NZEB Compliance Using Amvic ICF.

Houses built using Amvic 300 ICF have been achieving NZEB compliant BER certificates without problems.

This is being achieved by;

1) Using certified psi valves (reference Table 3 of our IAB Cert) to calculate the Thermal Bridge Factor as provided for in TGD Part L 2019 Appendix D. A Thermal Bridge Factor (Y-Value) of 0.03 is typically achieved. A sample Y-Value calculation is included for your information.

2) Using an Air Permeability value typical of Amvic ICF of 3m³/m².h @ 50 kPa.

3) Ensuring that the total AU (Area*U-Value) in the proposed project is less that what it would be using the backstop values proposed in the TGD L 2019, the building will comply. Example table below.

Redwood		Proposed			NZEB Backstop Values	
	Areas	U-Value	AU		U-Value	AU
Floors	93.43	0.16	14.9488		0.18	16.8174
Roofs	93.43	0.12	11.2116		0.16	14.9488
Walls	95.86	0.2	19.172		0.18	17.2548
Doors	3.36	1.4	4.704		1.4	4.704
Windows	16.57	1.4	23.198		1.4	23.198
			73.2344			76.923
Complies with NZEB if the proposed AU Proposed is less than The back stop						Complies

4) Use of high efficiency heating systems

This is in full compliance with the requirements of TGD L 2019, as set out in section 1.3.2.2, with reference to Table 1, page 20.

Note that TGD L 2019 is a guidance document and that "*the adoption of an approach other than that outlined in the guidance is not precluded provided that the relevant requirements of the Regulations are complied with*" (TGD L 2019, Introduction, p 4.). This is the approach being taken here.

Y value calculation table

Total Envelope Area	249.503				
Junction	**L**		**ψ**		**L x ψ**
Lintels	14.250	x	0.001	=	0.01
Sill	13.250	x	0.089	=	1.18
Jamb	35.200	x	0.002	=	0.07
Ground Floor	27.600	x	0.052	=	1.44
Intermediate Floor within a dwelling	20.950	x	-0.006	=	-0.13
Intermediate Floor between dwellings		x		=	0.00
Balcony within a dwelling		x		=	0.00
Balcony between dwellings		x		=	0.00
Ceiling (Insulation at eaves)		x		=	0.00
Ceiling (Insulation at eaves) (Dormer)		x		=	0.00
Sloped (Insulation at eaves)		x		=	0.00
Sloped (Insulation at eaves) (Dormer)		x		=	0.00
Ceiling (Insulation at gables)		x		=	0.00
Sloped (Insulation at gables)		x		=	0.00
Flat roof with eaves		x		=	0.00
Flat roof with parapet Concrete Barge?	12.000	x	0.067	=	0.80
Corner (Normal)	8.600	x	0.046	=	0.40
Corner (Inverted)	5.650	x	-0.093	=	-0.53
Party wall between dwellings	11.300	x	0.079	=	0.89
Party Ground floor	6.450	x	-0.232	=	-1.50
Party Ceiling (Insulation at ceiling level)		x		=	0.00
		x		=	0.00
			Total	=	2.64
	L x ψ / Total Area			=	**0.01**

Y value

Please see comment box above for table D1 reference

Please note: Some values are automatically generated from sheet 1 to 2,
Some junctions are not automatically generated therefore require manual input.

Calculated
Manual input