

This design draft submission provides evidence towards compliance with Part L of the Building Regulations, in accordance with Appendix C of AD L1A. It has been carried out using Approved SAP software. It has been prepared from plans and specifications and may not reflect the 'as built' property. This report covers only items included within the SAP and is not a complete report of regulations compliance.

Assessor name	Mr Stuart Searle	Assessor number	3519
Client	Avis Appleton & Associates	Last modified	14/09/2016
Address	PF1 Liffords Place, London, SW13		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 21.22	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 8.92	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 8.92 < TER 21.22	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 55.2 < TFEE 63.3	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table border="1"> <thead> <tr> <th>Element</th> <th colspan="2">Weighted average Highest</th> </tr> </thead> <tbody> <tr> <td>Wall</td> <td>0.20 (max 0.30)</td> <td>0.20 (max 0.70)</td> </tr> <tr> <td>Party wall</td> <td colspan="2">(no party wall)</td> </tr> <tr> <td>Floor</td> <td>0.10 (max 0.25)</td> <td>0.10 (max 0.70)</td> </tr> <tr> <td>Roof</td> <td colspan="2">(no roof)</td> </tr> <tr> <td>Openings</td> <td>1.31 (max 2.00)</td> <td>1.40 (max 3.30)</td> </tr> </tbody> </table>	Element	Weighted average Highest		Wall	0.20 (max 0.30)	0.20 (max 0.70)	Party wall	(no party wall)		Floor	0.10 (max 0.25)	0.10 (max 0.70)	Roof	(no roof)		Openings	1.31 (max 2.00)	1.40 (max 3.30)	Authorised SAP Assessor	Passed
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How has the loss from thermal bridges been calculated?	Thermal bridging calculated from linear thermal transmittances for each junction	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Main heating system: Mains gas, Combi boiler from database Ideal LOGIC COMBI ESP 24 Efficiency = 89.00% - SEDBUK 2009 Minimum = 88.00% Secondary heating system: None	Authorised SAP Assessor	Passed																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Time and temperature zone control - plumbing circuit Hot water control: No hot water cylinder Boiler interlock (main system 1)	Authorised SAP Assessor	Passed																		

Check	Evidence	Produced by	OK?
Fixed internal lighting			
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 8 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (19.57°) Overheating risk (July) = Slight (21.3°) Overheating risk (August) = Slight (21.04°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 3.00 ach Blinds/curtains = Light-coloured curtain or roller blind	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following floors have a U-value less than 0.13W/m ² K: • F1 - Exposed (0.10) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Use of the following low carbon or renewable technologies: • Photovoltaic array	Authorised SAP Assessor	

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Address	PF2 Liffords Place, London, SW13		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 20.51	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 8.13	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 8.13 < TER 20.51	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 51.8 < TFEE 59.6	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
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Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder	Authorised SAP Assessor																			
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Fixed internal lighting			
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 8 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (19.62°) Overheating risk (July) = Slight (21.34°) Overheating risk (August) = Slight (21.05°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 3.00 ach Blinds/curtains = Light-coloured curtain or roller blind	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • W2 - PW (0.00) The following floors have a U-value less than 0.13W/m ² K: • F1 - Exposed (0.10) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Use of the following low carbon or renewable technologies: • Photovoltaic array	Authorised SAP Assessor	

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Client	Avis Appleton & Associates	Last modified	14/09/2016
Address	PF3 Liffords Place, London, SW13		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 18.65	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 7.41	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 7.41 < TER 18.65	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 48.4 < TFEF 54.6	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
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Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder	Authorised SAP Assessor																			
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Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 8 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (19.08°) Overheating risk (July) = Slight (20.86°) Overheating risk (August) = Slight (20.7°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 3.00 ach Blinds/curtains = Light-coloured curtain or roller blind	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.61 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 89.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • W2 - PW (0.00) The following floors have a U-value less than 0.13W/m ² K: • F1 - Exposed (0.10) The following roofs have a U-value less than 0.13W/m ² K: • R1 - Flat (0.10) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Use of the following low carbon or renewable technologies: • Photovoltaic array	Authorised SAP Assessor	

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Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 18.01	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 5.68	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 5.68 < TER 18.01	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 48.6 < TFEF 56.1	Authorised SAP Assessor	Passed																		
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Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Time and temperature zone control - plumbing circuit Hot water control: No hot water cylinder Boiler interlock (main system 1)	Authorised SAP Assessor	Passed																		

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Fixed internal lighting			
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 8 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (19.13°) Overheating risk (July) = Slight (20.89°) Overheating risk (August) = Slight (20.67°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 3.00 ach Blinds/curtains = Light-coloured curtain or roller blind	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
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Are emissions from dwelling as designed less than or equal to the target?	DER 7.72 < TER 20.23	Authorised SAP Assessor	Passed																		
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Fixed internal lighting			
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 8 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (19.07°) Overheating risk (July) = Slight (20.84°) Overheating risk (August) = Slight (20.65°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 3.00 ach Blinds/curtains = Light-coloured curtain or roller blind	Authorised SAP Assessor	Passed
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Are emissions from dwelling as designed less than or equal to the target?	DER 6.92 < TER 19.35	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 46.5 < TFEF 53.8	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table border="1"> <thead> <tr> <th>Element</th> <th colspan="2">Weighted average Highest</th> </tr> </thead> <tbody> <tr> <td>Wall</td> <td>0.20 (max 0.30)</td> <td>0.20 (max 0.70)</td> </tr> <tr> <td>Party wall</td> <td colspan="2">(no party wall)</td> </tr> <tr> <td>Floor</td> <td colspan="2">(no floor)</td> </tr> <tr> <td>Roof</td> <td>0.10 (max 0.20)</td> <td>0.10 (max 0.35)</td> </tr> <tr> <td>Openings</td> <td>1.31 (max 2.00)</td> <td>1.40 (max 3.30)</td> </tr> </tbody> </table>	Element	Weighted average Highest		Wall	0.20 (max 0.30)	0.20 (max 0.70)	Party wall	(no party wall)		Floor	(no floor)		Roof	0.10 (max 0.20)	0.10 (max 0.35)	Openings	1.31 (max 2.00)	1.40 (max 3.30)	Authorised SAP Assessor	Passed
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Openings	1.31 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated from linear thermal transmittances for each junction	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Main heating system: Mains gas, Combi boiler from database Ideal LOGIC COMBI ESP 24 Efficiency = 89.00% - SEDBUK 2009 Minimum = 88.00% Secondary heating system: None	Authorised SAP Assessor	Passed																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Time and temperature zone control - plumbing circuit Hot water control: No hot water cylinder Boiler interlock (main system 1)	Authorised SAP Assessor	Passed																		

Check	Evidence	Produced by	OK?
Fixed internal lighting			
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 8 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (19.73°) Overheating risk (July) = Slight (21.45°) Overheating risk (August) = Slight (21.18°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 3.00 ach Blinds/curtains = Light-coloured curtain or roller blind	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following roofs have a U-value less than 0.13W/m ² K: • R1 - Flat (0.10) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Use of the following low carbon or renewable technologies: • Photovoltaic array	Authorised SAP Assessor	

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Assessor name	Mr Stuart Searle	Assessor number	3519
Client	Avis Appleton & Associates	Last modified	14/09/2016
Address	PS2 Liffords Place, London, SW13		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 18.76	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 6.26	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 6.26 < TER 18.76	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 43.6 < TFEE 50.8	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
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Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated from linear thermal transmittances for each junction	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Main heating system: Mains gas, Combi boiler from database Ideal LOGIC COMBI ESP 24 Efficiency = 89.00% - SEDBUK 2009 Minimum = 88.00% Secondary heating system: None	Authorised SAP Assessor	Passed																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Time and temperature zone control - plumbing circuit Hot water control: No hot water cylinder Boiler interlock (main system 1)	Authorised SAP Assessor	Passed																		

Check	Evidence	Produced by	OK?
Fixed internal lighting			
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 8 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (19.77°) Overheating risk (July) = Slight (21.48°) Overheating risk (August) = Slight (21.19°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 3.00 ach Blinds/curtains = Light-coloured curtain or roller blind	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • W2 - PW (0.00) The following roofs have a U-value less than 0.13W/m ² K: • R1 - Flat (0.10) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Use of the following low carbon or renewable technologies: • Photovoltaic array	Authorised SAP Assessor	

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Assessor name	Mr Stuart Searle	Assessor number	3519
Client	Avis Appleton & Associates	Last modified	14/09/2016
Address	PS3 Liffords Place, London, SW13		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 15.37	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 3.42	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 3.42 < TER 15.37	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 38.7 < TFEE 42.7	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
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Openings	1.31 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated from linear thermal transmittances for each junction	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Main heating system: Mains gas, Combi boiler from database Ideal LOGIC COMBI ESP 24 Efficiency = 89.00% - SEDBUK 2009 Minimum = 88.00% Secondary heating system: None	Authorised SAP Assessor	Passed																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Time and temperature zone control - plumbing circuit Hot water control: No hot water cylinder Boiler interlock (main system 1)	Authorised SAP Assessor	Passed																		

Check	Evidence	Produced by	OK?
Fixed internal lighting			
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 8 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (19.3°) Overheating risk (July) = Slight (21.04°) Overheating risk (August) = Slight (20.82°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 3.00 ach Blinds/curtains = Light-coloured curtain or roller blind	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Use of the following low carbon or renewable technologies: • Photovoltaic array	Authorised SAP Assessor	

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Assessor name	Mr Stuart Searle	Assessor number	3519
Client	Avis Appleton & Associates	Last modified	14/09/2016
Address	PS4 Liffords Place, London, SW13		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 17.08	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 4.92	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 4.92 < TER 17.08	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 39.8 < TFEF 44.1	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
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Openings	1.31 (max 2.00)	1.40 (max 3.30)																			
Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated from linear thermal transmittances for each junction	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Main heating system: Mains gas, Combi boiler from database Ideal LOGIC COMBI ESP 24 Efficiency = 89.00% - SEDBUK 2009 Minimum = 88.00% Secondary heating system: None	Authorised SAP Assessor	Passed																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Time and temperature zone control - plumbing circuit Hot water control: No hot water cylinder Boiler interlock (main system 1)	Authorised SAP Assessor	Passed																		

Check	Evidence	Produced by	OK?
Fixed internal lighting			
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 8 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (19.26°) Overheating risk (July) = Slight (21.02°) Overheating risk (August) = Slight (20.83°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 3.00 ach Blinds/curtains = Light-coloured curtain or roller blind	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Use of the following low carbon or renewable technologies: • Photovoltaic array	Authorised SAP Assessor	

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Assessor name	Mr Stuart Searle	Assessor number	3519
Client	Avis Appleton & Associates	Last modified	14/09/2016
Address	PT1 Liffords Place, London, SW13		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 25.00	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 11.61	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 11.61 < TER 25.00	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 63.1 < TFEE 76.5	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
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How has the loss from thermal bridges been calculated?	Thermal bridging calculated from linear thermal transmittances for each junction	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Main heating system: Mains gas, Combi boiler from database Ideal LOGIC COMBI ESP 24 Efficiency = 89.00% - SEDBUK 2009 Minimum = 88.00% Secondary heating system: None	Authorised SAP Assessor	Passed																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Time and temperature zone control - plumbing circuit Hot water control: No hot water cylinder Boiler interlock (main system 1)	Authorised SAP Assessor	Passed																		

Check	Evidence	Produced by	OK?
Fixed internal lighting			
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 6 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (19.87°) Overheating risk (July) = Slight (21.59°) Overheating risk (August) = Slight (21.31°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 3.00 ach Blinds/curtains = Light-coloured curtain or roller blind	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.42 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Use of the following low carbon or renewable technologies: • Photovoltaic array	Authorised SAP Assessor	

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Client	Avis Appleton & Associates	Last modified	14/09/2016
Address	PT2 Liffords Place, London, SW13		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 23.57	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 10.47	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 10.47 < TER 23.57	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 58.2 < TFEE 69.1	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
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Thermal bridging																					
How has the loss from thermal bridges been calculated?	Thermal bridging calculated from linear thermal transmittances for each junction	Authorised SAP Assessor																			
Heating and hot water systems																					
Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Main heating system: Mains gas, Combi boiler from database Ideal LOGIC COMBI ESP 24 Efficiency = 89.00% - SEDBUK 2009 Minimum = 88.00% Secondary heating system: None	Authorised SAP Assessor	Passed																		
Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Time and temperature zone control - plumbing circuit Hot water control: No hot water cylinder Boiler interlock (main system 1)	Authorised SAP Assessor	Passed																		

Check	Evidence	Produced by	OK?
Fixed internal lighting			
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 6 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (19.97°) Overheating risk (July) = Slight (21.68°) Overheating risk (August) = Slight (21.39°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 3.00 ach Blinds/curtains = Light-coloured curtain or roller blind	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.42 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • W2 - PW (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Use of the following low carbon or renewable technologies: • Photovoltaic array	Authorised SAP Assessor	

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Assessor name	Mr Stuart Searle	Assessor number	3519
Client	Avis Appleton & Associates	Last modified	14/09/2016
Address	PT3 Liffords Place, London, SW13		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 24.33	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 11.16	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 11.16 < TER 24.33	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 52.0 < TFEF 61.2	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
Are all U-values better than the design limits in Table 2?	<table border="1"> <thead> <tr> <th>Element</th> <th colspan="2">Weighted average Highest</th> </tr> </thead> <tbody> <tr> <td>Wall</td> <td>0.20 (max 0.30)</td> <td>0.20 (max 0.70)</td> </tr> <tr> <td>Party wall</td> <td>0.00 (max 0.20)</td> <td>N/A</td> </tr> <tr> <td>Floor</td> <td colspan="2">(no floor)</td> </tr> <tr> <td>Roof</td> <td>0.15 (max 0.20)</td> <td>0.15 (max 0.35)</td> </tr> <tr> <td>Openings</td> <td>1.33 (max 2.00)</td> <td>1.40 (max 3.30)</td> </tr> </tbody> </table>	Element	Weighted average Highest		Wall	0.20 (max 0.30)	0.20 (max 0.70)	Party wall	0.00 (max 0.20)	N/A	Floor	(no floor)		Roof	0.15 (max 0.20)	0.15 (max 0.35)	Openings	1.33 (max 2.00)	1.40 (max 3.30)	Authorised SAP Assessor	Passed
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Does the insulation of the hot water cylinder meet the standards set out in the Domestic Heating Compliance Guide?	No hot water cylinder	Authorised SAP Assessor																			
Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Time and temperature zone control - plumbing circuit Hot water control: No hot water cylinder Boiler interlock (main system 1)	Authorised SAP Assessor	Passed																		

Check	Evidence	Produced by	OK?
Fixed internal lighting			
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 6 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (19.61°) Overheating risk (July) = Slight (21.36°) Overheating risk (August) = Slight (21.22°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 3.00 ach Blinds/curtains = Light-coloured curtain or roller blind	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.42 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • W2 - PW (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Use of the following low carbon or renewable technologies: • Photovoltaic array	Authorised SAP Assessor	

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Assessor name	Mr Stuart Searle	Assessor number	3519
Client	Avis Appleton & Associates	Last modified	14/09/2016
Address	PT4 Liffords Place, London, SW13		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 23.32	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 10.87	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 10.87 < TER 23.32	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 53.3 < TFEF 63.4	Authorised SAP Assessor	Passed																		
Criterion 2: the performance of the building fabric and the heating, hot water and fixed lighting systems should be no worse than the design limits																					
Fabric U-values																					
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Does the efficiency of the heating systems meet the minimum value set out in the Domestic Heating Compliance Guide?	Main heating system: Mains gas, Combi boiler from database Ideal LOGIC COMBI ESP 24 Efficiency = 89.00% - SEDBUK 2009 Minimum = 88.00% Secondary heating system: None	Authorised SAP Assessor	Passed																		
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Do controls meet the minimum controls provision set out in the Domestic Heating Compliance Guide?	Space heating control: Time and temperature zone control - plumbing circuit Hot water control: No hot water cylinder Boiler interlock (main system 1)	Authorised SAP Assessor	Passed																		

Check	Evidence	Produced by	OK?
Fixed internal lighting			
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 6 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (19.49°) Overheating risk (July) = Slight (21.23°) Overheating risk (August) = Slight (21.02°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 3.00 ach Blinds/curtains = Light-coloured curtain or roller blind	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.42 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	The following party walls have a U-value less than 0.2W/m ² K: • W2 - PW (0.00) Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Use of the following low carbon or renewable technologies: • Photovoltaic array	Authorised SAP Assessor	

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Assessor name	Mr Stuart Searle	Assessor number	3519
Client	Avis Appleton & Associates	Last modified	14/09/2016
Address	PT5 Liffords Place, London, SW13		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 23.32	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 10.87	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 10.87 < TER 23.32	Authorised SAP Assessor	Passed																		
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Fixed internal lighting			
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 6 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (19.49°) Overheating risk (July) = Slight (21.23°) Overheating risk (August) = Slight (21.02°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 3.00 ach Blinds/curtains = Light-coloured curtain or roller blind	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
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Client	Avis Appleton & Associates	Last modified	14/09/2016
Address	PT6 Liffords Place, London, SW13		

Check	Evidence	Produced by	OK?																		
Criterion 1: predicted carbon dioxide emission from proposed dwelling does not exceed the target																					
TER (kg CO ₂ /m ² .a)	Fuel = N/A Fuel factor = 1.00 TER = 21.72	Authorised SAP Assessor																			
DER for dwelling as designed (kg CO ₂ /m ² .a)	DER = 9.78	Authorised SAP Assessor																			
Are emissions from dwelling as designed less than or equal to the target?	DER 9.78 < TER 21.72	Authorised SAP Assessor	Passed																		
Is the fabric energy efficiency of the dwelling as designed less than or equal to the target?	DFEE 54.3 < TFEE 68.0	Authorised SAP Assessor	Passed																		
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Check	Evidence	Produced by	OK?
Fixed internal lighting			
Does fixed internal lighting comply with paragraphs 42 to 44?	Schedule of installed fixed internal lighting Standard lights = 0 Low energy lights = 8 Percentage of low energy lights = 100% Minimum = 75 %	Authorised SAP Assessor	Passed
Criterion 3: the dwelling has appropriate passive control measures to limit solar gains			
Does the dwelling have a strong tendency to high summertime temperatures?	Overheating risk (June) = Not significant (19.04°) Overheating risk (July) = Slight (20.81°) Overheating risk (August) = Slight (20.62°) Region = Thames Thermal mass parameter = 250.00 Ventilation rate in hot weather = 3.00 ach Blinds/curtains = Light-coloured curtain or roller blind	Authorised SAP Assessor	Passed
Criterion 4: the performance of the dwelling, as designed, is consistent with the DER			
Design air permeability (m ³ /(h.m ²) at 50Pa)	Design air permeability = 3.00 Max air permeability = 10.00	Authorised SAP Assessor	Passed
Mechanical ventilation system Specific fan power (SFP)	Mechanical ventilation with heat recovery: SFP = 0.50 W/(litre/sec) Max SFP = 1.5 W/(litre/sec) Heat recovery efficiency = 91.00 % Min heat recovery efficiency = 70.00 %	Authorised SAP Assessor	Passed
Have the key features of the design been included (or bettered) in practice?	Design air permeability of 3 m ³ /(h.m ²) is less than 4 m ³ /(h.m ²) at 50 Pa Use of the following low carbon or renewable technologies: • Photovoltaic array	Authorised SAP Assessor	