FACTSHEET

Solid Wall Insulation

A detailed guide to internal and external insulation for homes with solid walls

Many older homes in Todmorden, the Calder Valley and across the UK were built with solid stone or brick walls. These walls have no cavity to fill, so improving them usually means adding insulation to either the inside face of the external walls or the outside of the building. Done well, solid wall insulation can make a home warmer, reduce cold spots, cut heat loss and support lower energy use. Done badly, it can trap moisture and create damp, mould or damage, so good assessment and design are essential.

Why solid wall insulation matters

Walls are one of the main routes for heat loss in an uninsulated home. Solid walls can lose more heat than modern insulated cavity walls because there is no air gap or built-in insulation layer. Adding insulation slows heat escaping through the wall, helping rooms stay warmer for longer and reducing the demand on heating systems.

- **Comfort:** fewer cold surfaces, cold corners and draughty-feeling rooms.
- **Energy efficiency:** less heat wasted through the building fabric.
- **Health:** a warmer, well-ventilated home can help reduce condensation and mould risk.
- **Future readiness:** insulation helps other upgrades, such as heat pumps or better heating controls, work more effectively.

How to tell whether your home has solid walls

As a general guide, homes built before the late 1920s are more likely to have solid walls, though there are exceptions. Brickwork can also give clues: a pattern that alternates long and short brick ends often suggests a solid brick wall, while rows showing mostly the long side of each brick usually suggest a cavity wall. If brickwork is covered, wall thickness can help: solid brick walls are often around 220–260 mm thick, cavity walls around 270–300 mm, and solid stone walls can be much thicker.

Tip: Your Energy Performance Certificate, a qualified retrofit assessor, surveyor or experienced installer can help confirm wall type and identify risks before work begins.

Before you choose a system

A “fabric first” approach means looking at the building itself before choosing major heating or renewable energy upgrades. With solid wall homes, this should include the roof, walls, floors, windows, doors, draughts, damp, gutters, pointing, render and ventilation. Insulation should not be used to cover up existing building problems.

- **Repair first:** fix leaks, damaged pointing, cracked render, blocked gutters, defective flashings and existing damp.
- **Manage moisture:** older stone and brick buildings often need breathable, vapour-open materials so walls can safely dry.
- **Plan ventilation:** warmer, better-sealed homes still need controlled fresh air to reduce condensation and maintain indoor air quality.
- **Check heritage constraints:** listed buildings, conservation areas and traditional street frontages may limit what can be changed.
- **Think whole-house:** insulation should be designed alongside windows, roofs, floors, heating, ventilation and future maintenance.

Internal wall insulation

Internal wall insulation is fitted to the inside of external walls. It can be useful where the outside appearance must remain unchanged, such as in terraces, conservation areas or heritage settings. It can also be installed room by room, which may help spread cost and disruption. However, it is still a major job and normally involves moving or adapting skirting boards, radiators, sockets, shelves, cupboards and window boards, followed by replastering and redecoration.

Common internal insulation methods

- **Rigid insulation boards:** boards fixed to the wall and finished with plasterboard or plaster. These can be quick to install but detailing around edges, services and window reveals is critical.
- **Stud frame with insulation:** a timber or metal frame is built in front of the wall and filled with insulation such as mineral wool, wood fibre, hemp or sheep’s wool, then boarded and finished.
- **Flexible thermal lining:** a thin lining applied like heavy wallpaper. It gives less insulation but can reduce cold surface effects in small rooms.
- **Insulating plaster:** plaster mixed with insulating materials such as cork or lime-based products. It may suit uneven traditional walls but gives a lower insulation level than thicker systems.

01706 318133 retrofithub@tlchub.org.uk www.tlchub.org.uk.retrofit-hub/

Internal wall insulation: advantages and drawbacks

Advantages	Drawbacks and risks
Does not change the outside appearance of the building.	Reduces room size, especially in smaller rooms and around window reveals.
Can sometimes be phased room by room.	Disruptive internally and usually requires redecoration.
May be more acceptable for street-facing elevations or heritage settings.	Needs careful detailing to avoid cold bridges, condensation behind insulation and mould.
Can be combined with internal refurbishment.	Fixings, radiators, sockets, kitchens, bathrooms and built-in furniture may need to move.

External wall insulation

External wall insulation is fitted to the outside of the building and finished with render, cladding or another protective surface. It wraps the walls like a coat, keeping more heat in and reducing cold areas where floors, walls and corners meet. It avoids losing internal space and can be less disruptive inside the home, but it changes external details and usually requires scaffolding.

What external insulation affects

- Roof edges, eaves, verges, flat roof upstands and gutters.
- Window and door reveals, sills, lintels and thresholds.
- Drainpipes, soil pipes, vents, meters, cables, satellite dishes and outside lights.
- Party-wall boundaries, narrow passages, neighbouring properties and pavement lines.
- External appearance, including render colour, texture, stone details and decorative features.

External wall insulation: advantages and drawbacks

Advantages	Drawbacks and risks
No loss of room space.	Changes the outside of the building and may need planning permission or consent.
Can reduce cold bridges by wrapping the building continuously.	Needs careful detailing at roofs, windows, doors, drains and boundaries.
Can improve weather protection and refresh tired render.	Usually requires scaffolding and specialist installers.
Less disruption inside the home than internal insulation.	Not always suitable for buildings with important stonework, decorative facades or narrow access.

Choosing between internal and external insulation

There is no single best option for every home. The right choice depends on the building, your budget, planning constraints, how much disruption you can manage, and whether the wall needs to remain breathable. Some homes use a mixed approach, for example external insulation on a rear elevation and internal insulation on a street-facing wall where the original appearance must be kept.

Question	Internal insulation may suit if...	External insulation may suit if...
Do you need to keep the outside appearance?	Yes, especially for visible stone, brick, heritage or street-facing elevations.	No, or the existing render/cladding is already due for renewal.
Can you cope with internal disruption?	You can empty and redecorate rooms or phase the work.	You want to minimise disruption inside the home.
Is internal space limited?	May be harder in small rooms, narrow stairs or around fitted furniture.	Often better because it keeps room sizes unchanged.
Are there roof, boundary or access constraints?	Often easier where outside access is difficult.	Needs enough external space and good detailing at all edges.

Moisture, breathability and ventilation

Older solid-walled buildings often manage moisture differently from modern cavity-wall homes. Stone and older brick walls may absorb and release moisture through lime mortar, lime plaster and breathable finishes. If impermeable materials are used in the wrong place, moisture can become trapped, increasing the risk of damp, mould, frost damage or decay. Breathable materials such as wood fibre, cork, hemp-lime, lime plaster and other vapour-open systems may be appropriate in some traditional buildings, but they still need expert design.

- Do not insulate overactive damp, leaking gutters or defective render.
- Make sure window reveals, floor edges, corners and roof junctions are detailed to reduce cold bridges.
- Keep or improve appropriate ventilation, such as extractor fans, trickle ventilation or a designed ventilation strategy.
- Avoid blocking air bricks, flues or vents needed for safe appliances or sub-floor ventilation.

- Ask installers how the system manages vapour, condensation risk and drying potential.

Planning, permissions and standards

Internal insulation does not usually alter the outside appearance, but it may still need Building Regulations approval and listed building consent where relevant. External insulation can change the appearance and thickness of the building, so check with the local planning authority before committing, especially for listed buildings, conservation areas, prominent elevations, terraces, flats, maisonettes or homes with Article 4 restrictions. Building Regulations apply to thermal upgrades and the work should be designed and installed to meet current requirements.

Costs, disruption and funding

Solid wall insulation is normally a significant project. Costs vary widely depending on property size, wall condition, access, detailing, materials, finish and whether other repairs are needed. The cheapest quote is not always the best choice: poor detailing can be expensive to fix later. Some households may be eligible for grants or support schemes, which change over time, so check current local and national funding before starting.

Questions to ask before you say yes

- Have you assessed the whole house, not just one wall?
- What damp, repair or ventilation issues need fixing first?
- Which materials are proposed, and are they suitable for solid stone or brick walls?
- How will you prevent cold bridges at windows, doors, floors, ceilings and corners?
- How will sockets, radiators, kitchens, bathrooms, pipes and meters be dealt with?
- Will I need planning permission, Building Regulations approval, listed building consent or freeholder permission?
- What guarantee, accreditation and aftercare are included?
- Can I see examples of similar local properties you have worked on?

Practical next steps

1. Check your wall type using age, brick pattern, wall thickness or your EPC.
2. Look for repair needs: gutters, leaks, pointing, render, damp, ventilation and roof details.
3. Get independent advice if the building is older, stone-built, listed, in a conservation area or already has damp problems.
4. Ask at least three suitably qualified installers for written quotes and make sure they explain materials, detailing, ventilation and permissions.

5. Check whether local or national funding is available before signing a contract.
6. Keep records of surveys, guarantees, approvals, product details and photographs of the work.

More information

Energy Saving Trust — Floor insulation information and advice
https://energysavingtrust.org.uk/advice/solid-wall-insulation/

Centre for Sustainable Energy
https://www.cse.org.uk/wp-content/uploads/2023/02/advice_leaflet_internal_solid_wall_insulation.pdf

https://www.cse.org.uk/wp-content/uploads/2023/02/advice_leaflet_external_solid_wall_insulation.pdf

Need advice?

Warmth Works can help residents understand practical ways to keep homes warmer, use less energy and feel more confident about home energy improvements. Visit one of our drop-in advice and information sessions or look out for Warmth Works events taking place across Todmorden and the Calder Valley.

Together, we can create warmer homes, stronger communities and a clean energy Calder Valley.