



ENERGYREPORT
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SAP Calculation Report

640 Oxford Road, Reading, Berkshire RG30 1EH

J03806

VX KVA Ltd

6th February 2026

Revision: 01

This SAP Calculation Report has been produced for the development at 640 Oxford Road, Reading, Berkshire RG30 1EH, comprising a mixed-use development comprising 3 separate commercial units and 4 self-contained dwellings.

Reading Borough Council Decision Notice requires “*Demonstration that the dwellings permitted have achieved a minimum of a 19% improvement in the dwelling emission rate over the target emission rate as defined in The Building Regulations for England Approved Document L1a: Conservation of Fuel and Power in New Dwellings (2013 edition).*”

Table 1 below shows the final CO₂ emissions (t/yr) of the proposed residential aspect of the development at 640 Oxford Road. Each dwelling exceeds the required 19% improvement over the baseline CO₂ emissions (t/yr). The full SAP Reports can be found proceeding this.

Summary of CO₂ emission and energy reduction using L1B 2013 carbon factors

Unit	Baseline CO ₂ emissions (t/yr)	Proposed CO ₂ emissions (t/yr)	Saving achieved (%)
Flat 1	0.07	0.05	26.8
Studio 1	0.09	0.06	27.9
Studio 2	0.09	0.07	25.0
Studio 3	0.07	0.05	21.1
Total reduction:			25.3

Table 1 - Summary of Dwelling Emission Rates

SUMMARY FOR INPUT DATA

Calculation Type: Conversion (As Designed)

Property Reference	J03806 Studio 1	Issued on Date	06/02/2026
Assessment Reference	Proposed	Prop Type Ref	Floor 01
Property	Studio 1, 640, Oxford Road, Reading, Berkshire, RG30 1EH		
SAP Rating	72 C	DER	N/A
Environmental	75 C	% DER<TER	N/A
CO ₂ Emissions (t/year)	1.47	DFEE	N/A
General Requirements Compliance	N/A	% DFEE<TFEE	N/A
Assessor Details	Mr. Thomas Pope, Energy Report Ltd, Tel: 07879 675 944, tom@energyreport.co.uk	Assessor ID	F764-0001
Client	VX KA Ltd, VX KA Ltd		

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	South West					
Property Tenure	Unknown					
Transaction Type	New dwelling					
Terrain Type	Suburban					
1.0 Property Type	Flat, Semi-Detached					
2.0 Number of Storeys	1					
3.0 Date Built	2025					
4.0 Sheltered Sides	1					
5.0 Sunlight/Shade	Average or unknown					
6.0 Measurements						
		Ground Floor:	Heat Loss Perimeter	Internal Floor Area	Average Storey Height	
			19.34 m	41.92 m ²	2.40 m	
7.0 Living Area	37.38			m ²		
8.0 Thermal Mass Parameter	Precise calculation					
Thermal Mass	147.13			kJ/m ² K		
9.0 External Walls						
Description	Type	Construction		U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area (m ²) Nett Area (m ²)
Existing Walls	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure		0.30	60.00	46.42 41.84
9.1 Party Walls						
Description	Type	Construction		U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)
Party Wall	Filled Cavity with Edge Sealing	Plasterboard on dabs mounted on cement render on both sides, AAC blocks, cavity		0.00	45.00	18.53
9.2 Internal Walls						
Description	Construction				Kappa (kJ/m ² K)	Area (m ²)
Internal Walls	Plasterboard on timber frame				9.00	34.23
10.1 Party Ceilings						
Description	Construction				Kappa (kJ/m ² K)	Area (m ²)
Party Ceilings	Timber I-joists, carpeted				20.00	41.92
11.1 Party Floors						

SUMMARY FOR INPUT DATA

Calculation Type: Conversion (As Designed)

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Party Floor	Timber I-joists, carpeted	30.00	41.92

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.40

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
NW Window	Window	[1] Existing Walls	North West	Dark-coloured curtain or roller blind	0.00					2.29	100
NE Windows	Window	[1] Existing Walls	North East	Dark-coloured curtain or roller blind	0.00					2.29	100

14.0 Conservatory

None

15.0 Draught Proofing

100 %

16.0 Draught Lobby

No

17.0 Thermal Bridging

Default

Y-value

0.150 W/m²K

18.0 Pressure Testing

Yes

Designed AP₅₀

15.00 m³/(h.m²) @ 50 Pa

Property Tested ?

Yes

As Built AP₅₀

8.00 m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather

Windows half open

Cross ventilation possible

No

Night Ventilation

No

Air change rate

2.00

Mechanical Ventilation

Mechanical Ventilation System Present

No

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				2
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System

No

22.0 Lighting

Internal

Total number of light fittings

5

Total number of L.E.L. fittings

5

SUMMARY FOR INPUT DATA

Calculation Type: Conversion (As Designed)

Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	150.00	L
Loss	1.10	kWh/day

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

SUMMARY FOR INPUT DATA

Calculation Type: Conversion (As Designed)

Property Reference	J03806 Flat 1	Issued on Date	06/02/2026
Assessment Reference	Proposed	Prop Type Ref	Floor 01
Property	Flat 1, 640, Oxford Road, Reading, Berkshire, RG30 1EH		
SAP Rating	74 C	DER	N/A
Environmental	77 C	% DER<TER	N/A
CO ₂ Emissions (t/year)	1.31	DFEE	N/A
General Requirements Compliance	N/A	% DFEE<TFEE	N/A
Assessor Details	Mr. Thomas Pope, Energy Report Ltd, Tel: 07879 675 944, tom@energyreport.co.uk	Assessor ID	F764-0001
Client	VX KA Ltd, VX KA Ltd		

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	North East					
Property Tenure	Unknown					
Transaction Type	New dwelling					
Terrain Type	Suburban					
1.0 Property Type	Flat, Semi-Detached					
2.0 Number of Storeys	1					
3.0 Date Built	2025					
4.0 Sheltered Sides	1					
5.0 Sunlight/Shade	Average or unknown					
6.0 Measurements						
		Ground Floor:	Heat Loss Perimeter	Internal Floor Area		Average Storey Height
			19.55 m	37.29 m²		2.40 m
7.0 Living Area	18.57			m²		
8.0 Thermal Mass Parameter	Precise calculation			kJ/m²K		
Thermal Mass	168.33					
9.0 External Walls						
Description	Type	Construction		U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area (m²)
Existing Walls	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure		0.30	60.00	46.92
9.1 Party Walls						
Description	Type	Construction		U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)
Party Wall	Filled Cavity with Edge Sealing	Plasterboard on dabs mounted on cement render on both sides, AAC blocks, cavity		0.00	45.00	20.23
9.2 Internal Walls						
Description	Construction				Kappa (kJ/m²K)	Area (m²)
Internal Walls	Plasterboard on timber frame				9.00	63.96
10.1 Party Ceilings						
Description	Construction				Kappa (kJ/m²K)	Area (m²)
Party Ceilings	Timber I-joists, carpeted				20.00	37.29
11.1 Party Floors						

SUMMARY FOR INPUT DATA

Calculation Type: Conversion (As Designed)

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Party Floor	Timber I-joists, carpeted	30.00	37.29

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.40

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
NW Window	Window	[1] Existing Walls	North West	Dark-coloured curtain or roller blind	0.00					0.80	100
SW Windows	Window	[1] Existing Walls	South West	Dark-coloured curtain or roller blind	0.00					3.56	100

14.0 Conservatory

None

15.0 Draught Proofing

100

%

16.0 Draught Lobby

No

17.0 Thermal Bridging

Default

Y-value

0.150

W/m²K

18.0 Pressure Testing

Yes

Designed AP₅₀

15.00

m³/(h.m²) @ 50 Pa

Property Tested ?

Yes

As Built AP₅₀

8.00

m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather

Windows half open

Cross ventilation possible

No

Night Ventilation

No

Air change rate

2.00

Mechanical Ventilation

Mechanical Ventilation System Present

No

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				2
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System

No

22.0 Lighting

Internal

Total number of light fittings

5

Total number of L.E.L. fittings

5

SUMMARY FOR INPUT DATA

Calculation Type: Conversion (As Designed)

Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRD Programmer and room thermostat	
Sap Code	2605	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	150.00	L
Loss	1.10	kWh/day

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

SUMMARY FOR INPUT DATA

Calculation Type: Conversion (As Designed)

Property Reference	J03806 Studio 2	Issued on Date	06/02/2026
Assessment Reference	Proposed	Prop Type Ref	Floor 01
Property	Studio 2, 640, Oxford Road, Reading, Berkshire, RG30 1EH		

SAP Rating	69 C	DER	N/A	TER	N/A
Environmental	73 C	% DER<TER	N/A		
CO ₂ Emissions (t/year)	1.65	DFEE	N/A	TFEE	N/A
General Requirements Compliance	N/A	% DFEE<TFEE	N/A		

Assessor Details	Mr. Thomas Pope, Energy Report Ltd, Tel: 07879 675 944, tom@energyreport.co.uk	Assessor ID	F764-0001
Client	VX KA Ltd, VX KA Ltd		

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	South West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Suburban
1.0 Property Type	Flat, Semi-Detached
2.0 Number of Storeys	1
3.0 Date Built	2025
4.0 Sheltered Sides	1
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements				
	Ground Floor:	Heat Loss Perimeter 19.56 m	Internal Floor Area 42.39 m ²	Average Storey Height 2.29 m

7.0 Living Area	30.39	m ²
8.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	123.07	kJ/m ² K

9.0 External Walls						
Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area (m ²)	Nett Area (m ²)
Existing Walls	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.30	60.00	43.28	40.99

9.1 Party Walls					
Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)
Party Wall	Filled Cavity with Edge Sealing	Plasterboard on dabs mounted on cement render on both sides, AAC blocks, cavity	0.00	45.00	19.01

9.2 Internal Walls					
Description	Construction		Kappa (kJ/m ² K)	Area (m ²)	
Internal Walls	Plasterboard on timber frame		9.00	32.66	

10.0 External Roofs						
Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area (m ²)	Nett Area (m ²)
Sloped Roof	External Slope Roof	Plasterboard, insulated slope	0.15	9.00	13.31	11.09
Plane Roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.11	9.00	26.29	26.29

11.1 Party Floors

SUMMARY FOR INPUT DATA

Calculation Type: Conversion (As Designed)

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Party Floor	Timber I-joists, carpeted	30.00	42.39

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.40
Roof Light	Manufacturer	Roof Window	Double Low-E Soft 0.05			0.63		0.70	1.40

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
NW Roof Lights	Roof Window	[1] Sloped Roof	North West	Dark-coloured curtain or roller blind						2.22	100
NE Windows	Window	[1] Existing Walls	North East	Dark-coloured curtain or roller blind	0.00					2.29	100

14.0 Conservatory	None
15.0 Draught Proofing	100 %
16.0 Draught Lobby	No
17.0 Thermal Bridging	Default
Y-value	0.150 W/m²K
18.0 Pressure Testing	Yes
Designed AP ₅₀	15.00 m³/(h.m²) @ 50 Pa
Property Tested ?	Yes
As Built AP ₅₀	8.00 m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Windows half open
Cross ventilation possible	No
Night Ventilation	No
Air change rate	2.00

Mechanical Ventilation

Mechanical Ventilation System Present	No
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20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				2
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No
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22.0 Lighting

Internal

Total number of light fittings	5
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SUMMARY FOR INPUT DATA

Calculation Type: Conversion (As Designed)

Total number of L.E.L. fittings	5	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRB Appliance thermostats	
Sap Code	2602	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	150.00	L
Loss	1.10	kWh/day

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None

SUMMARY FOR INPUT DATA

Calculation Type: Conversion (As Designed)

Property Reference	J03806 Studio 3	Issued on Date	06/02/2026
Assessment Reference	Proposed	Prop Type Ref	Floor 01
Property	Studio 3, 640, Oxford Road, Reading, Berkshire, RG30 1EH		
SAP Rating	72 C	DER	N/A
Environmental	75 C	% DER<TER	N/A
CO ₂ Emissions (t/year)	1.42	DFEE	N/A
General Requirements Compliance	N/A	% DFEE<TFEE	N/A
Assessor Details	Mr. Thomas Pope, Energy Report Ltd, Tel: 07879 675 944, tom@energyreport.co.uk	Assessor ID	F764-0001
Client	VX KA Ltd, VX KA Ltd		

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	North East					
Property Tenure	Unknown					
Transaction Type	New dwelling					
Terrain Type	Suburban					
1.0 Property Type	Flat, Semi-Detached					
2.0 Number of Storeys	1					
3.0 Date Built	2025					
4.0 Sheltered Sides	1					
5.0 Sunlight/Shade	Average or unknown					
6.0 Measurements						
Ground Floor:		Heat Loss Perimeter	Internal Floor Area		Average Storey Height	
		18.29 m	38.27 m ²		2.26 m	
7.0 Living Area	26.61		m ²			
8.0 Thermal Mass Parameter	Precise calculation					
Thermal Mass	121.51		kJ/m ² K			
9.0 External Walls						
Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area (m ²)	Nett Area (m ²)
Existing Walls	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.18	60.00	30.24	30.24
Dormer Wall	Timber Frame	Timber framed wall (one layer of plasterboard)	0.18	9.00	6.14	3.63
Mansard Wall	Timber Frame	Timber framed wall (one layer of plasterboard)	0.18	9.00	7.70	7.70
9.1 Party Walls						
Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Area (m ²)	
Party Wall	Filled Cavity with Edge Sealing	Plasterboard on dabs mounted on cement render on both sides, AAC blocks, cavity	0.00	45.00	20.22	
9.2 Internal Walls						
Description	Construction				Kappa (kJ/m ² K)	Area (m ²)
Internal Walls	Plasterboard on timber frame				9.00	38.30
10.0 External Roofs						
Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area (m ²)	Nett Area (m ²)
Plane Roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.11	9.00	37.32	36.78

SUMMARY FOR INPUT DATA

Calculation Type: Conversion (As Designed)

11.1 Party Floors

Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
Party Floor	Timber I-joists, carpeted	30.00	38.27

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m ² K)
Windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.70	1.40
Roof Light	Manufacturer	Roof Window	Double Low-E Soft 0.05			0.63		0.70	1.40

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m ²)	Curtain Closed
NE Roof Lights	Roof Window	[1] Plane Roof	North East	Dark-coloured curtain or roller blind						0.54	100
SW Windows	Window	[2] Dormer Wall	South West	Dark-coloured curtain or roller blind	0.00					2.51	100

14.0 Conservatory

None

15.0 Draught Proofing

100

%

16.0 Draught Lobby

No

17.0 Thermal Bridging

Default

Y-value

0.150

W/m²K

18.0 Pressure Testing

Yes

Designed AP₅₀

15.00

m³/(h.m²) @ 50 Pa

Property Tested ?

Yes

As Built AP₅₀

8.00

m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather

Windows half open

Cross ventilation possible

No

Night Ventilation

No

Air change rate

2.00

Mechanical Ventilation

Mechanical Ventilation System Present

No

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				2
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System

No

22.0 Lighting

Internal

SUMMARY FOR INPUT DATA

Calculation Type: Conversion (As Designed)

Total number of light fittings	5	
Total number of L.E.L. fittings	5	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	SAP table	
Percentage of Heat	100	%
Main Heating	REA	
SAP Code	691	
Efficiency (SAP Table)	100.0	%
Controls	CRB Appliance thermostats	
Sap Code	2602	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HEI Immersion	
Water Heating	Independent	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	
Waste Water Heat Recovery Storage System	No	
Solar Panel	No	
Water use <= 125 litres/person/day	Yes	
SAP Code	903	
Immersion Heater	Dual	
29.0 Hot Water Cylinder	Hot Water Cylinder	
Cylinder In Heated Space	Yes	
Insulation Type	Measured Loss	
Cylinder Volume	150.00	L
Loss	1.10	kWh/day

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

None