





**2 Frame of reference**  
(continued)

- 20 CIGA Technician's guide to best practice: Flues, chimneys and combustion air ventilators, version 3.0, May 2006
- 21 Warmfill Ltd Training & Technical Manual, 8<sup>th</sup> edition, 2014-10-08
- 22 Warmfill Technical Brochure, Title: Super Silver and Silver bonded bead insulation
- 23 BDA Report The adequacy of fill of injected cavity wall insulation, 2016-09-08
- 24 Kiwa BDA Test Report 0236-C-16/1 Silver bead/F2300 (2122/1)/Super Silver/Sunpor (2122/2)/White bead/-(2122/3), 14 July 2016
- 25 NSAI - Irish Agrément Board Agrément 09/0191, revision June 2016
- 26 Technical Guidance Document B - Fire Safety, Building Regulations 2006, Department of the Environment, Heritage and Local Government, Ireland
- 27 FIW Certificate EZ-003.0-01/14, classification according to EN 13163 Annex E and EN 13172 Annex A, 30 July 2014

**Remark:** in the text of this document reference is made to these sources by adding the relevant reference number in superscript

**3 Independently assessed system characteristics of components used for critical functions\*\*)**

\*\*\*)The critical functions which apply to this section and section 4 are fire resistance, weatherproofing, durability and thermal insulation, as mentioned in Chapter 2.1, Technical Requirement R3 (Materials requirement) of the NHBC Standards<sup>2</sup>

**EPS beads, as installed**

- **Declared thermal conductivity**  $\lambda_{90/90}$  ( $W \cdot m^{-1} \cdot K^{-1}$ )<sup>15</sup>
  - Warmfill White : 0.039
  - Warmfill Silver : 0.033
  - Warmfill Super Silver : 0.032
- Density
  - mean value after installation ( $kg \cdot m^{-3}$ ) : 12
  - variation, when measured over an area of 0.5 m<sup>2</sup> ( $kg \cdot m^{-3}$ ) :  $\pm 2$
- **Resistance to moisture** (BS EN 1609<sup>16</sup>)<sup>24</sup> ( $kg \cdot m^{-2}$ )
  - Warmfill White : 0.55
  - Warmfill Silver : 0.53
  - Warmfill Super Silver : 0.80

These low figures ( $< 1 \text{ mm} \cdot \text{m}^{-2}$ ) mean that the systems do not allow water to cross the cavity from the inner leaf to the outer leaf via the insulation. In the exceptional case that water would penetrate the outer leaf, this water will drain down the cavity face of the outer leaf.

- **Fire resistance performance of timber framed wall assembly**<sup>17</sup>  
The evaluation of a specimen of an asymmetrical, load-bearing timber framed wall assembly incorporating a 150 mm cavity, filled with blown-in Warmfill EPS beads against the requirements of BS EN 1365-1:1999 showed that the specimen satisfied the requirements of the periods stated in table 1.

*Table 1 - Fire resistance of timber framed wall assembly incorporating a 150 mm cavity, filled with blown-in Warmfill EPS beads<sup>17</sup>*

Aspects		Period (min)
Load bearing capacity		54*
Integrity performance	Sustained flaming	53
	Gap Gauge	54*
	Cotton Pad	53
Insulation performance		53

\* The test duration. The test was discontinued after a period of 54 minutes

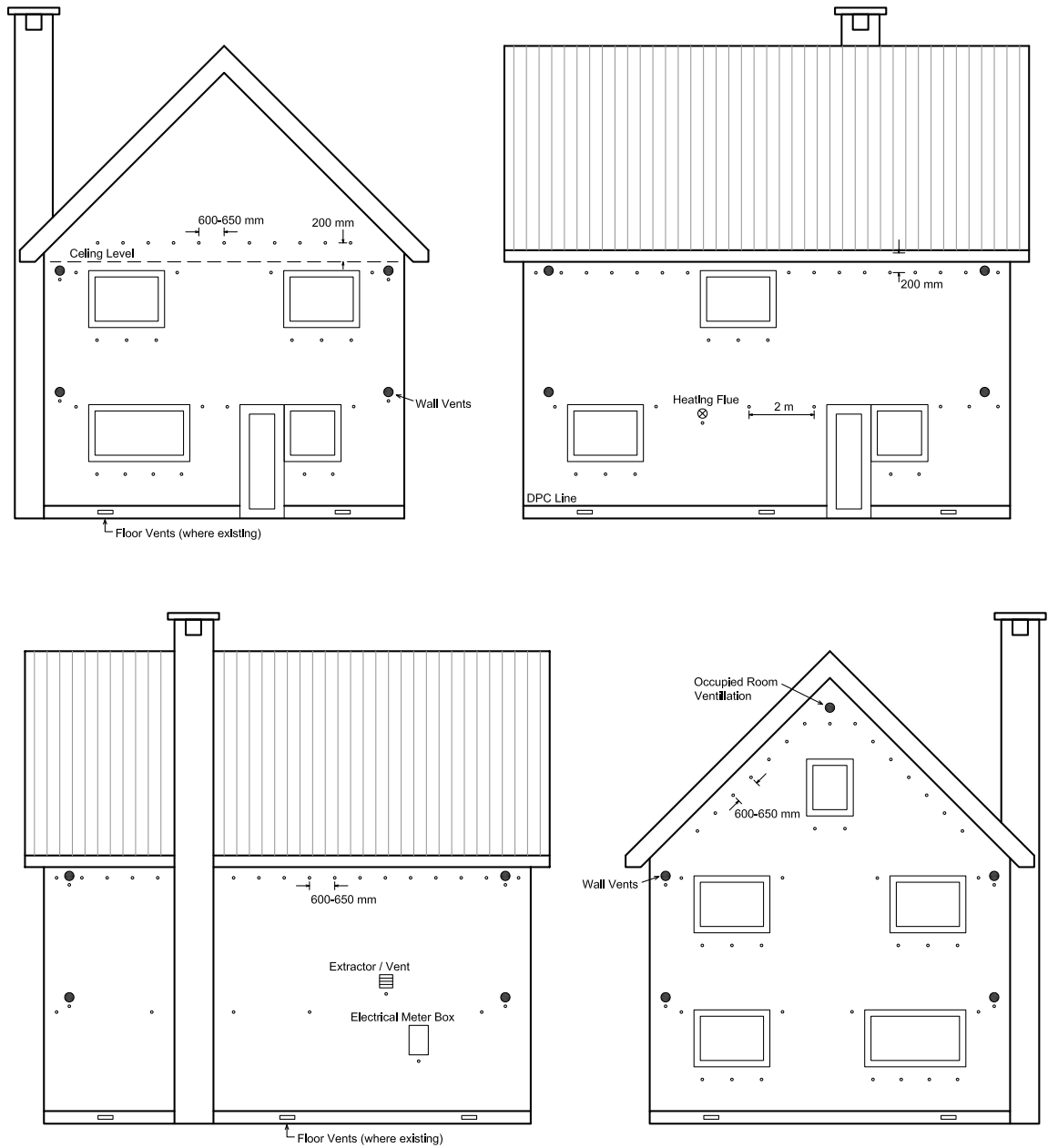
- **Reaction to fire classification**  
- Warmfill White, Silver and Super Silver<sup>27</sup> : Euroclass E
- **Adequacy of fill using compressed air and fan system**  
The adequacy of fill of cavity walls with the Warmfill Insulation Systems has been investigated extensively by BRE Scotland<sup>14</sup>. Important factors of the research were:
  - The capacity of the applied system to fill a hard to fill cavity designed as a sample of those built between 1955 and 1975.

<p><b>3 Independently assessed system characteristics of components used for critical functions **)</b> (continued)</p>	<ul style="list-style-type: none"> <li>- The ability of the system to fill a domestic cavity above a conservatory and behind cladding where drilling is difficult and therefore access to the cavity is restricted.</li> </ul> <p>With respect to the Fill Test the conclusions of BRE were:</p> <ul style="list-style-type: none"> <li>- <i>The most difficult to fill area in the rig (the area assumed to be located over a conservatory where no drilling or injection is permitted) was well filled at eaves level and the only minor flaw in this area occurred at window sill level in the centre of the area.</i></li> <li>- <i>Overall, this test should be classed as successful with the majority of the cavity in the test house filled to a level which permits the insulation to operate as designed, in terms of filling the physical space.</i></li> </ul> <p><b>Remark:</b> these conclusions attune very well with the observations of Kiwa BDA during the visits to projects with on-going site installations<sup>23</sup></p>
<p><b>4 Factory Production Control (FPC)</b></p>	<p>Kiwa N.V., Technical Assessment Body, represented by Kiwa Ltd. has determined that Warmfill Ltd., with respect to the Warmfill Cavity Wall Insulation® Systems fulfills all provisions concerning the specifications described in this Agrément. The FPC audit conducted on the 16<sup>th</sup> June 2016<sup>12</sup> demonstrated that Warmfill operate an adequate quality control system for what is essentially just a two-part production process (the production of the expanded polystyrene is undertaken in two heating stages with a rest stage in between them) covering the aspects required by the BDA Agrément® and the BDA Agrément® Guideline<sup>1</sup>. FPC, document control and product testing were acceptable with evidence reviewed in support of the BDA Agrément® Guideline<sup>1</sup> requirements.</p> <p>Based on information provided during the audit / site inspection a positive recommendation is given for FPC certification and a BDA Agrément® for the Systems.</p>
<p><b>5 Quality Management System</b></p>	<p>Warmfill Ltd. operate an effective and well maintained Quality Management System (QMS). For the Index, Scope and Quality Policy Warmfill are certified to ISO 9001:2008 (BM TRADA Agrément of Registration No. 9898. Agrément valid from 23-09-2013). Furthermore they are certified to ISO 14001:2004 (BM TRADA Agrément of Registration No. 2317. Agrément valid from 23-09-2013) and OHSAS 18001:2007 (BM TRADA Agrément of Registration No. 752. Agrément valid from 23-09-2013).</p>
<p><b>6 Continuous surveillance</b></p>	<p>In order to demonstrate that the FPC is in conformity with the requirements of the technical specification described in this Agrément the continuous surveillance, assessment and approval of the FPC will be done in a frequency of not less than once per year by Kiwa Ltd.</p>
<p><b>7 Points of attention for the specifier</b></p>	<ol style="list-style-type: none"> <li><b>1 Permitted applications</b> <ul style="list-style-type: none"> <li>- only applications designed according to the specifications as given in this Agrément are allowed under this Agrément; in each case the specifier will have to co-operate closely with the Agrément holder;</li> <li>- the systems can also be installed into party walls in accordance with figure 3 of this Agrément.</li> </ul> </li> <li><b>2 Existing buildings</b> <ul style="list-style-type: none"> <li>- existing buildings shall be assessed in accordance with section 1.2 of this Agrément; in addition the requirements of Warmfill Ltd. Installation Manual must be referenced during this assessment process;</li> <li>- this includes the mandatory use of a borescope at a number of locations on each wall to be filled, to assess the condition of the inner faces of the masonry and to ensure a clear void exists; the findings of this survey shall be recorded on the assessment survey sheet; additional borescope inspection are required for residual fill applications; see section 9.3.3 of this Agrément.</li> </ul> </li> <li><b>3 New buildings</b> <ul style="list-style-type: none"> <li>- for new buildings a borescope inspection shall be performed as identified in section 7.2; additional borescope inspections are required for residual fill applications; see section 9.3.1 of this Agrément.</li> </ul> </li> <li><b>4 Building physics - general</b> <ul style="list-style-type: none"> <li>- the building physical behaviour of walls incorporating a Warmfill Cavity Wall Insulation® Systems shall be verified as suitable by a specialist; the specialist can be either a qualified employee of the specifier or a qualified consultant; the qualified person will check the building physical behaviour of the designed external wall construction and if need be, advise about improvement to achieve the final specification; it is recommended that he would cooperate closely with the Agrément holder.</li> </ul> </li> </ol>
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<p><b>7 Points of attention for the specifier</b> (continued)</p>	<p><b>5 Thermal performance aspects</b></p> <ul style="list-style-type: none"> <li>- for the purpose of U-value calculations and to determine if the requirements of the Building (or other statutory) Regulations are met, the thermal resistances of the constructions shall be calculated according to BS EN ISO 6946<sup>3</sup>, BR443<sup>4</sup>, and BS 5250<sup>5</sup> as appropriate;</li> <li>- the Agrément holder can provide a service to provide for U-value calculations and other building physical aspects;</li> <li>- the requirement for limiting the heat loss through the building fabric, including the effect of thermal bridging can be satisfied if the U-values of the building elements do not exceed the maximum values in the relevant Elemental Methods given in the National Building Regulations of England (Approved Document L), Wales (Approved Document L), Scotland (Technical Standards Regulations 9), Northern Ireland (Technical Booklet F) and Ireland (Approved Document L); further information on Building Regulations is given in section 10 of this Agrément.</li> </ul> <p><b>6 Condensation risk</b></p> <ul style="list-style-type: none"> <li>- external walls incorporating the systems will adequately limit the risk of interstitial condensation when designed in accordance with BS 5250<sup>5</sup>; a condensation risk analysis shall be completed at design stage;</li> <li>- to help minimise the risk of interstitial condensation, provision for adequate through-ventilation in the form of ventilation openings shall be provided in two opposing external walls; the ventilation openings shall be not less than 1500 mm<sup>2</sup> • m<sup>-1</sup> run of external wall or 500 mm<sup>2</sup> • m<sup>-2</sup> of wall area, whichever is the greater; where pipes are used to carry ventilating air, these shall be at least 100 mm in diameter.</li> </ul> <p><b>7 Combustion air ventilation requirements</b></p> <ul style="list-style-type: none"> <li>- if a combustion air ventilator is required, one must be fitted before the installer can proceed with the cavity wall insulation (CWI);</li> <li>- CWI shall not be installed unless the installer can gain entry to the property, and is able to complete all of the necessary checks. The actual installation is a relatively simple operation, but the installer shall carry out your pre- and post-installation checks correctly, or would otherwise put the occupants in real danger. If due to the installation of CWI the combustion air ventilators or flues of fuel-burning appliances would be blocked, there is a risk of someone becoming ill or dying of carbon monoxide poisoning;</li> <li>- the CIGA (Cavity Insulation Guarantee Agency) <i>Technician's guide to best practice: Flues, chimneys and combustion air ventilators</i><sup>20</sup> gives extensive information about the measures to be taken to ensure that the performance of fuel-burning appliances is not adversely affected by the installation of CWI;</li> <li>- to attain a level of competence, technicians must have successfully completed a training course covering all checks and inspections referred to in this guide; training centres shall be equipped to carry out practical smoke and spillage testing.</li> </ul> <p><b>Legal requirements</b></p> <ul style="list-style-type: none"> <li>- The main legal requirements for protection of the public and employees are the general provisions of the Health and Safety at Work Act 1974, and related legislation, including the Management of Health and Safety at Work Regulations 1999; further information can be found in the CIGA Technician's guide<sup>20</sup>.</li> </ul> <p><b>8 Maintenance and consulting service</b></p> <ul style="list-style-type: none"> <li>- once installed strictly in accordance with the requirements of this Agrément and of the Agrément holder, the system components are within the wall structure, therefore do not require maintenance;</li> <li>- the Agrément holder can provide a technical consulting service for calculations and installation advice.</li> </ul> <p><b>9 Durability</b></p> <ul style="list-style-type: none"> <li>- once installed the bonded EPS beads are protected in service from agents liable to cause deterioration and will be effective as insulation for the life of the building in which they are installed.</li> </ul>	
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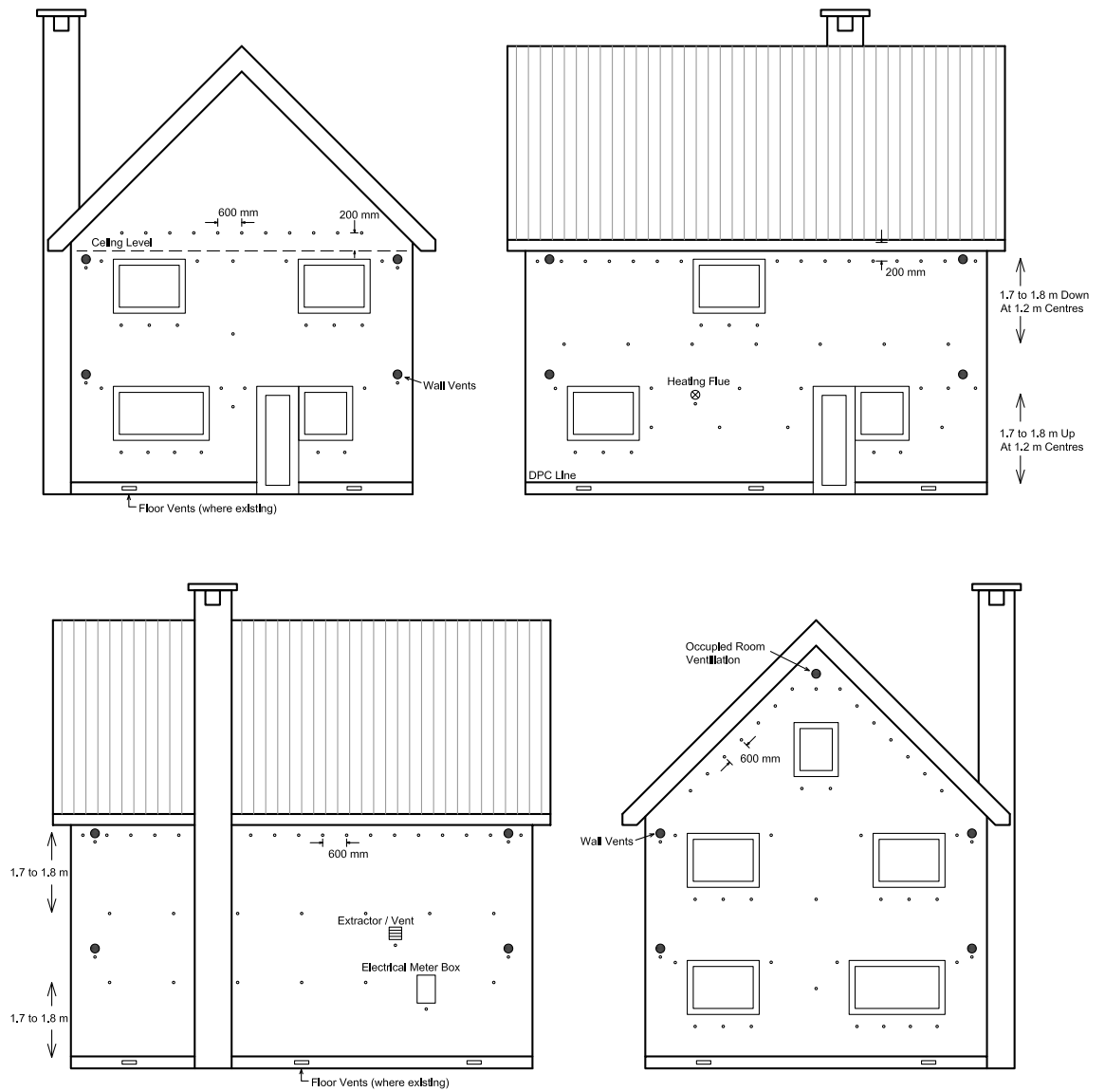
**8 Typical drill patterns**

*Figure 1 - Typical Warmfill hole drilling pattern in a Detached Dwelling - new and existing buildings without existing partial fill insulation in cavity*



**8 Typical drill patterns (continued)**

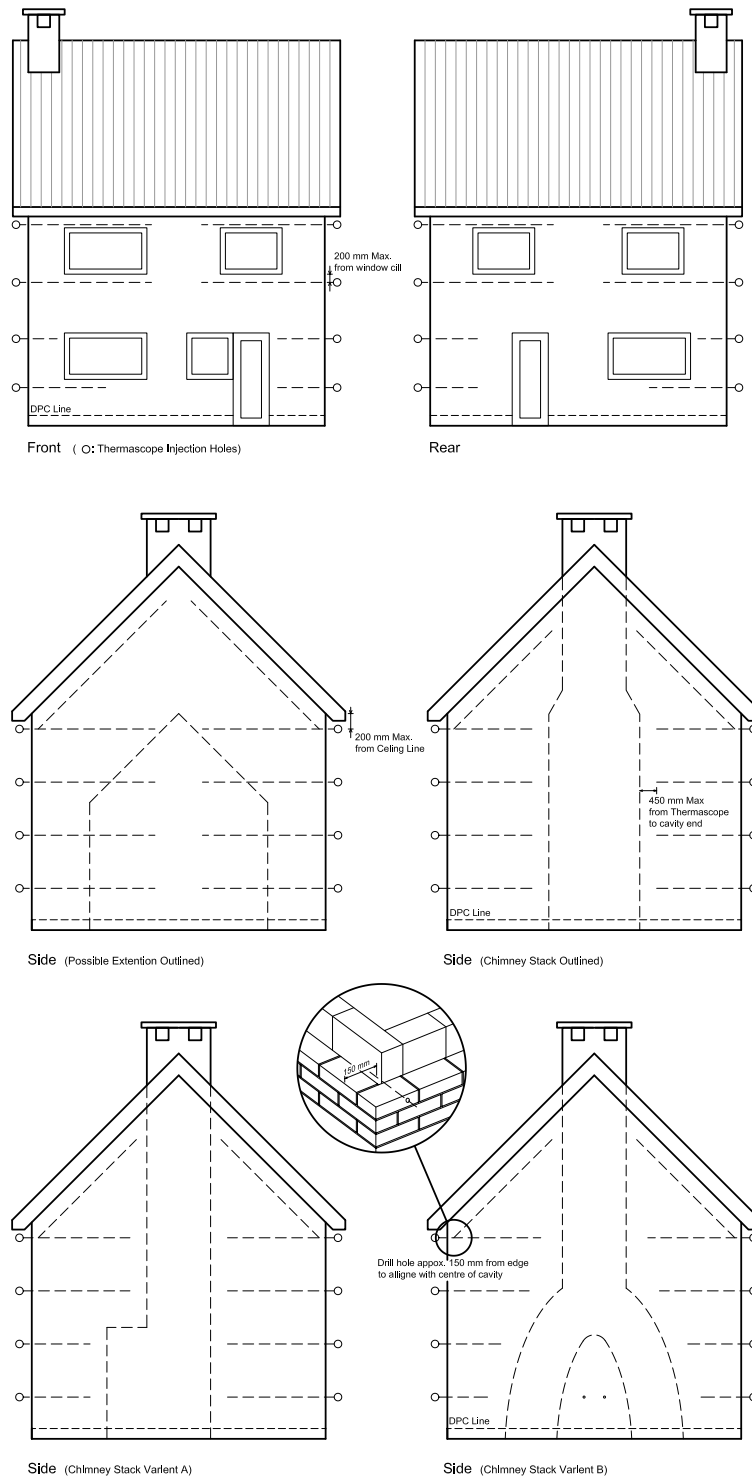
Figure 2 - Typical Warmfill hole drilling pattern in a Detached Dwelling for Residual Fill Application - New and existing buildings with existing partial fill insulation in cavity



Drill Pattern to be continued on all walls unless over written by the drill pattern associated with windows & doors

**8 Typical drill patterns (continued)**

Figure 3 - Warmfill Lance System - hole drilling/filling pattern - only for existing cavities above hard to reach areas and party walls



**9 Installation procedure**

**1 General**

- installation of Warmfill Cavity Wall Insulation® Systems and ancillary items shall be in accordance with the Agrément holder's requirements<sup>21</sup> and current good building practice;
- details of the system materials are given in section 3 of this Agrément.

**2 Delivery and site handling**

- the EPS beads are packed in polythene sacks or bulk containers, marked with the BDA ECBE logo including the number of this Agrément. The packaging is otherwise unprotected. Therefore, care shall be taken during transit and storage to avoid damage. The EPS beads have an indefinite storage life, but should be kept dry;
- the bonding agent is delivered in containers, marked with the BDA ECBE logo including the number of this Agrément; the containers should be kept frost-free and out of direct sunlight .



<p><b>9 Installation procedure</b> (continued)</p>	<p><b>3 Operation on site<sup>21</sup></b></p> <p><b>3.1 Safety precautions</b></p> <ul style="list-style-type: none"> <li>- to carry out work at heights above that reached from ground level, access may be by ladder, fixed or mobile scaffold, suspended platform or hydraulic platform; hence suitable precautions must be taken to avoid falling; use of safety harness and ladder support must be used; see CIGA guidance on Working at Height;</li> <li>- even though access to any given point is often for only a very short time, the simple and basic requirements for ensuring the technician has a safe place of work must not be neglected;</li> <li>- on arrival at the site a thorough inspection of the building must be made before any work is started; the general condition of the building should be examined to ensure that it is free from cracks, frost damage and damp penetration;</li> <li>- Risk Assessments must be double checked before starting work; all equipment to be checked before use especially H&amp;S equipment, harnesses and support straps etc.</li> </ul> <p><b>3.2 Preparation of the building</b></p> <ul style="list-style-type: none"> <li>- gable end cavities are not normally filled unless specifically requested by the client or include a 'room in the loft'; in these cases gable tops are checked to ensure that the mortar joints on the block work are an effective seal; if not, the necessary remedial works must be carried out to ensure that the bead cannot escape in to the loft area;</li> <li>- all openings in the inner or outer leaf of walls shall be checked to ensure that they are correctly sealed, with particular attention being given to electricity and gas meter boxes; any defects found should be dealt with using the appropriate material.</li> </ul> <p><b>3.3 New and existing buildings without existing partial fill in cavity</b></p> <ul style="list-style-type: none"> <li>- a typical drilling pattern is shown in figure 1 and 2.</li> </ul> <p><b>3.4 New and existing buildings with existing partial fill in cavity</b></p> <ul style="list-style-type: none"> <li>- the bead may be used to fill partially filled cavities (residual cavities) where the existing insulation against the inner leaf is either mineral wool (MW) batts, expanded polystyrene (EPS) boards or foil faced polyisocyanurate (PIR), polyurethane (PUR) or phenolic (PF) boards; the minimum residual cavity shall not be less than 40 mm;</li> <li>- a typical drilling pattern is shown in figure 2;</li> <li>- each building is subject to two borescope inspections surveys, one performed by the Site Surveyor (on a minimum of two test holes per elevation) and a further more detailed survey (on <b>all</b> drill holes - see figure 2) by the installer during the installation phase; the findings of these surveys will determine the suitability of the building to be filled; details of the borescope inspection surveys shall be recorded on the Site Survey Record Sheet;</li> <li>- party or internal walls can be insulated using the systems and existing buildings can be installed using the lance system (see figure 3)</li> <li>- in addition, individual U-value calculations are required in residual fill applications with details of calculations (including existing insulation type and thickness) to be recorded on the Site Survey Record Sheet;</li> <li>- the above points are particularly important where the wall includes bridging features such as flue pipes, service boxes, waste pipes etc.; in these instances, additional documented borescope checks will be required.</li> </ul> <p><b>4 Drilling pattern (section 8, figures 1, 2 &amp; 3)</b></p> <ul style="list-style-type: none"> <li>- holes (22 mm or 26 mm diameter) are normally drilled in the outer leaf (with new buildings it can also be efficient to drill through the inner leaf, see hereunder) of the external wall between bricks at the junction of the horizontal and vertical mortar joints; sufficient injection holes must be drilled to ensure that the cavity wall be completely filled; holes are to be drilled in accordance with the diagram shown;</li> <li>- if the gable end is not being filled holes are drilled 200 mm above the loft/ceiling line and 600 mm or 2.5 brick lengths apart; further holes are drilled between windows, doors and wall ends two brick courses below (150 mm) the underside of the lintels and not exceeding 2.5 brick lengths apart or 600 mm;</li> <li>- when permitted [generally in the case of buildings under construction] holes may be drilled through the inner leaf of the wall which will be either of brick or concrete block construction; the pattern of drilling as described above should be followed as closely as possible; inside drill holes shall be repointed after injection of bead;</li> <li>- where a rendered property is being insulated it is not possible to guarantee making good holes in mortar joints; therefore extra care must be taken when making good drilling holes and to avoid excessive damage to the rendering.</li> </ul>	
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## 9 Installation procedure (continued)

### 5 Partial filling

- partial filling to the lower gable level (about 300 mm above ceiling level) is permitted provided the top of the wall is protected by the roof, the roof void is not an occupied space and loft insulation is at ceiling level;
- partial filling is also allowed when:
  - semi-detached or terraced properties are to be insulated and separated using a cavity brush
  - filling is required up to the underside of a horizontal boundary, other than the roof and this horizontal boundary is protected by a cavity tray or a similar waterproof barrier
  - filling is to be installed above a horizontal boundary
  - the wall which is to be insulated is below a waterproof cladding and this cladding either extends up to the roof or is protected at the top by other means
- partial fill assessments and installations shall be done according to the requirements as given in the Warmfill Ltd Training & Technical Manual<sup>21</sup>.

### 6 Injection technique

- injection is accomplished by inserting the gun discharge pipe in to the appropriate filling hole and operating the valve levers; the air valve shall be opened first quickly followed by the adhesive valve; when the cavity is completely full, the bead flow stops and air blows back down the bead hose; immediately this happens the adhesive valve must be closed followed by the air valve; the gun is then removed from the wall and a visual check is made to ensure that the bead is visible and the fill firm; the gun is then transferred to the next appropriate hole and the process continues until all the cavity has been filled, filling from bottom to top of wall;
- further information about the injection technique as well as the injection sequence is given in the Warmfill Ltd Training & Technical Manual<sup>21</sup>.

### 7 The Warmfill Lance system

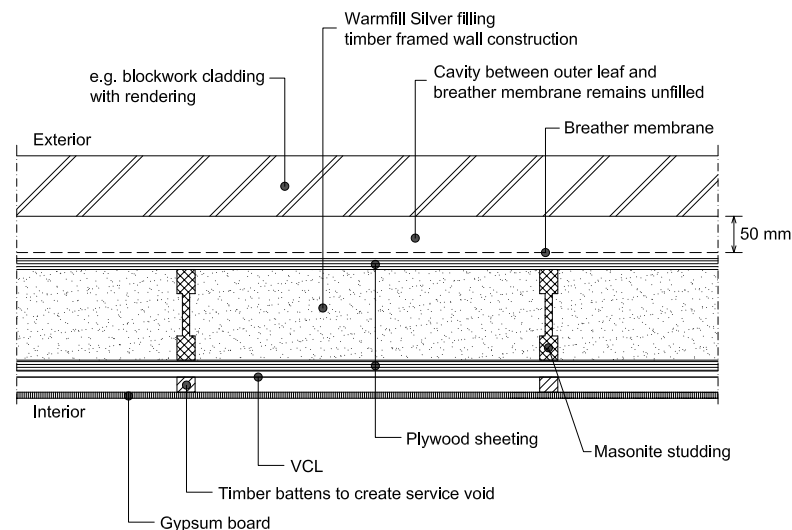
- the Warmfill Lance system may be used to inject the systems into existing cavities above hard to reach areas such as those above conservatories, tiled or cladded areas of a wall, without the use of additional access equipment; the lance system shall only be used after a thorough survey has been made of the hard to treat area, after the normal drilling and filling of the building is complete, and exclusively to fill the hard to treat area/s;
- a typical drilling pattern is shown in figure 3;
- borescope inspections shall be performed on all drilled holes to ensure the cavity is clear and suitable for filling; filling is performed starting at the lowest drilled hole, working upwards; as the wall is being filled from each drill hole, the lance can be withdrawn and the largest section of the lance can be removed; this method can also be used for party walls (figure 3);
- when filling is complete, the drill holes are to be filled to match the existing finish as closely as possible;
- further information about the lance technique is given in the Warmfill Ltd Training & Technical Manual<sup>21</sup>.

### 8 The Warmfill Silver Lining System - Timber Framed Panel Insulation

#### 8.1 Description

- in this system expanded polystyrene is blown in bead form simultaneously with a bonding agent between the timber studs of timber framed domestic and non-domestic buildings;
- the construction shall be designed and constructed to incorporate the common precautions against moisture ingress; this includes the provision of a weather resistant cladding as well as a ventilated and drained cavity between the cladding and a timber frame, as shown in figure 4.

Figure 4 - Warmfill Silver Lining System in typical timber framed construction



<p><b>9 Installation procedure</b> (continued)</p>	<p><b>8.2 Installation procedure</b></p> <ul style="list-style-type: none"> <li>- the installer shall provide all necessary hoses, drilling tools equipment and materials for finishing the walls properly after the installation of the system;</li> <li>- installation shall not be carried out unless the moisture content of the timber frame walls is less than 20%;</li> <li>- the beads and the bonding agent are to be blown into the timber frame wall voids at the correct material binder ratio through a flexible pipe, fitted with a suitable nozzle;</li> <li>- in cases where the blowing-in action causes penetration of the VCL or the breather membrane, this layer shall be repaired after the filling.</li> </ul> <p><b>8.3 Fire resistance</b></p> <ul style="list-style-type: none"> <li>- to ensure continuity of fire resistance at junctions with fire resisting elements, care shall be taken in accordance with the relevant provisions of TGD - B<sup>27</sup> to the Building Regulations (Ireland);</li> <li>- elements shall incorporate cavity barriers at edges, around openings, at junctions with fire resisting elements and in extensive cavities; the design and installation of cavity barriers shall take into account any anticipated differential movement;</li> <li>- information about the performance of the system with respect to fire resistance is given in section 3 of this Agrément and more specifically in table 1;</li> <li>- further information about the Warmfill Silver Lining System is given in the Warmfill Ltd Training &amp; Technical Manual<sup>21</sup>.</li> </ul>	
<p><b>10 Building Regulations</b></p>	<p><b>1 Requirements: The Building Regulations 2010 and subsequent amendments</b></p> <ul style="list-style-type: none"> <li>- B3(4) Internal fire spread (Structure) - walls filled with the systems meet this Requirement provided the wall complies with the conditions set out in section 9.8.3 of this Agrément;</li> <li>- C2(a) Resistance to moisture - the systems do not absorb water by capillary action and may therefore be used in situations where it bridges the damp proof course (DPC) of the inner and outer leaf; in the exceptional case that water would penetrate the outer leaf, this water will drain down the cavity face of the outer leaf. See section 3 of this Agrément;</li> <li>- C2(b) Resistance to moisture - a wall incorporating the product can resist rain penetration and satisfy this Requirement. See section 3 of this Agrément;</li> <li>- C2(c) Resistance to moisture - the systems can contribute to satisfying this Requirement. See section 7.6 of this Agrément;</li> <li>- L1(a)(i) Conservation of fuel and power - the systems can contribute to meeting this Requirement. See sections 7.4 and 7.5 of this Agrément;</li> <li>- Regulation 7 Materials and workmanship - the Warmfill Cavity Wall Insulation<sup>®</sup> Systems are manufactured from suitably safe and durable materials for their application and can be installed to give a satisfactory performance, see section 9 of this Agrément;</li> <li>- Regulation 26 - (O) - CO<sub>2</sub> emission rates for new buildings and <ul style="list-style-type: none"> <li>- (A) - Fabric energy efficiency rates for new dwellings</li> <li>- the systems will contribute to satisfying these Regulations; see sections 7.4, 7.5 and 7.7 of this Agrément.</li> </ul> </li> </ul> <p><b>2 Requirements: The Building (Amendment) Regulations 2014 (Wales) and subsequent amendments</b></p> <ul style="list-style-type: none"> <li>- C2(a) Resistance to moisture - the systems do not absorb water by capillary action and may therefore be used in situations where it bridges the damp proof course (DPC) of the inner and outer leaf; In the exceptional case that water would penetrate the outer leaf, this water will drain down the cavity face of the outer leaf. See section 3 of this Agrément;</li> <li>- C2(b) Resistance to moisture - a wall incorporating the product can resist rain penetration and satisfy this Requirement. See section 3 of this Agrément;</li> <li>- C2(c) Resistance to moisture - the systems can contribute to satisfying this Requirement. See section 7.6 of this Agrément;</li> <li>- L1(a)(i) Conservation of fuel and power - the systems can contribute to meeting this Requirement. See sections 7.4 and 7.5 of this Agrément;</li> <li>- Regulation 7 Materials and workmanship - the Warmfill Cavity Wall Insulation<sup>®</sup> Systems are manufactured from suitably safe and durable materials for their application and can be installed to give a satisfactory performance, see section 9 of this Agrément;</li> <li>- Regulation 26 - (O) - CO<sub>2</sub> emission rates for new buildings and <ul style="list-style-type: none"> <li>- (A) - Fabric energy efficiency rates for new dwellings</li> <li>- the systems will contribute to satisfying these Regulations; see sections 7.4, 7.5 and 7.7 of this Agrément.</li> </ul> </li> </ul> <p><b>3 Requirements: The Building Regulations 2004 (Scotland) and subsequent amendments</b></p> <p><b>3.1 Regulations 8 (1)(2) Durability of materials and workmanship</b></p> <ul style="list-style-type: none"> <li>- the Warmfill Cavity Wall Insulation<sup>®</sup> Systems are manufactured from acceptable materials and are considered to be adequately resistant to deterioration and wear under normal service conditions, provided they are installed in accordance with the requirements of this Agrément, see section 9 of this Agrément.</li> </ul>	
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<p><b>10 Building Regulations</b> (continued)</p>	<p><b>3.2 Regulation 9 Building Standards - Construction</b></p> <ul style="list-style-type: none"> <li>- 2.6 Fire spread to neighbouring buildings - the materials of the systems are combustible but may be used in walls of buildings in accordance with the exceptions permitted in this standard with reference to the clauses 2.6.5 (Domestic) and 2.6.6 (Non-Domestic) of the Technical Handbooks, see section 9.8.3 of this Agrément;</li> <li>- 3.4 Moisture from the ground - the systems can contribute to a construction satisfying this standard with reference to clause 3.4.1 of the Technical Handbooks; the systems can be used in situations where it bridges the DPC of the inner and outer leaf. See section 3 of this Agrément;</li> <li>- 3.10 Precipitation - the systems will contribute to satisfying this standard with reference to clause 3.10.1 of the Technical Handbook (Domestic) provided it complies with the conditions set out in section 1.2 of this Agrément. See also section 3 of this Agrément.</li> <li>- 3.15 Condensation - the materials of the systems will contribute to limiting the risk of surface and interstitial condensation; see section 7.6 of this Agrément;</li> <li>- 6.1(b) Carbon dioxide emissions and 6.2 Building insulation envelope <ul style="list-style-type: none"> <li>- the systems will contribute to satisfying the requirements of these Standards; see sections 7.4, 7.5 and 7.7 of this Agrément;</li> </ul> </li> <li>- 7.1(a)(b) Statement of sustainability - the materials of the systems can contribute to satisfying the relevant Requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard; in addition, the systems can contribute to a construction meeting a higher level of sustainability as defined in this Standard; see sections 7.4, 7.5 and 7.7 of this Agrément.</li> </ul> <p><b>3.3 Regulation 12 Building Standards-Conversions</b></p> <p>All comments given for the Warmfill Cavity Wall Insulation® Systems under Regulation 9 also apply to this Regulation, with reference to clause 0.12 and Schedule 6 of this Standard.</p> <p><b>4 Requirements: The Building Regulations 2012 (Northern Ireland) and subsequent amendments</b></p> <ul style="list-style-type: none"> <li>- 23(a)(i)(iii)(b) Fitness of materials and workmanship - the Warmfill Cavity Wall Insulation® Systems are manufactured from materials which are considered to be suitably safe and acceptable for use as thermal insulation as described in sections 7 and 9 of this Agrément;</li> <li>- 28 Resistance to moisture and weather - the Warmfill Cavity Wall Insulation® Systems can be constructed so as to prevent any harmful effect on the building or the health of the occupants caused by the passage of moisture to any part of the building from (a) the ground and (b) the weather;</li> <li>- 29 Condensation - the systems will contribute to limiting the risk of surface and interstitial condensation; see section 7.6 of this Agrément;</li> <li>- 39(a)(i) Conservation measures and 40(2) Target carbon dioxide emission rate <ul style="list-style-type: none"> <li>- the systems will contribute to satisfying the requirements of these Standards; see sections 7.4, 7.5 and 7.7 of this Agrément.</li> </ul> </li> </ul> <p><b>5 Requirements: The Building Regulations 1997 to 2014 (Ireland)<sup>25</sup></b></p> <ul style="list-style-type: none"> <li>- in order to demonstrate compliance with Irish Building Regulations the BDA Agrément® certifies that the system complies with the requirements of a recognized document and indicates it is suitable for its intended purpose and use;</li> <li>- B3 Internal fire spread (structure) - when used in accordance with this Agrément, the Warmfill Cavity Wall Insulation® and Warmfill Silver Lining Systems will meet the relevant requirements of TGD Part B326. See also Section 9.8.3 of this Agrément;</li> <li>- C4 Resistance to weather and ground moisture - the Warmfill Cavity Wall Insulation® and Silver Lining Systems, when installed in accordance with this Agrément, can meet the relevant requirements of TGD Part C4 of the Irish Building Regulations. See also section 3 of this Agrément;</li> <li>- D (D3/D1) Materials and workmanship - the Warmfill Cavity Wall Insulation® and Silver Lining Systems, when installed in accordance with this Agrément, can meet the relevant requirements of TGD Part C4 of the Irish Building Regulations, are manufactured from suitably safe and durable materials for their application and can be installed to give a satisfactory performance;</li> <li>- F1 Means of ventilation - the systems as assessed can be incorporated into structures that will meet the requirements of this Regulation. See also section 7.7 of this Agrément;</li> <li>- J3 Protection of building - the Warmfill Cavity Wall Insulation® and Silver Lining Systems, if used in accordance with this Agrément can meet the requirements of Part J;</li> <li>- L1 Conservation of fuel and energy - masonry external walls constructed or refurbished using Warmfill Cavity Wall Insulation® or Silver Lining Systems can be designed and constructed to meet current 'U-value' requirements.</li> </ul>	
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