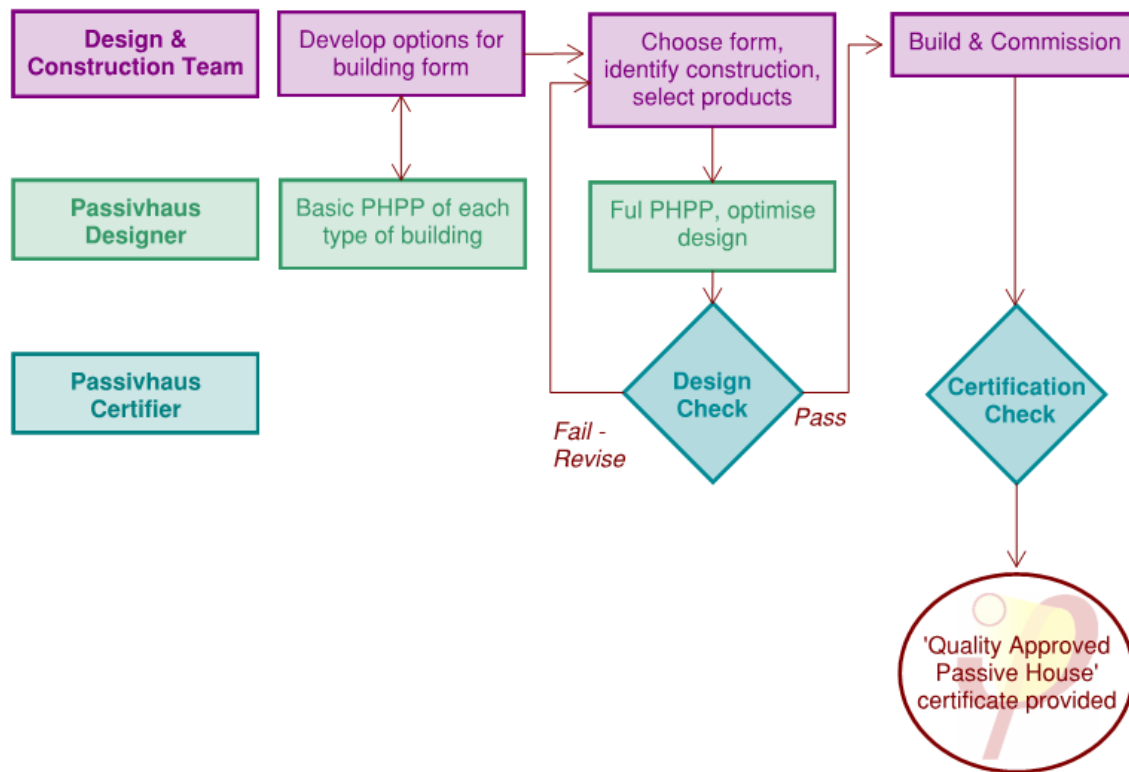


DOCUMENTATION REQUIRED FOR PASSIVHAUS CERTIFICATION



1. The Process

The process of successful passivhaus certification is shown below. Note the separate roles of the Design Team, the Passivhaus Designer, and the Passivhaus Certifier.



A few clarifications:

- **Certification** does not include Passivhaus **Design Consultancy** for quality assurance purposes.
- Passivhaus design revolves around the energy balance of the windows and the heat loss of the building. To some extent poor solar access can be offset by increased insulation, but at a cost in more insulation. In the same way poor massing or layout can result in high insulation requirements, eg a terrace needs less insulation than a detached bungalow, as the heat loss per floor area is inherently lower.. For those uncertain whether the building design, massing and fenestration is helping or hindering the passivhaus target “Concept checking” at pre planning stage is also available at cost, although this is normally the role of the Passivhaus Designer rather than Certifier.
- The diagram above shows a basic check In order to guide teams attempting this standard we suggest checking once the full design has been developed, but before the construction commences, the “**pre-construction compliance check**” This stage requires all the documents listed below in sections 1-4. Section 5 documents have to be submitted once built and tested to obtain the Passivhaus certification.
- Certification can only be granted on **completion** and documented commissioning of a building.

DOCUMENTATION REQUIRED FOR PASSIVHAUS CERTIFICATION



2. Plans

Scaled pdfs please, preferably scale bar marked on each plan for scale checking. We need a complete list of plans submitted, with revision numbers and issue dates.

a) Floor plans

For each level;

- Showing 1m and 2m height restriction lines where appropriate (eg under eaves, under stairs)
- Indicating Plant rooms/Cupboards
- Showing all interior partitions and doorways.
- Showing which areas are intended to be heated in case of doubt (eg basements)
- Showing marked up line for base of exterior measurements (normally outside of construction insulation, but excluding rainscreen)
- Mechanical Ventilation and Heat Recovery (MVHR) locations and duct runs
- Heating and Hot water pipe routes

b) Elevations

Sufficient to allow view of all external heat loss areas;

- Showing finished floor and ceiling lines/levels
- (optional) Showing external heat loss envelope lines/levels (else on construction build up detail or section)
- All openings to be numbered to correspond to window schedule (see below)

c) Sections

Sufficient to explain arrangement of spaces/voids in design

- Main elements constructional build-up (or can be in separate detail drawing)
- Identification of external heat loss base line

d) Details

Sufficient to show all joins between wall/window/roof/floor

- Main element constructional build-up, with materials, thicknesses, bridging materials percentage, and assumed k values if not common.
- Allowing easy identification of continuity of insulation around junctions
- Extra details required where structural or other thermal bridges occur (steel beams/ balcony fixings etc)
- Crucial to include for each type of mounting, the head, jamb and cill detail of windows, doors, roof windows etc. These will also be used for shading calculation dimensions.

3. Psi calculations

To be supplied where thermal insulation is not continuous.

- Show scaled drawing of section modelled
- Psi value calculation position line marked up on drawing
- Declare k values assumed

DOCUMENTATION REQUIRED FOR PASSIVHAUS CERTIFICATION



- Signed declaration by modeller in accordance with En ISO 10077-2

4. Primary Energy

e) Heating System

Heating system type, pipe runs length and insulation, fuel, boiler/heater efficiency from SEDBUK database.

f) Hot Water system type

Hot water distribution pipe lengths, insulation, fuel, boiler/heater efficiency.

g) Appliances

Cooking type, clothes drying, appliances, lighting etc

5. Assumed values

These are general values assumed for the purposes of a design check; they are expected to be subsumed by the certificates below when these are issued before certification:

- Material conductivities list for unusual materials
- Target airtightness value (usually 0.6 achr)
- MVHR efficiency, fan power and insulated duct dimensions
- Window specifications: Ug and g value glass type, Uf and head, jamb, cill thickness for frame type.

6. Certificates required for certification

These are required after building has been built and tested

h) Material Conductivities Certificates

Where conductivities are claimed that are based on unusual materials or with an unusually low conductivity manufactures test certificates will be required. Note that the inclusion of these certificates is not necessarily an acceptance of the material: we need to be sure we are using a representative conductivity value, not the “declared” or best test results the manufacturer has obtained.

i) Airtightness Test Certificate

Certificate to show:

- Result in m³/hr at 50 Pa, for both depressurise and pressurise
- Calculation of internal air volume, hence above results expressed in airchanges per hour.
- Signed declaration by modeller in accordance with ATTMA or equivalent standard
- (permeability optional, but beware UK conventions use internal heat loss area)

j) Ventilation Commissioning Certificate

- Invoice to show unit model installed.

DOCUMENTATION REQUIRED FOR PASSIVHAUS CERTIFICATION



- Commissioning certificate to show system balanced with target and actual air flows obtained at each chosen speed.

k) Windows and Doors

Delivery invoice/schedule

- Showing numbered windows to correspond to elevations
- Showing external frame dimensions
- With glass type indicated, separate U_g and g value certificate for each glass type
- With frame type indicated, separate U_f and head, jamb, cill thickness certificate for each frame type

l) Building Supervisor Certificate

- Signed statement of Construction; detailing:
- List of plans and revisions received and followed in building
- Any differences to plans (there are always some of these)
- Certification that the building has otherwise been constructed according to plans, particularly in respect of:
 - Detailing round junctions being thermal bridge free
 - Insulation installed as drawn
 - Insulation materials and glazing installed were make and manufacturer declared on plans
- Photographs to illustrate the build process – concentrating on the joints between walls, roof, openings, floor, to demonstrate how the joins are “thermal bridge free” ie thermally coherent according to plans.

end