

Level 1 Airtightness Testing Training – Additional Information

How difficult is the course?

Unfortunately, not everyone passes the course first time. Of the three exams, the one which causes most problems is envelope area. Questions 16-20 in the prequalification test (www.bsria.co.uk/download/asset/dat-prequal-test.pdf) relate to envelope area calculations and a sample calculation is attached to this information sheet.

Is there any preparation I need to do before attending the course?

- You are advised to bring a laptop or tablet to the course, with the Tectite software loaded on to it. You can download the software for free from <https://www.bsria.com/doc/rkZXyB/>. It can run on any computer with Windows, including Windows tablets.
- You may wish to familiarise yourself with the Building Regulations guidance for your locality. There is no need to print these out, as relevant pages from the following documents will be included in the course pack:
 - England Approved Document L1A (for dwellings): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/441415/BR_PDF_AD_L1A_2013.pdf
 - England Approved Document L2A (for non-dwellings): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/441420/BR_PDF_AD_L2A_2013.pdf
 - Wales Approved Document L1A (for dwellings): <https://gov.wales/sites/default/files/publications/2019-05/building-regulations-guidance-part-l-conservation-of-fuel-and-power-2014-l1a-new-dwellings.pdf>
 - Wales Approved Document L2A (for non-dwellings): <https://gov.wales/sites/default/files/publications/2019-05/building-regulations-guidance-part-l-conservation-of-fuel-and-power-2014-l2a-new-buildings-other-than-dwellings.pdf>
 - Scottish domestic technical handbook, section 6: <https://www.gov.scot/publications/building-standards-technical-handbook-2019-domestic/about/>
 - Scottish non-domestic technical handbook, section 6: <https://www.gov.scot/publications/building-standards-technical-handbook-2019-non-domestic/>
 - Scottish Sound and Air-tightness Testing – Supplementary Guidance <http://www.scotland.gov.uk/Resource/Doc/217736/0116356.pdf>
 - Northern Ireland Technical Booklet F1 (for dwellings): <https://www.finance-ni.gov.uk/publications/technical-booklet-f1>
 - Northern Ireland Technical Booklet F2 (for non-dwellings): <https://www.finance-ni.gov.uk/publications/technical-booklet-f2>
 - Republic of Ireland Technical Guidance Document L- Dwellings: <https://www.housing.gov.ie/housing/building-standards/tgd-part-l-conservation-fuel-and-energy/technical-guidance-document-l-7>
 - Republic of Ireland Technical Guidance Document L- Non-dwellings: <https://www.housing.gov.ie/housing/building-standards/tgd-part-l-conservation-fuel-and-energy/building-regulations-2017>

How do I become registered as an airtightness tester?

- This course is the first step in becoming registered with ATTMA or iATS as a level 1 tester. After attending the course and passing the exams, the next step is to carry out an initial review.
- The initial review involves carrying out three unpaid airtightness tests, and presenting test files and envelope area calculations, to BSRIA for review.
- The initial review is normally face-to-face, however it can be carried out remotely if distance is an issue. The cost of the initial review is included in the course fee.

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- After undertaking the Initial Review, candidates must demonstrate to their registration body that they have adequate insurance, and access to equipment with valid UKAS calibrations. They must also pay a fee to the registration body for their first year's registration.
- More information about registration can be found at <https://www.bcta.group/attma/> or <https://iats-uk.org/>.

What are the costs involved in airtightness testing?

- The fee for the course is £1400 + VAT for the first delegate and £1150 + VAT for subsequent delegates. The cost of the initial review is included in this fee.
- A full set of equipment costs around £4500 + VAT (including initial calibration).
- All equipment requires annual recalibration – this costs around £650 + VAT.
- BSRIA Instrument Solutions can supply the equipment: https://www.bsria.com/uk/instrument/instruments/airtightness_ductwork_and_smoke_generators/airtightness_testing/
- Testers and airtightness testing firms are subject to registration fees, lodgement fees and audit fees. For more information on these fees, contact the relevant registration body.

What equipment do I need?

- In order to carry out airtightness testing, you will need a set of equipment including a blower door, temperature gauge, barometric pressure gauge and wind speed gauge (see above for approximate costs).
- The Minneapolis blower door is available in 110V and 230V versions. Some sites will have 110V power, others will have 230V power, so it's advisable to get a step-up or step-down transformer. This should have a minimum rating of 1 kVA. Transformers can be purchased from builders' supply stores.
- You will need a Windows laptop or tablet to run the Tectite software. Some testers buy an old laptop for this purpose, as damage can occur on site.
- This equipment fits in the boot of a family car, or the boot and back seats of a smaller car.

What sort of buildings can I test?

The BSRIA Level 1 airtightness training course covers testing of dwellings and smaller non-dwellings, and leads to registration as a Level 1 tester.

Level 1 testers can test dwellings and non-dwellings up to 4000m³ gross envelope volume, tested as a single entity, with a single blower door fan kit. In practice, the capacity of off-the-shelf blower door fans is the limiting factor. Such equipment is capable of testing all but the very largest dwellings, and smaller non-dwellings.

Level 1 testers can undergo further training to upgrade to Level 2 status, enabling them to test larger, more complex buildings, and those requiring multiple fans. BSRIA does not offer this training at present.

Contacts

- Technical questions should be addressed to the course lecturer, David Bleicher: david.bleicher@bsria.co.uk; 01344 465589
- Administrative questions should be addressed to the course administrator, Kathie Bull: Kathie.bull@bsria.co.uk; 01344 465527
- BSRIA Instrument Solutions can provide airtightness testing equipment and other instruments, and also carry out UKAS calibrations: www.bis.fm; 01344 459314 Sales: sales@bis.fm Hire: hire@bis.fm Calibration: calibration@bis.fm

Envelope Area Practice Paper

Refer to Ground Floor Plan, First Floor Plan and Section A-A

Cold Roof or Warm Roof construction?

Section A-A indicates insulation in the first floor ceiling, and none at rafter level. Therefore the house uses Cold Roof Construction.

Dimensions

Envelope areas are always calculated using internal dimensions. In this example the dimensions on the drawings will be used. In real life, you may need to measure some dimensions using a scale rule, in which case you should check what scale the drawings are printed at. Also, you should always check dimensions on site, as the building may not have been built exactly as shown on the construction drawings. Note that the dimensions on the drawings are given in millimetres. To convert these dimensions to metres, divide by 1000. In this example, I have rounded all dimensions to the nearest 0.1m.

Ground Floor

The ground floor has an L-shaped plan. The easiest way to deal with this is to split it up into two rectangles with the following dimensions:

The ground floor area is $(4.9\text{m} \times 8.0\text{m}) + (2.9\text{m} \times 6.0\text{m}) = 56.6\text{m}^2$

Roof

As the house uses Cold Roof Construction, the roof area will be the same as the ground floor area i.e. 56.6m^2

Walls

The house has six wall areas that need to be taken into account. These are labelled 1 to 6 on the first floor plan.

Area of wall 1 = $4.9\text{m} \times 5.0\text{m} = 24.5\text{m}^2$

Area of wall 2 = $2.0\text{m} \times 5.0\text{m} = 10.0\text{m}^2$

Area of wall 3 = $2.9\text{m} \times 5.0\text{m} = 14.5\text{m}^2$

Area of wall 4 = $6.0\text{m} \times 5.0\text{m} = 30.0\text{m}^2$

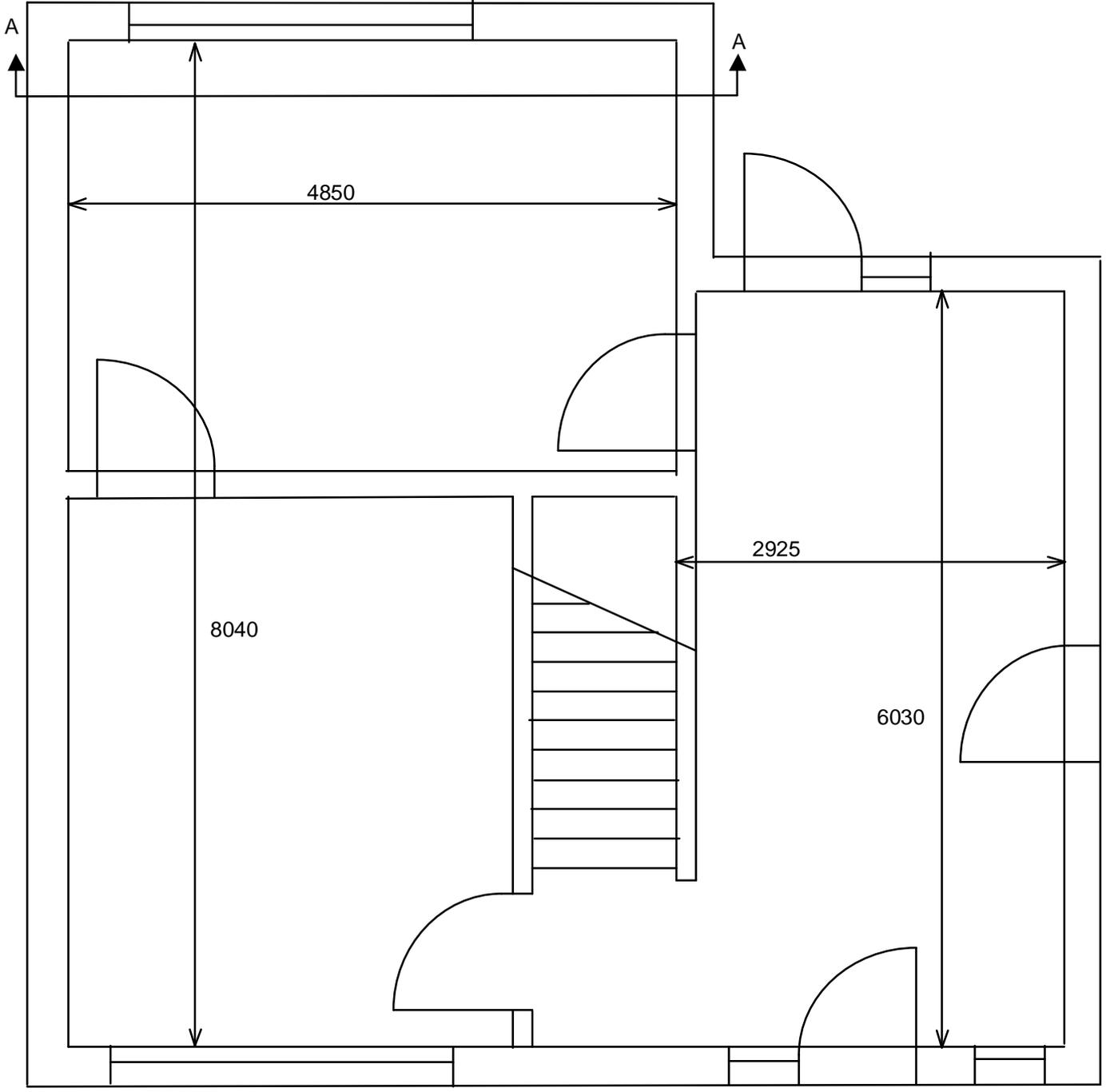
Area of wall 5 = $7.8\text{m} \times 5.0\text{m} = 39.0\text{m}^2$

Area of wall 6 = $8.0\text{m} \times 5.0\text{m} = 40.0\text{m}^2$

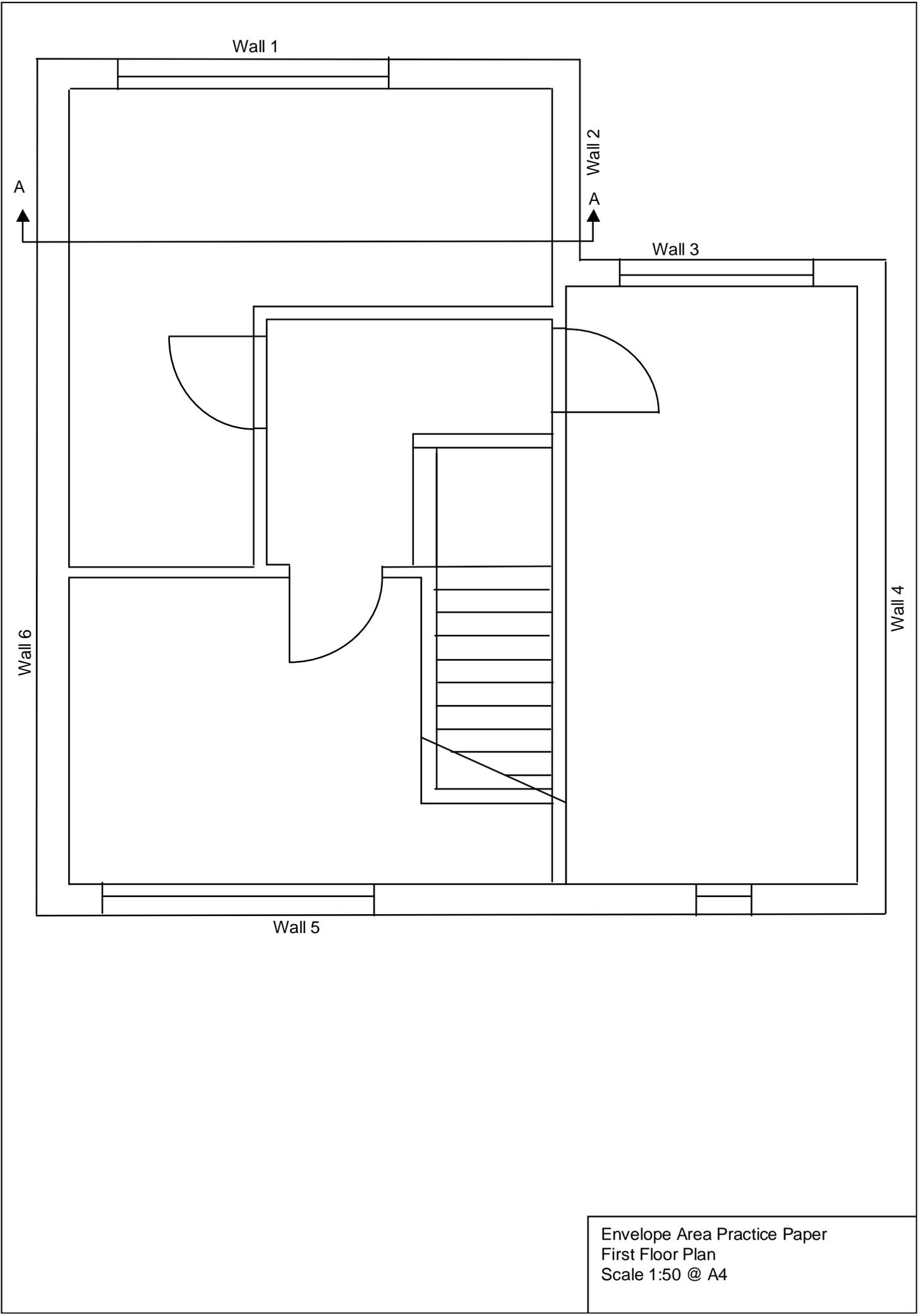
Total wall area = 158.0m^2

Adding it all up...

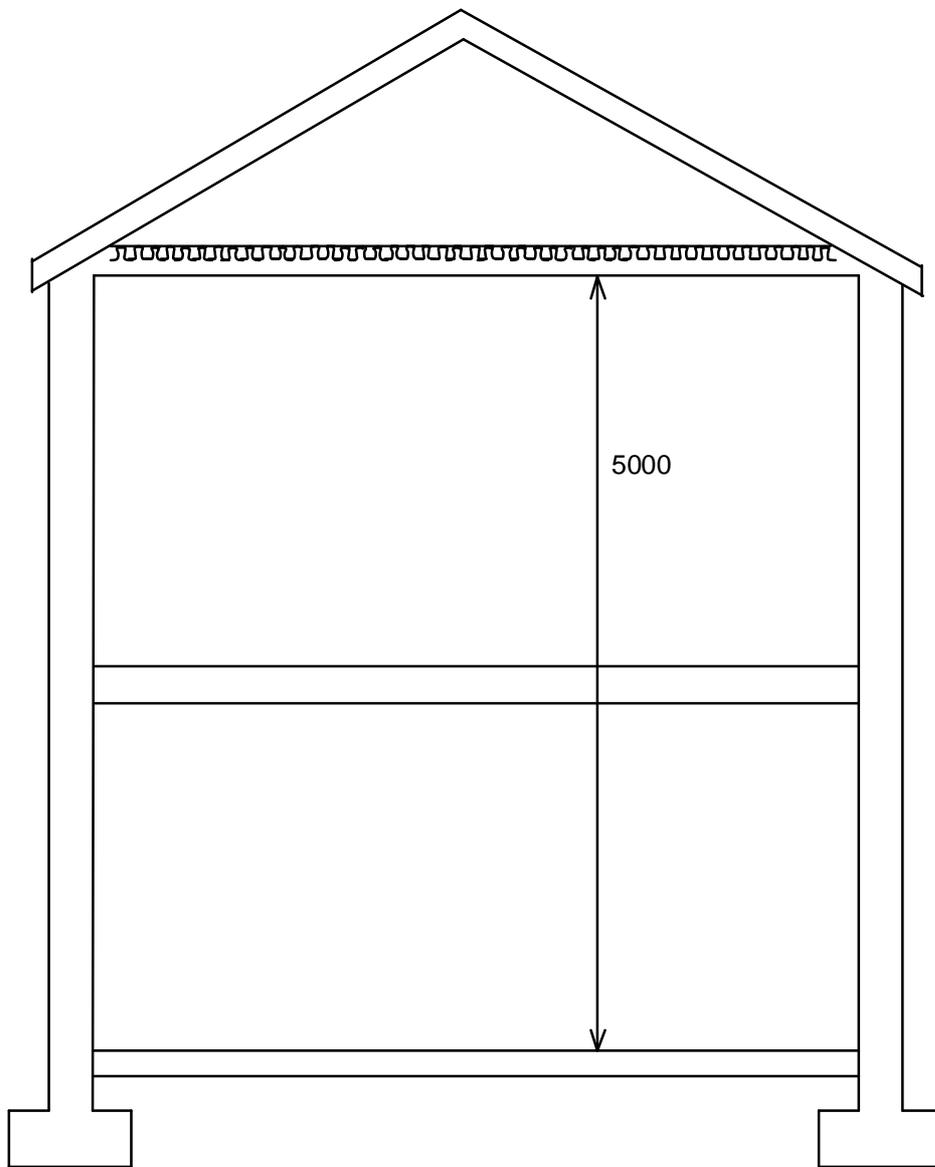
Envelope area = Ground floor + Roof + Walls
= $56.6\text{m}^2 + 56.6\text{m}^2 + 158.0\text{m}^2$
= 271.2m^2



Envelope Area Practice Paper
Ground Floor Plan
Scale 1:50 @ A4



Envelope Area Practice Paper
First Floor Plan
Scale 1:50 @ A4



Envelope Area Practice Paper
Section A-A
Scale 1:50 @ A4