

Version No.	1.7
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Installation Design Overview

Home Occupier Details

Name:	[REDACTED]
Contact Number:	[REDACTED]

Home Occupier Details

Address Line 1:	22 High Grange
Address Line 2:	
City/Town:	Crook
County:	County Durham
Postcode:	DL15 8AS
Planning Permission Required:	No

System Details

Daikin EDLA08 (Front Elevation), Secon 150L Slimline (Loft Space), Honeywell EVO Home, 5x Smart TRVs, New Carcass, 6x Radiators

Extra Requirements

Property has looped electrical supply.	
DNO Status:	Action Required

Access Restrictions

<p>Partner to ensure that access to property is available for the date of installation.</p> <p>Partner to ensure that access to loft space is available for the date of installation.</p>	
Partner Responsibilities	Home Occupier Responsibilities
<p>Partner to ensure that loft hatch is wide enough to allow for cylinder of 475mm in width and depth.</p> <p>Partner to ensure Loft Space is boarded to allow for installation of cylinder and ancillaries.</p> <p>Partner to ensure Loft Space to has lights.</p>	<p>Home occupier to ensure that installation areas are clear for the date of installation.</p>

Terms & Conditions

<p>The signatories agree to the following design, acknowledging any pre-requisite works, equipment requirements, or restrictions that require addressing, noted above. The signatories are aware that failure to address any of the stated responsibilities, requirements or restrictions, prior to the agreed date of installation, may result in the delay of the installation of the system.</p>		
	Signature	Date
Contractor:		
Home Occupier:		

Installation Design Assessment

Contractor Details

Contractor:	IHI
Address Line 1:	Suite 311, The Tad Centre
Address Line 2:	Ormesby Road
City/Town:	Middlesbrough
County:	North Yorkshire
Postcode:	TS3 7SF
Contact Name:	Lewis Shannon

Company Details

Address Line 1:	CB Heating Ltd
Address Line 1:	Stephenson Road W.
City/Town:	Clacton-on-Sea
County:	Essex
Postcode:	CO15 4TL
Contact Name:	Jo Smith
Contact Number:	[REDACTED]

Property Details

Property Type:	2-Storey, Terrace	Heat Loss:	6.78kW
Number of Bedrooms:	2	Property Area:	88.94
Roof Insulation:	Pitched, 300mm Insulation	Mains Fuse Rating:	60A
Wall Insulation:	Mixed Construction	Mains Phase Type:	1-Phase
Floor Insulation:	Solid, No Insulation	Main DB Location:	Dining Room
Window Glazing:	Double Glazing	Funding Scheme:	ECO 4
Asbestos Present:	No	Planning Permission:	Permitted Development

Additional Measures Being Done By Contractor

Internal Wall Insulation:	No
External Wall Insulation:	No
Cavity Wall Insulation:	Yes

Double Glazing:	No
Loft Insulation:	Yes
Floor Insulation:	No

Solar Photovoltaic Panels:	No
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Other Additional Works:	No
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Description of Other Additional Works:

Installation Design Assessment


System Details

Outdoor Unit	
Unit:	Daikin EDLA08
Capacity (kW):	7.36
Height (mm):	770
Width (mm):	1250
Depth (mm):	362
Controls:	Honeywell EVO Home


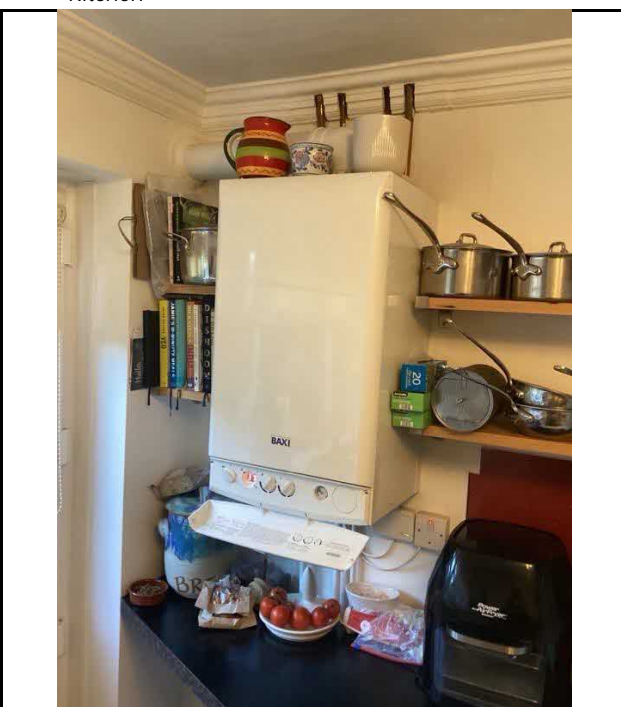
Existing Heat Source:	Combi-Boiler
Design Flow Temperature (°C):	45

Hot Water Service	
Unit:	Seco 150L Slim
Capacity (L):	150
Height (mm):	1496
Width (mm):	475
Depth (mm):	475
Buffer Required:	Yes


Heating Carcass:	Replacing
Number of New Radiators:	6
Number of zones	1

Outdoor Unit Location:	Front Elevation, Backing onto Living Room
Outdoor Unit Mount:	Floor Mounted
<p>Outdoor unit to be installed on the Front elevation of the property, adjacent to the Living Room. Outdoor unit to be offset by 300mm from the rear of the unit, to allow for sufficient airflow. Outdoor unit to be placed on 150mm rubber feet on a solid base, to be provided by Partner. Outdoor unit to be sited at least 1m from the property boundary to comply with permitted development.</p> <p>Drip Tray to be fitted for condense. Condense pipework to exit the unit and run low-level to the drain on the property edge.</p> <p>Flow/Return pipework to enter property in Living Room then run up the wall through to Bedroom 1 and up into the Loft Space, then run across to the cylinder location.</p> <p>Lagging and Internal Trunking to be fitted where applicable.</p> <p>Amperage may vary due to voltage drop. Selection and sizing of the wiring must be done in accordance with BS 7671 IET wiring regulations or the applicable legislation based on the information provided in this document.</p> <p>Sizing of mains power supplies is the sole responsibility of the electrical contractor due to external contributing factors.</p> <p>The Main Distribution Board is located in the Dining Room Recommended cable route to run from Main DB location to Outdoor unit location (Front Elevation)</p>	

Installation Design Assessment

Hot Water Cylinder Location:	Loft Space
<p>No existing hot water cylinder to decommission. New hot water cylinder to be installed in a new location (Loft Space). Domestic hot and cold water feeds to be piped from Boiler in Kitchen, along the Party wall to the Dining Room then follow the Heating Carcass, through the Loft Space back to the Cylinder location. Lagging to be fitted where applicable.</p> <p>Separate Buffer Tank to be fitted next to Cylinder.</p> <p>Discharge pipework from cylinder location to be installed in line with G3 regulations. Exiting Rear elevation of property to discharge safely.</p> <p>Recommended cable route to run from Main DB location in the Dining Room to the new cylinder via the route described in the previous section.</p>	
Existing Heat Source Location:	Kitchen
<p>Existing combi-boiler to be decommissioned and removed.</p> <p>Existing fuel source to be decommissioned and capped. Fuel tank to be left for customer to remove post-installation.</p> <p>Existing space heating circuit connections to remain in the same location. Lagging to be fitted where applicable.</p>	

Installation Design Assessment

Outdoor Sensor Location:	Front Elevation, Backing onto Living Room
<p>Outdoor sensor to be installed on the Front Elevation backing onto the wall at a height of 2.5m or as close as possible. Cabling to run vertically down to the Outdoor unit location.</p>	

Radiators and Heating Carcass

/ 1x 600x1200 K3 - Bathroom 1 /
 / 3x 600x1600 K3 - Dining Room, Bedroom 1, Bedroom 2 /
 / 1x 700x500 K3 - Kitchen /
 / 1x 700x2000 K3 - Living Room /

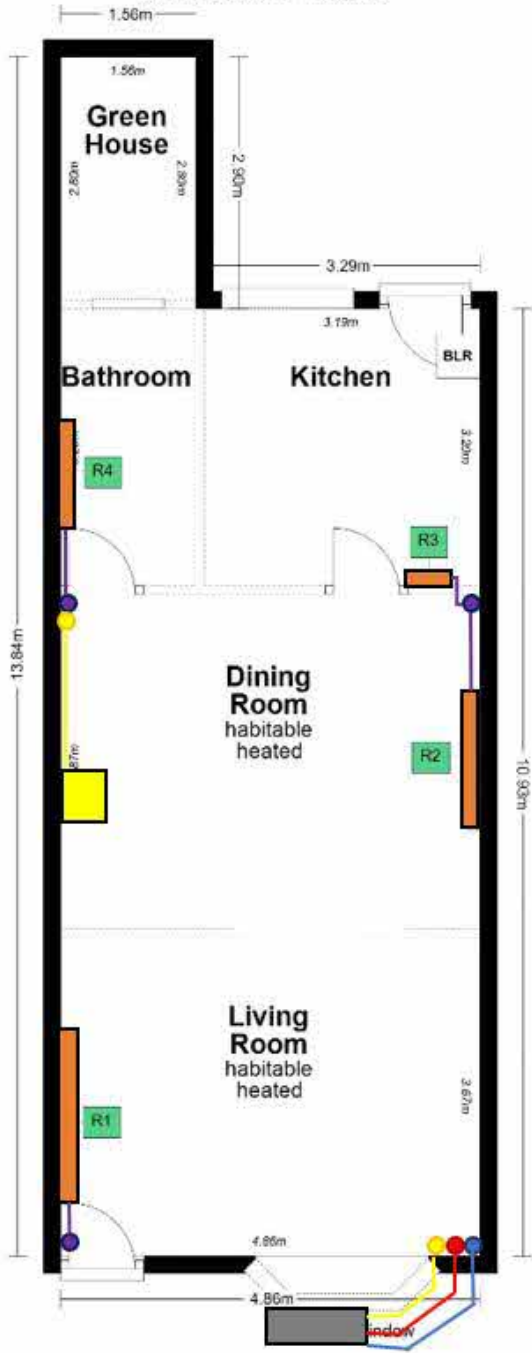
Radiators to be fitted in accordance with Radiator Report and Floorplans.
 New Heating Carcass to be installed for optimum Space Heating Circuit flow/returns, replacing existing microbore.
 Main Spine to be installed in the Loft Space
 Recommended Pipe route detailed on Floor Plan.

Advisory

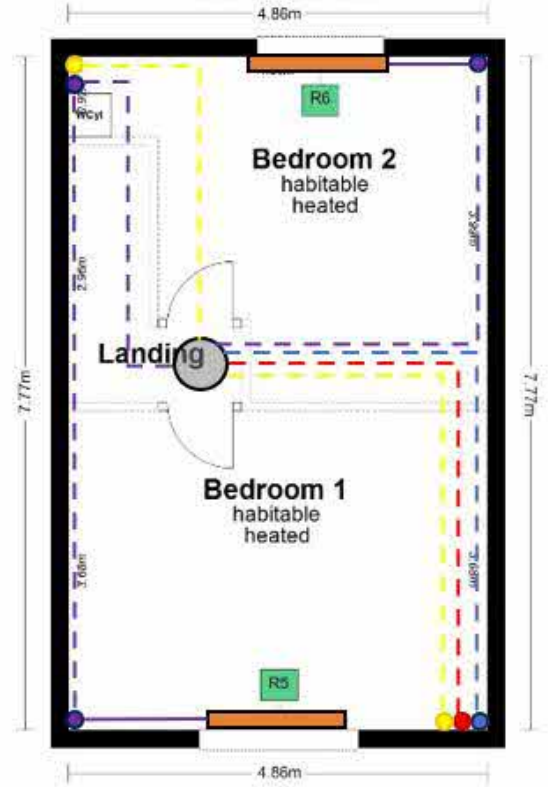
Specified pipework and electrical cable routes are to be assessed onsite. Any alterations, amendments or reroutes to be discussed with and agreed by the installation management team, prior to works be carried out.

Floorplans

GROUND FLOOR



FIRST FLOOR



Noise Assessment

This assessment is prepared in accordance to MCS 020, The Planning Standard for air source heat pumps. This is to establish that the proposed location of the air source has a noise level lower than 42 dB (A) and would not require planning permission from the local authorities.

For the purpose of the calculation procedure the following notes have been issued:

- 1) Assessment position means an external point that is one metre away from the centre point of any door or window of a habitable room of a neighbouring property, measured perpendicularly to the plane of that door or window.
- 2) Habitable room means any room other than a bathroom, shower room, water closet or kitchen;
- 3) Neighbouring property means any building used for any of the purposes of Class C Town and Country Planning (Use Classes) Order 1987 (as amended) (includes dwelling houses, hotels, residential institutions and houses in multiple occupation). In instances where the air source heat pump would be installed on a block of flats, neighbouring property includes flats within the same block of flats (excluding the flat of the "owner(s)" of the air source heat pump).

Noise assessment calculation

Air source heat pump model:	EDLA08
Assessment position:	Neighbouring property
Relevative assessment property position:	Front Elevation
Assessment position - door or window:	Window
Distance to assessment position (m):	4

o Sound Power Level

Sound Power is the total acoustical energy emitted by a sound source and is an absolute value. It is not affected by the environment or the location of the listener.

From manufacturers data, obtain the A-weighted sound power level of the heat pump. The highest sound power level specified should be used (the power in "low noise mode" should not be used).

Manufacturers data states the sound power levels are (dB(A)):	62
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○ Sound Pressure Level

Sound pressure is what we hear. It is a pressure disturbance at a specific point in the atmosphere whose intensity is influenced not only by the sound power of the source, but also by the surroundings and the distance from the source to the point at which the sound is heard.

○ Determination of "Directivity"

The sound pressure level increases with the number of reflecting surfaces. A reflective surface is any surface (including the ground) within 1 metre of the air source heat pump.

Use "Sound Pressure level" and "Determination of directivity" to establish the directivity "Q" of the heat pump noise.

	Distance from heat pump (m)													
	1	1.5	2	3	4	5	6	8	10	12	15	20	25	30
Q2	-8	-11	-14	-17	-20	-21	-23	-26	-28	-29	-31	-34	-36	-37
Q4	-5	-8	-11	-14	-17	-19	-20	-23	-25	-26	-28	-31	-33	-34
Q8	-2	-5	-8	-11	-14	-16	-17	-20	-22	-23	-25	-28	-30	-31

Directivity:
Distance reduction (dB(A)):

Q4
-17.00

○ Barriers between the heat pump and the assessment position

A correction should be made for attenuation due to barriers between the air source heat pump and an assessment position. A correction will be necessary if an installer is unable to see an assessment position from the top edge of the air source heat pump. Use the following instructions to determine whether a correction is appropriate:

- 1) For a solid barrier (e.g. a brick wall or a fence) that completely obscures an installer's vision of an assessment position from the top edge of the air source heat pump attenuation of -10 dB may be assumed;
- 2) Where a solid barrier completely obscures an installer's vision of an assessment position from the top or side edges of the air source heat pump, but moving a maximum distance of 25cm in any direction to the air source heat pump allows an assessment position to be seen, attenuation of -5 dB may be assumed;
- 3) If it is possible for an installer to see any part of an assessment position from the top or side edges of an air source heat pump no attenuation may be assumed.

Barrier (wall/fence) between heat pump and assessment position:
Sound pressure level from the heat pump at the assessment position (dB(A)):

Yes
35.00

o Background noise level

The MCS Planning Standard assumes a background noise level of 40 dB (A) for the purposes of the air source heat pump calculation procedure. A different value for background noise should not be used as part of this calculation procedure.

Background noise level (dB(A)):	40.00
Differential Noise (ASHP-Background, (dB(A))):	5.00
Decibel correction adjustment (dB(A)):	1.2

Resulting noise level

Noise Level dB(A)	Noise Assessment Summary
41.2	The Air Source Heat Pump noise level is lower than the permitted noise development limit of 42 dB(A). Therefore, the air source heat pump will comply with the permitted development noise limit for this assessment position and may be permitted development (subject to compliance with other permitted development limitations/conditions and parts of the MCS 020 standard.)

Heat Pump System Performance Estimate



Installer Project Reference:

Client Name:

Installation Address Line 1:

Installation Address Line 2:

Installation Address Line 3:

Installation Postcode:

Energy Performance Certificate (EPC) Information

Does this estimate relate to a new build or proposal for extension or reduction in size of an existing building?

EPC No. for building:

Energy required to heat property: kWh

Energy required for hot water: kWh

New Renewable System Information

Type of System*:

Manufacturer Name:

Manufacturer Model:

MCS Certification Number*:

*This calculator is not designed to be used for Solar Assisted Heat Pumps

Flow Temperature*: °C * Determined by the temp. of the water leaving the HP when supplying space heating at the external design temp.

MCS SCOP Heating*: * SCoP - Seasonal Coefficient of Performance. This value is based on the MCS HP SCoP Table below

MCS SCOP Hot Water*: * If providing space heating and DHW then default value from SAP2012 (1.75). If DHW only see methodology in MIS3005

Renewable System Provides:

Hot Water Immersion Use*: * based on 50C up to 60C, 3kW

Size of Hot Water Cylinder: ltr

Existing Heating System

Existing heating system fuel*: * If new build model the most likely alternative fuel

Hot Water heated by*: * If new build model the most likely alternative fuel

Age of existing system:

Efficiency of existing system: %

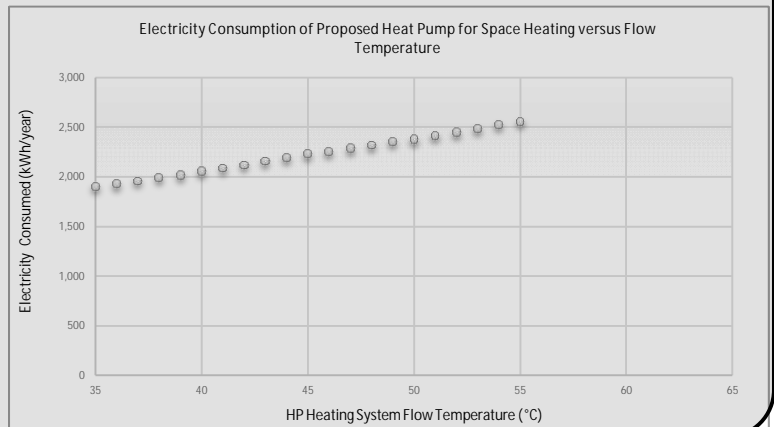
Estimated System Performance / Comparison

Energy Requirement for the building	Heating	Hot water	Total	
Net Energy required to heat property	8,271	2,182	10,453	kWh
Existing System Consumption	9,507	2,787	12,294	kWh

New HP System Estimated Consumption

Full Heat Pump System (if selected above)	Heating	Hot water	Total	
HP System Electricity Consumption	2,229	1,338	3,567	kWh
Hybrid System (if selected above)				
HP System Electricity Consumption				kWh
Hybrid system other consumption				kWh
Hybrid Total Consumption	-	-	-	kWh

Note: There are different types of hybrid system. This calculation presumes a hybrid where both sources of heat supply the same hydraulic circuits (heating and hot water) according to the proportion selected above.



Flow temperature	SCoP
35°C	4.36
36°C	4.29
37°C	4.23
38°C	4.16
39°C	4.1
40°C	4.03
41°C	3.97
42°C	3.91
43°C	3.84
44°C	3.78
45°C	3.71
46°C	3.67
47°C	3.62
48°C	3.57
49°C	3.52
50°C	3.48
51°C	3.43
52°C	3.38
53°C	3.33
54°C	3.28
55°C	3.24
56°C	-
57°C	-
58°C	-
59°C	-
60°C	-
61°C	-
62°C	-
63°C	-
64°C	-
65°C	-

Cut and paste the heat pump's SCoP values for the relevant product from the MCS Product Directory ([here](#)) into the table to the left. Include SCoP data for the entire temperature range (35 °C - 65 °C) even if the SCoP is listed as '0'.

SCoP Definition

SCoP = Seasonal Coefficient of Performance:

MCS SCoP is a theoretical indication of the anticipated efficiency of a heat pump aggregated over a year using standard climate data across Europe. It indicates the units of total heat energy generated (output) for each unit of energy (electricity) consumed (input). It is slightly different to ErP SCoP as it contains efficiency losses due to controls and brine pumps (for a GSHP). As a guide a heat pump with a MCS SCoP of 3 generates 3 kWh of heat energy for every 1 kWh of electrical energy it consumes.

This also means that 2/3rds of the heat output could be eligible for RHI payments. MCS SCoP is based on stringent factory based tests for equipment but does not specifically include the energy consumption of heating circulating pump(s) nor does it model the transient conditions typically experienced in practice in the consumers home and hence the overall final system efficiency is likely to be different from the MCS SCoP.

Important Information:

This performance estimate should be accompanied by the Key Facts which explain the factors that can affect the performance of a heat pump.

Any technical variation to the specification could affect the performance of the Heat Pump System in which case the MCS Contractor MUST update and re-issue this document and advise the customer of their Consumer Rights.

Disclaimers

- | | | |
|---------------------------------|---|--|
| Consent to agreed installation | 1 | Upon signing the design agreement, you confirm that you have reviewed the contents outlined in the Installation-Design pack provided by CB Heating Limited and give consent to the right of works to be carried out in accordance with the methodology that has been outlined in the installation notes of the installation-design pack document by a Heat Pump Installation Network approved installer. |
| Radiator upgrades | 2 | The design outlined in the installation – design pack document states the leaving water temperatures that the system should operate on the coldest day of the year. The difference between the room temperature and emitter temperature value is the differential temperature (DT). Manufacturers state outputs in terms of DT50 on their specifications. CB Heating Ltd recommends that emitters are upgraded to the DT50 outputs for the relevant leaving water temperature on the emitter output report to ensure MCS standards are upheld. |
| SPE and Operational consistency | 3 | Operational consistency of the electrical consumption and heating output of the air source heat pump system will vary based on the temperature, operational schedule times, and heating requirements of the dwellings occupant. Operational performance may not reflect the design of the system. |
| | 4 | System performance estimates (SPE) are based on the BREDEM-12 Energy analysis methodology used to produce Energy Performance Certificates. The Rated seasonal coefficient of performance of the heat pump at the designed leaving water temperature is used with the data from the last Energy Performance certificate of a dwelling to produce an estimate. Alternative data from heat loss calculations are utilised if a Energy performance certificate is not available. |
| 3rd party equipment | 5 | I acknowledge the use of third-party, "existing" equipment specified in the system design with an air source heat pump is not under warranty. And, with the combination of existing and the new components, performance cannot be guaranteed to manufacturers specification. |
| Disinfectant cycle | 6 | For operation of a disinfectant cycle, I am aware that the cylinder immersion heater will be required to operate once per week to heat the tank to between 60°C and 70°C. Notification of a "AH" code on the user interface is a warning of an incomplete legionella disinfectant cycle. |
| Existing pipework | 7 | I acknowledge that CB Heating Ltd cannot guarantee the performance of the space heating circuit with existing pipework. This may result in the rooms within the property failing to meet their desired temperatures. |
| | 8 | I understand that CB Heating Ltd cannot account for any lack of lagging on existing pipework, and system efficiency loss because of heat dissipating from unlagged existing pipework. |



- Existing pipework
- 9 I understand that CB Heating Ltd cannot be held liable for any defects that may arise with existing pipework or components not installed or worked on during the installation.
- 10 I acknowledge that CB Heating Ltd is not responsible for the servicing, maintenance, or replacement of existing pipework.
- HWC configuration change (unvented to vented)
- 11 I understand that CB Heating Ltd is not responsible for the servicing and maintenance of products or systems not provided by CB Heating Ltd. I understand that CB Heating Ltd is not responsible for any damages caused in the event of existing pipework failures, that result from switching from an unpressurized (vented) hot water system to a pressurized (unvented) hot water system.
- 12 I confirm that CB Heating Ltd is not responsible for the removal of the existing feed and expansion tank. I understand that I have been advised by CB Heating Ltd that the installation of an air source heat pump, in the stated location, does not qualify for Permitted Development Rights.
- Unvented cylinders
- 13 I understand that CB Heating Ltd has advised that hot water cylinders in a pressurized (unvented) configuration require an annual service to ensure safe operation of the hot water cylinder.
- 14 I understand that switching from an unpressurized (vented) hot water system to a pressurized (unvented) hot water system may result in a reduced flow rate.
- 15 I understand that a pressurized (unvented) hot water system is incompatible with shower pumps and some power shower systems.