

BACKTOEARTH

Helping You Build With Confidence

NatureWall Suitability Confirmation (NSC) - Assessment guide

The NatureWall internal insulation system is designed to improve levels of comfort, indoor air quality and reduce heat loss through the walls of solid-walled buildings. Using a combination of detailed site assessment, careful computer modelling and robust materials the system thermally and acoustically insulates walls and helps to eliminate the causes of surface mould growth.

Adding NatureWall internal wall insulation to solid internal walls can significantly improve your home's energy efficiency, comfort, indoor air quality and your health. However, proper preparation is critical to ensuring the success of the installation and avoiding potential issues like damp or surface mould growth.

Best practice

For the NatureWall system to be installed successfully, the interior and exterior of the building must be in good, sound condition. All internal wall insulation systems are susceptible to moisture from rain entering the external surfaces of the wall and so it is vital that the exterior is in good order when the system is installed to prevent rain penetration and that the home owners maintain the condition after installation.

If the building has not been lived in for a long time or if there has been water damage from leaks or damaged gutters, the masonry will be quite damp. It is important that if the insulation is installed during winter months, the interior should be heated as soon as possible after the installation is complete to enable the drying of the walls. If excessive moisture is present in the walls at any time of year, it may be necessary to use a dehumidifier to aid drying prior to installation.

Ensuring the correct ventilation levels inside the building once works are complete is also important. The more occupants in the building or the more moisture produced, the more the ventilation becomes critical to remove excess moisture. Breathable insulation is in no way a substitute for proper ventilation as most moisture is removed from buildings by air exchange.

Investigation of masonry materials

The construction materials used in the wall are important to know. Small sections of external render and internal plaster should be removed (if present) to ensure it is possible to confirm the construction type.

Investigation of internal wall surfaces

Plaster type - Most walls are plastered with three materials, lime, gypsum or cement plasters and sometimes they can be a mixture of all three. Assessing which is present can be done fairly simply by checking the colours and composition of the plaster material as each tends to be fairly distinct. Simply remove a small section of the plasterwork, back to the masonry and look at the layers involved. If you're not sure what the plaster is made up of, please send photos to us to help you assess it.

Existing plasters do not usually require removal unless they are extremely loose, in which case the loose sections should be removed and replaced with a lime or lime/cement plaster.

Wall finishes - Painted surfaces, so long as it is acrylic paint or limewash/distemper, can often remain in place but all wallpaper or other materials bonded to the surface should be removed. Wallpaper tends to hold a lot of mould spores and when sandwiched between insulation and masonry, it can cause mould or decay within the wall.

Investigation of external wall surfaces

Many solid walled pre-1945 buildings are constructed of brick or stone with lime mortars. The porosity of the brick or stone varies enormously but any information on the brick or stone type that is available should be added to the checklist to help narrow down the likely properties of the wall.

The pointing in the joints between bricks and stones not only holds the wall together but it serves to prevent rain penetration. If the external surface of the wall is bare stone or brick, the pointing (whether lime or cement) must be in good order and flush with the outer surface. Deeply raked pointing allows higher levels of rain to enter the wall, which can impact the insulation system.

Discolouration of the surface and white crystals on the surface (efflorescence) are signs that the wall has suffered with moisture issues, or still is. The sources of any moisture should be investigated

Renders - Often, external surfaces are rendered to keep the weather out and the walls dry. This can work well if the wall surface is kept in good order but can increase moisture levels if rain leaks in through cracks or leaky sills. These areas are important to check and repair when assessing the exterior as no rain ingress should occur through the outer render.

Any paint finishes should be in good order and algae and flaking or blistered paint should be removed with a pressure washer before washing with fungicide and re-painting.

Pay particular attention to areas around openings to see if rain can penetrate but also along the base of the wall where rain splashes back against the wall for long periods. This area should be thoroughly checked for damage to any render or bare masonry and to check where the external ground level is relative to the internal floor level.

The base of the wall should have appropriate drainage that ensures water does not stand, drains freely and does not cause splash back against the wall surface. If the masonry is very porous and the wall is sat in water, it is likely to suffer with rising damp, which will affect the insulation. It should also be clear of plants that will reduce the speed at which moisture can dry out of the wall.

If areas of wet or damaged walling are present the NatureWall system should not be installed until such time as the wall has dried and the cause of the high levels of moisture, is remedied.

Surrounding surfaces - All surfaces that are adjacent to the wall surface or abut it, should be assessed.

Roof coverings should be in good order and not leaking, along with all rainwater goods. There should be no leaks and the water should drain into surface drains to keep the base of the walls dry.

The integrity of flashing details on lean-to roofs or porches should be checked and there should be no splash-back from surfaces near or abutting the wall. If there are, this should be rectified prior to installing the NatureWall IWI system.

Ground Levels

The NatureWall system is not designed to be used below ground without some changes to the specification. Internal and external ground levels should be checked to ensure that internal levels are higher than external and as a rule, the exterior should be at least 150mm below the interior. If this is not the case, the external ground levels should be lowered to at least 150mm below internal floor levels to reduce the amount of moisture in the base of the wall.

Where it is not possible to reduce ground levels, the interior of the walls can be tanked up to 150mm above external ground level and the area of the Multipor boards increased to cover this. This is outside the scope of this guide, please contact us for more information.

NatureWall Suitability Confirmation (NSC) checklist

Adding insulation to the interior of walls fundamentally changes the way in which they function from a heat and moisture perspective and so it is very important to confirm that the intended solution is suitable. To do this, please fill in the below checklist, when completed just save the pdf to your computer and e-mail to us at naturewall@backtoearth.co.uk. This allows us to use the latest heat and moisture modelling software (WUFI) to confirm that the intended solution is suitable.

If the interior of the wall has been dry-lined/studded off, this must be removed to be able to assess the wall surface and install the NatureWall system.

Naturewall Checklist

Project Details						
Project Reference					Date	
Project Address						
Post Code				Assessed by		
Company						
Phone				E-mail		
Interior Wall Checklist						
Interior Plaster Type	Cement Only <input type="checkbox"/>	Lime only <input type="checkbox"/>	Gypsum only <input type="checkbox"/>	Lime/Gypsum <input type="checkbox"/>	Cement/Gypsum <input type="checkbox"/>	None <input type="checkbox"/>
Interior Wall Finish	Painted <input type="checkbox"/>	Wallpaper <input type="checkbox"/>	Wooden Clad <input type="checkbox"/>	None <input type="checkbox"/>	Interior Photos No	
Notes on interior surface conditions	Mould? <input type="checkbox"/>	If yes then where?				Plaster Thickness
	Moisture? <input type="checkbox"/>					----- mm
Type of floor next to wall	Suspended Timber <input type="checkbox"/>	Block and Beam <input type="checkbox"/>	Solid floor <input type="checkbox"/>	Other floor type? Please detail below:		
Services on wall to be insulated	Water Pipes <input type="checkbox"/>	Electrical Wiring <input type="checkbox"/>	Gas Pipes <input type="checkbox"/>	Ventilation Ducting <input type="checkbox"/>	Waste Pipes <input type="checkbox"/>	Other <input type="checkbox"/>
Ventilation Method	Trickle Vents <input type="checkbox"/>	PIV <input type="checkbox"/>	MVHR <input type="checkbox"/>	Extract Ventilation <input type="checkbox"/>	Passive Ventilation <input type="checkbox"/>	None <input type="checkbox"/>
Exterior Wall Checklist						
Wall Construction Material	Solid Brick <input type="checkbox"/>	Cavity Brick <input type="checkbox"/>	Cavity Block <input type="checkbox"/>	Solid Stone <input type="checkbox"/>	Solid Block <input type="checkbox"/>	Concrete <input type="checkbox"/>
Wall Thickness	----- mm	----- mm Cavity ----- mm	----- mm Cavity ----- mm	----- mm	----- mm	----- mm
Wall Orientations to be Insulated	North <input type="checkbox"/>	East <input type="checkbox"/>	South <input type="checkbox"/>	West <input type="checkbox"/>	Exterior Photos? No	
	N. East <input type="checkbox"/>	S. East <input type="checkbox"/>	S. West <input type="checkbox"/>	N. West <input type="checkbox"/>		
External Surface	Brick/Stone <input type="checkbox"/>	Lime Render <input type="checkbox"/>	Cement Render <input type="checkbox"/>	Pebbledash <input type="checkbox"/>	Painted <input type="checkbox"/>	Other <input type="checkbox"/>
Texture and Colour of Exterior						Render Thickness ----- mm
Notes on External Surface Conditions	Condition of gutters, down pipes/soil pipes? Water leaks down walls or sills?					
What Surface is at the bottom of the Wall?	Soil/ Grass/ Plants <input type="checkbox"/>	Concrete/ Tarmac/ Slabs <input type="checkbox"/>	Gravel/ Stone <input type="checkbox"/>	Height difference from external ground to internal floor? ----- mm	Is ground floor level higher than ground level? No	
Other	Are the window frames and seals in good order? No			Is there any sign of damp or efflorescence? (White crystals on surface) No		

Finished filling out the checklist? Remember to save the pdf to your computer and then just attach it to an e-mail to naturewall@backtoearth.co.uk