WORDS | Andrea Ball

WARM FRONT

From heat loss calculators to a rise in demand for electric, we take a look at the latest developments in the radiator market

Modern radiators now come in all shapes and sizes and a multitude of colours to match the latest interior design trends, but the main factor when deciding which model to install is its capacity – whether it will heat the space effectively.

"Whatever the heat source – whether that's a boiler or a heat pump – a radiator will provide the level of comfort required if it has been sized correctly," explains Chris Harvey, marketing director at Stelrad Radiators.

In low-temperature systems, radiator selection is no longer just about size or style — it directly affects system efficiency and performance. They require radiators designed to deliver high heat outputs at lower flow temperatures, while radiators with adaptive controls, open-window detection, fan assist, or integrated valves can also help to improve efficiency and comfort. The CIPHE's new guide to low-temperature hydronic heating systems provides practical advice designed to help with the transition (see box, opposite page).

Improving energy efficiency

Heating controls are key to reducing fuel consumption and lowering carbon emissions, specifically the room thermostat and thermostatic radiator valves (TRVs).

TRVs are a requirement of the Future Homes Standard (FHS) and smart electronic TRVs can provide even greater efficiency, with open-window detection, geo-fencing, presence detection and modulating control algorithms.

"According to test results published by BEAMA, compared to a standard timeclock Class I on/off room thermostat and manual radiator valves, adding TRVs demonstrated an average saving of 18% on fuel bills," says Chris Hone, sales director (GB) at Myson. "Upgrading the Class I room thermostat to a Class IV device with load compensation, or Class V/VI with load/weather compensation, resulted in additional average savings of 10% and 12%, respectively."

Accurate balancing of radiators is also important to ensure sufficient and proportionate heating to each room and changes to the building's fabric, such as improvements to the roof, doors, wall or window insulation, can potentially mean less heat demand per room.

Heat pumps

The government's Warm Homes Plan (see page 24) will offer funding for a range of green tech, including heat pumps, and is likely to further fuel the demand for low-temperature or heat pump radiators.

"Choosing the right radiators for an air source heat pump (ASHP) is fundamentally different from a traditional gas boiler system," says Hone.

"Choosing the right radiators for an ASHP is fundamentally different from a gas system"

Stelrad's Green Compact series is manufactured in the UK and made with recycled and renewably produced steel

"Radiators must deliver adequate heat at 35-55°C compared to traditional boiler temperatures of 70-80°C, so correct sizing is important.

"You must consider the output of the radiator at lower temperatures and the heat loss of the space it needs to heat. Without this, the room risks being too cold or the ASHP being very costly and inefficient to run."

Heat pump driven heating systems usually require larger capacity radiators. However, that doesn't necessarily mean bigger units: "Specifying a K3 size radiator – with three panels and three sets of fins – will provide an additional 50% of heat over a same size K2 radiator, for example, without increasing the radiator footprint.

"Many vertical radiators can provide increased metal surface to increase the heat generated and shared without detracting from the appearance of the unit or hugely increasing the size."

Electric radiators

The government's FHS mandates low-carbon heating systems and requires a maximum flow temperature of 55°C, but if an ASHP is not suitable, electric radiators can be an efficient alternative.

"Electric radiators offer great flexibility with instant control, either by individual unit or via zoned temperature control," explains Hone. "These models are ideal for apartments and high-rise buildings, and can be coupled with an exhaust air heat pump to provide an even more efficient system."

The latest generation of electric radiators have been built to operate with smart software, which enable homeowners to remotely control their heating systems.

"Electric radiators are particularly appealing for parts of the UK that are off grid," says Harvey. "We have also seen them being selected when an extension to an existing heating system may be complex or might result in the need to replace the boiler. They are ideal for conservatories or orangeries, and for loft conversions and extensions, as well as being selected by new homes developers keen to offer a fully electric environment."

Future trends

Alongside a rise in demand for electric radiators, Hone has seen a growing trend for pairing downstairs underfloor heating with upstairs radiators in new-build properties, tailoring the heating system to suit the building's layout and the occupants' lifestyle.

"Underfloor heating can easily be split into separate zones, while radiators can be installed freely in single rooms," he explains. "This allows the temperature to be adjusted in individual rooms based on specific needs and habits, enhancing energy efficiency."

Bathrooms are a great example of the benefits of a combined system: underfloor heating creates a consistently warm floor that's comfortable to walk on barefoot, and a radiator can boost the temperature, when needed.

Manufacturers are also looking at how to encourage customers to choose greener radiators that can reduce their overall carbon footprint by using carbon offset or green steel and providing an Environmental Product Declaration (EPD), which provides verified data about the environmental performance of a product over its lifecycle. "Many of our customers are seeking ways to reduce their impact on the environment," concludes Harvey. "We believe they will welcome these low carbon-emission radiators and want to incorporate them into upcoming projects."

Learn more from the CIPHE

The CIPHE'S new design guide – *An Introduction to Low-Temperature Hydronic Heating Systems* – includes an up-to-date section on sizing of heat emitters. All of the CIPHE guides can be purchased at special members-only prices through the CIPHE shop: ciphe.org.uk/members-and-shop/shop You will also find radiator calculation tools at stelradprofessional.com and myson.co.uk/calculators

For more on how to assess existing radiators for low temperatures in retrofit applications, visit: shorturl.at/ycCW2