

This report details the calculations and results for Ene 1, 2 and 7 of the Code For Sustainable Homes.

This Design Assessment has been carried out using Approved SAP software. It has been prepared from plans and specifications and may not reflect the property as constructed. Code calculations are from the Technical Guide (November 2010).

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Client		Last modified	29/03/2013
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**Building regulation assessment - criterion 1**

	kg/m <sup>2</sup> /yr
DER	-6.08
TER	15.18

**Assessment of zero carbon home and low or zero carbon technologies**

		Credits	Level
Dwelling emission rate (Ene 1)	CO <sub>2</sub> reduction = 140.1 %	9	5
Fabric Energy Efficiency	FEE = 30.3	9	
Low or zero carbon technologies (Ene 7)	CO <sub>2</sub> reduction = 61 %	2	

**Ene 1 - dwelling emission rate**

	%	kWh/m <sup>2</sup>	kgCO <sub>2</sub> /m <sup>2</sup> /yr
<b>Assessment of Ene 1 (level 1-5)</b>			
DER from SAP 2009 DER worksheet			-6.08
Additional allowable generation		0.00	
CO <sub>2</sub> emissions offset from generation			0.00
CO <sub>2</sub> emissions offset from community biofuel CHP systems			0.00
Total CO <sub>2</sub> emissions offset from SAP section 16 allowances			<b>0.00</b>
DER accounting for SAP section 16 allowances			<b>-6.08</b>
CO <sub>2</sub> reduction compared to TER			21.26
CO <sub>2</sub> reduction as % of TER	140.1		

**Assessment of Ene 1 (level 6)**

DER from SAP 2009 DER worksheet	-6.08	(ZC1)
CO <sub>2</sub> emissions from appliances (equation L14)	16.11	(ZC2)
CO <sub>2</sub> emissions from cooking (equation L16)	2.18	(ZC3)
Total CO <sub>2</sub> emissions	12.21	(ZC4)
Additional allowable generation and its CO <sub>2</sub> emissions offset	0.00	(ZC6)
CO <sub>2</sub> emissions offset from additional allowable generation	0.00	(ZC7)
CO <sub>2</sub> emissions offset from community biofuel CHP systems	0.00	(ZC5)
Net CO <sub>2</sub> emissions	<b>12.21</b>	(ZC8)

## Ene 1 - dwelling emission rate - level 6

There is no Zero Carbon Home definition in the current technical guide

	Criterion	Value	Pass/Fail
FEE	<= 39	30.3	Pass
Net CO <sub>2</sub> emissions	<= 0.00	12.21	Fail
Result: Not level 6			
Number of credits for Ene 1			9

## Ene 2 - Fabric Energy Efficiency

FEE			30.3
Number of credits for Ene 2			9

## Ene 7 - low or zero carbon technologies

	Emissions kgCO <sub>2</sub> /yr	Reduction kgCO <sub>2</sub> /yr
<b>Standard case</b>		
Space and water heating (265)	983.56	
Mechanical cooling (266)	0.00	
Pumps and fans (267)	90.48	
Lighting (268)	193.48	
Appliances and cooking	1499.90	
Total CO <sub>2</sub>	<b>2767.42</b>	
<b>Actual case</b>		
Space and water heating (265) or (376)	983.56	
Space and water heating from LZCT considered in SAP 2009		0.00
Pumps and fans (267) or (378)	90.48	
Pumps and fans		0.00
Electricity generated by LZCT (269) + (380))		-1710.79
Additional allowable electricity generation considered in SAP 2009 section 16		0.00
Offset from biofuel CHP [-1 x [(363)..(366) + (368)..(372)]]		0.00
LZCT electricity generation		-1710.79
LZCT thermal generation		0
Total from specified LZCT		<b>-1710.79</b>
<b>Reduction in CO<sub>2</sub> Emissions</b>		
Standard Case CO <sub>2</sub>	33.75	
Actual Case CO <sub>2</sub>	12.88	
% Reduction in CO <sub>2</sub>	61	
Number of credits for Ene 7	<b>2</b>	