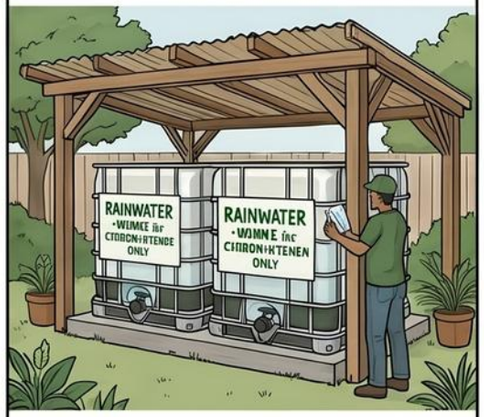
Connect the guttering to the primory IBC and install a food-grade filter cartridge at the inlet to remove fine particulates before storage.

5. FITTINGS & OVERFLOW MANAGEMENT.

5. FITTINGS & OVERFLOW MANAGEMENT.

Drill and install stainless taps at the base of the IBCs and attach a large-diameter overflow hose to direct escess water safely to a swale or reed-bed.

6. FINISHING AND LABELING.



6. FINISHING AND LABELING.

Move the system into a shaded area (to prevent algae growth) and clearly label the tanks as "Rainwater - Potable for Garden/Kitchen only."

CRITICAL SAFETY & MAINTENANCE

FOOD-GRADE VERIFICATION ONLY

Verify the "Food Grade" logo or previous juice/oil/ beverage history before use.

STAGNATION & MOSQUITO CONTROL

Ensure all tanks are opaque or covered and that the overflow system prevents any pooling of water around the base of the plinth.

MAINTENANCE SCHEDULE

- Inspect first-flush diverter for elogs after every storm
- Replace food-grade filter quarterly
- Check the stone plinth for settlement annually

Project E25: Build Your Own First-Flush Diverter

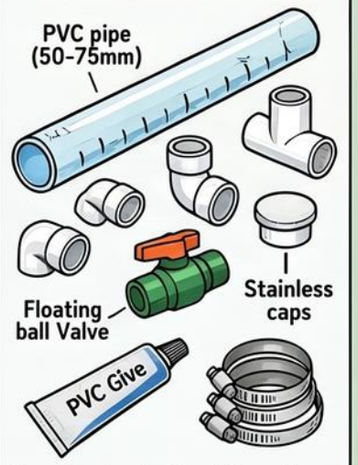
0.5 Day Build Time: Designed for a single worker (approx. 4 hours).

Low-Cost Sustainability: Estimated cost €20–€50, using reclaimed materials.

The 10-20L Rule: Capture 10-20L per 100m² of roof area for clean water.

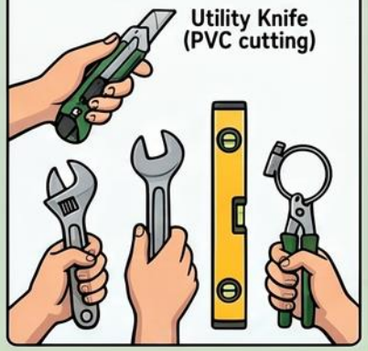
Materials & Tools

Reclaimed Materials List

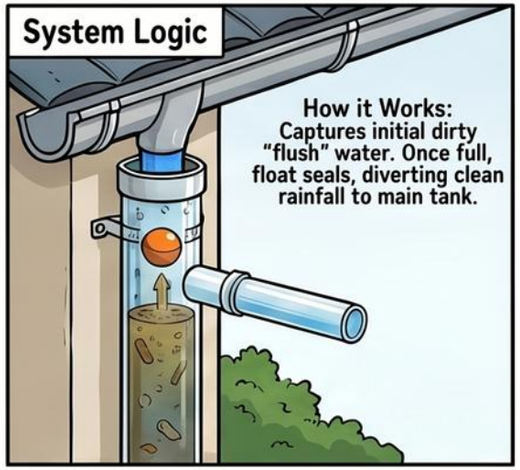


Sourcing Leads: Plumbing salvage, local "ferrages", Leroy Merlin.

Essential Tools

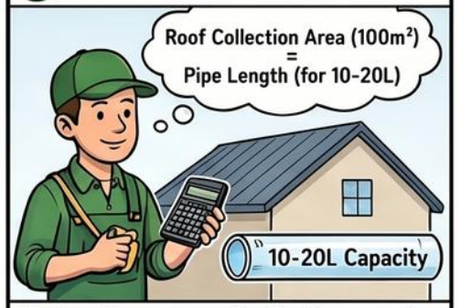


System Logic



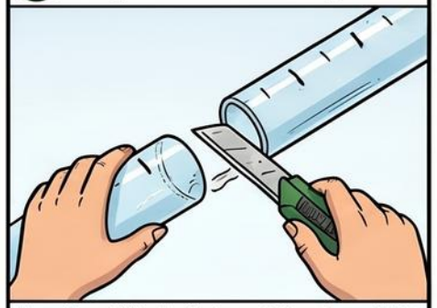
How it Works: Captures initial dirty "flush" water. Once full, float seals, diverting clean rainfall to main tank.

1. Calculate and Measure



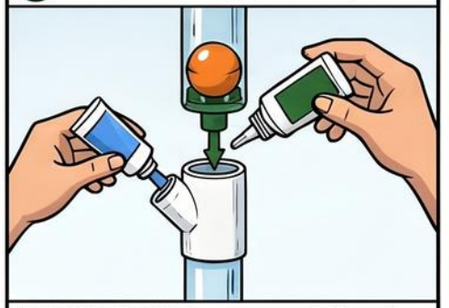
Determine your roof collection area to size the PVC pipe length needed to hold 10-20L of first-flush water.

2. Prep the Diverter Pipe



Use the utility knife to cut the clear PVC pipe to the required length. Clear pipe allows for visual inspection of debris levels.

3. Assemble the Valve System

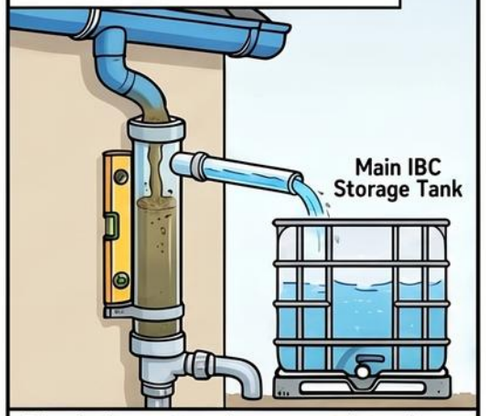


Install the float valve or manual diversion ball inside the PVC housing. Apply PVC glue to connectors to ensure a watertight seal.

4. Secure the Pipe

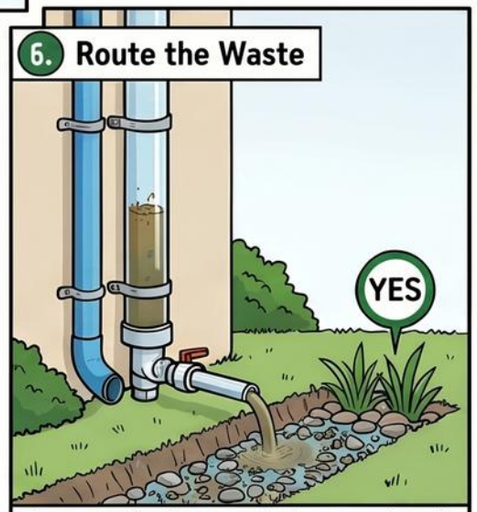
Mount the vertical diverter pipe to the structure using stainless steel bands. Use the spirit level to ensure the main intake remains perfectly aligned with the guttering.

5. Connect Guttering and Overflow



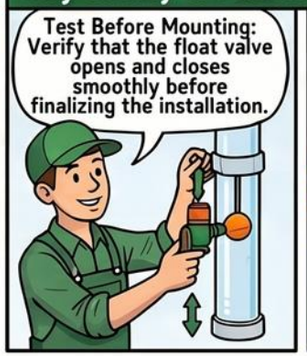
Plumb the gutter downspout into the diverter. Ensure the "clean water" overflow is directed toward your main IBC storage tank.

6. Route the Waste



Connect the bottom drainage point of the diverter to a greywater swale or infiltration zone rather than directly into the garden.

Key Safety & Maintenance



Non-Potable Labeling: Clearly mark the system and ensure all greywater areas are covered/opaque to prevent mosquito breeding.

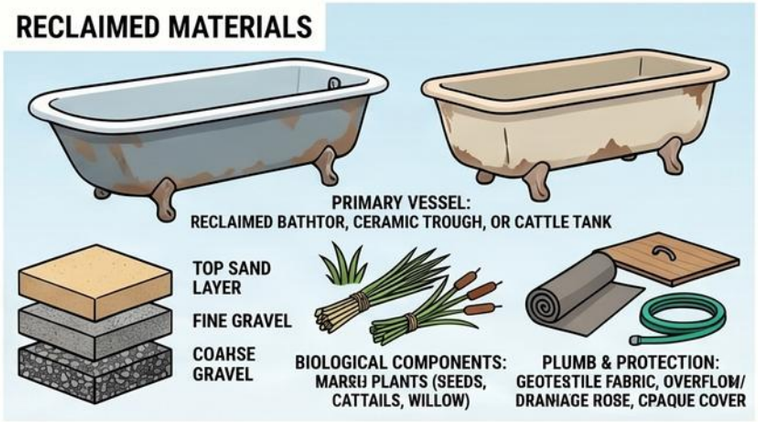
Yearly Maintenance: Empty the diverter and clean any sediment at the bottom of of the pipe at least once a year to prevent clogging.

The Liquid Cycle: Building a Reclaimed Greywater Reed-Bed Filter

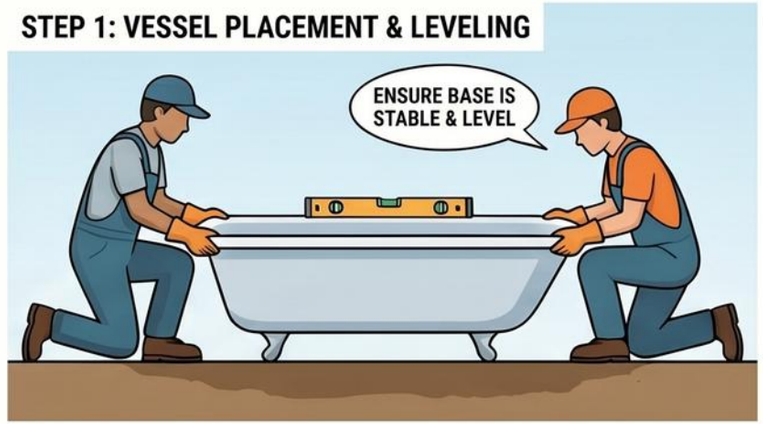
OVERVIEW & PREPARATION

ESTIMATED BUILD TIME: 1.5 – 2 DAYS

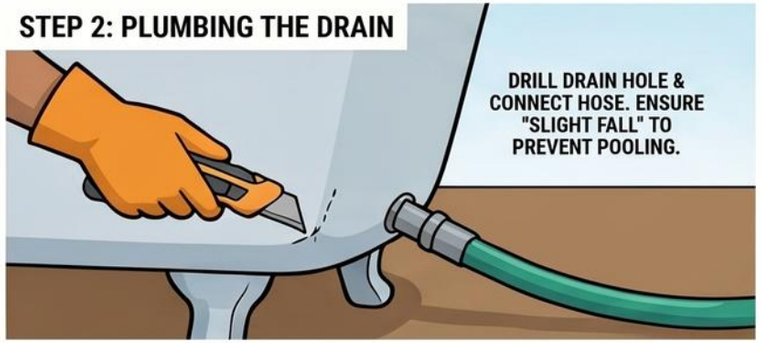
RECLAIMED MATERIALS



STEP 1: VESSEL PLACEMENT & LEVELING

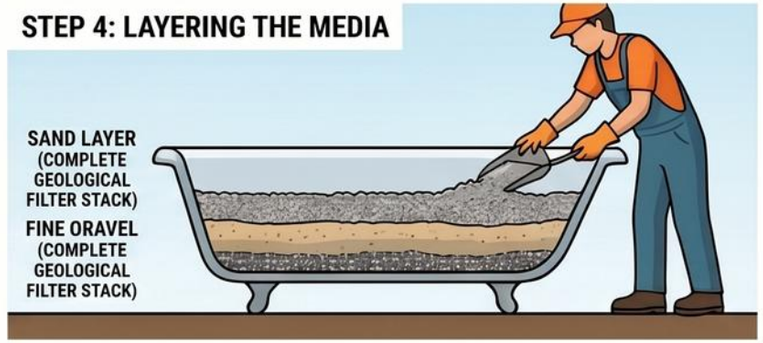


STEP 2: PLUMBING THE DRAIN



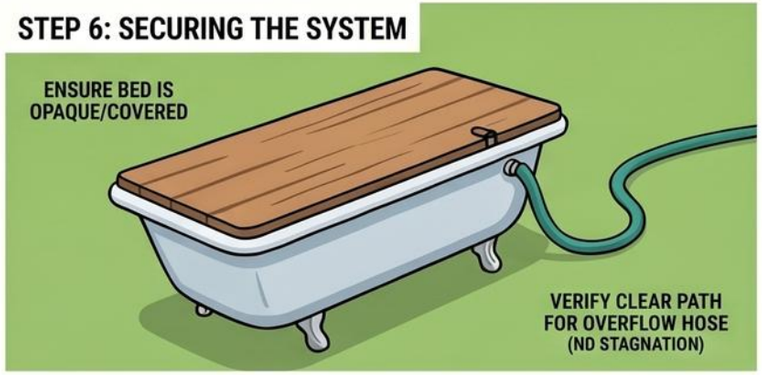
STEP 3: BASE LINING & COARSE LAYER

STEP 4: LAYERING THE MEDIA



STEP 5: PLANTING THE MARSH LIFE

STEP 6: SECURING THE SYSTEM



CRITICAL SAFETY & SIGNAGE

Project E27: Build Guide for the Reclaimed Barrel First-Flush Diverter

Preparation (Materials & Tools)

Source Your Reclaimed Materials

Acquire 2–4 large food-grade reclaimed barrels (200L) from stockyards, food-industry recyclers, or OLX. Ensure they are opaque to prevent algae and have a known food-safe history.

Gather Hardware & Plumbing

Gather Hardware & Plumbing

You will need a first-flush ball valve (C13–30), food-grade hose or piping, and stainless/galvanized fittings to connect the barrels in a cascade.

Check Your Toolkit

Check Your Toolkit

Prepare a spade and spirit level for ground prep, a drill for tap installation, a spanner for fittings, and a hose cutter.

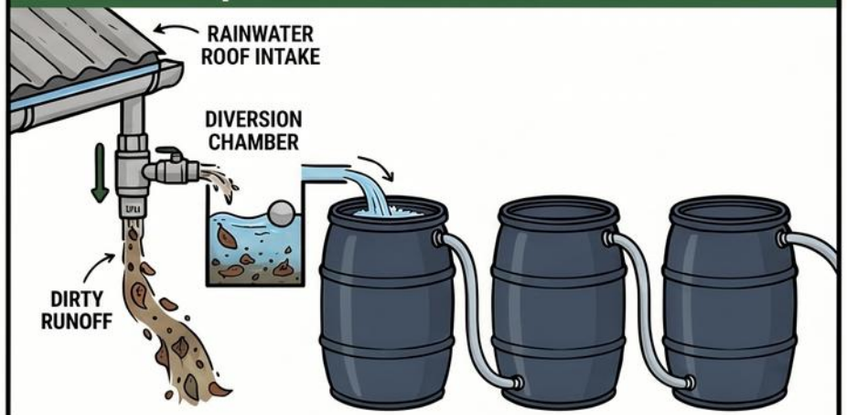
Step 1: Site & Level the Foundation

Choose a spot near your primary water source and use a spade to clear the area; use the spirit level to ensure the ground is perfectly flat so the water levels remain even.

Step 2: Prepare the Barrels

Use the drill to install taps at the base for irrigation and overflow ports at the top; ensure all barrels remain covered or have opaque lids to prevent mosquito breeding.

Step 3: Install First-Flush Valve



Mount the first-flush ball valve to the intake line; this mechanism captures the first 10–20L of "dirty" roof runoff and prevents it from entering your storage. Connect the barrels in a series using the hose and piping so that as one barrel fills, it overflows into the next, creating a water hierarchy.

Step 4: Pipe Cascade System

Connect the final barrel's overflow port to a hose that leads directly to a garden swale or natural infiltration zone to prevent site flooding.

Key Safety & Maintenance

Prevent Mosquito Breeding

Barrels must remain opoque and tightly covered at all times; standing water is a primary site for mosqpito Isreae in the Norte PT climate.

Yearly Maintenance Drain

Drill small drain holes at the absolute base of the barrels to allow for a complete emptying and cleaning ones per year to remove sediment buildup.

Non-Potable: Garden Use Only

Label the system clearly: "Rainwater for garden irrigation only." Do not use this water for drinking or kitchen prep without professional testing.

Project E28: Building a Gravity-Fed Header Tank on a Stone Plinth

PREPARATION (MATERIALS & TOOLS)

RECLAIMED MATERIAL BANK

Reclaimed food-grade barrel

Site-sourced granite stones

Compacted gravel, and mortar

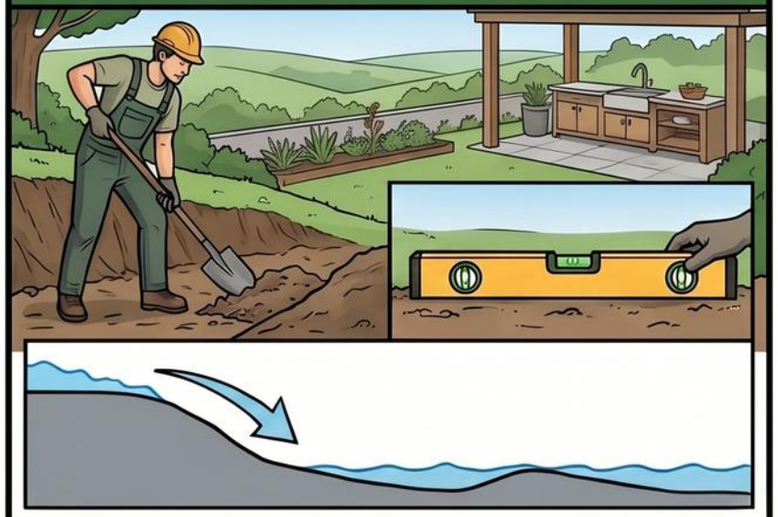
PLUMBING COMPONENTS

Food-grade hose coil

THE ESSENTIAL TOOLKIT

Only use tanks with a verified history of food-contact; never use ex-chemical, pharmaceutical, or pesticide containers.

1. SITE SELECTION & GROUND LEVELING

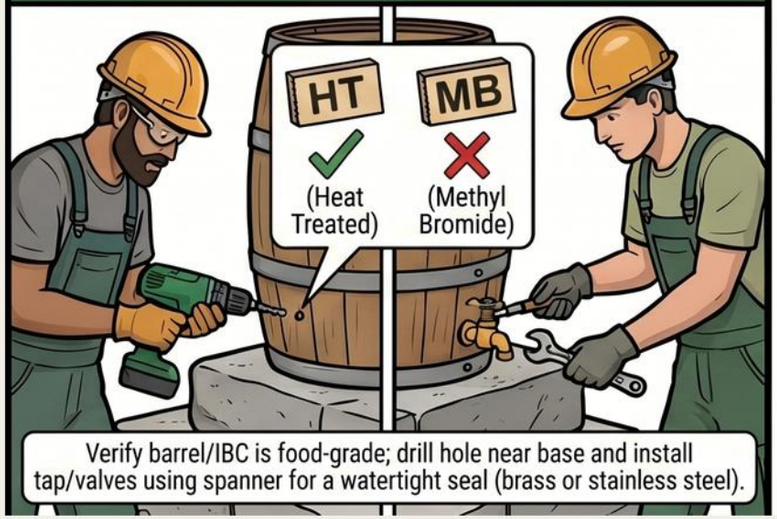


2. CONSTRUCT THE STONE PLINTH

Build sturdy base with large flat site granite stones and compacted gravel; shape for stable, dry-stack or mortered fit.

SAFETY NOTE: Leveling is Critical. Any tilt in the plinth causes uneven water distribution and can lead to structural instability once the tank is full (100–200kg).

3. PREPARE THE TANK

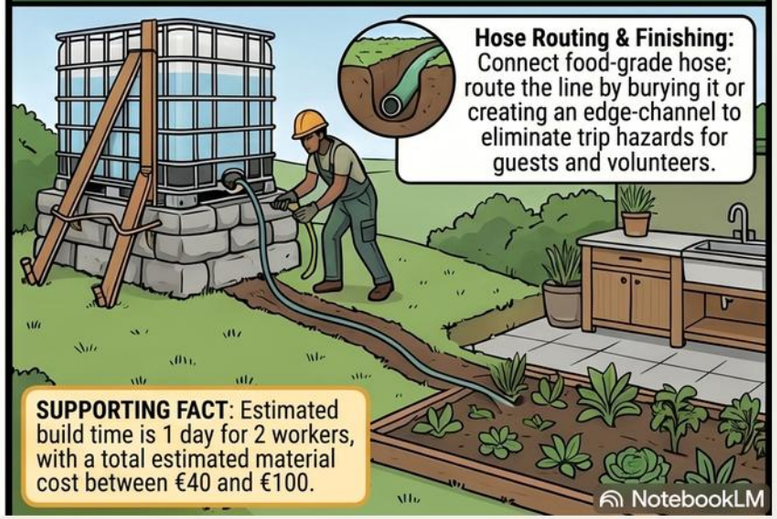


Verify barrel/IBC is food-grade; drill hole near base and install tap/valves using spanner for a watertight seal (brass or stainless steel).

4. TANK ELEVATION & PLACEMENT

Securely brace the tank to the plinth using straps and wooden supports to prevent movement.

6. HOSE ROUTING & FINISHING



Hose Routing & Finishing: Connect food-grade hose; route the line by burying it or creating an edge-channel to eliminate trip hazards for guests and volunteers.

SUPPORTING FACT: Estimated build time is 1 day for 2 workers, with a total estimated material cost between €40 and €100.

Project E29: Building a Living Filter—The Natural Infiltration Swale

PREPARATION & LOGISTICS

Crew & Timeline: 2-3 Workers | 1.5-2 Days
(Medium-difficulty build for small volunteer team, weekend sprint).

Essential Toolkit

Gather: spade/mattock, shovel, wheelbarrow, spirit level, plant spade, stakes, rope.

MATERIAL BANK

SITE-SOURCED

Excavated Soil.

RECLAIMED & NATIVE SOURCES

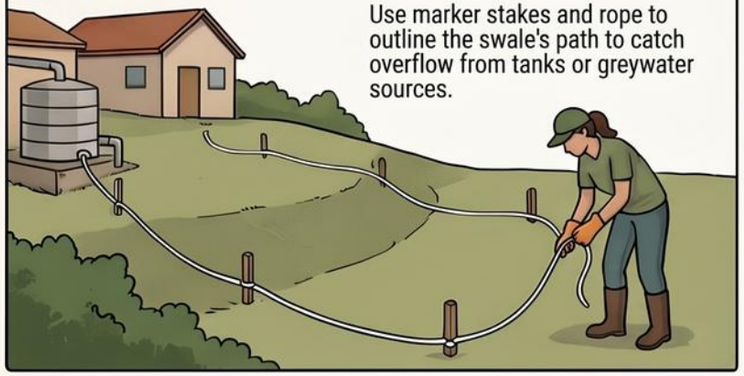
Floresta Comum / Local Nurseries

Leruy Merlin / Local Suppliers

Sourcing Reclaimed Materials: Use site-excavated soil, native plants, and reclaimed gravel/geotextile from local suppliers.

STEP 1: LAYOUT & MARKING (Define the Flow)

Use marker stakes and rope to outline the swale's path to catch overflow from tanks or greywater sources.



STEP 2: SITE EXCAVATION (Dig the Infiltration Trench)

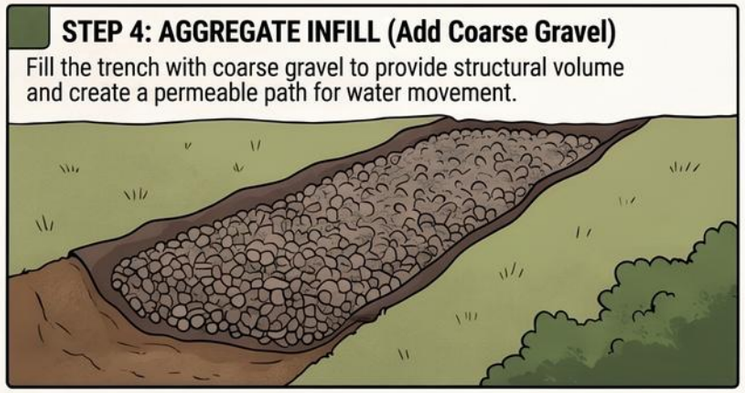
Dig a shallow trench using the mattock and spade; move excess soil for use in other garden beds.

STEP 6: FINAL STAKES AND SIGNAGE (Complete the Filter Zone)

Line the excavated trench with geotextile fabric to prevent soil erosion while allowing water to seep into the ground.

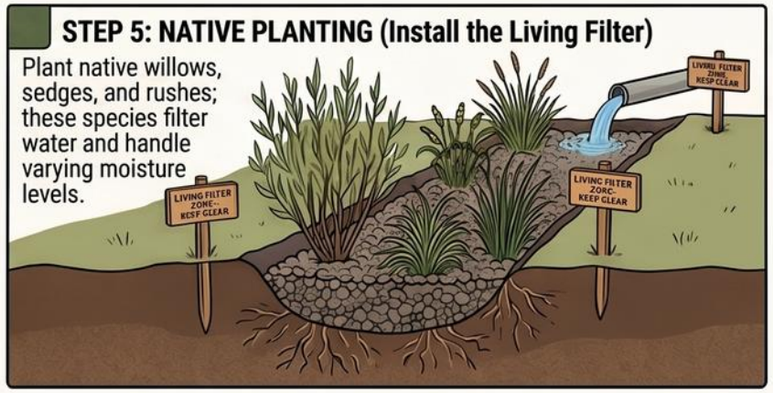
STEP 4: AGGREGATE INFILL (Add Coarse Gravel)

Fill the trench with coarse gravel to provide structural volume and create a permeable path for water movement.



STEP 5: NATIVE PLANTING (Install the Living Filter)

Plant native willows, sedges, and rushes; these species filter water and handle varying moisture levels.



CRITICAL SAFETY & PERFORMANCE NOTES

The 48-Hour Rule: No Stagnation Allowed. Swale must drain completely within 24-48 hours to prevent mosquito breading and ensure plant health.

Erosion Control: Gootestile is Mandatory. Never skip the lining; essential for soil structure intact during heavy Norte PT rainfall.

Guest Awareness: Functional Wayfinding. Use clear markers to keep vehicles and heavy foot traffic out to prevent soil compaction.

Dry Toilet & Shower

Closing the loop, hygienically.

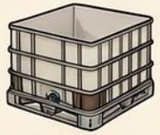
5 modules

Project E30: Building the Twin-Chamber Compost Dry Toilet

PREPARATION & MATERIAL BANK

Gather Reclaimed Kit

Used food-waste buckets



IBC tank top cut in half

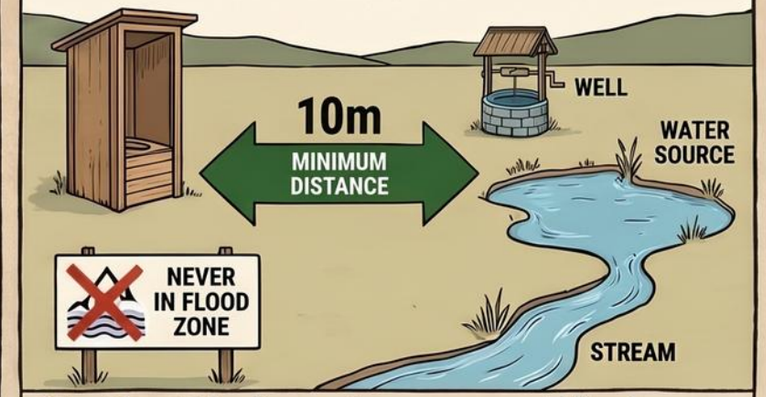
Timber offcuts (planks, posts)

Piping scraps (copper, aluminum)

Assemble Your Toolkit

Source buckets, IBC top, timber, hinges, piping.
Tools: Saw, hammer, drill, wrench, clamp, sandpaper, brush.

SITING FOR SAFETY



Site at least 10m from water sources; avoid flood zones.

THE STEP-BY-STEP BUILD - PART 1

1. Construct Frame

2. Install Chambers

1. Build sturdy casing from timber offcuts.
2. Place buckets/IBC top into frame for solids.

THE STEP-BY-STEP BUILD – PART 2

3. Integrate Urine Diversion

4. Fit Seat & Throne

3. Install urine diversion system (pipe & separator).
4. Sand surfaces, attach hinged seat.

THE STEP-BY-STEP BUILD – PART 3

5. Install Ventilation

6. Seal and Finish

5. Mount air-tight vent pipe for odors/flies.
6. Apply non-toxic sealant for protection.

CRITICAL SAFETY & PROTOCOLS

Mandatory Hygiene & Layering

SEPARATION MANDATORY

NEVER RAW WASTE CONTACT

5cm SAWDUST/COIR AFTER EVERY USE

Volunteer Induction

20-MINUTE INDUCTION REQUIRED

Maintenance & Maturation

COMPOST 12 MONTHS

GARDEN AMENOMENT

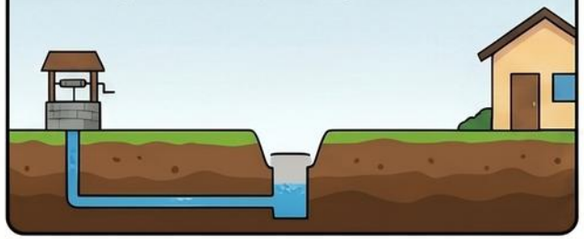
URINE

DILUTED FOR PLANTS

Strict urine/solid separation. Add 5cm layer after use. All crew need 20-min induction. Compost solids 12 months; dilute urine.

Build Guide: Project E31 — Urine Diversion Soak-Away

1. Siting for Safety & Hygiene

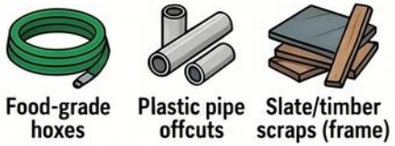


2. Soil and Slope Requirements

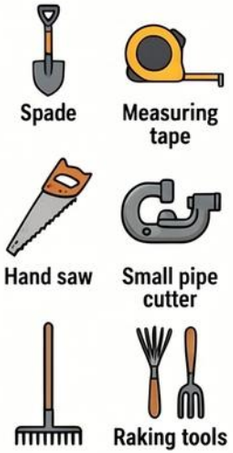
Choose good percolation. Avoid steep slopes and clay.

3. The Reclaimed Materials Kit & Toolset

Materials:



Tools:

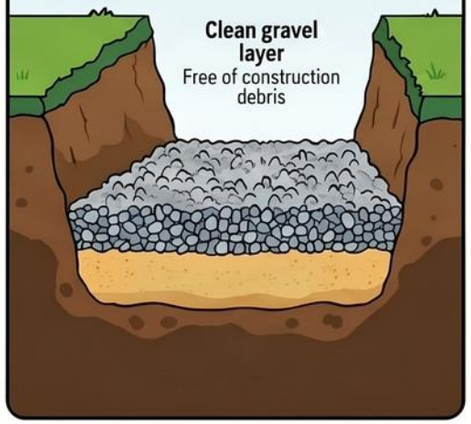


4. Step 1: Excavate the Trench

Dig at chosen location, ensure natural fall.

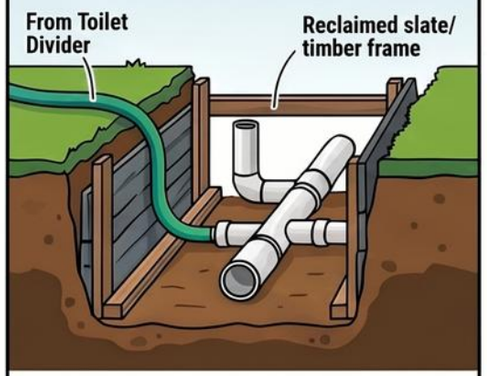
5. Step 2: Lay the Foundation

Fill base with sharp sand then clean gravel.



6. Step 3: Install Pipework and Frame

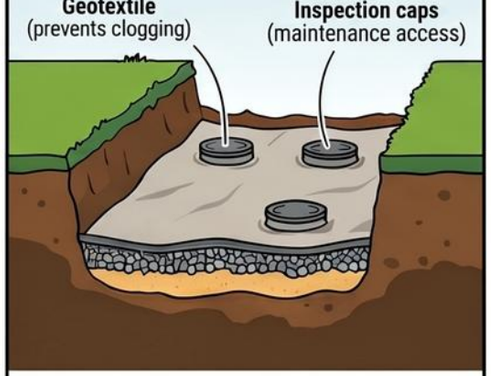
Connect hose to pipe offcute; construct surround frame.



Connect hose to pipe offcuts; construct surround frame.

7. Step 4: Geotextile and Inspection Caps

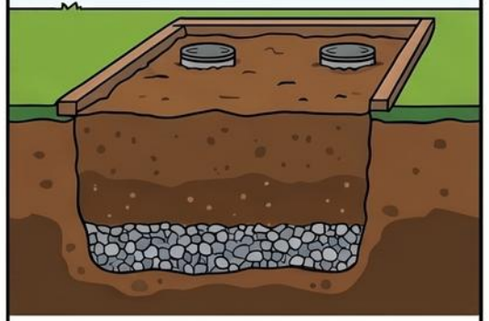
Lay geotextile; install inspection caps.



Lay geotextile; install inspection caps.

8. Step 5: Final Backfill

Backfill with soil; ensure frame & caps are seated.



Backfill with soil; ensure frame & caps are seated.

9. Maintenance & Safety Notes

Vegetation Restrictions

Only shallow-rooted vegetation allowed; **NEVER** plant fruit trees.

Annual Inspection Protocol

Inspect and replace **geotextile yearly** to prevent clogging and ensure invisible operation.

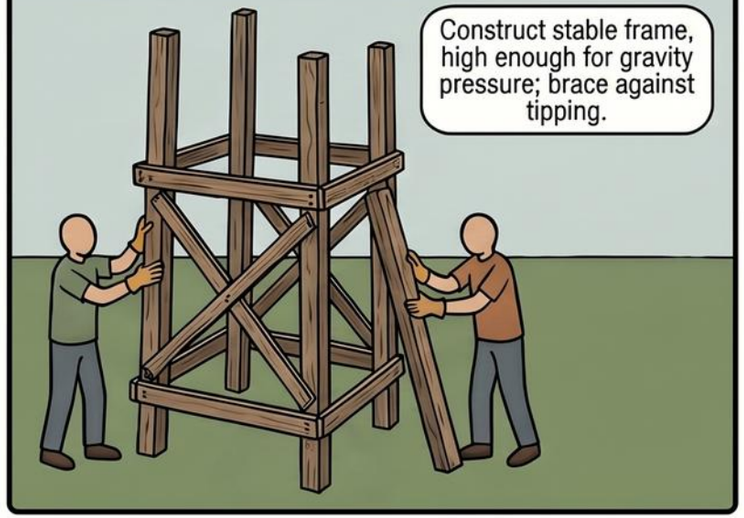
10. Cleanliness Standards

Ensure all gravel is completely clean and free of contamination before installation.

Solar Shower Build Guide: Hot Water from the Sun (Project E32)

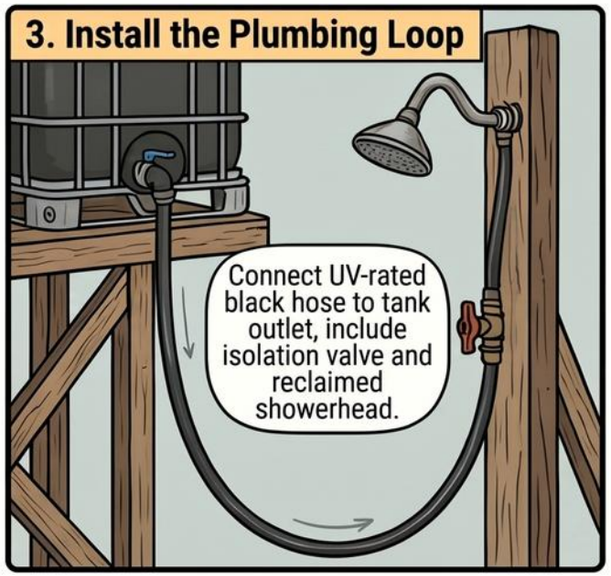
Source Reclaimed Materials

1. Build the Timber Stand

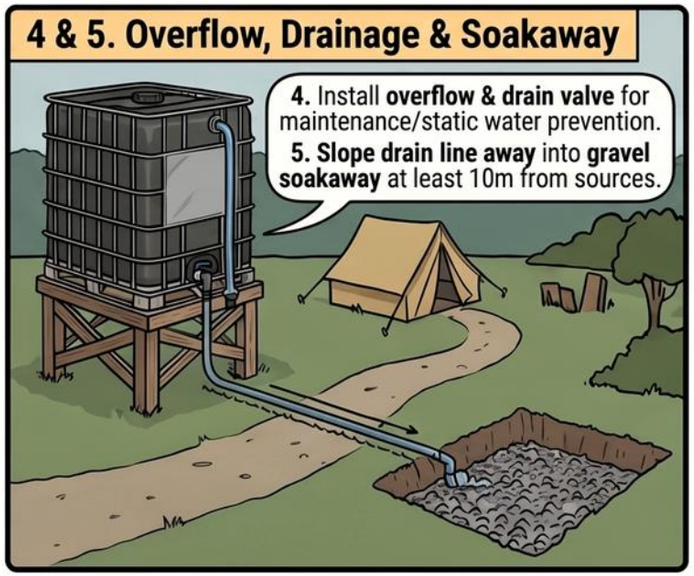


2. Prepare and Mount the Tank

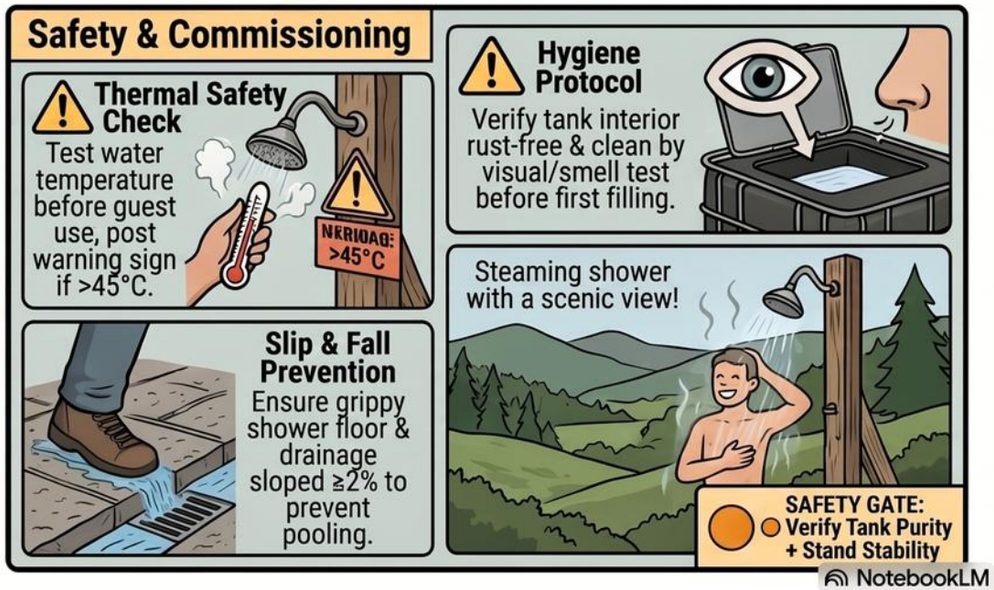
3. Install the Plumbing Loop



4 & 5. Overflow, Drainage & Soakaway



Safety & Commissioning



Build Guide: The E33 Reclaimed Stone Shower Wall

1. PROJECT SPECS & MATERIALS

BUILD TIME: 1–2 DAYS

ESSENTIAL TOOL KIT: SPADE, SPIRIT LEVEL, COLD CHISEL, RUBBER MALLET, GRAVEL RAKE, WHEELBARROW, SAW, DRILL

USE GRANITE/SLATE OFFCUTS, OLD ROOF TILES FOR INFILL, SALVAGED TIMBER RAILS, COPPER OR LEAD GUTTERING SCRAPS.

CRITICAL SAFETY & ENGINEERING NOTES

THE 2% SLOPE RULE

GREYWATER DRAINAGE MUST MAINTAIN A SLOPE OF AT LEAST 2% AWAY FROM STRUCTURE.

ELECTRICAL SAFETY (RCD/GFCI)

MANDATORY IF ELECTRICAL COMPONENTS ADDED.

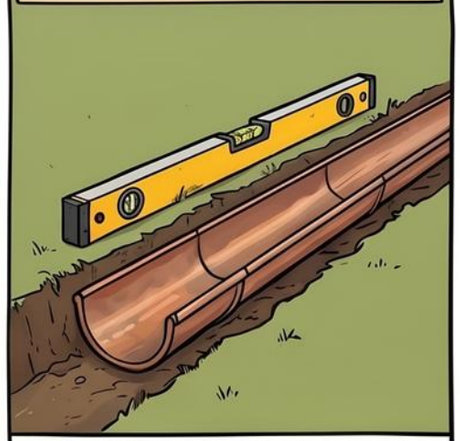
FLOOR MUST REMAIN UNSEALED USING ROUGH STONE OR GRAVEL; AVOID POLISHED OR SLICK FINISHES.

SETTLING RISKS: USE DRY-LAID TECHNIQUES IF GROUND SETTLING IS A RISK; DO NOT USE MORTAR JOINTS.

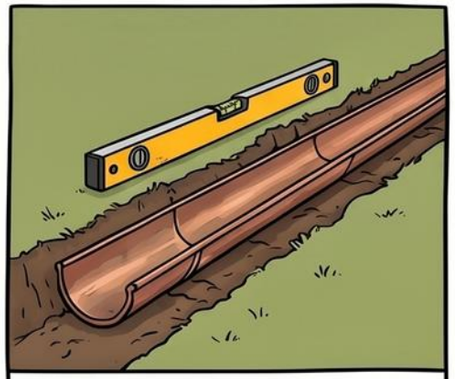
STEP 1: EXCAVATE THE RUBBLE BASE

DIG A RUBBLE TRENCH TO SERVE AS A STABLE SUB-BASE, ENSURING THE GROUND IS COMPACTED AND READY FOR WEIGHT.

STEP 2: INSTALL THE DRAINAGE CHANNEL



LAY THE SALVAGED COPPER OR LEAD GUTTERING AS A DRAINAGE LINE, VERIFYING THE ≥2% FALL TOWARD THE DESIGNATED SOAKAWAY.



LAY THE SALVAGED COPPER OR LEAD GUTTERING AS A DRAINAGE LINE, VERIFYING THE ≥2% FALL TOWARD THE DESIGNATED SOAKAWAY.

STEP 3: LAY THE GRIPPY FLOOR

BED THE UNSEALED STONE OR GRAVEL FLOOR INTO THE BASE, ENSURING IT IS LEVEL ENOUGH FOR STANDING BUT ROUGH ENOUGH FOR GRIP.

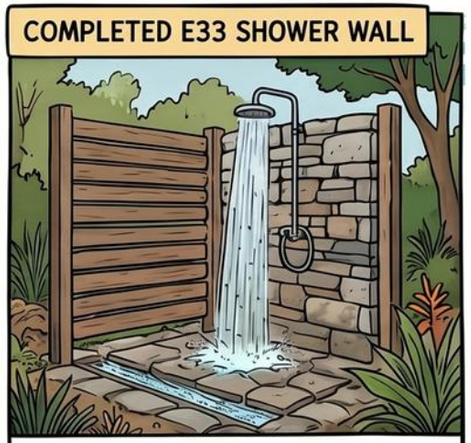
STEP 4: BUILD THE STONE SCREEN WALL

CONSTRUCT THE 1.8M x 1.2M WALL USING DRY-LAID OR MORTARED GRANITE AND SLATE OFFCUTS, INCORPORATING OLD ROOF TILES FOR TEXTURE.

STEP 5: MOUNT THE TIMBER PRIVACY SCREEN

ATTACH THE RECLAIMED TIMBER RAILS TO THE STONE BASE OR A SEPARATE FRAME TO COMPLETE THE INTIMATE ENCLOSURE.

COMPLETED E33 SHOWER WALL



A FUNCTIONAL WELLNESS FEATURE FOR THE LUSITANO RETREAT.

Build Guide: Project E34 — The Reclaimed Handwashing Station

PREPARATION

THE RECLAIMED MATERIALS LIST

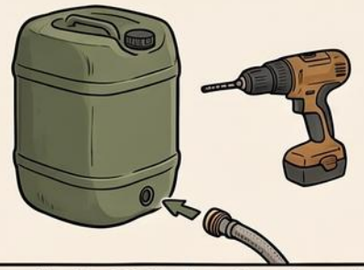
Source a 10–20L food-grade plastic drum, old soap pumps, tin cans, timber shelving offcuts, and cast-iron brackets.

THE VOLUNTEER TOOL KIT

Ensure you have a drill, wrench, saw, hand file, and clamps ready for the 0.5-day build.

STEP-BY-STEP CONSTRUCTION

1. PREPARE THE RESERVOIR

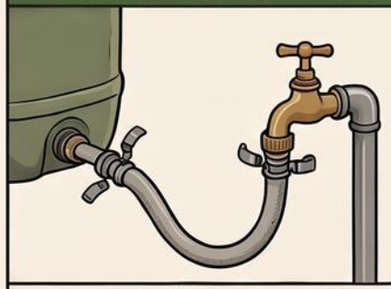


Clean the 10–20L food-grade tank; use the drill to create an outlet for the flexible hose at the bottom.

2. MOUNT THE SUPPORT STRUCTURE

Use the timber sheiving and cast-iron brackets to build a sturdy wall mount or free-standing frame for the tank.

3. INSTALL PLUMBING & VALVE

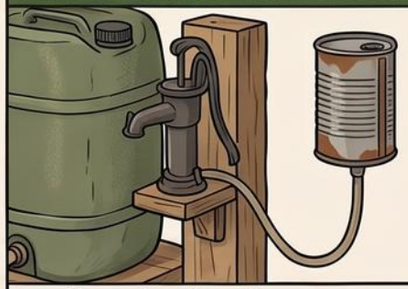


Connect the flexible hose to the tank outlet and attach the simple tap/valve; use clamps to ensure a leak-free seal.

4. SET THE BASIN & DRAINBOARD

Install the reclaimed drainboard (wood or slate) and position the soak-away basin directly beneath the tap.

5. ADD THE UPCYCLED SOAP DISPENSER



Mount the salvaged soap pump or gravity-fill tin can reservoir at a reachable height next to the tank.

VITAL SAFETY & MAINTENANCE

WATER POTABILITY STANDARDS

Use only mains-supplied or lab-tested well/rainwater; the tank must be food-grade to ensure guest safety.

SAFE SOAK-AWAY PLACEMENT

Position the soak-away at least 2 meters away from any food preparation or eating areas to prevent contamination.

STAGNATION PREVENTION

Prevent bacterial growth by draining and refilling the reservoir daily or performing a biocide test before guest use.

GREYWATER USAGE

The soap-filled greywater is safe for ornamental plant irrigation but should never be used on vegetable gardens.

Pathways & Signage

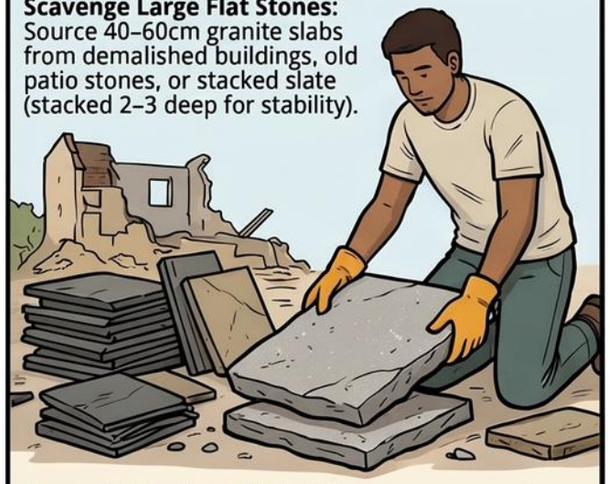
How guests move and find their way.

5 modules

Build Guide: The Granite Stepping-Stone Path (Project E40)

MATERIALS & PREPARATION
(THE MATERIAL BANK)

Scavenge Large Flat Stones:
Source 40–60cm granite slabs from demolished buildings, old patio stones, or stacked slate (stacked 2–3 deep for stability).



Essential Sub-base Materials

Recommended Tool Kit

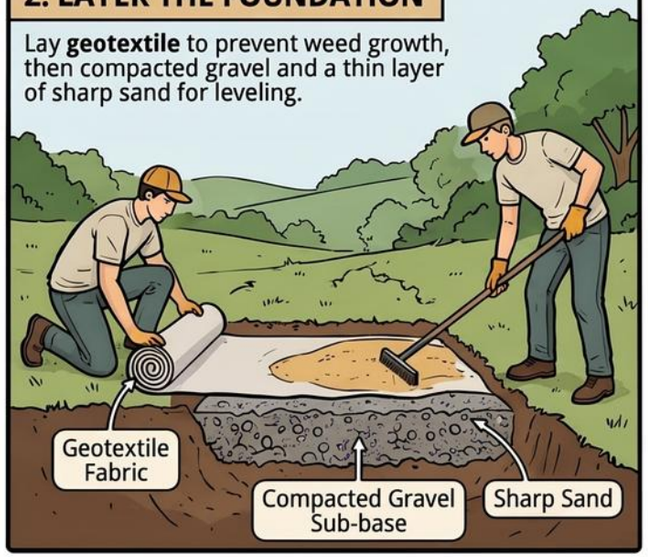
Daily Build Targets:
Expect 3–4m/day (1 worker) or 6–8m/day (2-person crew).

1. SET OUT & EXCAVATE

Mark the path with **string lines**; excavate soil to accommodate sub-base and stone thickness.

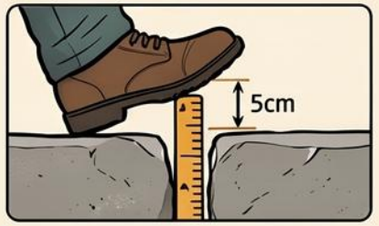
2. LAYER THE FOUNDATION

Lay **geotextile** to prevent weed growth, then compacted gravel and a thin layer of sharp sand for leveling.



DEFINITIONS OF DONE
(CRITICAL SPECIFICATIONS)

The "Heel Trap" Rule
Joint gaps between stones must be ≤5cm to prevent trip hazards and heel trapping.



Level & Stable Placement
Stones must be flat-topped and set into the ground (proud only 150–250mm if on a slope) to prevent tripping.

3. PLACE & TEST STONES

Position the 40–60cm stones; test every rock by standing on it to ensure no rocking or instability.

NON-SLIP SURFACE FINISH:
Use only rough-finished granite/slate; avoid polished stones which become slippery when wet.

4. SET THE DRAINAGE FALL

Adjust the stones to ensure a gentle cross-fall of ≥2% away from buildings to facilitate water runoff.

CRITICAL SAFETY NOTE:
≥2% CROSS-FALL.
Ensure adequate slope for water drainage.

5.

NON-SLIP SURFACE FINISH:
Use only rough-finished granite/slate; avoid polished stones which become slippery when wet.

Fill Joints & Finish
Fill joints with gravel/sand; brush fill until flush.

Project E41: The “Soft Earth” Path — A Step-by-Step Build Guide

PROJECT OVERVIEW & MATERIALS

1. RESOURCE SOURCING

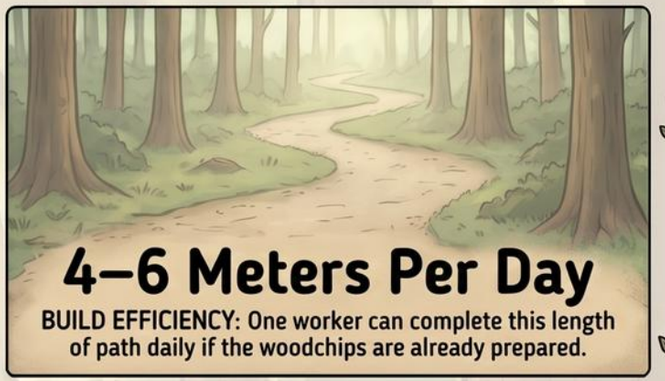
Gather Reclaimed Materials from the Land.
Use woodships from on-site tree clearing or arborist waste and collect fallen logs or branches (4–8cm diameter).

2. THE TOOL KIT

Essential Tools for a 1-Worker Build
You will need a shovel, wheelbarrow, tape measure, rammer, and a chainsaw (for pre-cutting logs to size).

3. BASE LAYERS

Landscape Fabric & Geotextile
These materials form the base to prevent weed growth while allowing essential drainage.



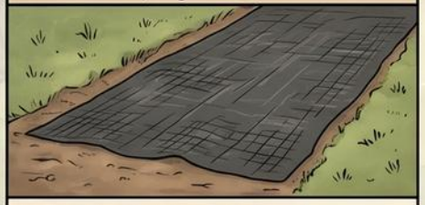
4–6 Meters Per Day
BUILD EFFICIENCY: One worker can complete this length of path daily if the woodchips are already prepared.

STEP-BY-STEP CONSTRUCTION

STEP 1: Grading the Slope

Maintain a Slope of ≥3%
Soft materials erode on flat ground; ensure a slight gradient to prevent water pooling and fungi growth.

STEP 2: Laying the Base



Install Landscape Fabric
Clear the path area and lay your geotextile or landscape fabric to provide a stable, weed-resistant foundation.

STEP 3: Log Edging

Secure Reclaimed Softwood Logs
Place 4-8cm untreated softwood logs along the edges; avoid hardwoods as they are too brittle for this application.

STEP 4: Woodchip Infill (Crowning)

Fill and "Crown" the Center
Fill the path with woodchips, making the center slightly higher than the edges to encourage water runoff to the sides.

STEP 5: Compaction

Ram the Surface
Use a manual rammer to compact the woodchips firmly between the log edges for a stable walking surface.

VITAL SAFETY & MAINTENANCE NOTES

1. MANAGE FUNGI RISKS

Prioritize Good Drainage
Woodchips can harbor muld/fougl; ensure there is no standing water or pooling along the route.

2. MATERIAL LIFE EXPECTANCY

Accept Impermanence (3–3 Years)
Reciaimed softwood edges typically last 2–3 years; expect the logs to rot and collapse eventually as part of the natural cycle.

3. TOXIC MATERIAL BAN

Avoid Treated Timber
Never use timber treated with CCA or creosute, as these chemicals will leach into the surrounding soil.

DIY Pallet-Wood Wayfinding: A Step-by-Step Guide for Reclaimed Signage

Project E42: Trash into Treasure

Craft functional, artisan markers for the Lusitano Retreat, blending honest, rustic design with narrative storytelling.

Preparation & Sourcing

Reclaimed Material Bank

Source materials from deconstructed HT-stamped pallets, reclaimed fence boards, driftwood, or metal backing.

Heat-Treated Only (HT Stamp)

Only use pallets with the "HT" stamp; reject "MB" (Methyl Bromide) pallets as they are toxic.

The Essential Tool Kit

Ensure you have saws, drill/driver with screws, sandpaper, brushes, and stencils ready.

Step-by-Step Construction

Panel 1: Deconstruct and Sort

Use pallet buster or crowbar to remove boards; remove all nails and sand smooth.

Panel 2: Cut and Shape

Cut boards to size and shape ends; select a sturdy driftwood or timber post for the base.

Panel 3: Stencil and Paint

Use stencils for dark text on light background; ensure legibility from at least 5 meters away.

Panel 4: Assembly

Securely screw painted boards into the post; ensure no sharp metal edges are exposed.

Panel 5: Installation

Dig a hole and secure post into the soil or concrete base to prevent tipping.

Key Safety & Quality Notes

Wind-Bracing Requirement

For signs taller or wider than 30cm, add wind-bracing or guy-ropes to prevent tipping.

Non-Toxic Finishes

Use only eco-friendly, water-based exterior-grade paints and stains.

Eye-Height Safety

Inspect every sign for sharp edges, screws, or splinters at guest eye height.

Build Efficiency

A standard volunteer crew should aim to complete 1–2 fully installed signs per day.

Project E43: Reclaimed-Slate Engraved Markers — A Volunteer's Guide

1. SOURCING & PREP: THE MATERIALS

PREPARATION TIME: 2–4 HOURS PER MARKER (LAYOUT 1–2 HR, CARVING 1–3 HR).

THE MAKER'S KIT:

- [x] Slate offcuts (Flat, ≥30×30cm)
- [x] Slate-specific chisel or diamond-point engraver
- [x] Exterior-grade stone epoxy
- [x] Hammer
- [x] Slate base or stand
- [x] Spirit level
- [ ] Template card for lettering
- [ ] Measuring tape
- [ ] Ground pin (for mounting)
- [ ] Metal file (for smoothing edges)

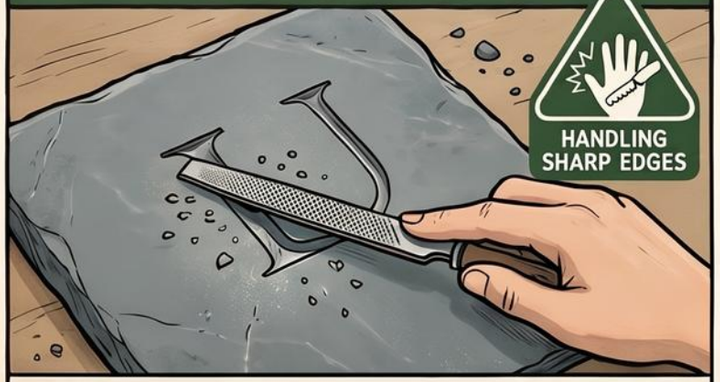
2. LAYOUT: TRACE THE STORY

USE A TEMPLATE CARD TO TRACE TEXT ONTO FLAT SLATE SURFACE (20x30cm MINIMUM) TO ENSURE SPACING IS CORRECT BEFORE CARVING.

3. ENGRAVING: SAFETY FIRST!

ENGRAVING CREATES FINE STONE DUST. VOLUNTEERS MUST USE A WET-CUTTING TECHNIQUE (KEEP THE STONE DAMP) OR WEAR A FITTED DUST MASK.

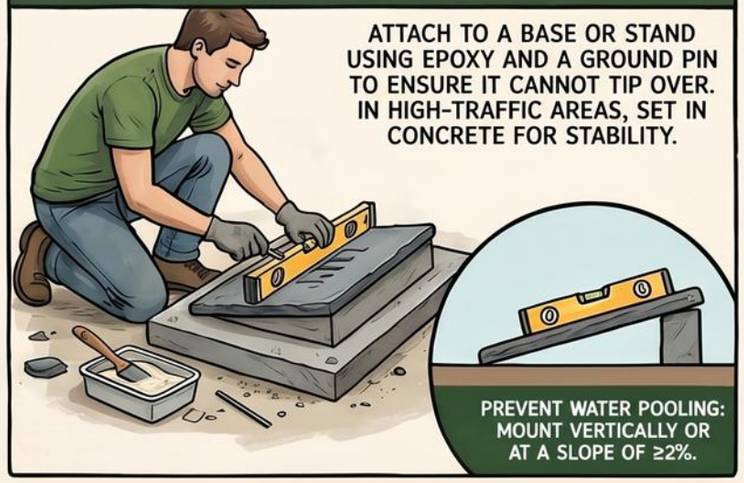
4. FINISHING: SMOOTH & SOFTEN



FRESHLY ENGRAVED SLATE PRODUCES RAZOR-SHARP EDGES; THESE MUST BE SMOOTHED WITH A FILE BEFORE THE MARKER IS INSTALLED IN GUEST AREAS.

5. MOUNTING: SECURE & STABLE

ATTACH TO A BASE OR STAND USING EPOXY AND A GROUND PIN TO ENSURE IT CANNOT TIP OVER. IN HIGH-TRAFFIC AREAS, SET IN CONCRETE FOR STABILITY.



6. COMPLETE: PREMIUM-RUSTIC ARTIFACT

PHOTOGENIC MARKERS DESIGNED TO TELL A STORY THROUGH THE LANDSCAPE, MAINTAINING A ZERO-WASTE. "ECOLOGICAL-REAL" BRAND AESTHETIC. DOCUMENT THE "BEFORE AND AFTER" FOR THE RETREAT NARRATIVE.

PROJECT E44: THE JEWELED BOUNDARY — A STEP-BY-STEP GUIDE TO UPCYCLED GLASS EDGING

THE MATERIAL BANK & TOOL KIT

CRITICAL SAFETY PROTOCOLS

THE "2CM RULE":
Sharp tops/shards must be 2cm BELOW ground or mortar-covered.

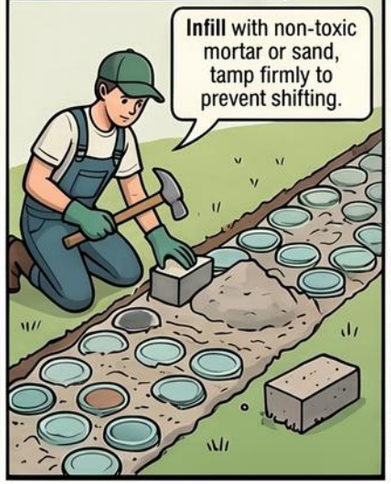
THE BAREFOOT TEST:
Final supervisor check for safe guest access.

THE STEP-BY-STEP BUILD

1. EXCAVATE THE BORDER

2. PREPARE & SET

3. INFILL & STABILIZE



4. FINAL INSPECTION & FINISH

MAINTENANCE SCHEDULE

MONTHLY INSPECTIONS:
Check for shifted or exposed glass (sand-only method).

SEASONAL CLEANING:
Brush glass to remove dirt/algae, maintaining the "jeweled" effect.

Fire & Gathering

The social heart of the retreat.

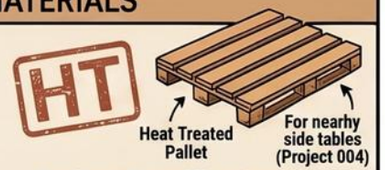
4 modules

Build Your Own Rustic Premium Fire Circle: Project E01 Step-by-Step

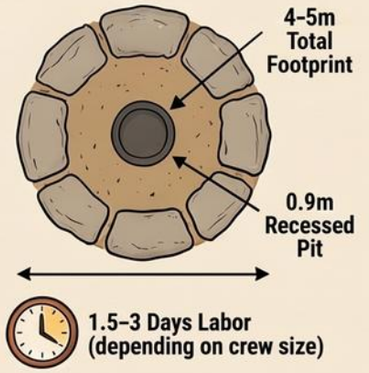
A professional-grade, low-cost feature using reclaimed site materials and specific safety protocols.

PREPARATION & MATERIALS

Essential Build Materials

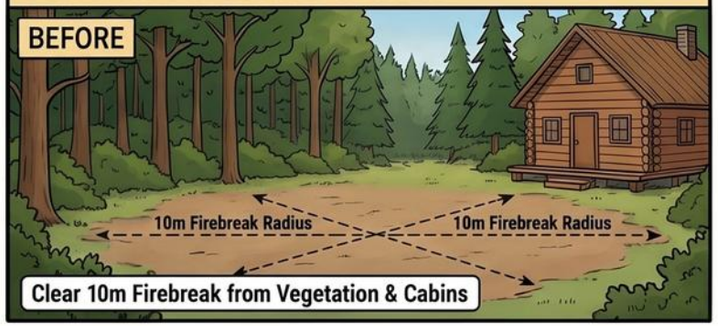


Project Specifications



5 STEPS TO CONSTRUCTION

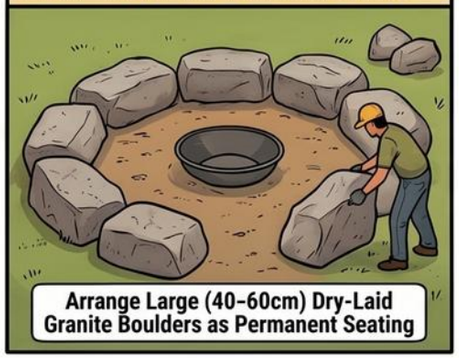
STEP 1: SITE CLEARANCE & SAFETY



STEP 2: FOUNDATION & BASE

STEP 3: CENTER THE FIRE CORE

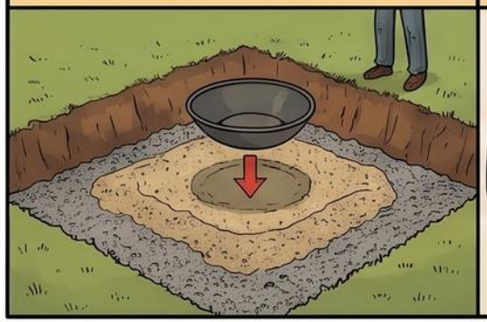
STEP 4: SET THE SEATING RING



STEP 5: FILL AND FINISH

CRITICAL SAFETY STANDARDS

NON-COMBUSTIBLE FLOOR MANDATORY



PROFESSIONAL SIGN-OFF

AFTER

Infographic: Build Your Own: Intimate Granite Fire Pit & Seating (Project E02)

1. PREPARATION & MATERIALS (Low-Capex, Local-First)

MATERIALS
(Free Site Stone + Insert)

Medium granite rim stones

3 large flat seating stones

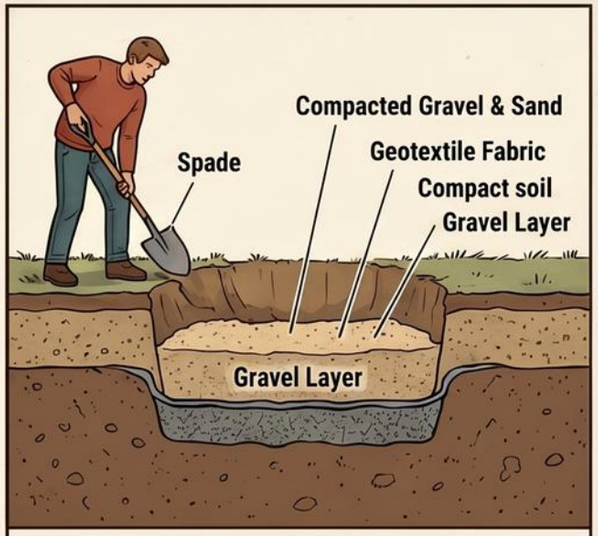
Gravel & Sand

Geotextile Fabric

TOOLS
(Manual Positioning)

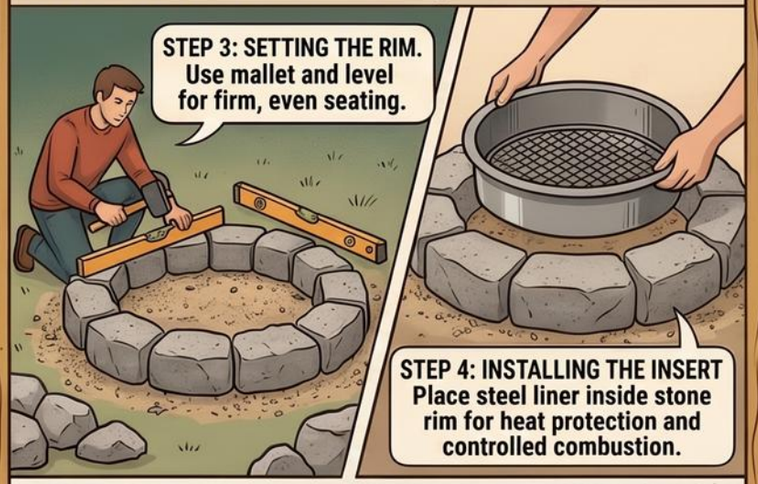
● Estimated cost for insert: €30–€100. All stone is free "material on the ground".

2. SITE REVIEW & FOUNDATION (CRITICAL)



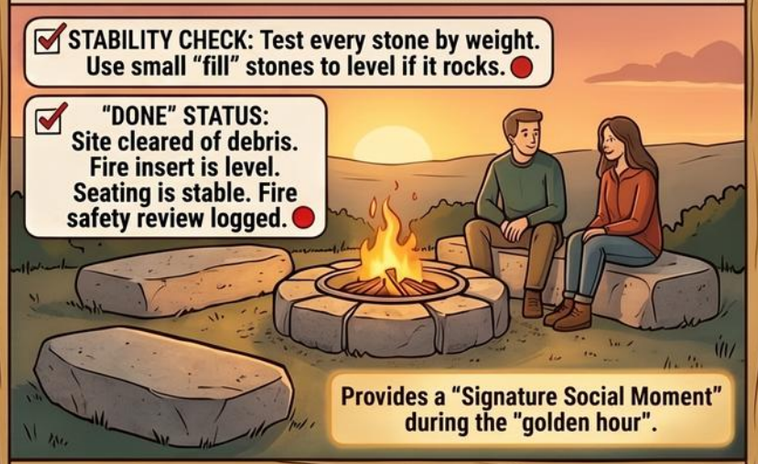
STEP 1 & 2: FOUNDATION & DRAINAGE
Excavate, lay non-combustible base to prevent heat transfer.

3. SETTING THE RIM & INSERT (Construction)



4. POSITIONING SEATING (Intimacy & Stability)

5. SAFETY & DEFINITION OF DONE (The Signature Moment)



Build Guide: The Upcycled Gabion & Tyre Seating Ring

Reclaimed Materials List

Site-cleared granite fill

Shou Sugi Ban seat tops

Build Logistics: 2 days for 2–3 workers; Medium difficulty.

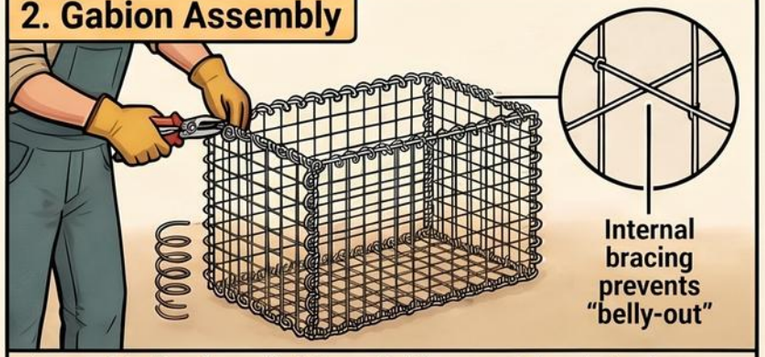
Essential Tool Kit

Wire cutters, pliers, heavy-duty gloves, wheelbarrow, spirit level, drill.

1. Site Prep and Footprint

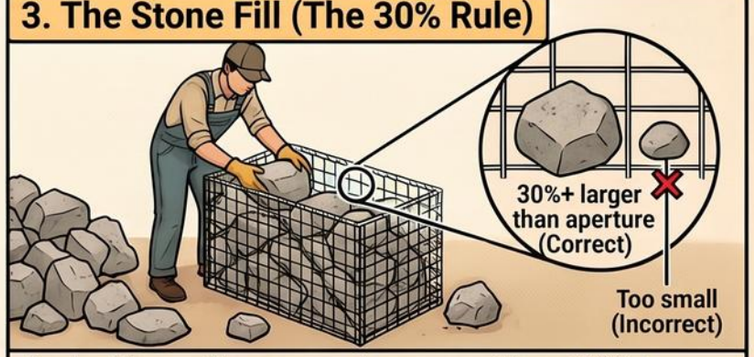
Level & compact ground; lay 50–100mm gravel base for stability & drainage.

2. Gabion Assembly



Assemble the 1m x 0.45m x 0.45m mesh baskets; lace three sides with spiral wire, leaving the lid open for filling.

3. The Stone Fill (The 30% Rule)



Pack with granite; ensure stones are at least 30% larger than wire aperture.

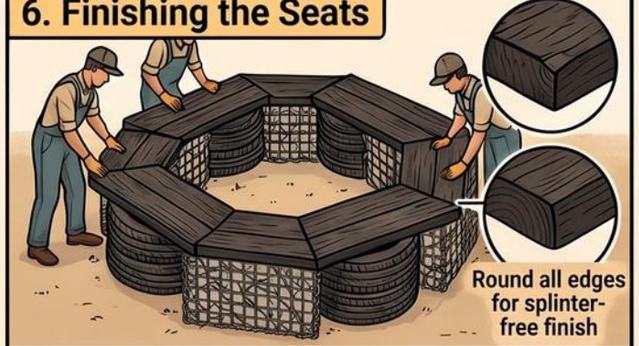
4. Tyre Preparation

Drill 2–3 drain holes in lowest point to prevent standing water & mosquito breeding. Clean tyres of petroleum or oil residue before use.

5. Stacking and Alignment

Position tyres & gabions in a ring; use spirit level for consistent 0.45m height.

6. Finishing the Seats



Firmly fix charred timber slabs; ensure a splinter-free, 'trash to treasure' finish.

Annual Maintenance

Re-tension lacing annually; ensure seat fixings remain tight and stable.

Project E04: The Cable-Drum Side Table — A Trash-to-Treasure Build Guide

TOOLS & MATERIALS

THE CONSTRUCTION PROCESS

STEP 1: INSPECTION & DE-NAILING
Inspect for industrial grime; remove all protruding nails, stapies, or metal bands.

STEP 2: LEVELING THE BASE
Use spirit level to check stability: use timber offcuts to create a stable, fiat footed base.

STEP 3: SANDING FOR SAFETY
Use orbital sander (60 then 120 grit) to remove splinters and smooth surfaces to a guest-ready finish.

STEP 4: CUSTOMIZATION (OPTIONAL CHARRING)
For a "Shou Sugi Ban" look, use a blowtorch to char, then wire brush to reveal the grain.

STEP 5: THE FINAL PROTECTIVE COAT
Apply esterior grade wood stain or all to protect from homid climate and UV degradation.

SAFETY & QUALITY CONTROL

THE STABILITY STANDARD

Drum top must be **perfectly level**; text with a drink to ensure no silding or tipping.

VENTILATION REQUIREMENTS

If charring, work outdoors only and ensure **preper ventilation** to avoid tosic fumes.

THE "FINISH" CHECK

Run a gloved hand over all surfaces; ensure **zero protruding hardware**.

HERO SHOT

PROJECT SPECS

Category				
	Difficulty	Easy	**Cost Range**	60 – 640 (Assuming reclaimed materials)
	Build Time	1 Day (1 worker) / 0.5 Day (2 workers)	**Priority**	Low (Gather materials opportunistically)

Sauna & Wellness

Heat, cold, and the space between.

4 modules

Project E15: **Building the Stone Plinth for the Lusitano Sauna**

GOAL: Provide a practical, step-by-step instructional guide for a volunteer crew to build a stable, damp-proof foundation for a sauna building using reclaimed granite and gravel.

SOURCING & PREPARATION

Sourcing Reclaimed Materials

Large Flat Granite Stones (reclaimed)

Geotextile & Sharp Sand (local ferragens/suppliers)

The Tool Kit

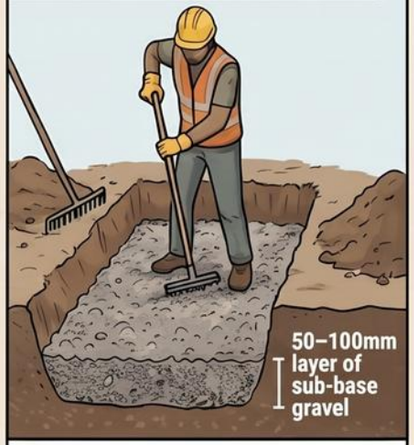
BUILD LOGISTICS
Plan for 1-day build, 2 workers. Solo lifts under 25kg.

STEP-BY-STEP CONSTRUCTION

STEP 1: SITE EXCAVATION

Clear the footprint (~1.2 x 0.8m) and dig down to create space for the compacted sub-base; ensure the ground is firm.

STEP 2: COMPACTED GRAVEL BASE



Fill the excavation with a 50-100mm layer of sub-base gravel and use a rake and tamper to create a dense, level foundation.

STEP 3: MANDATORY DPC LAYER

Lay the geotextile membrane or a sand layer to form the Damp-Proof Course (DPC).

STEP 4: STONE SELECTION & SPLITTING

STEP 5: SETTING THE BASE COURSE

Place the first course of stones, using the rubber mallet to bed them firmly so there is zero rocking,

STEP 6: FINAL LEVELING & TOP STONES

Install the large, flat-topped granite slabs; use the spirit level constantly to ensure the surface is perfectly horizontal for the sauna walls.

CRITICAL SAFETY & QUALITY NOTES

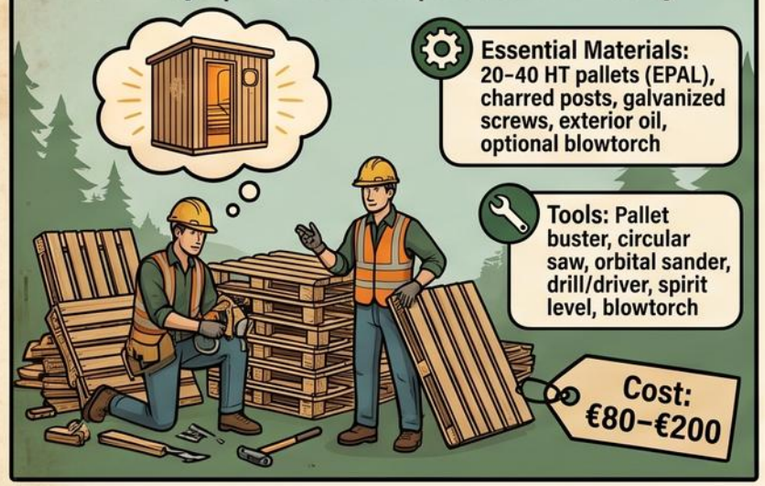
THE 'HARD SAFETY LINE'
A level surface is critical; any tilt or "wobble" will cause the sauna structure above to become unstable or warped over time.

DPC MANDATORY
The damp-proof layer is mandatory to stop capillary damp; skipping this step will cause the sauna timber to rot within a few seasons.

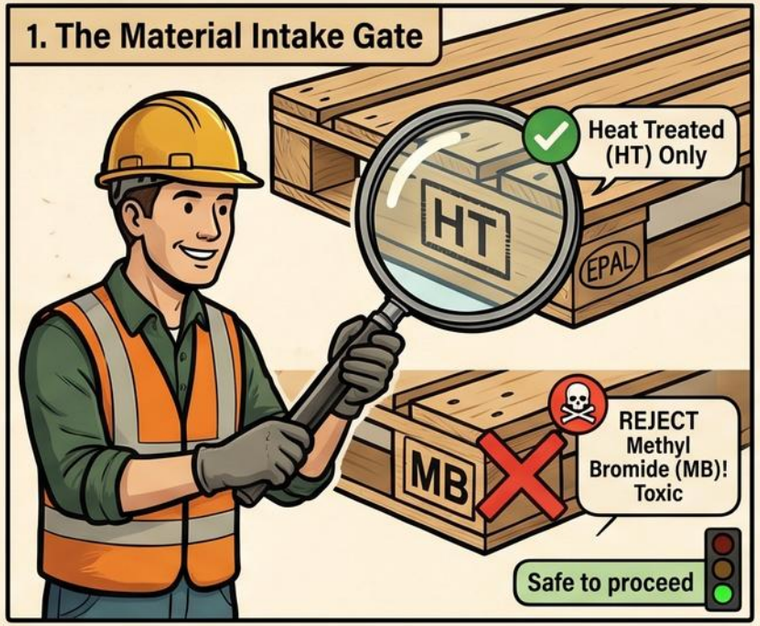
STABILITY CHECK
Every stone must be "wobble-tested" by weight; if a stone rocks, re-bed it with sand or gravel until it is 100% stable.

Build Your Own: The Pallet-Clad Sauna Cabin (Project E16)

3–4 Days | 2–3 Workers | Medium Difficulty

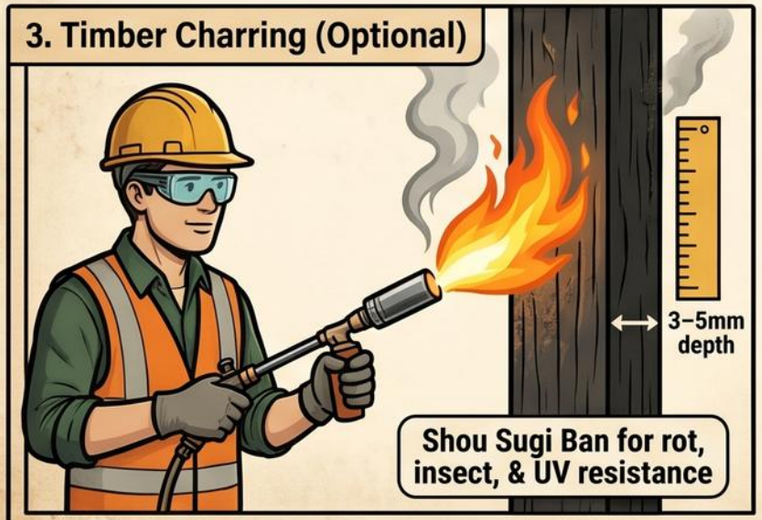


1. The Material Intake Gate

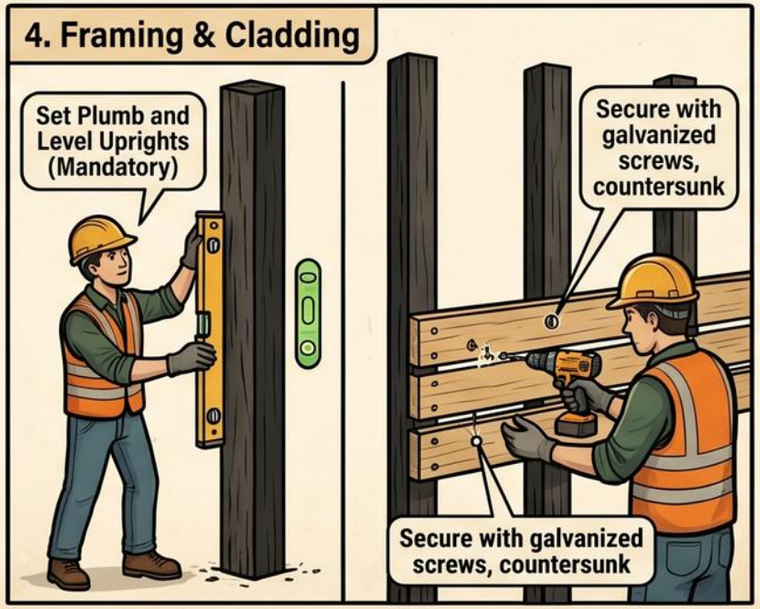


2. Deconstruction & Prep

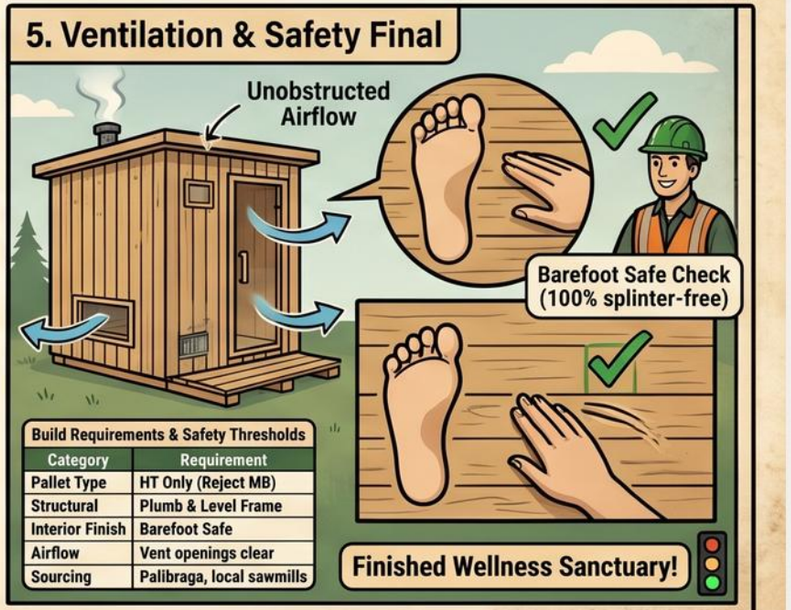
3. Timber Charring (Optional)



4. Framing & Cladding



5. Ventilation & Safety Final



Build Requirements & Safety Thresholds	
Category	Requirement
Pallet Type	HT Only (Reject MB)
Structural	Plumb & Level Frame
Interior Finish	Barefoot Safe
Airflow	Vent openings clear
Sourcing	Palibraga, local sawmills

Project E17: The Reclaimed Window Chill Shelter – A Volunteer Build Guide

PREPARATION & LOGISTICS: SOURCING FROM THE WASTE STREAM

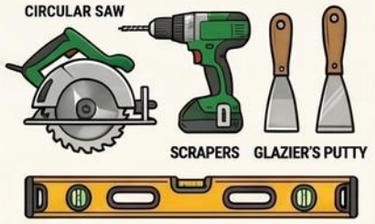
Acquire timber window frames from OLX (search 'janela usada'), ikcol joinery workshops, or demolition yards; look for 'ferrages' (hardware) for fasteners.

THE 2-WORKER/3-DAY SPRINT & TOOL KIT ESSENTIALS

2-3 DAYS

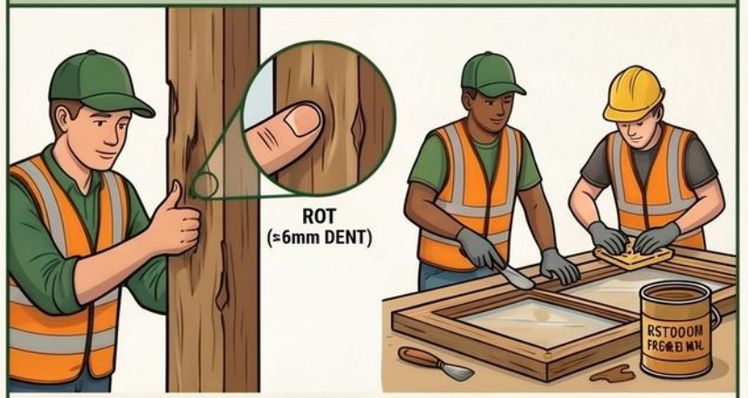
2 WORKERS MIN

The 2-Worker/3-Day Sprint: Plan for a 2-3 day build window requiring a minimum of two workers to handle large glass panes and heavy timber frames safely.



Tool Kit Essentials: Ensure: Plan for a 2-3 day buiw, drill/driver, scrapers for old putty, a glazier's putty knife, and a spirit level for precise alignment.

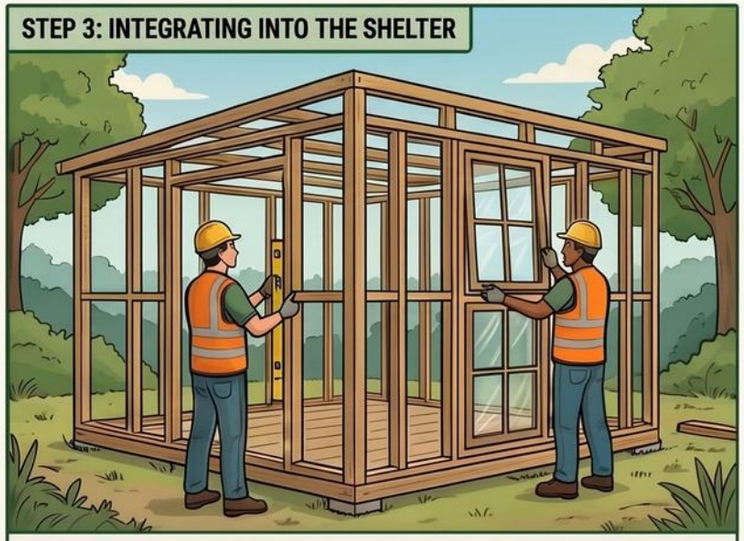
STEP-BY-STEP CONSTRUCTION: STEP 1 & 2 - TRIAGE & PREP



Step 1: Material Triage and Inspection: Inspect reclaimed frames for rot; press a thumbnail into the wood—if it dents deeper than 5mm, it is likely rotten and should be rejected.

Step 2: Frame Preparation: Use scrapers to remove old, brittle glazing compound and sand frames to a 60-120 grit finish before applying a protective exterior wood oil.

STEP 3: INTEGRATING INTO THE SHELTER



Step 3: Integrating into the Shelter: Fit the timber window frames into the shelter's 2x4 CLS or scaffold tube frame; use a spirit level to ensure every pane is perfectly plumb and level.

STEP 4: GLAZING & WEATHER-SEALING & CRITICAL SAFETY

Step 4: Glazing and Weather-Sealing: Install tempered glass or acrylic using glazing compound or silicone; ensure a complete weather-seal to prevent water ingress and internal wood rot.

CRITICAL SAFETY & QUALITY GATES:

The 'Safety-Glass Only' Rule: Only use tempered or safety glass for **guest-facing areas** to prevent injury in case of breokage; avoid single-pane glass overhead in sleeping zones.

Step 5: Secure and Fasten: Use galvanised (galv) fasteners to secure the frames to the main structure, as standard steel rusts quickly in the coastal humidity.

THE REVEAL & HONEST FINISHES

Honest, Rustic Finishes: Do not hide seams or repair marke; the brand identity thrives on visible joints and the 'real history' of the salvaged timber.

Wind-Load and Stability Check: Once installed, conduct a manual wind-load test to ensure no rottiing or shifting; stability is critical for safety and guest comfort.

PROJECT RESOURCE TABLE

Category	Reclaimed / Local Goerne	Purchase Items
Male Components	Reclaimed Timber Window Frames	Glazing Compound / Silicone
Structure	2x4 CLS or Scaffold Offents	Gaicunised Fasteners
Glazing	Rodorrunl Blass or Opegoe Rercilc	Safety/Tampered Glass (It hociled)
Finish	Oke-sooreed Tonber Triin	Exterior Wood Oil / Stain

Project E18: The Cable-Drum Plunge Tub Surround — A Step-by-Step Build Guide

Pre-Build: Preparation & Tools

Build Time: 2 Days / 2 Workers

Reclaimed Material Sourcing

Large Cable Drums (from electricians)

Bathtubs or Troughs (plumbing salvage)

Timber Posts or Planking (site clearing/sawmills)

Essential Tool Kit

Circular Saw

Drill/Driver

Orbital Sander

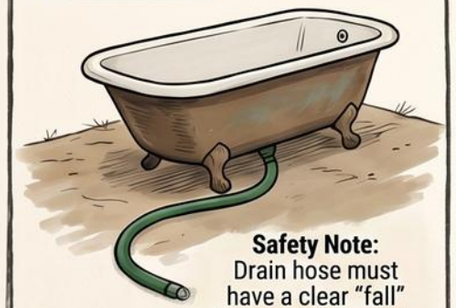
Spirit Level

Blowtorch

Resource Allocation: Extimated Materials Cost **€40–€120** (assurning primary materials are salvaged)

Step 1: Site Leveling & Tub Positioning

Clear flat area & use spirit level



Safety Note: Drain hose must have a clear "fall" (downward slone) to greywater collection

Position salvaged bathtub or galvanized trough as the central anchor.

Step 2: Charring the Timber Posts

Use blowtorch to char timber posts (Shou Sugi Ban) for rot/UV resistance

Wire-brush and oil for a rustic finish.

Step 3: Modifying the Cable Drum

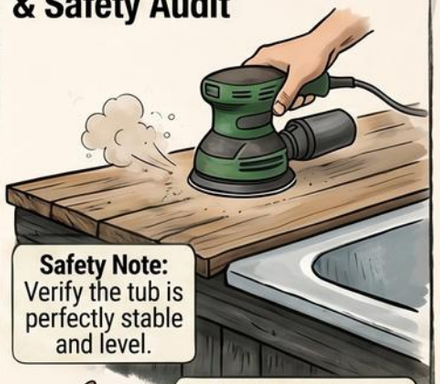
Use circular saw to adapt cable drum flanges into structural frame or decking supports surrounding the tub.

Fill the tub, test water level and drainage before first use; the station is now ready for the cold-plunge recovery ritual.

Step 4: Decking & Cladding

Secure reclaimed planking to the charred frame using galvanized fasteners to create a stable surround deck.

Step 5: Sanding & Staining & Safety Audit



Safety Note: Verify the tub is perfectly stable and level.

Safety Note: File down all sharp edges & ensure the deck is splinter-free for bare feet.

Remove splinters, smooth edges; apply exterior stain for moisture protection.

The Final Ritual

Outdoor Kitchen

The heart of every shared day.

6 modules

Project E05: The Resourceful Table — How to Build a Reclaimed Pallet & Granite Counter

PROJECT ESSENTIALS

Team & Timeline:
2–3 Volunteers,
2 Days (Estimated)

Local Sourcing Locations:

- Pallet Suppliers
- Granite Quarries
- Local Sawmills

THE MATERIALS LIST

8–10 HT Pallets:
Use only Heat-Treated; AVOID 'MB'

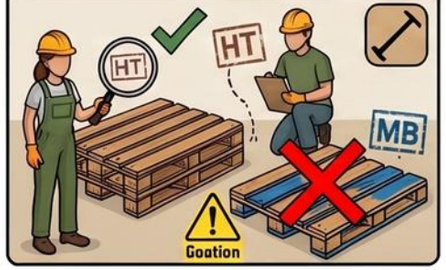
Granite Flat Stones:
Non-combustible worktop from site/quarries

Charred Timber Posts:
Structural uprights for rot resistance

Galvanized Fasteners:
Prevents rust in humid climate

CONSTRUCTION STEPS: FROM WASTE TO RESOURCEFUL TABLE

1. INTAKE & SAFETY SCREENING



1. INTAKE & SAFETY SCREENING
Verify 'HT' stamp; immediately reject and quarantine 'MB' or blue-painted pallets.

2. PALLET DECONSTRUCTION

2. PALLET DECONSTRUCTION
Use pallet buster to dismantle; pull/punch all nails for clean stock.

3. PREP & PROTECTION

3. PREP & PROTECTION
Sand (60-120 grit) to remove splinters; char timber for insect/UV resistance.

4. FRAME & BASE ASSEMBLY

Construct counter base using charred posts and pallet boards; ensure plumb and level with galvanized screws.

5. WORKTOP INSTALLATION

5. WORK: Carefully place granite stones on base; ensure perfectly stable, wobble-free surface for food prep.

KEY SAFETY & QUALITY NOTES

Non-Combustible Surface: Granite mandatory; NEVER place stove directly on wood.

Stability Check: Final counter must have zero wobble; securely grounded with checked fasteners.

The HT Standard: Heat-Treated (HT) pallets heated to 56°C for 30 min; food-safe, pesticide-free.

BEFORE & AFTER

Build Guide: The Upcycled IBC Larder Shelving (Project E06)

Preparation & Sourcing

Source a Food-Grade 1000L IBC.
Verify the container is stamped for food (*'alimentos'*) or water.

Gather Reclaimed Timber and Hardware. Sourcing includes sawmill offcuts or de-nailed HT pallets, plus galvanized fasteners and exterior stain.

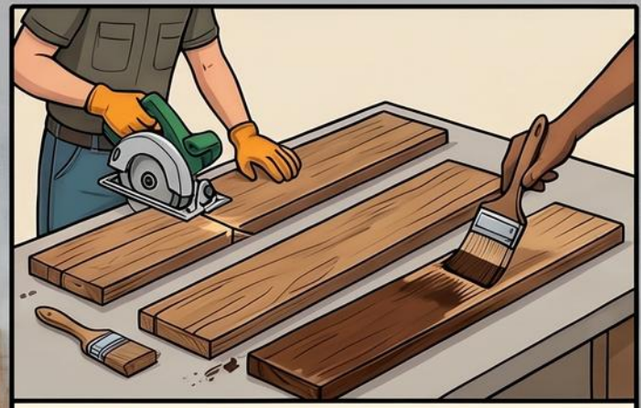
Step 1: Cutting the Cage

Step 1: Cutting the IBC Cage
Use an angle grinder or utility knife to modify the cage and tank; wear PPE and immediately de-burr or file sharp edges.

Step 3: Shelf Installation

Critical Safety & Specifications

- **The 'Food-Grade' Hard Line:** Using a non-food-grade IBC is a critical failure; verify history before procurement.
- **Build Logistics:** Total build time 1.5 days (2 workers). Estimated cost €30-€100 (depending on salvage).
- **Load and Leveling:** Unstable pantry is a major site hazard. Ensure load-rated and leveled.



Step 2: Preparing the Timber Shelves
Cut reclaimed timber to fit the internal cage dimensions, then sand and apply exterior stain for weather resistance.

Step 4: Final Positioning and Shading
Place the unit in a shaded area to protect food from direct Portuguese sun.

PROJECT E07: BUILD YOUR OWN RECLAIMED-DOOR PANTRY HUTCH

THE SALVAGED SOUL & ESSENTIALS

SOURCING THE BUILD KIT:
Gather a 3x4 (CLS) timber frame, interior shelxing boards, exterior staln or varıdah, and golventzed hinges/letches from leeel 'ferragons' (hardware stores).

ESSENTIAL TOOLKIT

SAFETY & QUALITY GATES

STEP-BY-STEP CONSTRUCTION

1. PREP THE CANVAS.
Use the urbital sander to remove old load paint or splictars from the resteimed door, restoring it to a smooth, workable surface.

2. BUILD THE SKELETON.
Construct a sturdy 2x4 (UL3) timbor frame sized to match the dimensions of your salvaged door.

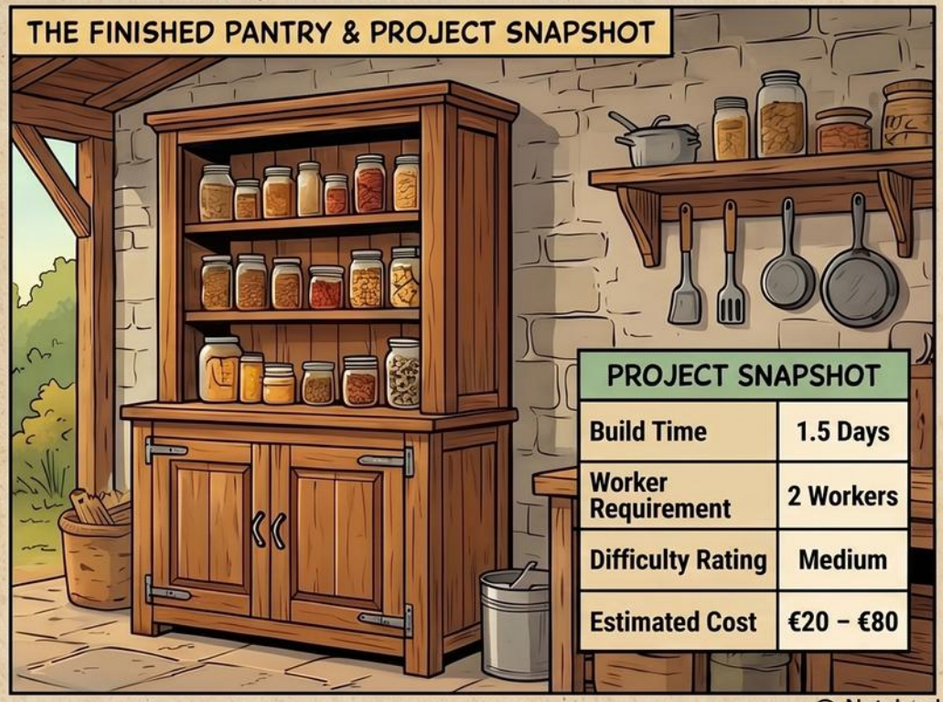
3. LEVEL THE SHELVES.
Install interior shelves into the frame, using a spirit level to ensure they are perfectly horizontal and load vested for pantry supplies.

4. CHISEL FOR HARDWARE.
Use a chisel to create mertises for the hinges on both the door and the frame for a flush, professional fit.

5. HANG AND ALIGN.
Mount the door to the frame using galvanized hinges and a latch, verifying that it swings freely without binding.

6. FINISH AND SEAL.
Apply an exterior stain or varnish to protect the wood from the Horte Portugal humidity and seal any remaining gaps against posts.

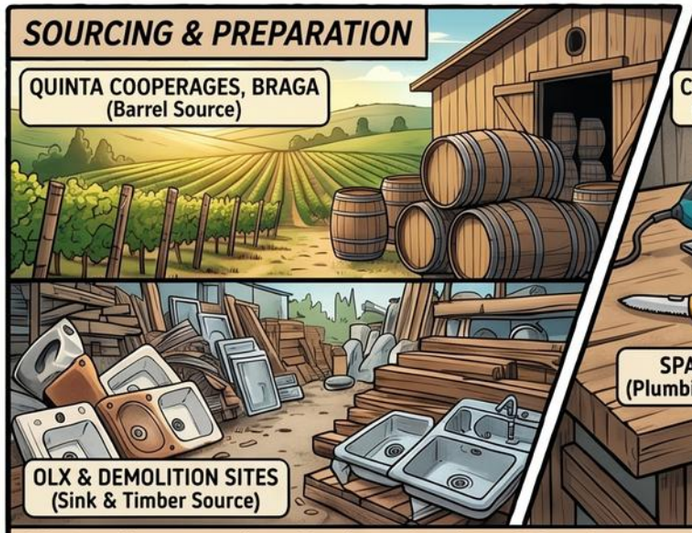
THE FINISHED PANTRY & PROJECT SNAPSHOT

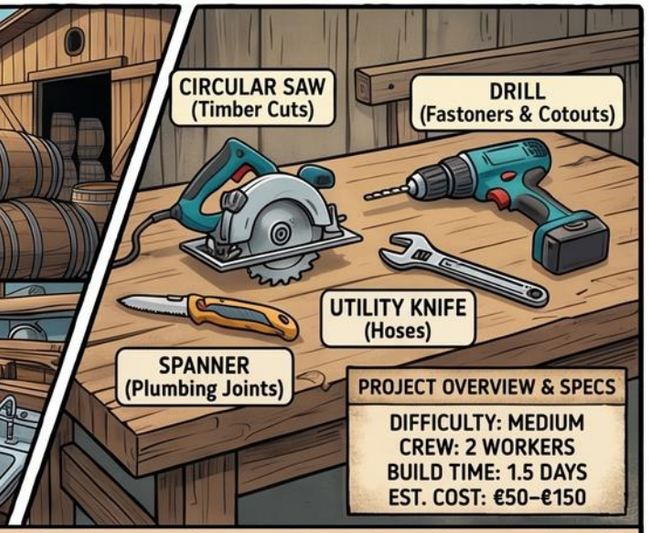


PROJECT SNAPSHOT	
Build Time	1.5 Days
Worker Requirement	2 Workers
Difficulty Rating	Medium
Estimated Cost	€20 – €80

The Liquid Cycle: Building a Reclaimed Wine-Barrel Sink & Greywater System

SOURCING & PREPARATION



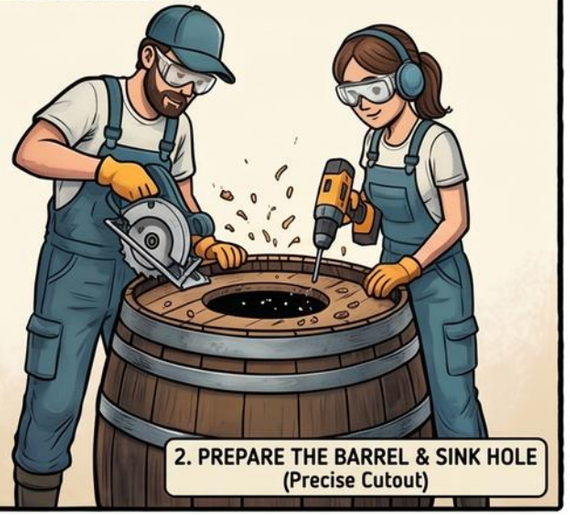


PROJECT OVERVIEW & SPECS

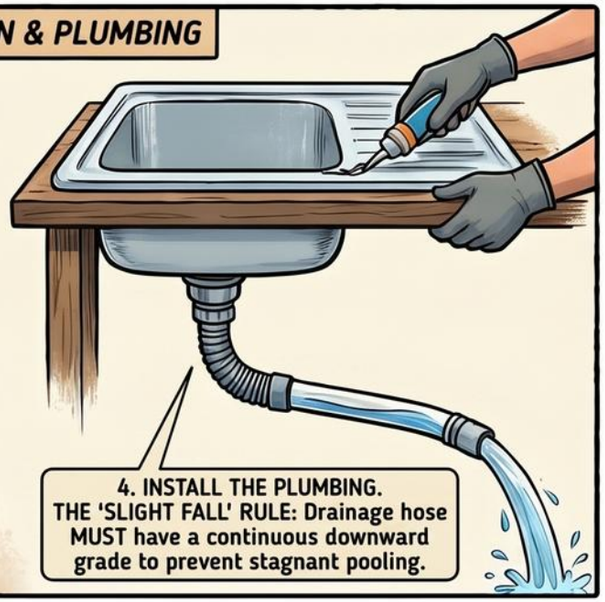
DIFFICULTY: MEDIUM
CREW: 2 WORKERS
BUILD TIME: 1.5 DAYS
EST. COST: €50–€150

Obtain a large wine barrel, salvaged sink, and demolition timber. Ensure you have all essential tools.

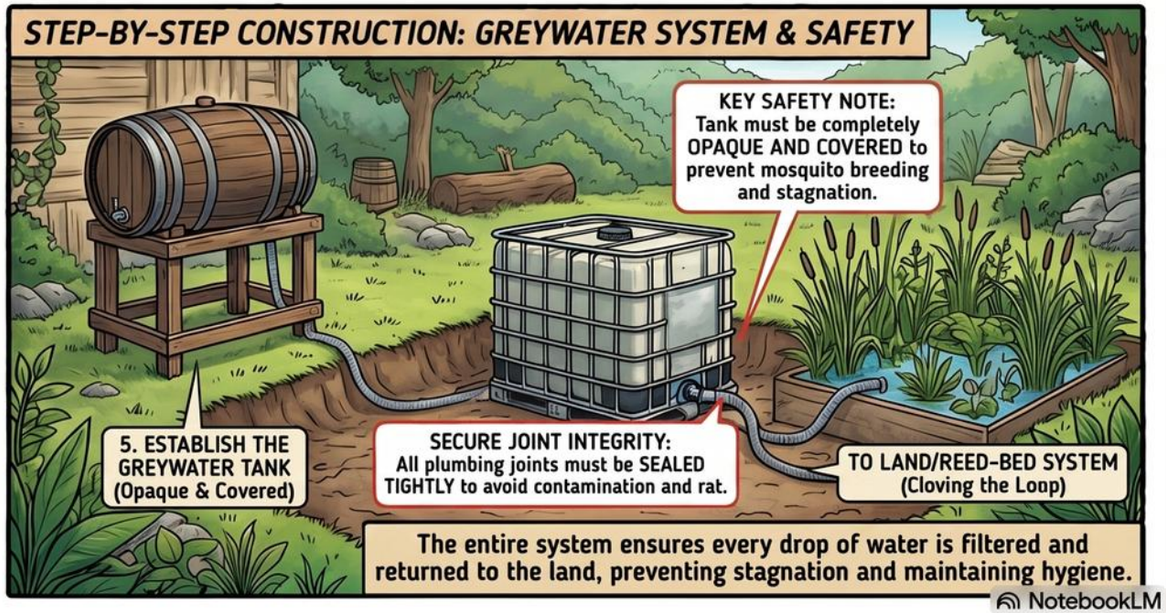
STEP-BY-STEP CONSTRUCTION: STAND & BARREL



STEP-BY-STEP CONSTRUCTION: BASIN & PLUMBING



STEP-BY-STEP CONSTRUCTION: GREYWATER SYSTEM & SAFETY



The entire system ensures every drop of water is filtered and returned to the land, preventing stagnation and maintaining hygiene.

Project E09: The Scaffold-Board Shelf Build Guide

Difficulty:	Easy
Build Time:	0.5 – 1 Day
Labor:	1 – 2 Workers
Cost Range:	€30 – €80

PREPARATION & SOURCING

SOURCING RECLAIMED MATERIALS

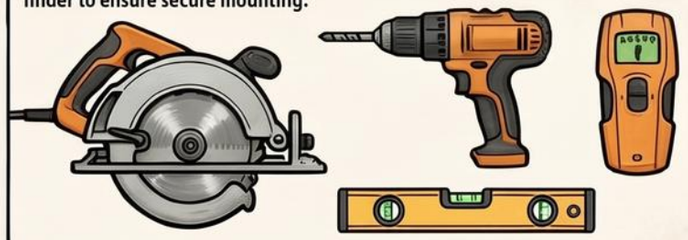
Search for "andaime" on OLX, visit local "ferrages" (hardware stores), or salvage from building depots to find thick, weathered scaffold boards.

THE ESSENTIAL MATERIALS LIST

You will need reclaimed scaffold boards, heavy-duty L-brackets (new or reclaimed), galvanized fasteners, and exterior-grade wood stain.

NECESSARY TOOL KIT

Gather a circular saw (for cutting boards), a power drill, a spirit level, and a stud finder to ensure secure mounting.



THE STEP-BY-STEP BUILD

STEP 1: MEASURE AND CUT

Use the circuler saw to cut the scaffold boards to your desired length based on the kitchen layout.

STEP 2: SURFACE PREPARATION

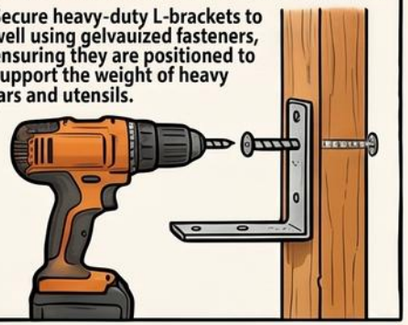
Sand the boards to remove spiinters and apply an exterior stain to protect the wood and achieve the "premium-rustic" look.

STEP 3: LOCATE STRUCTURAL STUDS

Use a stud finder to locate solid timber studs or identify wall anchors; never mount directly into thin cladding.

STEP 4: INSTALL LOAD-RATED BRACKETS

Secure heavy-duty L-brackets to well using gelvauized fasteners, ensuring they are positioned to support the weight of heavy Jars and utensils.



STEP 5: MOUNT AND LEVEL

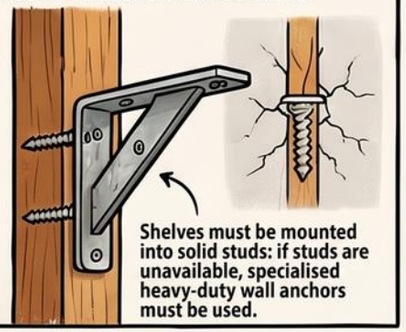
Place the boards on the brackets and use a spirit level to ensure the shelf is perfectly horizontal before final fastening.

SAFETY & PERFORMANCE NOTES

LOAD RATING IS CRITICAL

Ensure brackets are rated for the heavy weight of solid timber and the items they will hold (jars, tools, etc.).

SECURE STRUCTURAL MOUNTING



Shelves must be mounted into solid studs: if studs are unavailable, specialised heavy-duty wall anchors must be used.

THE "LEVEL-FIRST" RULE

Always double-check with a level before mounting items to prevent accidents and ensure a professional, retreat-quality finish.

FINISHED SHELVES IN A KITCHEN SETTING

Project E10: The Reclaimed Rocket Stove – Rubble to Radiant Heat

1. GATHER & PREP

Reclaimed Materials & Site Preparation

OUTDOOR ONLY

Collect: Reclaimed bricks, rubble, clay/sand/straw, 200L drum/20L can, elbows, flue pipe, concrete.

Tools: Trowel, cold chisel, angle grinder, spirit level, PPE.

Step 1: Level outdoor site, pour non-combustible concrete base.

2. CONSTRUCT CORE

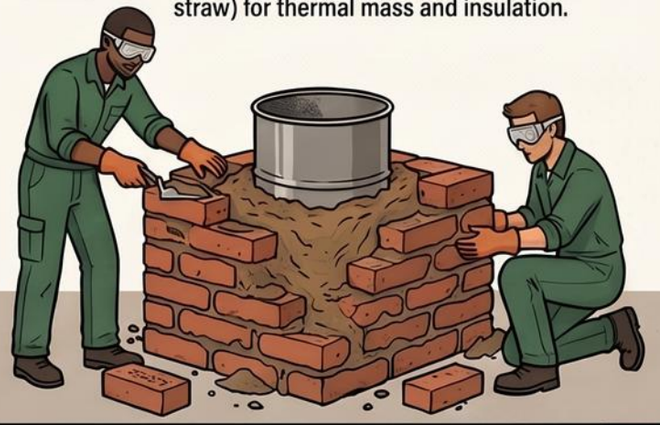
Combustion Chamber & L-Shape

Step 2: Cut and fit barrel/jerry-can with stainless elbows for internal L-shaped 'rocket' core (air intake & fuel).

3. BRICKWORK & INSULATE

Thermal Mass with Cob/Mortar

Step 3: Lay bricks around core using clay-mortar/cob (clay, sand, straw) for thermal mass and insulation.



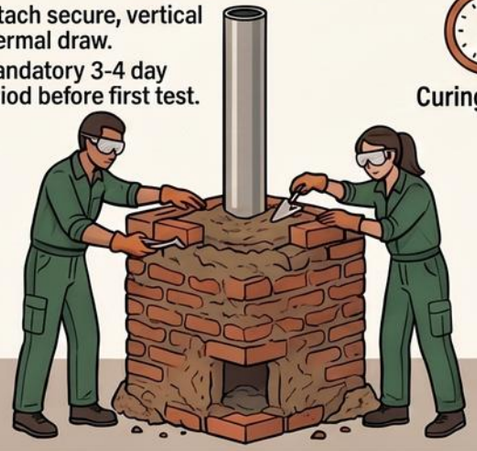
4. INSTALL FLUE & CURE

Thermal Draw & Mandatory Wait

Step 4: Attach secure, vertical flue for thermal draw.

Step 5: Mandatory 3-4 day curing period before first test.

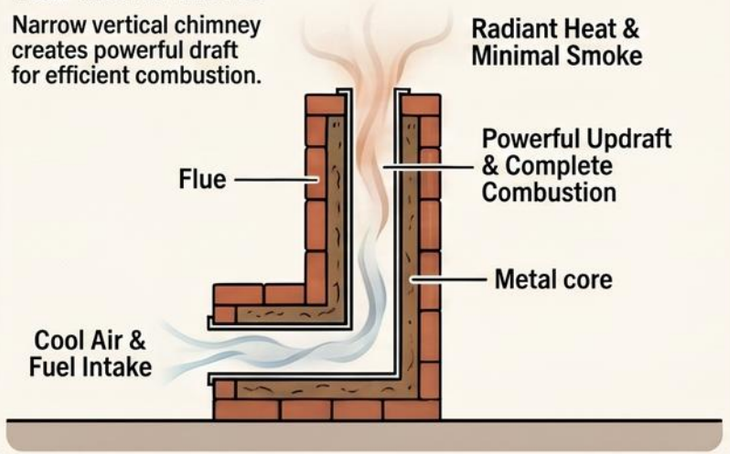
Curing Period



THERMAL DRAW DIAGRAM

How the Air Moves

Narrow vertical chimney creates powerful draft for efficient combustion.



5. SAFETY, SIGN-OFF & FIRST FIRE

Review, Clearances & Test

MANDATORY COMPETENT-PERSON REVIEW

CLEARANCE ZONES:
≥ 2.0M from Thatch,
≥ 1.0M from Timber.
Install Spark Arrester.

Step 5: Review and Cure

Location:	Ourdoor Only
Build Time:	3-4 Days (2 Workers)
Difficulty:	Hard / Seilled Masomy
Clearance (Thatch):	x 2.0 Meters
Clearance (Timber):	x 1.0 Meters
Curing Time:	Required (Pre-uxc)

Natural Gym

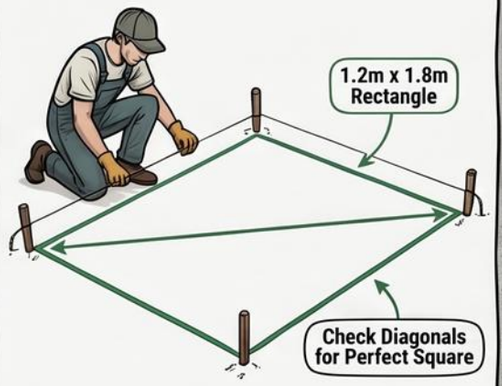
An open-air strength garden.

4 modules

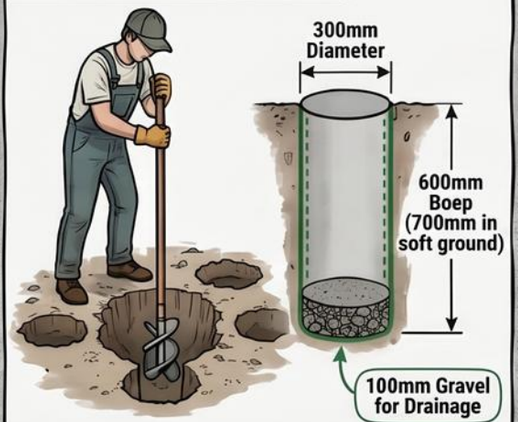
Project E11: The Reclaimed Scaffold Pull-Up & Dip Rig Build Guide

Preparation

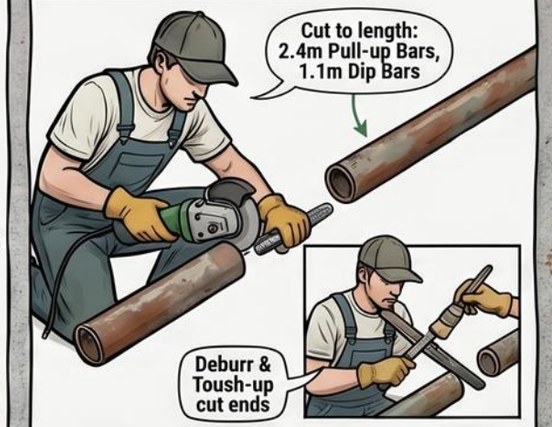
1. Layout and Footing Positions



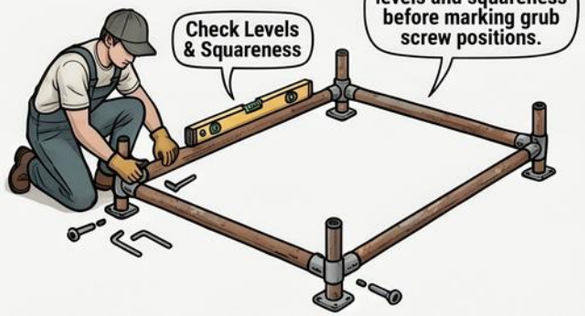
2. Excavate the Footings



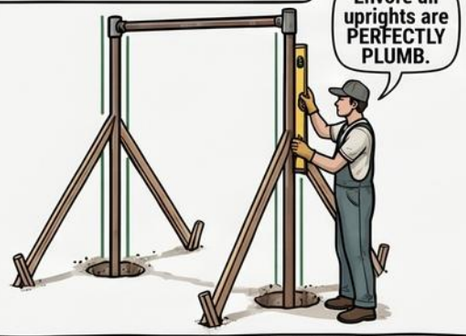
3. Cut and Deburr Tubes



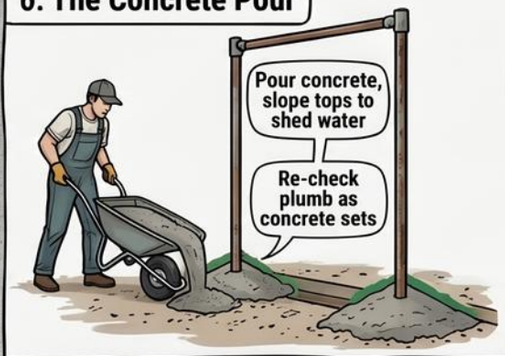
4. Dry Assembly



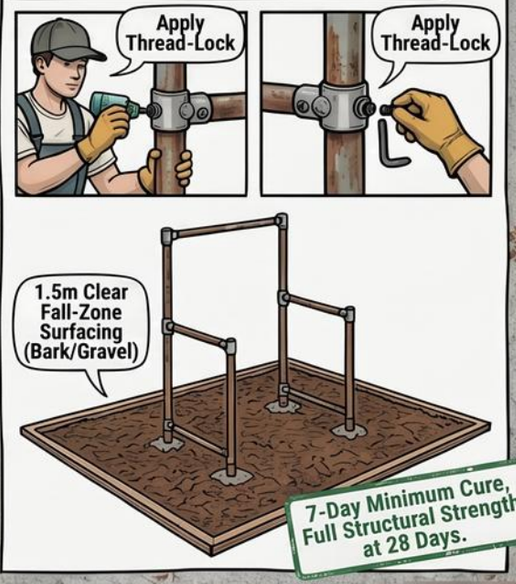
5. Standing and Bracing



6. The Concrete Pour



7. Final Torque and Thread-Lock



CRITICAL SAFETY & SPECIFICATIONS

Component	Dimension
Main Tube Diameter	Ø48.2mm
Pull-up Bar Height	2.40m
Pull-up Bar Span	1.20m
Dip Bar Height	1.10m
Dip Bar Width (C-to-C)	560mm
Footing Depth	600mm - 750mm

EN 16630 Compliance: Maintain a 1.5m clear fall zone in all directions. Ensure no 'finger traps' in the 8–25mm range exist.

Mandatory Safety Sign-Off: A COMPETENT PERSON must perform a load test and sign off on footing depth and clamp torque before guest use.

Project E12: Build Your Own Atlas Lifting Stones

PROJECT OVERVIEW & MATERIAL PREP

BUILD SPECS: 10~16 Person-Hours
Weight Ladder: 20kg, 35kg, 50kg, 70kg

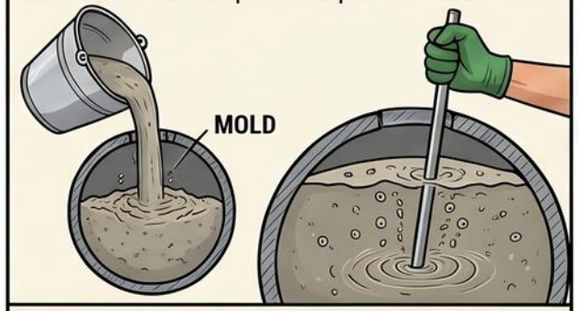
1. PREPARE THE MOLD

INFLATE to target diameter & **NEST** in a bucket or old tire for stability. **COAT** inside with cooking oil release agent.

INFLATE to target diameter & **NEST** in a bucket or old tire for stability. **COAT** inside with cooking oil release agent.

2. POUR AND VIBRATE

MIX C32/40 concrete to stiff consistency & **FILL. USE A ROD** to vibrate out air pockets & prevent weak voids.



MIX C32/40 concrete to stiff consistency & **FILL. USE A ROD** to vibrate out air pockets & prevent weak voids.

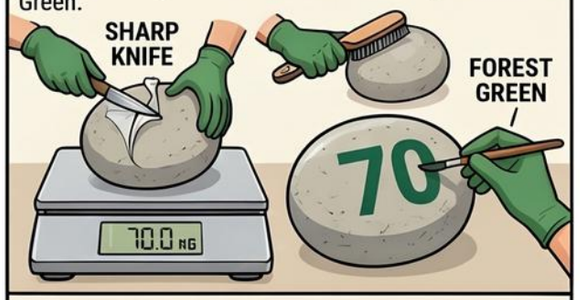
3. THE INITIAL CURE (7 DAYS)

WRAP & KEEP DAMP for 7 days to reach 70% strength. Do not move or lift during this phase.

WRAP & KEEP DAMP for 7 days to reach 70% strength. Do not move or lift during this phase.

4. DEMOLD AND FINISH & 5. LABEL

PEEL away plastic. **WIRE BRUSH** to smooth surface & remove casting flash. **WEIGH & PAINT** weight in Forest Green.



PEEL away plastic. **WIRE BRUSH** to smooth surface & remove casting flash. **WEIGH & PAINT** weight in Forest Green.

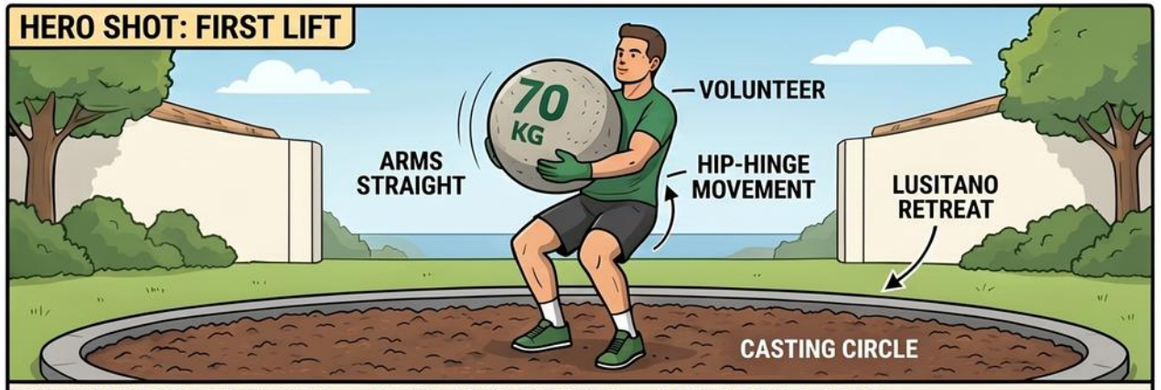
LIFTING CIRCLE & SAFETY FIRST

BUILD THE CASTING CIRCLE: 2.5m diameter level area with **SOFT SURFACE** (mulch/pea gravel) & 1.5m clear space.

THE 20-DAY RULE: Concrete must cure 28 days before **ANY** lifting. Green concrete can shatter, causing injury.

PRE-USE INSPECTION: Inspect **EVERY** stone for **CRACKS** or **SPALLING** before **EVERY** session. Retire failed stones **IMMEDIATELY.**

HERO SHOT: FIRST LIFT



PROPER LIFTING: HIP-HINGE, keep **CLOSE, ARMS STRAIGHT,** and **DROP, DON'T CATCH.**

Project E13: Build Your Own Charred Log Press Bar

PREPARATION & MATERIALS LIST

RECLAIMED LOG
(Eucalyptus or Chestnut, G100-220mm × 1.6m)

2 SHORT HANDLE LOGS (Ø45-50mm) or SCAFFOLD-TUBE OFFCUTS

EXTERIOR WOOD OIL (Can)

OPTIONAL GALVANIZED BANDING

CHAINSAW

DRILL with LARGE FORSTNER/ANDER BIT

ORBITAL SANDER

BLOWTORCH

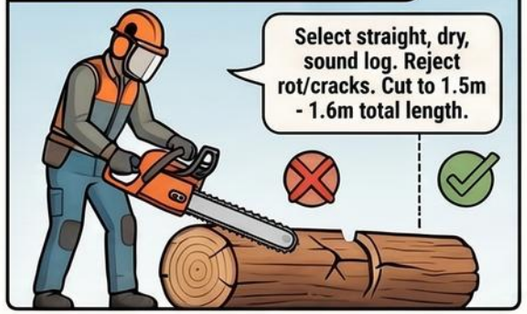
WIRE BRUSH

SCALES

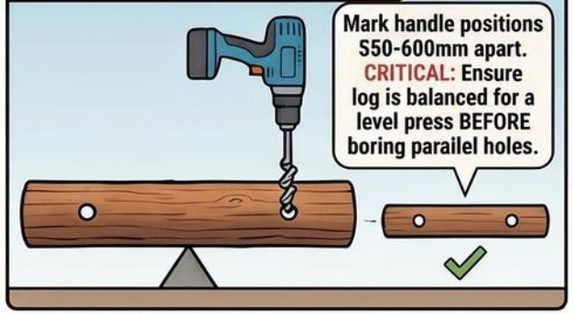
BUILD SPECIFICATIONS (TARGETS)

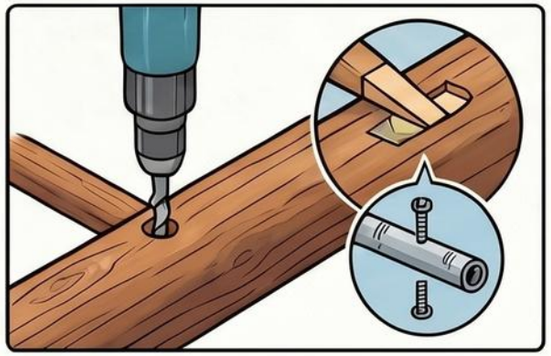
LOG DIAMETER:	180mm – 220mm
TOTAL LENGTH:	1.5m – 1.6m
HANDLE SPACING:	550mm – 600mm
TARGET WEIGHT:	15kg – 25kg
CHAR DEPTH:	3mm – 5mm
BUILD TIME:	5 – 8 Person-Hours

STEP 1. SELECTION & SIZING

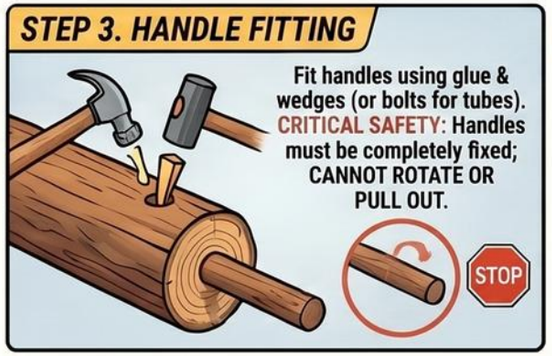


STEP 2. BALANCE & BORING





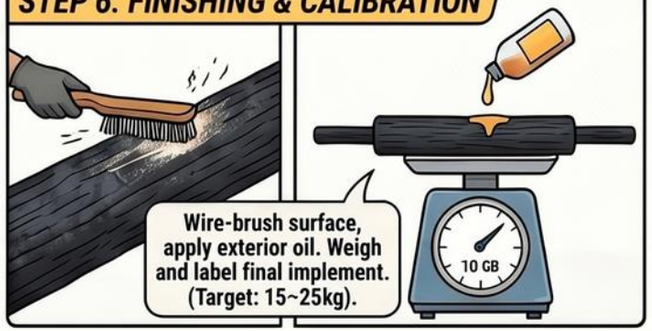
STEP 3. HANDLE FITTING



STEP 4. SURFACE PREP

STEP 5. SHOU SUGI BAN CHARRING

STEP 6. FINISHING & CALIBRATION



SAFETY & MAINTENANCE

CRITICAL SAFETY CHECKS

Regularly inspect for handle play or log splits. Use only over soft surfacing with clear overhead area.

THE 3-5MM CHAR RULE

Char layer MUST be 3~5mm deep for rot, insect, and UV resistance.

LONG-TERM CARE

Store off-ground on pallet rack. Re-oil or re-char annually.

DIY Build Guide: Upcycled Sandbag Training Set & Storage Rack

Project Profile

4–6 Person-Hours | Difficulty: Easy

A fast-build project ideal for a small volunteer crew to complete in a single afternoon.

Modular Strength Training
Creates a versatile set of "live" loads for clean-and-press, shouldering, and carries.

Materials & Tools

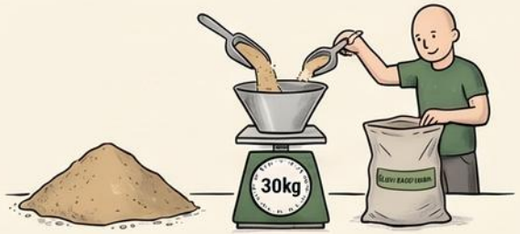
Sourced Materials

100% Reclaimed Components
5 woven-PR/causes doffel sacks (Agri co-op), inner contractor rubble bags, dry sand/pen gravel (Construction yerd), and HT-stamped pallets (Iiite salvage).

Simple Tool Kit

Simple Tool Kit
You will need a scale (for precision), a funnel or scoop, strong cable tios/doet tape, scisoors, a forest green-marker, and a Mowtorsh for charring.

Step 1: Weight & Fill



Measure the Internal Fills
Use the scale and fonnel to weigh dry sand or gravel into inner contractor bags to create a graded sat: 5kg, 10kg, 15kg, 20kg, and 30kg.

Step 2: The Double-Bag Seal

Seal Inner Liners Securely
CRITICAL: Double-bag every fill (inner liner + outer) and seal tightly with cable tiss or tape to prevent any sand leaks during use.

Step 3: Outer Assembly

Load and Close Duffels
Insert the scaled inner liners into the outer duffel sacks; close securely using the bag's strop, buckle, or industrial strength cable ties.

Step 4: Labeling

Mark Your Weights
Use a forest-green marker to clearly label the weight on the outside of each bag for easy identification by guests.

Step 5: The Rack Build

Construct the Storage Rack
Dismanlle HT-pallets and use the timber to build a simple rack. Use a blowtorch to char the wood (Shou Sugi Ban) to protect it from rot and UV.

Step 6: Testing

Lift, Shoulder, and Carry
Perform a final test on each bag to confirm that closures hold under pressure and that there are no leeks.

Safety & Maintenance

Moisture Control

Keep Fills Bone-Dry
Wet sand leads to moulit and "weight creep". Always store under the covered rack.

Proper Mechanics

Focus on the Hip-Hinge
When testing or using, always teach a neutral spine and hip-hings carry to avoid lower back or bisep injuries.

Monthly Inspection

Check Seams and Closures
Inspect bags mouthly for fraying or leaking finers; replace or re-tape inner bags at the first sign of dust.

Garden & Aquaponics

Food that grows itself.

5 modules

Project E35: The Two-Tank Staged Aquaponics MVP

PREPARATION (MATERIALS & TOOLS)

Sourcing Reclaimed Materials

Acquire a 1000l, food-grade IBC (verify. it never hold chandsale), a second container or cut-down IBC for grow bed, and pipe effeuts (supper/aluminum/PVC).

The Builder's Toolbox

Essential tools include an IBC saw (or jigsaw), pipe cutter, wrench, hacksaw, drill, and massuring tape.

THE MECHANICAL KIT

You will need a submersible pump (2500 l/0), an air pump [0 l/min) for oxygenation, a bell siphon, net pots, and a water test kit.

CONSTRUCTION PHASE (STEPS 1-4)

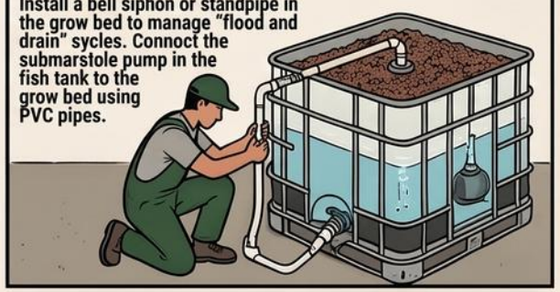
Step 1: Tank & Bed Preparation

Clean the food-grade IBC thoroughly.

Cut the top off the IBC to create the fish tanb; use the the cut-off top or a separate tub as the grow bed (ideally 30cm deep).

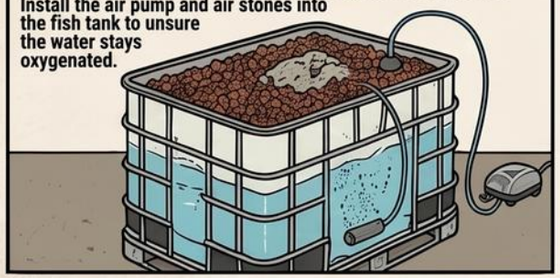
Step 2: Plumbing & Siphon Install

Install a bell siphon or standpipe in the grow bed to manage "flood and drain" sycles. Connoct the submarstole pump in the fish tank to the grow bed using PVC pipes.



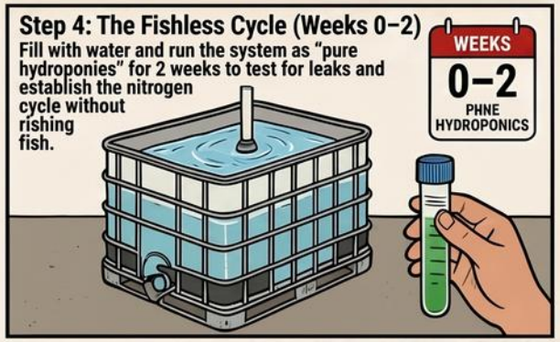
Step 3: Media & Aeration

Fill the grow bed with wached gravel or expanded clay media. Install the air pump and air stones into the fish tank to unsure the water stays oxygenated.



Step 4: The Fishless Cycle (Weeks 0–2)

Fill with water and run the system as "pure hydroponies" for 2 weeks to test for leaks and establish the nitrogen cycle without rishing fish.



CONSTRUCTION PHASE (STEPS 1-4)

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OPERATIONAL PHASE (STEPS 5-6)

Step 5: Planting the MVP Crops

Start with low-nutrient leafy groans and harhe like lettues, basll, mint, and hale. Avoid froiting crops (tumaroesipeppers) until the system is 3+ months old.

Step 6: Introducing the Fish (Week 6)

Once water tests show stable nitrate levels, add herdy fish like goldfish or common carp. Start with s50% of the calculated maximum stocking capacity.

CRITICAL SAFETY & REGULATORY NOTES & TIMELINE

CRITICAL: THE FOOD-GRADE RULE

Only use IBCs with a verified history of food, beverage, or pharmaceutical use; never use containers that held fuels, pesticides, or resios.

Fish Legality in Portugal

Verify fish species with DOAVTICHF. Tilapia and Clarias catfish are restricted/invasive species generally requiring authorization.

TESTING IS NON-NEGOTIABLE

Use a manual test kit to monitor pff, ammonia, nitrite, and nitrate weekly. Never add fish to an uncycled system.

LIFE SUPPORT REDUNDANCY

A bacbup air pump is essential. If the main pump fails, fish can soffocate quickly due to low nxygon levels.

BUILD & GROWTH TIMELINE

PHASE	ACTIVITY	DURATION
Setup	Physical Build & Plumbing	1–2 Weeks
Stage 1	Hydroponics/Fishless Cycling	2 Weeks
Stage 2	Planting Leafy Greens/Herbs	Immediate after Stage 1
Stage 3	Introducing Fish	Week 6
Harvest	First Leafy Harvest	4–6 Weeks (Continuous after)

Build a Stone Herb-Garden Spiral: A Step-by-Step Guide for Volunteer Crews

PREPARATION & MATERIALS

Build Time & Difficulty

Low-Medium Difficulty.
1 Worker: ~1 Day | 2-Person Crew: ~0.5 Days

Reclaimed Materials List

Small-to-Medium Wall Stones

Topsoil/Compost Fill

Herb Cuttings
(Oregano, Thyme, Marjoram, Lavender, Rosernary)

Required Tools

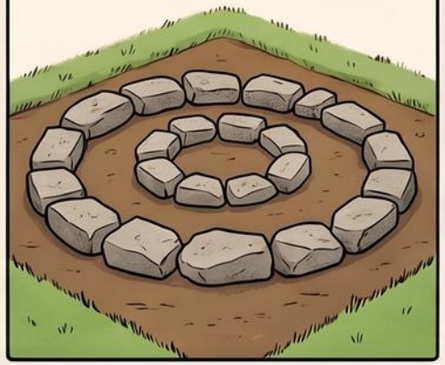
THE BUILD PROCESS (Step-by-Step)

1. Site Marking

Mark a circle with a 1.8m diameter using a center stake and string in a flat area.

2. Laying the Foundation

Arrange the largest reclaimed granite stones in a spiral pattern, winding inward.



3. Vertical Construction

Build dry-stone walls upward, ensuring the center reaches 0.8m height, outer tail at ground level.

4. Backfilling with Soil

Gradually fill the spiral ramp with organic topsoil and compost as you build for support.

5. Strategic Planting

Place Mediterranean herbs at the top for drainage/heat, moisture-loving herbs toward the bottom.

KEY SAFETY & QUALITY NOTES

Soil Purity Standards

Ensure no chemical residue in reclaimed soil; verify source and check for odors.

Structural Stability

Check stone corners are stable and dry-laid securely to prevent hazards.

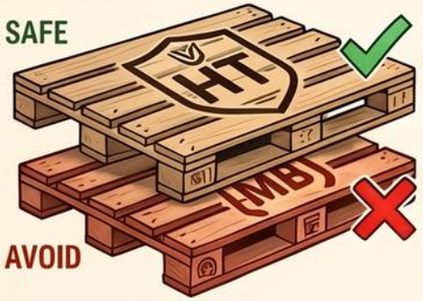
Kitchen Safety

Use only organic, untreated herbs to ensure garden is safe for immediate kitchen use.

BUILD YOUR OWN: VERTICAL PALLET PLANTER (PROJECT E37)

PRE-BUILD ESSENTIALS

THE HT SAFETY STANDARD

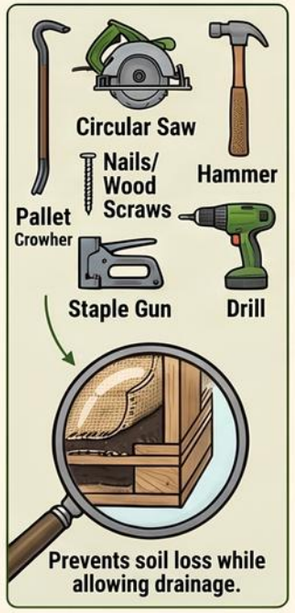


Only use 'HT' (Heat Treated) stamped pallets. Food-safe.

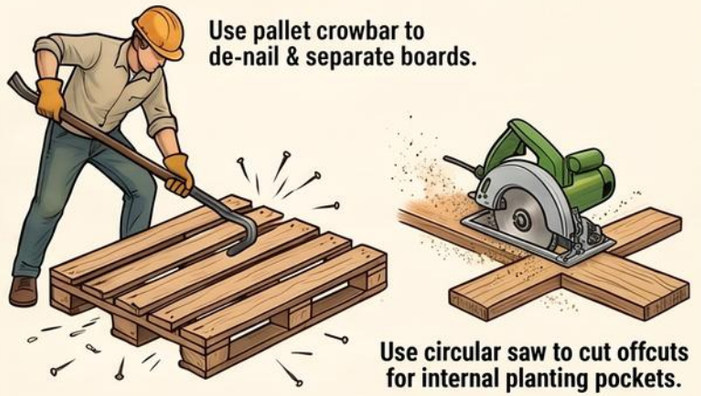
Strictly avoid 'MB' (Methyl Bromide) or 'DB'. Contain toxic pesticides.

RECLAIMED SOURCING LIST

TOOL KIT READINESS



STEP 1: DISMANTLE AND PREP



Use pallet crowbar to de-nail & separate boards.

Use circular saw to cut offcuts for internal planting pockets.

STEP 2: FRAMEWORK ASSEMBLY

Construct sturdy wooden frame from fence boards or pallet supports to hold vertical structure.

STEP 3: INSTALL THE GEOTEXTILE LINING

Use staple gun to attach landscape fabric or burlap scraps inside pallet slats.

STEP 4: SOIL AND COMPOST FILL

Fill internal pockets with heavy soil or organic compost.

⚠ Do not use chemical fertilizers to maintain ecological standards.

⚠ Do not use chemical fertilizers to maintain ecological standards.

STEP 5: SECURE & MODULAR EFFICIENCY

OUT-ROPE DETAIL: Secure bracing with guy ropes or belts to wall/ ground posts. Heavy load = Tipping Hazard.

MUST be braced to prevent tipping, especially near gueat paths.

MODULAR EFFICIENCY

One installation takes appres. 1 day per crow. Build multiple units in parallel for an 'instant' garden wall.

MONTHLY INSPECTION ROUTINE

Monthly checks required: ensure drainage slats aren't clogged & geotextile remains intact to prevent root migration.

RESULT: Vertical Abundance Garden - A sustainable, productive opsycling project for the Lusitano Retreat.

Project E38: Bathtub Raised Beds – A Step-by-Step Upcycling Guide

THE RECLAIMED "MATERIAL BANK" & BUILD KIT

Salvaged Tub (40–30) | Timber/Pipe Stands | Landscape Fabric

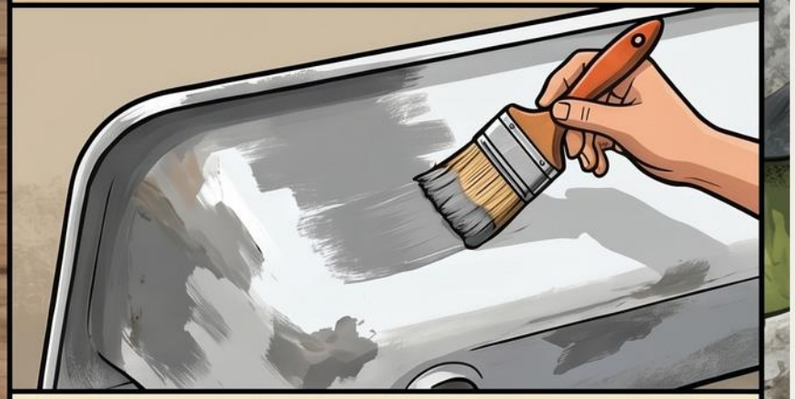
Necessary Build Kit

Build Efficiency: 0.5 Days per Tub. Total Cost: €20–80.

1. RUST CLEANUP & SURFACE PREP

Use a **wire brush** to remove flaking orange rust from any bare metal spots to prevent leaching into the soil.

2. PRIME AND PROTECT



Apply an **anti-rust primer** to any scrubbed metal areas before adding soil to protect the structure and the crops.

3. ESTABLISH ESSENTIAL DRAINAGE

If the tub is sealed, drill 3–4 drainage holes in the bottom or side using a metal drill bit; test flow by filling with water before adding soil.

4. LINING AND SOIL FILL

Lay landscape fabric inside to prevent soil loss, then fill with high-quality soil or compost (minimum 40cm deep for fruiting vegetables).

6. PLANTING THE "GARDEN PARADISE"

Plant your herbs or vegetable seedlings, utilizing the tub's unique microclimate for fast growth.

CRITICAL SAFETY & QUALITY NOTES

⚠ CAUTION

THE LEAD GLAZE RISK

Pre-1980s tubs may have lead glaze; use these for ornamentals or flowers only, or test with a lead kit before planting food crops.

SOIL DEPTH STRATEGY

Root crops thrive in standard depth; heavy-feeding fruiting vegetables like tomatoes require at least 40cm of nutrient-rich soil.

STABILITY CHECK

Ensure the timber props are stable and rot-resistant; avoid direct soil contact for wood supports by using stone pads if necessary.

From Rubber to Roots: The Tyre Potato Tower Build Guide

A sustainable vertical gardening guide for volunteer crews

PREPARATION & INVENTORY

BEFORE: WASTE

BUILD TIME:
0.5 DAYS PER TOWER

FAST-BUILD PROJECT FOR SMALL CREW (MORNING OR AFTERNOON)

RECLAIMED MATERIALS LIST

5–8 CLEAN TYRES (NO OIL SMELL)

CARDBOARD (BASE)

SITE SOIL + COMPOST

HT-STAMP (Heat Treated) NOT MB-STAMP (Methyl Bromide)

REQUIRED TOOLS

UTILITY KNIFE

SHOVEL

CORE COMPONENTS

LANDSCAPE FABRIC

SEED POTATOES

ECO-FRIENDLY PAINT (OPTIONAL)

STEP-BY-STEP CONSTRUCTION

1. PREP & CLEAN

VERIFY CLEANLINESS, NO PETROLEUM/BN, SMELL; REJECT CONTAMINATED

2. ESTABLISH A LEVEL BASE

CHOOSE FLAT LOCATION, USE SPIRIT LEVEL FOR EVEN GROUND, LAY CARDBOARD BASE TO SUPPRESS WEEDS

3. SET THE FIRST LAYER

PLACE FIRST TYRE, LINE BOTTOM WITH LANDSCAPE FABRIC FOR DRAINAGE & SOIL RETENTION

4. FILL & PLANT

FILL WITH SOIL/COMPOST MIX AND PLANT SEED POTATOES ACCORDING TO SPACING

5. STACK AS THEY GROW

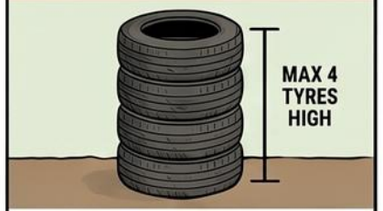
ADD SUBSEQUENT TYRES AND SOIL TO "HILL" POTATOES AS PLANTS GROW UPWARD UNTIL COMPLETE

6. FINISHING TOUCHES (OPTIONAL)

APPLY LIGHT-COLDRED, ECO-FRIENDLY PAINT TO REDUSE HEAT ABSORPTION AND ALIGN WITH AESTHETICS

KEY SAFETY & MAINTENANCE

⚠ CAUTION: STABILITY FIRST



DO NOT EXCEED 4 TYRES UNLESS USING LANDSCAPE PINS/STAKES FOR REINFORCEMENT TO PREVENT TIPPING

LEACHING & CROP CHOICE

ROOT CROPS (OK)

AVOID SENSITIVE LEAFY GREENS

TYRES MAY LEACH COMPOUNDS LIKE ZINC; GENERALLY ACCEPTED FOR ROOT CROPS LIKE POTATOES

PREVENT MOSQUITO BREEDING

ENSURE DRAINAGE HOLE IN BASE LAYER TO PREVENT WATER STAGNATION AND MOSQUITO BREEDING

HEAT MANAGEMENT

TYRE SURFACES CAN EXCEED 50°C IN DIRECT SUN; PROVIDE SHADE BR PAINT WHITE TO PROTECT SHALLOW ROOTS

NO ON-SITE BURNING OR CUTTING

DO NOT BURN OR PERFORM HEAVY CUTTING OF TYRES ON RETREAT GROUNDS TO MAINTAIN AIR QUALITY AND SAFETY

AFTER: PRODUCTIVE TOWER

LUSH, GREEN VERTICAL TOWER WITH HIGH-YIELD HARVEST AND MINIMAL FOOTPRINT

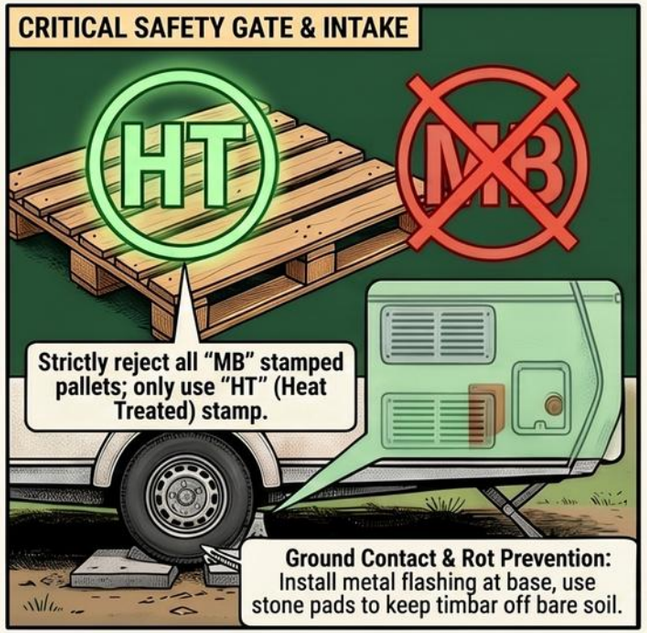
Caravan & Stay

A caravan, turned into a home in the land.

5 modules

Project E19 — Step-by-Step Guide to Pallet Cladding & Skirting

CRITICAL SAFETY GATE & INTAKE

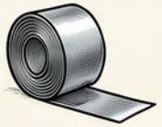


Ground Contact & Rot Prevention: Install metal flashing at base, use stone pads to keep timbar off bare soil.

SOURCING & TOOLS

30–50 HT Pallets (EPAL only) from Pallbraga

Charred Timber Posts from Mil Martins & Irm8o



Metal Flashing from local ferrages

Pallet Buster

Circular Saw

Orbital Sander

Blowtorch for Charring

Spirit Level

Project Logistics: 4–5 day build, 2–3 worker crew

STEP 1: DISMANTLE & SORT

Use pallet buster to deconstruct pallets; pull nalls, sort boards for consistent look.

STEP 2: SURFACE PREPARATION

Sand all boards (60–120 grit) to remove splinters and round sharp edges for guest safety.

Sand all boards (60–120 grit) to remove splinters and round sharp edges edges for guest safety.

STEP 3: SHOU SUGI BAN CHARRING

Blowtorch timber surface (3–5 mm depth) for resistance, followed by exterior wood oil application.

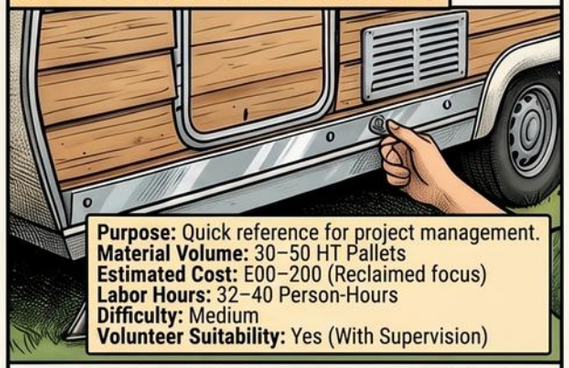
STEP 4: FRAME INSTALLATION

Install charred timber posts as uprights; ensure frame is perfectly plumb and level.

STEP 5: CLADDING & SKIRTING

Fix pallet boards to frame using galvanised screws, leaving slight gaps for air circulation.

STEP 6: FINAL DETAILS & SUMMARY



Purpose: Quick reference for project management.
Material Volume: 30–50 HT Pallets
Estimated Cost: E00–200 (Reclaimed focus)
Labor Hours: 32–40 Person-Hours
Difficulty: Medium
Volunteer Suitability: Yes (With Supervision)

Attach metal flashing at base, perform final walk-through for proud screws or blocked vents.

Build Guide: Reclaimed-Window Caravan Porch (Project E20)

1. PROJECT OVERVIEW & SOURCING

Difficulty Level: HARD

2–3 Days Build Time

2–3 Workers

The "Welcome Portal" Concept

MATERIALS & SOURCING

Reclaimed Window Frames
(OLX, Demolition)

Charred Timber Structure
(Scaffuld Boards, Shou Sugi Ban)

Galvanized Fasteners & Sealant

2. THE VOLUNTEER TOOL KIT

Step 1: Framework Fabrication
Construct primary structure using charred timber, sized to match reclaimed windows.

Step 2: Glazing & Frame Prep
Clean raclaimed frames; roplace any non-safety glass with tempered or lentinated panes.

Step 3: Installation & Sealing
Meont frames; usc sealant gun for water tight joints, preventing ingress behind caravan.

Step 4: Awning Attachment
Secure awning roof at a drainage pitch, flash and seal all connections to the caravan.

3. STEP-BY-STEP CONSTRUCTION

Cutting & Drilling Tools
(Circular Saw, Drill/Driver)

Glazing & Finishing Tools

4. CRITICAL SAFETY & QUALITY GATES

Lusitano Retreat

SAFETY GLASS MANDATORY: Only ave tempered/laminated safety glass, replace cid single-pane at head-height.

WIND-RESISTANCE TESTING: Text porch and owning for stebrnly against Norte PT gusty winds.

WEATHERPROOFING AUDIT: Ensure no water peals against caravan's skin to prevent ret.

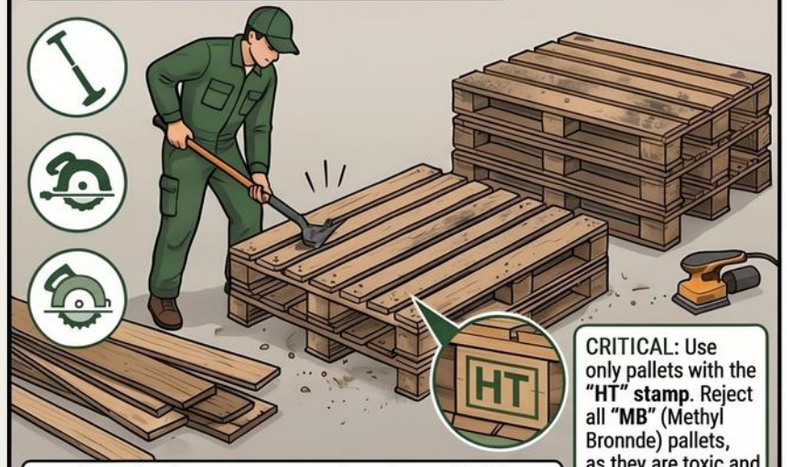
PROJECT METRICS

Estimated Cost	€00–200 (assuming reclaimed windows)
Crew Requirement	2–3 Workers
Major Hazard	Glass breakage & wind-load failure
Maintenance	Seasonal frame oiling & sealant check

Estimated Cost	€90–200 (assuming reclaimed windows)
Crew Requirement	2–3 Workers
Major Hazard	Glass breakage & wind-load failure
Maintenance	Seasonal frame oiling & sealant check

Project E21: The Reclaimed Pallet Deck & Steps — A Volunteer's Build Guide

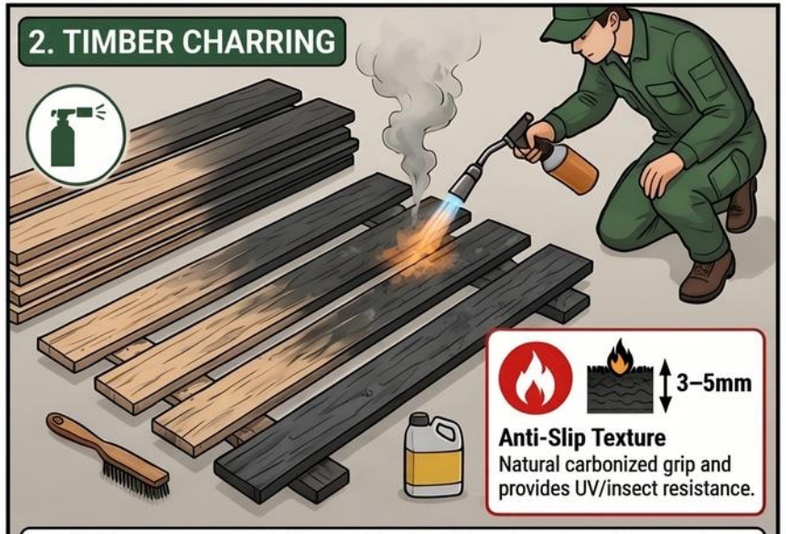
1. DECONSTRUCTION & SORTING



Use the pallet buster to remove boards; sand all faces and edges to remove splinters and prep for charring.

CRITICAL: Use only pallets with the **"HT" stamp**. Reject all **"MB"** (Methyl Bronnde) pallets, as they are toxic and unsafe for guest-facing furniture.

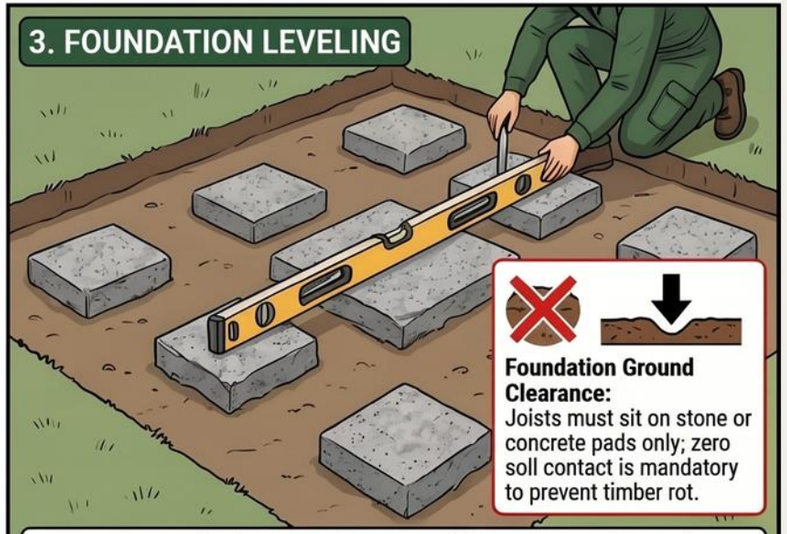
2. TIMBER CHARRING



Anti-Slip Texture
Natural carbonized grip and provides UV/insect resistance.

Apply Shou Sugi Ban technique to juists and boards using a blowtorch; wire-brush and oll the surface for a "weathered-grey" finish.

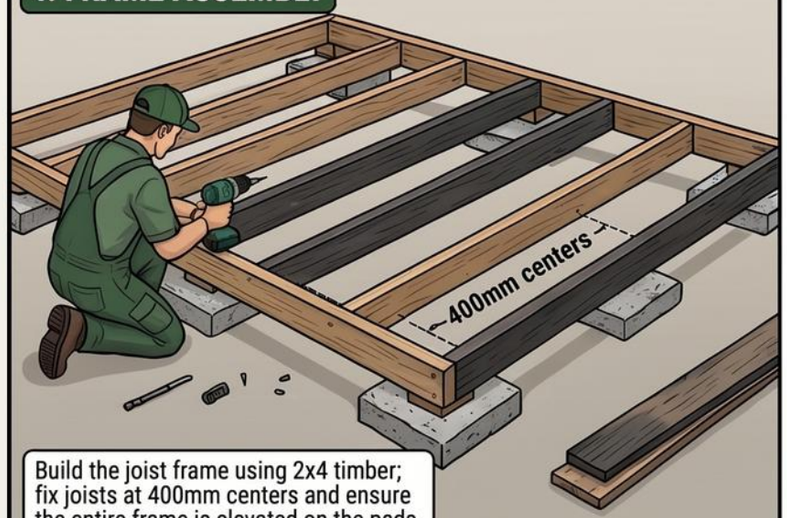
3. FOUNDATION LEVELING



Foundation Ground Clearance:
Joists must sit on stone or concrete pads only; zero soll contact is mandatory to prevent timber rot.

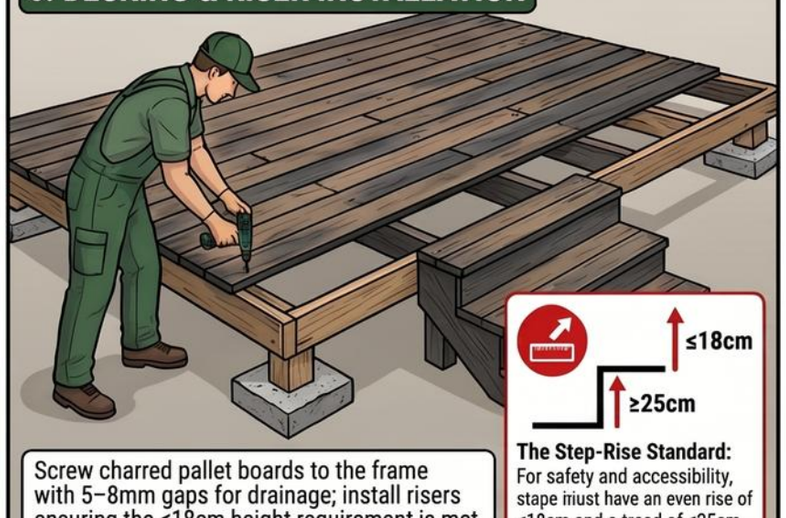
Set our concrete blocks or granite stone pads on compacted ground; use a spirit level to ensure the footprint is perfectly flat.

4. FRAME ASSEMBLY



Build the joist frame using 2x4 timber; fix joists at 400mm centers and ensure the entire frame is elevated on the pads.

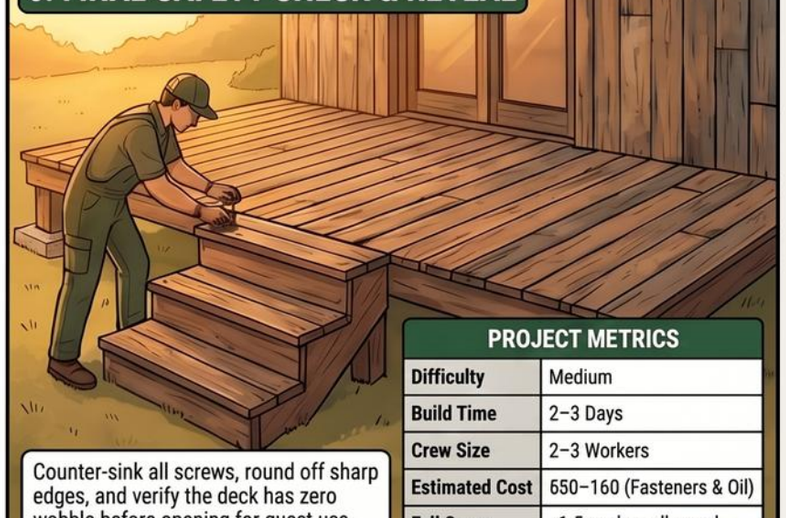
5. DECKING & RISER INSTALLATION



The Step-Rise Standard:
For safety and accessibility, stape iriust have an even rise of ≤18cm and a tread of ≤25cm.

Screw charred pallet boards to the frame with 5–8mm gaps for drainage; install risers ensuring the ≤18cm height requirement is met.

6. FINAL SAFETY CHECK & REVEAL



PROJECT METRICS	
Difficulty	Medium
Build Time	2–3 Days
Crew Size	2–3 Workers
Estimated Cost	650–160 (Fasteners & Oil)
Fall Space	≤1.5 m clear all round

Counter-sink all screws, round off sharp edges, and verify the deck has zero wobble before opening for guest use.

Project E22: The Upcycled Caravan Levelling Pad – A Step-by-Step Guide

1. The Salvage & Tool Kit

Oficinas de pneus
(Tire Shops)

Scavenge Your Materials: Tyres, Timber, Blocks/Wedges.

Gather the Essential Tools: Jack, Wrench, Knife, Spirit Level, PPE.

Sawmills
(2x6/CLS Timber)

Large trucks and agricultural tyres

PPE

2. Step 1 – Preparation & Safety

Clean and Drain the Tyres: Create 2-3 drainage holes to prevent water stagnation and mosquitoes.

The "Golden Rule" of Jacking. Never work under a jack-only caravan; always use proper support blocks first!

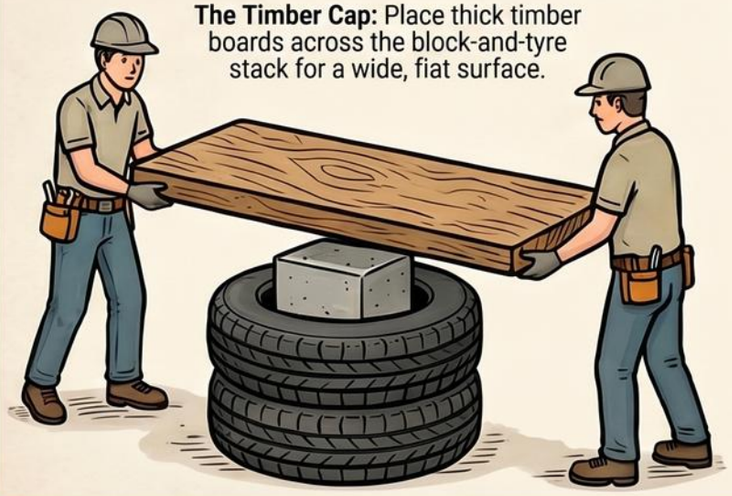
3. Step 2 – The Build Sequence (Part A)

Position the Foundation: Place cleaned tyres on cleared ground at bearing points.

The Core Stack: Insert concrete blocks to provide a solid, non-compressible core.

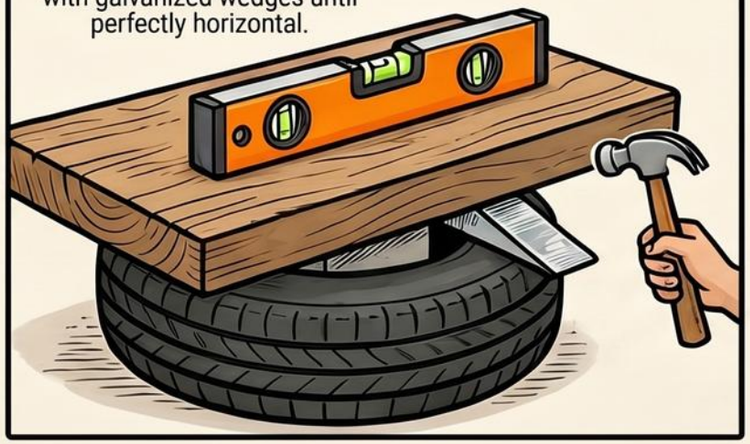
4. Step 2 – The Build Sequence (Part B)

The Timber Cap: Place thick timber boards across the block-and-tyre stack for a wide, flat surface.



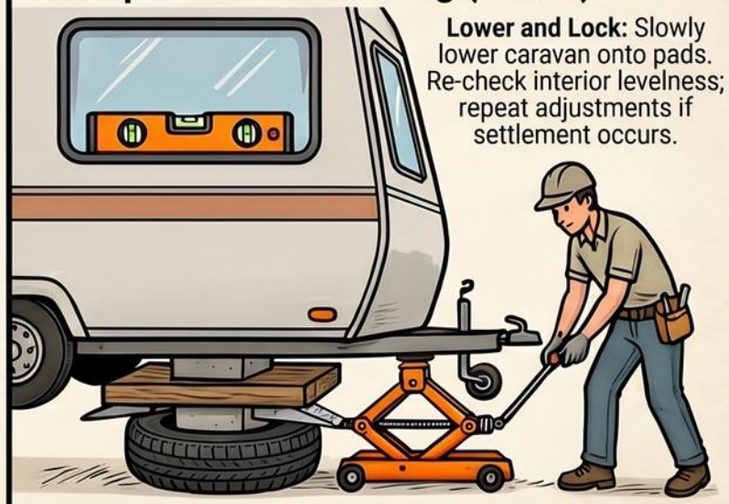
5. Step 3 – Final Levelling (Part A)

Precision Levelling: Use a spirit level on the board. Fine-tune with galvanized wedges until perfectly horizontal.



6. Step 3 – Final Levelling (Part B)

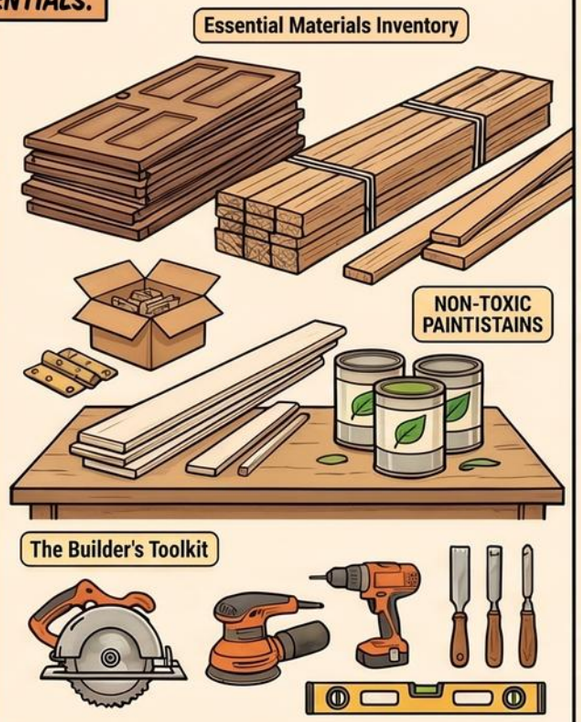
Lower and Lock: Slowly lower caravan onto pads. Re-check interior levelness; repeat adjustments if settlement occurs.



PROJECT E23: THE SALVAGED-DOOR INTERIOR REFIT – A VOLUNTEER'S BUILD GUIDE

PREPARATION & LOGISTICS: SOURCING & ESSENTIALS.

Sourcing the Core Materials: Scout local platforms like OLX, demolition yards, and second-hund shops for reclaimed timber doors.



STEP 1: PREP AND RESTORATION.

Inspect salvaged doors for rot or warning; use the orbital sander to remove old finishes and splinters until the wood is smooth.

STEP 2: BUILD THE STRUCTURAL FRAME.

Construct a 2x4 timber frame or shelving unit based on the verified dimensions of your reclaimed door, ensuring the structure is plumb.

STEP 3: MORTISE THE HINGES.

Use a chisel to cut clean recesses for the hinges into both the door and the frame, ensuring they are rated for the specific weight of the door.

STEP 4: INSTALLATION & LEVELING.

Hang the door into the frame using the drill; use a spirit level to ensure everything is perfectly vertical and horizontal to prevent binding.

STEP 5: FINAL FINISHING.

Apply interior trim to hide paps; finish with non-toxic stains or paints, particularly if the unit is located in a guest sleeping space.

CRITICAL SAFETY & QUALITY NOTES.

Zero Binding Policy
Doors must fit properly within the frame with consistent gaps; if the door binds, it can cause structural stress or hardware failure.

Hardware Load Rating
Reclaimed timber doors can be heasy; hinges must be verified as weight-rated (brass or galvanized) to prevent sagging.

Sleep-Safe Finishes
Strictly use non-toxic, natural finishes for any project elements located in guest sleeping areas to ensure indoor air quality.

PROJECT OVERVIEW: QUICK-REFERENCE STATS.

Category	Specification
Build Time	1.5 - 2 Days
Difficulty	Medium (Requires Carpentry)
Worker Count	1 - 2 People
Estimated Cost	€30 – €100 (excluding salvaged doors)
Priority Score	Medium (Cated by Material Sourcing)

PROJECT COMPLETE!

Storage & Workshop

Where the build keeps itself organised.

5 modules

Upcycled Workshop: Building Your Pallet Tool Wall & Shadow Board

The Reclaimed Material List

Source 2–4 HT-stamped pallets, plywood offcuts, old brackets, and driftwood rails.

Essential Tool Kit

You will need a drill, saw, screwdriver, measuring tape, spirit level, and paint brushes.

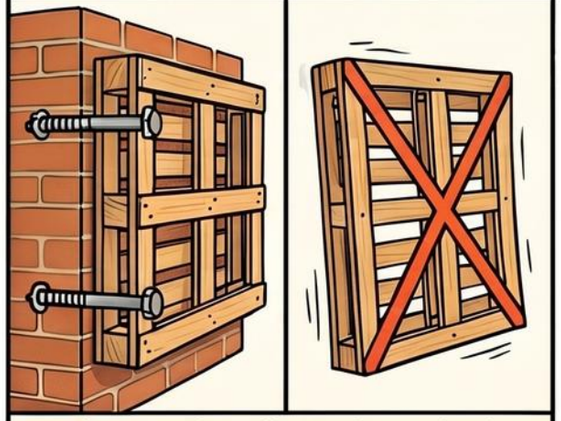
The 1-Day Build Target

Each panel is designed to be completed in one day, displaying 4–5 major tools.

Step 1: Prep and Backing

Deconstruct pallets and sand boards. Optionally, attach plywood for a solid mounting surface.

Step 2: Secure Mounting

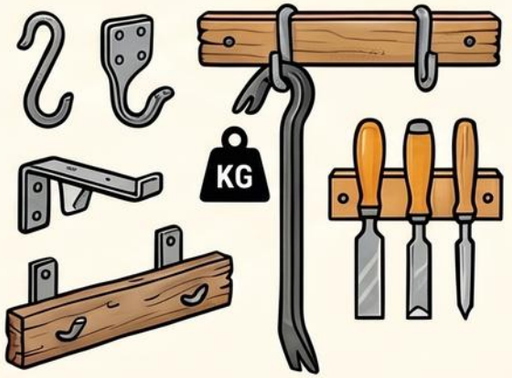


Fix frame to the wall using heavy-duty lag bolts, or use diagonal bracing if free-standing.

Step 3: Layout and Shadow Outlines

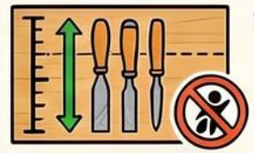
Arrange tools and trace silhouettes with chalk-board or exterior-grade paint; misistantly visible.

Step 4: Hardware Installation

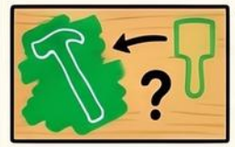


Install S-hooks and brackets. Ensure heavy tools are on weight-rated hooks.

Safety & Security Protocol



Vertical Safety Zoning
Keep sharp tools at chest height; never store them low.



The Shadow Board System
Every tool must have an outline; if empty, it's in use or lost.

Loss Prevention
Implement a sign-out log to track equipment among the volunteer crew.

RECLAIMED FORTRESS: A STEP-BY-STEP GUIDE TO IBC-CAGE MATERIAL LOCKERS

1. Preparation (Materials & Tools)

The Reclaimed Materials List


4 Industrial IBC

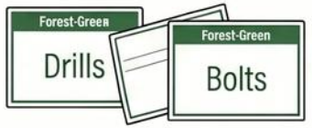

Wood Pallets


Heavy-Duty Reclaimed Padlocks


Rapes & Cable Ties

Essential Build Tools

Weatherproofing Supplies



2. Phase 1: Safety & Material Selection

CRITICAL: Step 1: Verify IBC History

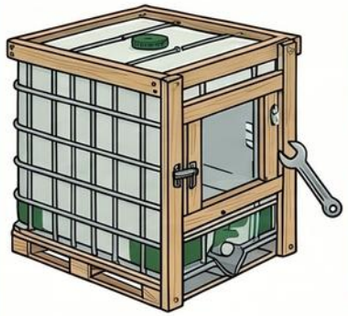
Only use containers that held food-grade materials: strictly reject any IBCs previously used for industrial chemicals, pharmaceuticals, or pesticides.

Step 2: Inspection & Cleaning

3. Phase 2: Construction & Modification

Step 3: Precise Cutting

Step 4: Frame & Hardware Installation



Step 5: Moisture Management

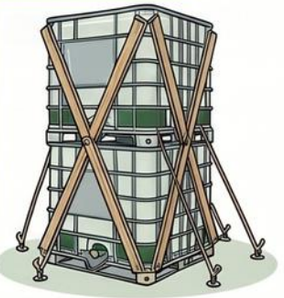
Drill ventilation holes to prevent pressure buildup and mold; add silica packets.

4. Phase 3: Finishing & Stability

Step 6: Exterior Finishing

CRITICAL: Step 7: Stacking & Bracing

If stacking lockers more than two units high, you MUST use a frame or brace them to prevent toppling in high winds.



Step 8: Signage & Inventory

PROJECT E47: BUILDING THE RECLAIMED-DOOR WORKSHOP SHED

1. PREPARATION & MATERIALS

SOURCING THE 'SALVAGE SOUL'

Prioritize solid wood doors from old house demolitions and window frames for natural light; use 2x4 or reclaimed demotition timber for the skeleton.

THE ESSENTIAL TOOL KIT & CONSUMABLES

Ensure the crew has access to a circular saw, drill, hammer, screwdriver, tape measure, spirit level, caulking gun, and Stock up on galvanised hinges, secure latches, tar paper for roofing, caulk for weatherproofing, and assorted fasteners.

2. STEP-BY-STEP CONSTRUCTION

1. FRAME THE STRUCTURE

Use 2x4 or reclaimed timber to build the primary uprights and headers; ensure everything is plumb and square using a level and string line.

2. FIT THE RECLAIMED DOORS

Mount the solid wood doors to the frame as wall panels; verify the entry door opens and closes smoothly without binding before final fixing.

3. CONSTRUCT THE SLOPED ROOF

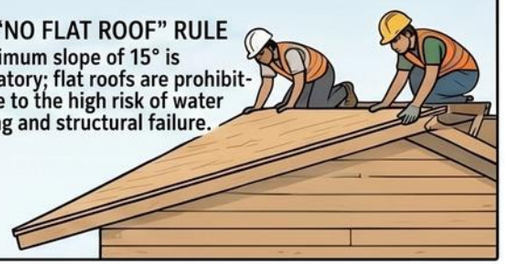
Install a plywood or corrugated plastic/iron roof with a slope of at least 15° to ensure proper water drainage and prevent pooling.

3. CONSTRUCT THE SLOPED ROOF

Ensure proper water corrugated plastic/iron roof with a slope of it 15° to ensure proper water drainager pooling.

THE "NO FLAT ROOF" RULE

A minimum slope of 15° is mandatory; flat roofs are prohibited due to the high risk of water pooling and structural failure.



4. WEATHERPROOF AND SEAL

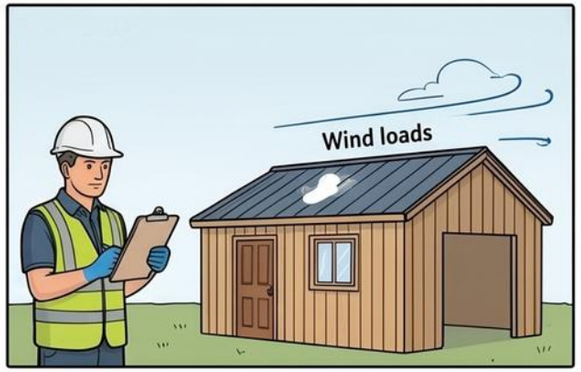
Apply tar paper to the roof and use a caulking gun to seal gaps between the doors and frame to prevent moisture ingress and rot.

5. INSTALL HARDWARE & VENTILATION

Fix heavy-duty hinges and a secure latch; ensure ventilation gaps or windows are clear to allow airflow and prevent internal condensation.

STRUCTURAL SIGN-OFF

Structural Sign-Off
If the roof area oscoeds 20m² or is positioned to hear significant wind loads, a professional engineer must sign off on the structure.



CRITICAL SAFETY & COMPLIANCE

Enclosed Space Hazards
For spaces under 10m², enclosed heating is prohiibited to prevent Carbon Monoxide (CO) risk; ensure the electrical circuit is RCD-protected.

PROJECT QUICK-SPECS

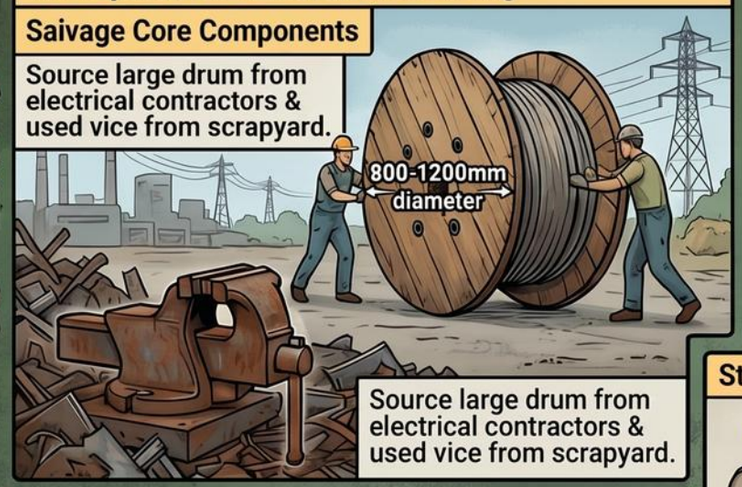
	Metric	Detail
	Difficulty:	Medium–Hard (requires carpentry supervision)
	Build Time:	2–4 Days
	Cost Range:	€150–300 (Mostly salvaged materials)
	Status:	MVP - Ready for volunteer assembly

Project E48: The Reclaimed Cable-Drum Workbench — A Step-by-Step Build Guide

1. Preparation & Material Sourcing

Saivage Core Components

Source large drum from electrical contractors & used vice from scrapyard.



Source large drum from electrical contractors & used vice from scrapyard.

Gather Reclaimed Timber & Hardware

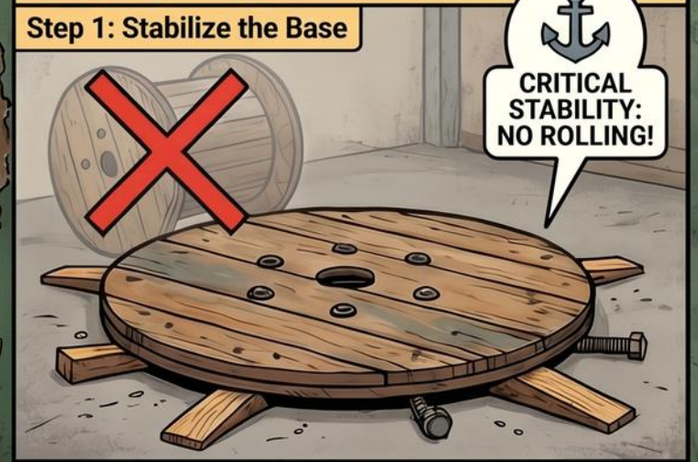
Collect timber for top & procure Grade-8 bolts for vice forces.

Inventory the Toolkit

Ensure circular saw, drill, spanner, paintbrush, & tape measure are ready for 1-day build.

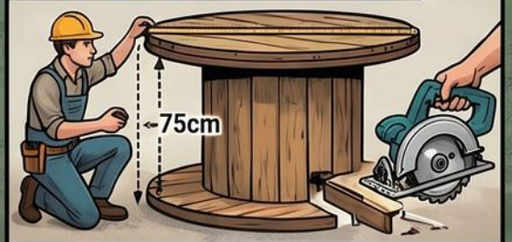
2. Step-by-Step Construction

Step 1: Stabilize the Base



Secure drum to ground using wedges or bolts to prevent rolling.

Step 2: Height and Level Check



Aim for ~75cm; trim supports or adjust top thickness if too tali.

Step 3: Install the Workbench Top

Mount reclaimed timber or plywood to create a flat, consistent work surface.

Step 4: Mount the Vice

Use **Grade-8** bolts for vice to withstand heavy clamping/hammering.

Step 5: Smooth the Surface

Sand all surfaces thoroughly to remove splinters, especially at hand height.

Step 6: Apply the Finish

Apply non-flaking paint or stain; avoid flaking finishes for safety.

3. Key Safety & Maintenance

Critical Warnings & Rituals

CRITICAL STABILITY WARNING
Rolling drum is a major hazard; grounding is non-negotiable.

HARDWARE INTEGRITY
Standard bolts fall under pressure; use only high-strength Grade-8 hardware.

MAINTENANCE RITUAL
Periodically re-torque mounting bolts and sand down new splinters.

Project E49: The 1-Day Reclaimed Pallet Timber Rack

1. PREP & RECLAIM MATERIALS

HT vs MB STAMP COMPARISON

HT

Heat Treated - **SAFE**

MB

Methyl Bromide - **TOXIC**

INSPECT PALLETS: Strictly use HT (Heat-Treated). **REJECT MB** (Methyl Bromide) pallets!

Gather 4–6
HT Pallets
Wood Screws
Timber Offcuts
Reclaimed Rebar
Circular Saw
Drill/Driver
Level
Tape Measure.

1-Day Build
(8–12 person-hours)

2. DISMANTLE & SORT

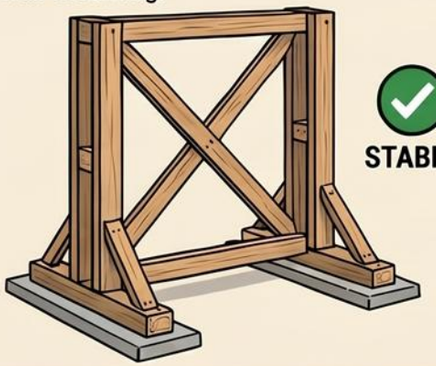
Dismantle pallets. Select straightest boards for uprights. Set aside offcuts for bracing.

BRACING: Offcuts & Rebar

MAIN FRAME: Straight Boards

5. STABILIZE THE STRUCTURE

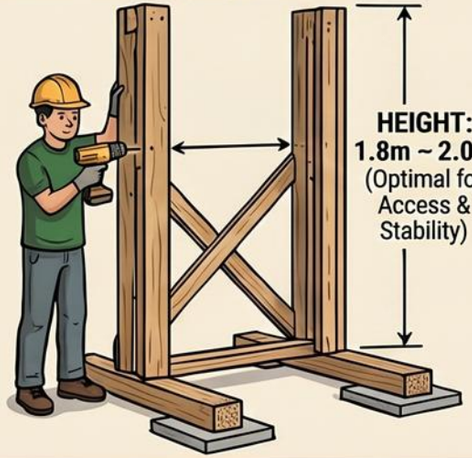
Add diagonal "X" bracing & wide base for free-standing. Use heavy-duty lag bolts if wall-mounting.



STABLE

3. BUILD VERTICAL FRAME

Construct main uprights using pallet timber. Ensure proper height.



HEIGHT:
1.8m ~ 2.0m
(Optimal for Access & Stability)

6. INSTALL HORIZONTAL BRACING

Mount rebar/timber offcuts to create arms. Space for maximum **AIRFLOW** between lumber.

6. FINISH & PROTECT

Apply non-toxic stain/oil. Use "Shou Sugi Ban" (charring) on feet for natural rot resistance.

7. SAFETY & LOAD SPECS

Ensure foundation & wall mountings are rated for 500kg.
AIRFLOW IS MANDATORY: Never wrap in plastic! Keep gaps open.

LOAD CAPACITY:
500kg

8. FINAL CHECK & POSITION

Perform **WOBBLE TEST** before loading. Position rack clear of pedestrian paths and seating.

Guest Experience

The comfort guests remember.

4 modules

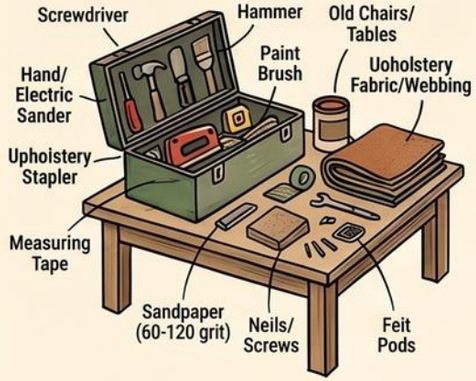
LUSITANO RETREAT PROJECT E50:
THE RECLAIMED FURNITURE REFURBISHMENT GUIDE

A step-by-step instructional guide for volunteer crews to transform salvaged furniture into premium-rustic retreat pieces.

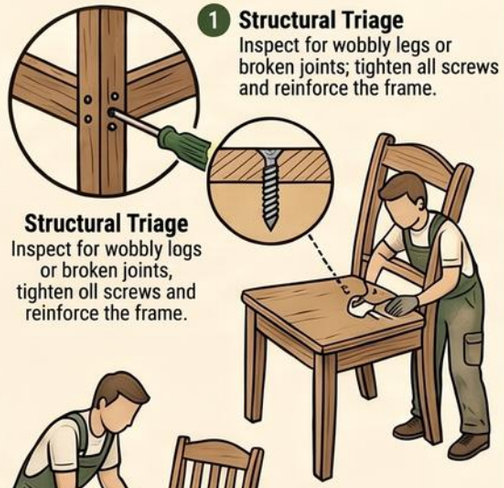
PREPARATION & SOURCING: From Waste Stream to Workstation

Sourcing the "Waste Stream"

The Essential Kit List & Restorer's Toolbox



STEP-BY-STEP BUILD PROCESS (1-3): Structural Triage & Surface Prep



1 Structural Triage
Inspect for wobbly legs or broken joints; tighten all screws and reinforce the frame.

Structural Triage
Inspect for wobbly logs or broken joints, tighten oll screws and reinforce the frame.

2 Surface Preparation
Sand all surfaces smooth (60-120 grit) to remove splinters and old finishes for a safe tactile experience.

3 Safety Strip & Test
If old paint, assume lend-based risk: strip surface or test before applying non-toxic finishes.

STEP-BY-STEP BUILD PROCESS (4-6): Finishing & Comfort

4 Staining & Painting
Apply non-toxic wood stain or paint to match rustic brand, ensure durable finish for outdoor/high-traffic.

5 Upholstery & Comfort
Install new webbing or fabric; ensure materials are fire-rated or treated with fire retardant.

6 Final Floor Protection
Attach feit pads to all lags to protect stone/wood floors and prevent noisy dragging.

SAFETY & QUALITY GATES & EFFICIENCY

Safety & Quality Gates

Stability Weight Test:
Every place tested by weight to confirm structural integrity.

Splinter-Free Standard:
All surfaces at hand and leg fioight must be sanded amouth to eliminate splinter risk.

4-Hour Efficiency

Light Cleaning & Staining
2 hours.

Full Reuphoistery
4+ hours, plan shifts accordingly

The Lusitano Retreat Project E50: Giving every object a second life and a story

Project E51: The Reclaimed Pallet Daybed Build Guide

Preparation & Material Intake

Essential Materials & Reclaimed Sources

5–8 pallets

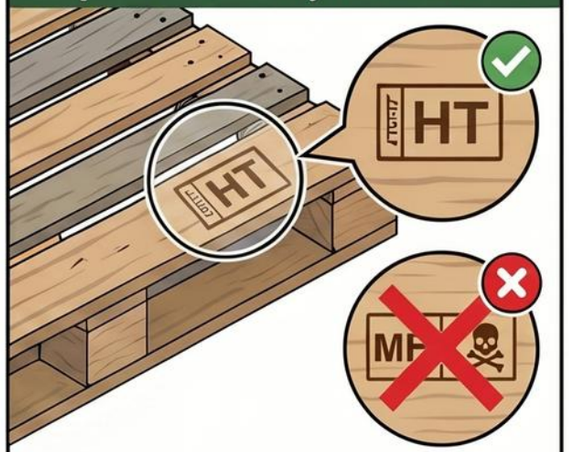
Clean mattresses & cushions

Upholstory fabric scraps

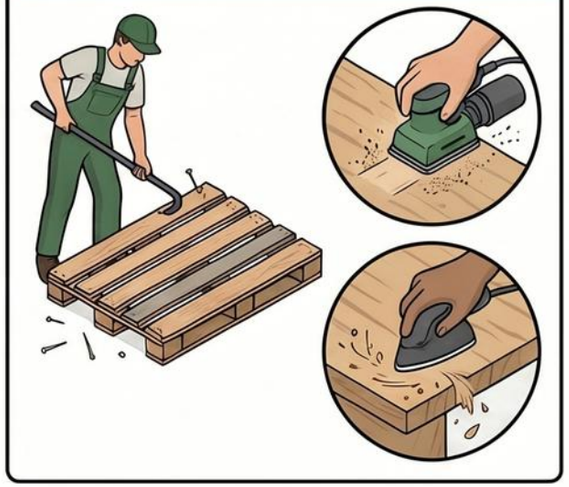
Required Tool Kit

60–120 grit

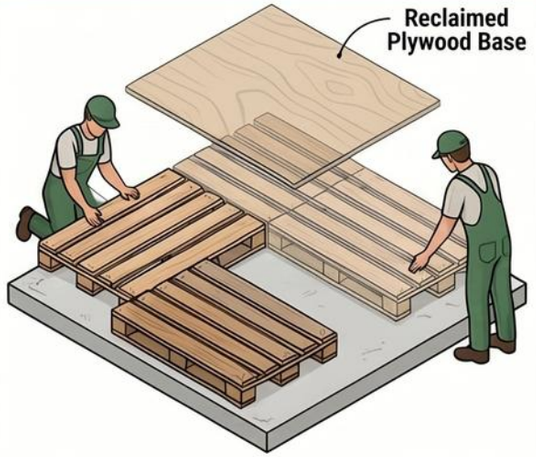
Step 1: The Safety Intake Gate



Step 2: Surface Preparation



Step 3: Platform Layout



Step 4: Structural Securing

Step 5: Finishing the Wood

Step 6: Layered Comfort

Safety Notes & Build Metrics

>30cm? INSTALL RAILING!

FASTENER CHECK: Countersink Screws, No Protruding Nails

CLIMATE & MOLD RISK: Cushions MUST be Removable, Not Permanently Attached

QUICK BUILD METRICS	SPECIFICATION
Difficulty	Easy
Build Time	1–2 Days
Estimated Cost	£80–200 per unit (Cushions are primary spend)
Volunteer Suitability	Yes (Uphoistery may require 1 skilled leader)
Height Limit	Add railing if >30cm

Upcycled Illumination: A Step-by-Step Guide to Project E52 (Solar Lanterns)

PREPARATION & MATERIAL SOURCING

Source from the "Material Bank"

Collect clear or colored wine/beer bottles and jam jars from supermarket recycling, restaurant waste, or old light fittings.

The Required Tool Kit

Essential tools include a drill (for mounting), wire cutters, a hot glue gun (for LED positioning), and string or rope.

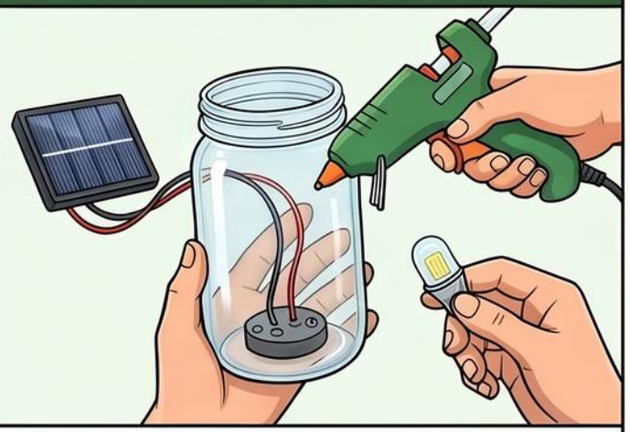
Build Time & Cost

- 30–60 minutes per lantern
- €5–€20 (LEDs and string/wire)

STEP 1: Clean and Prep the Glass

Ensure all reclaimed bottles and jars are thoroughly rinsed and labels removed to ensure maximum light output and adhesive bonding.

STEP 2: Install Solar LED Components

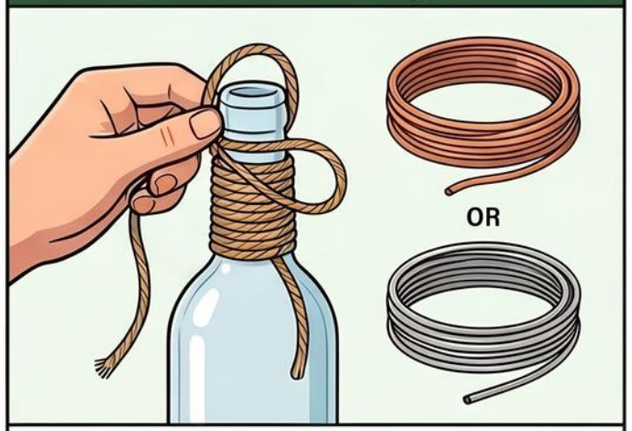


Mount 0.5–1W low-voltage solar LED bulbs (3–6V max) inside the vessel using a hot glue gun to secure the positioning.

STEP 3: Apply Light Diffusion

Use paint or paper inside or outside the glass to diffuse the light, creating a soft ambient glow rather than a harsh direct beam.

STEP 4: Secure the Hanger



Attach jute, copper wire, or stainless/galvanized string to the neck of the bottle, ensuring it is rated for outdoor weather and UV exposure.

CRITICAL SAFETY & QUALITY CONTROL

⚠ SAFETY NOTES

No Real Candles—LED Only

Due to high fire risk, real candles are strictly vetoed; use only low-voltage solar LEDs for all guest-facing lanterns.

Low-Voltage Safety

Stick to 3–6V max systems; do not attempt to run mains wiring near damp outdoor locations or through reclaimed glass.

Glass Risk Management

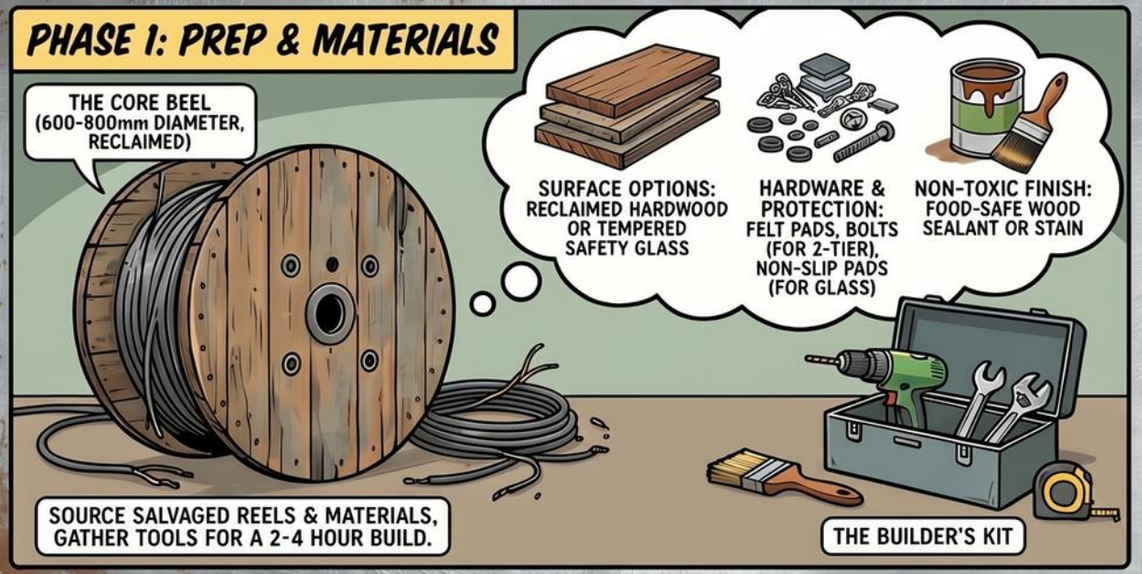
Ensure there are no exposed sharp edges and that mounting is double-checked for stability to prevent breakage in high-traffic areas.

Weatherproofing

Ensure all hanging hardware is rated for long-term outdoor exposure to prevent unexpected failure during the rainy season.

INDUSTRIAL-RUSTIC RECLAIM: BUILDING THE CABLE-REEL COFFEE TABLE

PHASE 1: PREP & MATERIALS

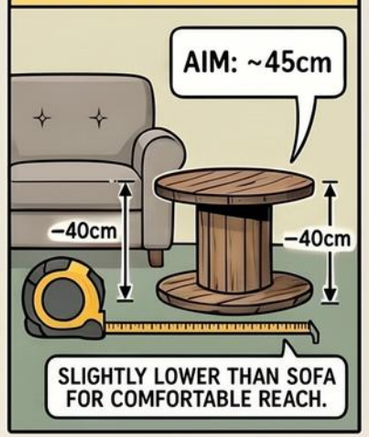


PHASE 2: BUILD PART 1 - STABILITY & SMOOTHING

1. ENSURE STABILITY

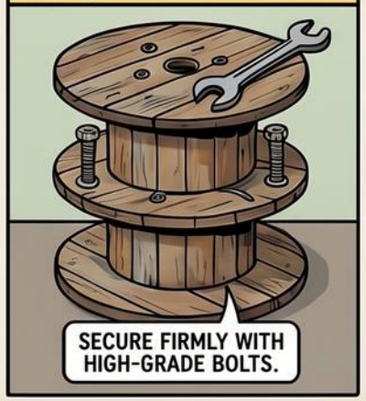
2. SAND AND SMOOTH

3. HEIGHT & ERGONOMICS CHECK



PHASE 2: BUILD PART 2 - ASSEMBLY & FINISH

4. STACKING & ASSEMBLY (OPTIONAL 2-TIER)



5. APPLY THE FINISH

6. MOUNT THE TOP

PHASE 3: FINAL SAFETY GATES

GLASS SAFETY PROTOCOL

WEIGHT LIMIT STRESS TEST

SPLINTER-FREE CERTIFICATION

Content & Branding

Telling the story as you build it.

3 modules

The Storyteller’s Tag: Building ‘Second Life’ QR Codes from Reclaimed Materials

PREPARATION (Materials & Tools)

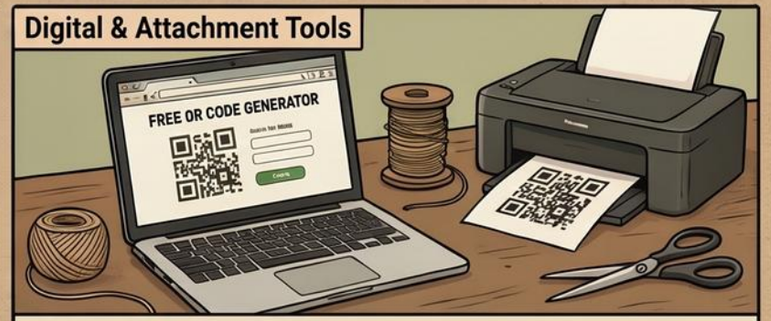
Sourcing the Reclaimed ‘Paper’

Use kraft paper offcuts, old labels, or scrap card stock to maintain the rustic, upcycled aesthetic of the retreat.

Gather the Weatherproofing Kit

You will need waterproof black ink, lamination pouches (or clear lacquer/varnish), and a hole punch for the physical assembly.

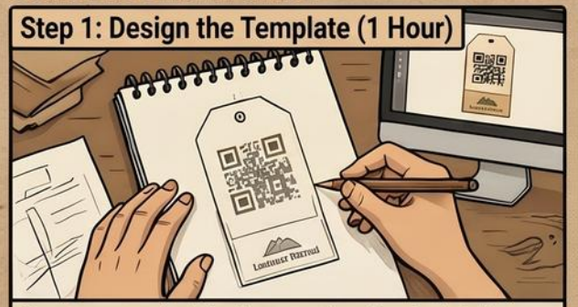
Digital & Attachment Tools



Set up a free online QR generator and a printer; have string or wire ready for attachment (Note: never use nails).

CONSTRUCTION PHASE

Step 1: Design the Template (1 Hour)



Create a standard design template for the labels to ensure visual consistency across all objects in the

Step 2: Generate and Test QR Codes

Use a free generator to link to the object’s rescue narrative; test every code to ensure it points to a secure, working URL before printing.

Step 3: Print and Protect (15 Mins/Label)

Print using waterproof ink; then laminate or hand-apply varnish to ensure the label survives the rain and moisture of the retreat environment.

Step 4: Finishing the Edge

Cut the labels with smooth edges to prevent user cut, and punch a hole for the attachment string or wire.

DEPLOYMENT & ETHICS

Attachment: Ties Only, No Nails

Secure the labels to objects using only string or wire; nails are prohibited as they damage the second-life integrity of the surfaces.

The Privacy Guardrails

Donor names are permitted on labels, but never include financial amounts or private stories without explicit permission.

The “Rescue Narrative” Content

Each label should share a brief rescue story, such as: "This table was a skip find, now a guest gathering place."

Project E55: Building the ‘Before/After’ Photo Station

A Step-by-Step Instructional Guide for Volunteer Crews using Reclaimed Materials

Build Prep & Materials

2–4 Hour Build Time: Volunteer crew can complete a station in one half-day session.

Reclaimed Material List

Driftwood for Frames

Painted Cloths & Banners for Backdrops

Scrap Materials for Signage

Essential Tool Kit

Smartphone Tripod

Measuring Tape

Chalk & Tape for Marking

Notebook for Documentation

Quick Reference

Difficulty Level	Estimated Cost
Easy (Volunteer-Friendly)	€20–€50
Primary Goal	**Status**
Proof of Transformation	[NEW] Requirement

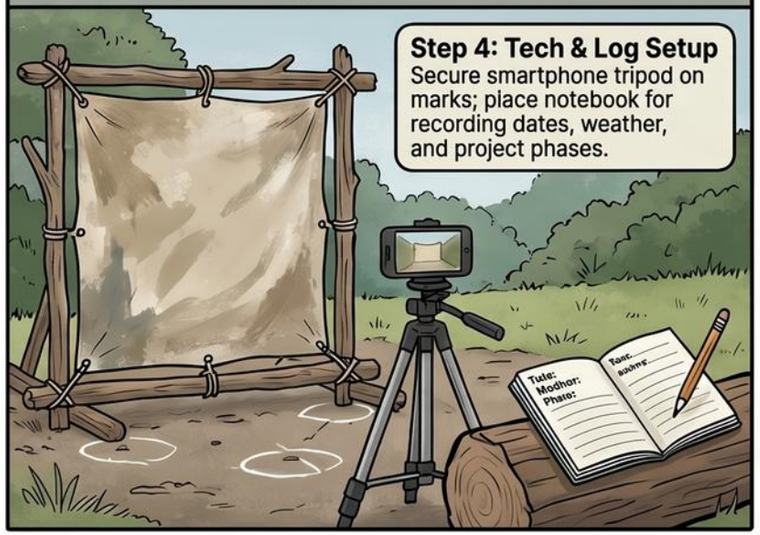
Step 2: Mark the "Fixed" Spot

Step 1: Site Selection & Alignment
Choose site with clear view of project. Orient station to face project with solid backstop behind.

Step 3: Frame and Backdrop Assembly

Construct sturdy frame from reclaimed driftwood and scrap materials. Secure painted cloths/banners for a solid, non-distracting background.

Step-by-Step Construction

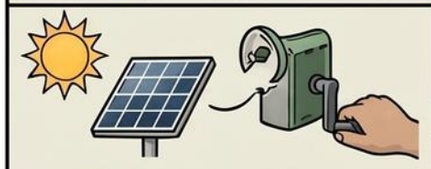


Operational Rules & Safety

Photo Rights & Consent
Written guest permission is mandatory if prominently features in "After" shots.

Consent Form Icon

Mastering the Golden Hour
Schedule photos for "Golden Hour" for mood-rich lighting.



Zero-Electricity Operation
Entirely off-grid; use solar-powered phone charging or manual wind-up backups.

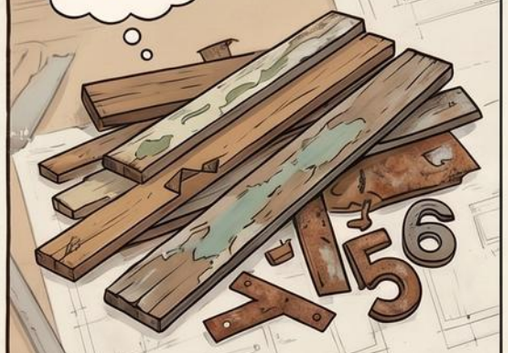
Midday Shadows (Avoid)
Avoid harsh, unworkable shadows of midday.

Project E56: The Reclaimed-Wood Logo Wall — A Maker's Guide

Preparation: Materials & Tools

Source the Salvage

Demolition Sites & Solvage



The Materials Kit

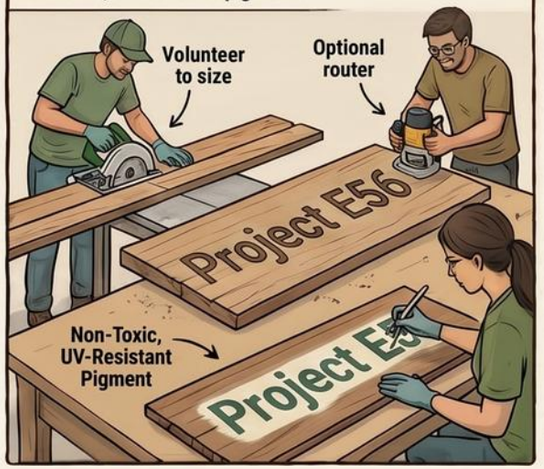
The Maker's Toolbox

Step 1: Layout and Design

Arrange mixed-size timber offeuts into a coherent wall or sign shape; use a tape measure and level to ensure the structure is square.

Step 2: Fabrication & Branding

Cut timber to size with a circular sow; optionally use a router to cerve logoe or paint/stencil text using non-toxic, UV-resistant pigments.



Step 3: Smoothing and Safety

Round all sharp corners and file edges to ensure guest safety; if routed, ensure interior edges of lettering are smooth to prevent catching.

Step 4: Finishing and Sealing

Apply non-tosis, exterior-grade (UV-resistant) stain or paint to protect the wood from the 1,500mm+ annual rainfall of the Norte PT climate.

Step 5: Mounting and Installation

Mount at eye level for wayfinding or elevated for architectural impact, ensuring the structure is perfectly level.

Critical Safety & Structural Gates

The 1m² Structural Rule:
Any signage larger than 1m² or placed in a wind-exposed area MOST have engineer sign-off ond be secured with lag helts to prevent wobbling or collapse.

Non-Toxic Environment:
Only use water-based, non-taxic stains and paints, as guests will frequently interast with or touch the signage.

Structural Integrity:
Ensure all mounting hardware is roted for the final weight of the wood and metal to prevent tipping hazards noar pedeatrian paths.