

DESIGN INPUT & RESULTS

Users Ref: CAMPION

Issued on: 9 March 2008

Prop Type Ref:

Property: Type C 66.4

TER: 24.40

DER: 32.09

SAP Rating: 76 C

SAP Energy Cost: £242

CO2 Emissions: 2.05 t/year

RI Rating: 75 C

Energy used: 188 kWh/year

Surveyor: 5365-0001, jon mayes, Tel: 0207 566 0911, Fax: 0207 566 0912

Address: 10 Charterhouse Bldgs, London, EC1M 7AN

Client:

Software Version: EES SAP 2005.013.build.0009, December 2007 (Design System), BRE SAP Worksheet 9.80

Regs Type: SAP 2005, Regs Region: England and Wales (Part L1A 2006), Construction Type: New Build

SUMMARY OF INPUT DATA FOR DWELLING AS DESIGNED:

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Region & Orientation		Region: SO South (16), House Orientation: Unknown												
1.0 Property Type	G Ground Floor Flat, M Mid Terrace					<table border="1"> <thead> <tr> <th colspan="2">General Requirements (new build only)</th> </tr> </thead> <tbody> <tr> <td>#</td> <td>Inadequate MHS or controls</td> </tr> <tr> <td>**</td> <td>Inadequate Types insulation</td> </tr> <tr> <td></td> <td>Inadequate Dwellings emission rate</td> </tr> </tbody> </table>	General Requirements (new build only)		#	Inadequate MHS or controls	**	Inadequate Types insulation		Inadequate Dwellings emission rate
General Requirements (new build only)														
#	Inadequate MHS or controls													
**	Inadequate Types insulation													
	Inadequate Dwellings emission rate													
2.0 Number of Storeys	1													
3.0 Date Built	2008													
4.0 Sheltered Sides	2													
5.0 Sunlight/Shade	Average or unknown													
6.0 Internal Walls Perimeter	19.78 m													
7.0 Internal Floor Area	66.40 m <sup>2</sup>													
8.0 Living Area	21.21, fraction: 0.32													
9.0 Average Storey Height	2.80 m													
9.1 Conservatory	None													
Openings	Description	Glazing Type	Solar Trans. or Door Type	Air Gap	Arcon Orientation	U-value	Area							
10.0 Ext. Doors	timber doors	Double glazed	0.76 Glazed Wood	6 mm	No	2.00 (M)	2.14							
	No Draught Lobby													
11.0 Windows	1st /2nd	Double, Low E, Hard Coat	0.72 PVC	12 mm	Yes East (270°)	2.00 (T)	14.46							
	Openings Average: U: 2.00													
	U-value legend: (T) = U-value defaulted from SAP Table (M) = Manufacturer multi													
13.0 Draught Proofing	20%													
14.0 Thermal Bridging	Default - Robust Construction													
15.0 Pressure Test (q50)	10.00													
16.0 Mechanical Ventilation	None, Windows open during hot weather. Windows fully open, Cross ventilation possible: No													
17.0 Fans, Chimneys, Flues	2, 0, 0													
17.1 Lighting	Light fittings: 25, L.E.L. fittings: 8, External lights: None													
18.0 Wall Types	Description	U-value	Shelter	Room in Roof	Area	Timber								
	15	0.35	0.00		19.80	No								
		0.28	0.00		26.80	No								
	Walls uvalue average: U: 0.31													
19.0 Plane Roofs	Roof type	U-value	Area											
	0	A Dwelling Above	66.40											
	Roofs uvalue average: U: 0.00													
20.0 Ground Floor Types	Description	U-value	Area	Timber										
		0.25	66.40	No										
	Floors uvalue average: U: 0.25													
20.1 Thermal Mass	Simple Thermal Mass Parameter calculation: Ground Floor Mass: Medium - solid floor External Wall Mass: Medium - masonry walls (cavity fill or external insulation) with plasterboard on dabs Separating Wall Mass: Medium - masonry walls with plasterboard on dabs Internal Partition Mass: Low - plasterboard on timber/steel stud													
21.0 Main Heating	DGA Post 98 Gas non-condens. (incl combis) with auto ign. F.A.F., Pumped: pump in heated space													
MHS Efficiency	Table 4b: # 73%													
Manufacturer & Model	Heating system from SAP table 4a/4b													
Heating Controls	CDD Programmer, room thermostat and TRVs													
Underfloor Heating	None													
21.1 Secondary Heating	REB Electric portable electric heaters. Efficiency: 100%													
SHS Details	Efficiency 100.00%													
22.0 Hot Water Heating	HWP From the primary heating system													
Solar Water Heating	None													

## DESIGN INPUT & RESULTS

Users Ref: CAMPION

Issued on: 9 March 2008

Prop Type Ref:

Property: Type C 66.4

TER: 24.40

DER: 32.09

SAP Rating: 76 C

SAP Energy Cost: £242

CO2 Emissions: 2.05 t/year

EI Rating: 75 C

Energy used: 188 kWh/year

Surveyor: 5365-0001, jon mayes, Tel: 0207 566 0911, Fax: 0207 566 0912

Address: 10 Charterhouse Bldgs, London, EC1M 7AN

Client:

Software Version: EES SAP 2005.013.build.0009, December 2007 (Design System), BRE SAP Worksheet 9.80

Regs Type: SAP 2005, Regs Region: England and Wales (Part L1A 2006), Construction Type: New Build

### SUMMARY OF INPUT DATA FOR DWELLING AS DESIGNED:

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23.0 Thermal Store	None
24.0 Hot Water Cylinder	Yes, in heated space, With stat, independent time control
Insulation	Foam, Thickness: 38 mm, ** Pipes un-insulated
Volume	150 litres
25.0 Community Heating	None
CHP Unit	
26.0 Electricity Tariff	S - Standard
27.0 Photovoltaic Unit	None
28.0 Special Features	None

Full SAP Calculation Printout

Users Ref: CAMPION

Issued on: 9 March 2008

EES Ref: ND-EES-53650001-00000000000002

Prop Type Ref:

Property: Type C 66.4

TER: 27.33

DER: 35.62

SAP Rating: 74 C

SAP Energy Cost: £264

CO2 Emissions: 2.28 t/year

EI Rating: 73 C

Energy used: 208 kWh/year

Surveyor: 5365-0001, jon mayes, Tel: 0207 566 0911, Fax: 0207 566 0912

Address: 10 Charterhouse Bldgs, London, EC1M 7AN

Client:

Software Version: EES SAP 2005.013.build.0009, December 2007 (Design System), BRE SAP Worksheet 9.80

Regs Type: SAP 2005, Regs Region: England and Wales (Part L1A 2006), Construction Type: New Build

CALCULATION DETAILS for survey reference no 'CAMPION'

Page: 1

SAP2005 input data (DesignData) -

Regs Region: England  
 Construction Type: NewBuild  
 Region: SO South (16)  
 Orientation: Unknown  
 PropType: T Top Floor Flat, A Mid Arch  
 Storeys: 1  
 Property Age: 2008  
 Sheltered Sides: 2  
 Sunlight Shade: Average or unknown  
 Wall Perimeter: 19.78 m  
 Floor Area: 66.40 m<sup>2</sup>  
 Living Floor Area: 31.21 m<sup>2</sup>  
 Storey Height: 2.80 m  
 Doors  
 Timber Doors: Double glazed, Glazed Wood, 6 mm, uvalue: 2.00 (M), area: 2.14 m<sup>2</sup>  
 Windows  
 1st /2nd : Double, Low E, Hard Coat, PVC, 12 mm, East (2/0A°), uvalue: 2.00 (T)  
 Draught Lobby: No  
 Draught Proofing: 20%  
 Roof Lights  
 Pressure Test: 10.00  
 Mechanical Ventilation: None, Windows open during hot weather: Windows fully open, Cross  
 Fans, Chimneys, Flues: 2, 0, 0  
 Lighting: Low energy lighting in 32% of fixed outlets  
 Main Wall Type: U: 0.35 A: 19.80 m<sup>2</sup>  
 Extended Wall Types: U: 0.28 A: 26.80 m<sup>2</sup>  
 Timber Frame Wall Area: 0.00  
 Roof type 0 U: 0.16 A: 66.40 m<sup>2</sup>  
 Main Floor Type: U: 0.25 A: 66.40 m<sup>2</sup>  
 Timber Floor: No Timber Floor  
 Thermal Mass: Simple Thermal Mass Parameter calculation:  
 Ground Floor Mass: Medium - solid floor  
 External Wall Mass: Medium - masonry walls (cavity fill or extern  
 Separating Wall Mass: Medium - masonry walls with plasterboard on  
 Internal Partition Mass: Low - plasterboard on timber/steel stud  
 BGA Post 96 Gas non-condens. (incl combi) with auto ign. F.A.F.,  
 Heating system from SAP table 4a/4b  
 Main Heating: CBU Programmer, room thermostat and TRVs  
 Main Heating Manufacturer:  
 Heating Controls: None  
 Underfloor Heating: NoCombi  
 Combi Type: RER Electric portable electric heaters, Efficiency: 100%  
 Secondary Heating: None  
 Thermal Store:  
 Hot Water Heating: HWP from the primary heating system  
 Hot Water Cylinder: Yes, in heated space, With stat, independent time control  
 Hot Water Cylinder Insulation: Foam, Thickness: 38 mm, Pipes un-insulated  
 Hot Water Cylinder Volume: 150 litres

Solar Water Heating:	None
Electricity Tariff:	S - Standard
PV Cells:	None
Thermal Bridges:	DefaultRobustConstr, Thermal bridging factor $\gamma = 0.08$
Energy Saved:	
Energy Used:	

## Full SAP Calculation Printout

Users Ref: CAMPION

Issued on: 9.March.2008

EES Ref: ND-EES-53650001-00000000000002

Prop Type Ref:

Property: house

TER: 16.88

DER: 22.80

SAP Rating: 77 C

SAP Energy Cost: £420

CO2 Emissions: 3.69 t/year

EI Rating: 77 C

Energy used: 131 kWh/year

Surveyor: 5365-0001, jon mayes, Tel: 0207 566 0911, Fax: 0207 566 0912

Address: 10 Charterhouse Bldgs, London, EC1M 7AN

Client:

Software Version: EES SAP 2005.013.build.0009, December 2007 (Design System), BRE SAP Worksheet 9.80

Regs Type: SAP 2005, Regs Region: England and Wales (Part L1A 2006), Construction Type: New Build

CALCULATION DETAILS for survey reference no 'CAMPION'

Page: 1

## SAP2005 input data (DesignData) -

Regs Region: England  
 Construction Type: NewBuild  
 Region: SO South (16)  
 Orientation: Unknown  
 PropType: II House, M Mid Terrace  
 Storeys: 4  
 Property Age: 2008  
 Sheltered Sides: 2  
 Sunlight Shade: Average or unknown  
 Wall Perimeter: 10.80 m, 12.00 m, 12.00 m, 12.00 m  
 Floor Area: 20.60 m2, 55.00 m2, 55.00 m2, 41.00 m2  
 Living Floor Area: 41.80 m2  
 Storey Height: 2.40 m, 2.60 m, 2.60 m, 2.60 m  
 Doors  
     timber doors: Double glazed, Glazed Wood, 6 mm, uvalue: 2.00 (M), area: 1.85 m2  
 Windows  
     1st /2nd : Double, Low E, Hard Coat, PVC, 12 mm, East (270A°), uvalue: 2.00 (T)  
 Draught Lobby: No  
 Draught Proofing: 20%  
 Roof Lights  
 Pressure Test: 10.00  
 Mechanical Ventilation: None, Windows open during hot weather: Windows fully open, Cross  
 Fans, Chimneys, Flues: 2, 0, 0  
 Lighting: Low energy lighting in 32% of fixed outlets  
 Main Wall Type: U: 0.35 A: 77.00 m2  
 Extended Wall Types:  
 Timber Frame Wall Area: 0.00  
 Roof type 0: U: 0.16 A: 14.00 m2  
 Roof type 2: U: 0.16 A: 41.00 m2  
 Main Floor Type: U: 0.25 A: 34.00 m2  
 Timber Floor: No Timber Floor  
 Thermal Mass: Simple Thermal Mass Parameter calculation:  
     Ground Floor Mass: Medium - solid floor  
     External Wall Mass: Medium - masonry walls (cavity fill or extern  
     Separating Wall Mass: Medium - masonry walls with plasterboard on  
     Internal Partition Mass: Low - plasterboard on timber/steel stud  
     DCA Post 98 Gas non-condens. (incl combis) with auto ign. F.A.F.,  
     Heating system from SAP table 4a/4b  
     # CBD Programmer, room thermostat and TRVs  
 Main Heating: None  
 Main Heating Manufacturer: NoCombi  
 Heating Controls: REB Electric portable electric heaters, Efficiency: 100%  
 Underfloor Heating: None  
 Conbi Type: None  
 Secondary Heating: None  
 Thermal Store: None  
 Hot Water Heating: HWP From the primary heating system  
 Hot Water Cylinder: Yes, in heated space, With stat, independent time control  
 Hot Water Cylinder Insulation: Foam, Thickness: 38 mm, Pipes un-insulated

Hot Water Cylinder Volume: 150 litres  
Solar Water Heating: None  
Electricity Tariff: S - Standard  
PV Cells: None  
Thermal Bridges: DefaultRobustConsts, Thermal bridging factor  $\gamma = 0.08$   
Energy Saved:  
Energy Used:

## Full SAP Calculation Printout

Users Ref: CII-PRE-BLC-66.4

Issued on: 26 February 2008

EES Ref: ND-EES-76010001-00000000000550

Prop Type Ref:

Property: 66.4, Ground Floor Variant, Block C, Campion

TER: 33.81

DER: 22.17

SAP Rating: 80 C

SAP Energy Cost: £205

CO2 Emissions: 1.47 t/year

EI Rating: 82 B

Energy used: 147 kWh/year

Surveyor: 7601-0001, Abbey Consultants Ltd, Tel: 01923 274427, Fax: 01923 267889

Address: 40, Langley Hill, Kings Langley, Hertfordshire, WD4 9HE

Client: L11-01, Linden Homes, Linden House, Linden Square, Harefield, Middlesex, UB9 6TQ, Tel: 01895 827400, Fax: 01895 820895

Software Version: EES SAP 2005.013.build.0009, December 2007 (Design System), BRE SAP Worksheet 9.80

Regs Type: SAP 2005, Regs Region: England and Wales (Part 1.1A 2006), Construction Type: New Build

**CALCULATION DETAILS for survey reference no 'CH-PRE-BLC-66.4'**

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### SAP2005 Input data (DesignData) -

Regs Region:	England
Construction Type:	NewBuild
Region:	SO South (16)
Orientation:	S South
PropType:	G Ground Floor Flat, M Mid Terrace
Storeys:	1
Property Age:	2008
Sheltered Sides:	2
Sunlight Shade:	Average or unknown
Wall Perimeter:	19.78 m
Floor Area:	66.40 m <sup>2</sup>
Living Floor Area:	21.21 m <sup>2</sup>
Storey Height:	2.80 m
Doors	
Flat Front Door:	Solid Wood, uvalue: 1.50 (M), area: 2.14 m <sup>2</sup>
Windows	
Windows:	Double, Low E, Soft Coat, PVC, 20 mm, North (180°), uvalue: 1.70 (
Draught Lobby:	Yes
Draught Proofing:	100%
Roof Lights	
Pressure Test:	6.00
Mechanical Ventilation:	None, Windows open during hot weather: Windows fully open, Cross
Fans, Chimneys, Flues:	3, 0, 0
Lighting:	Low energy lighting in 33% of fixed outlets
Main Wall Type:	U: 0.27 A: X(19.78 m <sup>2</sup> )
Extended Wall Types:	U: 0.28 A: 26.80 m <sup>2</sup>
Timber Frame Wall Area:	0.00
Roof Type 0	A Dwelling Above A: 66.40 m <sup>2</sup>
Main Floor Type:	U: 0.20 A: 66.40 m <sup>2</sup>
Timber Floor:	No Timber Floor
Thermal Mass:	Simple Thermal Mass Parameter calculation: Ground Floor Mass: Medium - solid floor External Wall Mass: Medium - masonry walls (cavity fill) or external Separating Wall Mass: Medium - masonry walls with plasterboard on Internal Partition Mass: Low - plasterboard on timber/steel stud PEA Heat pump ground-to-water
Main Heating:	
Main Heating Manufacturer:	Heating system from SAP table 4a/4b
Heating Controls:	CHD Time and temperature zone control
Underfloor Heating:	Underfloor, pipes in wood
Secondary Heating:	RES Electric portable electric heaters, Efficiency: 100%
Thermal Store:	None
Hot Water Heating:	HWP From the primary heating system, Immersion present
Hot Water Cylinder:	Yes, in heated space, With stat, independent time control
Hot Water Cylinder Insulation:	Foam, Thickness: 35 mm, Pipes insulated
Hot Water Cylinder Volume:	175 litres
Solar Water Heating:	None

## Full SAP Calculation Printout

**Users Ref:** CII-PRE-BLE-68.2 2

**Issued on:** 26 February 2008

**EES Ref:** ND-EES-76010001-00000000000547

**Prop Type Ref:**

**Property:** 68.2, Mid Floor Variant, Block E, Campion

**TER:** 28.85

**DER:** 20.07

**SAP Rating:** 83 B

**SAP Energy Cost:** £189

**CO2 Emissions:** 1.36 t/year

**EI Rating:** 84 B

**Energy used:** 133 kWh/year

**Surveyor:** 7601-0001, Abbey Consultants Ltd, Tel: 01923 274427, Fax: 01923 267889

**Address:** 40, Langley Hill, Kings Langley, Hertfordshire, WD4 9HE

**Client:** LH-01, Linden Homes, Linden House, Linden Square, Harefield, Middlesex UB9 6TQ, Tel: 01895 827400, Fax: 01895 820895

**Software Version:** EES SAP 2005-013.build.0009, December 2007 (Design System), BRE SAP Worksheet 9.80

**Regs Type:** SAP 2005, Regs Region: England and Wales (Part L1A 2006), Construction Type: New Build

**CALCULATION DETAILS** for survey reference no 'CH-PRE-BLE-68.2 2'

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### SAP2005 input data (DesignData) -

**Regs Region:** England  
**Construction Type:** NewBuild  
**Region:** SO South (16)  
**Orientation:** S South  
**PropType:** M Mid Floor Flat, E End Terrace  
**Storeys:** 1  
**Property Age:** 2008  
**Sheltered Sides:** 2  
**Sunlight Shade:** Average or unknown  
**Wall Perimeter:** 21.99 m  
**Floor Area:** 68.20 m<sup>2</sup>  
**Living Floor Area:** 25.90 m<sup>2</sup>  
**Storey Height:** 2.80 m  
**Doors**  
     Flat Front Door: Solid Wood, uvalue: 1.50 (M), area: 2.14 m<sup>2</sup>  
**Windows**  
     Windows: Double, Low E, Soft Coat, PVC, 20 mm, North (180°), uvalue: 1.70 (T)  
     Windows1: Double, Low E, Soft Coat, PVC, 20 mm, East (90°), uvalue: 1.70 (T)  
**Draught Lobby:** Yes  
**Draught Proofing:** 100%  
**Roof Lights**  
**Pressure Test:** 6.00  
**Mechanical Ventilation:** None, Windows open during hot weather: Windows fully open, Cross  
**Fans, Chimneys, Flues:** 3, 0, 0  
**Lighting:** Low energy lighting in 33% of fixed outlets  
**Main Wall Type:** U: 0.27 A: X(44.09 m<sup>2</sup>)  
**Extended Wall Types:** U: 0.28 A: 8.90 m<sup>2</sup>  
**Timber Frame Wall Area:** 0.00  
**Roof type 0** A Dwelling Above A: 68.20 m<sup>2</sup>  
**Main Floor Type:** DB Other Dwelling Below, U: 0.00 A: 68.20 m<sup>2</sup>  
**Timber Floor:** No Timber Floor  
**Thermal Mass:** Simple Thermal Mass Parameter calculation:  
     Ground Floor Mass: Medium - solid floor  
     External Wall Mass: Medium - masonry walls (cavity fill or external insulation)  
     Separating Wall Mass: Medium - masonry walls with plasterboard on both sides  
     Internal Partition Mass: Low - plasterboard on timber/steel stud  
**Main Heating:** PEA Heat pump ground-to-water  
**Main Heating Manufacturer:** Heating system from SAP table 4a/4b  
**Heating Controls:** CHD Time and temperature zone control  
**Underfloor Heating:** Underfloor, pipes in Wood  
**Secondary Heating:** REB Electric portable electric heaters, Efficiency: 100%  
**Thermal Store:** None  
**Hot Water Heating:** HWF from the primary heating system, immersion present  
**Hot Water Cylinder:** Yes, in heated space, with stat, independent time control  
**Hot Water Cylinder Insulation:** Foam, Thickness: 55 mm, Pipes insulated  
**Hot Water Cylinder Volume:** 175 litres

## Full SAP Calculation Printout

**Users Ref:** CH-PRE-BLC-71.5  
**EES Ref:** ND-EES-76010001-00000000000549  
**Property:** 71.5, Ground Floor Variant, Block C, Campion

**Issued on:** 26.February.2008  
**Prop Type Ref:**

**TER:** 32.57  
**DER:** 21.32

**SAP Rating:** 80 C                      **SAP Energy Cost:** £212                      **CO2 Emissions:** 1.52 t/year  
**EI Rating:** 83 B                      **Energy used:** 141 kWh/year

**Surveyor:** 7601-0001, Abbey Consultants Ltd, Tel: 01923 274427, Fax: 01923 267889  
**Address:** 40, Langley Hill, Kings Langley, Hertfordshire, WD4 9HE  
**Client:** LH-01, Linden Homes, Linden House, Linden Square, Harefield, Middlesex, UB9 6TQ, Tel: 01895 827400, Fax: 01895 820895  
**Software Version:** EES SAP 2005 013 build 0009, December 2007 (Design System), BRE SAP Worksheet 9.80  
**Regs Type:** SAP 2005, Regs Region: England and Wales (Part L1A 2006), Construction Type: New Build

**CALCULATION DETAILS for survey reference no 'CH-PRE-BLC-71.5'**

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### SAP2005 input data (DesignData) -

**Regs Region:** England  
**Construction Type:** NewBuild  
**Region:** SO South (16)  
**Orientation:** S South  
**PropType:** G Ground Floor Flat, E End Terrace  
**Storeys:** 1  
**Property Age:** 2008  
**Sheltered Sides:** 2  
**Sunlight Shade:** Average or unknown  
**Wall Perimeter:** 18.40 m  
**Floor Area:** 71.50 m<sup>2</sup>  
**Living Floor Area:** 25.82 m<sup>2</sup>  
**Storey Height:** 2.80 m  
**Doors**  
     Flat Front Door: Solid Wood, uvalue: 1.50 (M), area: 2.14 m<sup>2</sup>  
**Windows**  
     Windows: Double, Low E, Soft Coat, PVC, 20 mm, North (180°), uvalue: 1.70 (T)  
     Windows1: Double, Low E, Soft Coat, PVC, 20 mm, West (270°), uvalue: 1.70 (T)  
**Draught Lobby:** Yes  
**Draught Proofing:** 100%  
**Roof Lights**  
**Pressure Test:** 6.00  
**Mechanical Ventilation:** None, Windows open during hot weather: Windows fully open, Cross  
**Fans, Chimneys, Flues:** 3, 0, 0  
**Lighting:** Low energy lighting in 33% of fixed outlets  
**Main Wall Type:** U: 0.27 A: X(38.82 m<sup>2</sup>)  
**Extended Wall Types:** U: 0.28 A: 1.27 m<sup>2</sup>  
**Timber Frame Wall Area:** 0.00  
**Roof type 0** A Dwelling Above A: 71.50 m<sup>2</sup>  
**Main Floor Type:** U: 0.20 A: 71.50 m<sup>2</sup>  
**Timber Floor:** No Timber Floor  
**Thermal Mass:** Simple Thermal Mass Parameter calculation:  
     Ground Floor Mass: Medium - solid floor  
     External Wall Mass: Medium - masonry walls (cavity fill or extern  
     Separating Wall Mass: Medium - masonry walls with plasterboard on  
     Internal Partition Mass: Low - plasterboard on timber/steel stud  
**Main Heating:** H&A Heat pump ground-to-water  
**Main Heating Manufacturer:** Heating system from SAP table 4a/4b  
**Heating Controls:** CHD Time and temperature zone control  
**Underfloor Heating:** Underfloor, pipes in Wood  
**Secondary Heating:** RES Electric portable electric heaters, Efficiency: 100%  
**Thermal Store:** None  
**Hot Water Heating:** HWP From the primary heating system, Immersion present  
**Hot Water Cylinder:** Yes, in heated space, With stat, independent time control  
**Hot Water Cylinder Insulation:** Foam, Thickness: 55 mm, Pipes insulated  
**Hot Water Cylinder Volume:** 175 litres

## Full SAP Calculation Printout

Users Ref: CH-PRE-BLE-68.2  
 EES Ref: ND-EES-76010001-00000000000544  
 Property: 68.2, Ground Floor Variant, Block E, Campion

Issued on: 26.February.2008  
 Prop Type Ref:  
 TER: 34.34  
 DER: 22.19

SAP Rating: 80 C      SAP Energy Cost: £212      CO2 Emissions: 1.51 t/year  
 EI Rating: 82 B      Energy used: 147 kWh/year

Surveyor: 7601-0001, Abbey Consultants Ltd, Tel: 01923 274427, Fax: 01923 267889  
 Address: 40, Langley Hill, Kings Langley, Hertfordshire, WD4 9HE  
 Client: LJI-01, Linden Homes, Linden House, Linden Square, Harefield, Middlesex, UB9 6TQ, Tel: 01895 827400, Fax: 01895 820895  
 Software Version: EES SAP 2005.013.build.0009, December 2007 (Design System), BRE SAP Worksheet 9.80  
 Regs Type: SAP 2005, Regs Region: England and Wales (Part L1A 2006), Construction Type: New Build

**CALCULATION DETAILS for survey reference no 'CH-PRE-BLE-68.2'** Page: 1

### SAP2005 input data (DesignData) -

Regs Region: England  
 Construction Type: NewBuild  
 Region: SO South (16)  
 Orientation: S South  
 PropType: G Ground Floor Flat, E End Terrace  
 Storeys: 1  
 Property Age: 2008  
 Sheltered Sides: 2  
 Sunlight Shade: Average or unknown  
 Wall Perimeter: 21.99 m  
 Floor Area: 68.20 m2  
 Living Floor Area: 25.90 m2  
 Storey Height: 2.80 m  
 Doors  
   Flat Front Door: Solid wood, uvalue: 1.50 (M), area: 2.14 m2  
 Windows  
   Windows: Double, Low E, Soft Coat, PVC, 20 mm, North (180°), uvalue: 1.70 (T)  
   Windows1: Double, Low E, Soft Coat, PVC, 20 mm, East (90°), uvalue: 1.70 (T)  
 Draught Lobby: Yes  
 Draught Proofing: 100%  
 Roof Lights  
 Pressure Test: 6.00  
 Mechanical Ventilation: None, Windows open during hot weather: Windows fully open, Cross  
 Fans, Chimneys, Flues: 3, 0, 0  
 Lighting: Low energy lighting in 33% of fixed outlets  
 Main Wall Type: U: 0.27 A: X(44.09 m2)  
 Extended Wall Types: U: 0.28 A: 8.90 m2  
 Timber Frame Wall Area: 0.00  
 Roof type 0 A Dwelling Above A: 68.20 m2  
 Main Floor Type: U: 0.20 A: 68.20 m2  
 Timber Floor: No Timber Floor  
 Thermal Mass: Simple Thermal Mass Parameter calculation:  
 Ground Floor Mass: Medium - solid floor  
 External Wall Mass: Medium - masonry walls (cavity fill or extern  
 Separating Wall Mass: Medium - masonry walls with plasterboard on  
 Internal Partition Mass: Low - plasterboard on timber/steel stud  
 Main Heating: PEA Heat pump ground-to-water  
 Main Heating Manufacturer: Heating system from SAP table 4a/4b  
 Heating Controls: CHD Time and temperature zone control  
 Underfloor Heating: Underfloor, pipes in wood  
 Secondary Heating: RES Electric portable electric heaters, Efficiency: 100%  
 Thermal Store: None  
 Hot Water Heating: HWF From the primary heating system, Immersion present  
 Hot Water Cylinder: Yes, in heated space, With stat, independent time control  
 Hot Water Cylinder Insulation: Foam, Thickness: 55 mm, Pipes insulated  
 Hot Water Cylinder Volume: 175 litres

## Full SAP Calculation Printout

**Users Ref:** CH-PRE-BLC-66.4 2

**Issued on:** 26.February.2008

**EES Ref:** ND-EES-76010001-00000000000552

**Prop Type Ref:**

**Property:** 66.4, Mid Floor Variant, Block C, Campion

**TER:** 28.47

**DER:** 20.09

**SAP Rating:** 83 B

**SAP Energy Cost:** £184

**CO2 Emissions:** 1.33 t/year

**EI Rating:** 84 B

**Energy used:** 133 kWh/year

**Surveyor:** 7601-0001, Abbey Consultants Ltd, Tel: 01923 274427, Fax: 01923 267889

**Address:** 40, Langley Hill, Kings Langley, Hertfordshire, WD4 9HE

**Client:** LH-01, Linden Homes, Linden House, Linden Square, Harefield, Middlesex, UB9 6TQ, Tel: 01895 827400, Fax: 01895 820895

**Software Version:** EES SAP 2005.013.build.0009, December 2007 (Design System), BRL: SAP Worksheet 9.80

**Regs Type:** SAP 2005, Regs Region: England and Wales (Part L1A 2006), Construction Type: New Build

**CALCULATION DETAILS** for survey reference no 'CH-PRE-BLC-66.4 2'

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### SAP2005 input data (DesignData) -

<b>Regs Region:</b>	England
<b>Construction Type:</b>	NewBuild
<b>Region:</b>	SO South (16)
<b>Orientation:</b>	S South
<b>PropType:</b>	M Mid Floor Flat, M Mid Terrace
<b>Storeys:</b>	1
<b>Property Age:</b>	2008
<b>Sheltered Sides:</b>	2
<b>Sunlight Shade:</b>	Average or unknown
<b>Wall Perimeter:</b>	19.78 m
<b>Floor Area:</b>	66.40 m2
<b>Living Floor Area:</b>	21.21 m2
<b>Storey Height:</b>	2.80 m
<b>Doors</b>	
<b>Flat Front Door:</b>	Solid Wood, uvalue: 1.50 (M), area: 2.14 m2
<b>Windows</b>	
<b>Windows:</b>	Double, Low E, Soft Coat, PVC, 20 mm, North (180°), uvalue: 1.70 (
<b>Draught Lobby:</b>	Yes
<b>Draught Proofing:</b>	100%
<b>Roof Lights</b>	
<b>Pressure Test:</b>	6.00
<b>Mechanical Ventilation:</b>	None, Windows open during hot weather: Windows fully open, Cross
<b>Fans, Chimneys, Flues:</b>	3, 0, 0
<b>Lighting:</b>	Low energy lighting in 33% of fixed outlets
<b>Main Wall Type:</b>	U: 0.27 A: X(19.78 m2)
<b>Extented Wall Types:</b>	U: 0.28 A: 26.80 m2
<b>Timber Frame Wall Area:</b>	0.00
<b>Roof type 0</b>	A Dwelling Above A: 66.40 m2
<b>Main Floor Type:</b>	DD Other Dwelling Below, U: 0.00 A: 66.40 m2
<b>Timber Floor:</b>	No Timber Floor
<b>Thermal Mass:</b>	Simple Thermal Mass Parameter calculation: Ground Floor Mass: Medium - solid floor External Wall Mass: Medium - masonry walls (cavity fill or extern Separating Wall Mass: Medium - masonry walls with plasterboard on Internal Partition Mass: Low - plasterboard on timber/steel stud
<b>Main Heating:</b>	PEA Heat pump ground-to-water
<b>Main Heating Manufacturer:</b>	Heating system from SAP table 4a/4b
<b>Heating Controls:</b>	CHD Time and temperature zone control
<b>Underfloor Heating:</b>	Underfloor, pipes in Wood
<b>Secondary Heating:</b>	REB Electric portable electric heaters, Efficiency: 100%
<b>Thermal Store:</b>	None
<b>Hot Water Heating:</b>	HWP From the primary heating system, Immersion present
<b>Hot Water Cylinder:</b>	Yes, in heated space, With stat, independent time control
<b>Hot Water Cylinder Insulation:</b>	Foam, Thickness: 55 mm, Pipes insulated
<b>Hot Water Cylinder Volume:</b>	175 litres
<b>Solar Water Heating:</b>	None

## Full SAP Calculation Printout

Users Ref: CH-PRE-BLC-71.5 2  
 EES Ref: ND-EES-76010001-00000000000551  
 Property: 71.5, Mid Floor Variant, Block C, Campion

Issued on: 26 February 2008  
 Prop Type Ref:  
 TER: 27.21  
 DER: 19.24

SAP Rating: **83 B**                      SAP Energy Cost: £189                      CO2 Emissions: 1.37 t/year  
 EI Rating: **84 B**                      Energy used: 127 kWh/year

Surveyor: 7601-0001, Abbey Consultants Ltd, Tel: 01923 274427, Fax: 01923 267889  
 Address: 40, Langley Hill, Kings Langley, Hertfordshire, WD4 9HE  
 Client: LH-01, Linden Homes, Linden House, Linden Square, Harefield, Middlesex, UB9 6TQ, Tel: 01895 827400, Fax: 01895 820895  
 Software Version: EES SAP 2005.013.build.0009, December 2007 (Design System), BRE SAP Worksheet 9.80  
 Regs Type: SAP 2005, Regs Region: England and Wales (Part L1A 2006), Construction Type: New Build

**CALCULATION DETAILS for survey reference no 'CH-PRE-BLC-71.5 2'**

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**SAP2005 input data (DesignData) -**

Regs Region:	England
Construction Type:	NewBuild
Region:	SO South (16)
Orientation:	S South
PropType:	M Mid Floor Flat, E End Terrace
Storeys:	1
Property Age:	2008
Sheltered Sides:	2
Sunlight Shade:	Average or unknown
Wall Perimeter:	18.40 m
Floor Area:	71.50 m2
Living Floor Area:	75.82 m2
Storey Height:	2.80 m
Doors	
Flat Front Door:	Solid Wood, uvalue: 1.50 (M), area: 2.14 m2
Windows	
Windows:	Double, Low E, Soft Coat, PVC, 20 mm, North (180°), uvalue: 1.70 (T
Windows1:	Double, Low E, Soft Coat, PVC, 20 mm, West (270°), uvalue: 1.70 (T
Draught Lobby:	Yes
Draught Proofing:	100%
Roof Lights	
Pressure Test:	6.00
Mechanical Ventilation:	None, Windows open during hot weather: Windows fully open, Cross
Fans, Chimneys, Flues:	3, 0, 0
Lighting:	Low energy lighting in 33% of fixed outlets
Main Wall Type:	U: 0.27 A: X(38.82 m2)
Extended Wall Types:	U: 0.28 A: 1.27 m2
Timber Frame Wall Area:	0.00
Roof type 0	A Dwelling Above A: 71.50 m2
Main Floor Type:	DR Other Dwelling Below, U: 0.00 A: 71.50 m2
Timber Floor:	No Timber Floor
Thermal Mass:	Simple Thermal Mass Parameter calculation: Ground Floor Mass: Medium - solid floor External Wall Mass: Medium - masonry walls (cavity fill or extern Separating Wall Mass: Medium - masonry walls with plasterboard on Internal Partition Mass: Low - plasterboard on timber/steel stud PEA Heat pump ground-to-water
Main Heating:	PEA Heat pump ground-to-water
Main Heating Manufacturer:	Heating system from SAP table 4a/4b
Heating Controls:	CHD Time and temperature zone control
Underfloor Heating:	Underfloor, pipes in Wood
Secondary Heating:	REB Electric portable electric heaters, Efficiency: 100%
Thermal Store:	None
Hot Water Heating:	HWP from the primary heating system, Immersion present
Hot Water Cylinder:	Yes, in heated space, With stat, independent time control
Hot Water Cylinder Insulation:	Foam, Thickness: 55 mm, Pipes insulated
Hot Water Cylinder Volume:	175 litres

## Full SAP Calculation Printout

**Users Ref:** CH-PRE-BLE-58.7  
**EES Ref:** ND-EES-76010001-00000000000543  
**Property:** 58.7, Ground Floor Variant, Block E, Campion

**Issued on:** 26.February.2008  
**Prop Type Ref:**  
**TER:** 38.07  
**DER:** 23.99

**SAP Rating:** 80 C      **SAP Energy Cost:** £196      **CO2 Emissions:** 1.41 t/year  
**EI Rating:** 82 B      **Energy used:** 159 kWh/year

**Surveyor:** 7601-0001, Abbey Consultants Ltd, Tel: 01923 274427, Fax: 01923 267889  
**Address:** 40, Langley Hill, Kings Langley, Hertfordshire, WD4 9HE  
**Client:** LH-01, Linden Homes, Linden House, Linden Square, Harefield, Middlesex, UB9 6TQ, Tel: 01895 827400, Fax: 01895 820895  
**Software Version:** EES SAP 2005.013.build.0009, December 2007 (Design System), BRE SAP Worksheet 9.80  
**Regs Type:** SAP 2005, Regs Region: England and Wales (Part L1A 2006), Construction Type: New Build

**CALCULATION DETAILS for survey reference no 'CH-PRE-BLE-58.7'** Page: 1

### SAP2005 input data (DesignData) -

Regs Region:	England
Construction Type:	NewBuild
Region:	SO South (16)
Orientation:	S South
PropType:	G Ground Floor Flat, E End Terrace
Storeys:	1
Property Age:	2008
Sheltered Sides:	2
Sunlight Shade:	Average or unknown
Wall Perimeter:	25.99 m
Floor Area:	58.70 m2
Living Floor Area:	21.87 m2
Storey Height:	2.80 m
Doors	
Flat Front Door:	Solid Wood, uvalue: 1.50 (M), area: 2.14 m2
Windows	
Windows:	Double, Low E, Soft Coat, PVC, 20 mm, North (180A°), uvalue: 1.70 (
Windows1:	Double, Low E, Soft Coat, PVC, 20 mm, West (270A°), uvalue: 1.70 (T
Draught Lobby:	Yes
Draught Proofing:	100%
Roof Lights	
Pressure Test:	6.00
Mechanical Ventilation:	None, Windows open during hot weather: Windows fully open, Cross
Fans, Chimneys, Flues:	2, 0, 0
Lighting:	Low energy lighting in 33% of fixed outlets
Main Wall Type:	U: 0.27 A: X(41.08 m2)
Extended Wall Types:	U: 0.28 A: 18.07 m2
Timber Frame Wall Area:	0.00
Roof type 0	A Dwelling Above A: 58.70 m2
Main Floor Type:	D: 0.20 A: 58.70 m2
Timber Floor:	No Timber Floor
Thermal Mass:	Simple Thermal Mass Parameter calculation: Ground Floor Mass: Medium - solid floor External Wall Mass: Medium - masonry walls (cavity fill or extern Separating Wall Mass: Medium - masonry walls with plasterboard on Internal Partition Mass: Low - plasterboard on timber/steel stud PEA Heat pump ground-to-water Heating system from SAP table 4a/4b
Main Heating:	
Main Heating Manufacturer:	
Heating Controls:	CDD Time and temperature zone control
Underfloor Heating:	Underfloor, pipes in Wood
Secondary Heating:	REB Electric portable electric heaters, Efficiency: 100%
Thermal Store:	None
Hot Water Heating:	HWP from the primary heating system, Immersion present
Hot Water Cylinder:	Yes, in heated space, With stat, independent time control
Hot Water Cylinder Insulation:	Foam, Thickness: 55 mm, Pipes insulated
Hot Water Cylinder Volume:	175 litres

## Full SAP Calculation Printout

**Users Ref:** CH-PRE-BLE-58.7.2  
**EES Ref:** ND-EES-76010001-00000000000546  
**Property:** 58.7, Mid Floor Variant, Block E, Campion

**Issued on:** 26 February 2008  
**Prop Type Ref:**  
**TER:** 32.48  
**DER:** 21.89

**SAP Rating:** 82 B      **SAP Energy Cost:** £177      **CO2 Emissions:** 1.28 t/year  
**EI Rating:** 83 B      **Energy used:** 145 kWh/year

**Surveyor:** 7601-0001, Abbey Consultants Ltd, Tel: 01923 274427, Fax: 01923 267889  
**Address:** 40, Langley Hill, Kings Langley, Hertfordshire, WD4 9HE  
**Client:** LH-01, Linden Homes, Linden House, Linden Square, Harefield, Middlesex, UB9 6TQ, Tel: 01895 827400, Fax: 01895 820895  
**Software Version:** EES SAP 2005.013.build 0009, December 2007 (Design System), BRE SAP Worksheet 9.80  
**Regs Type:** SAP 2005, Regs Region: England and Wales (Part L1A 2006), Construction Type: New Build

**CALCULATION DETAILS for survey reference no 'CH-PRE-BLE-58.7.2'**

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### SAP2005 input data (DesignData) -

**Regs Region:** England  
**Construction Type:** NewBuild  
**Region:** SO South (16)  
**Orientation:** S South  
**PropType:** M Mid Floor Flat, E End Terrace  
**Storeys:** 1  
**Property Age:** 2000  
**Sheltered Sides:** 2  
**Sunlight Shade:** Average or unknown  
**Wall Perimeter:** 25.99 m  
**Floor Area:** 58.70 m<sup>2</sup>  
**Living Floor Area:** 21.82 m<sup>2</sup>  
**Storey Height:** 2.80 m  
**Doors**  
     **Flat Front Door:** Solid Wood, uvalue: 1.50 (M), area: 2.14 m<sup>2</sup>  
**Windows**  
     **Windows:** Double, Low E, Soft Coat, PVC, 20 mm, North (180Å°), uvalue: 1.70 (T)  
     **Windows1:** Double, Low E, Soft Coat, PVC, 20 mm, West (270Å°), uvalue: 1.70 (T)  
**Draught Lobby:** Yes  
**Draught Proofing:** 100%  
**Roof Lights**  
**Pressure Test:** 6.00  
**Mechanical Ventilation:** None, Windows open during hot weather: Windows fully open, Cross  
**Fans, Chimneys, Flues:** 2, 0, 0  
**Lighting:** Low energy lighting in 33% of fixed outlets  
**Main Wall Type:** U: 0.27 A: X(41.08 m<sup>2</sup>)  
**Extended Wall Types:** U: 0.28 A: 18.07 m<sup>2</sup>  
**Timber Frame Wall Area:** 0.00  
**Roof type 0** A Dwelling Above A: 58.70 m<sup>2</sup>  
**Main Floor Type:** DB Other Dwelling Below, U: 0.00 A: 58.70 m<sup>2</sup>  
**Timber Floor:** No Timber Floor  
**Thermal Mass:** Simple Thermal Mass Parameter calculation:  
     Ground Floor Mass: Medium - solid floor  
     External Wall Mass: Medium - masonry walls (cavity fill or extern  
     Separating Wall Mass: Medium - masonry walls with plasterboard on  
     Internal Partition Mass: Low - plasterboard on timber/steel stud  
**Main Heating:** PEA Heat pump ground-to-water  
**Main Heating Manufacturer:** Heating system from SAP table 4a/4b  
**Heating Controls:** CHD Time and temperature zone control  
**Underfloor Heating:** Underfloor, pipes in Wood  
**Secondary Heating:** RES Electric portable electric heaters, Efficiency: 100%  
**Thermal Store:** None  
**Hot Water Heating:** HWP From the primary heating system, Immersion present  
**Hot Water Cylinder:** Yes, in heated space, With stat, independent time control  
**Hot Water Cylinder Insulation:** Foam, Thickness: 55 mm, Pipes insulated  
**Hot Water Cylinder Volume:** 175 litres

## Full SAP Calculation Printout

**Users Ref:** CH-PRE-BLE-67.3

**Issued on:** 26 February 2008

**EES Ref:** ND-EES-76010001-00000000000545

**Prop Type Ref:**

**Property:** 67.3, Ground Floor Variant, Block E, Campion

**TER:** 36.74

**DER:** 23.05

**SAP Rating:** 79 C

**SAP Energy Cost:** £217

**CO2 Emissions:** 1.55 t/year

**EI Rating:** 82 B

**Energy used:** 153 kWh/year

**Surveyor:** 7601-0001, Abbey Consultants Ltd, Tel: 01923 274427, Fax: 01923 267889

**Address:** 40, Langley Hill, Kings Langley, Hertfordshire, WD4 9HE

**Client:** LH-01, Linden Homes, Linden House, Linden Square, Harefield, Middlesex, UB9 6TQ, Tel: 01895 827400, Fax: 01895 820895

**Software Version:** EES SAP 2005.013.build.0009, December 2007 (Design System), BRE: SAP Worksheet 9.80

**Regs Type:** SAP 2005, Regs Region: England and Wales (Part L1A 2006), Construction Type: New Build

**CALCULATION DETAILS** for survey reference no 'CH-PRE-BLE-67.3'

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### SAP2005 input data (DesignData) -

<b>Regs Region:</b>	England
<b>Construction Type:</b>	NewBuild
<b>Region:</b>	SO South (16)
<b>Orientation:</b>	S South
<b>PropType:</b>	G Ground Floor Flat, E End Terrace
<b>Storeys:</b>	1
<b>Property Age:</b>	2008
<b>Sheltered Sides:</b>	2
<b>Sunlight Shade:</b>	Average or unknown
<b>Wall Perimeter:</b>	29.08 m
<b>Floor Area:</b>	67.30 m <sup>2</sup>
<b>Living Floor Area:</b>	26.10 m <sup>2</sup>
<b>Storey Height:</b>	2.80 m
<b>Doors</b>	
Flat Front Door:	Solid Wood, uvalue: 1.50 (M), area: 2.14 m <sup>2</sup>
<b>Windows</b>	
Windows:	Double, Low E, Soft Coat, PVC, 20 mm, East (90°), uvalue: 1.70 (T)
Windows1:	Double, Low E, Soft Coat, PVC, 20 mm, North (180°), uvalue: 1.70 (T)
<b>Draught Lobby:</b>	Yes
<b>Draught Proofing:</b>	100%
<b>Roof Lights</b>	
<b>Pressure Test:</b>	6.00
<b>Mechanical Ventilation:</b>	None, Windows open during hot weather: Windows fully open, Cross
<b>Fans, Chimneys, Flues:</b>	2, 0, 0
<b>Lighting:</b>	Low energy lighting in 33% of fixed outlets
<b>Main Wall Type:</b>	U: 0.27 A: X(41.38 m <sup>2</sup> )
<b>Extended Wall Types:</b>	U: 0.28 A: 28.52 m <sup>2</sup>
<b>Timber Frame Wall Area:</b>	0.00
<b>Roof type 0</b>	A Dwelling Above A: 67.30 m <sup>2</sup>
<b>Main Floor Type:</b>	U: 0.20 A: 67.30 m <sup>2</sup>
<b>Timber Floor:</b>	No Timber Floor
<b>Thermal Mass:</b>	Simple Thermal Mass Parameter calculation: Ground Floor Mass: Medium - solid floor External Wall Mass: Medium - masonry walls (cavity fill or extern Separating Wall Mass: Medium - masonry walls with plasterboard on Internal Partition Mass: Low - plasterboard on timber/steel stud
<b>Main Heating:</b>	FSA Heat pump ground-to-water
<b>Main Heating Manufacturer:</b>	Heating system from SAP table 4a/4b
<b>Heating Controls:</b>	CHD Time and temperature zone control
<b>Underfloor Heating:</b>	Underfloor, pipes in Wood
<b>Secondary Heating:</b>	REB Electric portable electric heaters, Efficiency: 100%
<b>Thermal Store:</b>	None
<b>Hot Water Heating:</b>	HWP From the primary heating system, Immersion present
<b>Hot Water Cylinder:</b>	Yes, in heated space, With stat, independent time control
<b>Hot Water Cylinder Insulation:</b>	Foam, Thickness: 55 mm, Pipes insulated
<b>Hot Water Cylinder Volume:</b>	175 litres

## Full SAP Calculation Printout

**Users Ref:** CH-PRE-BLE-67.3 2  
**EES Ref:** ND-EES-76010001-00000000000548  
**Property:** 67.3, Mid Floor Variant, Block E, Campion

**Issued on:** 26 February 2008  
**Prop Type Ref:**  
**TER:** 31.08  
**DER:** 20.85

**SAP Rating:** 82 B      **SAP Energy Cost:** £194      **CO2 Emissions:** 1.40 t/year  
**EI Rating:** 83 B      **Energy used:** 138 kWh/year

**Surveyor:** 7601-0001, Abbey Consultants Ltd, Tel: 01923 274427, Fax: 01923 267889  
**Address:** 40, Langley Hill, Kings Langley, Hertfordshire, WD4 9HE  
**Client:** LH-01, Linden Homes, Linden House, Linden Square, Harefield, Middlesex, UB9 6TQ, Tel: 01895 827400, Fax: 01895 820895  
**Software Version:** EES SAP 2005.013.build.0009, December 2007 (Design System), BRE SAP Worksheet 9.80  
**Regs Type:** SAP 2005, Regs Region: England and Wales (Part L1A 2006), Construction Type: New Build

**CALCULATION DETAILS** for survey reference no 'CH-PRE-BLE-67.3 2'

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### SAP2005 input data (DesignData) -

**Regs Region:** England  
**Construction Type:** NewBuild  
**Region:** SO South (16)  
**Orientation:** S South  
**PropType:** M Mid Floor Flat, E End Terrace  
**Storeys:** 1  
**Property Age:** 2008  
**Sheltered Sides:** 2  
**Sunlight Shade:** Average or unknown  
**Wall Perimeter:** 29.08 m  
**Floor Area:** 67.30 m2  
**Living Floor Area:** 26.10 m2  
**Storey Height:** 2.80 m  
**Doors**  
     Flat Front Door: Solid Wood, uvalue: 1.50 (M), area: 2.14 m2  
**Windows**  
     Windows: Double, Low E, Soft Coat, PVC, 20 mm, East (90°), uvalue: 1.70 (T)  
     Windows1: Double, Low E, Soft Coat, PVC, 20 mm, North (180°), uvalue: 1.70 (T)  
**Draught Lobby:** Yes  
**Draught Proofing:** 100%  
**Roof Lights**  
**Pressure Test:** 6.00  
**Mechanical Ventilation:** None, Windows open during hot weather: Windows fully open, Cross  
**Fans, Chimneys, Flues:** 2, 0, 0  
**Lighting:** Low energy lighting in 33% of fixed outlets  
**Main Wall Type:** U: 0.27 A: X(41.38 m2)  
**Extended Wall Types:** U: 0.28 A: 28.52 m2  
**Timber Frame Wall Area:** 0.00  
**Roof type 0** A Dwelling Above A: 67.30 m2  
**Main Floor Type:** DB Other Dwelling Below, U: 0.00 A: 67.30 m2  
**Timber Floor:** No Timber Floor  
**Thermal Mass:** Simple Thermal Mass Parameter calculation:  
     Ground Floor Mass: Medium - solid floor  
     External Wall Mass: Medium - masonry walls (cavity fill or extern  
     Separating Wall Mass: Medium - masonry walls with plasterboard on  
     Internal Partition Mass: Low - plasterboard on timber/steel stud  
     PEA Heat pump ground-to-water  
**Main Heating:** Heating system from SAP table 4a/4b  
**Main Heating Manufacturer:** CHD Time and temperature zone control  
**Heating Controls:** Underfloor, pipes in wood  
**Underfloor Heating:** RRB Electric portable electric heaters, Efficiency: 100%  
**Secondary Heating:** None  
**Thermal Store:** None  
**Hot Water Heating:** HWP From the primary heating system, Immersion present  
**Hot Water Cylinder:** Yes, in heated space, With stat, independent time control  
**Hot Water Cylinder Insulation:** Foam, Thickness: 55 mm, Pipes insulated  
**Hot Water Cylinder Volume:** 175 litres