

SIG Cavity Wall Insulation 34



Installer Manual
for New Dwellings



Contents

Typical Equipment Check List.....	3
Technician Training, Assessment, Approval and Inspections.....	4
Cavity Wall Insulation 34 Training Programme.....	5
Customer Care.....	6
Pre and Post Installation Checks.....	7
Drilling Operation.....	8
Drilling Pattern.....	9
Injection Machinery.....	12
Quality Checks.....	14
The Filling Operation.....	15
Installed Density Checks.....	17
Making Good.....	18
Customer Complaints.....	19
Survey Report Form.....	20

Typical Equipment Check List

- Approved blowing machine (see page 12)
- Lorry or Trailer
- SIG CWI 34 Installation Kit, consisting of:
 - 2 x 15m length blue cap hose @ 63mm diameter
 - 1 x 15m length blue cap hose @ 51mm diameter
 - 1 x 63mm-51mm reducer
 - 1 x 63mm hose connector
 - 4 x 63mm hose clips
 - 1 x 51mm hose clip
 - 1 x 32mm Powermax drill bit
 - 1 x 30mm nozzle with ball valve powder coated in blue
 - 1 x 500mm x 500mm x 100mm test box
 - 1 x 30mm ball valve injection nozzle
 - 1 x 32mm drill bit
- 0-2kg spring balance
- HSE approved extending ladders
- Additional, required and approved access equipment
- Inspection lamps
- Drilling machines (heavy duty with 110v safety clutch)
- Hand tools, including chisel/hammer etc.
- Cavity barriers and chain (or similar)
- Yard brush, shovel, dustpan and brush, rubbish bags
- Making good equipment: trowel, jointing bar/trowel, mortar hawk, mortar or sand and cement, range of colour pigments, rendering finishes, mixing bowl/bucket
- Personal protective equipment and access safety kit
- Tool kit: spanners, screwdrivers, hacksaw, hammer, pliers

Technician Training, Assessment, Approval and Inspections

The following is a guide to training requirements prior to approval of technician.

Existing Approved Installing Company:

- A training programme to be carried out by the installing company to include, company induction, health & safety, customer care and on-site training with qualified technician/s covering all aspects of installation procedures.
- Attend an approved training centre for training course on flues, chimneys and combustion air ventilators.
- Attend an SIG Retrofit System Support classroom training session as required. Continuation of on-site training with qualified technician/s overseen by SIG Retrofit System Support (Technical Systems Supervisor).
- Technician assessment and approval. An assessment will be carried out by SIG Retrofit System Support (Technical Systems Supervisor) at the end of the training period to ascertain if the trainee technician is competent to become an approved technician.

New Approved Installing Company:

- Technician training for a new approved installing company will be carried out under the guidance and supervision of SIG Retrofit System Support as their BBA System Certificate Holder.
- Attend an approved training centre for training course on flues, chimneys and combustion air ventilators.
- Installing company training should include, introduction into the company, general health & safety and customer care.
- Attend an SIG Retrofit System Support classroom training session which covers all basic installation procedures when installing cavity wall insulation.
- On-site training will be under the supervision of SIG Retrofit System Support.
- Technician assessment and approval. An assessment will be carried out by SIG Retrofit System Support (Technical Systems Supervisor) at the end of the training period to ascertain if the trainee technician is competent to become an approved technician.

On-site Inspections:

- Following approval each technician will be inspected on-site a minimum of four times in each year evenly spread throughout the year.
- A technician's card will be withdrawn where it is shown that the technician no longer has the capability, intention or competence to undertake the installation in a correct manner.

Note:

Prior to assessment the following would be required:

- a) Copy of valid ACoP's certificate for flues, chimneys and combustion air ventilators.
- b) Documentation from installing company listing training development.
- c) Recent passport sized photograph.

SIG Cavity Wall Insulation 34 Training Programme

Company: _____

Approved installer: _____

Name of technician: _____

Starting date: _____

Person responsible for training: _____

Please tick the relevant box

External ACoPs accreditation validated

Induction course (office)

On-site training

Health & safety

Customer care

Pre-installation checks

Drilling patterns

Drilling operation

Fitting cavity barriers

Sleeving and reinstatement of air bricks

Operation of blowing machine

On-site quality control (test box etc.)

Filling operation

Making good

Post-installation checks

Flues and combustion air

At the end of each week the trainer is responsible for reviewing the technician's progress, and setting his or her tasks for the following week.

At the end of the training programme, the trainer will test the technician to ensure that he or she has acquired a good basic knowledge of installing Cavity Wall Insulation.

Declaration

This is to confirm that _____ has completed the above training
on the _____ System(s)

B.B.A no/s _____

Trainer's signature _____

Technician's signature _____

Date _____

Customer Care

The following points may seem so obvious as to be trivial but remember this: as far as the customer is concerned, this is their first experience of CWI. You will be judged on what is important to them - not what matters to you.

- Check you are at the right address, and identify yourself to the Site Manager, showing the correct credentials (e.g. SIG CWI 34 Approved Technician's Card).
- Avoid criticism of other companies and trades.
- Ensure vehicle is parked safely and not causing obstruction.
- Point out any problems or defects to the Site Manager before starting work and report on work card.
- Ensure with Site Manager that you always have access to property when required and that no other trades are present during installation.
- If any damage is caused, however small, inform the Site Manager and report the matter to your company.
- Clear up any mess as soon as possible.
- If the customer complains you should record their complaint and refer the matter back to your company with the same assurance that it will be dealt with quickly.
- Try not to get involved in any arguments on site, or respond negatively to any complaints or criticism.
- Ask the Site Manager to examine and inspect the work carried out and sign any appropriate compliance or satisfaction notes etc.



Pre and Post Installation Checks

Pre-installation checks

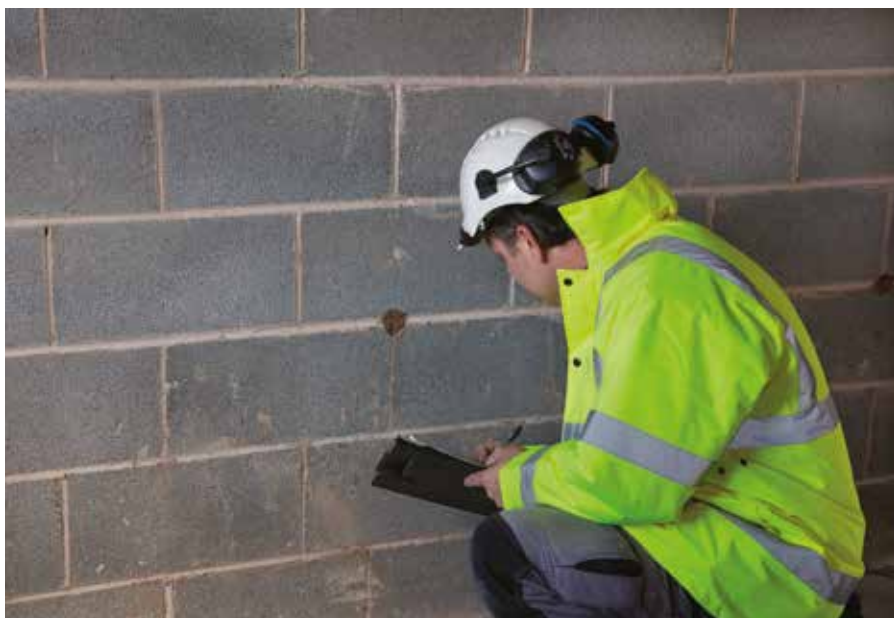
Must be carried out by the installation crew to ensure that the property is suitable, and to familiarise themselves as to the property details.

Refer to survey report on page 20.

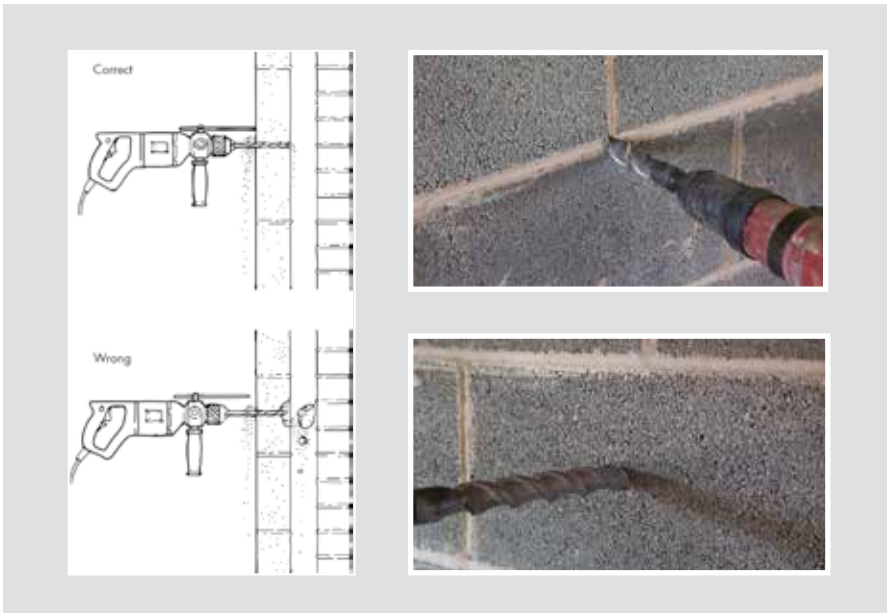


Post-installation checks

Must be carried out to ensure that the installation has been completed, and that no damage has occurred to the property.



Drilling Operation



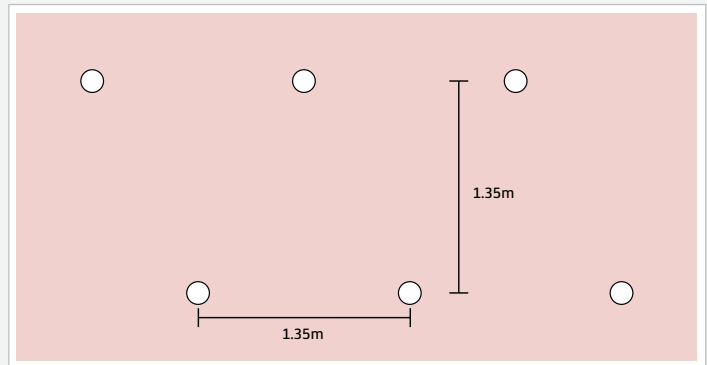
- Properties on-site should be inspected and defects reported prior to the insulation being installed.
- With a new build property, installation is usually via the inner leaf, before the walls are plastered.
- Drilling must be in the mortar joints, to avoid spalling to the cavity face of the blocks.
- If drilling of facing brickwork is required, make sure the holes are drilled at the base of the mortar joint.
- All drilling must be completed on one elevation and at least 2m of the adjoining elevations before injection commences on that elevation.
- When drilling holes ensure a 90 degree angle is achieved.
- Every care should be taken to minimise the amount of debris that falls into the cavity.
- Care should be taken when drilling next to building features. It is advisable to drill at least two courses below such features.
- Injection must not be undertaken until all cavities are sealed. Internal installation should preferably take place before the walls are plastered.

Drilling Pattern

Hole diameters:

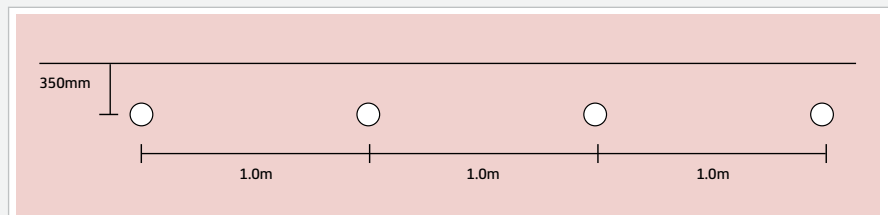
- SIG CWI 34: 32mm
- SIG CWI 34 Party Wall: 26mm

Subject to the constraints given below, the distance between successive injection holes should be a maximum of 1.35m. Wherever possible, a diamond pattern should be used so that an injection hole in one row is midway between two holes in the rows above and below.



Diamond drilling pattern example

At the tops of walls and under gables, the topmost injection holes should not be more than 350mm below the upper edge of the cavity to be filled. Additionally under horizontal boundaries, for example under eaves, windows or lintels, the centres between the topmost injection holes should not exceed 1.0m.

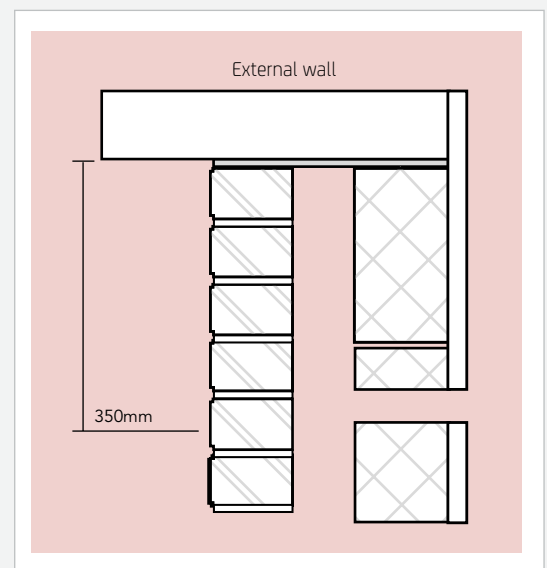


Injection holes example

With sloping boundaries, for example under the eaves of a gable end, the centres between the successive injection holes should be between 1.0m and 1.35m depending on the slope of the boundary. The nearer the boundary is to the horizontal, the closer together the holes should be.

The lowest blowing holes should not be more than 0.8m above the horizontal dpc.

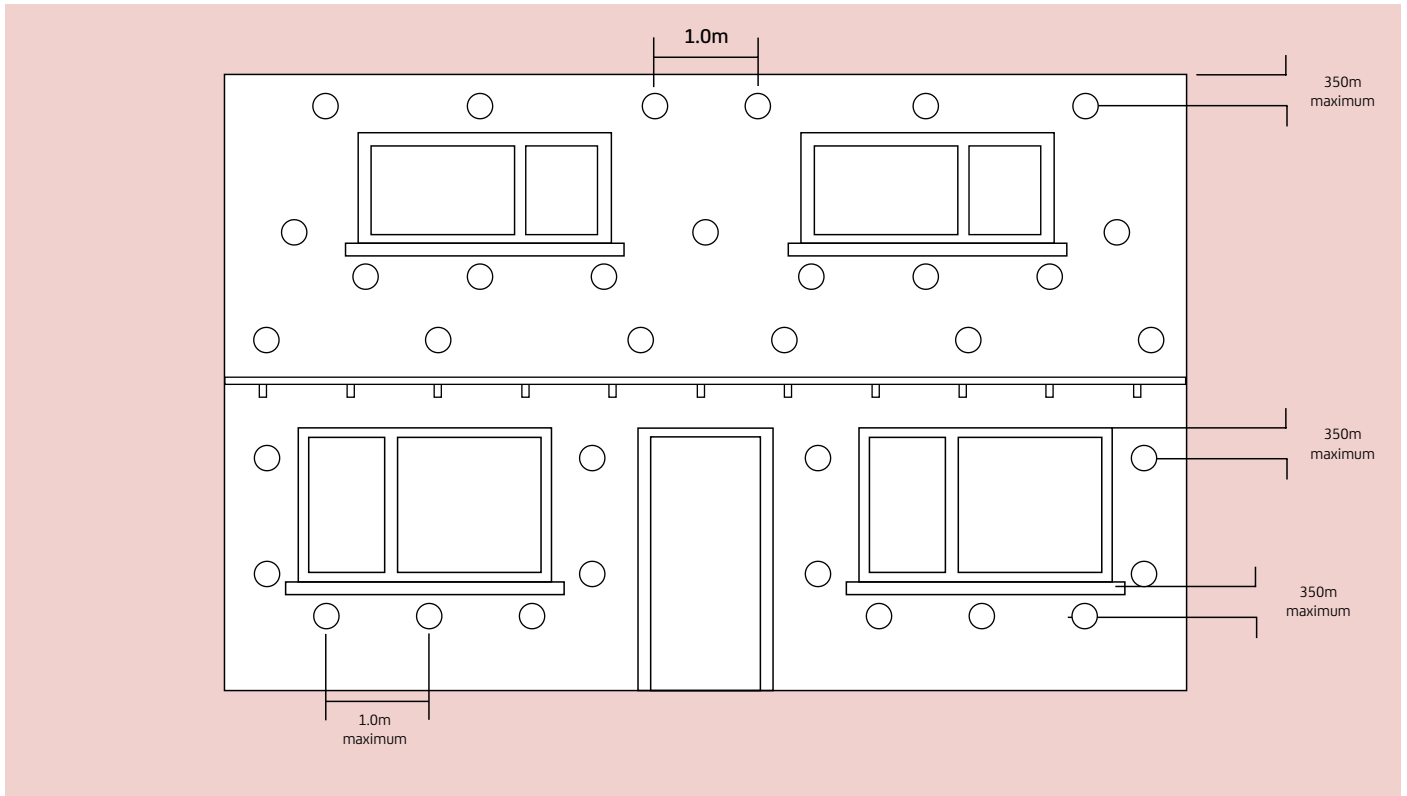
Extra injection holes will be required to ensure completeness of fill around building features. Where lintels project beyond a vertical cavity closure the 350mm rule shall apply.



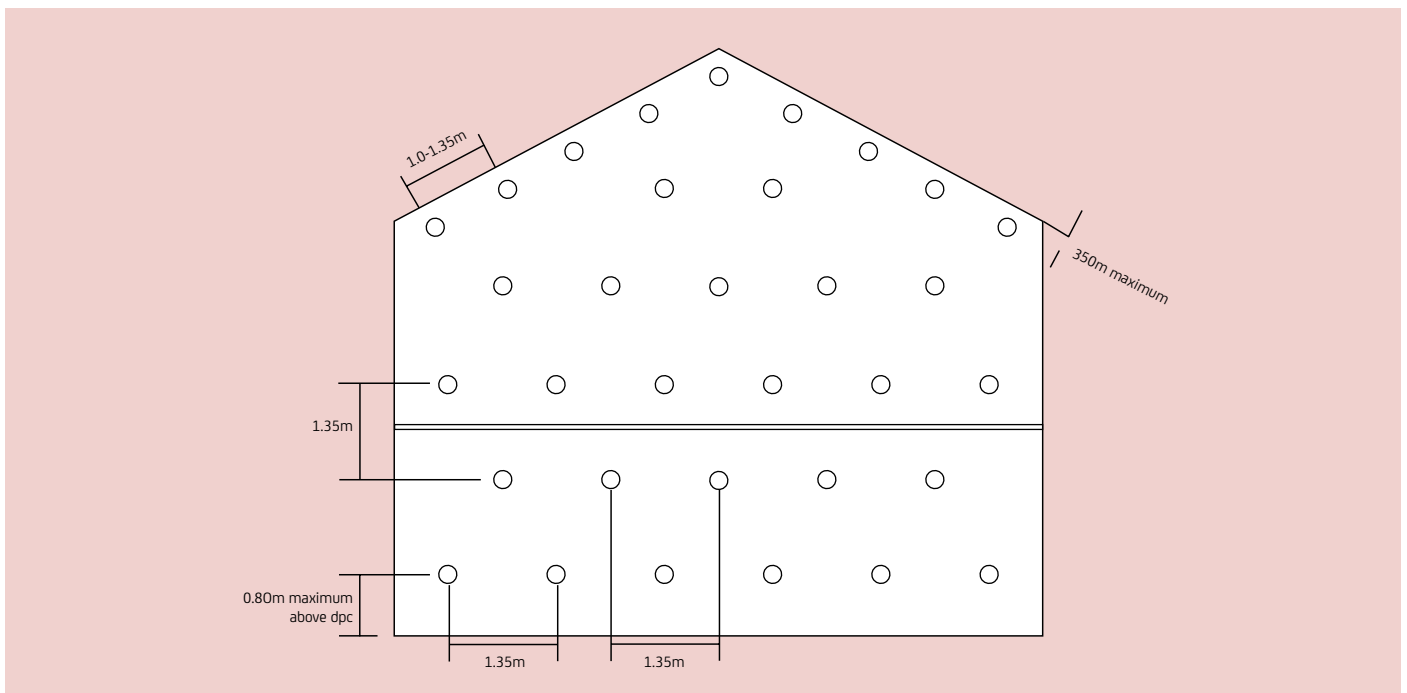
Projected lintels example

Drilling Pattern

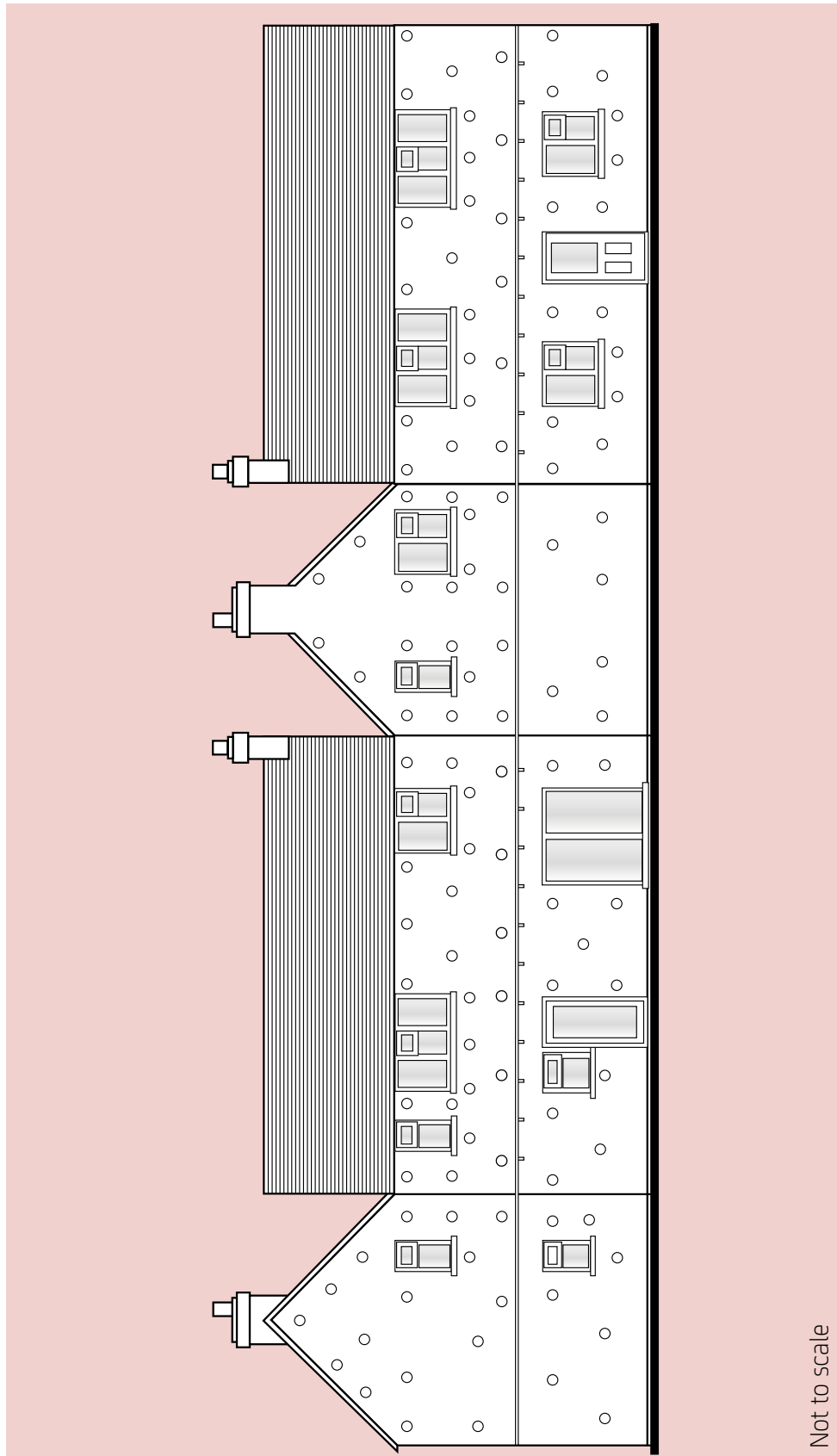
Typical SIG CWI 34 drilling pattern-frontage



Typical SIG CWI 34 drilling pattern-plain gable end



Typical Detached House Elevations



Not to scale

Injection Machinery

SIG CWI 34 must be installed using an approved blowing machine. The following blowing machines are approved by SIG Retrofit System Support and the British Board of Agrément (BBA).

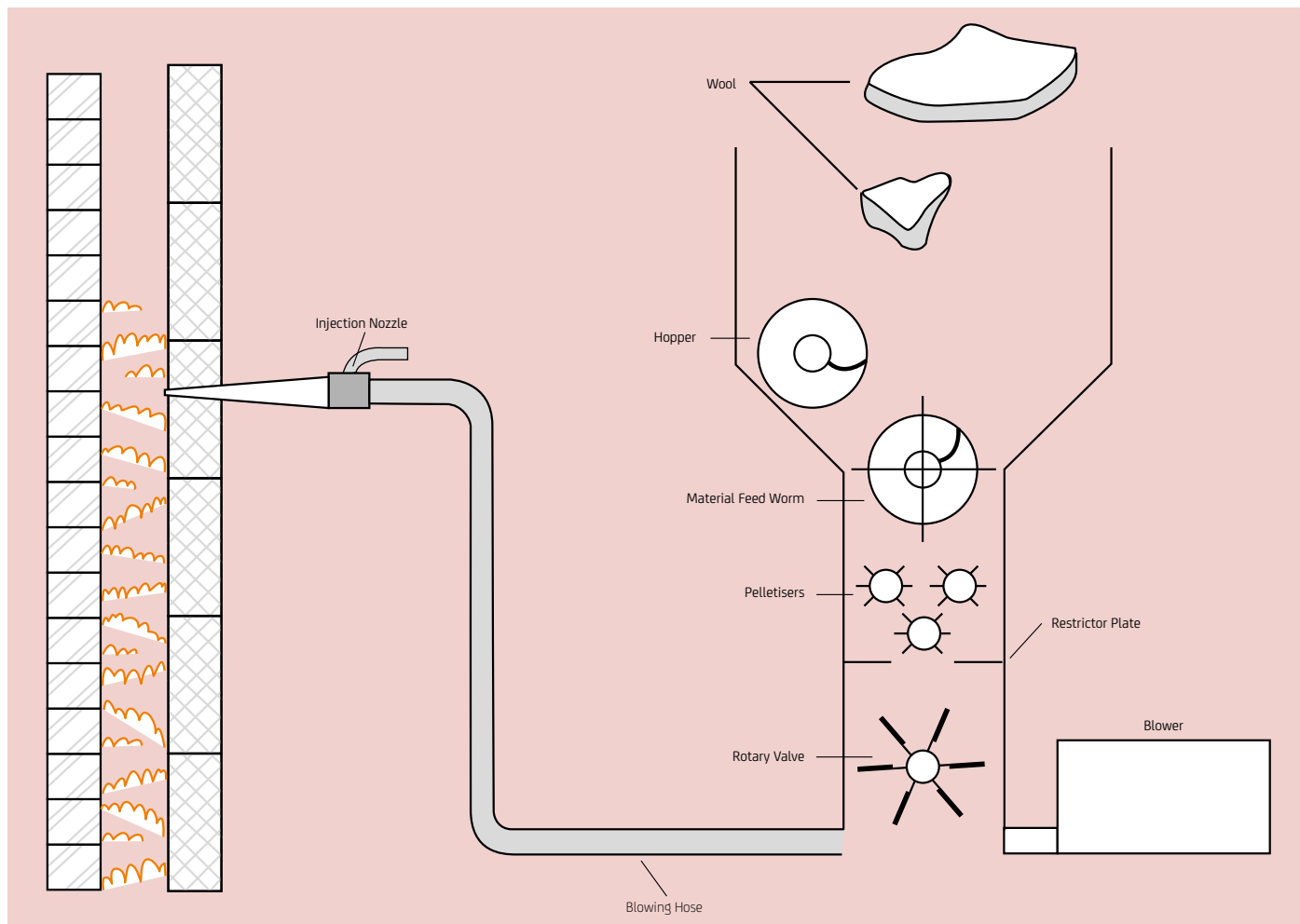
- Stewart Energy Electric 500
- Stewart Energy Diesel 750
- Stewart Energy Diesel 1000
- Krendl KR 2300
- Peak Clipper (Electric)
- Peak Diesel
- TIMCO Compact
- TIMCO Standard

Each blowing machine is identified as being approved by a plate/label showing the BBA Certificate No. As far as the handling and treatment of SIG CWI 34 is concerned, the blowing machines are virtually identical.

The job of each piece of equipment is detailed below:

- The BALE BREAKER opens up the compressed bale of blowing wool.
- The WORM SCREW meters the blowing wool at a fixed rate.
- In the PELLETISING section, the wool length is reduced by the shredder bars and a pelleted form of the desired shape is given by circulation of the wool within the pelletising chamber.
- The adjustable RESTRICTOR PLATE at the base of the pelletising chamber controls the wool residence time in the chamber, which in turn controls the pellet characteristics to achieve the required installed density.
- As the processed insulation passes through the ROTARY VALVE it enters the airstream generated by the BLOWER and passes into the blowing hose and through the nozzle for delivery in to the cavity being insulated.
- A pressure switch is connected to the machine control circuits when actuated it causes the drive clutches to disengage thus stopping the blower and wool feed once the cavity wall area is filled to the required density.
- A dump/lift valve arrangement is fitted to all blowing machines and is used for fine control of the installed density.

Image showing installation in external wall



Quality Checks

1. Pressure Switch

A daily calibration check should be carried out to ensure that the blowing machine pressure switch is operating correctly.

Start the engine and insert the nozzle into a hessian bag. Start blowing wool into the bag whilst watching the blowing pressure gauge. Block off the nozzle gently inside the bag. Blowing should cease when the gauge registers pre-determined cut-off pressure. (Refer to SIG Retrofit System Support Technical Systems Supervisor).

If necessary adjust the switch. To adjust, using a small screwdriver turn the screw in to increase the pressure and out to lower the pressure.



2. Wool Density Check

Start up machine and blow into a hessian bag. Ensure machine is operating correctly. Fill test box with wool and note time taken (between 15-35 seconds).

Check visually that box has been completely filled. Empty contents of box into a plastic bag and weigh-optimum weight for SIG CWI 34 density as follows:

Product	Weight (kg)	Installed density (kg/m ³)
SIG CWI 34	1.15	25

If weight is below optimum weight, close restrictor plate one quarter turn at a time, blow into bag to clear pelletiser and fill test box.

Re-check weight.

If weight is greater than optimum weight, open restrictor plate one quarter turn at a time (or reduce engine revs slightly). Blow into bag to clear pelletiser and refill test box.

Re-check weight.

Note:

The air dump valve fitted to the blowing machines should be used for fine control of the density.

To increase density-reduce air being dumped.

To reduce density-increase 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. Do not 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 fill. 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 tip of the nozzle is located in the pre-drilled hole. Nozzle rotation is not required.

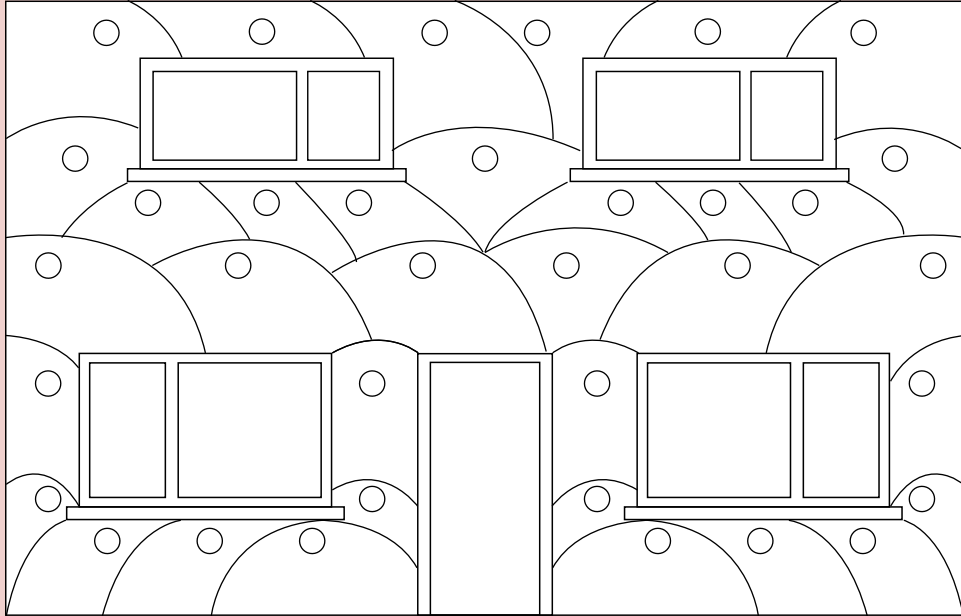
Once the blowing unit has started, the insulant will continue to flow at a steady rate until a signal from the pressure switch de-energises the clutches. This indicates that the part of the cavity adjacent to the injection hole is now filled to within the nominal density required.

Close ball valve on nozzle before removing from each injection hole.

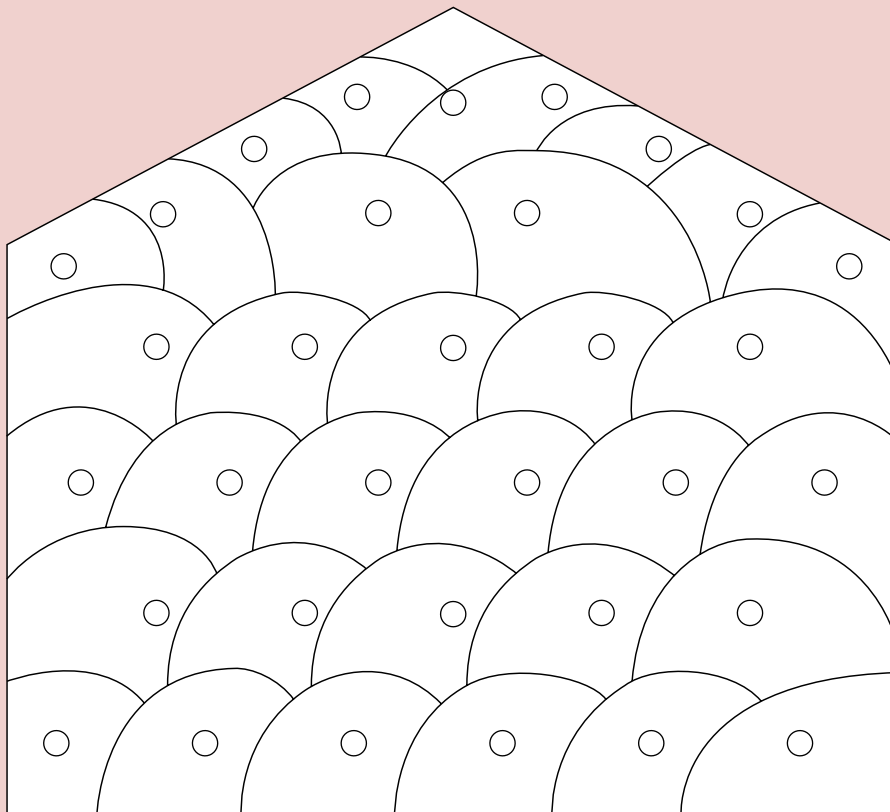
Once the nozzle has been moved to the next injection hole, open ball valve and injection of insulant can continue by activating the start switch.



Typical SIG CWI 34 insulant filling pattern-frontage



Typical SIG CWI 34 insulant filling pattern-plain gable end



Installed Density Checks

The wool to be used has been subjected to strict quality control procedures during manufacture and it is necessary to check that it has been kept clean and dry.

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

For example:

SIG CWI 34

Gross area of walls	185m ²			
Less openings	30m ²			
Net area	155m ²			
Average cavity width	100mm = 0.1			
Volume of cavity	155m ² x 0.1	=	15.5m ³	
No of SIG CWI 34 bags used	= 25 x 15.5kg	=	387.5kg	
			15.5m ³	= 25kg/m ³

Cavity widths can vary considerably within one building. Therefore at least ten cavity width measurements should be made at various heights in the building (cavity widths can tend to vary the greater distance from ground level).

Note:

For an average density of 25kg/m³ the following coverage can be obtained.

Cavity width-mm	90	95	100	125	150
Coverage-m²/bale	6.9	6.5	6.2	5.0	4.1



Making Good

The importance of making good after the installation cannot be overemphasised. 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 good while the next hole is filling. It is important to ensure that the entire hole is filled to leave no small gaps in order to prevent the transmission of noise.

Clearing Up

Ensure any excess material is swept up and disposed of in the appropriate manner to ensure the site is left clean and tidy as you found it.



Customer Complaints

Complaint Procedures

In the event of an approved installing company receiving a customer complaint, the following procedure should be adopted:

- a) The customer shall be contacted within 24 hours of the complaint and any problems or defects identified or associated with the works shall be responded to within five working days.
- b) All complaints are to be resolved within 6 weeks of the complaint being received with the corrective actions recorded, and a full written record of all communications with all parties regarding the matter to be kept on file.
- c) Where a complaint is not resolved within 6 weeks then SIG Retrofit System Support must be informed of the reasons why, and appropriate action will then be taken to resolve the matter.

All customer concerns or enquiries must be dealt with in a proactive manner, with the intention of resolving any customer concern as quickly as possible to the customer's satisfaction.

Damage Caused During Installation

If any damage is caused to the property however small, every effort should be made to rectify the problem before leaving site. In the event of the problem not being resolved the Technician must inform his company immediately and inform the customer that the matter will be dealt with appropriately.

In all cases you should record any complaint made by the customer and inform your company as soon as possible.

Rectification Procedures

In the event of having to carry out any rectification measures to resolve a complaint you must:

- a) Carry copies of the documentation specifying the remedial action required.
- b) Ensure you have all equipment and materials to carry out the remedial works.
- c) On arrival introduce yourself to the customer and confirm what you are there to do.
- d) Be courteous to the customer at all times.
- e) Do not get drawn into any conflict with the customer, refer any issues to your company immediately.
- f) Carry out all remedial works in a professional manner.
- g) Clean up and remove debris etc. from site to the customer's satisfaction.
- h) Ensure that the customer is satisfied and where possible obtain a signature of satisfaction before leaving site.

Survey Report Form

For buildings under construction, before installation of cavity wall insulation.

Installer's job reference: _____
Job allocated to: _____
Date of proposed installation: _____
Client: _____
Client's order no: _____
House type or drawing reference: _____
Plot number: _____
Site address: _____

To be installed according to Agrément Certificate No: _____
Special instructions to Surveyor and/or Operative: _____

Details of Building to be Insulated

Detached/semi pair/terrace/other-specify: _____
Expected cavity wall area to be filled: _____ sq.m.
Design width of cavity: _____ mm.
Internal/external filling: _____
Areas of external cavity wall to remain uninsulated: _____
Expected party wall area to be filled: _____ sq.m.
Design width of party wall cavity: _____ mm.

Construction

Type of brick: _____
Type of wall tie: _____
Number of flues on outside walls: _____
Mortar joints filled to external face, with weathered, bucket handle or birdsmouth jointing: Yes No
Measured width of cavity: _____ mm.
Height of building: _____ m.
Measured area of CWI: _____ sq.m.
Roof complete: Yes No
Cavity sealed at windows: Yes No
Airbricks sealed: Yes No
Weep holes to lintels: Yes No
Dpc free of significant mortar build-up: Yes No
Cavity ties free of significant mortar extrusions: Yes No
Exposure of building satisfactory: Yes No

Remedial works required before installation: _____

Remedial works to be undertaken by: Client/Installer

Note: The installation cannot be undertaken unless all answers are 'Y' (yes) or the remedial works have been completed. The Operative shall document any remedial works he/she undertakes before, or during installation.

Surveyor's declaration

I confirm that I have inspected the building, according to Agrément Certificate Number _____ / _____ and the requirements of the BBA as far as can be practically determined from the visible construction, the building is suitable for installation.

Name: _____

Signature: _____

Date: _____

Site Agent: _____

I acknowledge receipt of the survey form and confirm that it is factual. I also confirm that the cavity walls have been built according to the applicable regulators and standards. The cavity walls have been inspected during construction. I am not aware of defects in the construction of the cavity walls.

Name: _____

Signature: _____

Date: _____

Operative's job record

Result of QC test(s): _____

Material used: _____

Special remarks (continue overleaf): _____

Name: _____

Signature: _____

Date: _____

Talk to the SIG Retrofit System Support team
to become part of our Installer Network.



www.sig360retrofit.co.uk

Tel 0844 5766 762

Email retrofit@sigplc.co.uk

Follow us on Twitter @SIGInsulation

SIG branded Insulation Systems are available through the SIG Insulation network.

Photography and copy contributed by Knauf Insulation.

Ref: Version 1 - Nov 2015
ID - 34222