

Assembly Renewables

Survey Design Summary

Cooling Load & Air Conditioning Recommendations

Customer: Ziya Khan

Property: 6 Mayfields, Sindlesham, Wokingham, RG41 5BY

Survey date: 15 July 2026

Prepared by: Assembly Renewables

Front-door orientation: South-west

Property Summary

Item	Survey information
Total property floor area	264 m ²
Total calculated heat loss	6.79 kW
Average heat load	26 W/m ²
Construction	Filled cavity brick/block walls
Roof	Pitched roof with approximately 150 mm insulation
Glazing	Predominantly double glazing
Property type	Extended two-storey domestic dwelling

The heat-loss report indicates a comparatively low overall heating demand for the size of the property. The proposed air-conditioning design is therefore driven mainly by summer cooling requirements, room size, occupancy and possible solar gains rather than winter heating demand. Two outdoor units are proposed, positioned on opposite sides of the property. The second outdoor unit is intended to serve the group of rooms approximately 10 m from the first proposed outdoor-unit position.

Cooling Assessment

Areas included

Split system 1

- Master Bedroom
- Lounge (Annex)

Split system 2

- Bedroom 5
- Bedroom 2
- Landing

- Main Lounge

Indicative Room Cooling Assessment

Master Bedroom

Design item	Value
Floor area	25.5 m ²
Volume	40 m ³
Room heat loss	474 W
Indicative cooling load	3.1–3.5 kW
Recommended indoor capacity	3.5 kW

The room is relatively large for a bedroom. Allowance has been made for two occupants, glazing, bedroom equipment and the south-west orientation of the property.

Recommended indoor unit: **Daikin Perfera 3.5 kW wall-mounted unit, model FTXM35A.**

Lounge (Annex)

Design item	Value
Floor area	9.9 m ²
Volume	24 m ³
Room heat loss	369 W
Indicative cooling load	1.5–1.9 kW
Recommended indoor capacity	2.0 kW

Allowance has been made for typical lounge occupancy and television/media equipment.

Recommended indoor unit: **Daikin Perfera 2.0 kW wall-mounted unit, model FTXM20A.**

Bedroom 5

Design item	Value
Floor area	16.5 m ²
Volume	38 m ³
Room heat loss	398 W
Indicative cooling load	2.0–2.4 kW
Recommended indoor capacity	2.5 kW

Recommended indoor unit: **Daikin Perfera 2.5 kW wall-mounted unit, model FTXM25R.**

Bedroom 2

Design item	Value
Floor area	14.2 m ²
Volume	34 m ³
Room heat loss	382 W

Indicative cooling load	1.7–2.1 kW
Recommended indoor capacity	2.0 kW

Recommended indoor unit: **Daikin Perfera 2.0 kW wall-mounted unit, model FTXM20A.**

Landing

Design item	Value
Floor area	12.3 m ²
Volume	28 m ³
Room heat loss	113 W
Indicative cooling load	1.2–1.5 kW
Recommended indoor capacity	2.0 kW

The landing unit is primarily intended to temper the landing and adjoining circulation area. Cooling transfer into closed bedrooms should not be relied upon.

Recommended indoor unit: **Daikin Perfera 2.0 kW wall-mounted unit, model FTXM20A.**

Main Lounge

Design item	Value
Floor area	29.7 m ²
Volume	68 m ³
Room heat loss	846 W
Indicative cooling load	4.4–5.0 kW
Recommended indoor capacity	5.0 kW

The main lounge has the largest assessed cooling requirement. Allowance has been made for two to four occupants, television/media equipment and a moderate-to-high solar-gain risk.

Recommended indoor unit: **Daikin Perfera 5.0 kW wall-mounted unit, model FTXM50A.**

The room areas, volumes and heating loads above are taken from the uploaded room-by-room heat-loss assessment.

Recommended System Arrangement

Daikin multi-split system 1

- Master Bedroom — 3.5 kW
- Lounge (Annex) — 2.0 kW

Total connected indoor nominal capacity: **5.5 kW**

Proposed outdoor unit: **Daikin 2MXM68A9, two-port, nominal outdoor capacity 6.8 kW.**

Daikin multi-split system 2

- Bedroom 5 — 2.5 kW

- Bedroom 2 — 2.0 kW
- Landing — 2.0 kW
- Main Lounge — 5.0 kW

Total connected indoor nominal capacity: **11.5 kW**

Proposed outdoor unit: **Daikin 4MXM80A9, four-port, nominal outdoor capacity 8.0 kW.**

Daikin states that its Perfera multi-split arrangements can serve individually controlled indoor units and that up to five indoor units may be connected to a single outdoor unit, depending on the selected outdoor unit.

Heating-load Check

All selected indoor units have nominal heating outputs substantially above their corresponding room heat losses.

Room	Heat loss	Selected unit nominal heating
Master Bedroom	0.474 kW	4.0 kW
Lounge (Annex)	0.369 kW	2.5 kW
Bedroom 5	0.398 kW	2.8 kW
Bedroom 2	0.382 kW	2.5 kW
Landing	0.113 kW	2.5 kW
Main Lounge	0.846 kW	5.8 kW

The uploaded Perfera data gives nominal cooling and heating ratings for the proposed indoor-unit sizes.

Design Assumptions

- Ceiling heights and room volumes are taken from the heat-loss report.
- Typical domestic occupancy has been assumed.
- Bedrooms are assessed for one to two people.
- Lounges are assessed for two to four people.
- Typical double glazing has been assumed.
- The front of the property is south-west facing.
- Typical television and domestic equipment gains have been included in lounge calculations.
- Bedroom equipment gains are assumed to be modest.
- Internal doors may be closed during operation.
- Indoor units will be wall mounted at high level with unobstructed airflow.
- Each room is intended to have its own indoor unit; cooling from the landing unit should not be treated as a substitute for dedicated bedroom cooling.

Installation Considerations

- Position one outdoor unit on each side of the house to minimise unnecessarily long pipe runs.

- Locate the second outdoor unit closer to the rooms approximately 10 m from the first proposed location.
- Confirm final pipe lengths, vertical rises and refrigerant charge requirements.
- Confirm gravity condensate routes from every indoor unit.
- Condensate pumps may be required where gravity drainage is not achievable.
- Confirm suitable electrical supplies, local isolators and protective devices for both outdoor units.
- Maintain clear service access and manufacturer airflow clearances.
- Avoid locating outdoor units immediately below bedroom windows where practicable.
- Confirm final wall construction and suitable fixings before mounting indoor units.

Risk Flags

- South-west property orientation and possible afternoon solar gains.
- Large main lounge with comparatively high occupancy and media loads.
- Landing is an open circulation space, and air distribution will depend on the staircase and door arrangement.
- Outdoor units positioned on opposite sides of the property.
- Approximately 10 m pipe route to the more distant room group.
- Condensate drainage routes are not yet confirmed.
- Final glazing orientation and shading for each room remain to be checked.
- Exact outdoor-unit mounting locations require technical confirmation.

Final Recommendation

Install two separate Daikin multi-split systems.

- **System 1:** 1 × Daikin 2MXM68A9 outdoor unit serving 1 × FTXM35A in the Master Bedroom and 1 × FTXM20A in the Annex Lounge.
- **System 2:** 1 × Daikin 4MXM80A9 outdoor unit serving 1 × FTXM25R in Bedroom 5, 1 × FTXM20A in Bedroom 2, 1 × FTXM20A on the Landing and 1 × FTXM50A in the Main Lounge.

This arrangement provides individual temperature control, avoids relying on one long central pipework route and places the larger outdoor system closer to the distant group of rooms.

This is an indicative cooling assessment for quotation purposes. Final specification remains subject to confirmation of installation constraints, pipe routes, electrical supply, condensate routes, product combinations and customer requirements.