

The CarbonLite Standards¹

Guidance for Certifiers v9 21/11/25

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For a full list of updates see Appendix 4. Throughout this document:

Red text indicates a change in a recent version 7 - 9 from 2025. See list in Appendix 4.

Grey text indicates guidance planned (but currently not yet in place), generally re the LEBD.

¹ Registered trademark: AECB CarbonLite™

Who is this guidance document for?

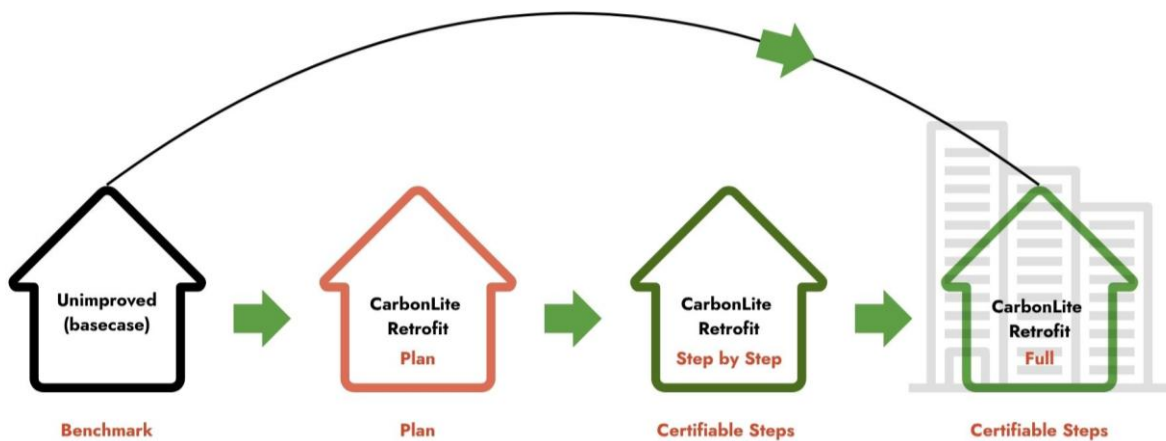
The guidance is primarily intended for AECB Approved Certifiers and Modellers.

Other resources

An introduction to the 'CarbonLite Standards' can be found online here: <https://aecb.net/the-aecb-carbonlite-standards/> - please do ensure you are familiar with this public facing information and share with *other relevant parties, such as clients and contractors*

Within this document are:

- [AECB Standards criteria summary table](#)
- [Example certificates](#)



Above: CarbonLite retrofit pathways

AECB Approved Roles in the Certification Process

The PHPP model has to be prepared by an Approved Modeller and certified by an Approved Certifier. To allow flexibility and to reflect the relative workloads you might offer:

- Certification only, Modelling only or both
- New build only, Retrofit only or both

Approved AECB Certifiers **fill out the Certification Spreadsheet and** use the export button and upload to the AECB Low Energy Building Database (LEBD).

Since Certifiers work closely with trained Approved Modellers, there should be few basic mistakes in models. However, certifiers should still be aware that the modeller may have had to go through many iterations of design, and errors may have crept in that way. It is left up to the judgement of the Certifier as whether to offer a PHPP model checking service.

- Modeller and Certifier can be the same person if registered for both services. **In that case they could "self-certify" their own project unless a buddy system is required.**
- 'approved' status is attached to the individual not the company
- refer to the [qualifications](#) page to change your status
- your Certified Passivhaus Designer/Consultant qualification doesn't have to be current, it can have expired.
- PHPP project files prepared by non-AECB Approved Modellers will have to be checked or rebuilt by an Approved Modeller.
- Since July 2024 CPDs are optional, certifiers have to pass a test to join the scheme

Trading Standards and Legal Considerations

The claim that a building is designed to an AECB Standard can be independently verified. Where a certificate is provided under this AECB certification scheme, the responsibility for certification rests with the certifier signing this certificate and not with the AECB.

The AECB reserves the right to recall any certificate in the event of proven malpractice or false claims and/or remove the project from the Low Energy Buildings Database.

It is the Certifiers responsibility to ensure that a project meets all the relevant criteria before awarding certification. If subsequent information makes the certification questionable, then any query must be resolved within 20 working days. The AECB reserves the right to withdraw a claim of compliance.

Records & GDPR

The AECB will retain electronic copies of such details as required to verify that a building meets the relevant AECB Standard. Only approved AECB Certifiers can certify projects, though others may use the LEBD Certification Spreadsheet without access to the certificate sheet (which is password protected).

The AECB is committed to protecting your privacy and will only use the information collected about you lawfully, in accordance with the Data Protection Act 1998 and the EU General Data Protection Regulation 2018. The AECB is recognised as the Data Controller for the purposes of this policy. By submitting information to the AECB you consent to the AECB using that information as set out in this policy. Any changes to this policy will be put in this document.

As a certifier you must be committed to ensuring that your clients privacy is protected. If they ask you to provide certain information by which they can be identified in the LEBD, then you can be assured that it will only be used in accordance with this privacy statement.

We may collect the name and contact information including email address.

What we do with the information we gather

You gather this information as records for certification. You must ensure that your client's information is secure. In order to prevent unauthorised access or disclosure, you must put in place suitable physical, electronic and managerial procedures to safeguard and secure the information you collect.

Controlling your personal information

You must not sell, distribute or lease the personal information to third parties unless you have permission or are required by law to do so. If you believe that any information we are holding on you is incorrect or incomplete, please write to or email us as soon as possible, at: 30 Linden Road, Earby, Barnoldswick, Lancashire, BB18 6NL
contactus@aecb.net

You must promptly correct any information found to be incorrect.

The use of photographs for certification

The only publicly available documents are the photographs you submit. They must not include faces which can identify a person or business, unless you have obtained permission for their use. If personal identifiers are discovered to be present on photographs for which no consent was obtained you must ask the provider to supply alternatives or mask the identifier in some way.

General Information relating to all CarbonLite Standards

Certification Costs

A modest submission fee is payable by the AECB Certifier to the AECB for certifying each project. This also contributes towards managing the AECB Low Energy Buildings Database on which certified projects are hosted, and carrying out Certifier training, CPD and QA for the scheme.

Certifiers pay the AECB:

- annual scheme membership fee to maintain membership, currently £60+VAT/yr
- a fee per certificate issued (further details in the section below),
 - a) £100+VAT per dwelling
 - b) £100+VAT per Dwelling Type and Energy Sub-type
 - c) £150+VAT per Building

Modellers only pay the annual membership, not the certificate fees.

Clients pay the certifier for his/her time and therefore the modelling/certification costs, quoted and contracted directly between Approved members of the scheme and their clients.

Legacy projects do not involve certifiers, fees are £50+VAT per unit for new build or £250+VAT per block if flats.

Per Dwelling

Some clients want each dwelling to be certified.

This is the most labour intensive but there may be good reason why this is the clients' preferred approach. Key characteristics of this approach:

- same methodology used for EPCs
- results in a certain amount of duplication
- can be the cheapest on small developments

Per Dwelling Type and Energy Sub-type

Terraces or flats with the same orientation (rather than detached homes),

At first glance all the dwellings of a particular type may look the same. But "energy sub-types" are often needed for slight variations in:

- energy, e.g. mid-terrace and end terrace units.
- exposure/sheltering
- orientation
- shading

This method is likely to be cheaper than Per Dwelling, but could still be fairly labour intensive for a diverse project where there are many dwelling types.

Per Building

Self-contained units contained within one continuous thermal envelope

Key characteristics of this approach are:

- reduced modelling (saved time)
- reduced evidence collation management (saved time)
- however, if a future home owner wanted an energy calculation for their specific dwelling, then that info cannot be obtained from the results, a completely separate model would be needed, with extra cost.

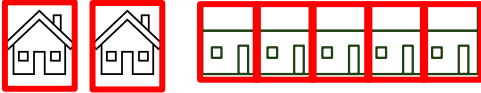
The house numbers for all the units in each building must be included in the project name which is included on the AECB certificate for that building.

For the AECB CarbonLite New Build Standard – illustration of AECB certification fees to be included in the Approved Certifiers' costs.

Example 1

certified under each of the potential 3 options:

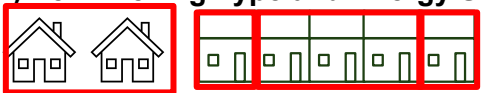
1) Per Dwelling



Fee: 7 @ £100 / certificate

Total Fee: £700 plus VAT

2) Per Dwelling Type and Energy Sub-type

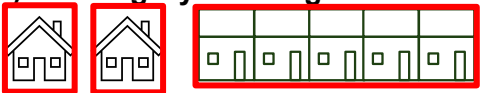


For simple developments,
per sub-type could be
cheapest

Fee: 4 @ £100 / certificate

Total Fee: £400 plus VAT

3) Building-By-Building



Fee: 3 @ £150 / certificate

Total Fee: £450 plus VAT

Example 2

Certified under each of the potential 3 options:

1) Per Dwelling

Number: 34

Assumed area: up to 250m²

Fee: @ £100 / certificate

Total Fee: £3,400 plus VAT

2) Per Dwelling Type and Energy Sub-type

Numbers:

- 1 Semi-detached

- 6 in block A1 (4 types of end-terrace, 2 types of mid-terrace)

- 5 in block A2 (2 types of GF apartments, 3 types of FF apartments)

- 2 other types of apartments

Total: 14 Dwelling Energy types

Assumed area: up to 250m²

Fee: @ £100 / certificate

Total Fee: £1400 plus VAT

3) Per Building

Number: 6

Assumed area: 251 – 1500m²

Fee: @ £150 / certificate

Where there are many
terraces, per building
could be cheapest

Total Fee: £900 plus VAT

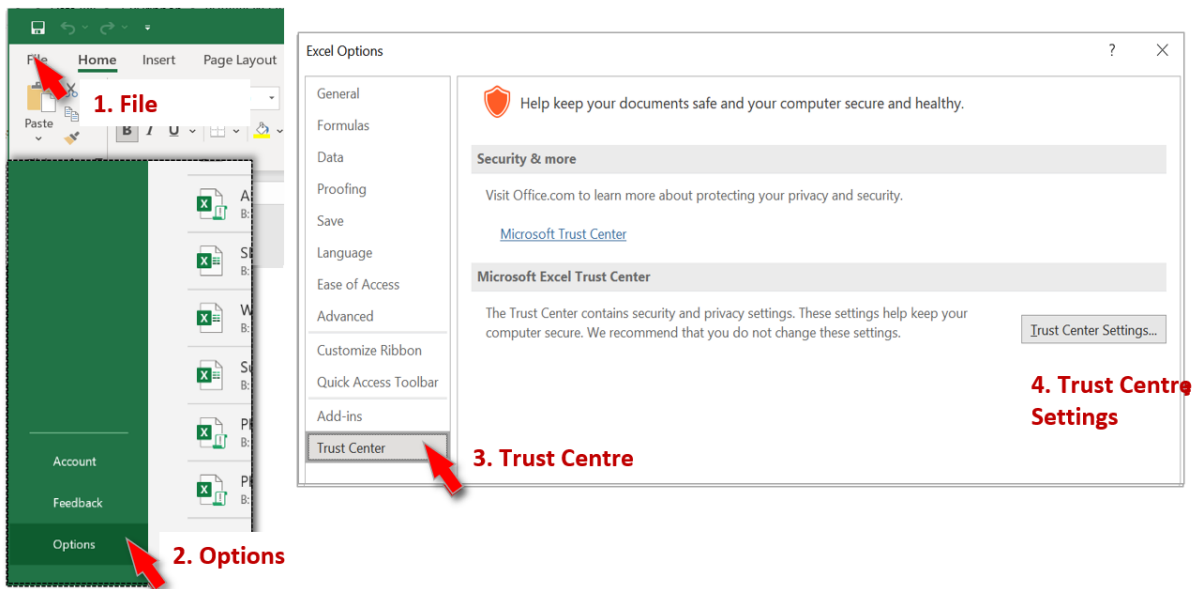
Requirements to Produce Certificates

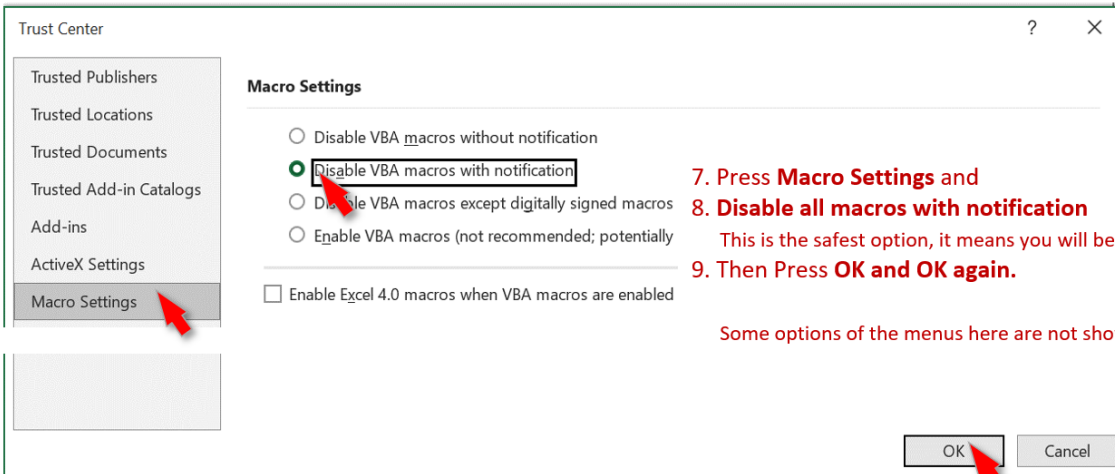
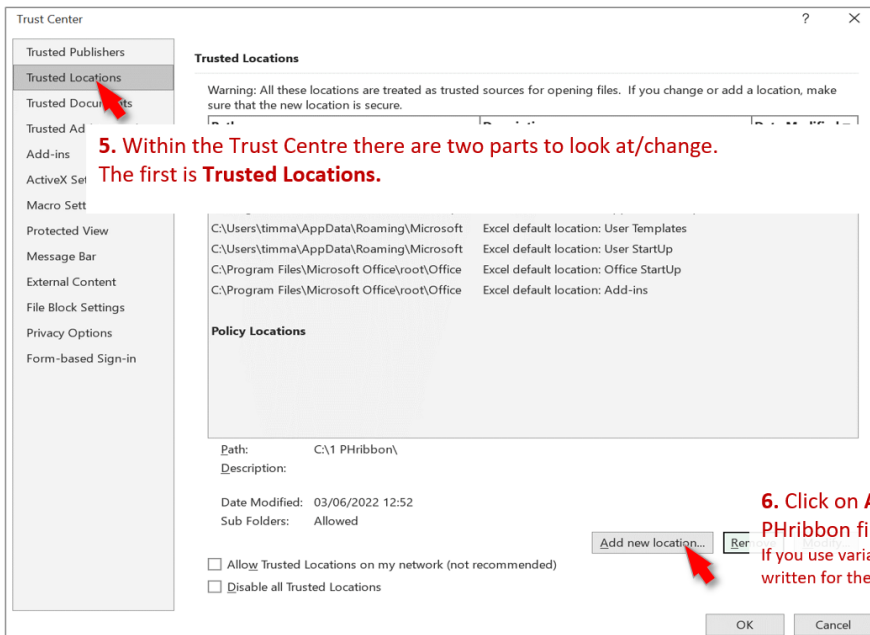
This is a list of the essential information you need to issue certificates. It is all in the “Essential Information” section of the moodle.

- A PHPP (two for Step 1). Must be PHPP v10. You can use DesignPH
- “CarbonLite”, the certification spreadsheet, sometimes called the plugin
- This certification guidance (this doc), and 2 others on photo guidance
- All projects must buy a certificate number from the AECB shop
- later in 2025 they will need to be uploaded and published on the LEBD too

You may need to enable macros, if you haven't already for PHribbon (the settings below are the same). We don't recommend allowing all macros to run, as this is a security risk. Trusted locations are much more secure as they are only allow macros from files in specific folders to run.

The certification spreadsheet uses macros and the PHPP import process (which is the essential part of it) works on PCs and Macs, separate buttons for each. The only part that is not fully Mac compatible is the “Images and Docs” buttons that collect files together and rename them. You could still run these on macs with a PC emulator such as Parallels or VMware where you could run a PC version of Excel.





Certification Process for Certifiers

Certification revolves around the certification spreadsheet, in the same way that certification for Passivhaus revolves around a PHPP.

The certification spreadsheet records extra information that PHPP doesn't have, records surveys and risk assessments and collates images. It converts your q50 airtightness figure into an n50 which it enters into your PHPP before reading the information and using it to create graphs.

The process itself is covered in the certifiers training videos and also below.

1. When starting a new project it's a good idea to check for revisions to the Certification Spreadsheet
2. Unlock the protected certification function of the Certification Spreadsheet. (please lock the certificate sheet hidden if sending to clients, so that they cannot issue certificates themselves, they may be used to doing that in the past).
3. Select the Standard required and enter all information requested in Project and other tabs specific to the standard selected.

The design of the project must now pass on the certificate tabs C1, C2 or C3 depending on which standard you are working to.

----- Project is now fully designed and built -----
If there are any critical updates to the software during this time, for example of an important bug-fix, then you will be sent an email that an update is available.

4. Complete the “Surveys” and “Images and docs” tabs, which names and organises files into a folder for submission to LEBD.
5. When all criteria are met, and certifier’s confirmation, details and signatures have been completed on the certificate, issue the certificate to your client from the Certification Spreadsheet.
6. Press the “Export to CSV” button on the Project tab to create a file for the LEBD.
7. Log into the LEBD. You will need to register for a new account the first time.
8. Upload the .CSV file, complete any mandatory fields. Upload the images and documents that were stored in a subfolder by the CarbonLite spreadsheet.
9. Pay for the certification via products in the AECB shop. Once the payment is received, the LEBD entry will be approved, and the building is certified.

Heating Systems & District Heating

CarbonLite Retrofit *step-by-step*: change existing fossil fuel (or direct electric) heating system to a heat pump at Step 1.

CarbonLite Retrofit: existing heating systems may be retained, but a practical plan to allow for future low carbon heating supply must be in place.

CarbonLite New Build: install a non-fossil fuel heating system or heat pump or connect to a low carbon district heating (DH) network. For DH a practical plan to allow for future low carbon heating supply must be in place.

Direct Electric Resistance Heating

When assessing a design using PHPP's PER function the technical panel is aware that direct electric heating can appear attractive. However, as the resultant peak electrified heating loads are likely to negatively impact the power grid, the AECB discourages direct electric heating and Certifiers should not currently certify such designs for 1 – 3 storeys detached, semi-detached and terraced homes.

However, the AECB accepts that in certain circumstances a case could be made by Certifiers for an exemption on a project-by-project basis e.g., for flats, maisonettes, multi-residential high rise and certain non-domestic buildings where heat distribution losses would result in increased energy demand and overheating risk. In these cases, Certifiers must use the buddy system – please refer to the following section [Exemptions](#).

Air Permeability and Ventilation Systems

The air permeability must meet ≤ 5 , ≤ 2 and ≤ 1.5 m³/m²hr for Step 1, full Retrofit and New Build respectively. When modelling in PHPP, note that the air permeability on the ventilation worksheet should follow:

- the volume and area calculation methodology as outlined in CIBSE TM 23.
- the result should be an average of pressurised and depressurised test.

Ventilation system design shall follow the General Minimum criteria as specified in 'Criteria for the Passive House, EnerPHit and PHI Low Energy Building Standard'.

MVHR

The installation shall be as per the Passivhaus Criteria², using an MVHR commissioning report "Final Protocol Worksheet for Ventilation Systems",³ that is submitted. MVHR systems must be Passivhaus Certified, or they will receive a 12% penalty on heat recovery efficiency in the PHPP.

MEV

The "Final Protocol Worksheet for Ventilation Systems" is not required, but a commissioning sheet should be submitted showing that the system is operating at the design flow rates.

Step 1 choices

Either Mechanical Extract Ventilation (MEV) or Mechanical Ventilation with Heat Recovery (Either MEV or MVHR) can be used in a step-by-step approach, though if MVHR looks to be necessary to achieve compliance with the full CarbonLite standard it may ultimately prove a false economy to install MEV at Step 1, and early installation of MVHR should be considered.

Note: where MVHR cannot be physically accommodated in a building, e.g., due to space and structure limitations, MVHR should *not* be included in the full CarbonLite Retrofit scenario.

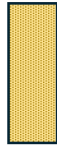
² Criteria for the Passive House, EnerPHit and PHI Low Energy Building Standard
https://passiv.de/downloads/03_building_criteria_en.pdf

³ source PHPP CD or www.passivehouse.com

fRsi

Requirements have changed. An fRsi calc may be needed in for retrofit and new build (but not Step 1). The following conditions are likely to have fRsi >0.75.

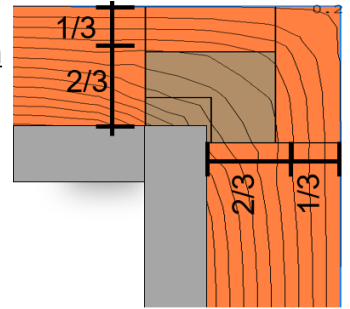
Mineral wool/woodfibre
 < 0.04 W/mK
 Thickness > 50mm
 e.g. in eaves



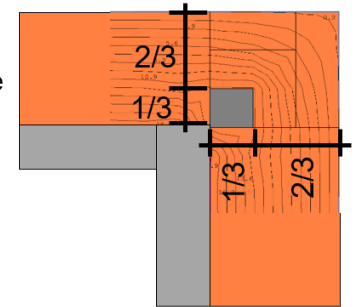
PIR/PUR
 <0.022 W/mK
 Thickness >25mm
 e.g. at jambs, lintels, sills
 (Solid concrete floors would also need to meet Part L)



Low conductivity intrusion
 < 0.13 W/mK e.g. timber
 Keep 1/3rd of the insulation layer



High conductivity structure
 > 0.13 W/mK e.g. concrete
 Keep 2/3rd of the insulation layer



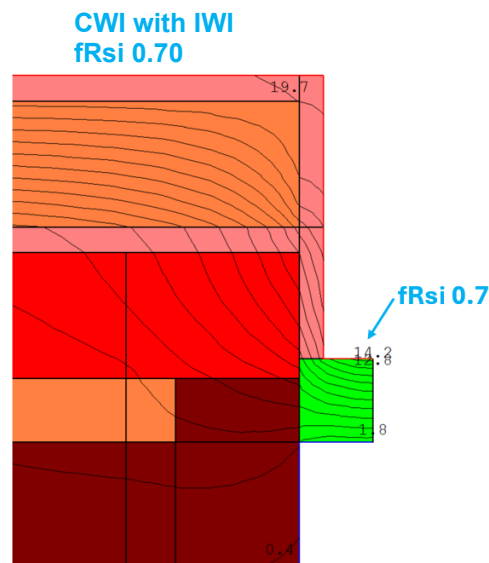
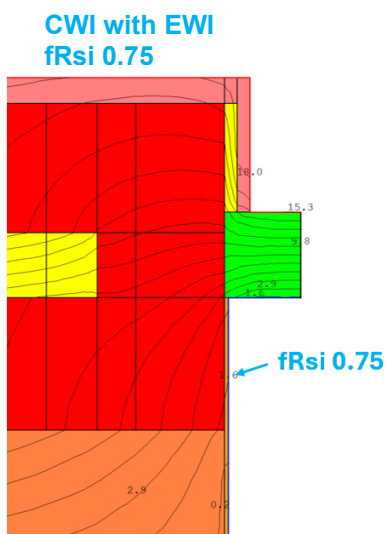
The AECB only asks for an fRsi calculation where you don't meet these. (See Certifiers CPD on 3/11/25). You could do this for example in Therm as if you were going to do a thermal bridge calculation: draw the materials, assign thermal properties, assign thermal boundaries and run the model.

Then show the model results by temperature, pick the lowest internal surface temperature and enter that in the CarbonLite spreadsheet. There is no need for the extra steps for calculating the Psi value if you are assuming TBs are 15% losses.

Examples 1-4 below show where care is needed, 5-6 should usually have fRsi > 0.75.

1. Jambs

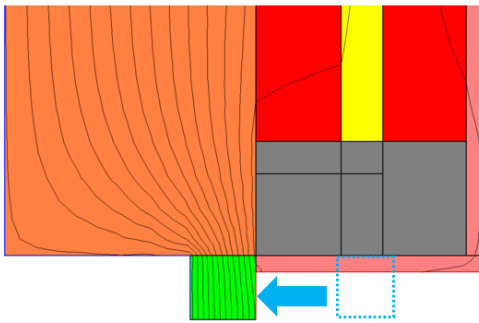
May be borderline or fail if there is an uninsulated brick/stone return and the windows are not moved in line with the insulation.



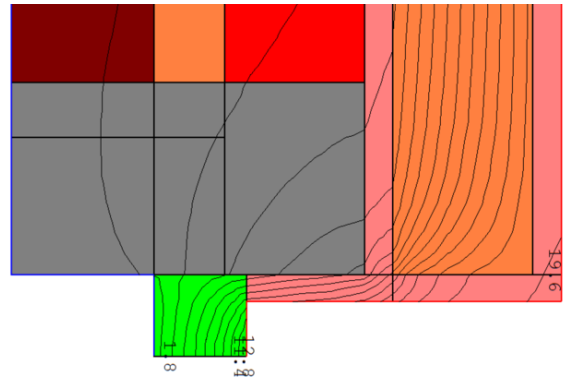
2. Lintels

For solid concrete lintels to pass on fRsi either move the windows in line with insulation or insulate

CWI with EWI
fRsi 0.84



CWI with IWI
fRsi 0.55

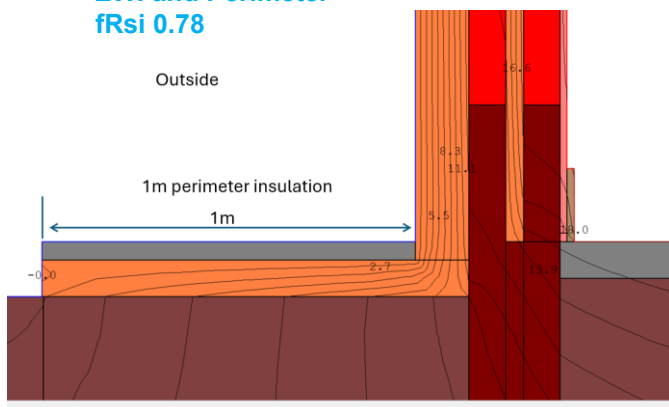


3. Wall - Floor junction

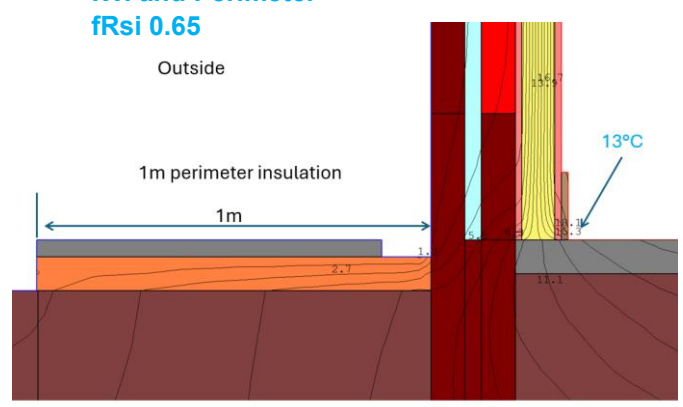
Solid concrete floor with EWI and 1m perimeter insulation can pass, unlikely with IWI.

Can still be borderline with EWI and floor insulation if EWI not down to the footing. Don't forget that if modelling in 3D, IP1/06 uses 0.93 of the limit and excludes 10mm from the coldest point.

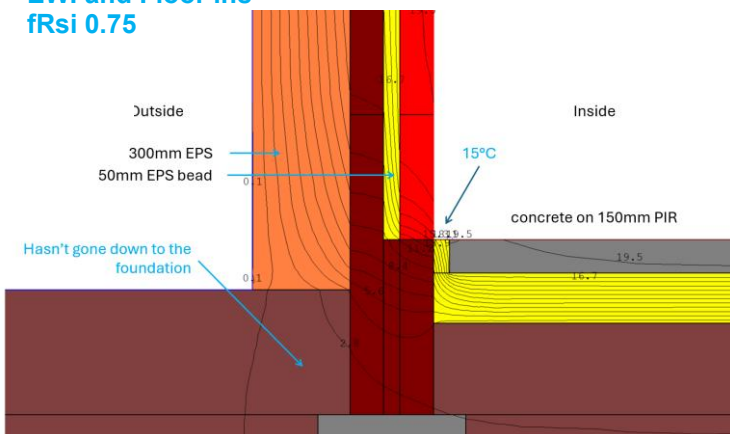
EWI and Perimeter
fRsi 0.78



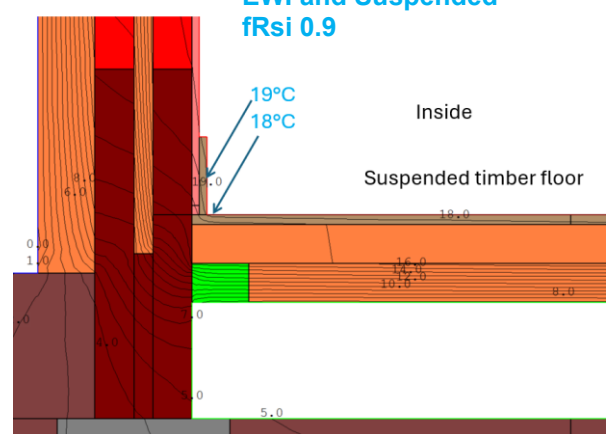
IWI and Perimeter
fRsi 0.65



EWI and Floor ins
fRsi 0.75



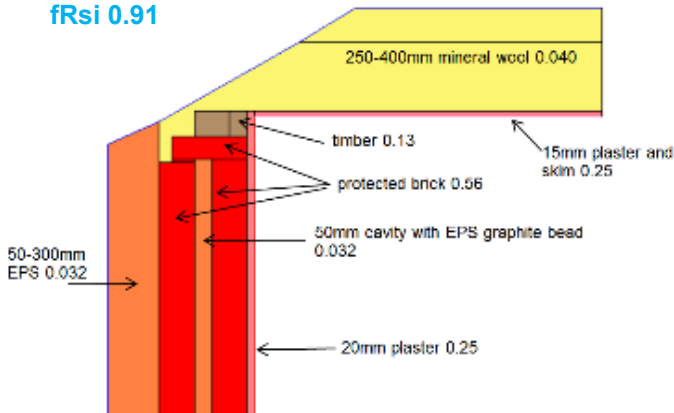
EWI and Suspended
fRsi 0.9



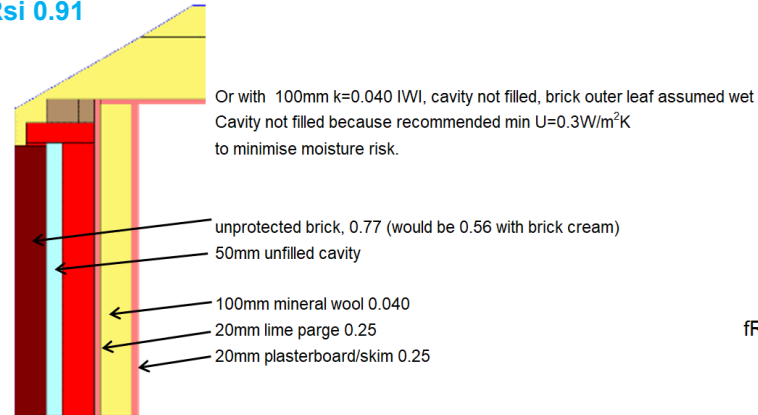
4. Eaves

Note that these results are only when the insulation can be packed into the corner all the way to the external leaf. You should still have a rafter tray in order not to block ventilation (not shown).

EWI Eaves fRsi 0.91



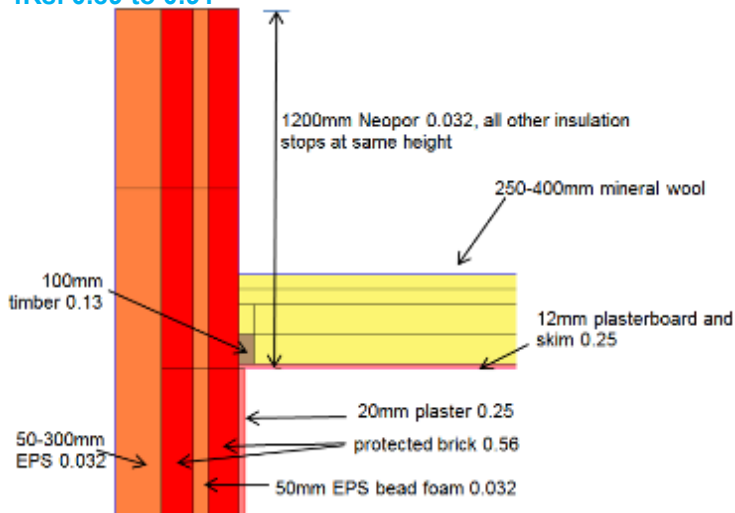
IWI Eaves fRsi 0.91



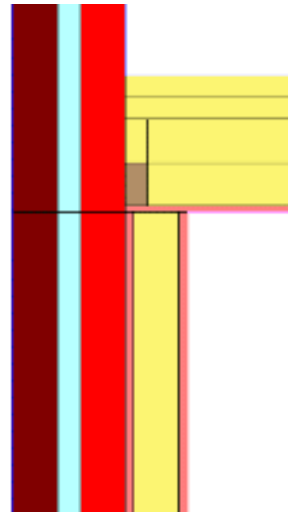
5. Gable

There should not generally be a problem if the loft insulation is > 250mm, for IWI and EWI.

EWI fRsi 0.89 to 0.91

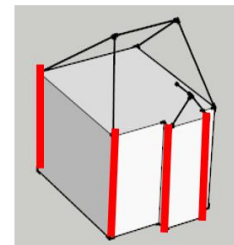


IWI fRsi 0.91



6. Outward corner

This is only likely to be a problem if no cavity wall insulation, an uninsulated cavity wall may have an fRsi of 0.65. 50mm of EPS insulation would bring that up to 0.87 on its own.



Winter comfort requirements

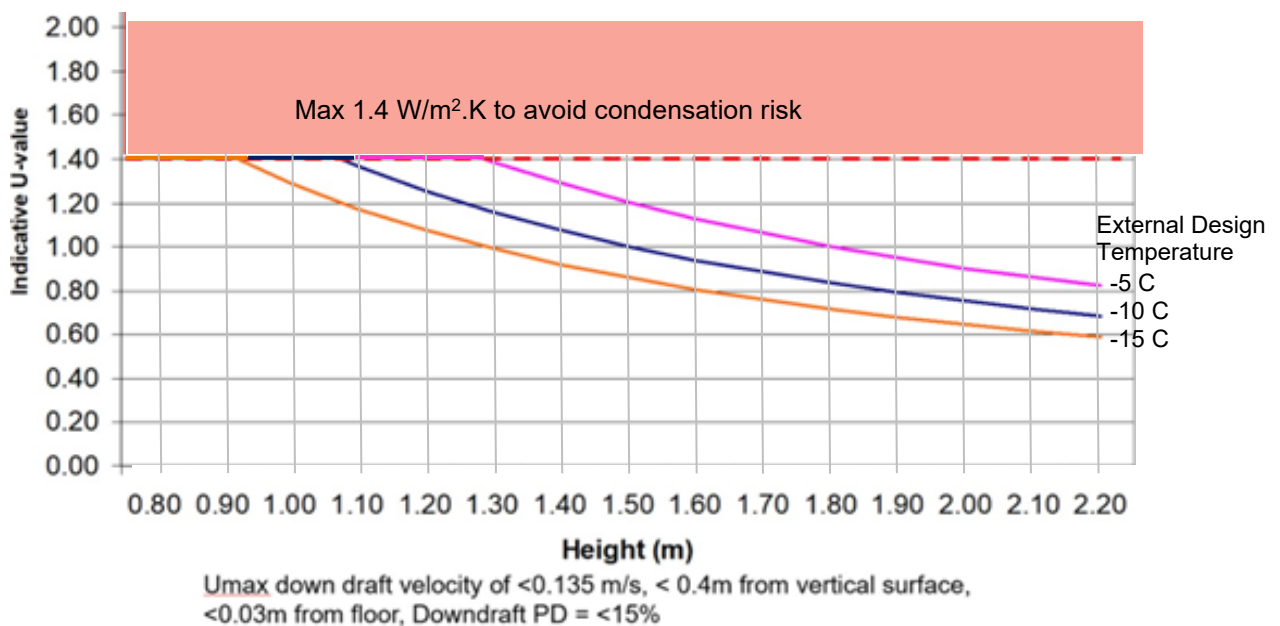
To reduce the risk of occupant dissatisfaction the designer will need to consider thermal comfort, for example limiting glazing areas and careful positioning of heat emitters as well as heat distribution within rooms and the building as a whole. Downdraft risks and radiant asymmetry should be minimised as with all good thermal design practise.

The following graph may be used to reduce window downdraft discomfort and inform decision making when selecting the U-value for a window of a given height. **To use it follow these steps:**

1. **Height.** Read along the bottom axis the height of your window in metres, you might consider your tallest one in order to find the worst case, or use an average height.
2. **Location.** Decide the appropriate winter design temperature for your location, is it -5, -10 or -15C? That will indicate which line you should be looking at, the pink, blue or orange lines respectively.
3. **Read.** Read off on the vertical axis the indicative U-value for your selected colour. This is the U-value needed to avoid winter discomfort. You may still need better U-values to meet your space heating target. Tell your client about large effects and/or design out the issue. This would be good practice, but wouldn't prevent certification for CarbonLite.

Double Glazing

For warmer parts of the UK with small windows, you should still use a maximum U-value of 1.4 W/m².K to avoid condensation risk (the red zone). Low Emissivity (Low E) double glazing has U-value of 1.1 for the glass, that might turn out to be around 1.4 in PHPP including the installation and frame.



CarbonLite Retrofit 'Step-by-Step'

The Measures and the Energy Mode

CarbonLite Retrofit can be achieved in a 'step-by-step' approach, similar in principle to the 'step-by-step' EnerPHit. 2 PHPP models are required, these are:

1. 'Step 1' a good starting point mainly a heat pump, to significantly reduce CO₂ emissions from space heating.
2. Retrofit *scenario*, a viable plan that meets full CarbonLite Retrofit. (exemptions in the range 50-100 kWh/m²·yr are also possible)

Retrofits using the step-by-step method may be later re-certified as Retrofit when all the work is complete.

Step 1 requires these measures (which the certificate automatically checks for):

- **MVHR, MEV**, or the variations dMVHR (distributed) or DCMEV (Demand Controlled Mechanical Extract Ventilation)
- **efficiently installed Heat Pump**.
Certifiers must liaise with the building owner and the MCS⁴ installer to ensure that the maximum flow temperature for space heating Heat Pumps is no greater than 50°C (or "Best practice" is ≤45°C). This maximises the efficiency (or more accurately the Seasonal Coefficient Of Performance, or SCOP). It can be achieved through resizing of the radiators or using underfloor heating.
- **≤5.0 m³/m²·h** air permeability

Step 1 no longer has to have the same or lower running costs as the existing building, and therefore modelling of the existing building is no longer required.

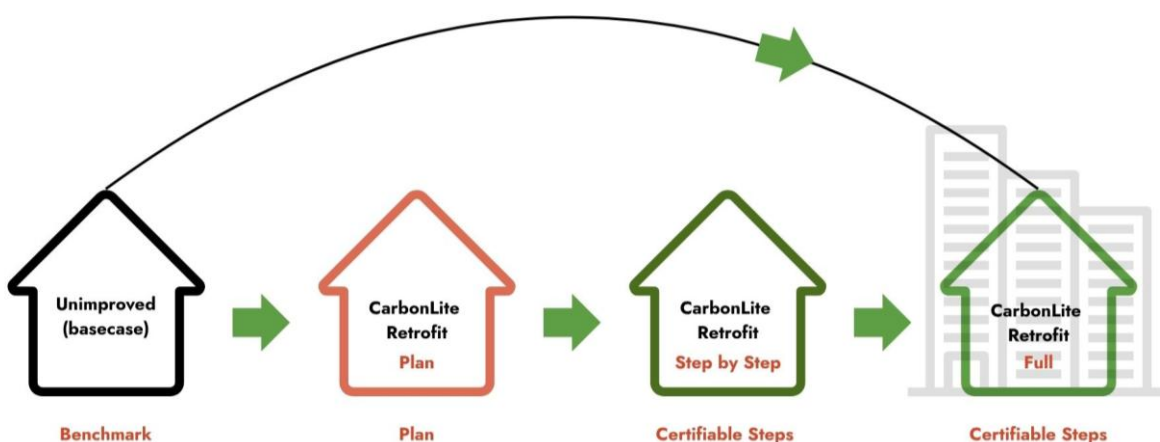
Most if not all buildings will require some resizing of radiators or modest fabric improvements alongside the heat pump and ventilation works. Airtightness investigations and focused measures should prove particularly effective. The extent of the various other fabric measures required will depend on individual properties.

The carefully designed heat pump and heat emitter system in Step 1 will substantially decarbonize most houses and the ventilation system will give good indoor air quality.

The choice of fabric measures within Step 1 should consider

- fabric measures are typically crucial in minimising the performance gap
- measures should not block future retrofit work in full retrofit scenario*
- focus on low capital cost
- minimise disruption
- reduce post-retrofit space heating costs and enhance thermal comfort.

*The full retrofit scenario is the 2nd PHPP model in step-by-step certification.



Above: 'Step 1' is the minimum first step in a step-by-step approach

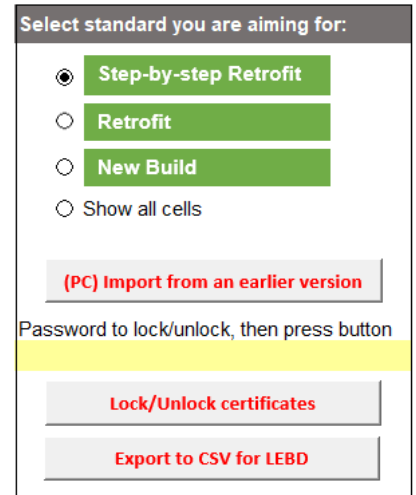
⁴ Microgeneration Certification Scheme, see <https://mcs-certified.com/>

Organising information from your PHPP project files for submission

Open the Certification spreadsheet and choose 'Step-by-Step'.

Then go to the "PHPP" sheet and in Section 1 enter the q_{50} and Gross Internal Surface Area (GISA). The equivalent n_{50} is then worked out for you, it will be entered for you.

Before you press "Get PHPP data" on the PHPP tab, make sure you have your 2 PHPPs lined up for Step 1 and the full Retrofit. Step 1 will need to have the average internal temperature calculated using the PHT Periodic heating tool, see the section below. Use a fixed 20C for the full Retrofit scenario.



Calculating Temperature

20C is used for Passivhaus certification purposes as the standardised temperature in PHPP and is similarly used for certification to the CarbonLite New Build and Retrofit Standards including the Step-by-Step full Retrofit scenario.

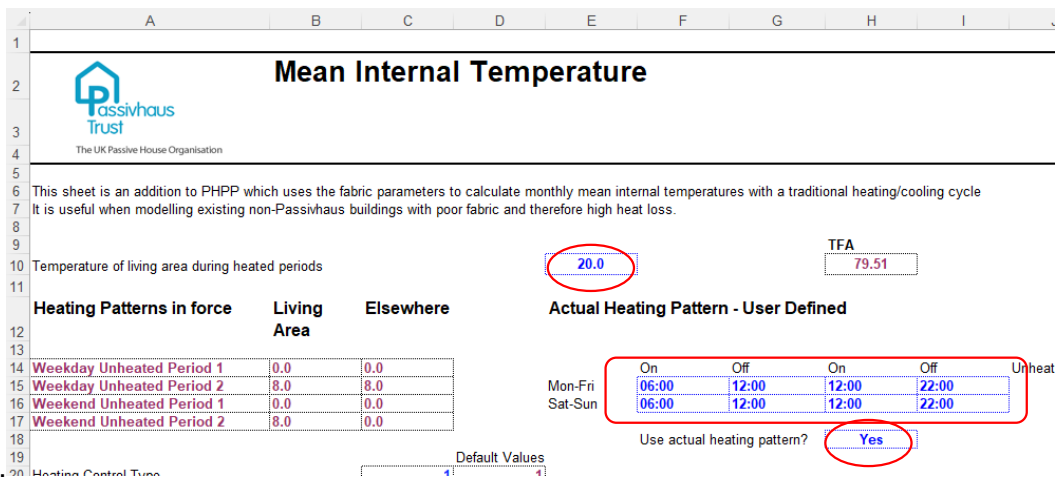
The Step1 model is different because of intermittent heating. PHPP works on 24hr average internal temperatures over the heating season and we need to account for cooling of the building outside the heating periods (when unoccupied and at night) when the heating is typically switched off.

The "temperature set point" is the temperature the heating system thermostat is set to when on. The 24-hour average temperature will be significantly lower. For example, a set point temperature of 21°C in the periodic heating tool might give 17.4°C. Every building will be different.

Temperatures to be entered into your Step 1 PHPP models must be determined using the 'PHPPv10 Passivhaus Trust Periodic Heating Tool'. (you must use v10 PHPP)

To use it, follow these steps:

1. Go to [PHT periodic heating tool](#) website page and download the spreadsheet for v10 PHPPs.
2. Open it and drag the new tab into your Step1 PHPP. Accept the updates to cell names, as in the installation instructions.



For the Step 1 use 20C with 16hrs/day by updating the actual heating pattern table.

IMPORTANT select "Yes" for the "Use actual heating pattern" to apply these hours

3. Manually type in the figure from the periodic heating tool into the Verification sheet temperature cell. You will need to type in the figure into the cell, using a formula will not work.

Gas boilers

In a step-by-step certification existing fossil fuel and direct electric heating systems **MUST** be replaced with a heat pump. Gas boilers cannot be retained in a step-by-step certification.

MCS temperature data

If the building owner and MCS engineer agree a design where the design flow temperature is lower, leading to an improved SCOP then the certifier should update the PHPP accordingly to reflect this, which will in turn update the Certification Spreadsheet.

Thermal Bridges

There are several options

- for Step 1 the AECB default notional figure is 0% as the building is essentially the same as the existing building. Or you can calculate the thermal bridges.
- for later steps closer to the full retrofit use between 0% and the 15% for full retrofit. You can also calculate the thermal bridges. Choose either option from the dropdown menu.

Risk Report

The risk report in [Appendix 1](#) is not required for a Step 1 certification where only a bare minimum package of backstop measures have been adopted. However, when certifying to steps that do incorporate more extensive measures, **consider what parts of the "Condition Survey & Retrofit Risk Report" could be relevant in order to reduce the risk for you (mistakes could be expensive).**

Extensions

If you are also building an extension as part of a Step 1 retrofit your AECB Approved Certifier will advise on an appropriate specification for this part of the project. Typically, this will involve building a new extension to levels of fabric performance expected from the CarbonLite New Build Standard, i.e., excellent U-values and airtightness for walls, floors, roofs, and windows.

Other limitations

Direct Electric is not permitted

Exemptions do not apply, there is no space heating limit.

[District Heating](#) is not permitted, Step 1 requires a heat pump.

[Winter comfort](#) criteria need to be applied to windows.

CarbonLite Retrofit Full Implementation

This section is for certifiers working on projects that will be retrofitting 'in one go' i.e., straight to full implementation of the CarbonLite Retrofit Standard, instead of the step-by-step approach. For step-by-step please refer instead to the preceding section.

Modelling parameters

Only one model of the completed building is required. Services need to be modelled in order to calculate PE/PER correctly. Space Heating demand must be $\leq 50\text{kWh/m}^2\cdot\text{a}$ (or $\leq 100\text{kWh/m}^2\cdot\text{a}$ with certifier approved exemption).

Primary Energy

The CarbonLite Retrofit Standard Retrofit Standard does not include a Primary Energy (PE) or Primary Energy Renewable (PER) target, the figure only needs to be reported. The standard is primarily focused on improving the fabric in a way that delivers good thermal comfort and healthy homes. However, access to low carbon heat needs to be considered and some retrofits will renew the heating system at the same time as improving the fabric.

Ventilation

We require a TM23 AP50 (q50) result of $2\text{ m}^3/\text{m}^2\cdot\text{hr}$ that is an average of the pressurisation or depressurisation. The Gross Internal Surface Area (GISA) needs to be in m^2 measured to ATTMA TSL1. [See general ventilation guidance](#)

We recognise the difficulty of air testing retrofit in flats, especially where the occupants are not decanted. Therefore a representative sample could be tested if you discuss with us. The test method is the same as that for AECB new build.

Added in v7

Gas boilers

Existing boilers may be retained for the CarbonLite Retrofit Standard provided the design shows provision for future low carbon heat. New gas boilers will not be acceptable for certification under the CarbonLite Retrofit Standard.

Thermal Bridges

For CarbonLite Retrofit Standard you can use the AECB default notional figure of 15% losses, or you can calculate the thermal bridges. Choose an option from the dropdown menu.

Risk Report

In this full CarbonLite Retrofit Standard a much more comprehensive assessment of risk is required. [Appendix 1](#) covers details of the Condition Survey & Retrofit Risk Report required, though please remember not everything listed is needed, they are suggestions. When complete, the report is submitted in the "Images and Docs" section of the spreadsheet, upload the report as a pdf.

Extensions

If you are also building an extension as part of a CarbonLite Retrofit Standard retrofit your AECB Approved Certifier will advise on an appropriate specification for this part of the project – treating the new and retrofitted areas of the building as a single building and to comply with the overall energy performance criteria of the CarbonLite Retrofit Standard. Typically, this will involve building a new extension to levels of fabric performance expected of Passivhaus/CarbonLite New Build Standard, i.e., excellent U-values and airtightness for walls, floors, roofs, and windows. The extension is included in the overall PHPP model and certification.

Component Method

We will soon be offering an alternative to the main criteria using the component method. The EnerPHit component criteria should be followed to show that the building has met the AECB Carbonlite component method, exceptions to the criteria are given in the following table and elsewhere in this document. PHPP modelling is still needed to show the building meets the overheating and comfort criteria.

Climate Region	Opaque envelope U-values		Windows & Doors in all orientations	Minimum MVHR heat recovery rate if MVHR used	Air permeability
	Internal wall Insulation	All other insulation			
All UK regions	< 0.4 W/m ² K	See PHPP EnerPHit criteria	<1.2 W/m ² K U _{w+installed}	See PHPP EnerPHit criteria	<2 m ³ /m ² hr

Opaque envelope U-values vary in the case for “All other insulation”. External insulation and floor insulation have slightly different limits which are already found in the PHPP for EnerPHit, these are used. For double glazed windows see these [winter comfort requirements](#).

MEV is allowed for two reasons:

- 1) Whilst MEV is not "the best IAQ" we must recognise that evidence suggests that it marks a significant improvement upon "natural" ventilation.
- 2) There are likely to be existing homes where MVHR can not readily be installed. Therefore MEV presents itself as the best, most practical alternative (when compared to window ventilation).

Exemptions

There may be good reasons why ambitious and well-designed projects exceed the 50 kWh/(m²a), whilst achieving below 100 kWh/(m²a). These can only be applied to full Retrofit where it is not possible to improve the building fabric sufficiently. They cannot be applied to Retrofit Step-By-Step the **Retrofit component method** or New Build.

Approved List

Cases covered by the Approved Exemption List below⁵ need only **be ticked in the “C2” tab to indicate which applies. A second opinion from another certifier is not required:**

- Restrictions required by the historical building preservation authorities
- Due to legal requirements
- If implementation of the required thickness or fire related properties of thermal insulation would result in unacceptable restriction of the use of the building or adjacent outer areas⁶
- reduced insulation thickness in the case of interior insulation⁷

⁵ We have based these exemptions on those used by the Passivhaus Institute for EnerPHit.

⁶ For example, EWI on a street side elevation where the façade is the public boundary and where the Local Authority will not allow encroachment. However, we would expect to see evidence of those discussions. A simple example might be where a communal, narrow side passage between houses must retain its full width. Fire related aspects may also be implicated.

⁷ If the thickness of the thermal insulation is restricted due to any of the reasons mentioned above, and an exemption is applicable, then the insulation thickness that is still possible must be implemented with a high-performance insulation material with a thermal conductivity $\lambda \leq 0.025$ W/(mK) if this can be implemented cost-effectively, in a damage-free way (in the case of interior insulation). This also affects fRsi.

Buddy System

In all other cases, certifiers must use the “Buddy System” which means they seek a second opinion from another certifier on their arguments and log the discussion in an exemption report, which covers limitations or considerations not included in the list above. This may include considerations around

- lifetime carbon, and the importance of reusing valuable materials
- excessive resource use
- affordability for some socioeconomic groups
- etc.

The certifier is still free to make the final decision and may still grant an exemption even if the second Certifier disagrees with the arguments. If the 2nd certifier disagrees then

- the exemption-granting Certifier must log the second Certifier’s objections as well as logging the full and evidenced arguments for the exemption(s) to be granted. The log must include, clearly, all reasons for and against.
- Certifiers must supply the log to the AECB prior to the issuing of the certificate.

The AECB will review these logs but will not act to delay the issuing of the certificate. From time to time, some of these logs will be discussed openly as part of Certification Group CPD workshops as part of the scheme’s Internal Quality Assurance (IQA) process and further development of the standards and the scheme.

Other limitations

Direct Electric is only allowed in [special cases](#)

[District Heating](#) existing heating systems may be retained, but a practical plan to allow for future low carbon heating supply must be in place.

[Winter comfort](#) criteria need to be applied to windows.

CarbonLite New Build formerly 'AECB Silver'

Modelling parameters

Only one model of the completed building is required. Use 20C as the temperature in the verification tab, if you don't the Certifiers Spreadsheet will change it to 20C when you import the data. Services need to be modelled in PHPP in order to calculate PE/PER correctly. Space Heating demand must be $\leq 40\text{kWh/m}^2\text{.a}$.

Primary Energy

The CarbonLite Building Standard does include a Primary Energy (PE) or Primary Energy Renewable (PER) target, e.g. PE target if you don't have any renewables, or the PER target where you have renewables such as PV.

Although some retrofits will renew the heating system at the same time as improving the fabric, the standard is primarily focused on improving the fabric in a way that delivers good thermal comfort and healthy homes. However, access to low carbon heat needs to be considered.

Ventilation

We require a TM23 AP50 (q50) result of $1.5\text{ m}^3/\text{m}^2\text{.hr}$ that is an average of the pressurisation or depressurisation. The Gross Internal Surface Area (GISA) needs to be in m^2 measured to ATTMA TSL1. [See general ventilation guidance](#)

Flats, larger buildings and those with multiple floors are more challenging. By working with a blower door engineer it is possible to design sub-compartments which can be tested independently. This means multiple floors at a similar stage of completion can be tested together whilst allowing other compartments to be tested at another point in time.

Added in v7

Other limitations

Direct Electric is only allowed in [special cases](#)

[District Heating](#) is an option, however a practical plan to allow for future low carbon heating supply must be in place.

Exemptions are not permitted, they can only apply to full Retrofit.

[Winter comfort](#) criteria need to be applied to windows.

Appendix 1. Retrofit Survey & Risk Report

The report for this section is needed mainly for CarbonLite Retrofit, but parts of this may also be required for Step-by-step at the Certifiers discretion. The report is uploaded as a pdf in the “images and Docs” tab of the Certification Spreadsheet. It should consist of two sections:

Section 1. identify main possible risks

Section 2. Detailed description of pre- and post-retrofit risks

Section 1 Main Risks

Pick those that might apply for this project:

1. Flood risk
2. Radon risk
3. Exposure zone
4. Planning and Building Regulations
5. Conservation Area / Listed status
6. Building in protected site or area

7. Materials risk (asbestos)
8. Structural engineer reports
9. Building surveyor reports
10. Architect reports or surveys
11. Landlord condition surveys,
12. Historical Guarantees, Warrantees

13. Notified approved works (replacement windows, heating systems etc.)
14. Party Wall Act related
15. Existing Energy Performance Certificate
16. Fire engineer survey
17. Damp survey
18. Cavity wall survey
19. Any monitoring results or related reports e.g., Radon, CO₂, Humidity, Temperature, moisture content

Site-visit - understanding the existing building

20. Description of existing house type and key changes from the original house type including extensions, major internal remodelling, walls, floors, roof, windows, weatherisation, moisture related and energy efficiency measures, internal plasters and wall, floor and ceiling finishes
21. Pre-retrofit details: dimensions, floor plans; windows and doors; heating, hot water, lighting, and ventilation systems (including controls and make and model where appropriate) – adequate information to build the energy model for modelling the whole house retrofit measures.
22. An assessment of pre-retrofit ventilation provision, Indoor Air Quality & potential issues including any noise, smells or airborne particulate emissions affecting neighbouring properties or the surrounding area
23. Pre-retrofit Form Factor.

Possible heritage value, buildings as ‘cultural artefacts’

24. Does the building have significance? Its place in the Landscape or City- or Townscape
25. Neighbouring, nearby, same county, or otherwise individual unusual buildings representing social, or architectural history, design or construction movements, trends, exemplars, or relationship to important events.

What is section 1 about?

Many risks can become worse following a retrofit. It is better to not start until the issues are resolved. Identifying risks here to be addressed can save you great deal of difficulty later.

Reports from the following may produce some or most of what you need in section 1:

- A RICS Level 3 survey report
- PAS 2035 Retrofit Assessment
- STBA [Guidance Wheel](#)

Section 1 does not necessarily need to include full text from all survey reports, a reference to the relevant documents may be sufficient.

There may be other risks not mentioned.

Section 2 Pre/post-retrofit residual risk

The application of the CarbonLite Retrofit Standard to older buildings should be considered thoughtfully, and deploy the guidance and learning provided by the AECB CarbonLite Retrofit training courses. All sensible efforts should be made to improve the performance health and comfort of the building as far as possible to reduce, and adapt to, climate change impacts. To do this efficiently and to avoid unintended consequences e.g., particularly relating to moisture, the potential risks arising from the sorts of measures being considered should be identified at an early stage including the adequate identification of structural, moisture and disrepair issues. A CarbonLite Retrofit should avoid unintended consequences.

Key elements to include in the risk section of this report

- Set out the risks that were anticipated at the pre-retrofit design stage
- Explain how these were mitigated
- List any residual risks that have been communicated to the client, along with any criteria that were adopted to manage or monitor these risks on an ongoing basis.

The table below may be useful as an example when assessing a building for the suitability of various measures (this is not an exhaustive list of risks):

Key features	Pre-retrofit condition in areas due to receive measures	Anticipated risks for the different measures and how these risks were minimised	Any residual risks, and any monitoring or planned 'check-ups'
Flood damage and future risk, mould spores			
Radon, other ground gases,			
Overheating			
Fire risk			
Significant heat loss pathways, or thermal weakness in the building envelope			
Surface condensation			
Airtightness, draughts			
Ventilation and air quality			
Rising and penetrating damp			

Flood

If the property is in a flood prone area as identified in the condition survey report, then the retrofit risk strategy should set out how the designs are flood resilient.

Radon

Radon is a significant risk in the UK and should be considered in every retrofit. A desktop survey shall be undertaken, and if the property is in a Radon Risk Area then measurement should be taken as per the UK Government guidance <https://www.ukradon.org/information/measuringradon>

Overheating

Overheating risk for the retrofit design could, for example, be established using the Passivhaus Trust Summer Overheating Tool⁸ or Good Homes Alliance Overheating in Retrofit and Existing Home Tool⁹. The inputs and outputs of the tool could be included in the overheating strategy, alongside the PHPP summer

⁸ https://www.passivhaustrust.org.uk/guidance_detail.php?gld=49

⁹ <https://kb.goodhomes.org.uk/tool/overheating-retrofit/>

overheating factor. Retrofit design elements that are aimed at reducing overheating risk shall be included, such as (but not limited to)

Shading

- Changing opening (door and window) sizes
- Increasing summer ventilation
- Reducing wild heat gains from domestic hot water distribution or storage
- Including thermal mass within the thermal envelope

Fire

A statement should be included to show how the design is following the latest guidance and requirements of the UK Building Regulations. It should also address any fire risks identified in the condition survey or fire engineers report.

Moisture

It can be easier to set out moisture related risks as it affects building assemblies – such as a suspended floor construction, and as it affects junctions – such as the point at which a suspended floor meets a gable or external masonry wall. Therefore, a general risk relates to the floor assembly and a related but more specific risk relates to a junction.

It is also good practice for assemblies and junctions to identify the general moisture sources and mechanisms that are likely or observed to be affecting it. Then, for example a report could adopt a 'traffic light' risk register of moisture risks – or use more specific criteria such as moisture content or humidity thresholds. The risk assessment section will reflect your judgement of the risks based on either hygrothermal modelling and/or - where no modelling has been carried out - on your own renovation or retrofit experience to gauge the risk.

- 'No significant risks' means that you consider there to be no significant sources of moisture able to move (via the various moisture transfer mechanisms) from the source(s) thereby creating risks for vulnerable areas or components in the construction assembly.
- Potentially significant risk is where you have gauged the potential risks significant enough to warrant specific measures to manage moisture loads within the assembly.

However, it will be assumed that suitable surveys and building investigations have been carried out, as necessary and any existing moisture problems remediated prior to retrofit.

Any moisture-robustness strategy should factor in sources of moisture you consider to be present and creating a risk.

Moisture risks are associated with the following sources

- rain wetting
- surface water
- ground water
- historically saturated or damp materials
- water vapour in interior air
- water vapour in exterior air

and the following mechanisms

- rising damp (capillary action)
- penetrating damp (capillary action)
- water ingress (leaks)
- hygroscopic absorption by salts
- condensation
- suppressed evaporation rate

Appendix 2. CarbonLite Summary Table

Recently revised text is shown in red as with other updates in this document.

Criteria	Retrofit Step-by-step	Retrofit Component Method	Retrofit and Step-by-step Full Retrofit Scenario	New Build
Building Design and PHPP model				
PHPPs required	1. PHPP of Step 1 with temperature from periodic heating plugin 2. PHPP of Full Retrofit at 20C	PHPP still required Internal wall insulation < 0.4 W/m ² K All other insulation as EnerPHit Windows & Doors < 1.2 W/m ² K U _{tr} installed MVHR min efficiency (if installed) as EnerPHit	PHPP meeting standard at 20C	PHPP meeting standard at 20C
Delivered space heating (kWh/m ² /a)	report result		≤ 50 kWh/m ² .yr or ≤ 100 kWh/m ² .yr with approved exemption	≤ 40 kWh/m ² .yr
Delivered space cooling (kWh/m ² /a)	report result		≤ 15 kWh/m ² .yr	≤ 15 kWh/m ² .yr
EITHER Primary Energy (PE)	report result	report result		≤ the limit in PHPP for Low Energy Buildings (e.g. PE ≤ 85, PER ≤ 75 kWh/m ² .yr)
OR Primary Energy Renewable (PER)	report result	report result		
Air Permeability	air permeability test ≤ 5.0 m ³ /m ² .h ave of pressurisation + depressurisation TM23 AP50	air permeability test ≤ 2.0 m ³ /m ² .h ave of pressurisation + depressurisation TM23 AP50		air permeability test ≤ 1.5 m ³ /m ² .h ave of pressurisation + depressurisation TM23 AP50
Ventilation System		Continuous or Demand Controlled MEV, or MVHR or Distributed MVHR		
Heating and Hot Water	Heat pump (ASHP or GSHP) ¹	Existing heating systems may be retained, but a practical plan to allow for future low carbon heating supply must be in place. ^{1,2}		non fossil fuel system or low carbon district heating network ^{1,2}
Thermal Bridges and Surface Condensation (fRsi) risk	N/A, if additional & significant fabric measures are being replaced or installed estimate a TB within 0-15% of fabric losses	EITHER calculate all TBs, OR use 15% of fabric losses calc by spreadsheet, ensure fRsi ≥ the relevant limit (0.75 for dwellings) ³		EITHER design out to < 0.01 W/mK OR or calculate and ensure fRsi ≥ 0.75 ³
Thermal Comfort		PHPP modelled overheating risk, <10% Acceptable (Guidance: <5% Good practice or <3% Best practice)		
Other Requirements				
Risk Assessment	complete main checklist and surveys and conservation area/listed status	Condition Survey & Retrofit Risk Report		Complete main checklist
QA process	5 photos, 6 documents	27 photos, 21 documents		27 photos, 21 documents

Further data for all

Gross Internal Surface Area, for air permeability calculation
 Gross Internal Area if Energy Use Intensity (EUI) is required on the certificate
 Name of energy modeller, main contractor and architect (if any) for the certificate
 Purchase a certificate from the AECB shop
 Project has to be uploaded to the LEBD (payment will eventually be through here)

Info not required


Fuel costs are not required, Step 1 does not have to match the running cost of the existing, though this is recommended.


¹ All standards, where a heat pump is installed. Certifiers must liaise with the building owner and the MCS heating system designer in order to ensure that the maximum flow temperature for space heating is no greater than 50°C. Best Practice heating system is designed and installed for flow temp <45°C. That still allows hot water to be stored at a higher temperature if weekly legionella cycles are not considered sufficient.

² Direct Electric This can only be considered for flats. It would have to be CarbonLite Retrofit or New Build and would require special approval.

³ fRsi limit of 0.75 applies to dwellings and schools, follow mould and surface condensation limits in IP01/06.

Appendix 3. Example Certificates






CARBONLITE STEP 1 CERTIFICATE

32 Sea View


THIS IS TO CERTIFY THAT THIS PROJECT
HAS SUCCESSFULLY ACHIEVED
CARBONLITE RETROFIT

Insulated and Energy Efficient




	Step 1		Full Retrofit		
	Actual	Req'd	Actual	Req'd	
Space Heating Demand	150	-	48	< 50	kWh/m ² .yr
Space Cooling Demand	0	-	0	< 15	kWh/m ² .yr
air permeability q ₅₀	4.9	< 5.0	2.0	< 2.0	m ³ /m ² .h

Comfortable and Healthy




	Step 1		Full Retrofit	
	Actual	Req'd	Actual	Req'd
overheating risk	6%	< 10%	2%	< 10%
ventilation system	✓			
designed out draughts	✓			

Low Carbon Heating



	Step 1		Full Retrofit		
	Actual	Req'd	Actual	Req'd	
non renewable PE	140	-	57	-	kWh/m ² .yr
heat pump installed	✓				
efficient flow temperature	✓				

Quality Assured




quality assurance system ✓
trained professionals ✓

	Step 1	Full Retrofit
Energy Use Intensity, kWh/m ² GIFA yr	166.7	38.5
Heating, hot water, electric running Cost, £/yr	1300	1230
Heating operational CO ₂ , kgCO ₂ e/yr	5060	602

I certify this building meets CarbonLite Step 1 Standard

CarbonLite Certifier:

Certifier signature:



Energy modeller: Patrick Osborne
Main Contractor: HJ Peters
Architect: N/A

Certificate issue date: 10/09/2024
Certificate ID: **1003**

Cert v5

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CARBONLITE RETROFIT CERTIFICATE

THIS IS TO CERTIFY THAT THIS PROJECT
HAS SUCCESSFULLY ACHIEVED
CARBONLITE RETROFIT

32 Sea View

Insulated and Energy Efficient



	Actual	Required	
Space Heating Demand	48	< 50	kWh/m ² .yr
Space Cooling Demand	0	< 15	kWh/m ² .yr
air permeability q ₅₀	1.9	< 2.0	m ³ /m ² .h

Comfortable and Healthy



	Actual	Required
overheating risk	2%	< 10%
ventilation system	✓	
designed out draughts	✓	
minimal thermal bridges	✓	

Low Carbon Heating



	Actual	Required	
non renewable PE	57	-	kWh/m ² .yr
heat pump planned	✓		

Quality Assured



quality assurance system	✓
trained professionals	✓

Energy Use Intensity, kWh/m ² GIFA, yr	44.8
Heating, hot water, electric running Cost, £/yr	540
Heating operational CO ₂ , kgCO ₂ e/yr	450

Energy modeller: Patrick Osborne
Main Contractor: HJ Peters
Architect: N/A

I certify this building meets the CarbonLite Retrofit Standard
CarbonLite Certifier: John Dennis
Certifier signature:

Certificate issue date: 10/09/2024
Certificate ID: 1003

Cert v5

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CARBONLITE RETROFIT

Component Method Certificate

THIS IS TO CERTIFY THAT THIS PROJECT
HAS SUCCESSFULLY ACHIEVED
CARBONLITE RETROFIT

Sea View



Components

	Actual	Required	
Building env to exterior air	0.13	< 0.15	W/m ² .K
Building envelope to ground	6.87	< 12.30	kWh/m ² .yr
Internal Wall Insulation to air	-	< -	W/m ² .K
Windows & Doors	0.8	< 1.2	W/m ² .K



Comfortable and Healthy

	Actual	Required	
overheating risk	1%	< 10%	
MVHR heat recovery	82%	> 75%	
air permeability q ₅₀	2.0	< 2.0	m ³ /m ² .h
meets moisture protection	✓		



Low Carbon Heating

	Actual	Required	
renewable PER	41	-	kWh/m ² .yr
space heating flow temp	49	50	°C
heat pump planned	✓		



Quality Assured

risks assessed	✓
quality assurance system	✓
trained professionals	✓

Energy Use Intensity, kWh/m² GIA, yr:

Heating, hot water, electric running Cost, £/yr: 2

Heating operational CO₂, kgCO₂e/yr: 0

I certify this building meets the CarbonLite Retrofit Standard

CarbonLite Certifier:

Certifier signature:

Energy modeller: Example Energy Consultant

Main Contractor:

Architect: Example Architectural Firm

Certificate issue date: 21/11/2025

Certificate ID: Martel 123

Cert v6

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CARBONLITE NEW BUILD CERTIFICATE

THIS IS TO CERTIFY THAT THIS PROJECT
HAS SUCCESSFULLY ACHIEVED
CARBONLITE NEW BUILD

32 Sea View

Insulated and Energy Efficient



	Actual	Required	
Space Heating Demand	38	< 40	kWh/m ² .yr
Space Cooling Demand	0	< 15	kWh/m ² .yr
air permeability q ₅₀	1.4	< 1.5	m ³ /m ² .h

Comfortable and Healthy



	Actual	Required
overheating risk	2%	< 10%
ventilation system	✓	
designed out draughts	✓	
minimal thermal bridges	✓	

Low Carbon Heating



	Actual	Required	
non renewable PE	57	< 85	kWh/m ² .yr
non fossil fuel system or low carbon district heating	✓		

Quality Assured



quality assurance system	✓
trained professionals	✓

Energy Use Intensity, kWh/m ² GIFA/yr	34.1
Heating, hot water, electric running Cost, £/yr	230
Heating operational CO ₂ , kgCO ₂ e/yr	602

Energy modeller: Patrick Osborne
Main Contractor: HJ Peters
Architect: N/A

I certify this building meets the CarbonLite New Build Standard

CarbonLite Certifier: John Dennis

Certifier signature:

Certificate issue date: 10/09/2024

Certificate ID: 1003

Cert v5

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Appendix 4. Updates to this document

Updates in version 9 21/11/25

Version 8 updates are in **bright red within the main body of the document**

- fRsi text further clarification
- new example certificate in Appendix 3 for Component method Retrofit.
- Revision of the wording of the summary table

Updates in version 8 05/09/25

Version 8 updates are in **bright red within the main body of the document**

- key for red and grey text at the start of the document
- For Full Retrofit, the component method is another option.
- Approved exemptions do not require a report.
- Further modifications to the standards summary
- Clarification about self-certification on p2 and 15.
- Step 1 retrofits do not require an Appendix 1 report, but for extensive retrofits parts are encouraged to reduce risk, also mirrors wording on 10.32 Surveys tab.
- Clarification on fRsi.

Updates in version 7 04/07/25

Version 7 updates are in **bright red within the main body of the document**

- reference to “L2” removed in the Retrofit section for extensions. This was an old name for the model, but the sentence doesn’t need it.
- Retrofit and new build Ventilation paras added, with some comments for flats and larger buildings.
- Example certification costs updated using “per dwelling” of £100+VAT from Jan 2025
- Updated CarbonLite pathways image on p2 and p11 to a newer version used in training, just a newer style.
- Winter Comfort Requirements on p10 further explanation given.
- Standards table updated for general use in web pages, see also Appendix2 where changes are in red:
 - Two cells corrected to 15% of *fabric* losses not 15% of *total* losses.
 - fRsi wording clarified and footnotes added.
 - Risk assessment and QA requirements included

Updates in version 6 03/04/25

Version 6 updates are in **bright red within the main body of the document**

- STBA Guidance wheel and PAS 2035 reports added to Appendix 1 in green box.
- Position of winter comfort requirements graph moved to correct hanging text.
- Approved list on p15, last two bullet points were part of the same point, and a footnote moved.

Updates in version 5 10/9/24

- Certification fee, added that this will revert back to £100 per dwelling after Jan 1st 2025
- Certificate examples in Appendix 3 updated

Updates in version 4 30/7/24

See the previous version to see these changes in bright red within that document

- Certification fee options for blocks and types added back in (was on website)
- Certifier Spreadsheet macro installation guidance added back in (was in old CPD)

Updates in version 3 15/7/24

See the previous version to see these changes in darker red within that document

- CPDs are now optional, but Certifiers do need to pass a test.

- Fees for certification of Legacy projects, clarified that these fees apply to new build only.
- Process for Certifiers, item 5. The Certificate does not have items that are manually confirmed on it, but there are yellow data entry cells on the certificates sheet. It now shows the lapse of time in which the building is built, before the photos become available. It is now clearer in what circumstances the Certification Spreadsheet would need to be updated before issuing the final certificate.
- Software requirements changed to requirements to produce certificates
- There can be any number of steps between Step 1 and the full Retrofit.
- Guidance on the airtightness test has changed, now TM23 methodology but requires a pressurisation and depressurisation test.
- The spreadsheet takes the n50 and other info from the CarbonLite Certification spreadsheet, the user no longer has to do that.
- Exemptions section clarified and moved to “Retrofit, full implementation”, generally only applies there – but does also apply in Step 1 for the full Retrofit model, and criteria for New Build extensions. Hyperlinks remade.
- Appendix 2 summary table updated to show a separate 15kWh/m2.a target for cooling, if needed. Also updated to show Step1 no need for cost parity, and only 2 models not 3.
- Appendix 3 shows example Certificates, added after certificate redesign,
- The term Certification Spreadsheet is used instead of “plugin”, as it’s not a plugin.

- Appendix 1 edit first few sentences, ticks in the Certification Spreadsheet are not required in the Survey, after experts objected to having to do both.