

This design submission has been carried out using Approved SAP software. It has been prepared from plans and specifications and may not reflect the property as constructed.

Assessor name	Mr Rhys Bartle	Assessor number	8063
Client		Last modified	25/04/2016
Address	1 Wiloughby Road, Twickenham		

### Dwelling

Development:	N/A	House type:	
Property type:	House		
Built form:	Semi-detached	Year built:	2015
Tariff:	Standard	Assess summer overheating:	Yes
Thermal mass:	Medium	Thermal mass parameter:	250.00
Separated heated conservatory:	No	Degree day region:	Thames
Sheltered sides:	2	Terrain:	Low Rise U/S

**Storeys:**

Name	Area (m <sup>2</sup> )	Height (m)
Lowest occupied	112.96	2.65
+1	95.36	3.13
+2	95.36	2.65

### Floors

Ref - Name	Type	Construction	Storey Location	Living Area (m <sup>2</sup> )	Area (m <sup>2</sup> )	U-value (W/m <sup>2</sup> K)
Floor 1 - gf	Ground	Suspended not timber	Lowest occupied	53.76	112.96	0.13
Floor 2 - 1f exp	Upper	Suspended timber sealed	+1	0.00	3.36	0.14
Living area that has no heat loss:	0.00					

### Walls

Ref - Name	Type	Construction	Gross Area (m <sup>2</sup> )	U-value (W/m <sup>2</sup> K)
Wall 1 - external	External	Cavity	172.05	0.20
Wall 2 - party	Party	Fully filled cavity with sealed edges	65.08	0.00
Wall 3 - dormer	External	Timber	4.95	0.24
Wall 4 - sheltered	Sheltered	Cavity	13.25	0.17

### Roofs

Ref - Name	Construction	Gross Area (m <sup>2</sup> )	U-value (W/m <sup>2</sup> K)
Roof 1 - rafters	Pitched (rafters)	40.70	0.16
Roof 2 - joists	Flat	61.36	0.13
Roof 3 - flat	Flat	14.40	0.13
Roof 4 - dormer roof	Flat	3.70	0.13

### Openings

**Opening Ref: 1 Window, Triple glazed (low-E), 'w1', master: Yes, linked to: 0**

Location:	Wall 1	Source:	From Manufacturer	Orientation:	North East
Overshading:	None / Very little	Width (m):	3.20	Height (m):	2.10
Frame:	Wood	Transmittance factor:	0.57	U-value (W/m <sup>2</sup> K):	0.87

**Opening Ref: 2 Window, Triple glazed (low-E), 'w2', master: No, linked to: 1**

Location:	Wall 1	Source:	From Manufacturer	Orientation:	North East
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Overshading:	None / Very little	Width (m):	1.80	Height (m):	1.60
Frame:	Wood	Transmittance factor:	0.57	U-value (W/m <sup>2</sup> K):	0.87

**Opening Ref: 3 Solid door, N/A, ' d1', master: No, linked to: 0**

Location:	Wall 4	Source:	From Manufacturer	Orientation:	N/A
Overshading:	N/A	Width (m):	1.00	Height (m):	2.10
Frame:	Wood	Transmittance factor:	N/A	U-value (W/m <sup>2</sup> K):	1.00

**Opening Ref: 4 Half glazed door, Double glazed (low-E), ' d2', master: Yes, linked to: 0**

Location:	Wall 1	Source:	From Manufacturer	Orientation:	N/A
Overshading:	N/A	Width (m):	1.60	Height (m):	2.60
Frame:	Wood	Transmittance factor:	0.63	U-value (W/m <sup>2</sup> K):	1.00

**Opening Ref: 5 Window, Triple glazed (low-E), ' w3', master: No, linked to: 1**

Location:	Wall 1	Source:	From Manufacturer	Orientation:	South West
Overshading:	None / Very little	Width (m):	1.80	Height (m):	1.60
Frame:	Wood	Transmittance factor:	0.57	U-value (W/m <sup>2</sup> K):	0.87

**Opening Ref: 6 Window, Triple glazed (low-E), ' w4', master: No, linked to: 1**

Location:	Wall 1	Source:	From Manufacturer	Orientation:	North East
Overshading:	None / Very little	Width (m):	3.20	Height (m):	2.10
Frame:	Wood	Transmittance factor:	0.57	U-value (W/m <sup>2</sup> K):	0.87

**Opening Ref: 7 Window, Triple glazed (low-E), ' w5', master: No, linked to: 1**

Location:	Wall 1	Source:	From Manufacturer	Orientation:	North East
Overshading:	None / Very little	Width (m):	1.00	Height (m):	1.60
Frame:	Wood	Transmittance factor:	0.57	U-value (W/m <sup>2</sup> K):	0.87

**Opening Ref: 8 Window, Triple glazed (low-E), ' w6', master: No, linked to: 1**

Location:	Wall 1	Source:	From Manufacturer	Orientation:	South East
Overshading:	None / Very little	Width (m):	1.00	Height (m):	6.20
Frame:	Wood	Transmittance factor:	0.57	U-value (W/m <sup>2</sup> K):	0.87

**Opening Ref: 9 Window, Triple glazed (low-E), ' w7', master: No, linked to: 1**

Location:	Wall 1	Source:	From Manufacturer	Orientation:	South West
Overshading:	None / Very little	Width (m):	1.20	Height (m):	2.10
Frame:	Wood	Transmittance factor:	0.57	U-value (W/m <sup>2</sup> K):	0.87

**Opening Ref: 10 Window, Triple glazed (low-E), ' w8', master: No, linked to: 1**

Location:	Wall 1	Source:	From Manufacturer	Orientation:	South West
Overshading:	None / Very little	Width (m):	1.80	Height (m):	2.10
Frame:	Wood	Transmittance factor:	0.57	U-value (W/m <sup>2</sup> K):	0.87

**Opening Ref: 11 Window, Triple glazed (low-E), ' w9', master: No, linked to: 1**

Location:	Wall 1	Source:	From Manufacturer	Orientation:	North East
Overshading:	None / Very little	Width (m):	2.40	Height (m):	1.60
Frame:	Wood	Transmittance factor:	0.57	U-value (W/m <sup>2</sup> K):	0.87

**Opening Ref: 12 Window, Triple glazed (low-E), ' w10', master: No, linked to: 1**

Location:	Wall 1	Source:	From Manufacturer	Orientation:	North East
Overshading:	None / Very little	Width (m):	1.00	Height (m):	0.90
Frame:	Wood	Transmittance factor:	0.57	U-value (W/m <sup>2</sup> K):	0.87

**Opening Ref: 13 Window, Triple glazed (low-E), ' w11', master: No, linked to: 1**

Location:	Wall 1	Source:	From Manufacturer	Orientation:	South West
Overshading:	None / Very little	Width (m):	1.20	Height (m):	1.60
Frame:	Wood	Transmittance factor:	0.57	U-value (W/m <sup>2</sup> K):	0.87

**Opening Ref: 14 Window, Triple glazed (low-E), ' w12', master: No, linked to: 1**

Location:	Wall 1	Source:	From Manufacturer	Orientation:	South West
Overshading:	None / Very little	Width (m):	1.80	Height (m):	1.60
Frame:	Wood	Transmittance factor:	0.57	U-value (W/m <sup>2</sup> K):	0.87

**Opening Ref: 15 Rooflight, Double glazed (low-E), ' r11', master: No, linked to: 0**

Location:	Roof 2	Source:	From Manufacturer	Orientation:	Horizontal
Overshading:	None / Very little	Width (m):	0.70	Height (m):	1.40

**Thermal Bridging**

Ref	Description	Length (m)	Source	ψ (W/m·K)	Result
E1	Steel lintel with perforated steel	0	Default Value	N/A	0
E2	Other lintels (including other steel)	24	Approved	0.3	7.2
E3	Sill	21.4	Approved	0.04	0.856
E4	Jamb	59.6	Approved	0.05	2.98
E5	Ground floor (normal)	34	Approved	0.16	5.44
E19	Ground floor (inverted)	N/A	Default Value	N/A	0
E20	Exposed floor (normal)	N/A	Default Value	N/A	0
E21	Exposed floor (inverted)	N/A	Default Value	N/A	0
E22	Basement floor	N/A	Default Value	N/A	0
E6	Intermediate floor within a dwelling	68	Approved	0.07	4.76
E7	Party floor between dwellings (in b	N/A	Default Value	N/A	0
E8	Balcony within a dwelling, wall ins	N/A	Default Value	N/A	0
E9	Balcony between dwellings, wall ins	N/A	Default Value	N/A	0
E23	Balcony within or between dwellings	N/A	Default Value	N/A	0
E10	Eaves (insulation at ceiling level)	N/A	Default Value	N/A	0
E24	Eaves (insulation at ceiling level)	N/A	Default Value	N/A	0
E11	Eaves (insulation at rafter level)	24.1	Approved	0.04	0.964
E12	Gable (insulation at ceiling level)	N/A	Default Value	N/A	0
E13	Gable (insulation at rafter level)	N/A	Default Value	N/A	0
E14	Flat roof	27	Approved	0.04	1.08
E15	Flat roof with parapet	N/A	Default Value	N/A	0
E16	Corner (normal)	43.23	Approved	0.09	3.8907
E17	Corner (inverted - internal area gr	13.7	Approved	-0.09	-1.233
E18	Party wall between dwellings	N/A	Default Value	N/A	0
E25	Staggered party wall between dwelli	8.16	Default Value	0.12	0.9792
P1	Ground floor	13	Default Value	0.16	2.08
P6	Ground floor (inverted)	N/A	Default Value	N/A	0
P2	Intermediate floor within a dwelling	19.6	Default Value	0	0
P3	Intermediate floor between dwelling	N/A	Default Value	N/A	0
P7	Exposed floor (normal)	N/A	Default Value	N/A	0
P8	Exposed floor (inverted)	N/A	Default Value	N/A	0
P4	Roof (insulation at ceiling level)	8.8	Approved	0.12	1.056
P5	Roof (insulation at rafter level)	1.2	Default Value	0.08	0.096
R1	Head	0.7	Default Value	0.08	0.056
R2	Sill	0.7	Default Value	0.06	0.042
R3	Jamb	2.8	Default Value	0.08	0.224
R4	Ridge (vaulted ceiling)	N/A	Default Value	N/A	0
R5	Ridge (inverted)	N/A	Default Value	N/A	0
R6	Flat ceiling	26	Default Value	0.06	1.56
R7	Flat ceiling (inverted)	N/A	Default Value	N/A	0
R8	Roof wall (rafter)	N/A	Default Value	N/A	0
R9	Roof wall (flat ceiling)	N/A	Default Value	N/A	0

Equivalent γ value: 0.075

**Ventilation**

Air permeability entered:	Yes	Seek exemption (<3 dwellings):	No
Design air permeability rate:	5.00		
<b>Number of...</b>	<b>Open fireplaces</b>	<b>Open flues</b>	<b>Flueless gas fires</b>
	0	0	0
			<b>Extract fans</b>
			8
			<b>Passive vents</b>
			0
Mechanical ventilation:	Not present (natural)		

### Space heating

Main heating category:	Individual system/s	Number of systems:	1
Secondary heating:	Yes	Smoke control area:	Not Known
Type:	Boiler	Efficiency source:	Product database
Product index:	017693		
Product details:	Vaillant ecoTEC plus 637 H system A VU GB 376/5-5 A		
Boiler type:	N/A	Fuel:	Mains gas
Condensing:	Yes	Flue type:	Balanced
Fan assisted flue:	Yes		
System:	Condensing with automatic ignition (1998 or later)		
Controls:	Time and temperature zone control - plumbing circuit		
Interlock:	Yes	Delayed start thermostat:	Yes
Compensation:	Weather or load compensator	Burner control:	On/off
Emitter:	Underfloor (screed)	Pump in heated space:	Yes
Flow Temp:	<= 35°C		
Installed 2013 or later:	Yes		
FGHRS:	No		
<b>Secondary heating:</b>			
Efficiency source:	SAP table	Fuel:	Bioethanol from any biomass source
System:	Bioethanol heater		
Flue type:	N/A		
HETAS approved:	N/A	Efficiency:	94.00

### Water heating

Type:	From main	Fuel:	Mains gas
Water separately timed:	Yes	Water use ≤125 litres/person/day:	Yes
Heat pump uses immersion:	N/A	Summer immersion:	N/A
Thermal store type:	None		
<b>Store details:</b>			
Heat loss source:	Manufacturer	Declared loss factor:	1.89
Cylinder volume (litres):	300.00		
Thermostat:	Yes	In heated space:	Yes
Primary pipework insulated:	N/A		
<b>WWHRS:</b>			
WWHRS:	N/A		

### Renewables

#### Photovoltaic panels system 1

Installed power peak (kWp):	1.90	Collector orientation:	South East
Collector tilt:	30°	Overshading:	None or Very Little < 20%
Connected to:	Individual dwelling (not landlord)		

### Other

#### Internal lighting

Standard fittings:	0	Low energy fittings:	21	Total fittings:	21
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#### Summer overheating

Thermal mass parameter (TMP):	250.00		
User defined air change rate:	No	Air change rate (ach):	N/A
Cross ventilation on most floors:	Yes	Window ventilation:	Fully open half the time

Source of user defined values: N/A  
Curtains closed in daylight hours: Yes Fraction curtains closed: 1.00  
Blind/curtain type: Dark-coloured curtain or roller blind

**Special features (Appendix Q)**

No Appendix Q special features present

**Cooling details**

No space cooling present

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