



Star ratings - how to get the best out of your system.

Designing your system to benefit you financially is made simple by following some very basic steps. Let us explain in brief how to get the best possible system and star rating for your property.

What is it?

The star rating relates to the efficiency of the heating system, on a scale of 1 star (less efficient) to 6 stars (most efficient).

In order to claim the Renewable Heat Incentive (RHI) the system must be at least a 2 star system. The amount of RHI paid is directly linked to the efficiency (in the Heat Emitter Guide (HEG) this is referred to as the seasonal performance factor, or SPF). The SPF is calculated based on the type of heat emitter installed, specific room heat loss and heat pump flow temperature.

Heat emitters in the HEG fall into three categories: Radiators; underfloor heating in screed; underfloor heating with aluminium panels. The radiator category is further sub-divided into domestic fan convectors/fan assisted radiators (like the Jaga DBE), standard radiators (like the Stelrad compact), fan coils units (like Myson high line RC heaters).

Underfloor heating performance is affected by the type of floor covering and pipe centres. Tiles, stone and ceramic coverings conduct the heat better than wood coverings, which in turn conducts the heat better than a carpet covering, therefore meaning that a floor with tiles can get away with wider pipe centres compared with carpets. This doesn't mean that carpets cannot be used, you just need to be aware of the impact of using them. The closer pipe centres mean more heat output, greater efficiency but at a greater cost.

The room specific heat loss is dependent on levels of insulation, type of glazing and things like open flues, extract fans and the like, and the floor area. The lower the specific heat loss the lower amount of heat that is need to replace it in order to maintain the rooms temperature, this in turn means that the heat emitter can be smaller, or use wider pipe spacings.

New builds

When you are designing your new build property and looking to use a ground source heat pump, follow these basic steps as a guide to a better star rating.

1. **Insulate your property as well as you can.** Reducing the heat lost from your house could reduce the initial size of the heat pump and the amount of ground required (cheaper initial outlay and installation costs). Your running costs will also be reduced over the lifetime of the installation, and potentially higher returns through the RHI.
2. **Install the biggest heat emitters (radiators) or closest pipe centres possible.** Underfloor heating is normally more efficient than a standard radiator system, because underfloor heating (UFH) has a larger surface area than any radiator. this means that the heat pump can be run at a lower (cheaper) temperature using UFH. However a radiator system can easily be made more efficient; the larger the radiators (physical size and/or number of panels), the lower the flow temperature that the heat pump can operate at, resulting in running cost savings, improved system efficiency and better RHI payments.
3. **Use the right floor covering.** Using underfloor heating is such a great option however it will be almost useless if you then smother it in underlay and carpet; it is similar to installing a large radiator and boxing it in and putting a blanket on it, why would you? You would then need to turn the temperature right up (expensive) to heat the room.



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Existing properties

The same rules apply when you are designing a system for an existing property.

1. **Insulate your property as well as you realistically can.** Reducing the heat lost from your house could reduce the initial size of the heat pump and the amount of ground required (cheaper initial outlay and installation costs). Your running costs will also be reduced over the lifetime of the installation, and potentially higher returns through the RHI.
2. **Oversize your radiators according to your budget.** Over sizing your radiators by 6.8 times to get a 6 star system will cost you a small fortune and will probably take up most of your wall space within each room. With a radiator system on a retrofit property aim to achieve a realistic 3 or 4 star system. Check your existing radiator outputs; back when your system was initially installed there is a very big chance your radiators were oversized for your not very well insulated house. You may well find that since you have added new windows and loft and cavity wall insulation that your radiators are now sufficient for a heat pump.
3. **Add extra radiators to your system instead of replacing them.** Adding extra radiators can easily increase the output within a room, it's always much cheaper to keep the existing system and add extra radiators where there are shortfalls.

Be aware

It is important to note that your RHI payments are always based around the least efficient room. So even if you have one 1 star room in a property that is mostly 6 star, you will only receive RHI payments for a 1 star system because of that poor performing 1 star room. So it is important to always up the efficiency of all heated rooms/areas.

Something else to be aware of is bathrooms almost always are the worst performing rooms due to higher room temperatures and generally smaller floor areas; it is rooms like bathrooms and en-suites that need to be looked at carefully. If you need any assistance please call Kensa's technical team.

For more information, we recommend you follow the link below and download a copy of the Heat Emitter Guide (HEG) and start to learn its value - this will save you money in both the short and the long term:

http://www.kensaheatpumps.com/media_file/heat-emitter-guide-for-domestic-heat-pumps/

The HEG has been produced by different trade associations representing heat pumps and heat pump technologies and is supported by the Department of Energy & Climate Change (DECC) and the Energy Savings Trust (EST).

One final thing...

This is a recent quotation from a very satisfied customer, Daniel Payne, demonstrating the significance of star ratings:

"I worked really hard with Kensa to get the sizing right and I'm confident we've made the system as efficient as possible. My heating bills dropped so much this spring that I actually called Kensa to check that the system was working properly because I couldn't believe how cost effective it was!"