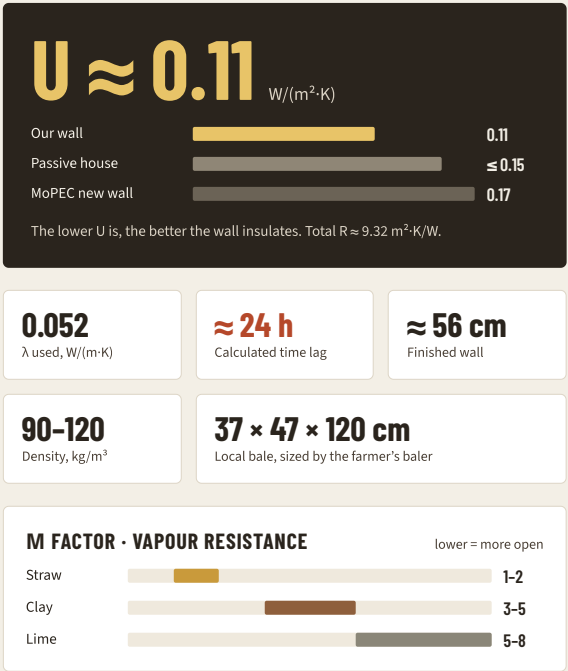
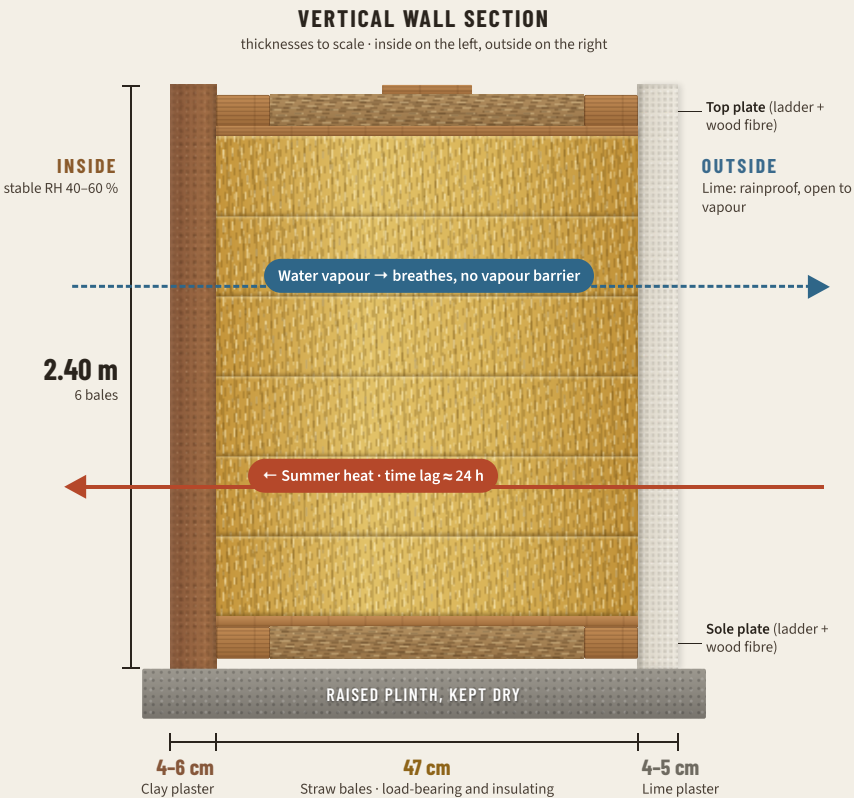
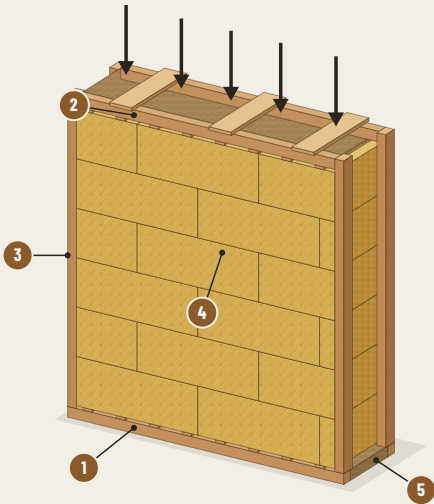


The load-bearing straw wall

Local bales, prefabricated and pre-compressed walls, clay plaster inside and lime plaster outside: a 56 cm wall that insulates, carries loads and breathes.



PRE-COMPRESSION · 1,000 kg/m ALONG THE LENGTH



PREFABRICATED IN THE WORKSHOP

A wall element, piece by piece

- 1 Sole plate** — a ladder: two rails along the faces, joined by small boards, set on the floor box.
- 2 Top plate** — the same ladder on top of the wall, with guide boards. It spreads the roof load over the straw.
- 3 Posts** — a pair at each end of the element, inside and outside. They frame the panel during fabrication and installation.
- 4 Staggered bales** — 6 courses laid flat, joints staggered from one course to the next. The straw, not the timber, carries the roof.
- 5 Wood fibre (Gutex)** — fills the inside of the ladders, between the rails of the top and sole plates.

PRE-COMPRESSION: 1,000 KG PER LINEAR METRE

The bales are clamped between the two plates along the whole element: less settling and fewer cracks in the plaster, a rigid wall that carries the roof frame, even density with no thermal bridge.

Height packing: 18 cm of rigid Gutex tops up the 6 bales to reach exactly 2.40 m once the wall is compressed.

COMPARED WITH OTHER WALLS

WALL	THICKNESS	U, W/(M²·K) · SHORTER = BETTER	TIME LAG · LONGER = BETTER	VAPOUR	INSULATION
Load-bearing straw (our wall)	56 cm	0.11	≈ 24 h	open · μ 1–8	bio-based, local
Concrete + polystyrene	43 cm	0.17	9.5 h	closed	petrochemical
Concrete + polyurethane	40 cm	0.15	10 h	closed	petrochemical
Brick + rock wool	38 cm	0.16	14 h	open	mineral, energy-intensive
Insulating brick (single-leaf)	46 cm	0.16–0.20	26–30 h	open · μ 5–10	fired clay, energy-intensive
Timber frame + glass wool	32 cm	0.19	7 h	closed (vapour barrier)	mineral, energy-intensive
Timber frame + wood fibre	32 cm	0.16	15 h	open · μ 3–5	bio-based

LOCAL STRAW

Bales ordered from a local farmer: their size comes from how his baler is set, not from an industrial standard. Short supply chain.

KEEPING THE STRAW DRY

Raised plinth against rising damp and splashback · generous roof overhangs · lime plaster that sheds rain but lets vapour through.

FIRE RESISTANCE

A compressed bale holds too little air to burst into flames: its surface chars slowly, and this crust protects the load-bearing core · the clay and lime plasters, which are non-combustible, keep the flames away from the straw.