

Infrared Panel Heaters

Summary: A direct form of electric heating designed to heat people, not the space. Suitable for smaller rooms, intermittent use and/or as a booster system to other forms of heating.

What are infrared panel heaters?

Infrared (IR) panel heaters offer a heating system which heats people, not the space. They make use of long infrared wave lengths to provide a warming effect to surfaces, in a similar way to the sun radiating heat to the earth. The panels come in a range of sizes; the larger the panel the greater their heat output. They can be mounted on walls or ceilings and can come in a range of colours and prints. They are silent and involve no moving parts.

The technical bit – how do they work?

These heaters warm up almost instantly, and as they heat people rather than the air, there is no need to turn them on for long periods prior to usage. Turning them on no more than 30 minutes before use can provide a minor benefit as they can help heat surfaces e.g. seats.

This short warm up time is in contrast to typical gas or oil boilers and can therefore make electric heating cost competitive. It is important that this short warm up time is properly reflected in any cost comparisons with other types of heating.



Panel heaters on the ceiling

Installation of infrared panel heaters

The temperature of the units themselves can reach high temperatures (up to around 105°C) and therefore they are ideally located on ceilings. They can also be positioned on walls where there is low risk of people coming into contact with them. For example, they would not be suitable for children's areas if located on walls.

Each heater can be switched on independently. It is recommended that they are fitted with a time delay switch, so they cannot be left on accidentally.

There are no annual maintenance requirements, but they would be included in the 5 year electrical fixed wire test (if they are unfixed and plugged in they would need to be included in the annual PAT testing). The heaters can be expected to last for 25+ years.

Suitable churches – are they for us?

This form of heating is best considered to be a supplementary form of heating. The panels work well providing heating to small areas (WCs, vestries or meeting rooms), or to open areas in conjunction with under pew heating. They can provide a boost function with underfloor heating.



Wall mounted panel heater behind altar

The units give out heat from the panel to a range of around 3 metres. Therefore, they can be useful when mounted on the ceiling in domestic-sized rooms or on the underside of balconies or galleries.



Ceiling Mounted Panel Heaters

Infrared also provides heating through direct line of sight with the heater therefore, if any part of the body is blocked by furniture or the like, that part of the body will not receive any heating benefit. Therefore, they are more difficult to use successfully in areas of bulky fixed pews and when mounted at low level on the walls it is more difficult to avoid furniture. Locating at a 'picture' level is preferred, but this results in a more visible installation.

Infrared panel heaters do consume a significant amount of electricity when they are all on, but they are only on for a short period of time. They are, therefore, best suited to churches that are used sporadically, i.e. for periods of less than 3 hours.

Consequently, this solution is most frequently used in 'Sunday used churches' and churches with minor sporadic weekday usage, in areas without pews. It can also be used in conjunction with underfloor heating systems, to provide an instant boost to the thermal comfort.

Pros and Cons

Pros:	Cons:
<p>Very thin and discreet panels, available in any colour.</p> <p>Heat people, not the air in the space. This means that they heat up quickly. It also means that there are no large temperature fluctuations within the building and that can be beneficial for the fabric.</p> <p>Very useful solution for combining with under pew heating to heat open areas and locations such as behind the altar.</p> <p>Up to around 18kW of electrical heaters can be installed on a 100A single phase electricity supply.</p> <p>Relatively inexpensive to purchase and simple to install, compared with other heating solutions.</p>	<p>When mounted at low levels the surface temperature of the panel poses some risks and the heat can be easily blocked by furniture.</p> <p>The surface temperature of the heaters can get hot. This is very localised to the immediate area around the unit, but it does mean that units which are located on walls need to be very carefully positioned away from any timber or other sensitive historic fabric.</p> <p>When mounted on the ceiling the maximum height needs to be around 3.5m.</p> <p>The cabling of the electricity to the units can require careful consideration especially when they are located on a wall.</p> <p>Unlikely to be able to provide complete heating solution on their own.</p>

Churches in the Diocese of Oxford which have infrared panel heaters:

St Andrew's, South Stoke has infrared panel heaters along with under pew heating.

St Catherine's, Towersey has pew back mounted infrared heating panels with overhead radiant heaters.

All Saints, North Morton uses a far infrared panel heater for their bell ringing platform.

Known UK product suppliers:

Herschel

Warm4Less

Solray

Frenger

BN Thermic

UK Infrared Heating

Connect Infrared

Shadow Industrial

The above is a list of the known suppliers in the UK, it is not a recommendation of these products or suppliers – all of which will have different pros and cons. Efforts have been made to include all known major suppliers at the time of writing (these are the primary suppliers and it should be noted that there are often a number of re-sellers of these products). If further suppliers are known, we would invite details of these to be shared with the diocese so that this list can be updated.

Estimated price brackets

Depending on the supplier selected and the size of the panel, typical costs are between £80 to £500 each (supply only). The total project costs will depend on the number of heaters, whether an upgrade to the incoming electrical supply is required (from single phase to three phase,) and the difficulty of running cables to the panel location.

What permissions are currently needed under the Faculty Jurisdiction Rules?

The installation of panel heaters is likely to require a faculty. If the heaters are replacing existing electrical heaters of a different type, this may be able to be dealt with as a List B matter.

Contact details of Diocese of Oxford Environment Team for further support and information

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This is one of a collection of heating guidance notes available [here](#).