ideal HEATING

Heat Pump selection tools

idealheating.com

Introduction.

Choosing the correct size heat pump is critical to the success of the system design and installation.

The Ideal heat pump sizing app is a tool specifically designed to help the installer or specifier select the right size heat pump and plan their install. The Ideal heat pump sizing app has 2 sections with access dependent on the role of the user:

1. **Heat pump Estimator – a quick sizing tool designed to give a quick and simple estimate for initial heat pump specification**
2. **Heat pump Designer – a detailed room by room heat loss calculator designed in accordance with EN12831 that also includes a radiator sizing tool and sound assessment tool inline with MCS 020**

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Heat pump Estimator.

The heat pump Estimator is a fast and intuitive sales/specification tool:

- Suitable for all user types
- Estimates running costs and fuel comparison costs
- Estimates a suitable heat pump from basic inputs
- Estimates property heat loss
- Enables selection of ancillary components to create a shopping list
- Enables saving/printing of PDF result for future reference, customer communication or merchant pricing

The Ideal Heating Estimator is designed as a simple tool to help with initial heat pump specification on the majority of UK housing types.

It is important to note that an estimating tool is not a substitute for a full heat loss calculation and in most cases such a calculation should be carried out prior to purchase or installation.

The heat pump Estimator allows you to create a likely specification at initial customer contact, saving time both on site and in the office.

The Estimator should be used only with the certain building specifications (identified below). In cases where the specifications do not meet the scope of the application and there is no option to upgrade, then the Estimator is not an appropriate tool. In such cases a full heat loss survey and calculation should be made to ascertain the correct product and solution from the outset.

- Wall insulation (EWI, IWI or Cavity filled)
- Roof insulation (min 270mm, or “room in roof” with rafter insulation)
- Double or triple glazing

The following page details the inputs that are required for the Estimator to deliver an output.

Note the details here as you will need to have all this information to achieve a successful output.

Please do not attempt to guess any of the parameters as this will likely result in error.

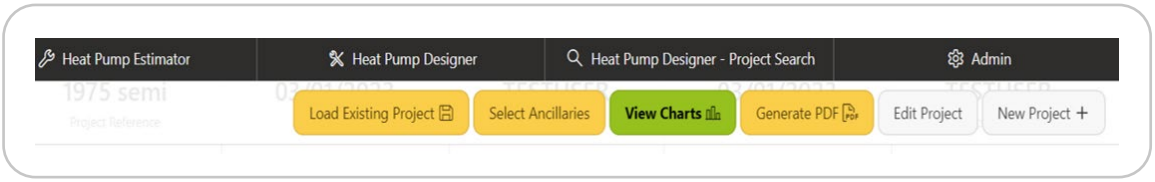
E.g. if a 1970s house is “guessed” at 70m² when in fact it is 100m², the error could be over 2kW.

Heat pump Estimator inputs.

Parameter	Input detail
Project Reference (text)	Enter an alpha numeric value of your choice
Post Code (text)	Enter post code
Select House Age (drop down) ▼	Select approximate decade of build
No of Bedrooms (text numerical value)	Used for DHW cylinder sizing
Select Application Type (drop down) ▼	Heating only – Heating & DHW
Select Wall Construction (drop down) ▼	Important! – This must reflect the property accurately
Select Loft Insulation (drop down) ▼	Important! – This must reflect the property accurately
Total Floor Area (m^2) (text numerical value)	Enter the floor area in m^2. This must include all heated areas/floors
Select Emitter Type (drop down) ▼	Select radiators or underfloor
Select Design Flow Temperature	Options available will depend on house age/type selections
Select Window Type (drop down) ▼	Select window type
Select Glazing Coverage (drop down) ▼	Select high glazing if heavily glazed wall/conservatory
Select Comparison Fuel (drop down) ▼	Select the existing or alternative fuel type
Comparison Fuel Price (p/kWh)	Enter the current tariff of the comparison fuel

Heat pump Estimator summary.

When all inputs have been entered, click on the 'Calculate' tab.



You can now select any ancillary components for your project such as a hot water cylinder, heat pump mounting options, controls and buffer tank etc.

Click the 'Select Ancillaries' tab. From the options on the left, highlight the item and click the right arrow to populate the box on the right.

Now click on 'Save Changes'.

Note: the list of available ancillaries will be dependent on the selected heat pump.

Select Ancillaries
219434 - Heat Pump Cylinder 210
AH074232 - Navilink A59 INTER
AH700437 - Buffer Tank 50ltr
AH809536 - Rubber Antivibration Feet 600m (by 2)
AH809567 - KM1 7M 5/8"-3/8"

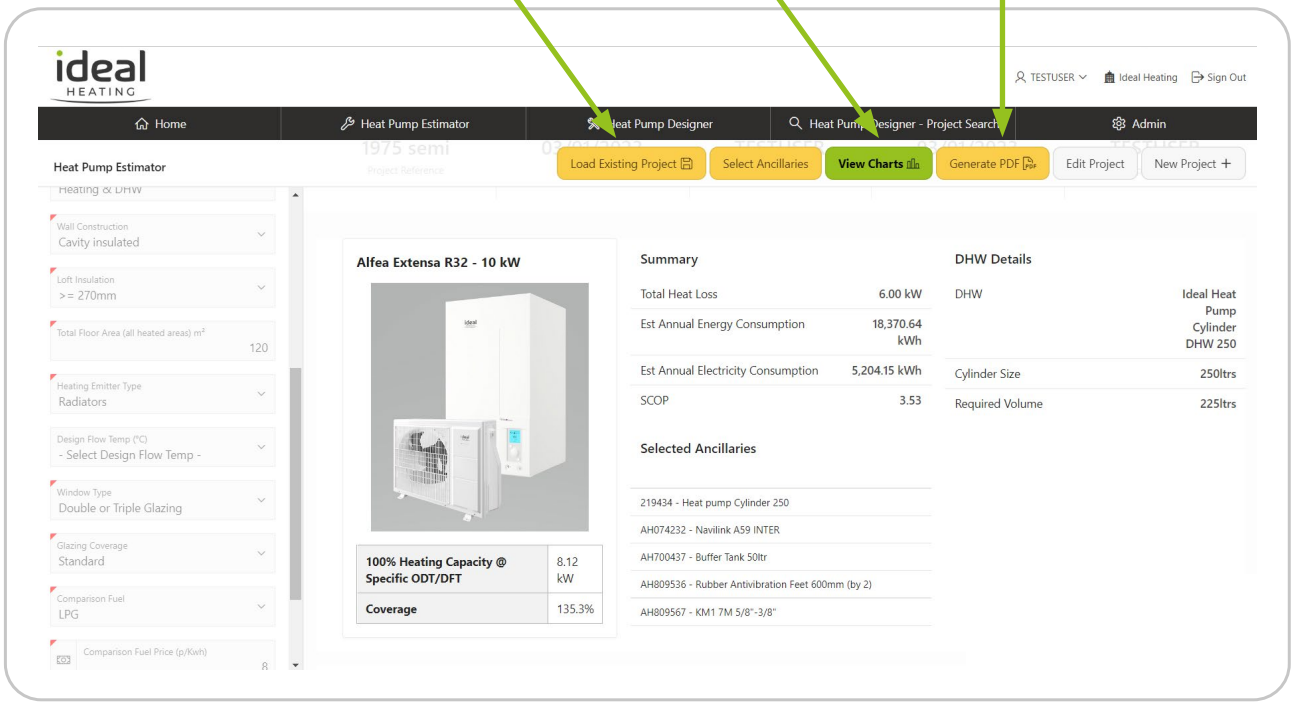
Heat pump Estimator output.

Your summary estimation will be saved and you can refer to it at any time using the 'Load Existing Project' option

You can now view the estimated performance by selecting 'View Charts'

You can now view and print the full summary detail by selecting 'Generate PDF'

To save the summary just select 'Download PDF'



Heat pump Designer.

The Heat pump Designer application is a detailed design tool, that enables a full room by room heat loss analysis of the property.

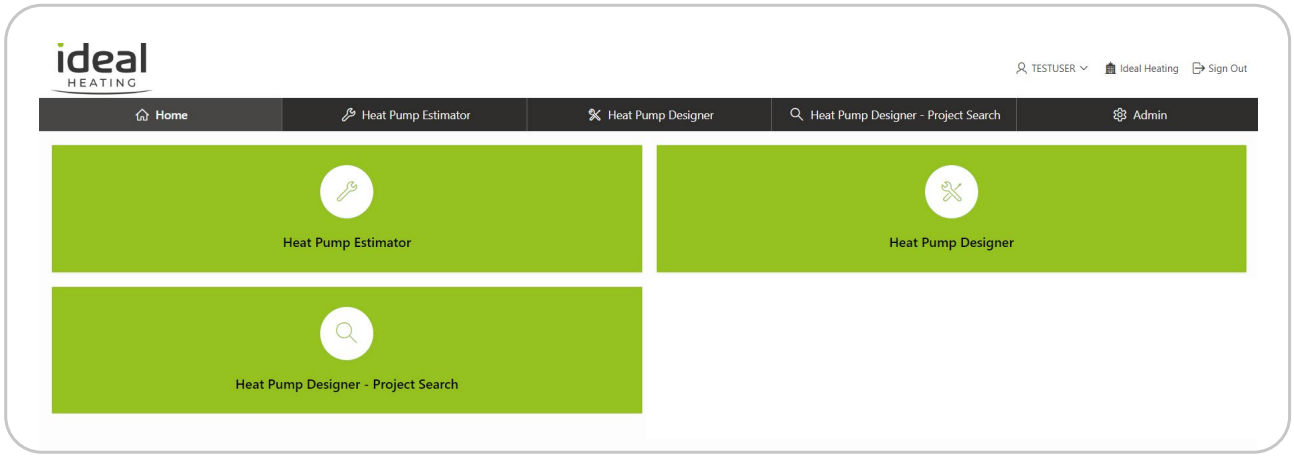
For use by:

- Developers
- Designers
- MCS design engineers
- Architects

Includes:

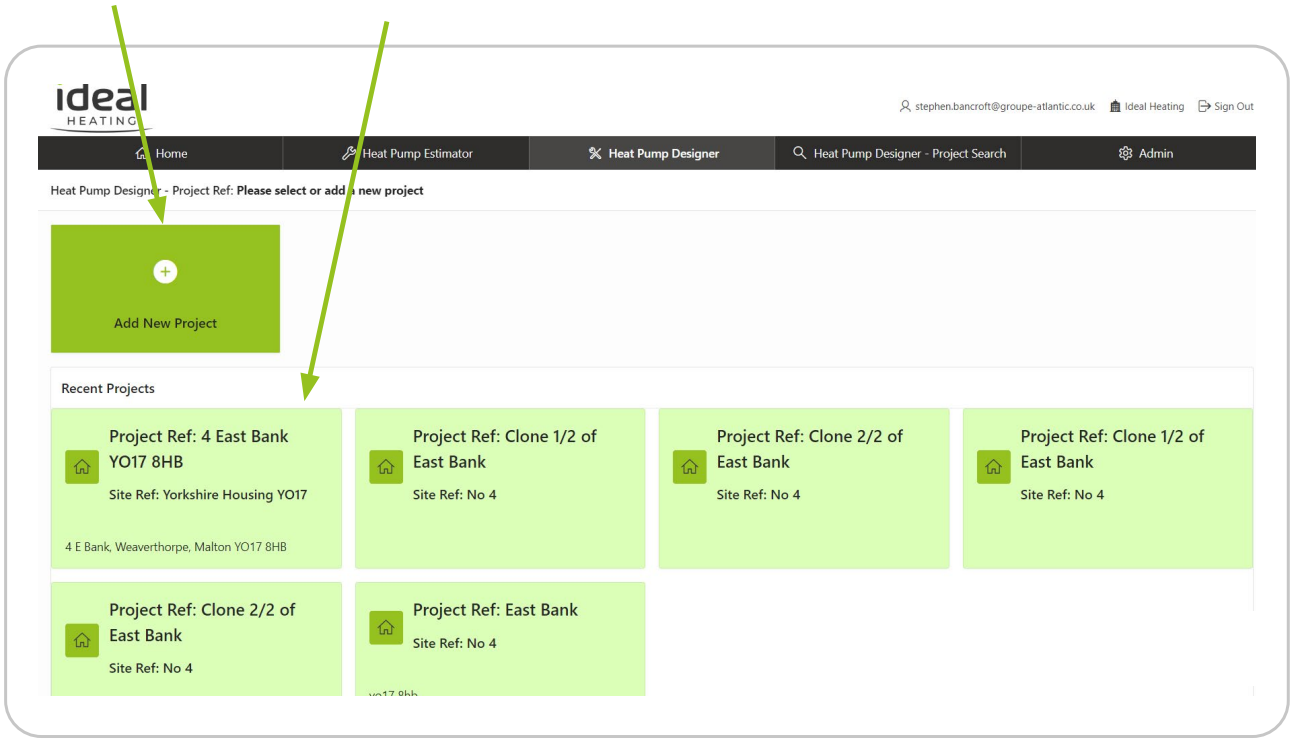
- Room by room heat loss calculator
- In accordance with EN12831
- Includes radiator sizing tool
- Includes sound assessment tool – MCS 020

Generates a specific product list including cylinder, accessories and a radiator schedule.

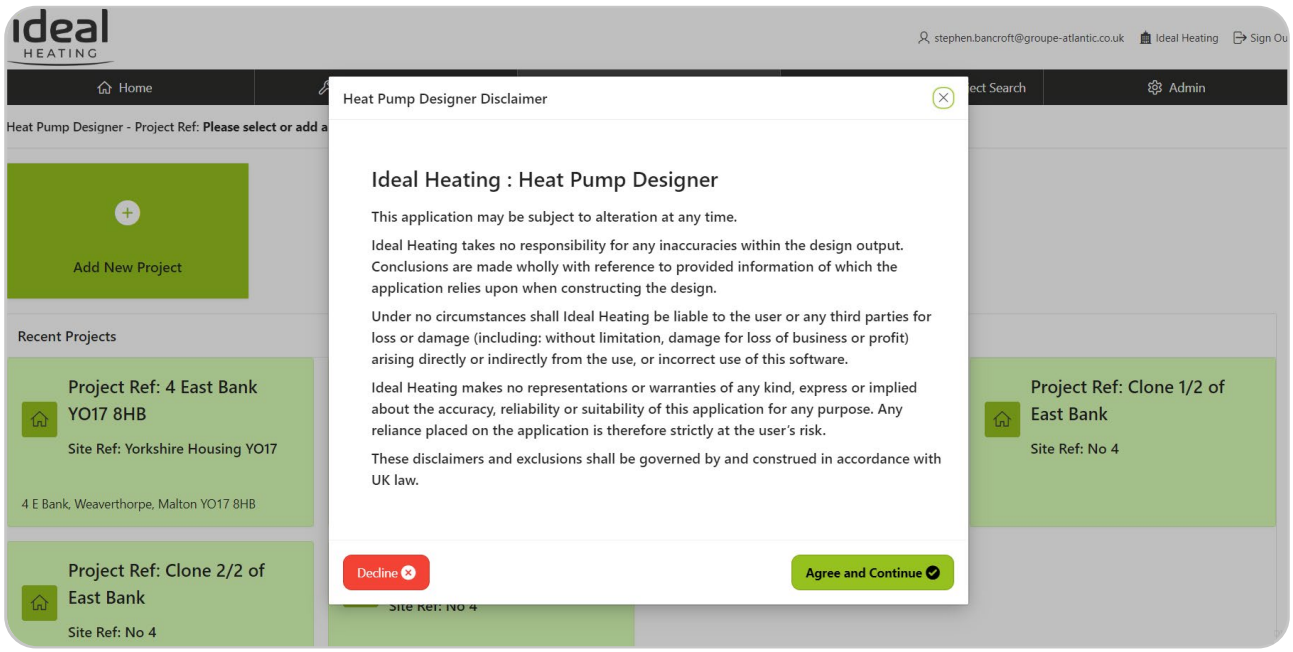


Click on the Heat pump Designer tab to open.

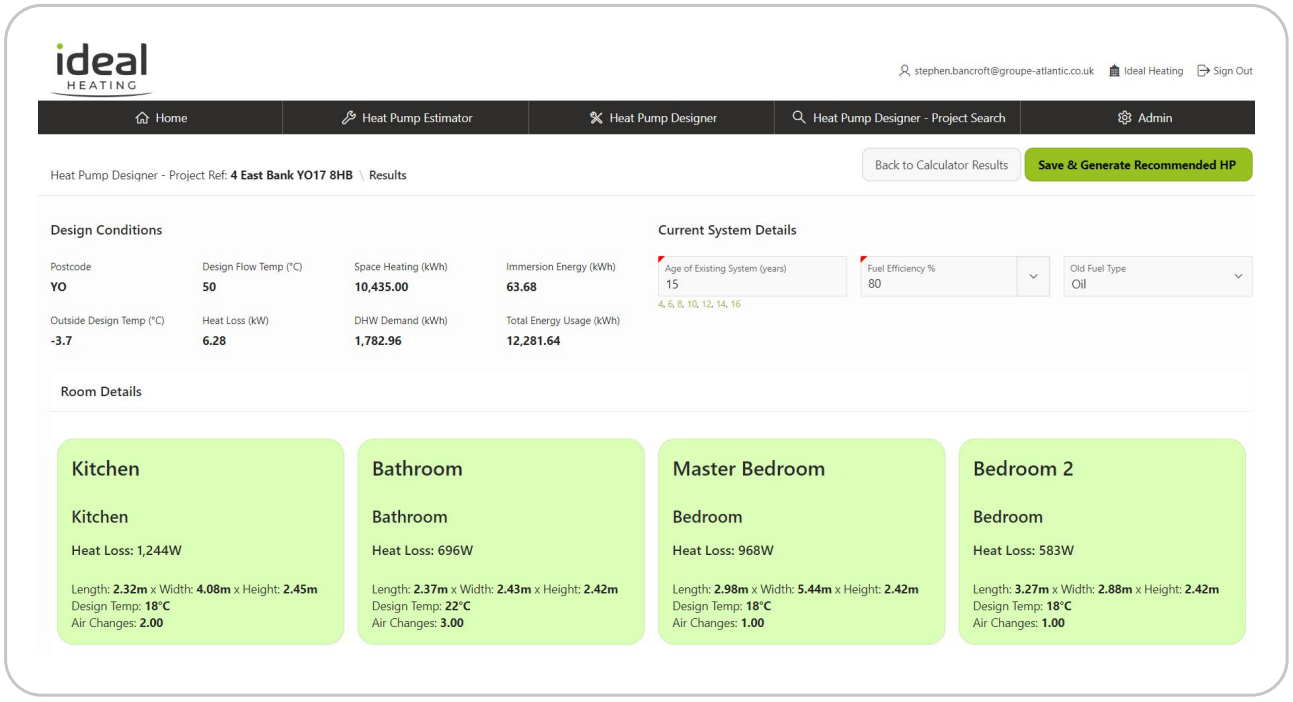
You can now 'Add a New Project' or open an existing project.



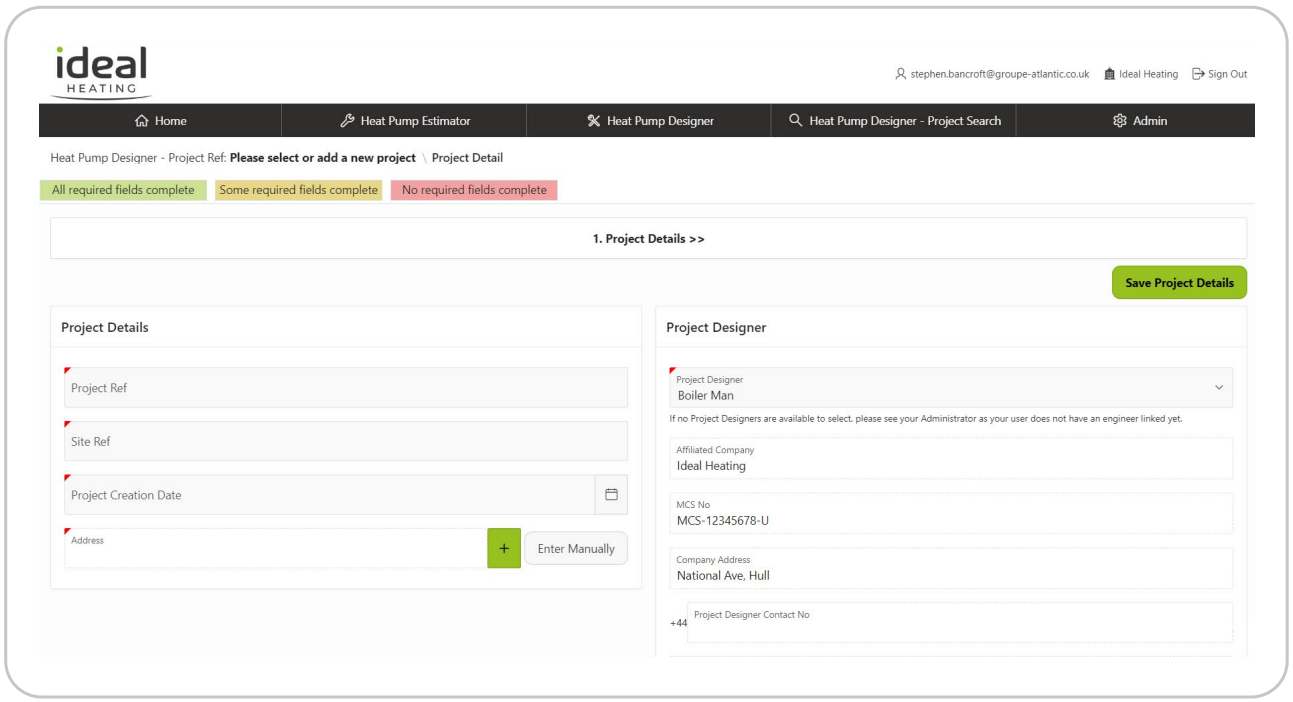
In order to create a project, the user must agree to the terms and conditions of use.



Opening an existing project will take you to the section where you last left that project.



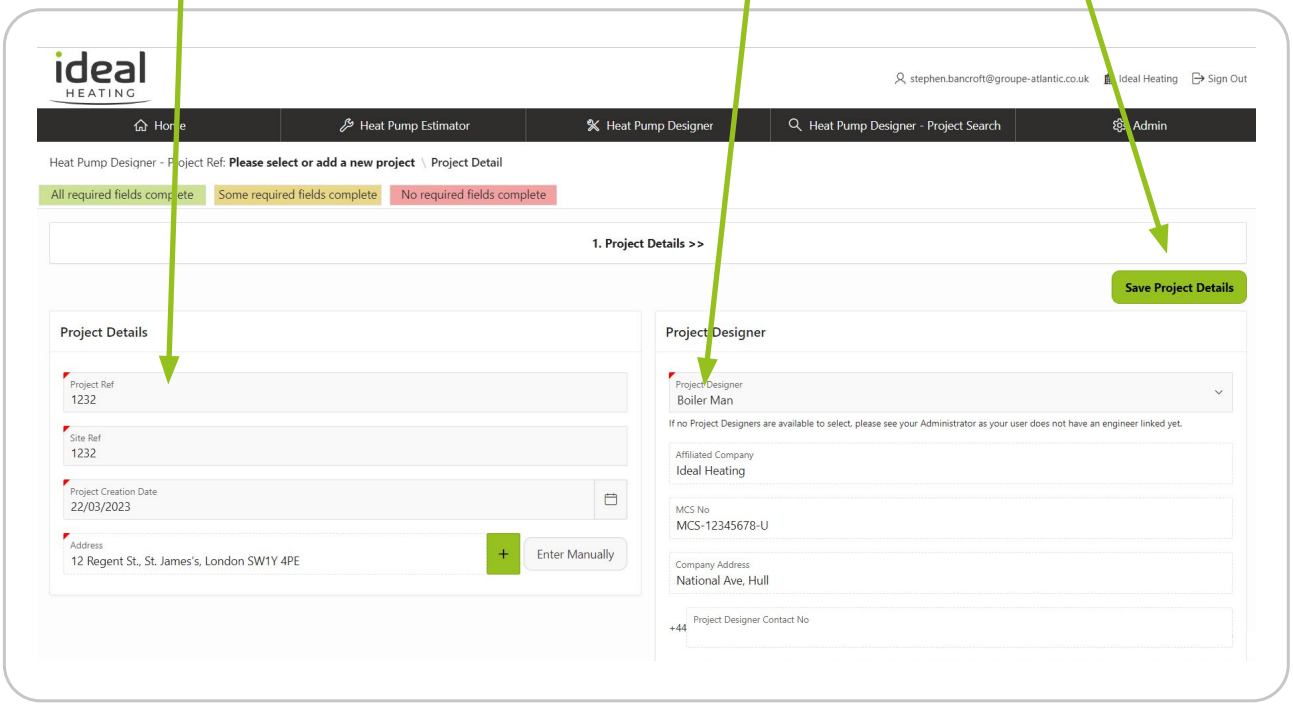
Selecting 'Add New Project' will take you to the project details and initial entry screens.



Enter all details highlighted with a red tab.
Note: you can use any alpha/numeric array for the project and site refs.

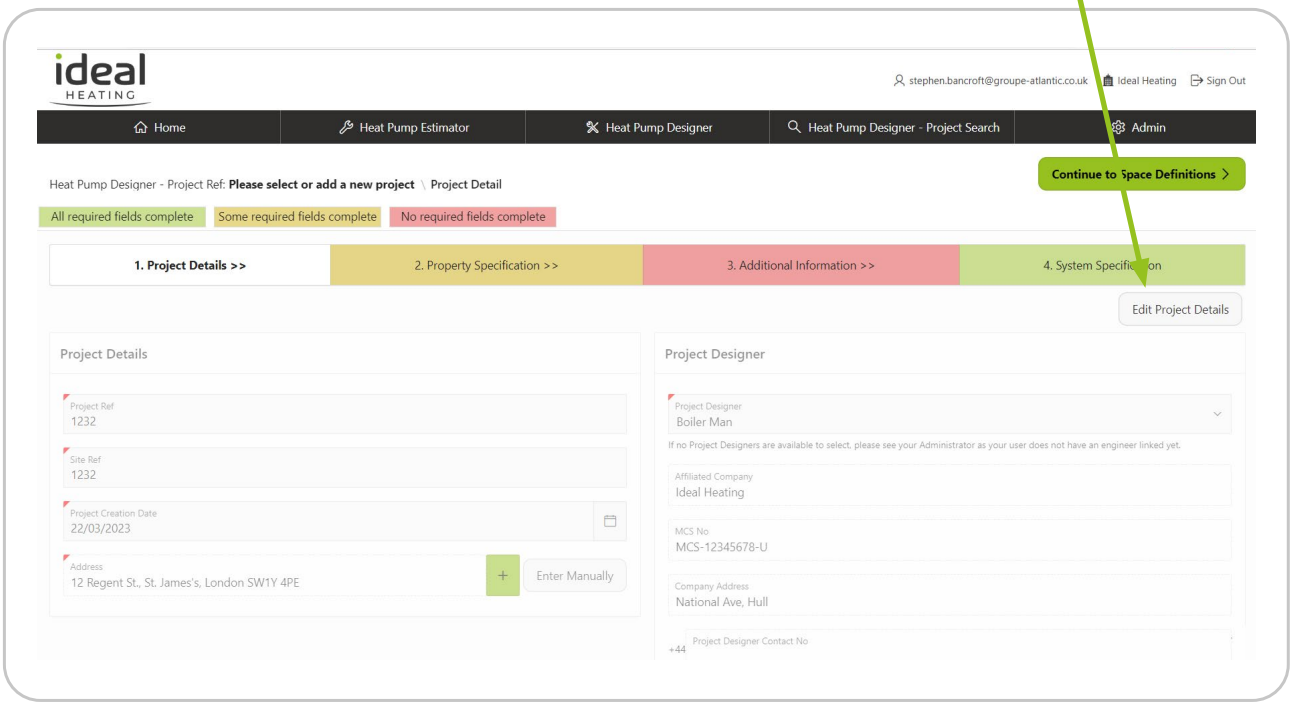
Select your company/name from the Project Designer list on the right.

When completed, click on 'Save Project Details'

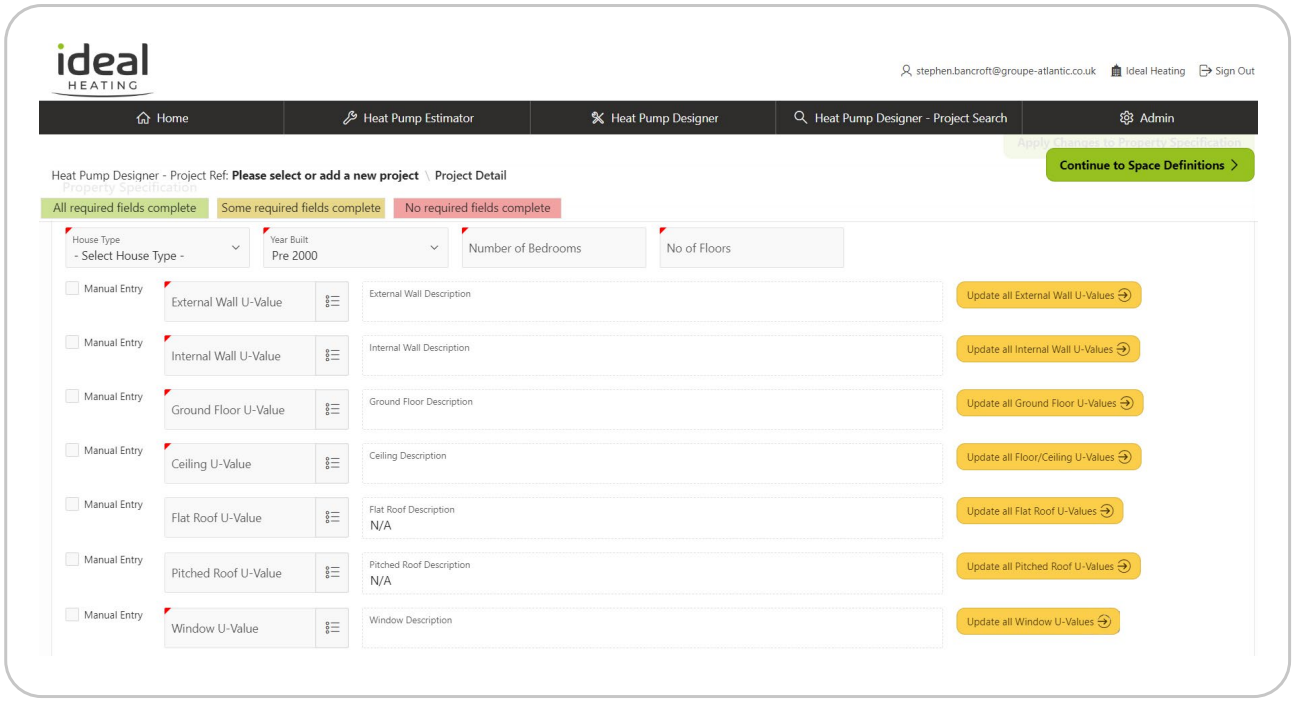


When completed, select the 'Property Specification' tab.

If you wish to alter any information, click on 'Edit Project Details' and once amended, click on 'Save'.



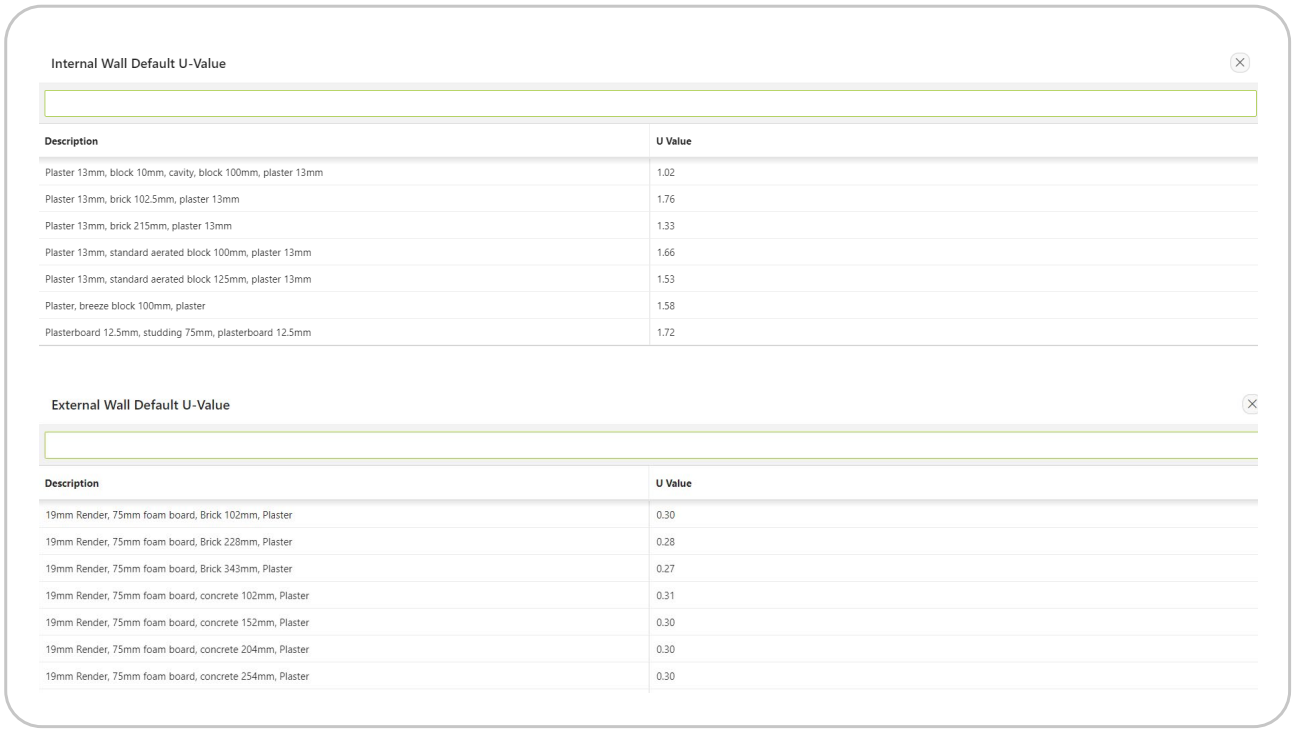
Select the details in the Cells marked with a red tab in the uppermost row. You can now enter the U-Values or fabric description for the building.



Tip: For new builds it is recommended to only use the values from the design and SAP documents:

For existing buildings where no design or building detail is present – use the drop down menu and select the fabric description.

Select the appropriate description and U-value for all fabric types. Here are examples of drop down options:



Internal Wall Default U-Value

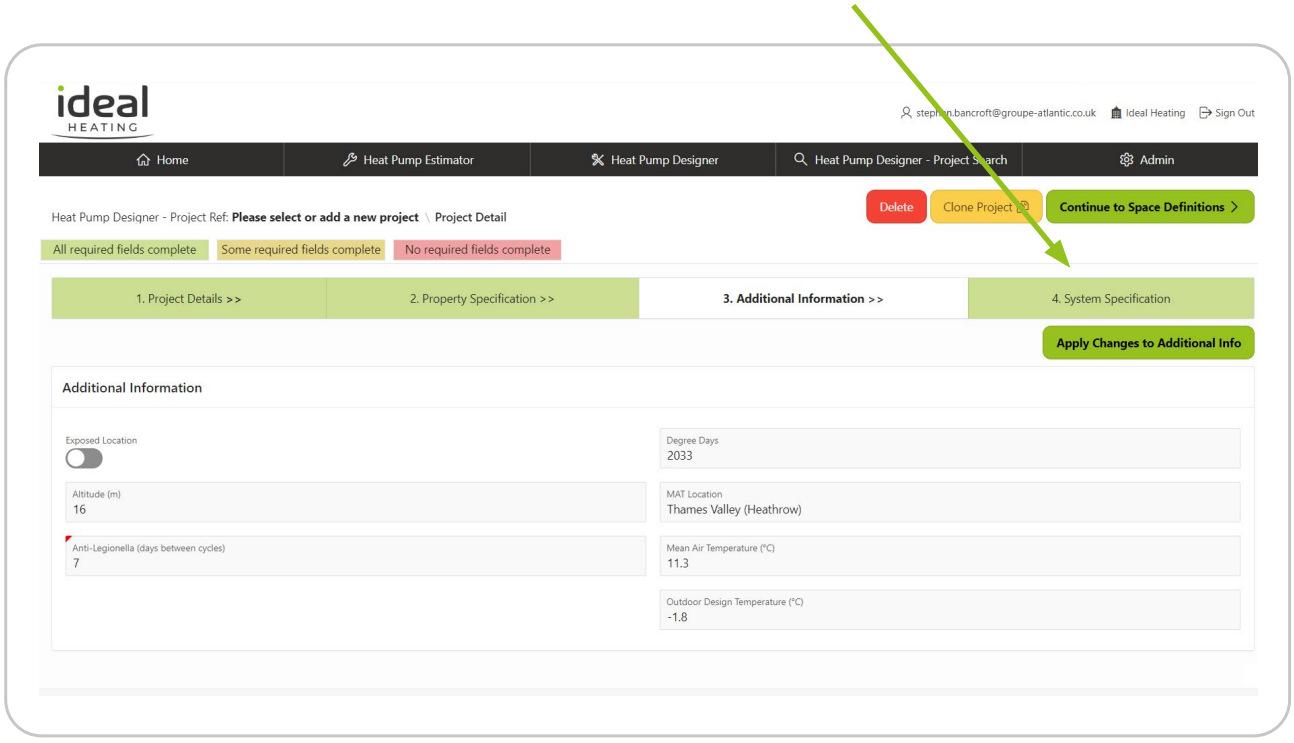
Description	U Value
Plaster 13mm, block 10mm, cavity, block 100mm, plaster 13mm	1.02
Plaster 13mm, brick 102.5mm, plaster 13mm	1.76
Plaster 13mm, brick 215mm, plaster 13mm	1.33
Plaster 13mm, standard aerated block 100mm, plaster 13mm	1.66
Plaster 13mm, standard aerated block 125mm, plaster 13mm	1.53
Plaster, breeze block 100mm, plaster	1.58
Plasterboard 12.5mm, studding 75mm, plasterboard 12.5mm	1.72

External Wall Default U-Value

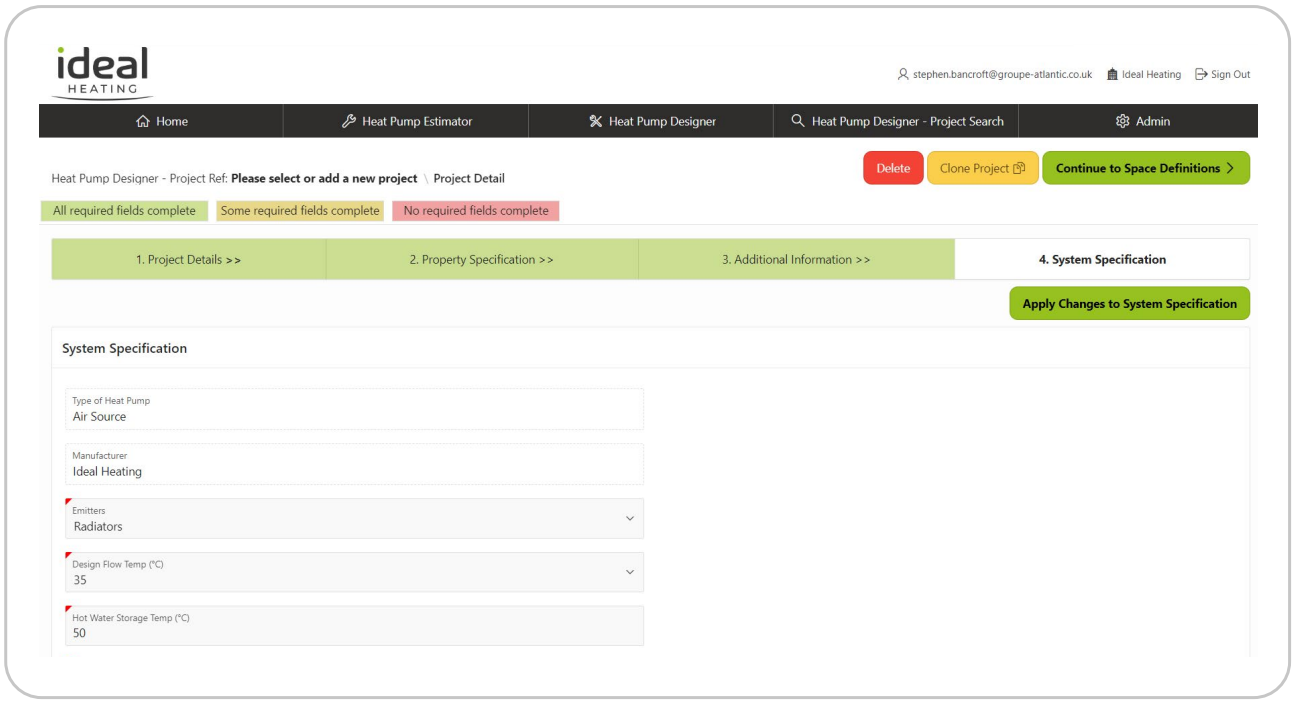
Description	U Value
19mm Render, 75mm foam board, Brick 102mm, Plaster	0.30
19mm Render, 75mm foam board, Brick 228mm, Plaster	0.28
19mm Render, 75mm foam board, Brick 343mm, Plaster	0.27
19mm Render, 75mm foam board, concrete 102mm, Plaster	0.31
19mm Render, 75mm foam board, concrete 152mm, Plaster	0.30
19mm Render, 75mm foam board, concrete 204mm, Plaster	0.30
19mm Render, 75mm foam board, concrete 254mm, Plaster	0.30

Select 'Additional information' and click 'Edit'.

Click 'Apply Changes to Additional Info' when complete. Then select 'System Specification'.



Here you can enter the design details for the project.



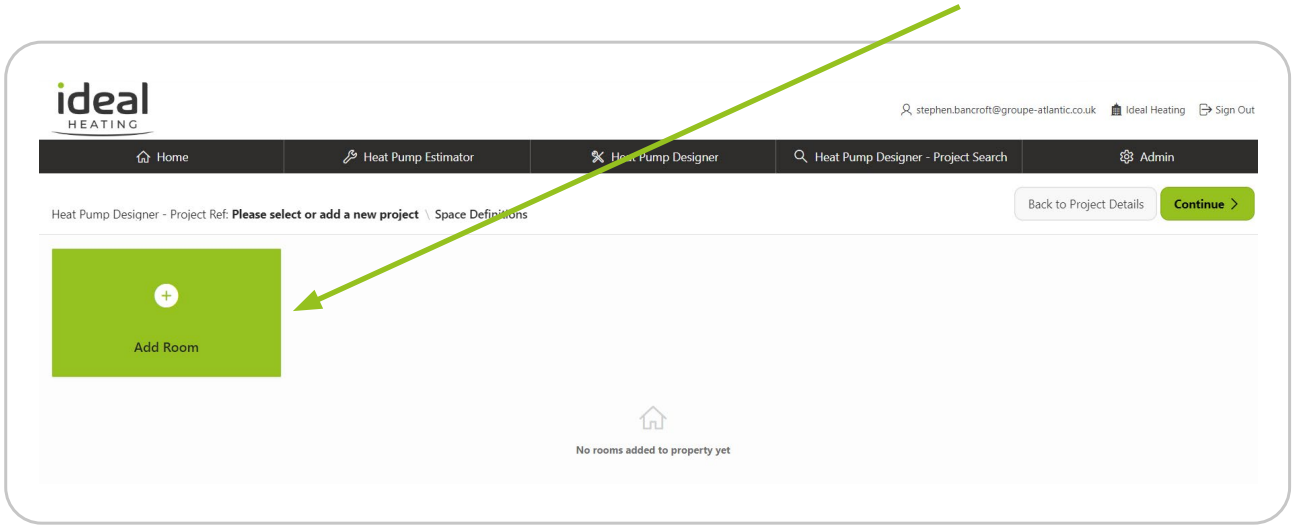
Please complete all cells with a red tab.

When completed – click on 'Apply Changes to System specification'.

When complete, select 'Continue' to Space Definitions.

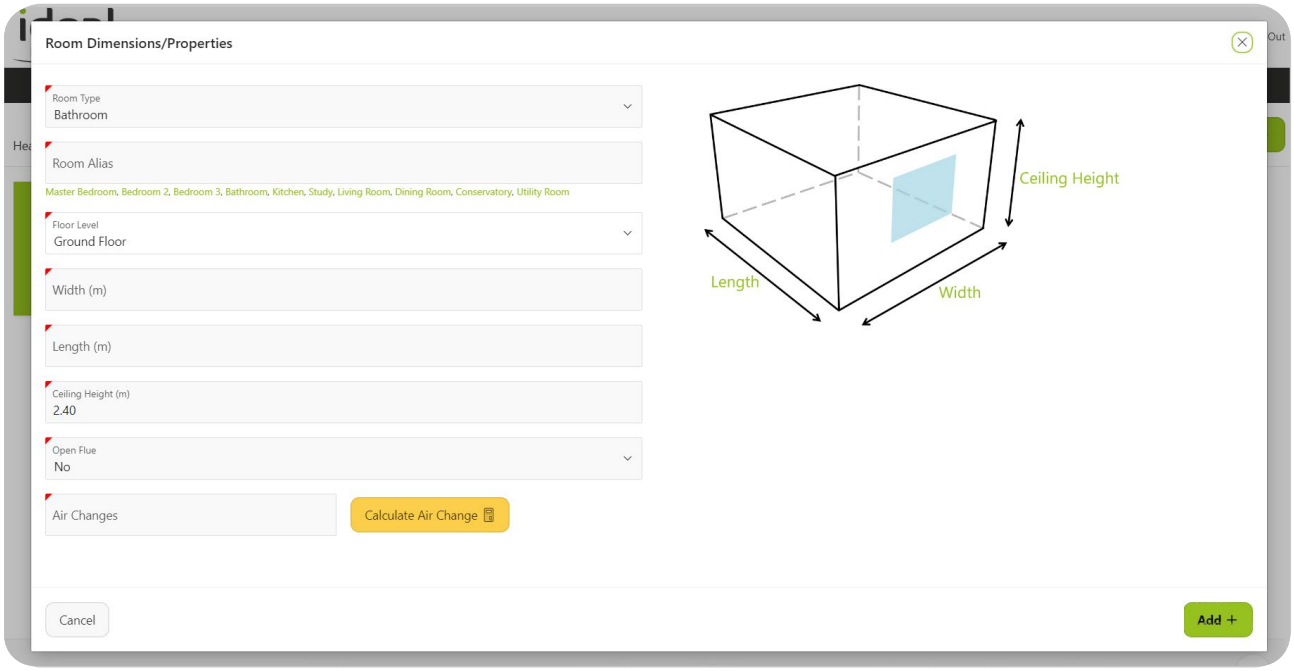
Tip: *Remember you can select any of these entry cells and click on the Edit/Save tabs to amend any details*

In 'Space Definitions' you can create the rooms within your project – start by clicking 'Add Room'.



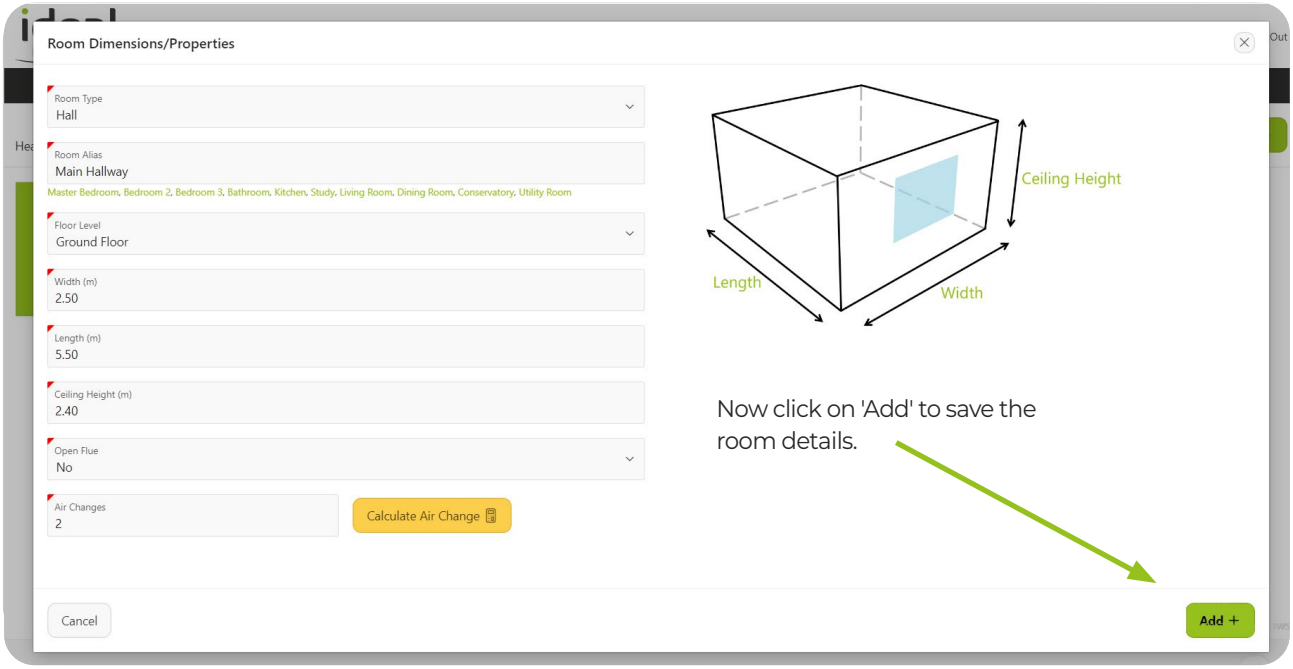
Note: The Room Type is used for specific air change values and internal temperatures, so must reflect the 'type' of room

In Room Alias you can re-name the room appropriately, i.e Bedroom 3, Study, Jim's room etc.

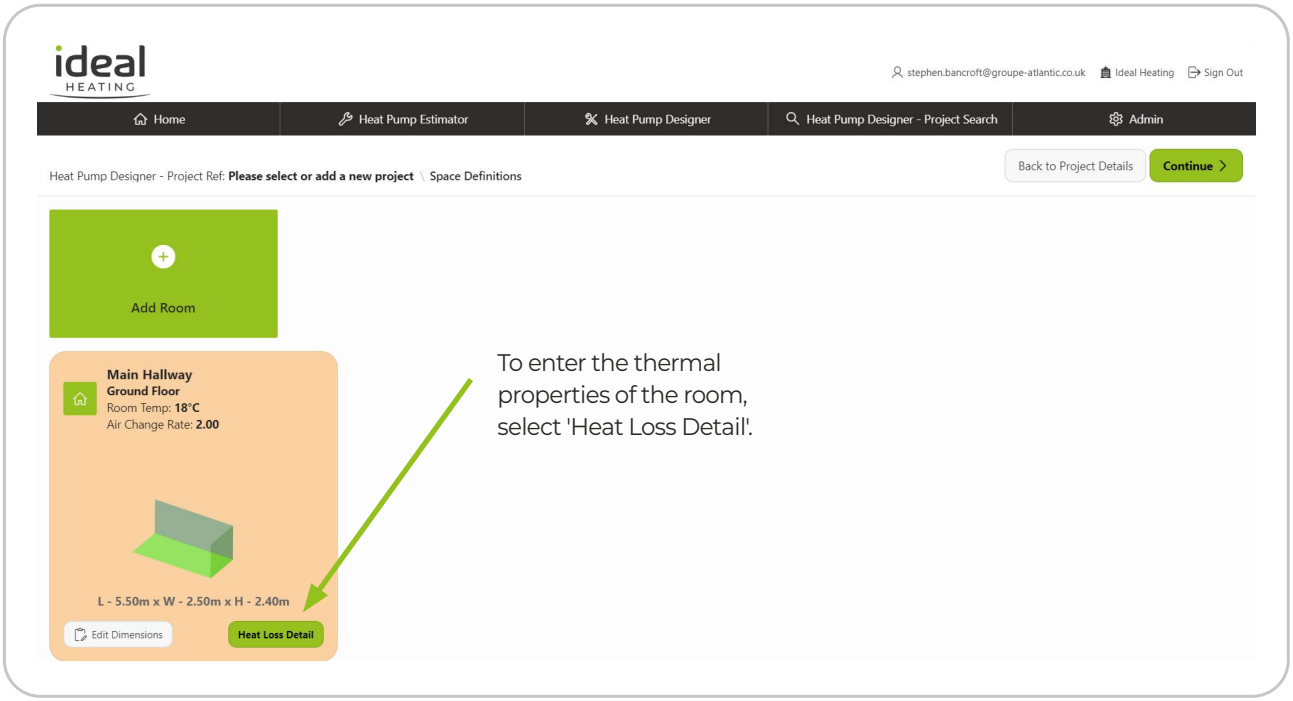


Tip: If you know the air change rate value from the SAP report or building specification, it is recommended to enter that value. If a room is fully internal, manually enter 0.5. Otherwise you can use the "Calculate Air Change" tab.

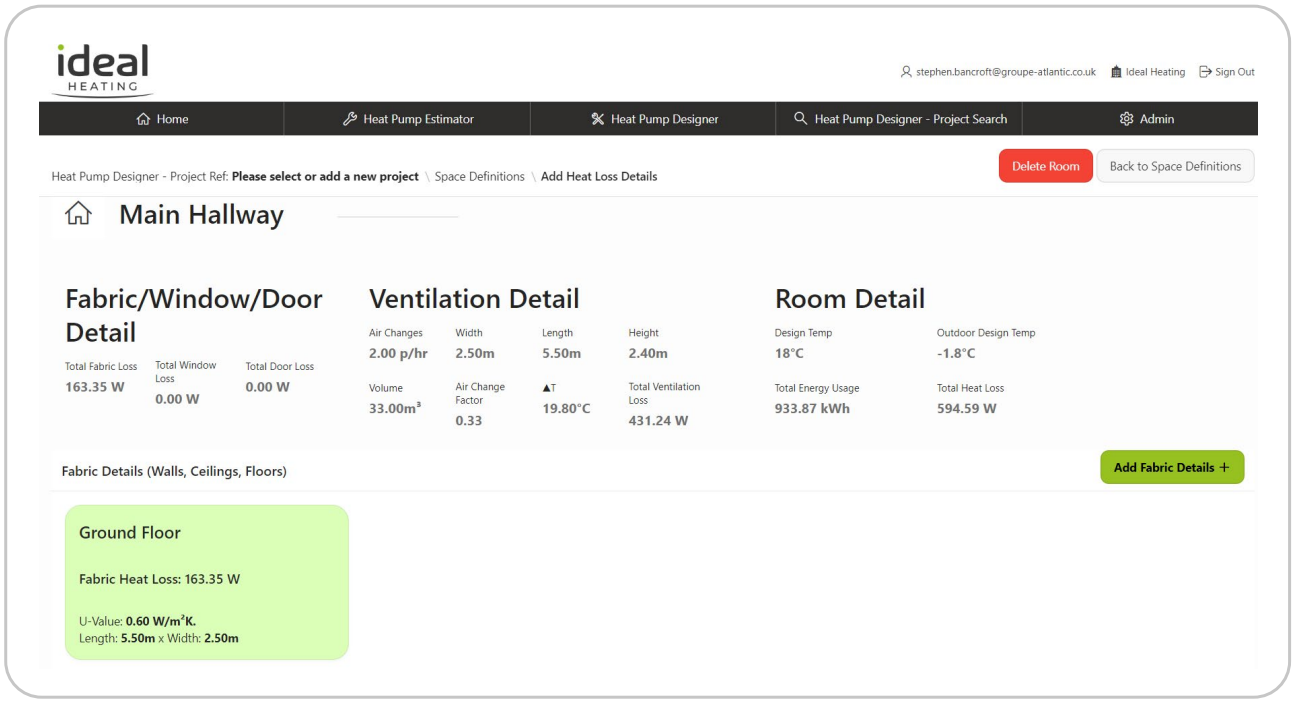
Example of completed room details.



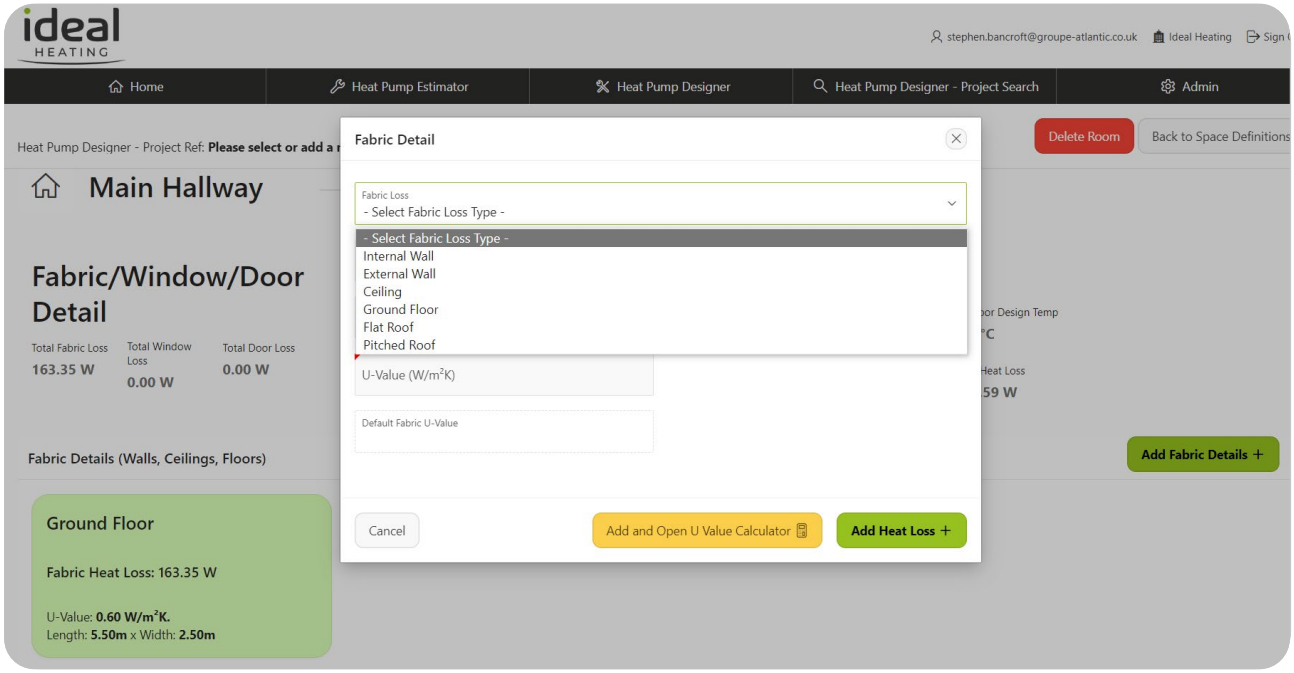
The recorded room reference will be displayed in tan below.



The ground floor is pre populated – you can now add the relative fabric details.

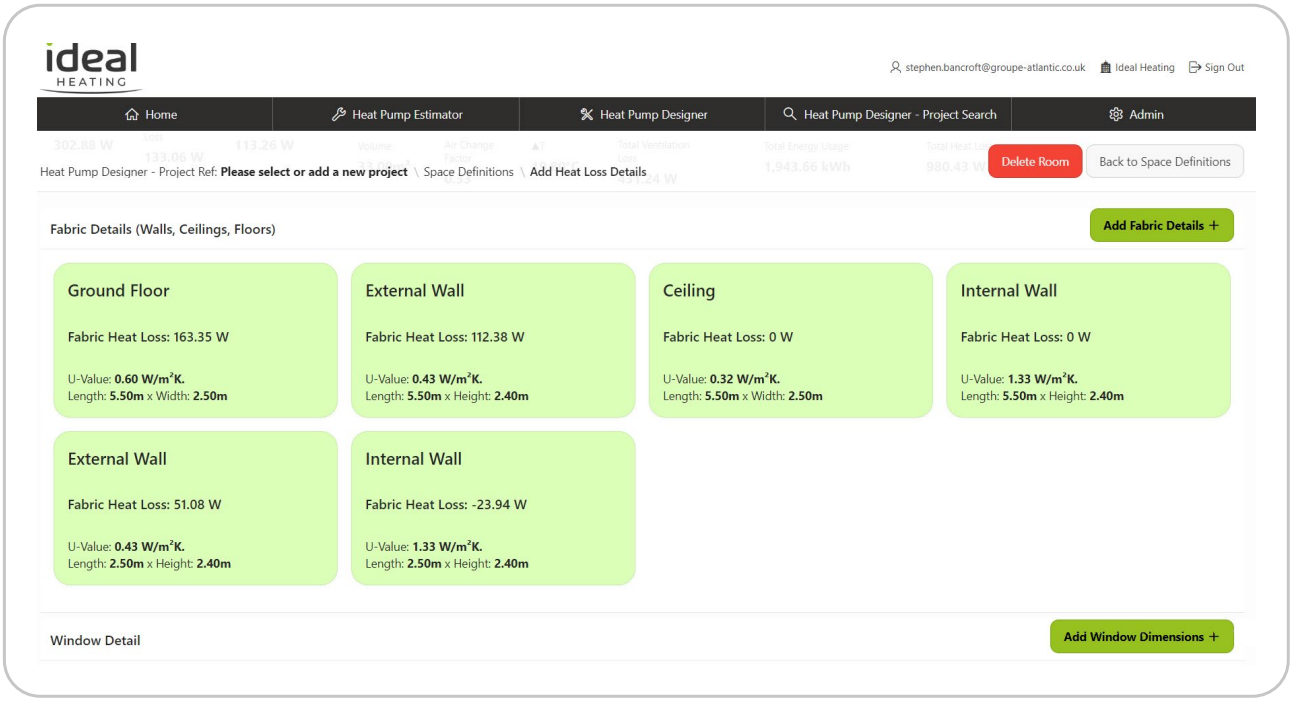


Select 'Add Fabric Details', select the fabric type and add the dimensions where appropriate. Then click 'Add Heat Loss'.

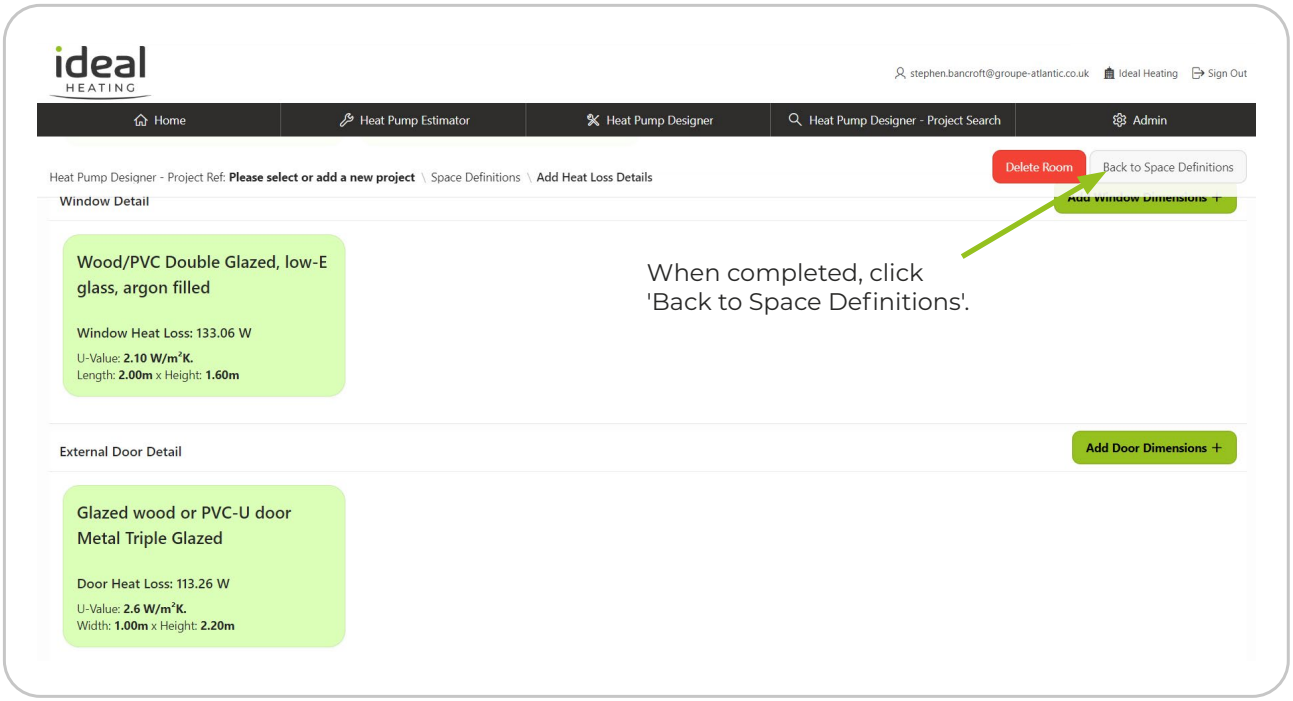


Here we see 4 walls, 1 ceiling and a floor have been selected – You will see a warning if this minimum criteria is not met.

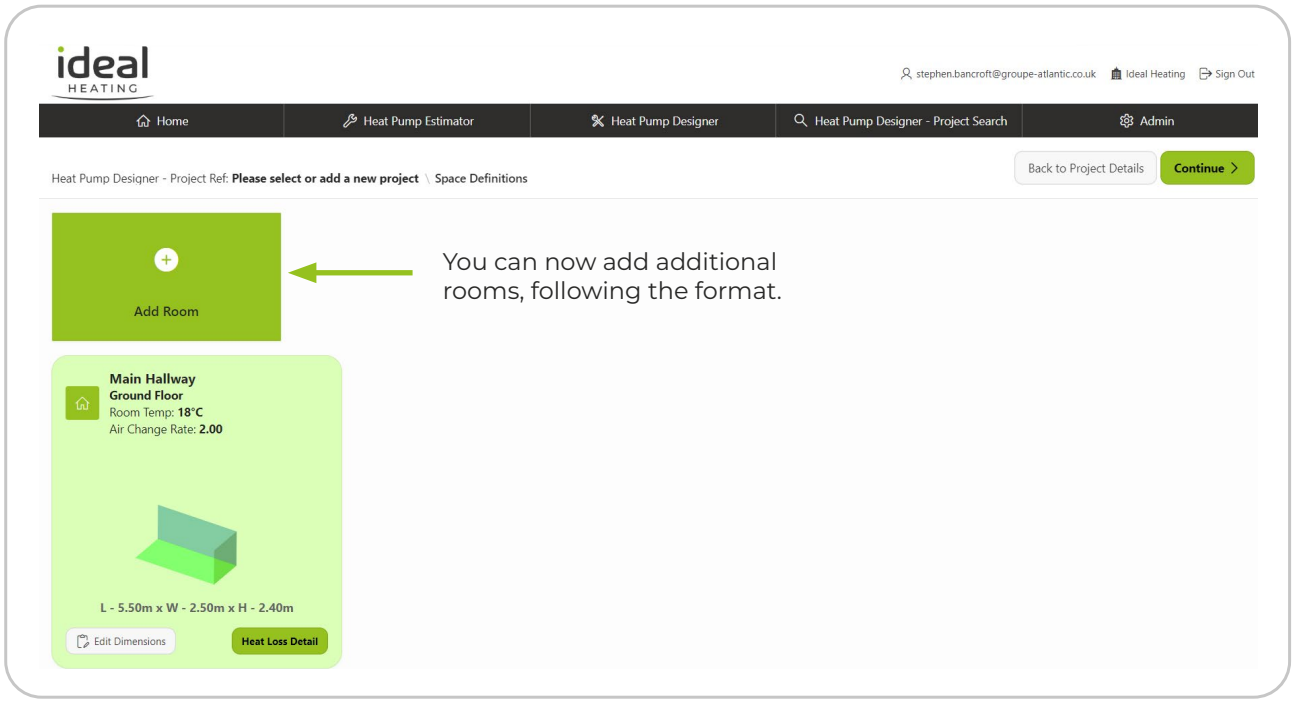
Note: for upper floors select 'Roof & type', for a room below a room select 'Ceilng'.



Now enter the Window and External door dimensions by selecting the appropriate tabs.

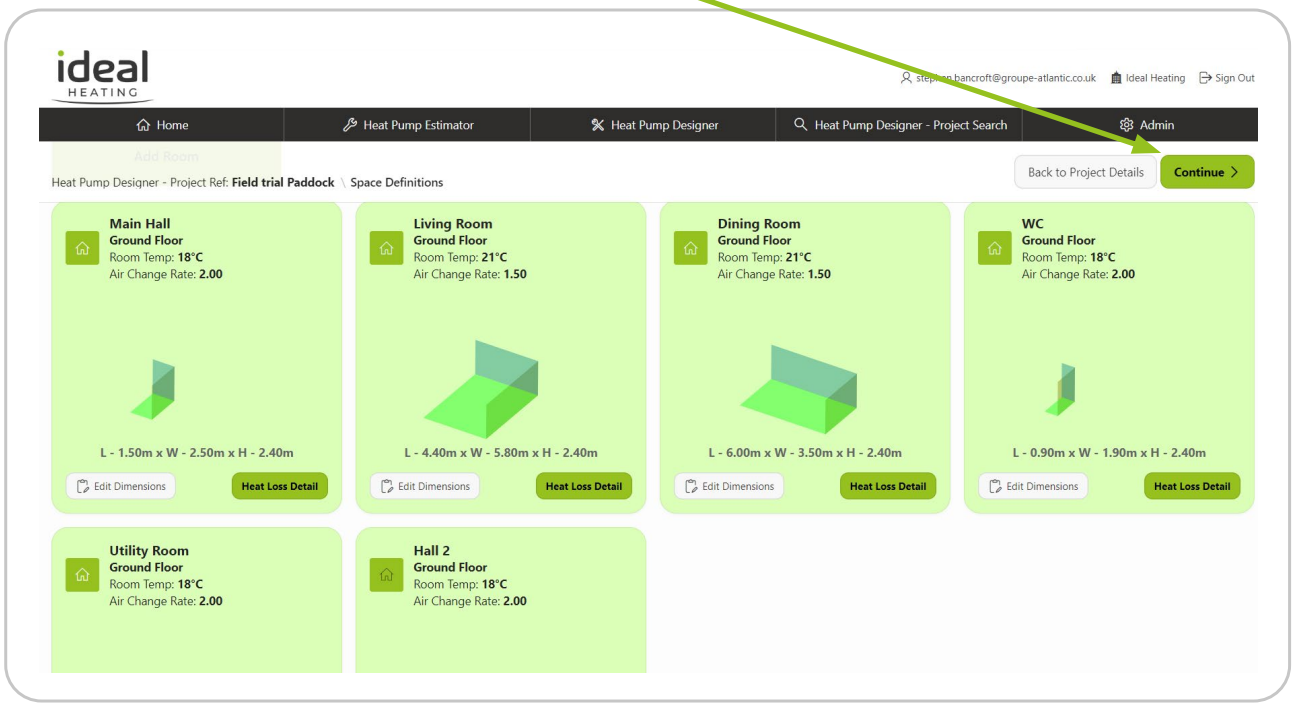


You can now see the created room has turned from Tan to Green. This indicates the room design is complete.

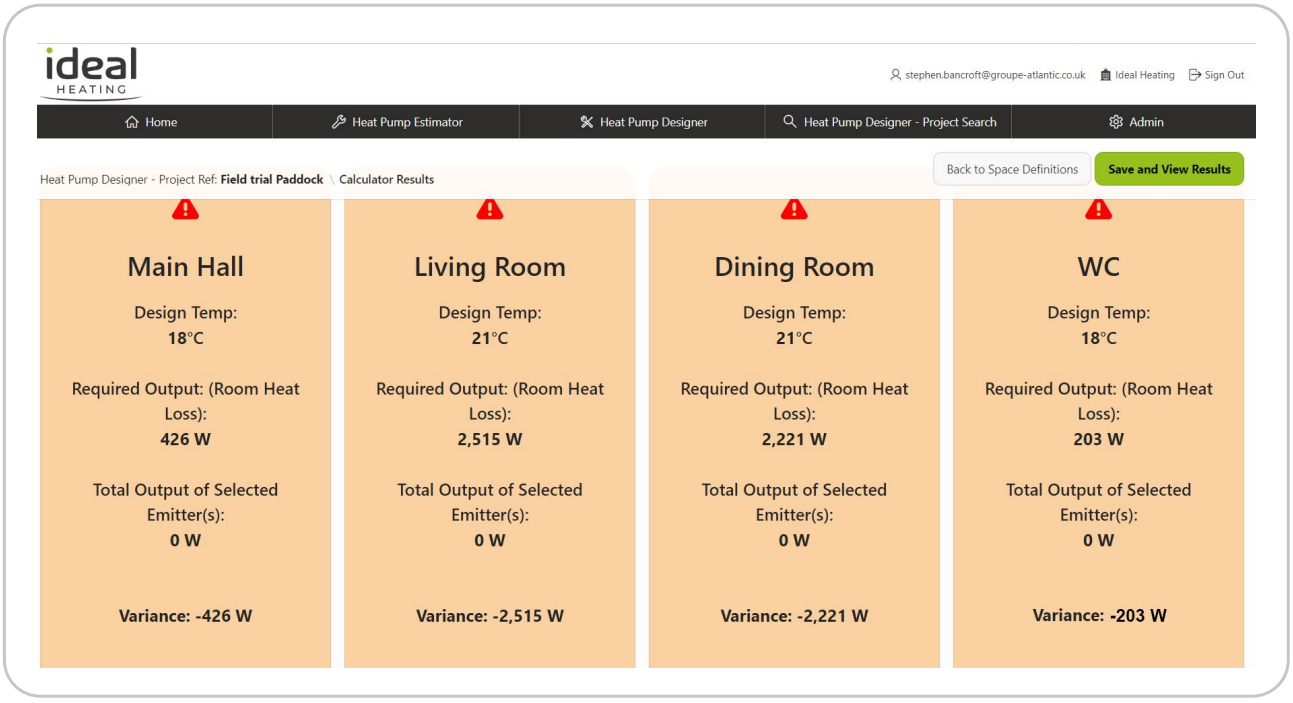


Note: Only ground floors will be pre-populated – first floors are covered by the ceiling below – Select the floor level in the 'Add Room' tab.

When all rooms have been designed, click 'Continue'.

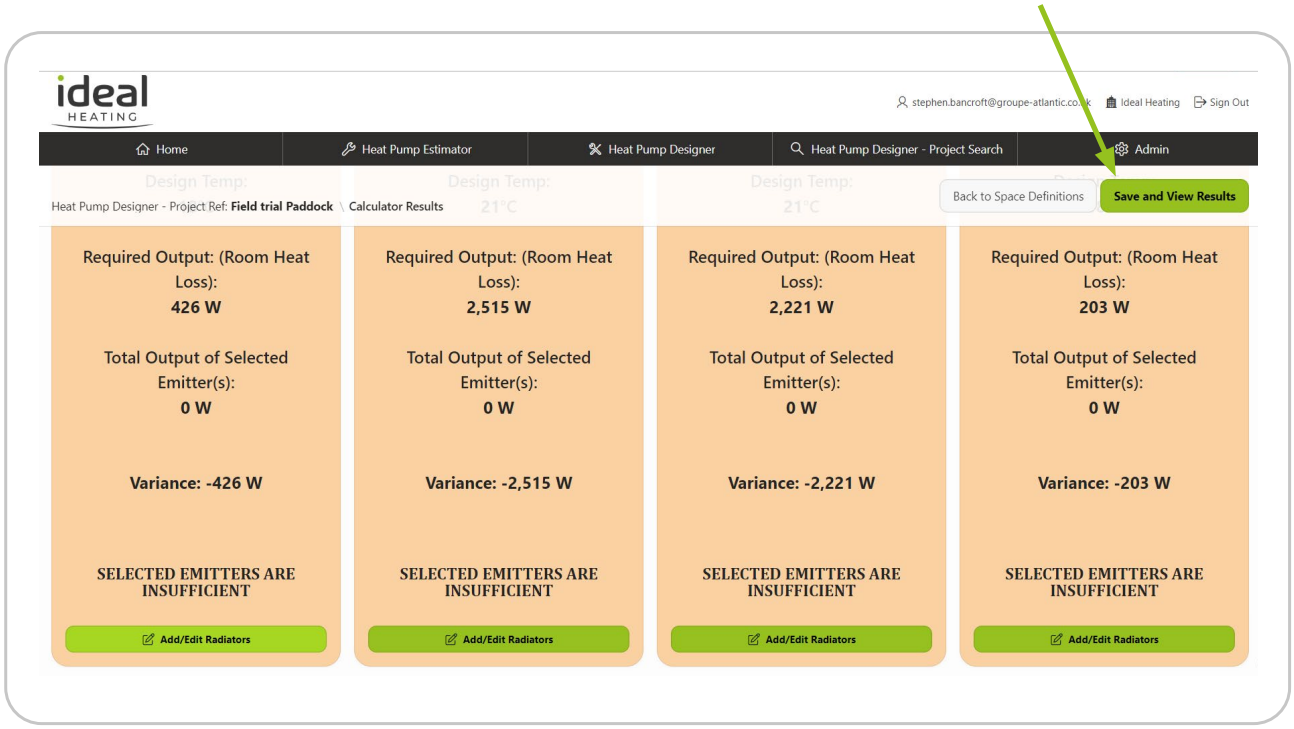


You now have the option to select the radiators for the rooms.

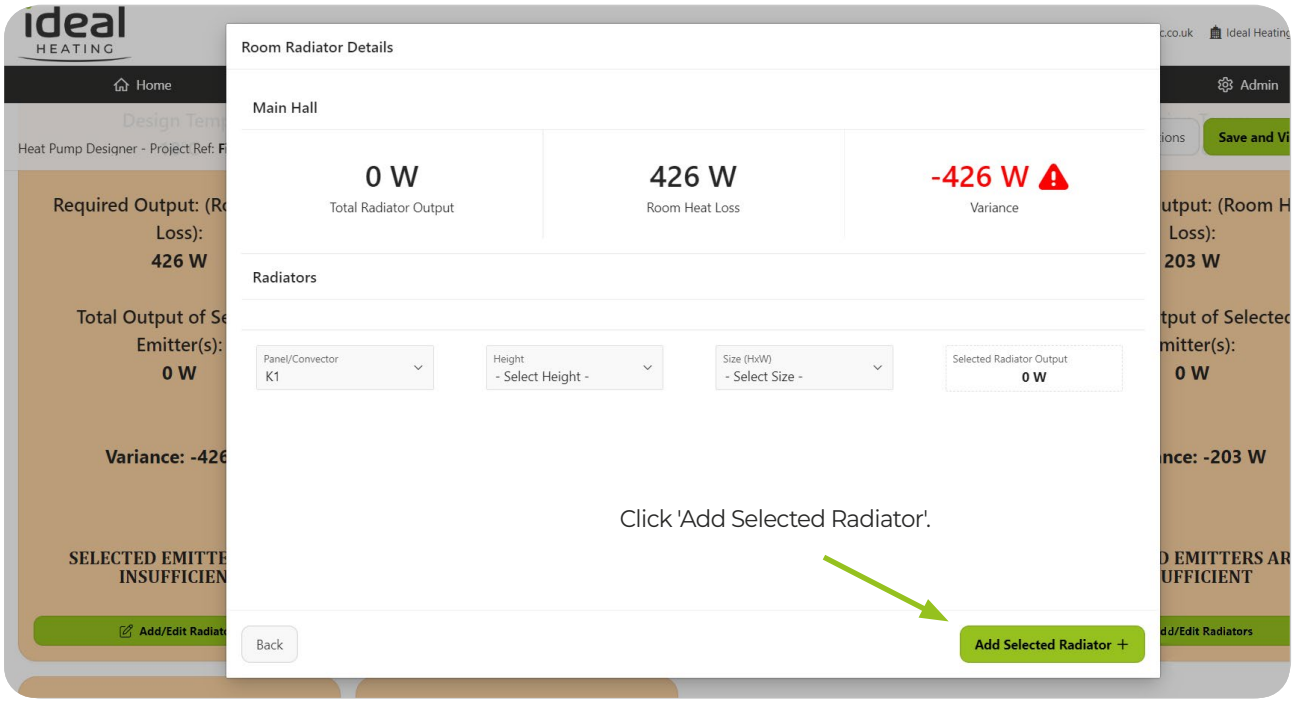


To select radiators, click 'Add/Edit Radiators'.

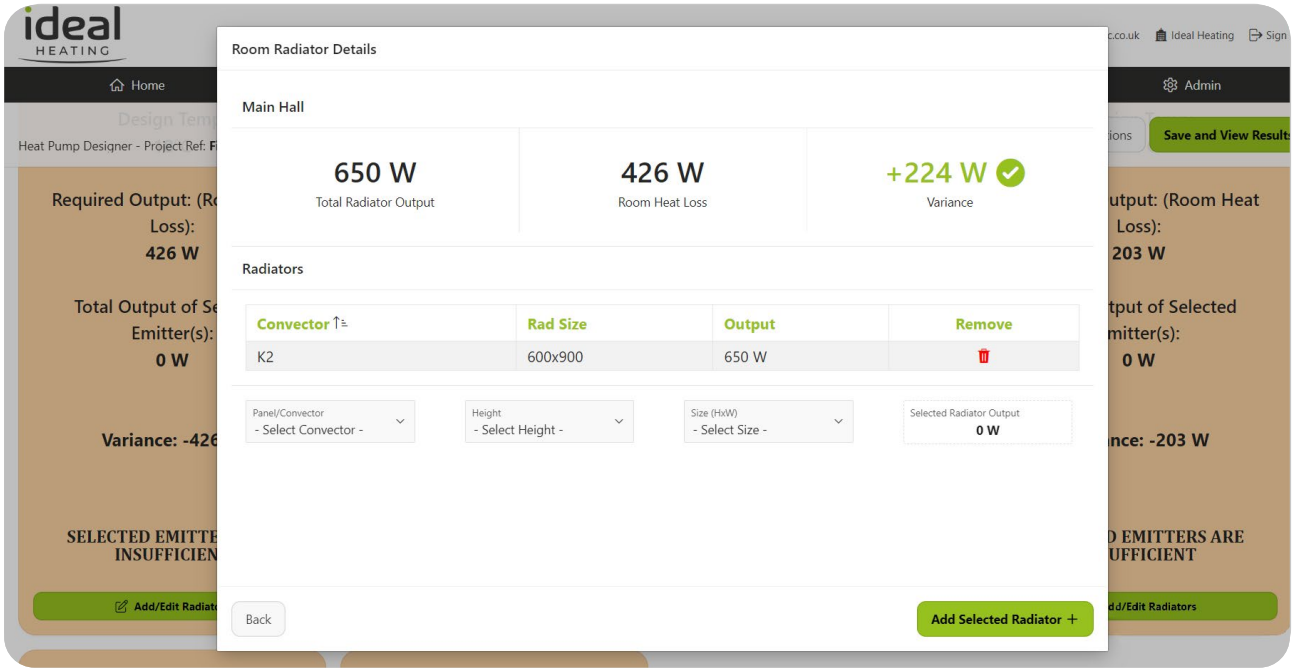
Note - if you do not require the radiator tool at this stage – click 'Save and View Results'



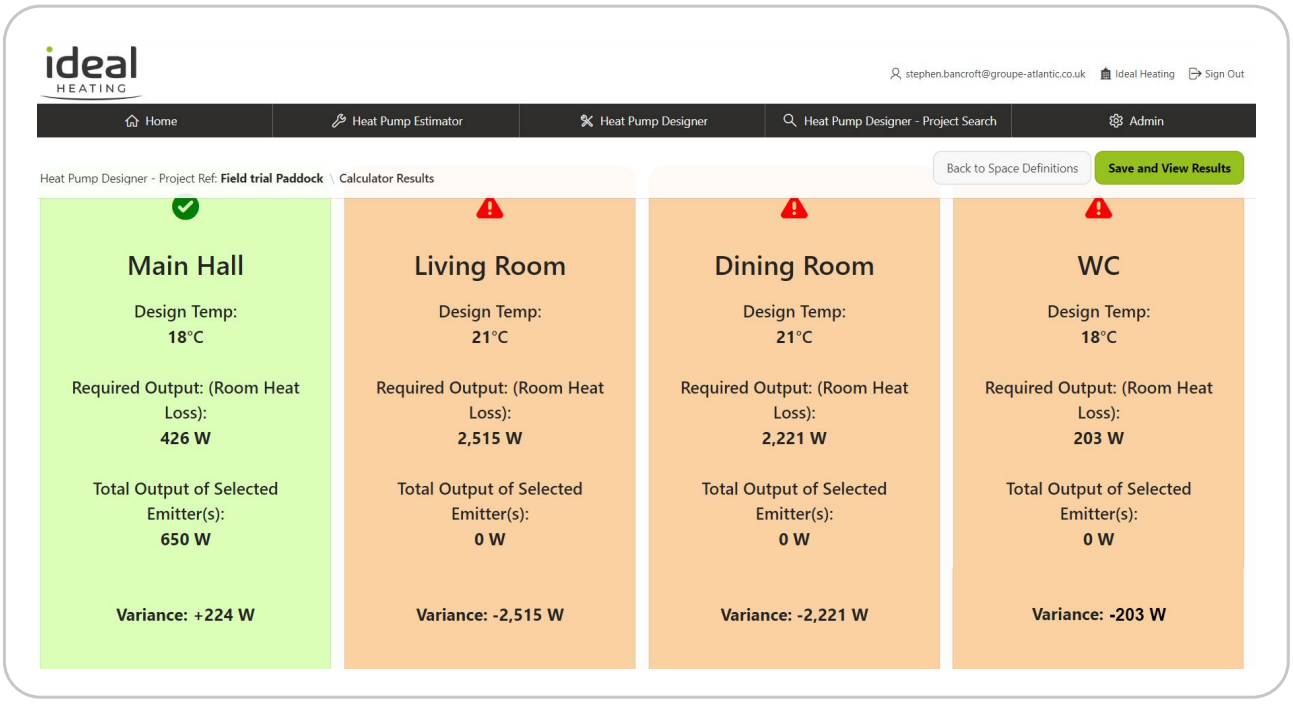
Select the radiator specification from the drop-down lists.



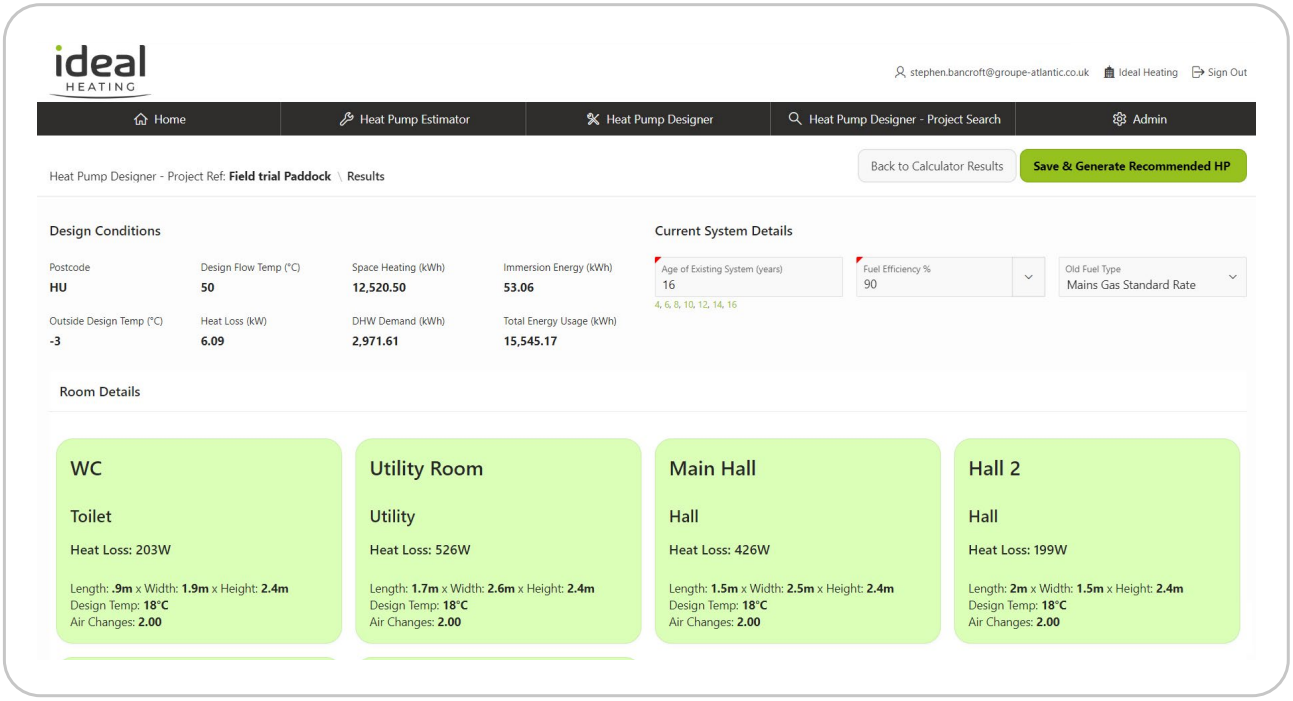
You can add additional radiators to suit. The variance shows the output surplus OR deficit with the selected radiator(s).



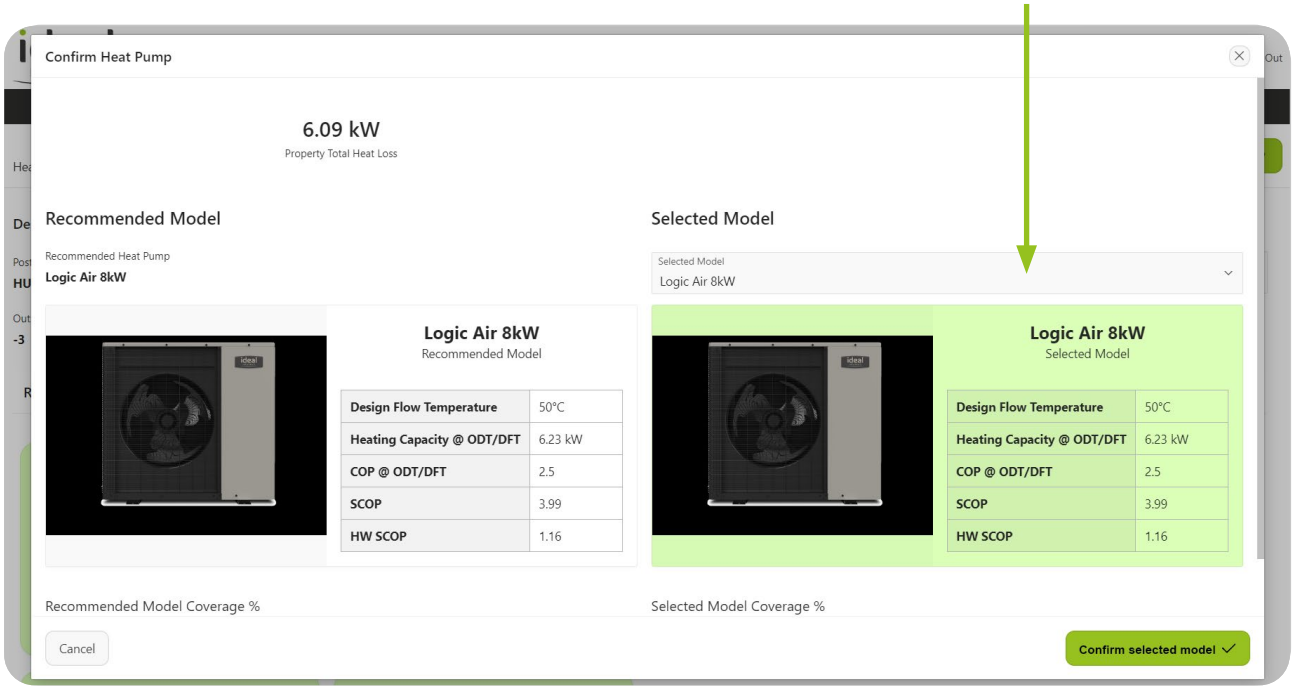
When completed – click 'Save and View Results'.



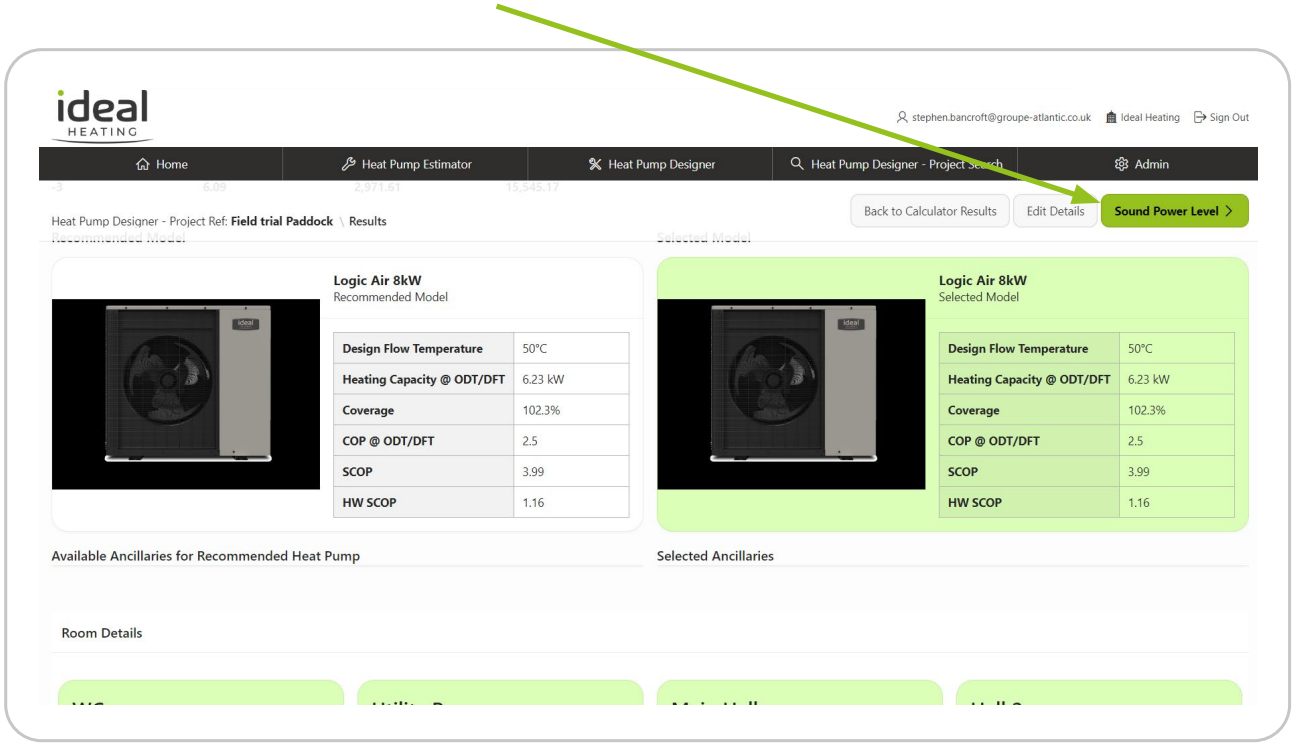
To generate a cost/carbon comparison, select the appropriate values in the upper cells with the red tabs: Then click 'Save and Generate Recommended HP'.



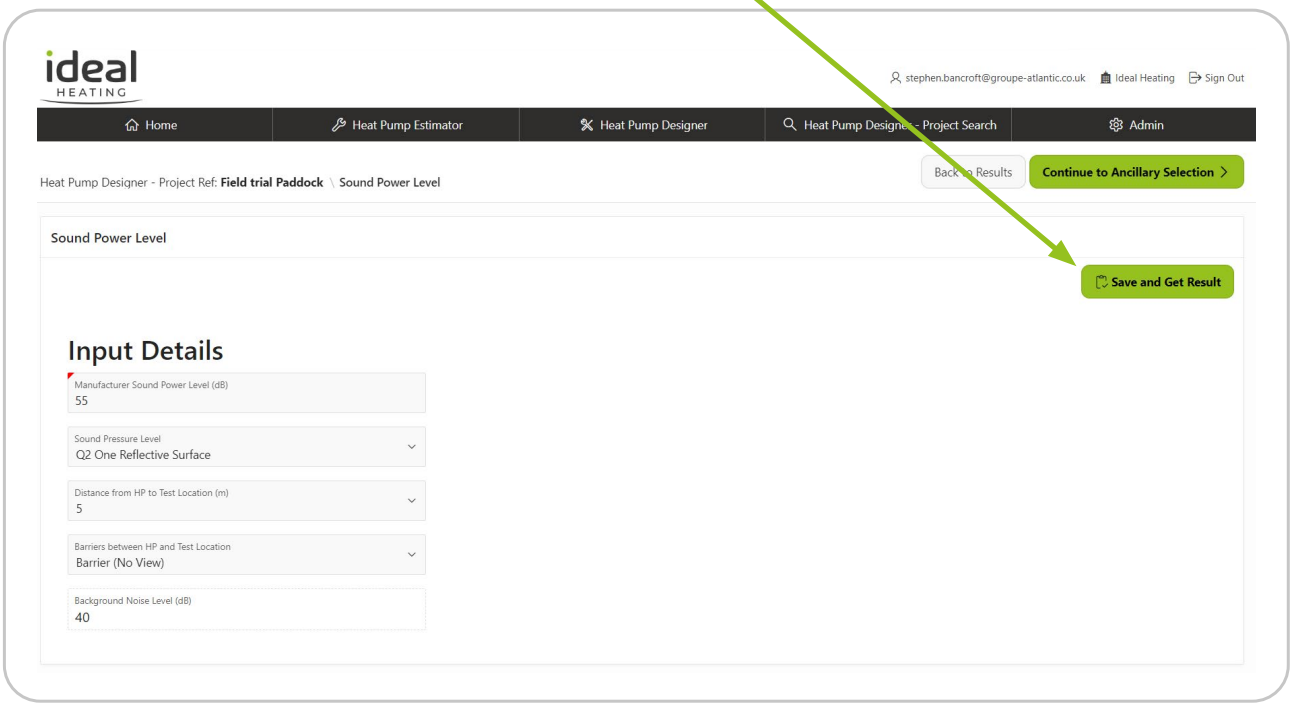
Here you can select the recommended HP or select an alternative from the dropdown on the right.



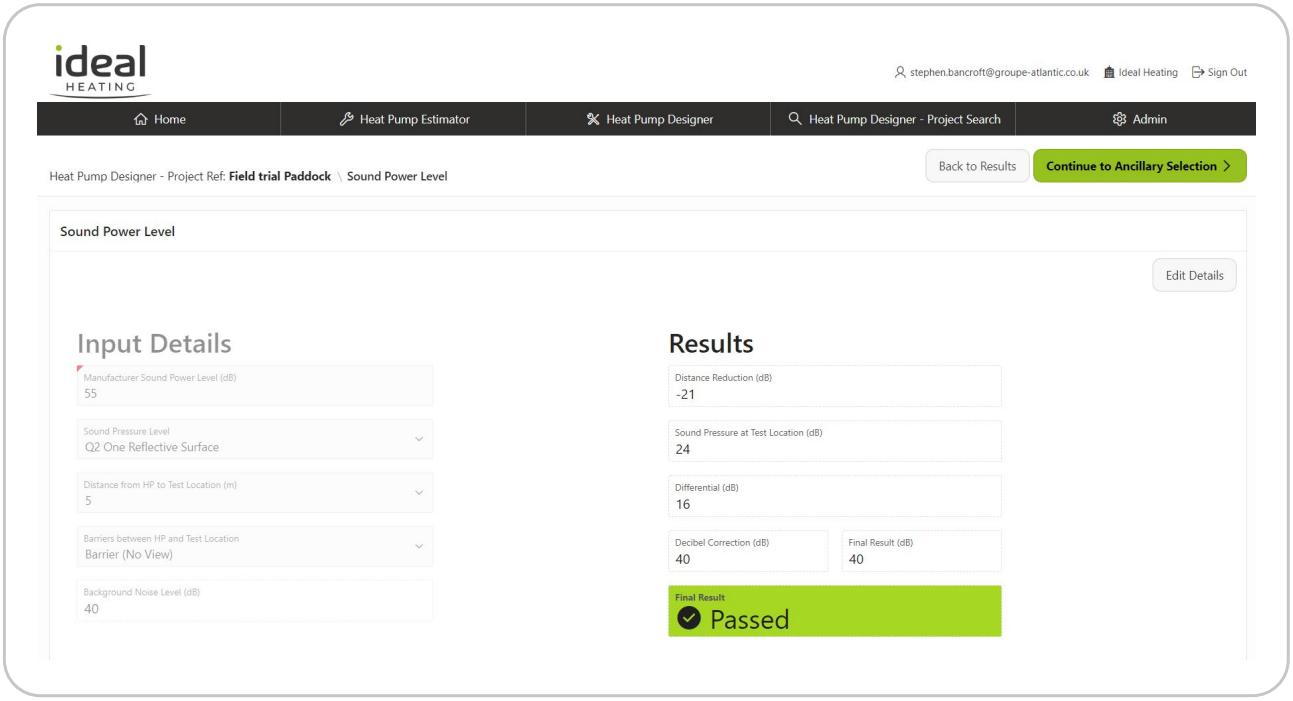
Click 'Sound Power Level' for MCS020 calculation.



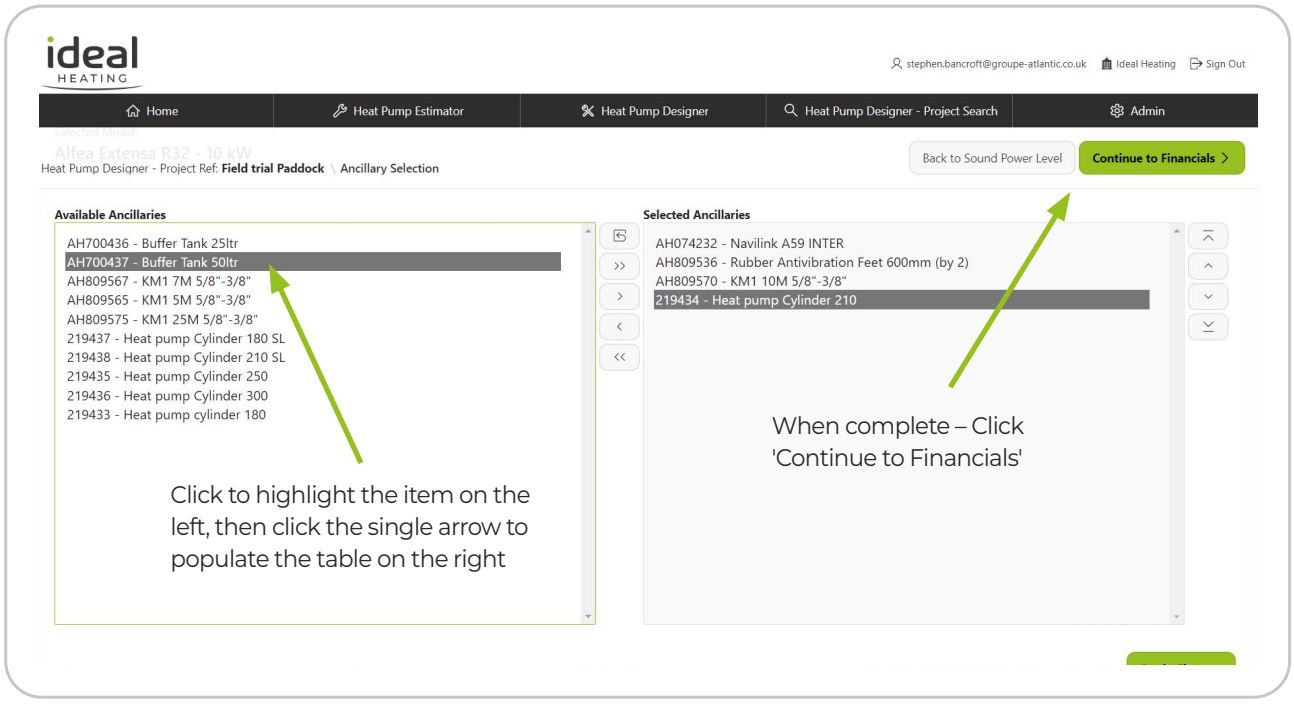
Enter the appropriate details on the left and click 'Save and Get Result'.



Remember you can click 'Edit' details if you wish to perform a re-design, such as moving the HP location or adding a barrier.

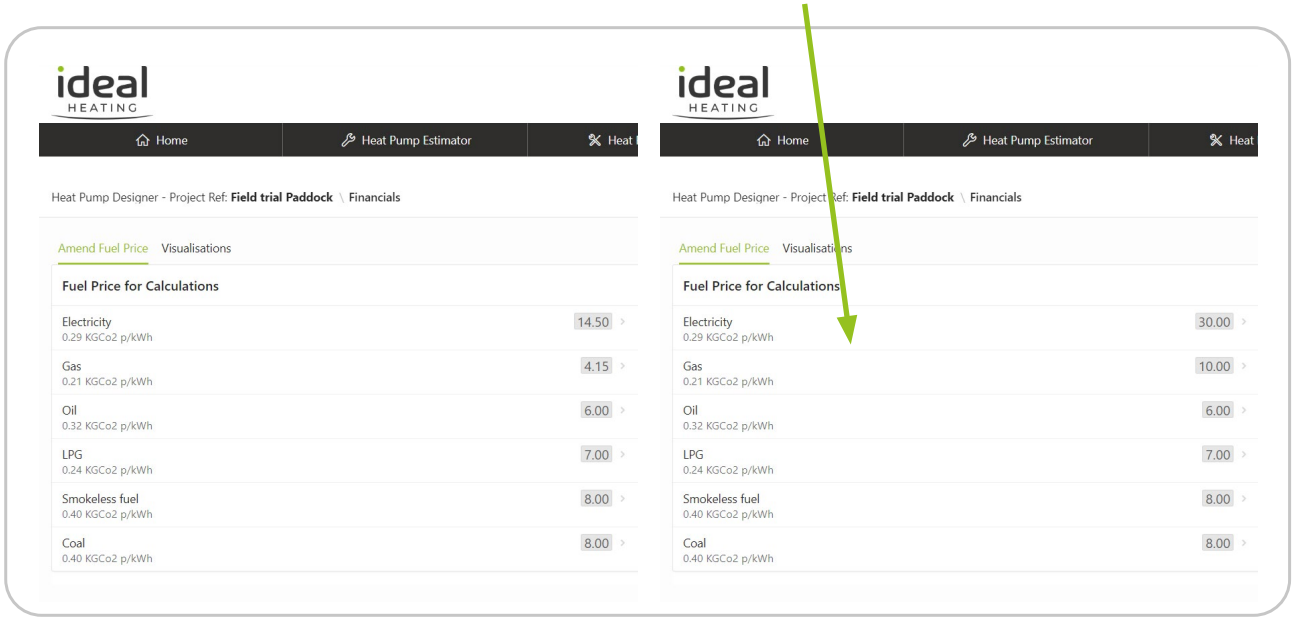


You can now add any ancillary components for your design.

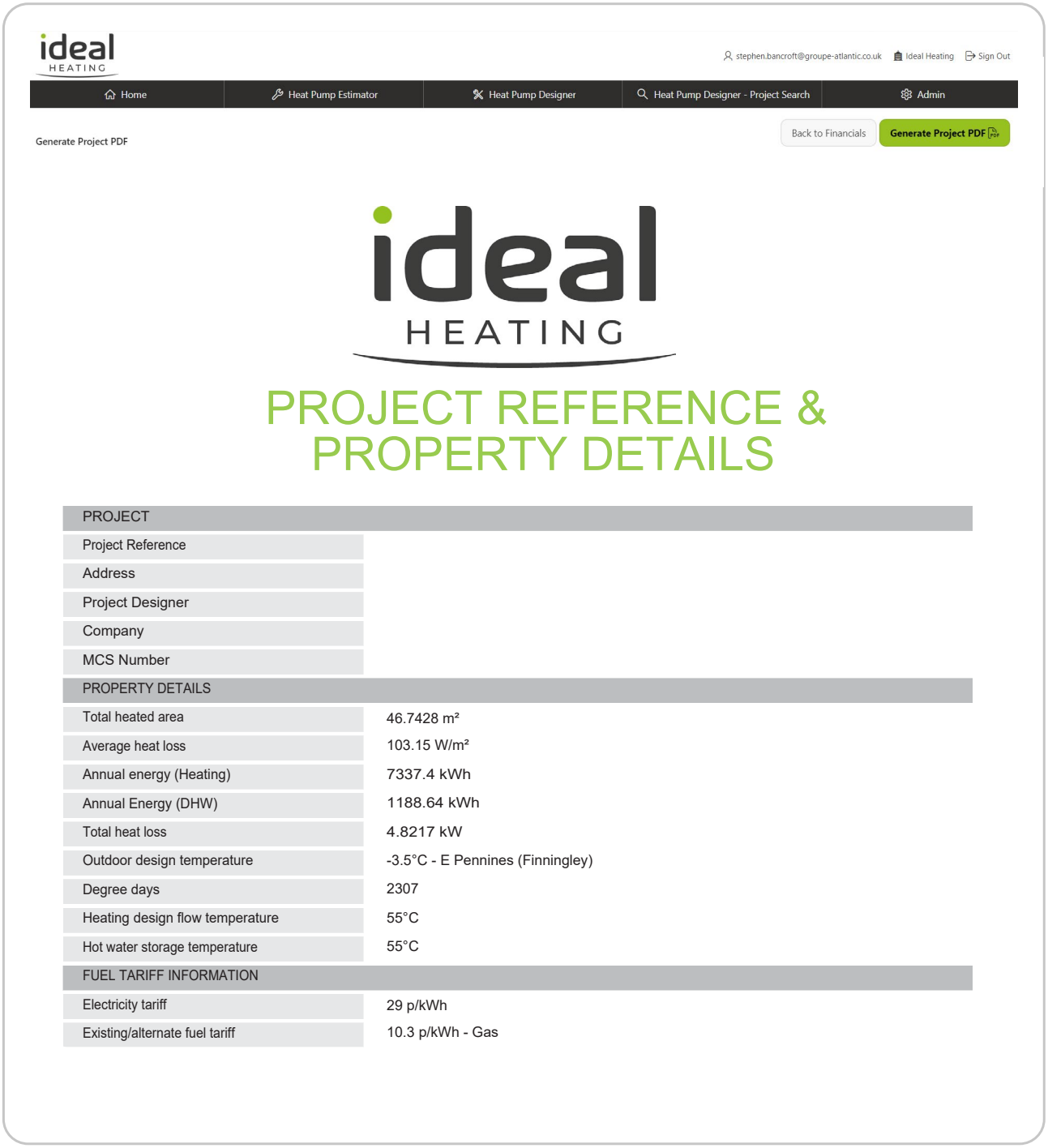


Enter the relative tariff cost for electricity and the existing or competing fuel type.

Example 30p/kWh for electricity and 10p/kWh for mains gas.

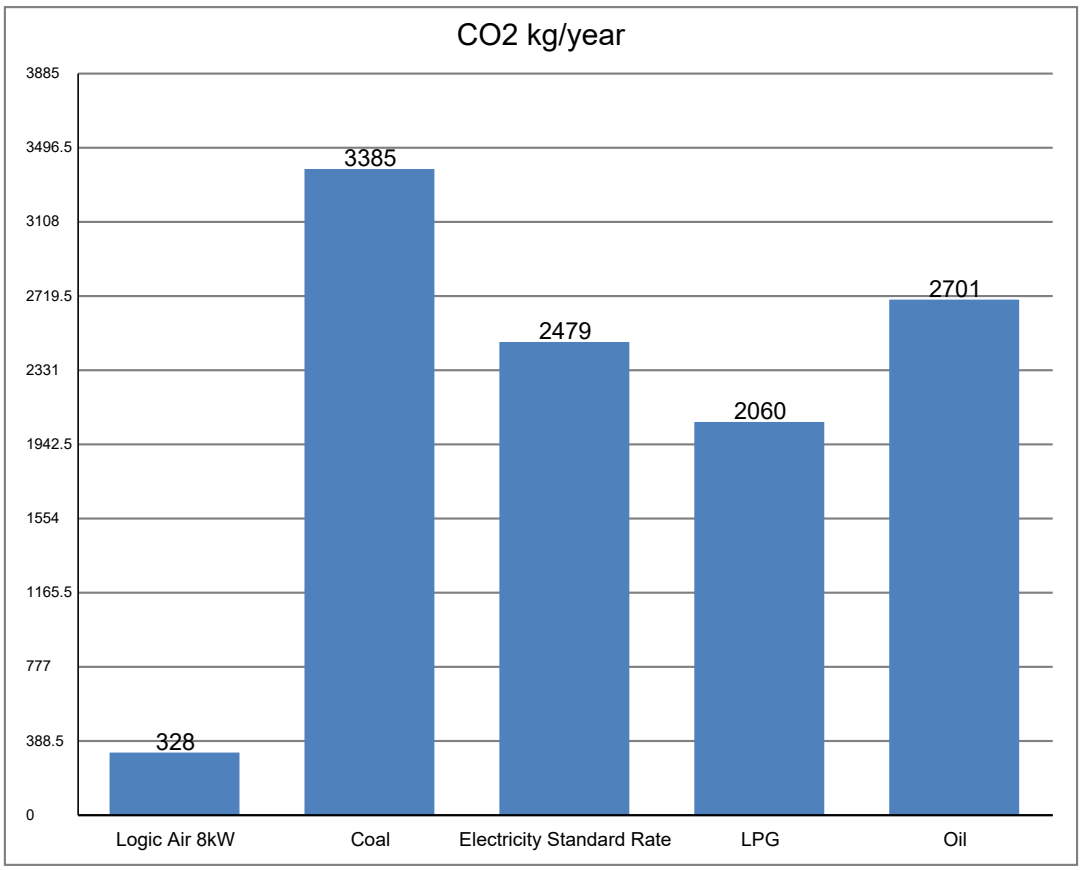


Select 'Generate PDF' – Then click 'Download' PDF if you wish to save/print a copy.



PROPOSED SYSTEM DETAILS

PROPOSED SYSTEM DETAILS	
Heat pump type	Air Source
Manufacturer	Ideal Heating
Model	Logic Air 8kW
Heating SCOP	3.63
DHW SCOP	1.16
DHW cylinder and capacity	Pre-plumbed cylinder 2 zone Low Loss Header 250
Anti-legionella days	7
ESTIMATED RUNNING COST	
Estimate:	£586.18



COST COMPARISON

CURRENT OR ALTERNATE SYSTEM	
Fuel type	Gas
Age (Years)	16
ESTIMATED RUNNING COST	
Estimate:	£755.75

ROOM BY ROOM RESULTS

ROOM	HEAT LOSS (KW)	HEAT LOSS (W/m^2)	DESIGN TEMP	AREA (M^2)	VOLUME (M^3)	FLOOR (LEVEL)	EMITTER	EMITTER OUTPUT @ DT (KW)
Kitchen	1.12	117.42	18°C	9.51	23.29068	Ground Floor	K3	1.43
Living Room	2.12	124.43	21°C	17.01	41.66274	Ground Floor	K2 & K2	2.72
Bathroom	0.80	114.72	22°C	7	17.01	First Floor	P+	0.85
Bed1	0.79	59.44	18°C	13.23	32.151816	First Floor	P+	0.85

Disclaimer

The performance of microgeneration heat pump systems is impossible to predict with certainty due to the variability of the climate and its subsequent effect on both heat supply and demand. This estimate is given as guidance only and should not be considered a guarantee.

SELECTED PRODUCT DETAILS

SELECTED PRODUCTS	TYPE	CODE
Logic Air 8kW		
SELECTED ANCILLARIES	**TYPE**	**CODE**
Pre-plumbed cylinder 2 zone Low Loss Header 250	DHW Cylinder	236201
Anti vibration feet (X2) 600mm	ODU Mounting System	220477
Filter Ball valve (1")	ODU Mounting System	?236738
Flexible hose 750mm	ODU Mounting System	?236910
Halo Air Wi-Fi 2 zone	PRT	234792

MCS 020 SOUND CALCULATION RESULTS

Measure	Result
Distance Reduction	-19 dB
Sound Pressure at Test Location	31 dB
Differential	9 dB
Decibel Corrections	40.5 dB
Final Result	41 dB
Pass/Fail	PASS

RADIATOR SCHEDULE

ROOM	RADIATOR DIMENSIONS HxL	TYPE	OUTPUT	ROOM HEAT LOSS	VARIANCE
Kitchen	700x1000	K3	1427W		
Kitchen Total			**1427W**	**1116W**	**+311W**
Living Room	450x2000	K2	1443W		
Living Room	600x1400	K2	1276W		
Living Room Total			**2719W**	**2116W**	**+603W**
Bathroom	600x1200	P+	849W		
Bathroom Total			**849W**	**803W**	**+46W**
Bed1	600x1200	P+	849W		
Bed1 Total			**849W**	**786W**	**+63W**

Notes.

Technical support.

FOR ASSISTANCE/SUPPORT WITH THE HEAT PUMP ESTIMATOR AND/OR DESIGNER APP, PLEASE CONTACT:

Stephen.bancroft@groupe-atlantic.co.uk

Mobile

07980 902555

Customer Service:

01482 498660

Technical Help:

01482 498663

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