

Stone-Use System

Lusitano Retreat — using on-site stone as a building & landscape resource

Research · Planning · Design only — 2026-06-02

■ Not for live execution. All fire / sauna / retaining / load-bearing / guest-facing structures require competent builder / engineer / fire-safety review before use. No explosives. No illegal quarrying. Do not publish without approval.

A. Executive Summary

- **Granite is your free premium material.** Sort on-site stone, design around natural shapes, split only for fit using plug & feather (quiet, low-dust, 1–2 worker / off-grid friendly).
- **Hard safety line.** ■ landscape-safe (paths, low walls ≤ 0.6 m, edging, spiral, beds, markers) = DIY after training. ■ verify detail (plinth, steps, shower, kitchen base). ■ fire/structural (fire pit/circle, fireplace, chimney, sauna stove, retaining > 0.6 m, guest-facing) = pro sign-off first.
- **Two hazards engineered out:** silica dust (FFP3 + wet-cut) and lifting (≤ 25 kg solo / machine).
- **Buy Kit A (~€300–420) pre-sprint,** use free stone first, prove it in a 7-day pilot, then weave features into the 21-day sprint (1–21.09.2026) as afternoon golden-hour craft.

Next step: approve the Kit A shopping list and the 7-day pilot; finish details locally after 13.06.2026.

C. Stone-Use Decision Matrix

Stone	Walls	Paths	Seating	Dry-stack	Fire surround	Decorative	Category
Granite (sound)	Excellent	Excellent	Excellent	Excellent	Caution-review	Good	STRUCT+DECOR
Gneiss	Good	Good	Good	Good	Caution-review	Good	STRUCT+DECOR
Schist / xisto	Cladding	Flat paving	Limited	Avoid	NO	Good	DECOR+FLAT
Quartz	No	No	No	No	NO	Accent	DECOR ONLY
River cobbles	No	Decorative	No	No	NO	Good	DECOR+FILL
Weathered/crumbly	No	No	No	No	NO	No	REJECT

Loose surface stone on your own plot only. Ring test: clear ring = sound, dull thud = reject.

D. Tool Shopping List — Kit A (Minimum)

Live price anchors from Leroy Merlin Portugal, 2026-06-02 (verify on site).

Item	Spec	€	Priority
SDS rotary hammer	Dexter SDS Plus 1500W	79.99	P0
Plug & feather 16 mm	pack of 10	49.99	P0
Angle grinder 125 mm	Dexter 800W	~30–40	P0
Diamond disc 125 mm	Dexter stone	9.09	P0
Chisels + bolster	point/pitching/bolster	25–40	P1
Club hammer 1.1 kg	steel	12–18	P0
Sledgehammer 3–5 kg	rejects/hardcore only	20–30	P1
Wheelbarrow + buckets	90 L + tubs	45–80	P0
PPE — FFP3 respirator	silica (critical)	20–40	P0
PPE — glasses/face/ear/gloves/S3 boots	toolset	70–125	P0
Water sprayer	5–8 L (dust)	12–20	P0
Level + string + mallet	60 cm + line	25–45	P0

Kit B (pro small-team): larger SDS, 2nd feather set, 230 mm grinder, 2nd PPE, geotextile + brita, mortar tools. Kit C (advanced/hire): hydraulic splitter €60–120/day, wet saw, gabion baskets (€135.59 LM), mini-excavator (owned Kubota K008).

E. Fast-Build Design Catalogue (13 patterns)

Pattern	1 worker	2 workers	Review
1 Fire circle	~3 d	~1.5 d	■ fire
2 Fire pit + seating	~1 d	~0.5 d	■ fire
3 Outdoor fireplace	pro	pro	■ full
4 Low dry-stone wall ≤0.6 m	1.5 m/d	3–4 m/d	■
5 Stone path	3–4 m/d	6–8 m/d	■
6 Sauna entrance plinth	~1 d	~0.5 d	■/■
7 Outdoor shower wall	~2 d	~1 d	■
8 Herb spiral	~1 d	~0.5 d	■
9 Raised beds (stone edge)	0.5–1 d/bed	0.3–0.5 d/bed	■
10 Stone steps	1–2/d	3–4/d	■
11 Pond/jacuzzi retaining	review	2–3 m/d	■ if >0.6 m
12 Outdoor kitchen base	~3 d	~1.5 d	■/■
13 Entrance marker	~0.5 d	~0.3 d	■

Build order: paths → borders/low walls → spiral + beds → plinth + kitchen base → fire circle (mock-up first) → retaining/fireplace (engineered, last).

F. Worker Field Cards (condensed — full EN/PT in .md and printable .html)

1 Stone Sorting ■

- Loose surface stone only.
- Ring test sound vs reject.
- 7 piles: fill/flat wall/base/path/decorative/fire-candidate/reject.
- 2-person lift >25 kg.

2 Safe Splitting ■

- PPE incl. FFP3.
- Find grain, drill 16 mm holes 12–15 cm.
- Feathers + wedges, tap L→R.
- No explosives; never wet/cracked; cut wet w/ grinder.

3 Dry-Stone Wall ■

- Compacted base 0.4–0.5 m.
- Two battered faces + hearting.
- Cross joints; capstones.
- ≤0.6 m, no mortar; retaining = review.

4 Stone Path ■

- Geotextile→gravel→sand→stone.
- Rubber-mallet bed, slight cross-fall.
- Rough tops (no slip).
- Plant/gravel joints.

5 Fire Circle ■

- Mock-up only until sign-off.
- Clear of trees/cabins.
- Non-combustible base + steel bowl.
- Seating ring not touching fire; do not light.

6 Sauna Plinth ■

- Level base + DPC.
- Flat stones, dead level.
- Stove zone NOT here (pro only).
- Flag structure interface.

7 Daily Safety ■

- PPE, sprayer, tools checked.
- Clear debris line; lifting plan.
- First-aid + water on site.
- No wet-rock work.

8 Tool Care & Dust ■

- Cut wet; FFP3 dry work.
- Brush, wipe, check discs.
- Clean/oil feathers.
- Replace damaged PPE.

G. Safety & Professional-Review Gate

Always: FFP3 + glasses + gloves + S3 boots + ear; cut wet; ≤25 kg solo lift; plug & feather over sledge; no live fire/sauna before sign-off; protected trees untouched; no explosives/illegal quarrying.

Tier	Features	Action
■ Landscape-safe	paths, low walls ≤0.6 m, edging, spiral, beds, markers, decorative	sign-off after training
■ Verify detail	sauna plinth interface, steps, shower drainage, kitchen worktop base	get advice/inspection
■ Fire/structural	fire pit/circle, fireplace, chimney, sauna stove, retaining >0.6 m	sign-off before guest use

Reviewers (PT): fire-safety pro/installer + Câmara (SCIE DL 220/2008); certified stove (EN 13240/15821) + flue (EN 1856); civil engineer for retaining; competent builder for mortared/structural. Keep a dated sign-off log before any guest use.

K. 7-Day Test Build Plan

Day	Focus
1	Identify & sort; choose test area
2	Tool & safe-splitting test
3	Build path section
4	Build low wall / edge
5	Fire circle mock-up (non-operational)
6	Sauna plinth or garden feature
7	Review time/cost/aesthetics/repeatability

Success: 1–2 workers repeat safely · looks premium-rustic · cuts bought-material cost · good content · safe to continue after required pro checks.

L. 21-Day Sprint Integration (1–21.09.2026)

Days	Stone work	Flag
1–3	Sort into 7 piles; pick locations	■
4–6	Paths + caravan borders	■
7–9	Low walls + drainage channels	■/■
10–12	Herb spiral, raised beds, entrance marker	■
13–15	Sauna plinth, shower wall, kitchen base	■
16–18	Fire circle mock-up; retaining prep	□
19–21	Capstones, planting, content, sign-off log	per feature

Drainage before ground-bearing stone. Decorative-safe first. Fire/structural as mock-ups; operational only after sign-off. Use Kubota K008 to pre-position base stones.