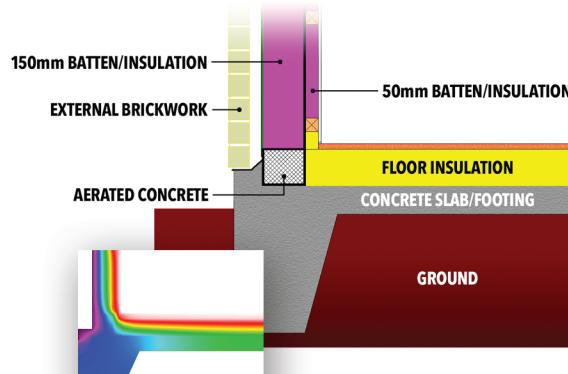
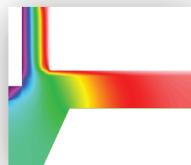


#### 4.Thermal bridge-free construction



◀ Thermal image of above passive footing  
(Bridge-free footing configuration as used in the Taupo passive house)



◀ Thermal image of traditional footing

#### 5. Super-insulated structure



Floor insulation

U-Value: 0.199 W/(m<sup>2</sup>K)  
R Value: 5.0



Ceiling insulation

U-Value: 0.126 W/(m<sup>2</sup>K)  
R Value: 7.9

Wall insulation

U-Value: 0.213 W/(m<sup>2</sup>K)  
R Value: 4.7

### What is required to gain passive certification?

#### Passive House Institute

The Passive House Institute outlines strict criteria which must be met to obtain certification.

These include:

Detailed drawings and technical data must be submitted at the design and build stage.

Pressure tests and onsite checks must be carried out to confirm quality of construction and adherence to criteria.

All passive houses are Building Act and Local Authority compliant and certified.

Passive House Verification			
			
Building:	Two story residential house		
Location and Details:	Taupo, New Zealand Taupo PHPP Tool (NASA Data) changed for PHPP		
Street:	Puketapu Rd, Puketapu Bay		
Postcode/City:	33777		
County:	New Zealand		
Building Type:	Two story residential house		
Home Owner(s) / Client(s):	Lene & Kim Feldborg		
Postcode/City:	Kim Feldborg		
Architect:			
Postcode/City:			
Mechanical System:	Zehnder		
Postcode/City:			
Year of Construction:	2012	Interior Temperature:	20.0 °C
Number of Dwelling Units:	1	Internal Heat Gains:	2.1 W/m <sup>2</sup>
Enclosed Volume V:			
Number of Occupants:	7.4		
Specific Demands with Reference to the Treated Floor Area			
Treated Floor Area:	257.4 m <sup>2</sup>	Annual method	
Specific Space Heating Demand:	6 kWh/(m <sup>2</sup> a)	PH Certificate:	Fulfilled?
Heating Load:	4 W/m <sup>2</sup>	15 kWh/(m <sup>2</sup> a)	Yes
Preservation Test Result:	h <sup>-1</sup>	10 W/m <sup>2</sup>	
Specific Primary Energy Demand (DHW, Heating, Cooling, Auxiliary and Unheated Electricity):	kWh/(m <sup>2</sup> a)	0.6 h <sup>-1</sup>	
Specific Primary Energy Reduction through Solar Electricity:	kWh/(m <sup>2</sup> a)	120 kWh/(m <sup>2</sup> a)	
Frequency of Overheating:	60 %	over 25 °C	
Specific Useful Cooling Energy Demand:	kWh/(m <sup>2</sup> a)	15 kWh/(m <sup>2</sup> a)	
Cooling Load:	12 W/m <sup>2</sup>		
<small>We confirm that the values given herein have been determined following the PHPP methodology and based on the characteristic values of the building. The calculations with PHPP are attached to this application.</small>			
<small>Issued on:</small> <small>26-2-2012</small> <small>Kim Feldborg</small>		<small>Approved by:</small> <small>PHPP</small>	

APPROVED



## Welcome to our Passive House

The strategy of a passive house is to re-use "free" heat to heat the home. "Free" heat is defined as heat given off by sources such as appliances, lighting, cooking, body heat etc.



Designed & built by  
Kim Feldborg (Valhalla Living Ltd.) Taupo, New Zealand

For further information, please call me any time.

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