How to pass a "heavily glazed extension" SAP Calculation

Part L 2021

SAP calculations are calculated based on the proposed dwelling against a "notional" – i.e. the minimum requirements of Part L Building Regulations.

The "notional" dwelling

Element	Notional specification	
Size and shape	Same as proposed extension	
Opening areas	Same as actual extension up to a maximum for total area openings of 25% of total floor area + area of lost glazing	
Fabric U Values (W/m2K)	External Walls	0.18
	Floors	0.18
	Roofs	0.15
	Openings	1.40

Retained elements as part of the extension works (i.e. existing garage walls used as part of the new extension) should meet the threshold (a) or must be upgraded to the required standard (b):

Element	(a) Threshold U Value	(b) Improved U Value
Roof[1 2]	0.35	0.16
Wall – cavity insulation[3]	0.70	0.55
Wall – internal or external insulation[4]	0.70	0.30
Floor[2]	0.70	0.25

1 If meeting such a standard would limit head room, a lesser standard may be appropriate. In such cases, both of the following should be achieved.
The depth of the insulation plus any required air gap should be at least to the depth of the rafters.
The insulant should be chosen to achieve the lowest practicable U-value.

2 If there are problems with the load-bearing capacity of the frame or height of the upstand, for a flat roof or roof with integral insulation, a lesser standard may be appropriate.

3 This applies only to a wall that is suitable for cavity insulation. Where this is not the case, it should be treated as 'wall – internal or external insulation'.

4 If meeting such a standard would reduce the internal floor area of the room bounded by the wall by more than 5%, a lesser provision may be appropriate.

If the proposed extension specification meets or betters the above notional values, then compliance should be achieved. It is always recommend to perform SAP calculations as early on in the design process as possible.

Tips to achieve compliance

- Meet or better the notional U Values
- If any existing elements are forming part of the extension works – i.e converting a garage space – then these elements need to meet the requirements of (a) or (b)