

InstaFibre[®]
CAVITY WALL INSULATION

Survey & Installation manual

InstaFibre Party Wall Insulation

BBA Certificate No: 16/5303

 **InstaGroup**

www.instagroup.co.uk

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The Company

InstaFibre is a division of the Insta Group of Companies based at Wokingham in Berkshire.

InstaFibre supplies a range of products and machinery to a network of approved installing companies throughout the United Kingdom and Southern Ireland.

InstaFibre products for Cavity Wall Insulation are British Board of Agrément approved in conjunction with specified machinery.

All commercial and technical enquiries concerning the InstaFibre Cavity Wall Insulation system should be addressed to:



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Equipment Check List

Installation Equipment

- InstaFibre approved blowing machine
- 22mm Ball valve nozzle (for face fill)
- Long reach nozzle (for lateral fill)
- Test box (500mm x 500mm x 70mm)
- 0 – 2 kg spring balance
- Boroscope and Inspection lamp/torch
- Drilling machines (with dust extraction attachments if appropriate)
- Drill bits
- Cavity Barriers and chain (or similar)

Making Good Equipment

- Bucket, trowel, mortar hawk, sand, cement, range of colour pigments, range of rendering finishes, air bricks or sleeving brush and proprietary combustion vent kits.
- Tool kit including hammer, chisel, spanners, screwdrivers, hacksaw, pliers, water hose, hose couplings, yard brush, shovel, dustpan and brush and tape measure.

Safety Equipment

- Ladder safety harness and ladder safety ties
- Hardhat
- Ear protectors
- Goggles
- Dust masks
- Safety shoes
- Protective clothing
- First Aid kit



The above is not an exhaustive list of equipment that you may be required to use.

All aspects of safety must conform to the current Health and Safety at Work Act regulations.

It is advised that you acquaint yourself with and understand your own company's current safety policy manual.

Pre-Installation Checks

Before installation commences the following must be carried out firstly by the surveyor, and also by the installation crew to ensure that the property is suitable:

- Familiarise yourself with the form and design of the property.
- Check if the property is stepped or staggered to ensure you know the extent of the wall to be filled.

Cavity Checks

- Check the external wall cavity. The migration of InstaFibre into any adjoining cavity must be prevented (unless those are also to be filled).
- A cavity barrier brush shall be installed at the junction of the party wall and external wall to prevent migration of the InstaFibre from the party wall cavity to the external wall of either adjoining dwelling (Figure 1). In practice many of the external wall cavities will already have been filled and have cavity barriers installed, in which case this step will not be necessary.

If there is a sleeved cavity barrier already present across the party wall cavity then this will suffice (Figure 2).

If the external wall contains partial fill insulation check that the partial fill insulation is firmly fixed back to the

masonry and cannot be dislodged by filling the party wall cavity. If this is not the case remedial work must take place to secure the insulation before the party wall cavity is filled. In the instance that partial fill insulation is present in external walls (Figure 3).

- If the property to be filled is a flat, check whether the cavity is permanently closed from the flats above and below. If not then the flats above and below will also need to be filled otherwise filling cannot take place.
- Check that the cavity extends all the way to the underside of the roof.

Ensure that the cavity tray is complete along the roof line and is shedding water away from the party wall cavity and that there is no water staining visible.

It is necessary to drill inspection holes to carry out the checks within the cavity described in CIGA's "Installing Cavity Wall Insulation" manual. It will be necessary to use a good quality borescope or video endoscope on each elevation and around features likely to cause obstructions to filling.

- Carry out a minimum of 3 borescope inspections per elevation including one just above the floor level and one at the highest point possible below roof level to ensure the cavity is clean and free from debris.
- If debris or obstructions are found in the cavity it is preferable that pictures are captured using a video endoscope before and after removal as a record that the cavity is now suitable for filling.
- It is important that steps are taken to avoid drilling into cables when drilling the walls. Use a suitable detector to locate any services which may be buried in the wall lining.
- Cavity widths can vary considerably within one building. Therefore at least ten cavity width measurements should be made at various heights in the building before installation (cavity widths can tend to vary the greater distance from ground level).
- The cavity should not be filled if the measurement is less than 50mm.

Figure 1

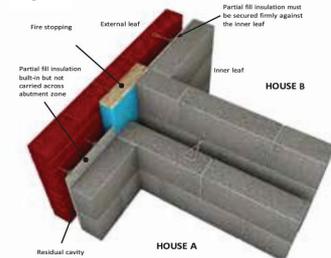


Figure 2

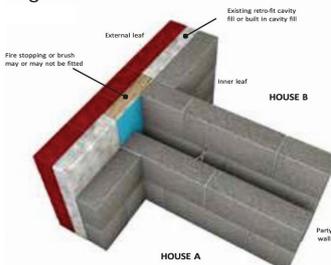
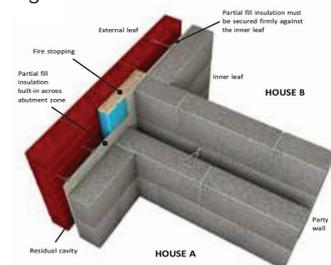


Figure 3



Pipes, Wires and Flues

- Identify the location and routing of all pipes and wires embedded in the wall using a suitable detector before any drilling takes place.
- Identify the location and routing of all chimneys and flues in the wall before any drilling takes place.
- Carry out spillage test as described in CIGA's Flues, Chimneys and Combustion Ventilators manual.
- Ensure that the property has adequate ventilation for combustion appliances.

Obstructions

- Identify and log any obstructions to filling. These might include:
 - Tiled walls
 - Kitchen cupboards
 - Stairs
 - Counters and worktops
 - Meter cupboards
 - Large furniture or built in furniture
- In most cases the obstruction should be moved to allow the standard drilling pattern.

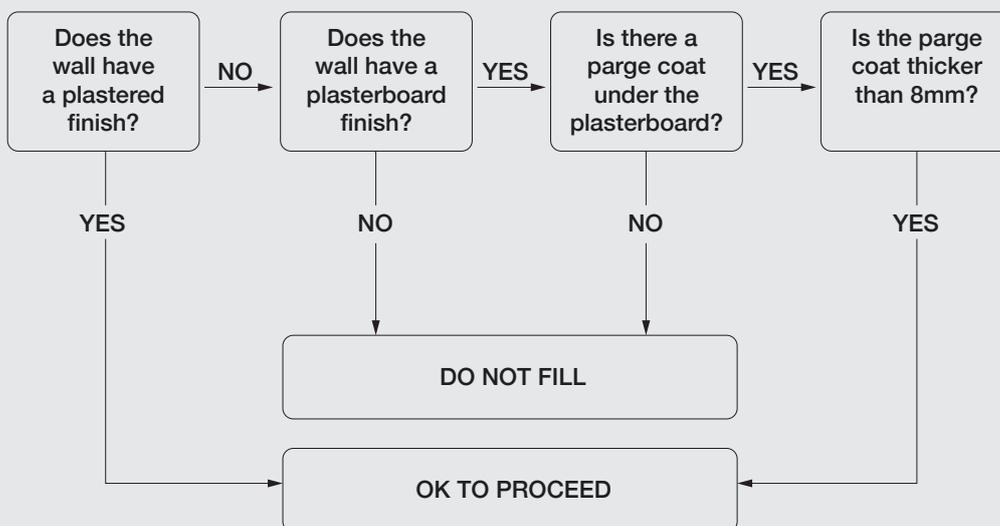
Wall Condition and Lining

- Check for damp, cracks and mould in the party wall as you would for an external wall. Any damp problems must be rectified before filling takes place.
 - The wall lining has an impact on the acoustic performance of the wall.
 - Wet plaster and parge coat seal holes in the masonry and result in a more sound-proof wall.
 - Walls that are only dry lined with plasterboard can hide imperfections in the wall.
 - Walls without parge or plaster should not be filled.
- The parge coat may be visible from:
- Within the attic at the junction with the ceiling.
 - The intermediate floor junction with the party wall.
 - From a trial drill hole through the plasterboard.

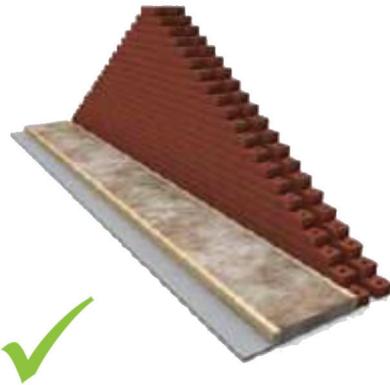
If the wall has a plasterboard finish and it is not possible to check for a parge coat then the wall should not be filled.

If the wall has a plasterboard finish and you cannot say for certain that the wall has a parge coat of 8mm nominal thickness (and no less than 6mm thick at any one point) then the wall should not be filled.

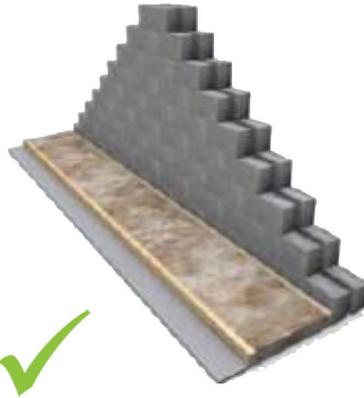
Positive identification of a sufficiently thick parge coat must be recorded on the job sheet.



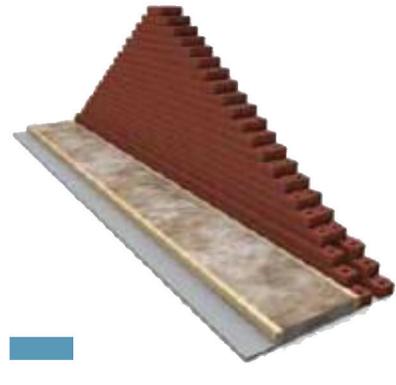
Loft Survey



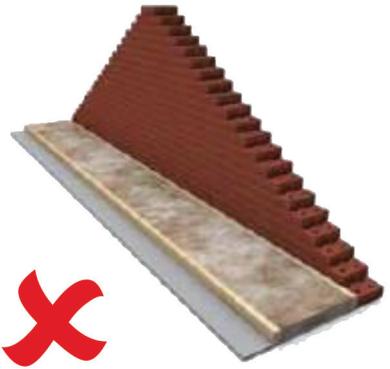
Cavity wall in brickwork
May be suitable for insulation



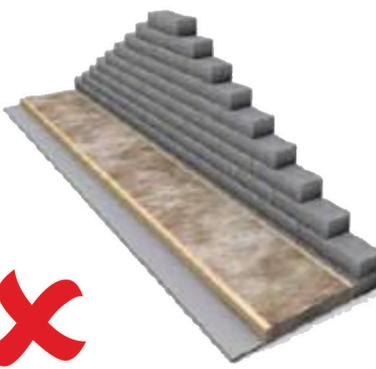
Cavity wall in blockwork
May be suitable for insulation



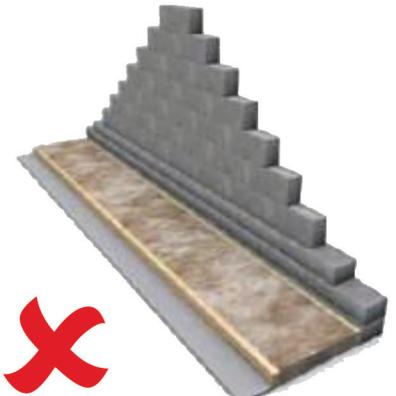
Solid wall in brickwork (solid above cavity)
May be suitable for insulation¹



Solid wall in brickwork
Not suitable for insulation



Solid wall in blockwork (laid flat)
Not suitable for insulation

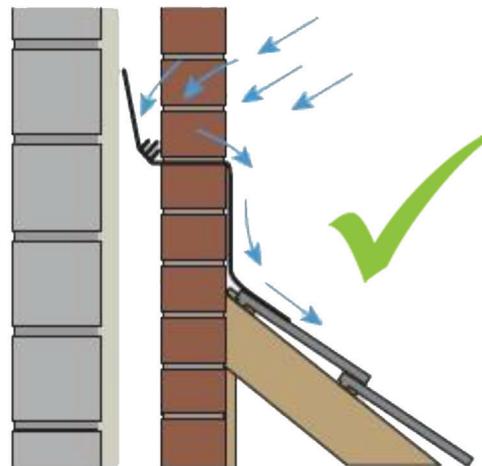
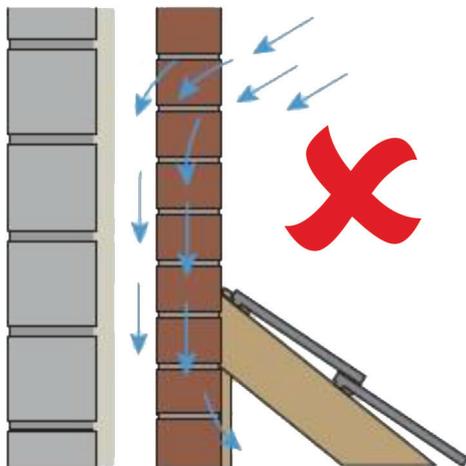


Solid wall in blockwork (with transition)
Not suitable for insulation

- Check the cavity tray from the loft to ensure any cavity tray is complete and no water staining is visible

- For a stepped or staggered gable abutment to be protected against rain the damp protection system must follow the pitch of the roof

- This protection must then link with an appropriate flashing to weatherproof the physical join between masonry and roof



¹The cavity in this type of party wall extends only up to the floor of the loft space, above this point the wall is of solid construction. At the time of writing this Guide, the savings provided by insulating this type of party wall had not been quantified and may not be as great as for walls with cavities that are continuous to the roof line.

Drilling Operation

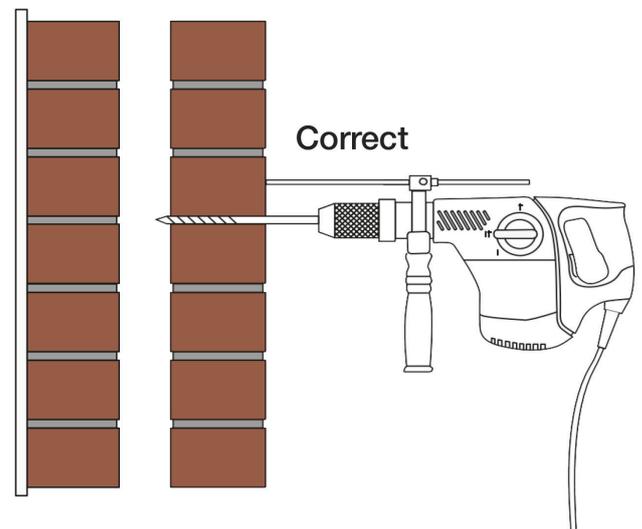
for Installation from Inside the Property

- Before drilling **DO** ensure that you have protected carpets, furniture and customer belongings from dust generated during the drilling process
- **DO** use a drill depth stop both during survey and installation
- **DO** take every care to minimise the amount of debris that falls into the cavity
- **DO** drill extra holes around building features to ensure completeness of fill
- **DO NOT** hold the drill at an angle whilst drilling
- **DO NOT** start filling until all holes are drilled in that elevation
- **DO NOT** drill holes within 300mm of pipes or wires
- **DO NOT** drill holes within a metre of a chimney breast or flue
- **DO** use a vacuum cleaner to clear any dust which is generated during the drilling process
- Spalling masonry can cause a reduction in acoustic performance of the wall so the drill and drilling method is extremely important
- A drill with a depth gauge and where the hammer action can be switched off is essential equipment
- The drilling operation is designed to stop spalling masonry falling into the cavity

Calculate the cavity width using the following formula:

- Cavity width = depth of hole – thickness of the inner leaf
- This depth of hole will vary according to the thickness of masonry and the thickness of plaster or dry lining
- Check the thickness of the masonry in the loft
- Using a suitably narrow masonry drill bit, and drill a test hole to enable the depth of the wall
- The thickness of plaster or dry lining should be obvious within the drill hole

- Measure the depth of the wall leaf from the plaster face to the cavity face
- **The cavity should not be filled if the measurement is less than 65mm.**



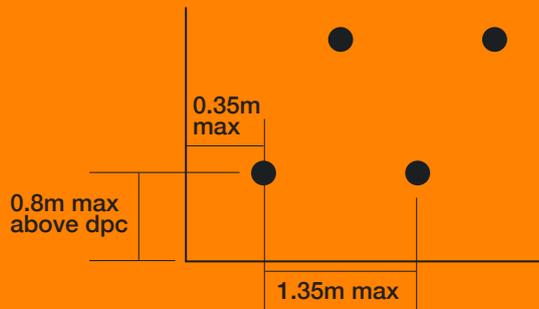
SDS Plus drill

- The thickness of the wall leaf should be determined – set the hammer drill depth gauge to that thickness less 25mm
- Stop drilling when the depth is reached and switch off the hammer action
- Complete the hole with the hammer action switched off
- Repeat for the remainder of the drill pattern
- Complete all drilling before starting to install InstaFibre Party Wall

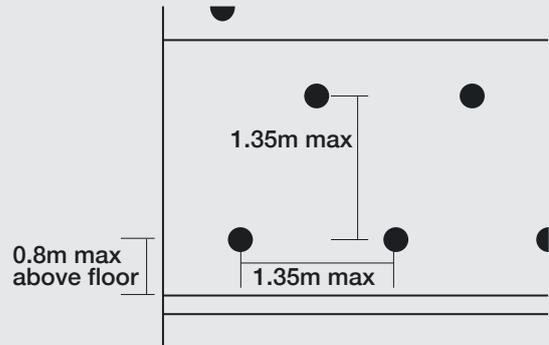
Drilling Pattern

Internal Drilling Pattern

The first row of drill holes should be no more than 0.8m above the floor level and no more than 1.35m from one hole to the next.

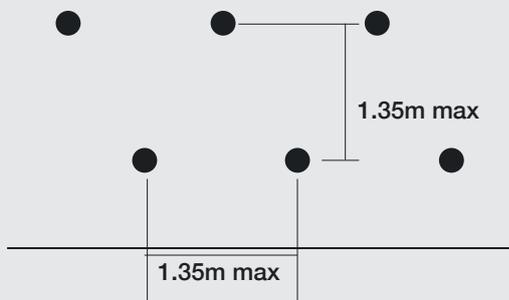


The drill pattern should be repeated at first floor and in each successive storey if applicable.



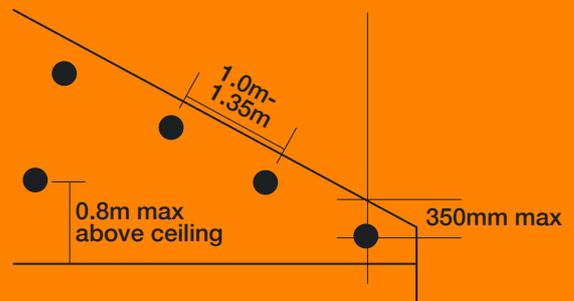
The second row of drill holes should be no more than 1.35m above the first row.

Wherever possible, a diamond pattern should be used so that a drill hole in the second row is midway between two holes in the row below.

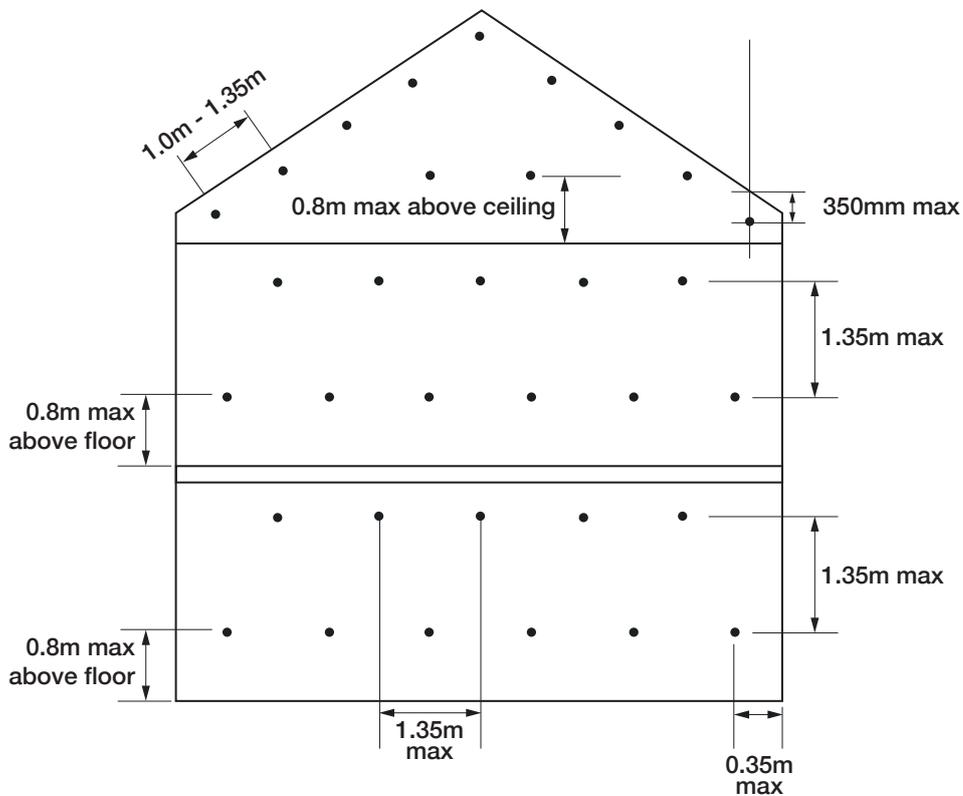


At the top of walls the topmost injection holes should not be more than 350mm below the roofline.

The rows of holes should be between 1.0 and 1.35m apart depending on the pitch of the roof; the lower the pitch, the closer the holes.



Typical InstaFibre Party Wall Drilling Pattern Internal Installation



Pipes, Wires and Flues

- There are expected to be the following services buried in the walls:
 - Water Pipes
 - Gas Pipes
 - Electrical Wiring
 - Flues and Chimneys
- The area to be drilled must be scanned with a cable/pipe locator before drilling
- Care must be taken to identify flues and chimney runs before drilling

Drilling Operation

for Installation from Outside the Property

Standard drilling equipment can be used

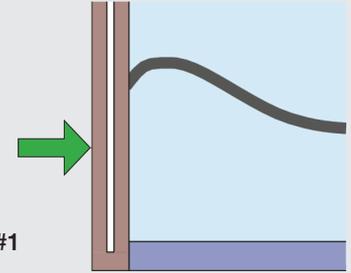
- This method has been proven to project the InstaFibre up to 5m from each injection point along the length of the party wall cavity
- An InstaFibre long reach 300mm blowing nozzle must be used to ensure access to the party wall cavity
- This can be pushed past existing cavity barriers and brushes



The first holes should be

- Centred on the party wall line
- No more than 0.8m above the floor level

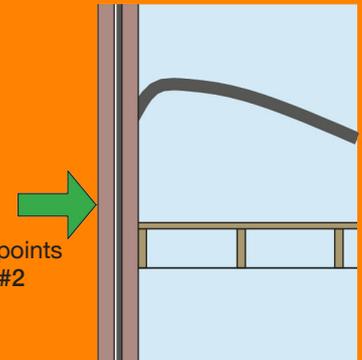
±0.8m from floor
Lateral injection position #1



The second drill hole should be

- No more than 2m above the first

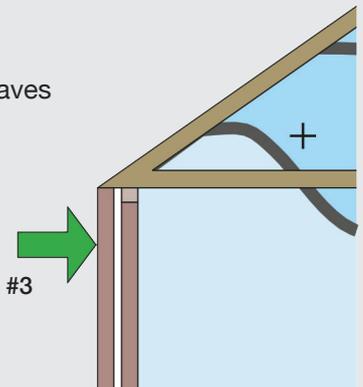
±Central <2m from other points
Lateral injection position #2



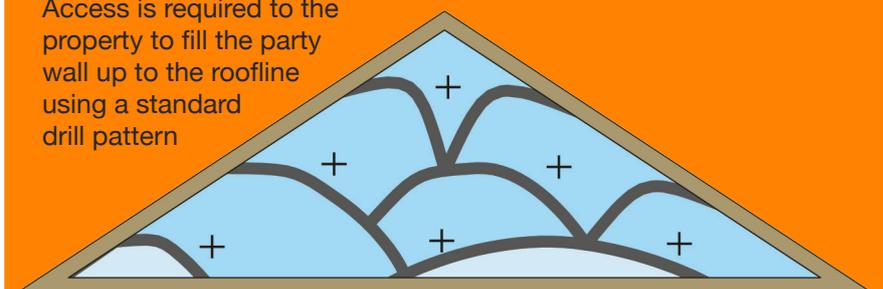
The highest drill hole should be

- No more than 0.35m below the eaves

±0.35m from eave
Lateral injection position #3

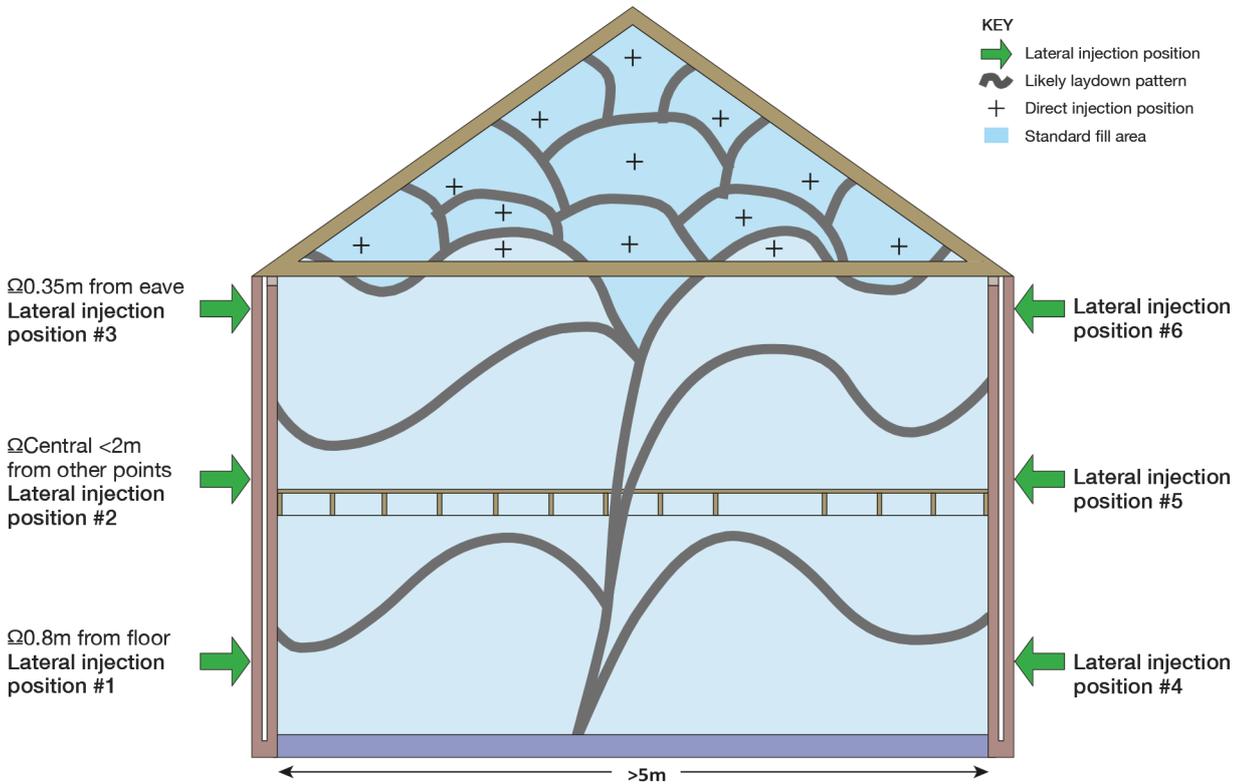


Access is required to the property to fill the party wall up to the roofline using a standard drill pattern

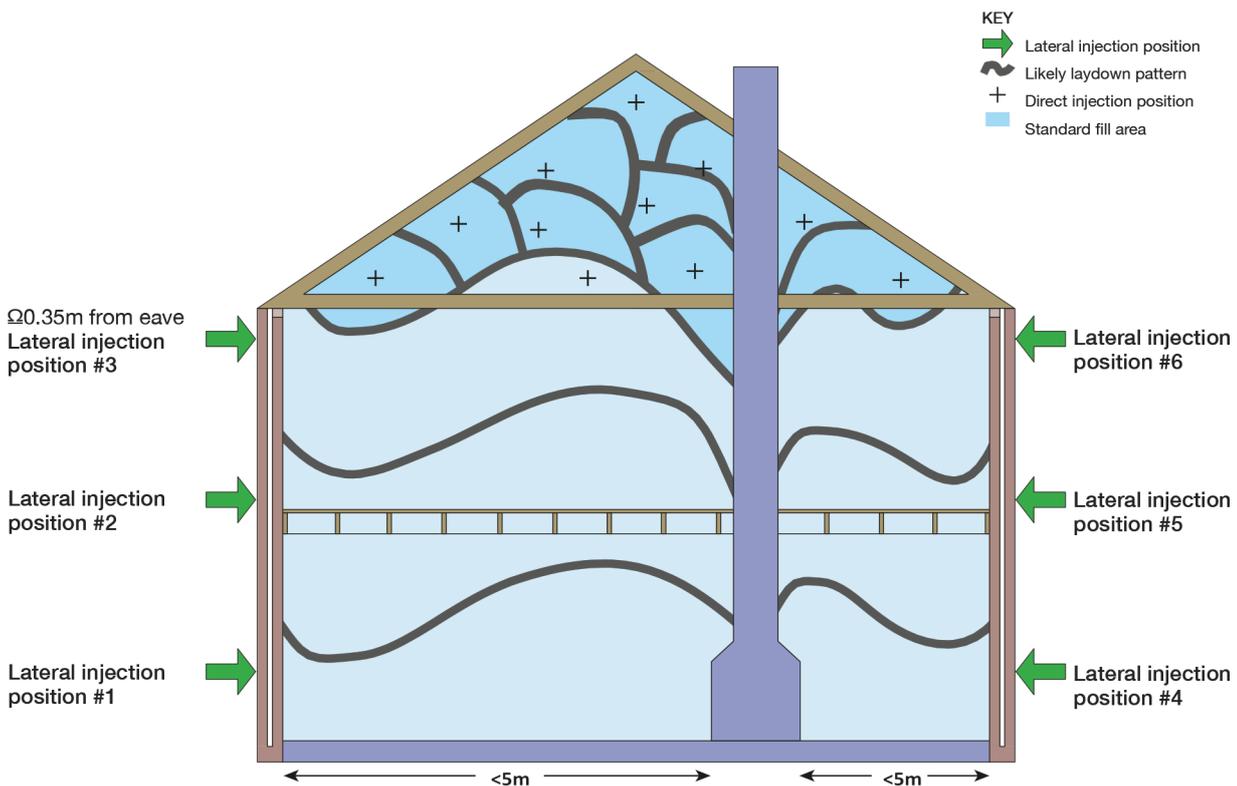


- KEY
- Lateral injection position
 - ~ Likely laydown pattern
 - + Direct injection position
 - Standard fill area

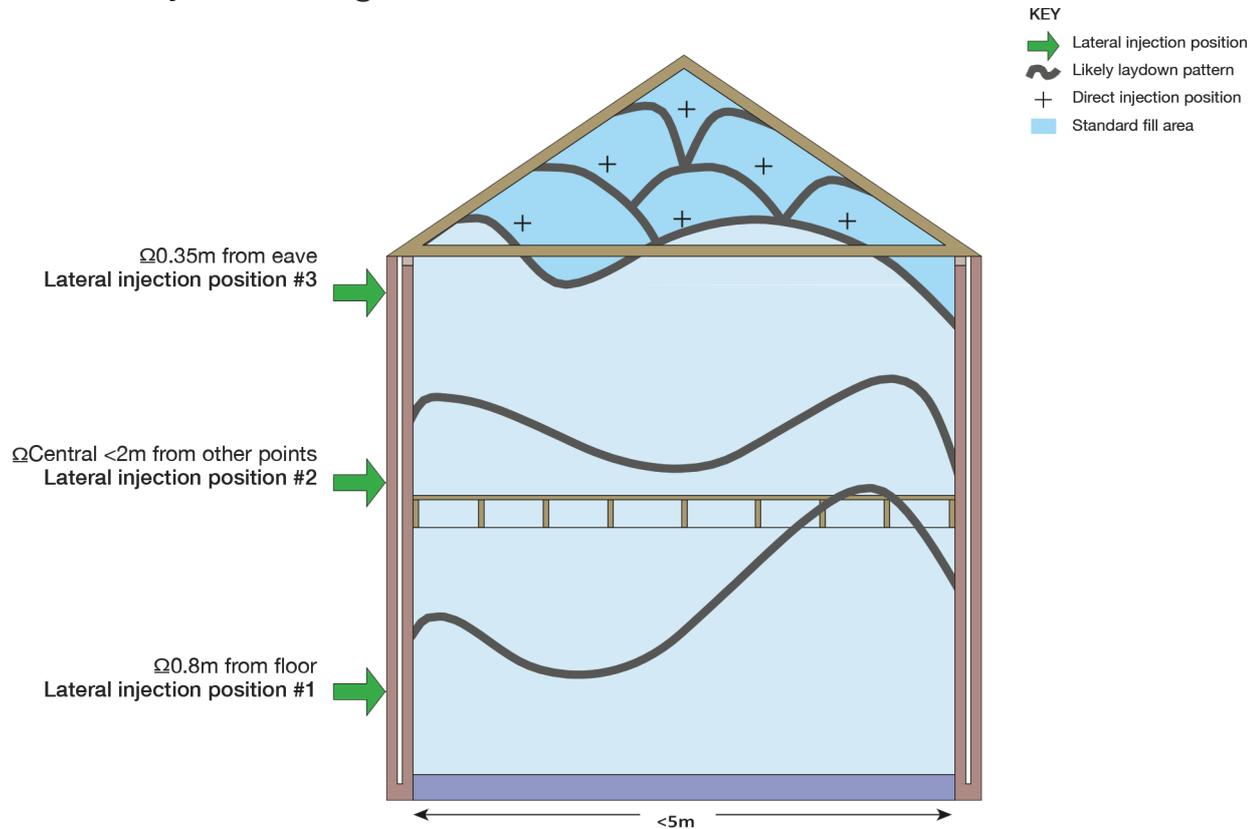
Typical InstaFibre Party Wall Drilling Pattern External Installation



Drilling Pattern for Property with Flue

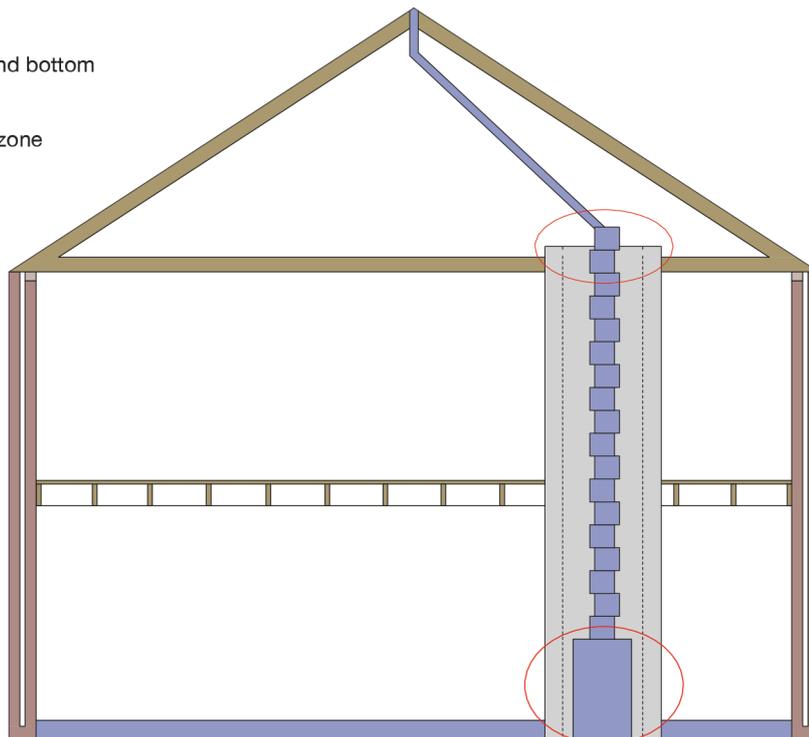


Drilling Pattern for Property with Party Wall Length less than 5m



Drilling to void Flue Blocks

- Flue visible at top and bottom
- Width of flue
- Add 300mm safety zone
- No drill zone



Blowing Machines

InstaFibre Party Wall insulation is approved for us by the BBA in conjunction with the following blowing machines.

InstaFibre single or double

Peak Diesel and Electric

Stewart Energy Diesel (750 & 1000) and Electric (500)

Timco

Krendl KR2300

Each machine is identified as being approved by bearing a plate denoting the BBA certificate number 16/5303.

The above machines fall into two basic categories.



At no time should technicians put their arms or hands into any hopper while a machine is switched on and working.

Quality Checks

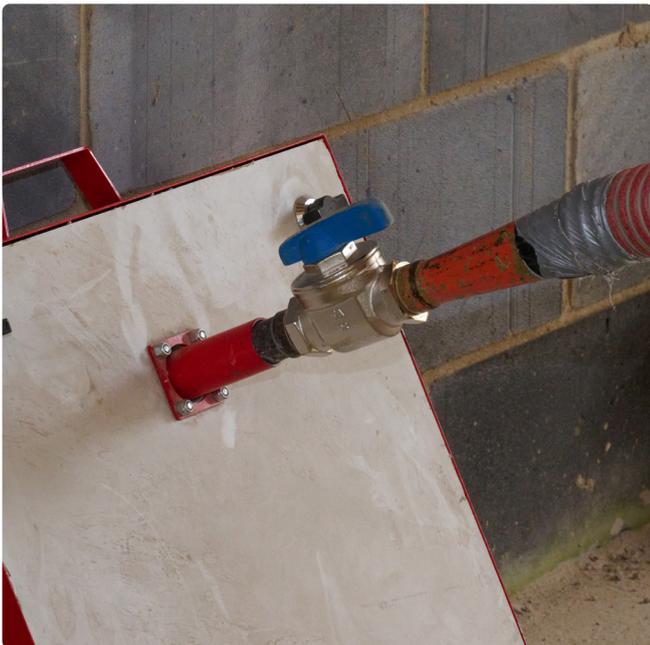
Density Box Test

This test must be carried out at the beginning of every installation to ensure that material and machinery are performing within specification. Results of this test must be recorded on relevant paperwork to comply with the British Board of Agrément Technical Schedule.

Specification

Blowing Time
25-35 seconds

Box Weight
0.90 +/- 0.10kg



Blowing Machines

- Ensure that the pressure switch is operating correctly. To adjust, turn the screw in to increase pressure and out to reduce the pressure.
- Blow the density box and note time taken and weight as above.
- If weight is over 1.0kg open restrictor plate ¼ turn at a time and repeat test.
- If weight is under 0.8kg close restrictor plate ¼ turn at a time and repeat test.
- Where fitted, the air dump may also be used to control density. To increase density reduce the amount of air being dumped – to reduce density increase the amount of air being dumped.

The Filling Operation

Filling should proceed from the bottom to the top of walls and from the most to the least restricted sections. Filling from the bottom ensures a uniform fill.

The blowing machine is simple to operate, 1-2 bales of wool can be emptied into the hopper at once. It is not recommended to allow the hopper to get less than half full. The feed rate is automatically controlled by the worm screw and the only necessary adjustment will be to the restrictor plate, dump valve or engine revs in order to obtain the correct density of fill.

If the machine cuts off prematurely or if it is felt that the hole has not filled correctly, remedial action must be taken to ensure adequacy of fill.

Remedial action could include at least the following as deemed necessary:

- Additional boroscope inspection
- Empty the nozzle and remove insulation from pipe then attempt to re-inject
- Removal of any obstruction found
- Drilling additional injection hole

In an area where filling problems have occurred these must be recorded on the job sheet and additional post installation checks with a boroscope undertaken.

Insulant should be introduced into each injection hole in turn. Starting at one end of the elevation and at the bottom of the wall and working across from side to side.

The 22mm diameter tip of the tapering nozzle is located in the pre-drilled hole. Nozzle rotation is not required.

Once the blowing unit has started, the insulant will continue to flow at a steady rate until a signal from the pressure switch de-energises the clutches indicating that the part of the cavity adjacent to the injection hole is now filled to within the required nominal density of 18kg/m³.

When filling the hole is complete shut off the ball valve. Once the nozzle has been moved to the next injection hole, re-open the ball valve so that injection of insulant can continue by activating the start switch.



Post-Installation Checks

Post-installation checks must be carried out to ensure that the installation has been completed, and that no damage has occurred to the property.

Installed Density Checks

To check that the correct fill has been obtained, the number of bales used on site and average cavity width should be recorded on the work card and an average installed density calculated.

Example			
Wall area	Party wall cavity	Number of bags	Weight of bag
40m ²	70mm = 0.07m	3	17.6kg

To calculate density	
Number of bags x weight of each bag = weight of material used	3 bags x 17.6kg = 52.8kg
Wall area x cavity width = wall volume	40m ² x 0.07m = 2.8m ³
Weight of material used ÷ wall volume = installed density	52.8kg ÷ 2.8m ³ = 18.8kg/m ³

NB: For an average installed density of 18kg/m³ the following coverage can be obtained.

Cavity Width – mm	65	75	85	95	100
Coverage – m ² / bale	15.0	13.0	10.9	10.3	9.8

All heating appliances/ventilators must be checked for safe operation and results documented and make sure that the customer is satisfied before leaving site.

Making Good

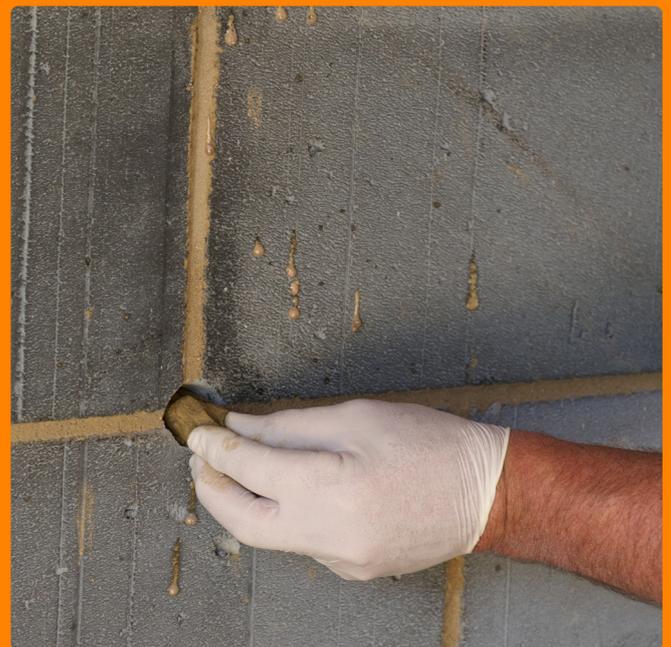
The importance of making good after the installation, cannot be over-emphasised. Leaving the property in the same condition that you found it in is the best possible recommendation and source of new leads.

Making good holes

A mortar mix should be made up before the installation begins. That way the preceding holes can be made goods while the next hole is filling. It also allows adjustments to be made to the colour match when required.

Where making good a plastered wall discuss and document with the client whether they prefer the making good brought to the surface of left below the surface.

By leaving the mortar below the surface, subsequent decorative filling can be better achieved with fine fillers by the client, after the mortar has dried.



Technician's safety check sheet

Flues, Chimneys and Combustion Air Ventilators

This check sheet specifies the minimum checks, and actions that **must** be carried out during installation of CWI to buildings containing fuel-burning appliances.

It must be read in association with "Technicians guide to best practice – Flues, chimneys and combustion air ventilators."

Survey Identify and record:

- Fuel type(s) Gas Oil Coal Wood
- Appliance type(s) Boiler Gas Fire Open Fire Balance Flue
- Flue / chimney location(s) Internal Wall External Wall Front Side Rear
- Location of combustion air ventilator(s) Front Elevation Side Elevation Rear Elevation

Pre-Installation

- Appliance identified, flue / chimney routes, internal & external Yes No N/A
- Appliance run* Yes No N/A
- View and note flame colour* Yes No N/A
- Combustion gases checked externally* Yes No N/A
- Appliance checked (smoke test / spillage test)* Yes No N/A
- Smoke / spillage test satisfactory* Yes No N/A
- Combustion air supply adequate Yes No N/A

Installation – Visually Check

- Flue, chimney routes to avoid drilling into them Yes No N/A
- Flue, chimney routes to avoid ingress of material Yes No N/A
- Combustion air ventilator(s) unobstructed Yes No N/A

Post Installation

- Appliance(s) run at maximum for a minimum of five minutes* Yes No N/A
- Visual check that flame compares with pre-installation* Yes No N/A
- Smoke test / spillage test satisfactory* Yes No N/A
- If results were unclear, re-test after a further 10 minutes* Yes No N/A
- Re-test satisfactory* Yes No N/A

Comments

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If there is any doubt or any question answered 'N' then

1. Switch OFF appliance and
2. Issue WARNING NOTICE and
3. ADVISE occupants and owner and
4. CALL OUT a competent body or person such as fuel supplier or maintenance contractor (e.g. GAS SAFE for gas).

Installation address:

.....

.....

.....

Name of Technician

Signature

Date

* Only on appliances fitted to flues & chimney on external walls



It is the installing firm's responsibility to ensure that the Technician is trained to be able to discharge these responsibilities.

Failure to carry out these safety checks could lead to the death of an occupant and prosecution of the Technician



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