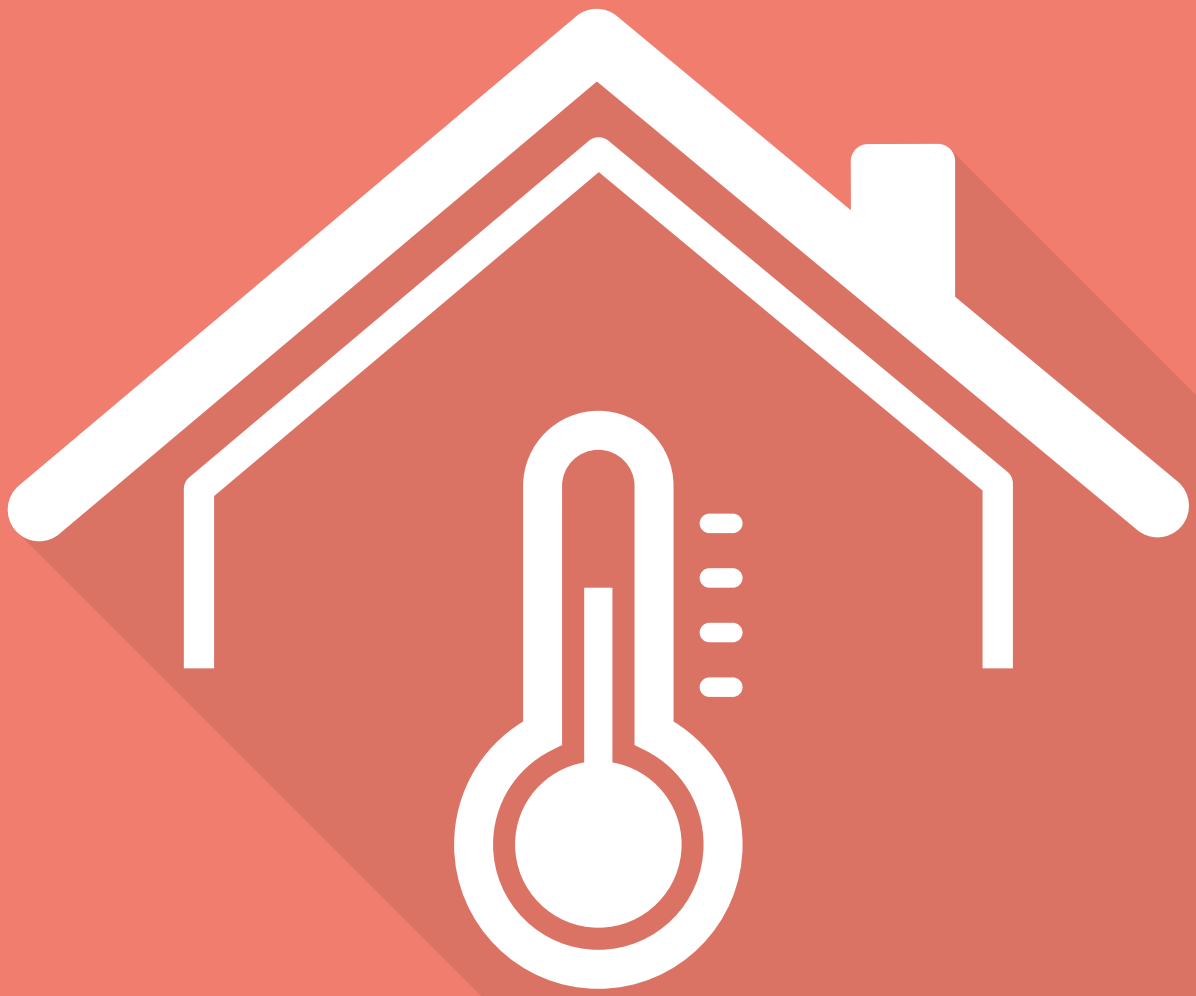
KURVE TECHNOLOGIES

A Residents Guide to Heating

Energy efficiency without compromising comfort



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HEATING IN NEW BUILD APARTMENTS

As new buildings are better insulated, often with double or triple glazed windows, there will be less heat loss. With less heat escaping the fabric of your home, less heat is required to keep your home at a comfortable temperature.

Consequently, lower temperatures are required in the radiators. This translates to a greater energy efficiency and lower energy bills. Because of this you may experience your radiators and underfloor heating feeling colder than you are used to.

HEATING IN OLDER BUILDINGS

Generally, modern heating systems will operate with lower temperatures than you may be used to. It can sometimes take a little longer to heat up your home. It is therefore best to avoid ON/OFF heating and instead set the room temperature lower (setback) when it would otherwise be OFF.

Use setback temperatures of no lower than 16°C. This will reduce the time and energy spent on re-heating the fabric of your home.

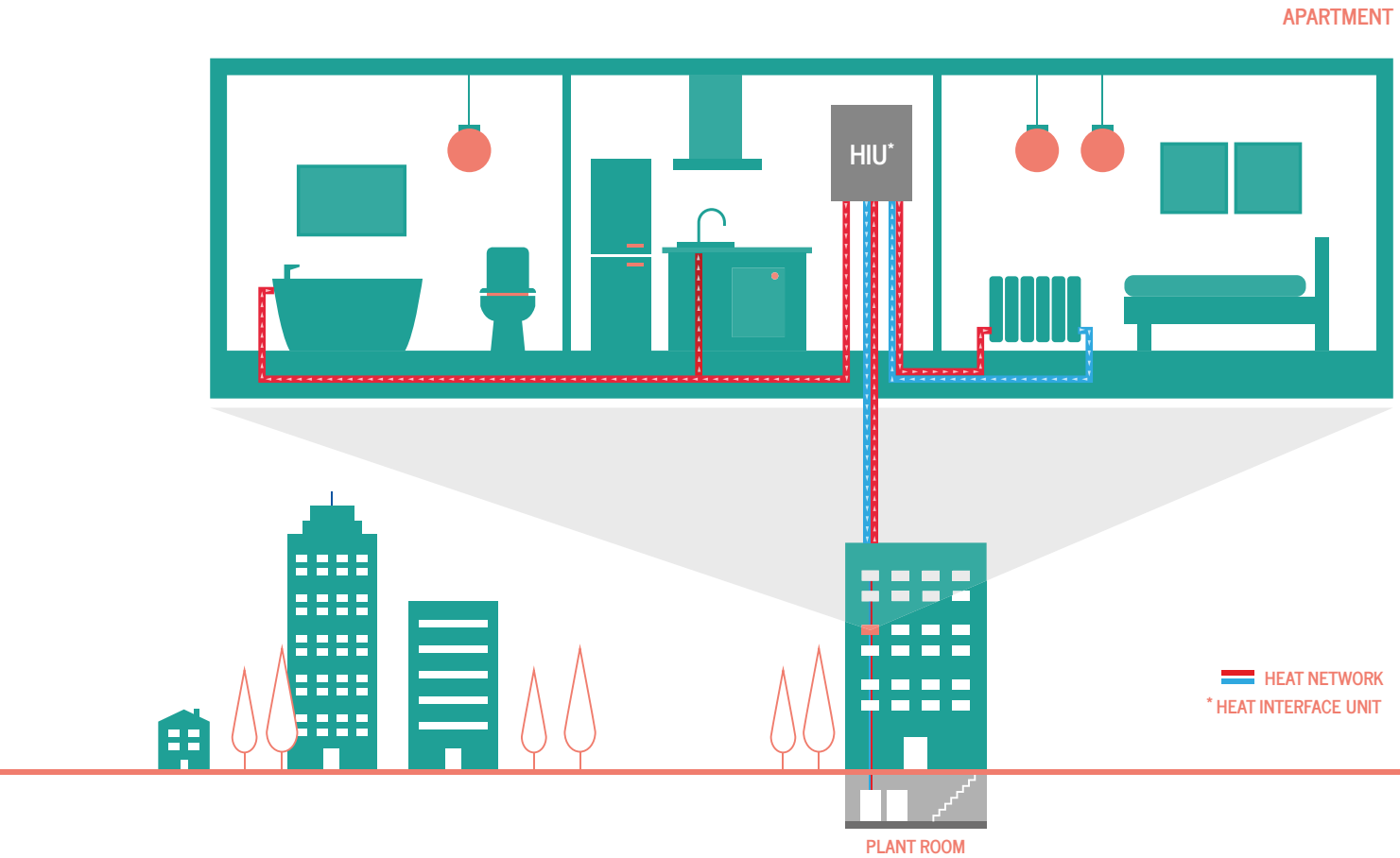
INTRODUCTION

WHAT IS A HEAT NETWORK OR COMMUNAL HEATING?

A heat network or communal heating system is designed to offer low-cost and low-carbon heat through the integration of renewable technologies and the utilisation of waste heat sources. These will typically supply heat to several homes within a building. The systems requires a plant room (often located in the basement of the building) which generates, and pumps heated water (heat network water) throughout the building via a series of pipes to the Heat Interface Unit (HIU) in the home.

HOW DOES IT WORK?

The HIU, located within each home, transfers the heat from the heat network water to the home. Once the heat has been transferred, the "cooled" heat network water returns to the plant room where it is again heated and sent out. The heat network water therefore circulates in a closed piping system and is continuously recycled.



Note: An HIU does not generate heat, but rather transfers heat from the network to your home.

HOW DO I **CONTROL** MY HEATING SYSTEM?

WALL MOUNTED ROOM THERMOSTATS:

Wall mounted room thermostats tell the pump when heating is required, essentially switching on the pump inside the HIU and then pumping more hot water to the radiators or underfloor heating systems.

In large apartments, you may have more than one wall mounted room thermostat. This means that the heating has been divided up into heating zones. Heating needs can then be scheduled separately within these zones.

Top tip!

Try setting the heating schedule to suit your needs. This could be by reducing room temperatures (set-back feature) while you are away, at work or at night, and setting the thermostat to holiday mode if you are away for extended periods of time.

N.B. If there is an electronic programmable wall mounted room thermostat, it is this that controls the scheduling of heating in the whole apartment, but it is the thermostatic radiator valve that controls the individual room temperature.

THERMOSTATIC RADIATOR VALVES (TRVS):

In rooms without wall mounted room thermostats, it is the TRVs that control the heat in the individual rooms.

TRVs have an inbuilt temperature sensor and they make sure that the room is always at your desired temperature. If it is cold outside, they automatically make sure that the heat in the radiators is turned up. Vice versa, the heat will be reduced should there be internal heat gains e.g. from people in the room or the sun shining in. If you think your radiators are colder than they used to be, try checking the temperature in the room with a thermometer.

I	✳	1	2	3	4	5	I
5°C	7.5°C	13°C	17°C	20°C	23°C	26°C	28°C

Note: The numbers on a TRV correspond to an approximate room temperature setting of 7-28°C.

HOW DO I **CONTROL** MY HEATING SYSTEM?

RECOMMENDED ROOM TEMPERATURES

Try setting the below temperatures in your apartment, either on the wall mounted thermostatic sensor or the TRV:

Bathroom	22 - 24°C	Approx. TRV setting 4-5
Living Room	21 - 22°C	Approx. TRV setting 3-4
Kitchen	18 - 19°C	Approx. TRV setting 2-3
Bedroom	16 - 18°C	Approx. TRV setting 2

Top tip!

Lowering your room temperature by just 1°C can save you 5% on your heating bill.

UNDERFLOOR HEATING (UFH)

UFH is relatively slow responding and takes longer to heat up the apartment. So to keep the most comfortable temperatures the UFH should ideally be kept on consistently, apart from when you are away for longer periods, such as a weekend. The wall-mounted room thermostats will automatically control the temperature in the apartment, switching the heating on and off to keep the desired room temperature.

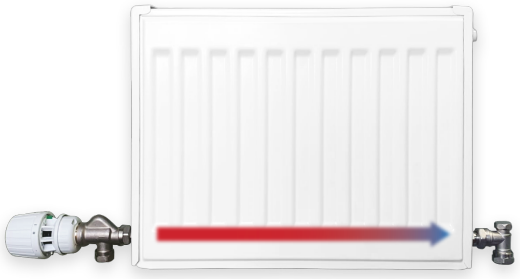
HOW ARE YOUR RADIATOR VALVES CONNECTED?

Radiators used to have both connections in the bottom of the radiator (BBOE, see diagram), often with high temperatures (82°C) running through the radiator and with no control of the rate of flow.

By having one connection in the top of the radiator and the other in the bottom (TBOE) and controlling the flow through the radiator we can maximise the energy (heat) delivered to the room. This is called cooling; the water is cooled when the heat has been successfully transferred from the water in the radiator to the room.

Top tip!

Radiators connected TBOE provide a higher heat output of up to 15%!



Bottom Bottom Opposite Ends (BBOE)

Top Bottom Opposite Ends (TBOE)

N.B. To reduce excessive energy usage, modern heating systems are sized to specific temperature sets. This may mean that you won't be able to achieve very high room temperatures during the coldest days of the year.

CARE AND MAINTENANCE

HOW WILL I KNOW IF THE FLOW THROUGH MY RADIATOR IS CONTROLLED?

Your radiator should feel warm at the end where the radiator valve is installed and cool at the opposite end. This means that all the heat in the radiator has been transferred into the room. If the radiator is the same temperature all over then it has not been balanced correctly and will not be efficient.

TAKING CARE OF YOUR HEATING SYSTEM

It is important to bear in mind that, like a car, if your heating system has been turned off for an extended period (i.e., over the summer) it may require some simple procedures to make sure it continues to run and to prevent service and maintenance visits. If the pump has been switched off during the summer, scale may cause it to stick. It is therefore a good idea to "exercise" the pump periodically.

HOW TO "EXERCISE" YOUR PUMP

Turn the wall mounted room thermostat to the maximum temperature. It will call for heat and turn the pump on. Leave it running for 15 minutes before switching off the heating again using the wall mounted room thermostat. During the summer period, you can program your wall mounted room thermostat to do this once a week during the night or while you are away to avoid discomfort.

If the pump does not turn on you will have to contact your building services/maintenance provider.

TROUBLESHOOTING YOUR RADIATORS

If you have one or more radiators that are cold and have no heat entering them, then there may be three causes:

1. STUCK TRV SPINDLE

Sometimes the spindle on the radiator valve can get stuck, which means that the flow through the radiator could be restricted.

2. BLOCKED TRV

Because the flow has been restricted through the radiator to maximise the heat efficiency, the opening (orifice) of the TRVs can be small. Debris from radiators may therefore occasionally get stuck.

3. AIR

In periods where heating is not required, air pockets can form which may prevent the water flowing through the radiator.

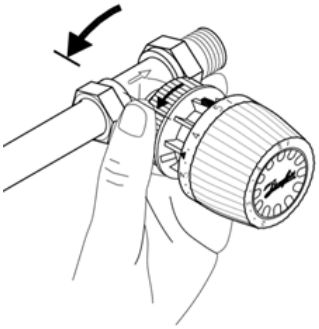
Follow the proceeding set of instructions on page 8 to troubleshoot these issues.

TROUBLESHOOTING YOUR RADIATORS

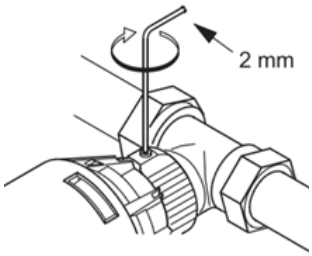
Turn the wall mounted room thermostat to the maximum temperature and check that the pump is on. It may take a few minutes for the pump to turn on. If the pump does not turn on you will have to contact your building services or maintenance provider.

N.B. Do not change any settings on the pump.

N.B. The wall mounted room thermostat may be battery powered; without power you cannot turn your heating on.



FOLLOW THESE STEPS TO UN-STICK THE SPINDLE

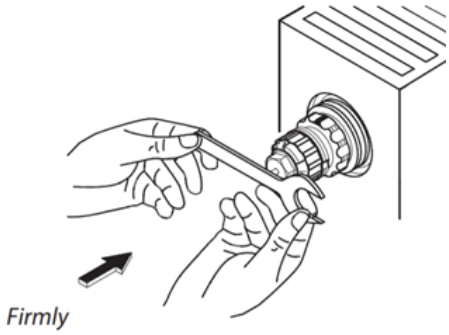


1. Wait for 30 minutes to allow for the heat to circulate round your heating system.

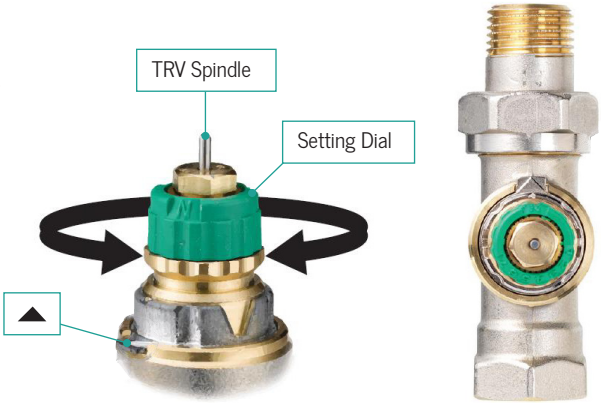
2. Identify problematic radiator(s) and remove the white thermostatic sensor head from the radiator valve, either by using an Allen key to loosen the screw or by holding the base of the thermostatic sensor head and twisting gently until it clicks and pops off.

3. Gently knock the side of the radiator valve with a small spanner or Allen key.

4. Push the spindle up and down until it begins to loosen and moves easily.



IF HEAT DOES NOT ENTER THE RADIATOR, THEN THE RADIATOR VALVE MAY BE BLOCKED



5. Make note of the setting on the green dial adjacent to the silver arrow (e.g. 3) on the radiator valve.

6. Turn the flow setting to fully open (position N on the dial) for 10 seconds. The radiator valve will then be flushed.

TROUBLESHOOTING YOUR RADIATORS

7. Return the green dial to the original setting.

   N.B. It is important to set the radiator valve to the original setting otherwise you will have too much flow going through your radiator which may result in increased heat usage and discomfort.

8. Replace the head after either by tightening the Allen key or via the snap-on function.

THE FOLLOWING STEPS ARE FOR REMOVING AIR FROM YOUR HEATING SYSTEM

9. Ensure that the heating has been on for at least 30 minutes or until the system is fully hot.

10. Switch the heating off via the wall mounted room thermostat, by turning down the temperature and leave the air within the system to settle for an hour.

11. Open the air vent on the top corner of the radiator using a radiator key. While holding a cloth under, turn the radiator key anti-clockwise to open.

12. Air will leave the radiator with a hissing or spluttering sound.

13. When there is no more air, water will start to come out and it is therefore important to close the air vent as quickly as possible by turning clockwise.

14. After removing the air from the radiators, check the pressure gauge on the front face of the HIU. The pressure should be between 1 and 2 (1.5 Bar). If the pressure is below 1 you will have to contact your building services or maintenance provider to re-pressurize and re-fill your space heating system.

15. If the heating system is correctly pressurized, turn the room thermostat on. Heat should now enter all radiators.

    If the previous steps did not solve the issue of "cold" radiators you will have to contact your building services or maintenance provider.

ENERGY SAVING TIPS

We've found that KURVE users who regularly check their consumption screens and monitor their energy use, can reduce their energy consumption by up to 24% through energy conscious behaviour.

ENERGY SAVING TIPS

HAVE A BLANKET ON THE SOFA

When sitting still and watching TV, we will get colder faster.
To avoid having to turn the heating up have a cosy woollen blanket ready on the sofa.

USE ALL RADIATORS

If you have more than one radiator in a room, it is more efficient to have them all set to the same temperature setting.

WASHING UP

Modern day dishwashing liquids are fully capable of cleaning sufficiently at lukewarm temperatures, such as the ones you might use to wash your hands.

NEVER BELOW 16°C

As a rule of thumb, it is a good idea to keep at least 16°C in all rooms. If you let the temperature fall below this, it can cause mould, which may damage your home or make you sick. Exposure to indoor dampness and fungal contamination has been associated with a 30% to 50% increased risk of asthma.

AVOIDING MOULD

To avoid mould, bedrooms that are kept colder during the night should be reheated during the day. Bathrooms that are cold during the day (because the window is left open) should be reheated during the night.

TAKE SHORT SHOWERS

Avoiding baths and keeping shower times to just 4 minutes can lower your energy bills by at least £95 a year.*

* Estimated annual savings for an average household. Source: Energy Saving Trust.

ENERGY SAVING TIPS

3°C SET BACK

In older buildings, lowering your room temperatures by just 3°C while you are away or during the night, may be more efficient than switching off the heating entirely.

1°C LOWER AT HOME

Lowering your set room temperatures by just 1°C can save you up to 5% on your heating bill.

DRY AIR IS CHEAPER

Ventilating will reduce moisture build-up by introducing dry air into the apartment. Dry air is quicker and easier to heat up, which means less energy spent and lower heating bills.

AIRING OUT

Air out 2-3 times a day for 5-10 minutes, making sure that all the radiator thermostats are closed. If they are open, they will start to call for heat and you will be wasting energy.

TOO MUCH MOISTURE

If you can see condensation or mould in the corner of your windows, then this is a sign of too much moisture in the room and you should ventilate more often.

OUTSIDE TEMPERATURES BELOW 17°C

Windows should only be open throughout the day if the outside temperature is above 17°C, otherwise the walls, surfaces and furniture will be cooled. This will take time and energy to heat up again, which may increase your heating bills.

ENERGY SAVING TIPS

DON'T COVER YOUR RADIATORS

Covering or blocking your radiators will stop the heat from getting out into the room. This will reduce the efficiency and increase your heating bills.

DON'T DRY CLOTHES ON YOUR RADIATORS

Avoid drying clothes on your radiators. Not only will this reduce the heat output and efficiency, but this will also expel a lot of moisture into the room which can cause mould. Exposure to indoor dampness and fungal contamination has been associated with a 30% to 50% increased risk of asthma.

TRY TO DRY YOUR CLOTHES OUTSIDE

In many cases, a cold, dry winter day causes clothes to dry faster than warm, humid summer days. Cold air tends to hold less humidity and be dryer.

FEEL YOUR RADIATORS

The radiator should feel lukewarm or even cold at the bottom connection where the water leaves the radiator (the opposite end to the thermostatic radiator valve). If the water is hot, then this means that you have not used all the heat available. This is inefficient and may mean that your heating bills are higher than they should be.

COMFORT WITH UFH

UFH is relatively slow responding, so to keep the most comfortable temperatures the UFH should be kept on for longer at low flow temperatures.

CLOSE THE DOORS

Different rooms have different uses, and so will require different temperatures. Closing the door between rooms will ensure the best comfort and energy savings.

ENERGY SAVING TIPS

CLOSE THE BLINDS

Closing blinds or curtains (that don't cover the radiators) during the night will help keep the cold out and the heat in. Don't forget to let the sunshine in the morning!

TOWEL RAILS

Towel rails are designed to dry towels and not to heat bathrooms, if you don't have a radiator and use them to heat the room, make sure that they are uncovered and used sparingly to avoid high energy bills.

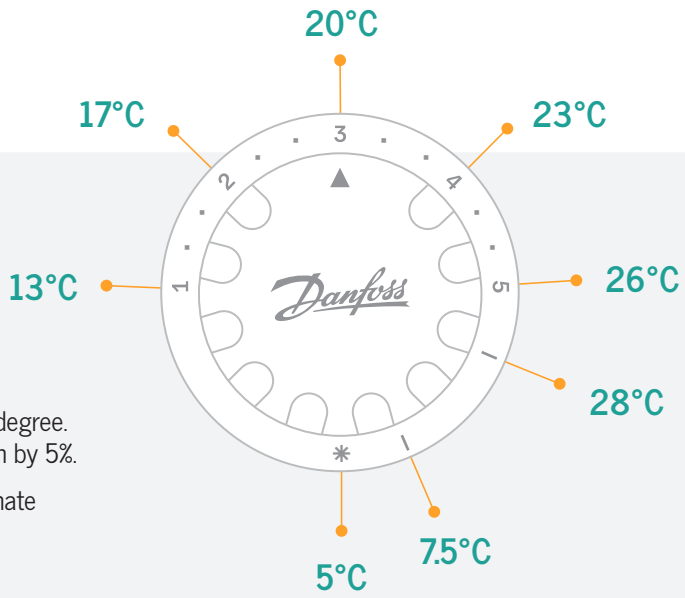
WHAT TEMPERATURE SHOULD MY BEDROOM BE?

Sleeping in a colder room can improve your sleep quality. Try setting your room temperature to 16-18°C, approximately setting 2 on your thermostatic radiator valve.

WHAT DO THE NUMBERS ON THE THERMOSTATIC RADIATOR VALVE ACTUALLY MEAN?

The lines between each number correspond to a single degree. Increasing by 1°C can increase your energy consumption by 5%.

Note: The numbers on a TRV correspond to an approximate room temperature setting between 7-28°C.



ENERGY SAVING TIPS

WHAT TEMPERATURE SHOULD MY KITCHEN BE?

Because we are moving about in the kitchen and the oven and electrical elements will give off heat, try setting your room temperature to 18-19°C, between setting 2 and 3 on your thermostatic radiator valve.

WHAT TEMPERATURE SHOULD MY LIVING ROOM BE?

In the living room we are often sitting still so we will get cold quicker. Try setting your room temperature to 20-22°C, between setting 3 and 4 on your thermostatic radiator valve.

WHAT TEMPERATURE SHOULD MY BATHROOM BE?

In the bathroom we are often lightly or unclothed so the temperature should be a little warmer. Try setting your room temperature to 23-24°C, approximately setting 4 on your thermostatic radiator valve.

18-19°C
Hallways, Corridors, Kitchens and Storage Rooms

16-18°C
Bedrooms

20-22°C
Living Rooms

22-24°C
Bathrooms

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Rev 1 2023